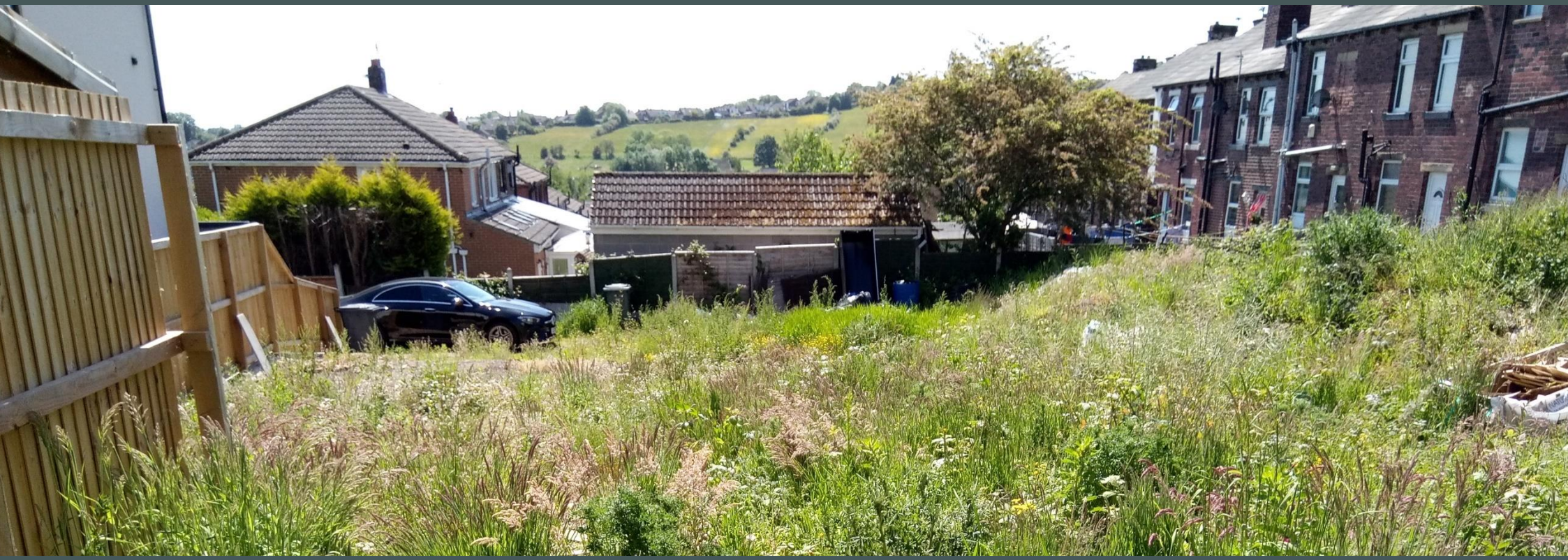
Westcliffe Rise, Cleckheaton



Ecological Impact Assessment

12/07/2023

Mr. Sutcliffe

Report reference	**ER-6693-02**
Author	Josh Birchall BSc (Hons) ACIEEM Senior Ecologist
Technical Review	Sam Kitching BSc (Hons) MCIEEM Principal Ecologist
QA	Charlie Foreman BSc (Hons) Assistant Ecologist
Authorised	Sam Kitching BSc (Hons) MCIEEM Principal Ecologist
Date	12/07/2023
Report duration	In accordance with CIEEM (2019), unless otherwise stated the findings of this report remain valid for a period of 18 months. After this period advice should be sought on the scope of any updating work required.

Contents

Introduction **5**
Method **6**
Scope of Assessment 6
Desk Study 6
Field Survey 6
Ecology Baseline **7**
Designated Sites and Conservation Areas 8
Habitats 8
Species and Species Groups 11
Description of the Proposed Development **12**
Impacts and Effects of Development **13**
Mitigation & Residual Effects **17**
Biodiversity Net Gain **20**
Timing Issues **22**
Cumulative Effects **22**
Offsite Measures or Compensation **22**
Enhancement **22**
Monitoring **22**
Policy and Legislation **22**
Conclusion **22**

Summary

The Site is occupied by low distinctiveness habitats. Much of the baseline vegetation was cleared in early 2022, to enable remediation works. Further clearance works will be required to facilitate development.

Using the Defra Metric 4.0 Calculator tool, the scheme is expected to result in a gain in both Habitat and Hedgerow Units.

