

71-73 CAVERSHAM ROAD, READING

BIODIVERSITY NET GAIN ASSESSMENT

A Report to: Quod

Report No: RT-MME-158559-02

Date: August 2022



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REPORT VERIFICATION AND DECLARATION OF COMPLIANCE

This study has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of practice for planning and development".

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The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

In July 2022, Quod commissioned Middlemarch Environmental Ltd to undertake a Biodiversity Net Gain Assessment associated with a proposed development at 71-73 Caversham Road, Reading. This assessment is required to inform an outline planning application for redevelopment of the site into a multi-storey apartment block with retail space.

Middlemarch Environmental has previously undertaken a Preliminary Ecological Appraisal (RT-MME-150997-01) at this site in 2019. An updated Preliminary Ecological Appraisal (RT-MME-158559-01) was undertaken in August 2022 to inform this assessment.

A Preliminary Roost Assessment of the disused warehouse building to be demolished (Building 1) was undertaken in January 2022 by Amphibian, Reptile & Mammal Conservation Limited.

Habitat enhancement and creation measures have been based on the Proposed Roof Plan provided by Quod which indicated the installation of green roof and landscaped areas. A final report will be issued once landscaping plans and specifications are confirmed, which will allow an accurate comparison to be made between the site's existing biodiversity value and the projected biodiversity value on completion of the scheme.

1.2 PROJECT SCOPE

The purpose of the Biodiversity Net Gain (BNG) Assessment is to identify the change in biodiversity value that may result from a change in land use (e.g. development) or management (e.g. biodiversity enhancement) at the site and to establish if a net gain for biodiversity can be achieved. The BNG Assessment utilises a biodiversity metric to provide a proxy measure of biodiversity based on habitat attributes, which can then be used to determine the relative change in biodiversity value resulting from any land use or management measures proposed.

It should be noted that the metric is only a proxy for biodiversity using habitat values and that any proposed enhancements should be designed using appropriate ecological expertise. Existing levels of protection afforded to protected species and to habitats are not changed by use of the metric and statutory obligations will still need to be satisfied. In addition, the metric cannot account for impacts on, or enhancements to, irreplaceable habitats or protected sites, which will need to be assessed separately.

1.3 SITE DESCRIPTION AND CONTEXT

The survey area is a rectangular shaped parcel of land approximately 0.17 ha in size, located to the west of Caversham Road in Reading. It was centred at National Grid Reference SU712740.

The site consists of a disused warehouse situated within the east and an office building situated within the west which is currently in use. The remainder of the site comprised of a hardstanding car park with some scattered introduced shrub at the peripheries of the hardstanding and along southern site boundary.

The surrounding landscape is urban with predominantly industrial buildings present on all sides. A small residential area is located to the west. Caversham Road borders the site to the east and Northfield Road borders the site to the north. Reading railway station and main trainline is present approximately 100 m to the south and the River Thames approximately 350 m to the north.

1.4 DESCRIPTION OF DEVELOPMENT

The proposed development will involve the demolition of the existing warehouse building in the east of the site and redevelopment into a multi-storey apartment block with retail space on the ground floor. The office building in the west of the site will not be impacted.

1.5 DOCUMENTATION PROVIDED

The conclusions and recommendations made in this report are based on information provided by the client regarding the scope of the project. Documentation made available by the client is listed in Table 1.1.

Document Name / Drawing Number	Author
Proposed Roof Plan MP_PL_1108 Rev P1	JTP Studio
Existing Site Plan MP_SW_1004	JTP Studio
Proposed Site Plan MP_SW_1001 Rev P1	JTP Studio

Table 1.1: Documentation Provided by Client

2. METHODOLOGY

2.1 HABITAT BASELINE

A baseline biodiversity value for the site was established through the Phase 1 Habitat Survey Report (RT-158559-01) carried out by Middlemarch Environmental Ltd in August 2022. A Phase 1 Habitat Plan showing the extent and location of each habitat recorded on site is included in Section 5 (Drawing C158559-01-01).

