



Biodiversity Net Gain Assessment

Willow Way, Sydenham, London, SE26 4QP

Kitewood Estates Ltd

Status	Issue	Name	Date
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Industry Guidelines and Standards

This report has been written with due consideration to:

- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management, Construction Industry Research and Information Association & Institute of Environmental Management and Assessment (2019). Biodiversity Net Gain – Good Practice Principles for Development.

Proportionality

The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.

The desk studies and field surveys undertaken to provide a Preliminary Ecological Appraisal (PEA) might in some cases be all that is necessary.

(BS 42020, 2013)

Executive Summary

The baseline habitat value of the site is 0.56 units, comprising buildings and hardstanding (no value) and 0.49 units of urban trees.

The post development habitat value of the site is 1.03 units, comprising the creation of buildings and hardstanding (no value), vegetated garden areas (0.05 units), green roofing (0.045 units), green walls (0.01 units) and 6 replacement and new urban trees (0.77 units)

This results in a net **GAIN** in biodiversity of 82.62%

A Biodiversity Net Gain (BNG) Management Plan must be produced for the site, which can be produced under condition. This should include recommendations for the implementation, management and monitoring of the site for at least 30 years to ensure that biodiversity net gain is delivered.

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1.0 Introduction and Context

Arbtech Consulting Limited was instructed by Kitewoo Estates Ltd to undertake a Biodiversity Net Gain (BNG) Assessment at Willow Way, Sydenham, London, SE26 4QP (hereafter referred to as “the site”). The assessment was required to inform a planning application to Lewisham Council (DC/22/129789) for the demolition of existing buildings and redevelopment of the site comprising a block rising to 5/6 storeys accommodating 1,401sqm of employment floorspace (Use Classes E(g)(i)(ii)(iii)) at ground and mezzanine floors and 60 residential units (Use Class C3) above, with associated landscaping, amenity areas, cycle, car parking and refuse/recycling stores (hereafter referred to as “the proposed development”). A plan showing the proposed development is provided in Appendix 1.

This report should be read in conjunction with the following documents:

- Defra Biodiversity Metric 4.0.
- Landscape Design Statement (Davis Landscape Architecture, 2022)
- PEA/Survey Report for the site (Ecosa, 2022).

1.2 Site Location, Geology and Landscape Context

The site is located at National Grid Reference TQ 3505 7214 and consists of hardstanding and buildings with some scattered trees, bound on the eastern and southern boundaries by a line of trees. It is surrounded by roads and urban development with some pockets of green space within the wider landscape, including local nature reserve Dacres Wood approximately 455 metres to the east of the site. Located approximately 620 metres to the north is Sydenham Hill wood which connects with a golf course to the north-west. A site location plan is provided in Appendix 2.

1.3 BNG Informative

BNG is a specific, measurable outcome of project activities that deliver demonstrable and quantifiable benefits to biodiversity compared to the baseline situation. In order to achieve BNG, a project must be able to demonstrate that it has followed all 10 of the Principles of Biodiversity Net Gain (as outlined in the *British Standard 8683:2021 Process for Designing and Implementing Biodiversity Net Gain*).

The legalised Environment Act (2021) requires developments in England to demonstrate a measurable net gain in biodiversity and sets a target of a minimum of 10% BNG for all developments. It also stipulates that a management plan with a minimum 30-year term, should be adopted to ensure biodiversity net gain can be delivered. The Environment Act (2021) is still in a transitional phase and is not expected to become mandatory until November 2023. However, the requirement for biodiversity net gain is also enshrined within the National Planning Policy Framework (NPPF, 2021).

The DEFRA Biodiversity Metric 4.0 is the widely accepted tool used to calculate BNG. It enables the calculation of habitat value pre- and post-development in order to determine the overall change in biodiversity value as a result of the proposed development. The Biodiversity Metric has separate BNG assessments for areas of habitat, hedgerows and watercourses.

The biodiversity value of a site should be maximised. However, it may not always be possible to achieve a 10% biodiversity net gain within a site and therefore the Biodiversity Metric 4.0 can also account for offsite habitat creation, where land is available. Alternatively, developers can seek to provide an agreed financial contribution to an appropriate third party (such as the Local Authority, the UK Government or another landowner) to deliver the required biodiversity net gain elsewhere on their behalf.

