

Consult Construct

Knowles Quarry, Cudworth, Barnsley

Biodiversity Net Gain

Feasibility Assessment Report

Document and Quality Control

Report Title	BNG Feasibility Assessment Report
Site Name & Location	Knowles Quarry, Cudworth, Barnsley
Site Grid Reference (centroid)	National Grid Reference SE 3824 0870
Survey Dates (s)	23.03.2023
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Client issue Date	30 th March 2023
Issued by	Dean LeFeuvre, Senior Ecologist

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Revision	Date of revision	Revision by	Verified by	Revision description	Date of issue
A	20/04/2023	AC	NH	New proposed plans received	02/05/2023

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1.0 Introduction

- 1.1 Red Kite Network Ltd (Red Kite) has been commissioned by Consult Construct (the Client) to undertake a feasibility assessment of applying Biodiversity Net Gain (BNG) in relation to land at Knowles Quarry, Cudworth, Barnsley (the 'Site'). The report is required to inform the design proposal and understand the feasibility of achieving BNG on the Site. The overall aim of the appraisal is to:
 - Gain an understanding of the Site and identify areas terms of its habitat condition and features, which could then be used to calculate BNG;
 - Evaluate the potential impacts the proposed development would have on the existing habitats;
 - Calculate baseline Biodiversity Net Gain based on the existing habitat compared with the proposed development and making recommendation for BNG using the Small Sites Metric Calculation Tool.
- 1.2 Biodiversity Net Gain is a requirement within the Environment Act 2021 which will become mandatory in November 2023. Within the Environment Act, a minimum 10% net gain is required from each development. However, Local Planning Authority policies in relation to BNG should be considered prior to the implementation of the mandatory requirements later this year. It also should be noted that small sites are exempt from mandatory 10% BNG until April 2024.
- 1.3 This report has been completed following guidance set out in *CIEEM Biodiversity Net Gain Report and Audit Templates UK*. This guidance sets out a framework for determining, assessing and monitoring BNG throughout the lifecycle of the development i.e. Feasibility, Design and Audit. This report is concerned with the initial appraisal of BNG and is an assessment at the project *feasibility* stage to determine whether the project can deliver BNG. Conclusions and recommendations have been made to determine the ability of the project to achieve BNG and the consideration of potential on and off-site delivery of BNG based on the principles set out in *British Standard 8683: A process for designing and implementing BNG* and *CIEEM Biodiversity Net Gain: Good practice principles for development*.
- 1.4 Red Kite Network simultaneously undertook a Preliminary Ecological Assessment (PEA) in March 2023 to inform design proposals.
- 1.5 The Site is approximately 0.2 hectares (Ha) and is located at OS National Grid Reference SE 3824 0870, at the western extremity of Cudworth, a suburb of Barnsley. The Site is a former quarry set within a semi-urban landscape, with the suburb of Cudworth to the east and Barnsley to the West. The Site is relatively isolated from residential housing and development and is bordered by fields in the north, south and west, with only the east connected to residential housing. The Site is bounded to the south by Barnsley Road, with a field beyond. The redline boundary is indicated in Figure 1 below.
- 1.6 Vegetation is anticipated to be cleared and a multi-occupancy apartment block and associated infrastructure erected. A revised proposed development plan can be found in Appendix B.

An aerial map showing a green field with a red boundary. The field is filled with small green tree icons. To the right of the field is a road labeled "Barnsley Road". Below the road is a bus stop icon and the text "Barnsley Road 114m". The field is surrounded by yellow and grey areas, likely representing other land parcels or roads.