2.2 CALCULATION OF NET LOSS/GAIN

The biodiversity calculations were undertaken using 'The Biodiversity Metric 3.1' and associated User Guide¹ and Technical Supplement².

2.2.1 Calculating the On-Site Baseline

The site is separated into habitat parcels based on the Phase 1 Habitat Survey map (See Section 5). The metric differentiates between non-linear habitats (i.e., grassland, woodland) and linear habitats (i.e., hedgerows), for which a separate calculation is completed. The respective areas (in hectares) of each habitat parcel and respective lengths (in kilometres) of linear features are calculated in Geographical Information System (GIS) mapping software and entered into the calculator tool.

The Biodiversity Metric 3.1 calculator tool utilises the UK Habitat Classification System (UKHab) as the standard data input for habitats. The Phase 1 Habitat Survey data for the site was subsequently converted for the purposes of the metric calculation using the Phase 1 habitats to UKHab translation feature included in the Biodiversity Metric 3.1 calculator tool or professional opinion.

Each habitat or linear feature recorded within the site is assigned a score for 'Distinctiveness', 'Condition' and 'Strategic Significance':

- **Distinctiveness** – An automated score based on the type of habitat present and its value to wildlife. Highly diverse habitats such as those listed as Habitats of Principal Importance under the NERC Act (2006) or Annex 1 habitats in the Habitats Directive (1992) score highly in this category whilst highly modified and low diversity habitats such as arable crops will have low distinctiveness scores.
- **Condition** – A score based on the quality of the habitat parcel. The habitat condition assessment was completed during the updated site walkover assessment, details of the habitat conditions are provided within Appendix B; and,
- **Strategic significance** – A score based on information set out in local plans or policies. In this instance, a strategic location was defined as areas identified as Biodiversity Opportunity Areas, Identified on the Reading Biodiversity Action Plan³ or the Green Network in the Reading Borough Local Plan 2019-2036⁴.

The value of each habitat parcel (or linear feature) is presented in terms of habitat (or hedgerow/river) 'units'.

2.2.2 Calculating the Post-Development Changes

The future baseline conditions of the site are based on the Proposed Roof Plan provided by Quod and as adapted by Middlemarch Environmental Ltd for the purposes of the assessment (see Drawing C158559-01-02 in Section 5). The future baseline is initially overlaid on the existing baseline to calculate the area of habitats to be lost, retained or retained and enhanced. This is used to calculate the gross biodiversity change at the site.

New target habitat 'distinctiveness' and 'condition' values are subsequently assigned for lost or retained habitats, taking account of any planting plans or habitat creation and management proposals detailed for these features. The areas (or lengths) of these new target habitats are entered into the calculator and are

¹ Panks, S., White, N., Newsome, A., Potter, J., Heyton, M., Mayhew, E., Alvarez, M., Russell, T., Scott, S.J., Heaver, M., Scott, S.H., Treweek, J., Butcher, B. and Stone, D. (2021) *The Biodiversity Metric 3.1 – Auditing and accounting for biodiversity: User Guide*. Natural England.

² Panks, S., White, N., Newsome, A., Potter, J., Heyton, M., Mayhew, E., Alvarez, M., Russell, T., Scott, S.J., Heaver, M., Scott, S.H., Treweek, J., Butcher, B. and Stone, D. (2021) *The Biodiversity Metric 3.1 – Auditing and accounting for biodiversity: Technical Supplement*. Natural England.

³ Reading Biodiversity Action Plan (2021). Available <https://images.reading.gov.uk/2021/03/Reading-Biodiversity-Action-Plan-2021.pdf>

⁴ Reading Borough Local Plan (2019). Available https://images.reading.gov.uk/2019/12/Local_Plan_Adopted_November_2019.pdf

assigned a predicted score for their 'Strategic Significance'. As the calculation of target habitats requires some degree of prediction based on professional judgement, additional risk factors are included in the calculation to account for the difficulty in restoring or creating habitats and the time it takes for enhanced or created habitats to reach their predicted condition.