2.0 Methodology

2.1 Baseline Biodiversity Value

The baseline BNG Calculation was informed by the Preliminary Ecological Appraisal (PEA) (Ecosa, 2022). A baseline habitat plan is provided in Appendix 3.

Habitat Classification

The PEA classified the habitats on site according to the methodology set out in Phase 1 Habitat Survey Methodology (JNCC, 2010). For purposes of this BNG Calculation, identified habitats were translated to their equivalents in the UK Habitat Classification. This was achieved using a combination of The UK Habitat Classification Habitat Definitions Version 1.0 (The UK Habitat Classification Working Group, May 2018) and the Phase 1 Translation Tool included in the Biodiversity Metric 4.0 spreadsheet.

Habitat Area/Length

The area or length of each habitat was calculated using qGIS software. In calculating the area or length of each habitat, habitats which occur as two or more isolated parcels across the site were combined, where they were deemed to be of a similar composition and condition. Distinctions were made between habitats to be retained (i.e. left as found in baseline), enhanced (i.e. improved condition) or lost (i.e. destroyed by proposed development).

Areas of scattered trees were calculated using the Tree Helper tool within the Biodiversity Metric 4.0. Class sizes for urban trees are set out in Table 8-1 of the Biodiversity Metric 4.0 User Guide (Natural England, 2023).

Habitat Condition

Habitat condition was assessed using the relevant condition assessment sheets found in the Biodiversity Metric 4.0 User Guide (Natural England, 2023).

Strategic Significance

Strategic significance was assigned for each habitat based upon a review of the following:

- Ecological value
- Function within the landscape
- Any site or habitat allocations under the upcoming Lewisham Local Plan and Lewisham Biodiversity Action Plan (A Natural Renaissance for Lewisham 2021 – 2026) which supports the Parks and open spaces strategy 2020–2025.

2.2 Post Development Biodiversity Value

- The post development BNG Calculation was informed by Landscape Design Statement (Davis Landscape Architecture, 2022) which is included in Appendix 1. A post development habitat plan is provided in Appendix 4.

Habitat Classification

Proposed habitats were translated to their equivalents in the UK Habitat Classification using The UK Habitat Classification Habitat Definitions Version 1.0 (The UK Habitat Classification Working Group, May 2018) and the information provided within the Landscape Design Statement.

Habitat Area/Length

The area or length of each proposed habitat was calculated using qGIS software. In calculating the area or length of each habitat, habitats which occur as two or more isolated parcels across the site were combined, where they were deemed to be of similar composition and condition. Distinctions were made between habitats to be retained (i.e. left as found in baseline), enhanced (i.e. improved condition) or newly created.

Areas of scattered trees were calculated using the Tree Helper tool within the Biodiversity Metric 4.0. Class sizes for urban trees are set out in Table 8-1 of the Biodiversity Metric 4.0 User Guide (Natural England, 2023).

Habitat Condition

Target habitat condition for each proposed habitat was determined assessed using the Temporal Multipliers Tool and the Enhancement Temporal Multipliers Tool included in the Biodiversity Metric 4.0 spreadsheet as well as the relevant condition assessment sheets found in the Biodiversity Metric 4.0 User Guide (Natural England, 2023). This is based on the assumption that a 30-year management plan or another Ecological Management Plan will be adopted for the site.

Strategic Significance

Strategic significance was assigned for each proposed habitat based upon a review of the following:

- Likely ecological value
- Function within the landscape
- Any site or habitat allocations under the upcoming Lewisham Local Plan and Lewisham Biodiversity Action Plan (A Natural Renaissance for Lewisham 2021 – 2026) which supports the Parks and open spaces strategy 2020–2025.

2.3 Limitations

No site visit was undertaken by the author. Thus the assessment assumes all data contained within the PEA is accurate and up to date

3.0 Results

3.1 Baseline Habitats

Table 1 details the baseline habitats present within the site along with their area/length, condition and strategic significance. A full condition assessment for each habitat (where relevant) is included.