Introduction

1. Brooks Ecological Ltd was commissioned by Mr. Sutcliffe to carry out an Ecological Impact Assessment (EcIA) for their proposed residential development at Westcliffe Rise, Cleckheaton.
2. The British Standard BS:42020 recommends that a proportional assessment of ecological impacts should be made - such that decision making relating to the NPPF 'mitigation hierarchy', the planning balance', and the use of conditions is suitably informed.
3. The purpose of the EcIA report is to use the information gathered, alongside the proposals for the Site, to:
    - identify any significant effects associated with the proposed development,
    - set out any mitigation (including monitoring) required to address these effects, and to ensure compliance with legislation and policy,
    - identify suitable enhancement,
    - identify measures required to secure mitigation and enhancement,
    - identify and assess any residual effects and their legal, policy and development management consequences.
4. This report adapts the format set out in the Chartered Institute for Ecology and Environmental Management (CIEEM) guidelines for Ecological Report Writing (December 2017).

Ecological Impact Assessment (EcIA) Checklist

CIEEM

ALGE Association of Local Government Ecologists

	EcIA Criteria (to ensure decisions are based on adequate information in accordance with Clauses 6.2 and 8.1 of BS42020:2013)	Yes No n/a	Paragraph reference number(s)
Pre-app/ scope	1. Where pre-application advice has been received from the Local Planning Authority and/or an NGO and/ or statutory body (e.g. NE DAS, NRW DAS)[i], it has been fully accounted for in the EcIA		
	2. The scope, structure and content of the EcIA is in accordance with published good practice[ii, iii and iv]		
Surveys, Sites, Species and Habitats	3. Adequate[v] and up-to-date[vi]: a. Desk study has been undertaken[vii] b. Phase 1 habitat survey (or equivalent) has been undertaken[vii] c. Phase 2 ecology surveys have been undertaken (where necessary)[viii]		
	4. All statutory and non-statutory sites likely to be significantly affected are clearly and correctly identified		
	5. All protected or priority species and priority habitats[ix] likely to be significantly affected are clearly and correctly identified, and adequate surveys have been undertaken to inform the baseline		
	6. Any invasive non-native plant species present are clearly and correctly identified		
	7. Where a separate PEA Report states that Phase 2 ecology surveys are required, these have been undertaken in full and results submitted with the application (or lack of such surveys is justified)		
Impacts and Effects	8. The assessment is based on clearly defined development proposals along with relevant drawings/plans (and any plans used are the same version number as those submitted with the application) or 9. The residual ecological effects are considered to be not significant at any geographical scale irrespective of the detailed development proposals, and the assessment is based on a worst-case-scenario		
	10. The report describes and assesses all likely significant ecological effects (including cumulative effects) clearly stating the geographical scale of significance (where relevant)		
Mitigation, Compensation and Enhancement	11. The mitigation hierarchy has been clearly followed[x]		
	12. The report: a. Clearly identifies the proposed mitigation and compensation measures, and explains how these will adequately address all likely significant adverse effects b. Includes, where necessary, proposals for post-construction monitoring c. Recommends how proposed measures may be secured through planning conditions/obligations and/ or necessary licences		
	13. A summary table of proposed mitigation and compensation measures has been provided		
	14. The need for any mitigation licences required in relation to protected species is clearly identified		
	15. Proposals to deliver ecological enhancement/Biodiversity Net Gain have been provided		
Competence/Good Practice	16. Limitations[xi] of the ecological work have been correctly identified and the implications explained		
	17. All relevant key timing issues (e.g. site vegetation clearance or roof removal) that may constrain or adversely affect the proposed timing of development have been identified		
	18. All ecological work and surveys accord with published good practice methods and guidelines OR deviation from such guidelines is made clear and fully justified, and the implications for subsequent conclusions and recommendations made explicit in the report[xii]		
	19. All ecologists and surveyors hold appropriate species licences (where relevant) and/or have all necessary competencies to carry out the work undertaken		
Conclusions	20. The report clearly identifies where the proposed development complies with relevant legislation and policy, highlighting any possible non-compliance issues, and highlighting circumstances where a conclusion cannot be drawn as it requires an assessment of non-ecological issues (such as socio-economic ones)		
	21. The report provides a clear summary of losses and gains for biodiversity, and a justified conclusion of an overall net gain for biodiversity		
	22. Justifiable conclusions[xiii] based on sound professional judgement[xiv] have been drawn as to the significance of effects on any designated site, protected or priority habitat/species or other ecological feature, and a justified scale of significance has been stated		

Method

Scope of Assessment

5. The application site 'the Site' encompasses a parcel of land, which was formerly part of the garden of the adjacent property but has since been cleared for development.