Following the calculation of the existing and future biodiversity value of the site, a calculation of the net biodiversity change is carried out to determine the 'Post-intervention habitat', along with a figure for the percentage of net biodiversity impact loss (or gain).

2.2.3 Constraints and Assumptions

The following constraints and assumptions are applied to this report:

- For the purposes of this report, the term 'Habitat Loss' is applied to proposals that result in a change of habitat type or habitat 'distinctiveness'. This is defined in the Biodiversity Metric even where the new habitat type is created without any physical loss of the previous habitat type (e.g. creation of scrub over grassland). 'Habitat Enhancement' is applied where the habitat type and 'distinctiveness' remains the same, but the 'condition' of the habitat is improved.
- The BNG Assessment necessitates an estimation of future baseline values, based on professional opinion, to determine the change in biodiversity value that could occur as a result of the proposals at the site. The assumptions about target habitat types or condition in this report is based on professional opinion about the likely achievable outcomes at the site based on the proposed planting plans and presumed management resources. All target habitats presume the implementation of a long-term Management Plan to achieve these ends and a recommendation to this effect is given in Section 4 below.
- Potential landscaping options have been discussed with Quod. Options considered in this report detail what, in principal could be achieved, to determine if a biodiversity net gain could be achieved on site. However, an updated Biodiversity Net Gain Assessment would be needed to establish once the final landscaping scheme has been completed to determine whether the assumptions in this report have been fulfilled. A recommendation to this effect is included in Section 4.

3. ECOLOGICAL BASELINE AND IMPACT ASSESSMENT

3.1 EXISTING HABITATS

The habitats identified during the Phase 1 Habitat Survey are described in Table 3.1 and their value in biodiversity units provided. The current extent of the habitats present is shown in Drawing C158559-01-01 in Section 5. The baseline metric calculations are provided in Appendix A.

Phase 1 Habitat	UKHabs Habitat	Area (ha)/ Length (km)	Description (distinctiveness, condition and strategic significance)	Value (Biodiversity Units)
Area Based Habitats				
Hardstanding and the built environment	Urban: Developed land; sealed surface	0.17	This habitat is automatically classed as being of 'Very Low' distinctiveness and does not have a condition score. The habitat lies outside of any identified strategic area.	0.00
Total Area (ha)		0.17	Total Site Baseline (Biodiversity Units)	0.00

Table 3.1: Summary of Existing Habitats

3.2 DEVELOPMENT PROPOSALS AND ASSESSMENT OF IMPACTS

3.2.1 Description of the future baseline

The future baseline for the purposes of this assessment are set out in the Proposed Roof Plan provided by Quod (Drawing Number MP_PL_1108 Rev P1). As there are no specific planting/landscape specification for the site the proposed landscaping is based on the Proposed Roof Plan and conversations with Quod. Therefore, for the purposes of this assessment the planting indicated on the plan has been assessed as introduced shrub. The biosolar roof has been assessed as a biodiverse green roof habitat after Quod confirmed the criteria for this habitat is achievable.

An adapted version of the Proposed Roof Plan map is included in Section 5 showing how each landscaping area has been translated to a habitat type for the purpose of the BNG assessment.

3.2.2 Impacts

Table 3.2 outlines the potential biodiversity impacts of the proposed development. The losses given represent the gross change in biodiversity value associated with the proposals.

Phase 1 Habitat	UKHab Habitat	Habitats Retained		Habitat retained for Enhancement		Habitat Loss	
		Area/Length (Ha/Km)	Value (BU)	Area/Length (Ha/Km)	Value (BU)	Area/Length (Ha/Km)	Value (BU)
Area based Habitats							
Hardstanding and the built environment	Urban: Developed land; sealed surface	0.03	0.00	0.00	0.00	0.14	0.00
Total Impact (Area habitats)		0.03	0.00	0.00	0.00	0.14	0.00
Notes: †Biodiversity Units are provided by the Biodiversity Metric 3.1 Auditing and Accounting for Biodiversity Calculation Tool. Any apparent calculation errors may be from unseen rounding anomalies.							