2.0 Methodology

- 2.1 Prior to the field survey and to provide context to the overall site assessment, previous biological records for protected/notable species and statutory and non-statutory designated wildlife sites within 2km of the Site were obtained on 15th March 2023 from the Local Records Centres (LRC), Barnsley Biological Records Centre (BBRC). The search also included all statutory and non-statutory designated sites within 2km, the results of which are reported in the Red Kite PEA report.
- 2.2 A habitat condition survey was undertaken on 23rd March 2023 following Biodiversity Net Gain Metric 3.1 classifications and condition assessment criteria, and the areas and lengths measured using QGIS 3.22 based on a topographical survey supplied by the Client.
- 2.3 The approach to BNG follows Baker *et al* (2019) and British Standard 8683 and calculates net gain using Biodiversity Metric 4.0.
- 2.4 The surveys and report were completed by Alex Cropper MSc Assistant Ecologist of Red Kite Network Limited. Alex is a Qualifying Member of CIEEM and has 4 years of consultancy experience and specialises in Biodiversity Net Gain.
- 2.5 The condition survey was taken at a sub-optimal time of year. However, it should be noted that whilst the survey provided a useful overview of the Site's habitats and species, this report only provides a "snapshot" on and across the Site on the day when the survey was undertaken. This is based on suitability of the habitats on the site and in the wider landscape.
- 2.6 It should be noted that as part of the assessment suitable areas for proposed off site enhancements were not taken into consideration.
- 2.7 The data was initially entered into the Biodiversity Net Gain Metric 4.0 on 24th March 2023. Following a revision to the proposed site plan amendments to the Metric were entered on 20th April 2023. Note. The conditions sheets used were based on Metric 3.1, however the habitat sheets used were identical to version 4.0 which launched on 24th March 2023; the day following the condition assessment.
- 2.8 Calculations are based on a worst-case scenario, for example if the post-development plan is ambiguous as to whether a hedgerow is being removed or pruned, the former is assumed.

3.0 Habitat Assessment

3.1.1 Baseline Habitats and Conditions

Ruderal/Ephemeral

The bulk of the existing habitat on site consists of ruderal and ephemeral vegetation on a bare ground substrate, the western portion of which is ground covering Ivy. Overall this habitat is in moderate condition due to being a lack of variation in vegetation structure.

Figure 3: Ruderal/ephemeral habitat in moderate condition with inland rock in the background.



Mixed Scrub

A section of mixed scrub is present in the south of the site which also forms much of the southern boundary. A mix of bramble, hawthorn and elder with cleavers and nettles forming an understory. Moderate condition due to a lack of age range and no well-developed edge between the scrub and the adjacent habitats.

Figure 4: Mixed scrub in moderate condition.



Other Inland Rock and Scree

The Site is bounded to the north and west by a formerly quarried rock face. The majority of the rock face is covered in Ivy, with only a portion free from vegetation, leading to a 'poor' condition.

Figure 5: Inland rock, heavily covered in vegetation. Poor condition.



Trees

Classified in the Metric as urban trees, due to the urban location of the Site, two groups of self-seeded trees are present with a group of five willows and silver birch, and a smaller group of pedunculate oak and ash. The former group are in 'good' condition, and the latter are in 'moderate' condition.

Figure 6: Group of self-seeded trees, this group are in 'good' condition.



Developed Land; Sealed Surface

A small tarmac section provides access from the road.

- 3.1.3 The date of the baseline is March 2023. This was chosen as the baseline date as at this reflects the date of the baseline BNG condition survey. No recent changes to the Site were noted.

3.2 Strategic Significance

- 3.2.3 Strategic significance assesses whether a particular habitat is significant in the local area. Habitats can be formally specified by area in local plans, or outside of the plans if the habitats are judged to be locally desirable.

No habitats on Site appear in the Barnsley Biodiversity Action Plan (2009).

3.3 Proposed Development Habitats

- 3.3.1 Post development habitats are taken from Consult Construct drawing 22.2668 02, received from the Client on 20th April 2023.

3.3.2 Modified grassland

The proposed site will have pockets of grassland in the form of small gardens along the southern boundary and a small pocket in the north-east of the proposed building. An assumed 'good' condition is achievable with suitable management.