6. The assessment uses a 2km area of search around the Site for records of protected and notable species and locally or nationally designated wildlife sites.

7. Ecological surveys and reports informing this assessment comprise of the following:

    - Preliminary Ecological Appraisal. Brooks Ecological, report reference ER-6693-01. June 2023.
    - Landscape Masterplan. Brooks Ecological, report reference DR-6693-01 Rev A. July 2023.

Field Survey

8. Full details of the methodologies used and the results obtained are contained in the relevant documents referenced above. Unless stated otherwise these followed the relevant survey guidelines refenced in reports.

Desk Study

9. A full desk study including consideration of local biological records, aerial photographs, local designations, and planning guidance has been carried out.

Figure 1 *Site area under assessment (red line)*

Assessment Method

10. In assessing the significance of effects, we refer to Section 5 of CIEEM (2018) - that a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. In relation to ecological features, we consider the following factors in combination, including;

    - the feature's value on an ascending scale, from Site to international value,
    - the site's position in the local landscape,
    - its current management, and
    - its size, rarity, or threats to its integrity

11. There are several tools available to aid this consideration, including established frameworks such as Ratcliffe Criteria or concepts such as Favourable Conservation Status. Also of help is reference to Biodiversity Action Plans in the form of the Local BAP and Section 41 of the NERC Act (2006) to determine if the Site supports any Priority Habitats or Habitats of Principal Importance, or presents any opportunities in this respect.

12. The assessment considers the development proposals set out below, from which the potential impacts can be summarised as:

    - Vegetation and habitat removal
    - Disturbance, pollution, or interference arising from the Site's construction
    - Disturbance, pollution, or interference arising from the Site's operation

13. This report deals with any significant effects potentially arising from these impacts. It looks at how the mitigation hierarchy can be applied to any effects and the implications of any residual significant effects.

Ecology Baseline

14. A *summary* of the points salient to this assessment are set out below:

Designated Sites and Conservation Areas

15. Impacts on both Statutory (International and National) and Non-Statutory designations or their interests have been ruled out at PEA Stage.

Habitats

16. As the Site was cleared in early 2022, in line with guidance the Site's baseline habitat unit value has been based on what was present on Site since January 2020.

17. The Site currently supports vacant/ derelict ground featuring several common and locally abundant species which have been quick to colonise the Site, and a small area of hardstanding. These areas are of very low or low distinctiveness.

18. The pre-existing habitats, used in the assessment, have been gleaned from aerial imagery and based on what may be reasonably expected given its location and use as a sub-urban garden. Pre-existing habitats of garden and trees are of low to medium distinctiveness.

19. For the purposes of the BNG assessment the Site is considered to comprise of a garden with a small number of trees, managed as amenity space.

Figure 2 The Site's habitat baseline for assessment purposes

20. The table below sets out the habitats at this Site and their relevance in this assessment.

Table 1 Site Habitats Summary

Habitat Feature	Notes	Valued at what scale
Vegetated Garden	Appears to be fairly standard garden comprised primarily of lawns with some ornamental planting beds, managed for amenity purposes.	Site level
Urban trees	Two trees appear to be present on Site assumed non-native species or cultivars and based on the garden of a medium size.	Site level

21. The table below shows the Site's habitats in terms of their measured Extent (ha or km) and Biodiversity Value (Habitat Units)- this is an excerpt from the DEFRA Biodiversity Metric 3.1 Spreadsheet Calculator.

Figure 3 Site Habitats as defined in Biodiversity Net Gain calculations – Site Baseline[1].

	Existing area habitats			Distinctiveness	Condition	Strategic significance	Required Action to Meet Trading Rules	Ecological baseline
Ref	Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
1	Urban	Vegetated garden	0.0504	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required ≥	0.10
2	Individual trees	Urban tree	0.0733	Medium	Poor	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat	0.29
3								
4								
5								
6								
		Total habitat area	0.12					0.39
		Site Area (Excluding area of Individual trees and Green walls)	0.05					

[1] Our report provides an estimate of the sites value in Biodiversity Units. This is based on thorough assessment at the time of survey and using the information available at this time. In this assessment we have used the latest version of DEFRA's Biodiversity Metric Tool, the UK Habitats Classification and relevant guidance. This assessment requires subjective judgments to be made in terms of habitat type and condition and could be open to other interpretations. Reliance on the Unit Score, or conversion of this into a monetary value, would be at the developer's own risk. Where conversion to monetary value is required, it is always advisable to get calculations checked independently.