Table 3.2: Summary of Gross Impacts

3.3 HABITAT CREATION

Table 3.3 below outlines the value of the proposed habitat creation/ enhancements measures in the development proposals.

Landscape typology	UKHab Habitat	Area (ha)	Description (target distinctiveness, condition, strategic significance and risk multipliers)	Value (Biodiversity Units)
Habitats				
Hardstanding and buildings	Developed land: Sealed surface	0.14	Comprises the new area of built development (buildings and hardstanding). The habitat type is automatically assessed as being 'Very low' distinctiveness and due to the limited attributes for biodiversity is not assigned a condition.	0.00
Introduced shrub	Introduced shrub	0.01	Comprises planting on the roof terrace and surrounding the hardstanding area. This habitat type is automatically assigned 'Low' distinctiveness and 'Poor' condition.	0.02
Biosolar roof	Biodiverse green roof	0.02	Comprises a new biodiverse solar green roof. This habitat type assessed as being 'medium' distinctiveness and is assigned 'Good' condition assuming all core criteria and additional biodiverse green roof criteria can be met to achieve 'Good' condition score.	0.11
Total Creation (Area habitats)		0.17	Total Value (Area Habitats)	+0.13

Table 3.3: Summary of Habitat Creation and Enhancement Proposals

3.4 HEADLINE RESULTS

Table 3.4 details the headline results. Full details of the biodiversity metric calculations can be found in Appendix A.

	Habitat units
On-site baseline	0
On-site post-intervention	0.13
Total net unit change	+0.13
Total net % change	+>10%

Table 3.4: Biodiversity Net Gain Assessment – Headline Results

The existing value of the habitats on site is **0.00 Biodiversity Units (BU)**.

The proposals (habitat loss, retention and creation combined), as based on the Proposed Roof Plan provided by Quod will deliver a net gain of **+0.13 BU**, a **>10%** increase of the baseline habitat value.

4. DISCUSSION AND RECOMMENDATIONS

4.1 CONCLUSIONS

Biodiversity Net Gain

Habitats

The BNG Assessment identifies that the proposed development could result in a net gain of **0.13 BU**, which is equivalent to **>10%** of the baseline habitat value. The net gain reported is based on outline plans, an updated Biodiversity Net Gain assessment will be required to determine if this level of net gain will be achieved once the final landscaping plans have been produced. A recommendation to this effect is included within Section 4.2.

Habitat Management Plan

The projected onsite habitat values given in this report are based on the assumption that an appropriate management plan will be implemented to ensure that the habitats/hedgerows will be established and maintained to fulfil their intended biodiversity value. Biodiversity Net Gain Principles⁵ necessitates that any biodiversity units claimed must be deliverable over a minimum period of 30 years. As such, the Management Plan must provide long-term management proposals and provide scope for monitoring and reporting to demonstrate that the intended values are achieved over the 30-year period. A recommendation to this effect is included in Section 4.2 below.

It has been recommended to Quod via email discussion that installing a biodiverse solar green roof rather than a sedum green roof with PV will maximise biodiversity value. To meet the criteria for biodiverse green roof it should:

- Have a depth of substrate (not including blanket or turf) that varies between 80 and 150mm with at least 50% of the roof at 150mm deep;
- Be planted and seeded with a wide range of dry grassland wildflowers and sedum species (40+ ideally); and,
- Other features like habitat for solitary nesting bees, logs etc should ideally be included within the design.

This report has not allowed for urban or street trees because details have not been provided within the proposed plans. However, including urban trees within the final landscaping scheme is encouraged.

4.2 RECOMMENDATIONS

- R1** An updated Biodiversity Net Gain assessment will be required once the final landscaping proposals have been produced to confirm whether the net gain figures detailed within this report can be delivered.
- R2** A Habitat Enhancement and Management Plan (HEMP) should be produced for all habitats and proposed within the site, once the final landscaping plans are available. The HEMP should set out the appropriate establishment works and management prescription required to achieve and maintain the intended type and condition of each habitat /hedgerow feature. The HEMP should cover a minimum period of 30 years and include provisions for monitoring, review, reporting and contingency throughout. The HEMP could be produced as part of a planning condition for the proposed development.