Neutral grassland

Strips of neutral grassland, mimicking meadows, are proposed for the far eastern boundary and for a section of the western boundary. A small section is also proposed for the car park. A 'good' condition is anticipated.

Urban Trees

Fourteen small trees will be planted predominantly in the eastern and western grass areas with a few others elsewhere. All can achieve 'moderate' condition in a 30-year time frame.

Native Hedgerows

New hedgerows will be established on Site. A hedgerow, broken into two to allow for access will form the southern and eastern boundary, and a hedgerow will form a border between a paved area and the car parking area. All native hedgerows are mentioned in the Barnsley Biodiversity Action Plan (2009). These hedgerows can reasonably be kept to a 'moderate' condition.

Mixed Scrub

Areas of scrub in the form of native shrubs and small trees have been proposed for in front of the rock faces. This can achieve a 'good' condition.

Ruderal/Ephemeral

An area of rocky landscape has been proposed for around the car park. This has been interpreted as 'Ruderal/Ephemeral' for the purposes of the BNG Metric due to very likely presence of ephemeral species within this landscape. A 'good' condition is achievable for this habitat.

Other Inland Rock and Scree

The rockface at the rear and west should be enhanced to a 'moderate' condition. This would be achieved by removing the vast majority of the ivy currently covering most of the cliff.

Developed Land, Sealed Surface

A single multi-occupancy apartment building is proposed along with a car park and access road.

Artificial unvegetated, unsealed surface

Permeable block paving areas are proposed to the immediate north of the building as well as a pedestrian access point and a pathway to the east of the proposed dwelling.

3.3.3 Assumptions

All habitats created on Site are assumed to be new with no existing habitats, bar the cliff faces, to be retained within the development footprint.

4.0 Feasibility of Biodiversity Net Gain

- 4.1 Following calculations made using Biodiversity Net Gain Metric 4.0, the current development proposal will deliver a biodiversity net **loss of -83.81%** for the wider features (habitat units), and a **100% gain** for hedgerows (See Appendix D for the full calculations).
- 4.2 A net gain for wider features is not currently feasible at present with the revised proposed plans, however a small improvement on the previous score was achieved. Given the loss predicted it is probably not possible to achieve a net gain on site without further changes to the proposed plans. However, a net gain for hedgerows is feasible.

5.0 Following the Good Practice Principles

The following table demonstrates if the initial BNG assessment follows the BNG Good Practice Principles as set out in *Biodiversity Net Gain: Good practice principles for development* (2016):

Principle	Has it been followed?	Description
Apply the mitigation hierarchy	No	All habitats on site will be lost bar the inland rock cliff faces.
Avoid losing biodiversity that cannot be offset elsewhere	N/A	There is no irreplaceable biodiversity on site.
Be inclusive and equitable	Yes	Stakeholders have been engaged at early stages and are aware of the importance of net gain.
Address Risk	Yes	No difficult to achieve proposals have been proposed.
Make a measurable net gain contribution	No/Yes	At this stage an overall net loss will occur based on the current plans. However, a substantial net gain for hedgerow habitats is predicted.
Achieve the best outcomes for biodiversity	No/Yes	The proposed plans will not deliver improved habitats for biodiversity than there are at present. The new hedgerows will be beneficial to biodiversity however.

Be additional	Yes	The hedgerows will provide an additional net gain given no hedgerows are present on Site at present.
Create a net gain legacy	No	Once a net gain is predicted, either by utilising on site or off site solutions, or a combination of both, a management plan in the form of a LEMP will be required to achieve net gain for thirty years.
Optimise sustainability	Yes	Net gain has thus far not been achieved as regards to all habitats proposed for the Site. However the revised proposed plans were a step in the right direction for optimising sustainability.
Be transparent	Yes	The BNG calculation and this report have been prepared in support a planning application for the development.