Species and Species Groups

22. Potential constraints relating to relevant groups were investigated through the surveys listed above. Those highlighted are of relevance to the Site and are referenced later in the assessment.

Table 2 Summary of relevant faunal issues

Species/ Group (Feature)	Notes	Valued at what scale
N/A	No specific faunal issues have been identified	N/A

Description of the Proposed Development

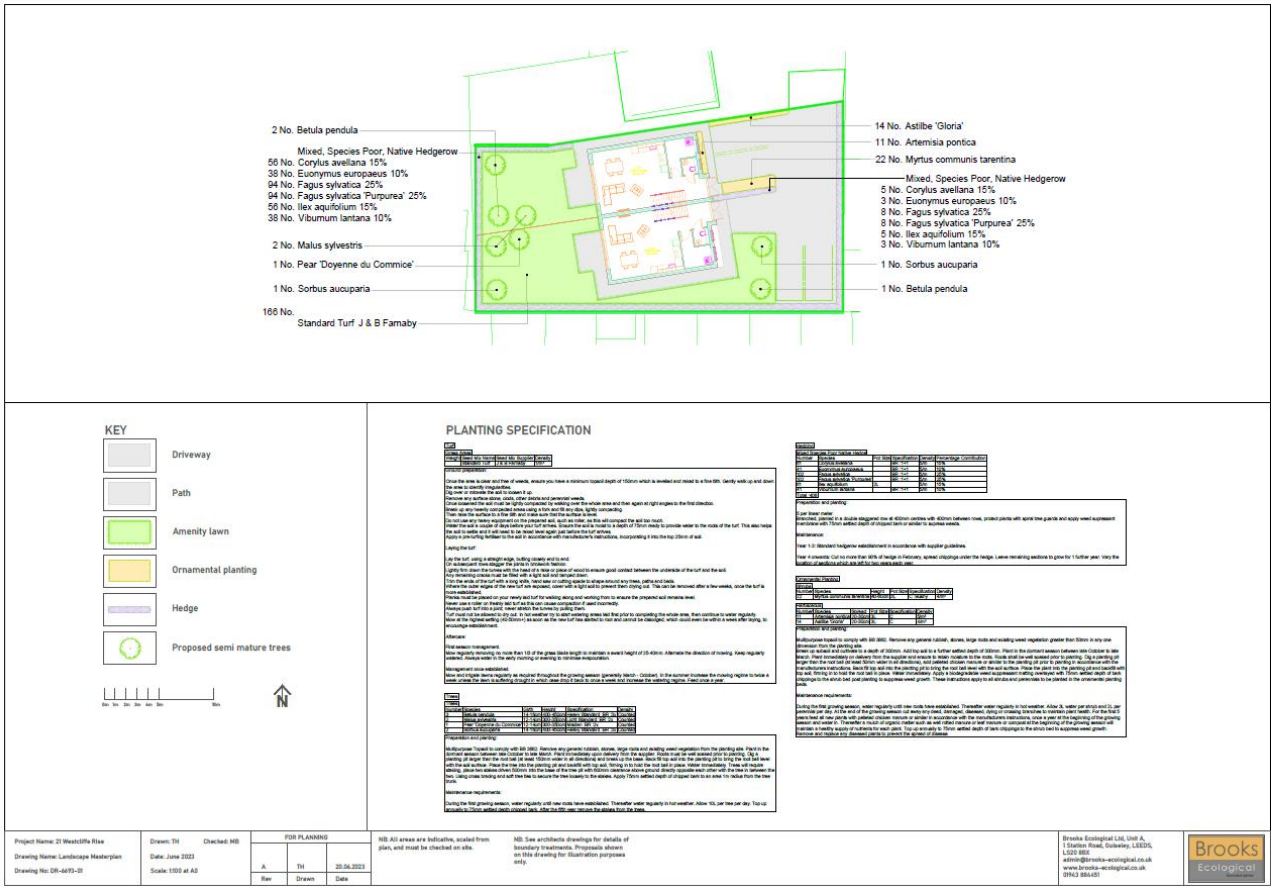
23. Proposals are for the Sites re-development to support two residential bungalows with associated access and garden space.

24. Proposals have had the opportunity to respond to the findings of the PEA and have built in all potential avoidance - in terms of layout. The following sections examine impacts resulting from the proposals which has aimed to avoid ecological impacts.

25. The following plans have been provided by the client to inform this assessment:

    - Landscape Masterplan. Brooks Ecological DR-6693-01 Rev A. July 2023.