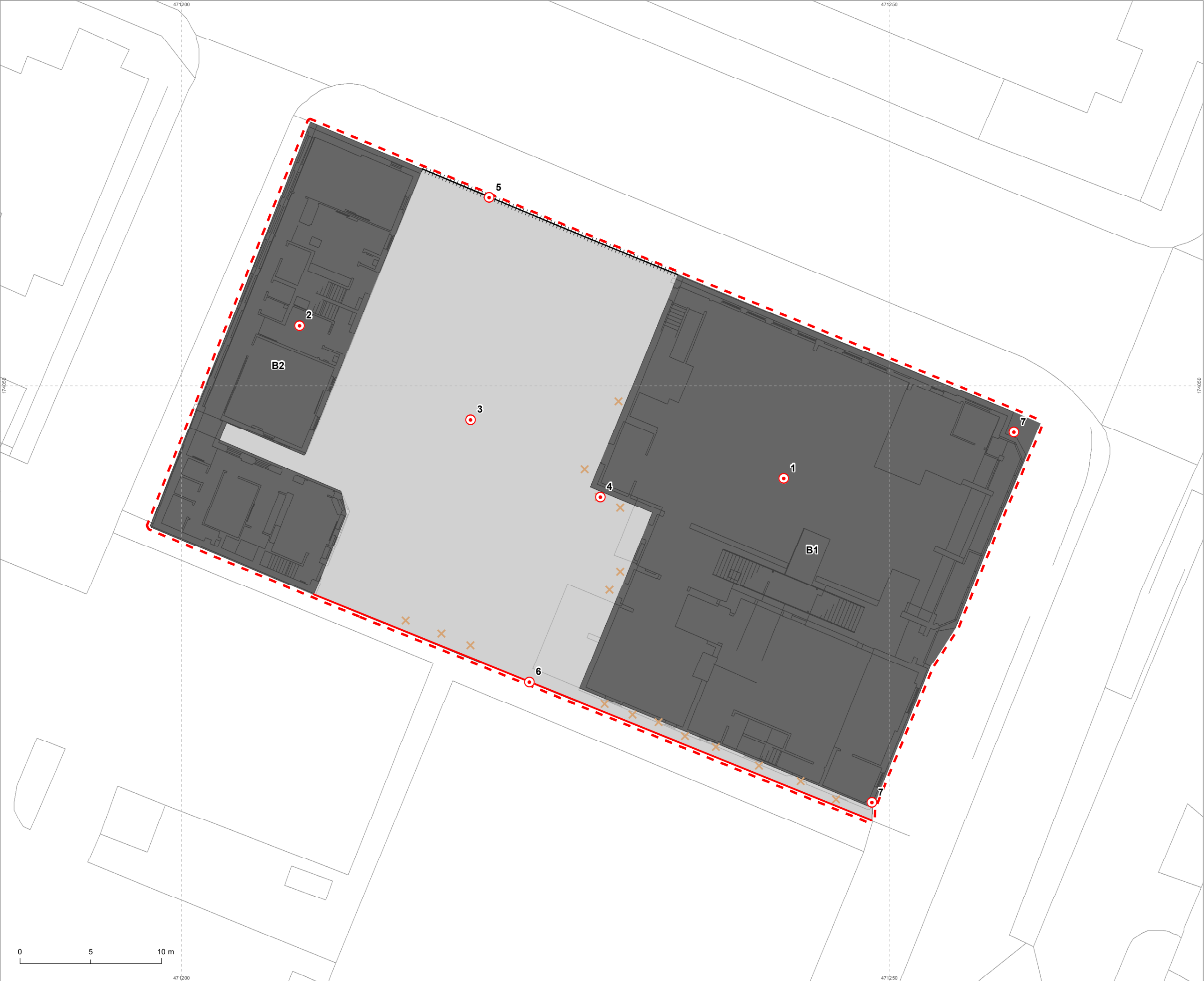
⁵ CIRIA, CIEEM, IEMA (2016) *Biodiversity Net Gain: Good Practice Principles for Development* [Available <https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf>]

