Ecological Impact Assessment

Bleachcroft Way, Barnsley

Harron Homes

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Summary

The proposals have engaged with the NPPF Mitigation Hierarchy and have been able to avoid most potential significant effects at the Site.

Residual significant effects can be mitigated and compensated on site and secured via standard conditions provided in the British Standard BS:42020.

1. Introduction

1.1.1. Brooks Ecological Ltd was commissioned by Harron Homes to carry out an Ecological Impact Assessment (EcIA) for a Site referred to as land at Bleachcroft Way, Barnsley.

1.1.2. 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.

1.1.3. 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.

1.1.4. This report adapts the format set out in the Chartered Institute for Ecology and Environmental Management (CIEEM) guidelines for Ecological Report Writing (December 2017).

CIEEM

Ecological Impact Assessment (EcIA) Checklist

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[viii] 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		

2. Site Background

2.1.1. The Site has been allocated for housing by Barnsley MBC in their Local Plan - adopted 2019.

2.1.2. In the Local Plan the Site is the subject of a specific policy - HS27 which states the following:

Site HS27 Bleachcroft Way Industrial Estate indicative number of dwellings 230

The development will be expected to:

- Provide off site highways capacity works at Stairfoot;
- Retain the wet woodland on the site's southern boundary which forms part of a habitat corridor;
- Retain the areas of more species-rich grassland within the railway cutting and in the site's north-eastern corner;
- Provide landscape screening to the site's open southern aspect to the Green Belt which is formed by Dob Syke;
- Retain the grasslands at the south-west and north-east of the site plus the woodland/stream corridor to the east; and
- Safeguard the setting of the Listed Buildings at Swaithe Hall and Ardsley Cemetery.

Archaeological remains may be present on this site therefore proposals must be accompanied by an appropriate archaeological assessment (including a field evaluation if necessary) that must include the following:

- Information identifying the likely location and extent of the remains, and the nature of the remains;
- An assessment of the significance of the remains; and
- Consideration of how the remains would be affected by the proposed development.

2.1.3. The Ecological elements of this policy were informed by the survey carried out by Wildscapes in 2013. These are considered to be somewhat out of date in respect of the value of grassland at the Site - the better areas identified having been impacted by succession and scrub encroachment. A position has been agreed with Barnsley's Biodiversity Officer - Trevor Mayne, whereby the grassland in the east of the Site need no longer constrain development.

2.1.4. The Site has been granted outline planning permission in 2019 based on the boundary and layout shown in figure 1 below:

Figure 2.1 *Approved layout*



3. Method

3.1. Scope of Assessment

3.1.1. The application site 'the Site' comprises an area of abandoned former farm and industrial land to the south of Stairfoot, Barnsley. The extent of this assessment is the development area within the red line boundary defined in Figure 2.1, overleaf.

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

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

- An updating Preliminary Ecological Appraisal (PEA) carried out by Brooks Ecological in January 2021- ER-4066-01A.
- A detailed grassland survey carried out by Brooks Ecological in June 2021 – ER-4066-05
- A Breeding Bird Survey carried out by Brooks Ecological during Spring 2021 – ER-4066-02
- Bat Activity Surveys carried out by Brooks Ecological over the Spring / Summer periods of 2021 -ER- 4066-03
- A Riparian Mammal Survey carried outby Brooks Ecological along Dob Sike during October 2021 ER-4066-06
- Preliminary Ecological Appraisal carried out by Peak Ecology in 2016 to inform the outline application for the Site - Savil03 12/09/2016.
- Ecological Assessment carried out by Wildscapes to inform the Site's Allocation in 2013. - Bleachcroft Way Industrial Estate UB16 – 09/05/2013

3.2. Desk Study

3.2.1. A full desk study including consideration of local biological records provided by the Sheffield Biological Records Centre, and the South Yorkshire Bat and Badger Groups, aerial photographs, local designations and planning guidance has been carried out.

3.3. Field Survey

3.3.1. The following dedicated field has been carried out at the site. Full details of the methodologies used and the results obtained are contained in the relevant documents referenced opposite. Unless stated otherwise these followed the relevant survey guidelines refenced in reports.