6.0 Next Steps

- 6.1 As part of the planning application process, once a Biodiversity Net Gain solution has been reached, BNG should continue to be considered at all times. A project timeline including BNG in each project stage would be recommended, which will include a summary of requirements to achieve BNG and who is responsible for delivery. A supporting Landscape and Ecological Management Plan (LEMP) should be developed for a 30-year period in conjunction with the landscape proposals.
- 6.2 The *Biodiversity Net Gain: Good practice principles for development* document should be applied at all times and each principle should continue be considered at all phases of development.

7.0 Conclusion

- 7.1 After calculating the baseline and proposed development areas using Biodiversity Metric 4.0 it was found that the wider habitats have an 83.81% loss in biodiversity, and the linear features have a 100% net gain.
- 7.2 Red Kite recommends that further changes to the soft landscaping plans would reduce the deficit, for example establishing further areas of scrub would be beneficial. However, it appears likely that an Off-Site solution will need to be found to reduce the deficit and achieve a net gain. This could be in the form of off-site habitat improvement on land approved by the LPA, or the client may wish to pay into an off-setting environment bank.
- 7.3 On top of the recommendations set out above we would also suggest providing nesting boxes and other wildlife friendly features, which would provide additional habitats not accounted for by the Biodiversity Metric 4.0 Calculation Tool.
- 7.4 This report and the accompanying Biodiversity Metric 4.0 calculations should be submitted to the LPA ecologist for verification and auditing.

- 7.5 Red Kite recommends that on site biodiversity enhancements be maximised to their fullest potential in order to reduce the deficit. Red Kite will be able to provide guidance throughout so the Site can be maximised to its fullest potential.

8.0 References

Baker, J., Hoskin, R. and Butterworth, T (2019). *Biodiversity net gain. Good practice principles for development*.

Barnsley Biodiversity Trust (2009). *Barnsley Biodiversity Action Plan*. Barnsley Biodiversity Trust, South Yorkshire.

Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). *The UK Habitat Classification User Manual Version 1.1*

BS 8683 - Process for designing and implementing Biodiversity Net Gain – Specification. The British Standards Institution 2021