Table 1: Baseline Biodiversity Value

Habitat	Area ha / Length km	Description	Condition Assessment	Strategic Significance
Urban trees	0.1221	Three medium and two small trees are present along the sites western boundary. These are sited within planting beds encircled by paving. The soil around their root zones appears to be compacted, which may impact tree health, however photographic evidence suggest they have not been particularly damaged by human activity and are not subject to pruning regimes.	<p>Condition assessment Criteria:</p> <ol style="list-style-type: none"> 1. A The tree is a native species (or at least 70% within the block are native species FAIL 2. B Tree canopy is predominantly continuous with gaps in canopy making up <10% of total area and no individual gap being >5m wide (individual trees automatically pass this criterion). FAIL 3. C The tree is mature (or more than 50% within the block are mature). FAIL 4. D There is little to no evidence of adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). There is no current regular pruning regime so the trees retain >75% of the expected canopy for their age range and height. PASS 5. E Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark. FAIL 6. F More than 20% of the tree canopy is oversailing other vegetation beneath. FAIL <p>Passes 5 or 6 of 6 criteria = GOOD (3) Passes 3 or 4 of 6 criteria = MODERATE (2) Passes 0, 1 or 2 of 6 criteria = POOR (1)</p> <p>The trees as a group pass 1 out of 6 criteria and are therefore assessed as being in POOR condition.</p>	High. Formally identified in local strategy as priority habitat.

Developed land; sealed surface	0.218	The entire site comprises hard standings and buildings.	Condition assessment set at POOR for developed land, sealed surface	Low strategic significance. Area/compensation not in local strategy/ no local strategy
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3.2 Post Development Habitats

Table 2 details the post development habitats present within the site along with their area/length, condition and strategic significance. An assessment of the anticipated condition for each habitat (where relevant) is provided in Appendix 5b, which is based on the assumption that a 30-year management plan will be implemented for the site. The proposed development will result in the loss of existing buildings and hard standing and the loss of five category C, low value trees.

Table 2: Post Development Biodiversity Value

Habitat	Area / Length ha/km	Description	Target Condition	Strategic Significance
Urban tree	0.2199	<p>6 replacement and new trees will be planted in a linear group above vegetation to the north east of the site with one in the planted southern corner, all of which will be native or from the RHS Plants for Pollinators list of plants to ensure provision of wildlife and ecological benefits.</p> <p>These will comprise birch, rowan (Shearwater seedling), crab apple and an ornamental apple.</p>	<p>Condition assessment Criteria:</p> <p>7. A The tree is a native species (or at least 70% within the block are native species) PASS</p> <p>8. B Tree canopy is predominantly continuous with gaps in canopy making up <10% of total area and no individual gap being >5m wide (individual trees automatically pass this criterion). PASS</p> <p>9. C The tree is mature (or more than 50% within the block are mature). PASS</p> <p>10. D There is little to no evidence of adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). There is no current regular pruning regime so the trees retain >75% of the expected canopy for their age range and height. FAIL</p> <p>11. E Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark FAIL</p> <p>12. F More than 20% of the tree canopy is oversailing other vegetation beneath. PASS</p>	High. Formally identified in local strategy as priority habitat.

			<p>Passes 5 or 6 of 6 criteria = GOOD (3) Passes 3 or 4 of 6 criteria = MODERATE (2) Passes 0, 1 or 2 of 6 criteria = POOR (1)</p> <p>In approximately 27 years the trees on site are anticipated to achieve MODERATE condition due to being likely to pass 4 out of 6 criteria under the assumption that an appropriate management regime is adhered to at least initially as the trees become established but factoring in the risk of management lapses. Maturity is anticipated relatively rapidly due to the species selected.</p>	
Vegetated garden	0.027	<p>The area of flower-rich grassland proposed to the rear of this building is to be maintained to maximise wildlife benefits as well as visually pleasing.</p> <p>Ground cover planting is proposed to the far southwest to comprise <i>Sarcococca confusa</i>, <i>Geranium macrorrhizum</i>, <i>Euphorbia amygdaloides</i>, <i>robbiae</i></p>	<p>Condition Assessment N/A</p> <p>This would be one cut a year after the flower-rich grassland has flowered, in late July to August.</p>	<p>Low strategic significance. Area/compensation not in local strategy/ no local strategy</p>
Intensive green roof	0.045	<p>The roof terrace spaces contain both vegetation and recreational features and are enclosed by a raised planter. A significant number of the plant species selected have been included to provide wildlife benefits. These plant species have been selected from the RHS Perfect for Pollinators list of plants and include <i>Geranium</i>, <i>Rudbeckia</i>, <i>Sarcococca</i>, <i>Origanum</i>, <i>Phlomis</i>, <i>Perovskia</i> and <i>Nepeta</i> species.</p>	<p>Urban Condition Assessment Criteria</p> <p>1 Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.</p> <p>PASS</p> <p>2 "There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife.</p> <p>NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife). Note that Biodiverse green roofs are exempt from this requirement and can include non-native sedums as set out in footnote 1. FAIL (due to non natives)</p>	<p>High strategic significance Living roofing in BAP.</p>