- Walkover / Extended Phase 1 Habitat Survey
- Bat Activity Surveys – Transect and Remote Monitoring*
- Riparian Mammal Survey
- Grassland Vegetation Survey
- Breeding Bird Survey*

3.3.2. During other surveys of the Site a likely badger sett has been identified and monitoring of this is currently underway - to be reported later.

Figure 3.1 Site area under assessment (red line)



3.4. Assessment Method

3.4.1. 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

3.4.2. 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, Habitats of Principal Importance or presents any opportunities in this respect.

3.4.3. 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

3.4.4. 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.

4. Ecology Baseline

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

4.2. Designated Sites and Conservation Areas

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

4.2.2. Since the PEA (May 2021) a Dearne Valley Wetland SSSI was notified by Natural England, with the nearest constituent sub-site being approximately 1km to the south-east on the edge of Wombwell. Barnsley's Biodiversity Officer has confirmed their opinion that the proposals would not risk harm to qualifying interests of this SSSI.

4.3. Habitats

4.3.1. The Site comprises habitats mapped opposite and described in the table overleaf.

4.4. Potential future changes to the baseline

4.4.1. The Site's ecological baseline will likely change between the assessed baseline and the consideration of this application.

4.4.2. A reserved matter of the outline permission for the Site is that large scale archaeological investigation will take place – this will necessitate the removal of scrub habitat within the development footprint to ground level. Clearance has been left until after the 2021 nesting season, but is now underway during October.

4.4.3. In the absence of re-development, it is assumed that the Site would revert back to being abandoned land and scrub would quickly re-colonise, with future succession moving the Site towards woodland in the longer term

Figure 4.1 The Site's habitats



4.4.4. The table below sets out the habitats at this site and their relevance in this assessment.

Table 4.1 Site Habitats Summary

Codes	Habitat Feature	**Notes**	**Valued at what scale**
u1b 351	Habitats of Low or Very Low Distinctiveness.	Small parts in the north of the Site are occupied by hard-standing or bare ground.	Negligible
g3c	Other Neutral Grassland	The Site's baseline grassland is a coarse competitive sward dominated by false oat grass and being overrun by bramble scrub this has been assigned a poor condition in DEFRA 2.0. Parts of the Site have thinner soils or have been more recently disturbed – here more a floriferous sward persists, but vegetation surveys have confirmed that these areas do not reach any thresholds of more valuable grassland types - they have been assigned moderate condition under DEFRA 2.0. Grasslands are extensive at the Site but of this type, would not be of importance above a local level.	**Local Level**
h3d h3e h3h g1c	Scrub (including bracken)	Scrubland and bracken have colonised large parts of the Site, this comprises of monospecific stands of bracken, mixed bramble birch and willow scrub, extensive areas of broom (keying as gorse scrub) and large stands of bramble dominated scrub. Areas bordering the woodland of Dob Sike are dominated by young sallow. Although not particularly high value examples of this habitat, there is a large extent of scrub on Site and it is likely to be some importance to local wildlife – such as to birds.	**Local Level**
w1d	Wet Woodland	A small section of willow dominated woodland are found in low-lying areas next to Dob Sike. These are a higher distinctiveness habitat and will be important at a local level. Woodland here is generally in poor condition due to eutrophication, littering and vandalism and the prevalence of the invasive species Himalayan balsam.	**Local Level**
w1a	Other Woodland Broad-leaved	Woodland comprising of sycamore, oak, hawthorn and willow flanks Dob Sike. This incorporates the remnants of some old hedgerow ends and occasionally stools of coppiced hazel and indicators of established woodland such as dogs' mercury. Woodland here is generally in poor condition due to eutrophication, littering and vandalism and the prevalence of the invasive species Himalayan balsam.	**Local Level**
f2e	Reed Bed	The old course of the canal runs up the eastern flank of the Site, this has been colonised by burr and common reed which provides an area of largely terrestrialised reed bed habitat of moderate condition. Although a higher distinctiveness habitat, this example is isolated here and threatened by ongoing terrestrialisation. It is valued at a local level.	**Local Level**

4.4.5. 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 3.0 Spreadsheet Calculator.

Figure 3.2 Site Habitats as defined in Biodiversity Net Gain calculations – Site Baseline[1].