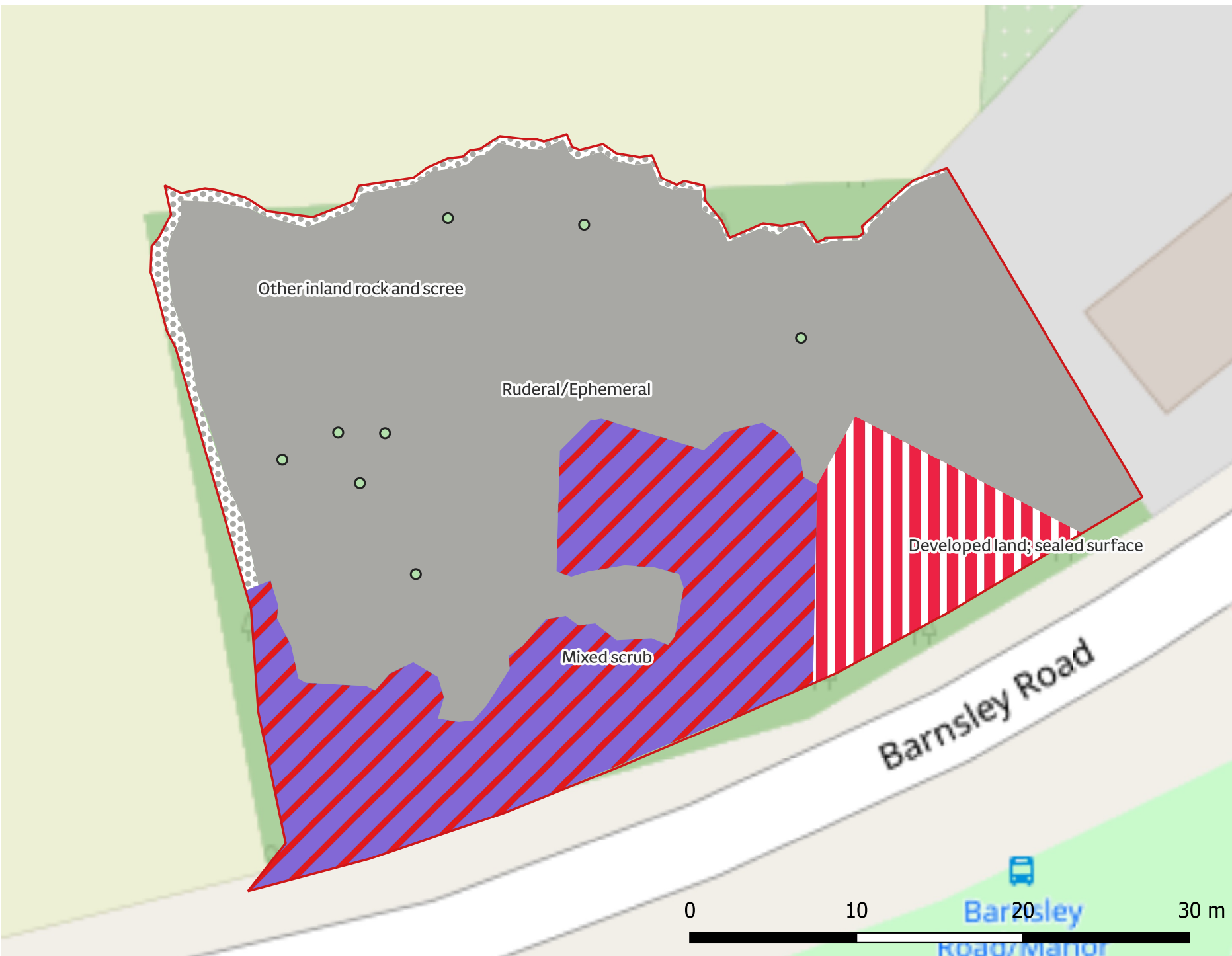
CIEEM (2016). *Biodiversity Net Gain: Good practice principles for development* Chartered Institute for Ecology and Environmental Management, Winchester, UK

CIEEM (2018), Guidelines for ecological impact assessment in the UK and Ireland. September 2019 Update 1.1.

CIEEM (2021). *Biodiversity Net Gain Report and Audit Templates* Chartered Institute of Ecology and Environmental Management, Winchester, UK.

Parliament UK. 2021. Environment Act 2021. [Online]. Available from: <https://publications.parliament.uk/pa/bills/>

APPENDIX A – Baseline BNG Plan



Baseline Habitats

- Developed land;
sealed surface
- Mixed scrub
- Other inland rock
and scree
- Ruderal/Ephemeral

Baseline Trees

- Medium-sized
- Red Line Boundary

Client:
Consult Construct

Project:
Knowles Quarry

Drawing: BNG Baseline

Number: 521.22 E003

Date: 27/03/2023

Status: Final

Drawn: AC

Checked: NH

1:300



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APPENDIX B – Proposed Development Plan



- Permeable pavers.
- Permeable resin bound gravel.
- Ceramic patio pavers.
- Grass and shrubs.
- Rockery.

PROPOSED GROUND FLOOR - 1:100 (A1)

Contact

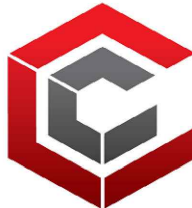
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Revisions