5. DRAWINGS

Drawing C158559-01-01 – Phase 1 Habitat Survey Results

Drawing C158559-01-02 – Biodiversity Net Gain Proposals

Proposed Roof Plan MP_PL_1108 Rev P1 – JTP Studio



C158559-01-01

Legend

Site boundary

Scattered introduced shrub

Fence

Wall

Building

Hardstanding

Target note

Project

71–73 Caversham Road, Reading

Drawing

Phase 1 Habitat Map

Client

Quod

Drawing Number

C158559-01-01

Revision

00

Scale @ A3

1:250

Date

August 2022

Approved By

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Drawn By

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C158559-01-02

Legend

Site boundary

Proposed development

Proposed green roof

Proposed hardstanding

Proposed introduced shrub

Project

71–73 Caversham Road, Reading

Drawing

Biodiversity Net Gain Proposals

Client

Quod

Drawing Number

C158559-01-02

Revision

00

Scale @ A3

1:250

Date

August 2022

Approved By

AC

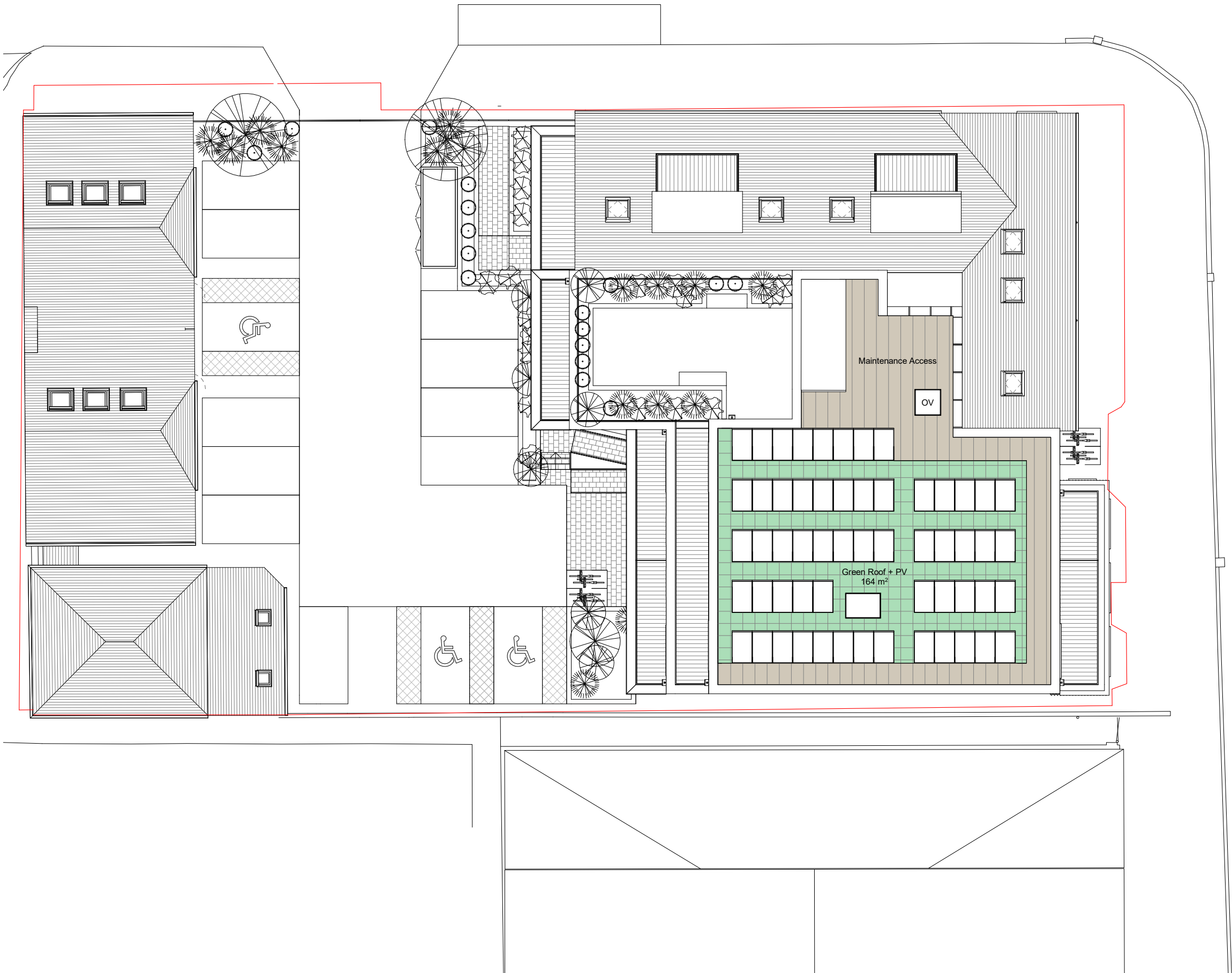
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P1 26.05.22 Revised Scheme Issue for Planning MM LLG