Figure 4 Site layout and landscaping



Impacts and Effects of Development

26. Figure 5 shows the development footprint (black hatch) in relation to the mapped habitats.
27. The development footprint shows the sum extent of proposed built development and associated clearance works.
28. Most of the Site has already been cleared. A cut and fill operation is also expected to achieve the required levels, as such, further removal of current habitats is expected.

Figure 5 Development footprint in relation to existing on-Site habitats

Table 3 lists the anticipated Impacts and Effects associated with the proposals.

	Impacts during Site Clearance	**Stage**
1	**Habitat will be removed** from the Site by clearance using hand tools and machinery. Much of the baseline habitat has already been cleared, however, further clearance work to achieve Site levels will likely be required.	*Clearance*

	Significant Effects - in the absence of mitigation	**Acting on**	**Acting at scale (Maximum)**
1a	**Direct habitat loss**. There will be a loss of habitat generally which will be managed through the Biodiversity Net Gain process. Much of the existing habitat has already been lost from the Site as a result of remediation works undertaken previously. Habitats that will be impacted by clearance works are of low ecological value, these habitats have limited value to any notable or protected fauna, other than nesting birds.	Low value habitats	Site
1b	**Disturbance**. The noise and activity at the Site will render it and areas immediately off-site inhospitable to wildlife during this period. However, the Site lies within a sub- urban setting; wildlife in this area is therefore likely to be habituated to moderate noise levels and the effects of disturbance from this development site is unlikely to be significant.	N/A	Site
1c	**Pollution**. There is a very low potential for sediment or chemicals to be released from the Site.	N/A	N/A
1d	Potential effects on **Protected Species**.	N/A	N/A

	Impacts during Construction	**Stage**
2	**Construction activities** will take place over c. 1 year. Construction will be of footings, drains and then above ground construction of buildings.	*Construction*

	Significant Effects - in the absence of mitigation	**Acting on**	**Acting at scale (Maximum)**
2a	**Disturbance**. The noise and activity at the Site will render it and areas immediately off-site inhospitable to wildlife during this period. However, the Site lies within a sub-urban setting; wildlife in this area is therefore likely to be habituated to moderate noise levels and the effects of disturbance from this development site is unlikely to be significant.	N/A	Site

2b	**Pollution**. There is a very low potential for sediment or chemicals to be released from the Site.	Off site areas	Local

	Impacts during Construction	**Stage**
3	**Landscaping activities** will take place once the construction period is coming to an end.	*Construction*

	Significant Effects - in the absence of mitigation	**Acting on**	**Acting at scale (Maximum)**
3a	**Damage to created habitat** such as by storage of machinery or materials during the closing stages of construction.	Created habitats	Site
3b	**Pollution**. There is the potential for hazardous chemicals (i.e. herbicides, insecticides, fertilisers) to be used on new habitats by the owners. This could lead to increased mortality of vegetation or make it harder for habitats to be created in line with the Defra Metric.	Created habitats	Site
3c	**Inappropriate habitat creation or management** techniques could mean that the proposals fail to deliver on BNG commitments	All habitats and species	Site

	Impacts during Operation	**Stage**
4	**The Site will be populated.** Houses will be inhabited. Presence of domestic pets may increase. Retained and created habitat will be managed by the owners.	*Operation*

	Significant Effects - in the absence of mitigation	**Acting on (feature)**	**Acting at scale (Maximum)**
4a	**Damage** to retained and created habitat such as by inappropriate use, littering, release of invasive species.	New habitats	Site
4b	**Disturbance**. Noise, lighting and increased human activity at the Site will be present of a lower order and will likely be tolerable to species habituated to the urban conditions prevailing locally.	N/A	Site

	The presence of dogs and cats may result in some predation, but this area will already be affected by these species to a lesser degree.		
4c	In the **absence of correct management** created habitats will not provide the necessary biodiversity units committed to through the BNG process.	New habitats	Site

Mitigation & Residual Effects

29. Where feasible, the **avoidance** of unnecessary impacts has been considered at the design stage and worked into the Site Layout plan. The proposals will incorporate the following **mitigation** in relation to the identified **effects** above, as set out in the table below.
30. Habitat creation and management will be considered in the context of the proposals to achieve the calculated BNG position are set out (and committed to) in the plan below. Low maintenance habitats have been included in the design in order to improve the likelihood of the BNG position being achieved.
31. Achieving the required Biodiversity Net Gain position will ensure that effects relating to habitat loss are addressed - both in respect of the habitats identified as valued features, and also the lower value habitats which would previously have been scoped out of Impact Assessments. Our impact assessment therefore only highlights where habitats present place a particular constraint on the protection of, or delivery of habitats on Site; or on off-set agreements.