			<p>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)."</p> <p>PASS</p> <p>ADDITIONAL CRITERION – only applicable to green roof habitat types</p> <p>4c1 Intensive green roofs – have a minimum of 50% native and non-native wildflowers – 70% of the roof area is soil and vegetation (including water features).</p> <p>FAIL</p> <p>Essential criterion 2 & 3 achieved (must be achieved to score good condition for non-biodiverse green roofs (N))</p> <p>Passes 3 of 3 core criteria: AND</p> <p>Meets the requirements for food condition within criteria 2 & 3 AND</p> <p>Passes additional criteria for 4a or 4b = GOOD (3)</p> <p>Passes 2 or 3 or 4 criteria; OR passes 4 of 4 criteria but does not meet the requirements for good condition within criteria 2 and 3 = MODERATE (2)</p> <p>Passes 0 or 1 of 4 criteria = (POOR) 1</p> <p>The green roof is anticipated to meet 2 of 3 core criteria and fails criteria 4. It is assumed that non native species colonisation will be addressed as part of long terms site management. The habitat is assumed to achieve MODERATE condition in three years (according to the temporal multiplier).</p>	
Green wall		The proposed boundary to this rear space is to be the existing boundary wall reduced in height to 100mm above the proposed site level, topped with a 1200mm high mesh fence. Wildlife friendly climbers will be planted against this boundary, using the new fence as a support.	<p>Urban Condition Assessment Criteria</p> <p>1 Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone should not account for more than 80% of the total habitat area.</p> <p>PASS</p> <p>2 "There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife.</p> <p>NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife).</p> <p>FAIL (due to non native species)</p>	Low strategic significance. Area/compensation not in local strategy/ no local strategy

		The climbing plants suggested for the east and north east boundaries all a capable of providing food and habitat for our native fauna. The species selected will provide all year round interest in the form of flowers, fragrance and evergreen foliage in the form of Clematis cirrhosa, honeysuckle <i>Lonicera periclymenum</i> and ivy <i>Hedera colchica</i> .	<p>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)."</p> <p>PASS</p> <p>Passes 3 of 3 core criteria; AND Meets the requirements for good condition within criteria 2 and 3 = Good (3)</p> <p>Passes 2 of 3 core criteria; OR passes 3 of 3 core criteria but does not meet the requirements for good condition within criteria 2 and 3 = Moderate (2)</p> <p>Passes 0 or 1 of 3 core criteria = Poor (1)</p> <p>The habitat is anticipated to pass 2 our of three of the criteria, failing criteria 2 and is therefore assessed as likely to be in MODERATE condition in three years (according to the temporal multiplier).</p>	
Developed land sealed surface	0.14	Buildings and artificial surfaces.	N/A	Low strategic significance. Area/compensation not in local strategy/ no local strategy

3.3 Change in Biodiversity Value of the Site

Full details are provided in the Defra Biodiversity Metric 4.0.

Areas of Habitat

The baseline habitat value of the site is 0.56 units, comprising buildings and hardstanding (no value) and 0.49 units of urban trees.

The post development habitat value of the site is 1.03 units, comprising the creation of buildings and hardstanding (no value), vegetated garden areas (0.05 units), green roofing (0.045 units), green walls (0.01 units) and 6 replacement and new urban trees (0.77 units)

This results in a net **GAIN** in biodiversity of 82.62%

4.0 Recommendations to Deliver BNG

4.1 Discussion

The current proposed plan results in a 82.62% net gain in habitat units. This exceeds the 10% target of biodiversity net gain.

A Biodiversity Net Gain (BNG) Management Plan must be produced for the site. This should include recommendations for the implementation, management and monitoring of the site for at least 30 years to ensure that biodiversity net gain is delivered.

5.0 Bibliography

- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.
- CIEEM-CIRIA-IEMA (2019) Biodiversity Net Gain – Good Practice Principles for Development.
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Appendix 1: Proposed Development Plan



Appendix 2: Site Location Plan



Appendix 3: Baseline Habitat Plan



Appendix 4: Post Development Habitat Plan