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Proposed Roof Plan

Scale @A3 1 : 200 Job Ref. 01662

Drawing No. MP_PL_1108 Revision. P1

Scale Bar
0 2 4 6 m



Sheet Code
01662_JTP_MP_PL_1108_Proposed Roof Plan_P1

APPENDICES

Appendix A – Biodiversity Metric 3.1 Calculation, 71-73 Caversham Road, Reading

Appendix B – Condition Assessment Table

Appendix A

Biodiversity Metric 3.1 Calculation, 71-73 Caversham Road, Reading

(Metric Calculator attached separately)

Appendix B

Habitat Condition Assessment, 71-73 Caversham Road, Reading

Table A summarises the results of the habitat condition assessment for area-based habitats. For the detailed condition criteria for each habitat, see Panks *et al.* (2021)⁶.

ID	Phase 1 Habitat	UK Hab Equivalent	Condition Sheet	Condition Criteria Score													Total Score	Condition Assessment	Notes
				C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13			
TN1	Building	Urban - Developed land; sealed surface	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A- Other	Feature is automatically assigned a N/A condition score in accordance with Biodiversity Metric 3.1 guidance.
TN2	Building	Urban - Developed land; sealed surface	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A- Other	Feature is automatically assigned a N/A condition score in accordance with Biodiversity Metric 3.1 guidance.
TN3	Hardstanding	Urban - Developed land; sealed surface	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A- Other	Feature is automatically assigned a N/A condition score in accordance with Biodiversity Metric 3.1 guidance.

Table A – Summary of condition assessment for habitats (continues)

⁶ Panks, S., White, N., Newsome, A., Potter, J., Heyton, M., Mayhew, E., Alvarez, M., Russell, T., Scott, S.J., Heaver, M., Scott, S.H., Treweek, J., Butcher, B. and Stone, D. (2021) *The Biodiversity Metric 3.1 – Auditing and accounting for biodiversity: Technical Supplement*. Natural England

ID	Phase 1 Habitat	UK Hab Equivalent	Condition Sheet	Condition Criteria Score													Total Score	Condition Assessment	Notes
				C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13			
TN4	Scattered introduced shrub	Urban - Introduced shrub	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Poor	Feature is automatically assigned a Poor condition score in accordance with Biodiversity Metric 3.1 guidance.
TN5	Boundaries - fence	Urban - Built linear features	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A- Other	Feature is automatically assigned a N/A condition score in accordance with Biodiversity Metric 3.1 guidance.
TN6	Boundaries - wall	Urban - Built linear features	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A- Other	Feature is automatically assigned a N/A condition score in accordance with Biodiversity Metric 3.1 guidance.

Table A – Summary of condition assessment for habitats (continued)