Table 4 lists the mitigation put in place to address the effects identified in table 5.1

	Mitigation during Site Clearance	**Stage**
1	**Habitat will be removed** from the Site by clearance and soil stripping using heavy machinery.	*Clearance*

	Significant Effects - in the absence of mitigation	**Mitigation / Compensation**	**Residual Magnitude**
1a	**Direct habitat loss**.	By complying with the Biodiversity Net Gain policy, the scheme will ensure that overall, the impacts of habitat loss will be fully addressed, either on Site, or through offsetting. This document shows the creation of new habitats, in line with the Defra Metric. The proposals could additionally detail the provision of faunal features, such as bird nesting and bat roosting boxes, and hedgehog access through gardens.	Minor Positive

	Mitigation during Construction	Stage
2	**Construction activities** will take place over a 1 year period. Construction of access and sewers will be followed by footings and then above ground construction of buildings.	*Construction*

	Significant Effects - in the absence of mitigation	Mitigation / Compensation	Residual Magnitude
2a	**Disturbance**. The noise and activity at the Site will render it, and areas immediately off-Site, inhospitable to wildlife during this period.	The main contractors CEMP will detail time limits to work on Site. However, some level of disturbance is unavoidable though it is expected wildlife will be accustomed to it a sub-urban area.	Neutral
2b	**Pollution**. There is the potential for sediment or chemicals to be released from the Site.	The contractors CEMP which will detail the appropriate storage of machinery and materials.	Neutral

	Mitigation during Construction	Stage
3	**Landscaping activities** will take place period during the construction period and will follow the main construction works	*Construction*

	Significant Effects - in the absence of mitigation	Mitigation / Compensation	Residual Magnitude
3a	**Damage** to new habitat such as by storage of machinery or materials in these areas.	Any habitats created prior to the end of the construction period will be adequately protected from development e.g. by fencing when required. This will be detailed in the contractors CEMP.	Neutral
3b	**Pollution**. There is the potential for spills of hazardous chemicals (i.e. fuel) which could lead to increased mortality of, or make it harder for new habitats to be established in line with the Defra Metric.	The contractors CEMP which will detail the appropriate storage of machinery and materials.	Neutral
3c	**Inappropriate habitat creation or management** techniques could mean that the proposals fail to deliver on BNG commitments	Low maintenance, low distinctiveness habitats have been included within the design which will help value retention.	Neutral
3d	**Exclusion of wildlife** from the developed Site – physically via the creation of additional barriers or through the lack of provided habitat	Landscaping has been designed to facilitate wildlife access around the Site.	Neutral

	Mitigation during Operation	Stage
4	**The Site will be populated.** Houses will be inhabited. Presence of domestic pets may increase.	*Operation*

	Significant Effects - in the absence of mitigation	Mitigation/Compensation	Residual Magnitude
4a	**Damage** to created habitat such as by inappropriate use, littering, release of invasive species.	Landscaping has been designed to accommodate access and amenity use. All landscaped areas will fall within private ownership.	Neutral
4b	**Disturbance**. The noise and activity at the Site will be present of a lower order and will likely be acceptable to species habituated to the urban conditions prevailing locally. The presence of dogs and cats may result in some predation and displacement.	Landscaping is designed to support wildlife already present in the surrounding sub-urban area.	Neutral
4c	In the **absence of correct management** created habitats may not provide the necessary biodiversity units committed to through the BNG process.	Landscaping has been designed which can be easily or poorly managed and still achieve the anticipated score with the biodiversity metric. .	Neutral
4d	**Exclusion of wildlife** from the developed Site – physically or through the lack of provided habitat	Landscaping has been designed to facilitate wildlife access around the Site.	Neutral

Biodiversity Net Gain

32. There will be a requirement for the proposals to secure a **Biodiversity Net Gain (BNG)** (in accordance with BS:8683) at a level determined by the Local Planning Authority (LPA in line with their own policies and guidance in the NPPF).

33. Calculations setting out the position of the proposals in relation to BNG are set out below. These are based on the Landscape masterplan plan available at this time. Habitat types which will need to be applied to the proposals to achieve the calculated BNG position are set out (and committed to) in the plan opposite. These are considered realistic and achievable.

34. Achieving the required Biodiversity Net Gain position will ensure that effects relating to habitat loss are addressed - both in respect of the habitats identified as valued features, and also the lower value habitats which would historically have been scoped out of Impact Assessments.