Bleachcroft Way, Barnsley

A-1 Site Habitat Baseline

Condense / Show Columns | Condense / Show Rows | Main Menu | Instructions

	Habitats and areas			Habitat distinctiven	Habitat conditio	Ecologica l	Strategic significance	Suggested action to address habitat losses	Ecologica l baseline
Ref	Broad Habitat	Habitat type	Area (hectare s)	Distinctive ness	Conditio n	Ecologica l connectiv	Strategic significance		Total habitat units
1	Grassland	Grassland - Bracken	0.08	Medium	Poor	Low	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	0.32
2	Grassland	Grassland - Other neutral grassland	0.37	Medium	Moderate	Low	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	3.40
3	Grassland	Grassland - Other neutral grassland	3.54	Medium	Poor	Low	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	14.16
4	Heathland and shrub	Heathland and shrub - Bramble scrub	0.23	Medium	Poor	Low	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	0.92
5	Heathland and shrub	Heathland and shrub - Gorse scrub	0.96	Medium	Moderate	Low	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	7.68
6	Heathland and shrub	Heathland and shrub - Mixed scrub	3.71	Medium	Fairly Poor	Low	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	22.26
7	Urban	Urban - Developed land; sealed surface	0.15	V.Low	N/A - Other	Low	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
8	Urban	Urban - Vacant/derelict land/ bareground	0.26	Low	Poor	Low	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	0.52
9	Wetland	Wetland - Reedbeds	0.1	High	Poor	Medium	Area/compensation not in local strategy/ no local strategy	Same habitat required	0.66
10	Woodland and forest	Woodland and forest - Other woodland; broadleaved	0.35	Medium	Moderate	Low	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	3.22
11	Woodland and forest	Woodland and forest - Wet woodland	0.1	High	Moderate	Medium	Within area formally identified in local strategy	Same habitat required	1.52
12									
13									
14									
15									
16									
		Total site area ha	9.85					Total Site baseline	54.66

[1] Our report provides an estimate of the sites baseline 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 (DEFRA 2021). 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.

4.5. Species and Species Groups

4.5.1. 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 4.2 Summary of relevant faunal issues

Species/ Group (Feature)	Notes	Valued at what scale
Badgers	Dedicated badger survey has not been carried out at this stage as evidence of their presence has only turned up very recently as scrub clearance has allowed access. A single hole (presumed outlier sett) has been identified just outside of the Site boundary at the Site's southern tip. There is some evidence of recent use although the sett looks to be currently inactive. There is evidence that digging for badgers has taken place at the sett in the past. Monitoring is underway and precautions in terms of ongoing clearance have been advised. The South Yorkshire Badger Group has been consulted and has been able to provide records of two known setts nearby which could provide context.	**Local Level**
Birds	The Site has been found to be of moderate value to local bird-populations supporting likely breeding by a good range of species dependant on the scrub habitat present at the time of survey. The breeding assemblage included the red-list species yellow hammer, linnet and song thrush; the amber list species bullfinch, willow warbler, reed bunting and dunnock; as well as a range of green list species. Much of this value has now been lost however, as the Site has been cleared to facilitate the archaeological studies required under Policy HS27 and as a reserved matter of the Site's outline permission.	**Local Level**
Riparian Mammals	Surveys have confirmed likely absence of protected riparian mammals.	N/A
Bats	Seasonal activity surveys have confirmed low levels of foraging and commuting - primarily by common species. Site has been assessed as of Local Value in respect of commuting based on likely use of boundary features and Dob Sike corridor. No potential bat roost features noted at this stage, although precautionary surveys of any trees requiring removal have been advised - this will only be possible one scrub has been cleared to allow access.	**Local Level**
Off Site Habitats	Dob Sike forms the south-eastern boundary of the Site and, along with its attendant woodland, presents the only sensitive off-Site receptor within the Site's Zone of Influence. It is culverted under the railway before reaching the Site and flows away from the Site into another culvert under the adjacent retail park. It and surrounding woodland will be sensitive in terms of the potential to carry pollutants downstream, and the proximity of the block of woodland and watercourse immediately south of the Site.	**Local Level**
Invasive Non-Native Species	There are some large stands of Japanese knotweed present on the Site Himalayan balsam is prevalent close to Dob Sike and is diffuse throughout much of the scrub vegetation in the west. A single stand of Japanese Rose has been identified	**N/A**

5. Description of the Proposed Development

5.1.1. A planning application is to be submitted seeking planning permission for 236 dwellings with vehicle access roads, drainage infrastructure, and public open space.