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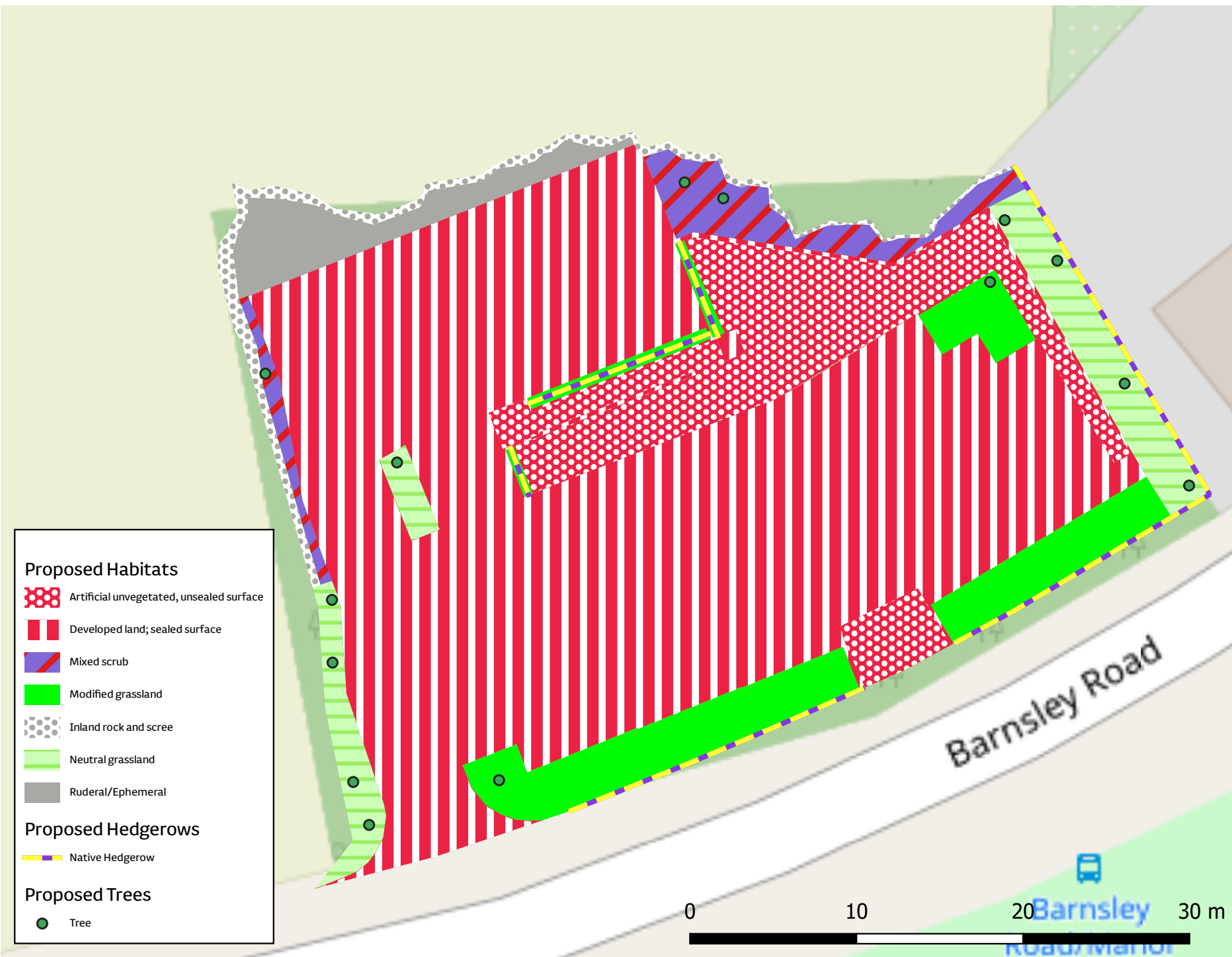
project :
Knowles Quarry
Barnsley Road
Cudworth S72 8UU

client:
Consensus Support

drawing title :
Proposed Ground Floor Plan

project no : 22.2668	drawing no 02	rev : -	scale : 1:100 A1	date : 31.03.2023
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APPENDIX C – Post-Development BNG Plan



Client:
Consult Construct

Project:
Knowles Quarry

Drawing: BNG Proposed

Number: 521.22 E002 Rev A

Date: 27/04/2023

Status: Final

Drawn: AC

Checked: NH

1:300



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APPENDIX D – BNG Metric 4.0 Calculations

(See spreadsheet under separate cover)

END OF REPORT



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