Net Gain Calculations

35. The proposals will lead to an overall gain in habitat units, of 0.1 Habitat Units (24.88%) predicted and a gain in hedgerow units of 0.15 Units, from 0 Units. The proposals also satisfy the Trading Rules.

36. Most of the habitat units are achieved with the planting of 8 new trees whilst a new native hedgerow is shown around much of the periphery of the Site.

37. The client has been provided with a full copy of the Biodiversity Metric 4.0 Calculation Tool.

Figure 6 Post development habitat types

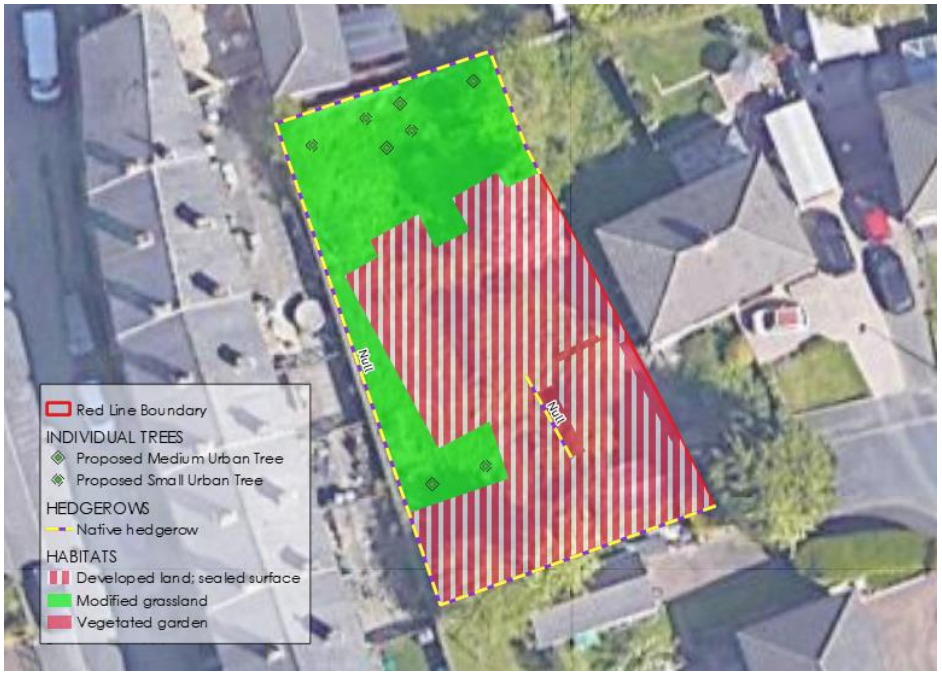
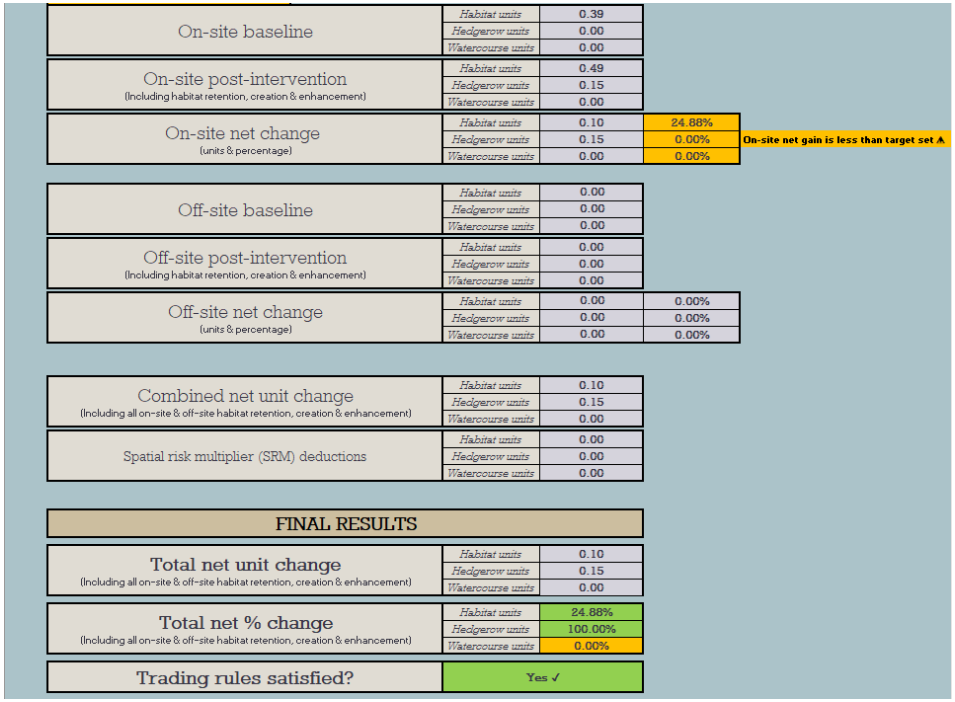