5.1.2. Whilst much of the Site will be cleared for development, habitat along the south-eastern boundary with Dob Sike and the western boundary with the railway will be retained and protected. These areas will be enhanced as public open space or as structured buffer habitat.

5.1.3. Land previously identified as a better area of grassland coinciding with the old railway is retained and enhanced by restoration of grassland / removal of encroaching scrub.

5.1.4. Proposals have had the opportunity to respond to the findings of the PEA and have built in all potential avoidance where possible, however they are constrained in terms of delivering the amount of housing identified in the Local Plan allocation and outline permission, alongside sustainable urban drainage. This results in the loss of much of the old canal to provide attenuation basins for storm water. Consultation is currently underway with Yorkshire Water as to the possibility of providing wetted areas and reed-bed habitat as part of these basins, a response is awaited on this so at present they are indicated as grassland habitat only.

5.1.5. Impacts are assessed on the basis of the Effects which result on the valued habitats, species or Site's which have been identified above.

Figure 5.1 *Illustrative Masterplan J (Drawing Reference – 498 PL001- Rev E 21.09.2021).*



6. Impacts and Effects of Development

6.1.1. Figure 6.1 shows the development footprint (black hatch) in relation to the mapped habitats.

6.1.2. The development footprint shows the sum extent of proposed built development and associated clearance works.

6.1.3. Much of the Site will need to be cleared, however engagement with Local Plan Policies and the Net Gain Measurements / Mitigation Hierarchy has resulted in the avoidance of impacts on:

- most of the Site's wet woodland,
- Dob Sike and some of its fringing woodland,
- a small part of the former canal and red-bed habitat, and;
- most of the area of better grassland in the south west of the Site.

Figure 6.1 Development footprint in relation to existing on-Site habitats



6.1.4. Figure 6.2 summarise the impacts of development on existing vegetation.

6.1.5. Areas shown in orange will be cleared of existing vegetation and subject to extensive earthworks, which will result in the permanent loss of baseline habitats.

6.1.6. Most areas will then be built out, either as sealed surfaces (roads, footpaths, parking, play areas) or as homes and gardens.

6.1.7. Following development, some areas marked orange will be landscaped, primarily for their amenity value but can be accounted for as new habitats. These areas are illustrated later in sections 7 & 8.

6.1.8. The areas marked green will be retained in situ and protected from development. These will be enhanced These areas are illustrated later in sections 7 & 8.

Figure 6.2 Summary of impacts on existing habitats



Table 6.1 lists the anticipated Impacts and Effects associated with the proposals.

	Impact	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	Acting on	Acting at scale (Maximum)
1a	**Direct habitat loss**. There will be a loss of habitat generally which can be managed through the Biodiversity Net Gain process. Habitat loss will affect connectivity through and around the Site. Habitat loss will be likely to effect identified features of the Site. Most scrub (and value to birds) will have been lost from the Site already at this stage.	Scrub Other Neutral Grassland Reedbed Wet Woodland Other Woodland - Broadleaved Birds Bats Badgers	Local
1b	**Damage to retained habita**t such as by storage of clearance machinery or materials in these areas.	Scrub Other Neutral Grassland Reedbed Wet Woodland Other Woodland – Broadleaved Spread of INNS	Local
1c	**Disturbance**. The noise and activity at the Site will render it and areas immediately off-site inhospitable to wildlife during this period. Wildlife in this area is likely to be habituated to noise levels associated with the urban fringe to some extent -especially given the proximity of railway lines and main roads.	Birds Bats Badgers	Local
1d	**Pollution**. There is the potential for sediment or chemicals to be released from the Site, or into retained habitat during this stage.	Off-Site Habitats Wet Woodland Reed bed Other Woodland – Broadleaved Spread of INNS	Local
1e	Potential effects on **Protected Species**. Precautions will be required to ensure that impacts on badgers, nesting birds, and the spread of Invasive Non-Native Species (INNS) can be avoided.	Protected Species – Badgers, Nesting Birds, INNS	Criminal Offence