Figure 7 Headline Summary extracted from Biodiversity Metric 3.1 Calculator tool



On-site baseline	*Habitat units*	0.39		
	Hedgerow units	0.00		
	Watercourse units	0.00		
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.49		
	Hedgerow units	0.15		
	Watercourse units	0.00		
On-site net change (units & percentage)	*Habitat units*	0.10	24.88%	
	Hedgerow units	0.15	0.00%	On-site net gain is less than target set ▲
	Watercourse units	0.00	0.00%	
Off-site baseline	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Off-site net change (units & percentage)	*Habitat units*	0.00	0.00%	
	Hedgerow units	0.00	0.00%	
	Watercourse units	0.00	0.00%	
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.10		
	Hedgerow units	0.15		
	Watercourse units	0.00		
Spatial risk multiplier (SRM) deductions	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
FINAL RESULTS				
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.10		
	Hedgerow units	0.15		
	Watercourse units	0.00		
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	24.88%		
	Hedgerow units	100.00%		
	Watercourse units	0.00%		
Trading rules satisfied?	Yes ✓			

Figure 8 Trading Summary

Trading Summary		
Distinctiveness Group	**Trading Rule**	**Trading Satisfied?**
Very High	Bespoke compensation likely to be required ✖	Yes ✓
High	Same habitat required =	Yes ✓
Medium	Same broad habitat or a higher distinctiveness habitat required (≥)	Yes ✓
Low	Same distinctiveness or better habitat required ≥	Yes ✓

Timing Issues

38. Standard constraints will apply to nesting birds and vegetation clearance.

Cumulative Effects

39. None have been identified due to the nature of the proposals occupying a small area and the sub-urban location.

Offsite Measures or Compensation

40. The scheme is expected to result in a 24.88% net gain for habitat units on-site and also gain in hedgerow units where before none were present on Site.

Enhancement

41. Opportunities to provide further enhancements such as bird and bat boxes could be detailed in an addendum to the Landscaping Plan documents, to be produced as a standard condition of planning.

Monitoring

42. Given the Site will be a private residence any agreement for post construction monitoring will need to be agreed separately.
43. A planning condition requesting evidence of the planting of post development habitats prior to occupation could be put in place to show habitats have been established.

Policy and Legislation

44. Given the implementation of the mitigation set out above, it is anticipated that the proposals will comply with the relevant policy and legislation relating to wildlife and ecology.

Conclusion

45. Mitigation to be agreed by standard conditions of planning will be able to address all significant effects resulting from the development.
46. The scheme is expected to result in a minor net gain for biodiversity on-site.

References

Andrews H. L. (2011) *A habitat key for the assessment of potential bat roost features in trees*.

Bat Conservation Trust (2016*) Bat Surveys for Professional Ecologists* – Good Practice Guidelines

BSI (2013) British Standards Institute *BS 42020:2013 Biodiversity — Code of Practice for Planning and Development*.

CIEEM (2017) *Guidelines for Ecological Report Writing* 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal*, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*, 3rd edition. Chartered Institute of Ecology and Environmental Management, Winchester

DEFRA (2021) Biodiversity Metric 3.0 Auditing and accounting for biodiversity Calculation tool macro free

DEFRA (2021) Biodiversity Metric 3.0 Technical Supplement (1)

DEFRA (2021) Biodiversity Metric 3.0 User Guide

English Nature (2004) *Bat Mitigation Guidelines*. English Nature, Peterborough.

Harris S, Jefferies D, Cheeseman C and Booty C (1994). *Problems with Badgers*, revised 3rd Edition. *RSPCA*, ISBN 0-901098-04-3

Gent T and Gibson S, 2003, *Herpetofauna Workers' Manual*, JNCC

IEA. (1995). *Guidelines for Baseline Ecological Assessment*. Chapman and Hall

Hill et al. 2005, *Handbook of Biodiversity Methods*. Cambridge

JNCC (2004) *The Bat Workers Manual*. 3rd Edition.

JNCC (2010). *Handbook for Phase 1 Habitat Survey: A technique for environmental audit*.

Ratcliffe, D.A. (1977) *A Nature Conservation Review*, Cambridge University Press