	Impact	Stage
2	**Construction activities** will take place over a 2-3 year period. Construction of roads and sewers will be followed by footings and then above ground construction of buildings.	*Construction*

	Significant Effects - in the absence of mitigation	Acting on	Acting at scale (Maximum)
2a	**Damage to retained habitat** such as by storage of machinery or materials in these areas.	Scrub Other Neutral Grassland Reedbed Wet Woodland Other Woodland - Broadleaved Spread of INNS	Local
2b	**Disturbance**. The noise and activity at the Site will render it and areas immediately off-site inhospitable to wildlife during this period.	Birds Bats Badgers	Local
2c	**Pollution**. There is the potential for sediment or chemicals to be released from the Site during this stage.	Off-Site habitats Off-Site Habitats Wet Woodland Reed bed Other Woodland - Broadleaved Spread of INNS	Local

	Impact	Stage
3	**Landscaping activities** will take place period during the construction period and will, be phased around completion of roads and housing.	*Construction*

	Significant Effects - in the absence of mitigation	Acting on	Acting at scale (Maximum)
3a	Damage to retained habitat such as by storage of machinery or materials in these areas. Access will be required to retained areas to commence management and in itself could result in damage.	Scrub Other Neutral Grassland Reedbed Wet Woodland Other Woodland - Broadleaved Spread of INNS	Local
3b	Pollution. There is the potential for sediment or chemicals to be released from the Site during this stage.	Off-Site habitats Off-Site Habitats Wet Woodland Reed bed Other Woodland - Broadleaved Spread of INNS	Local
3c	Inappropriate habitat creation or management techniques could mean that the proposals fail to deliver on BNG or landscape commitments	All habitats and species. Spread of INNS	Local

	Impact	Stage
4	**The Site will be populated.** Units will be inhabited, and traffic and services will access the Site regularly. Pedestrian access across the Site and along rights of way will increase. Presence of domestic pets will increase. Retained and created habitat will be managed by the Site Management Company.	*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.	Scrub Other Neutral Grassland Reedbed Wet Woodland Other Woodland - Broadleaved	Local
4b	Disturbance. The noise and 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. The presence of dogs and cats will result in some predation and displacement, but this area will already be affected by these species to a lesser degree.	Birds Badgers Bats	Local
4c	In the absence of correct management retained and created habitats will not provide the necessary biodiversity units committed to through the BNG or planning process.	All habitats Spread of INNS	Local

7. Mitigation & Residual Effects

7.1.1. 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 illustrated below and set out in table below.

7.1.2. Habitat creation and management will need to be applied to the proposals to achieve the calculated BNG position are set out (and committed to) in the plan below. These themes would need to be the subject of a suitable Biodiversity Management which would provide a means of achieving the required habitats and condition. 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.

7.1.3. Planning permission for the Site would be anticipated to be subject to standard conditions requiring the production of the following documents:

BS:42020 Biodiversity Management Plan (BMP).	This document would specify: • the retention and enhancement of woodland in the Dob Sike corridor, • the retention and enhancement of a section of the old canal and reed bed habitat • the retention and restoration of grassland (alongside some scrub and trees) in the old railway area in the west of the Site • the creation of new areas of wildflower grassland, scrub and woodland planting • the creation of reed bed sections if deemed adoptable by Yorkshire Water. • The ongoing management of INNS post-construction
BS:42020 Construction Environmental Management Plan (CEMP: Biodiversity)	This document would set out methods and precautions required to protect valued receptors. Here these would include: • A method for working close to the outlier badger set, this may include licensed closure of the set if required. • Protective fences to avoid damage to retained or off-Site habitats • Silt fencing or similar to avoid pollutants of sediments reaching sensitive retained or off-Site habitats • Precautions required in relation to nesting birds or the potential for bat roosting in trees
Invasive Weeds Management Plan	This would set out the treatment and removal of INNS prior to construction and the precautions required to avoid spreading INNS during clearance and construction.
Detailed Landscaping Plans	This will specify new woodland, scrub and grassland habitat planting alongside the Site's amenity landscapes.
Lighting Plan	This will show how dark corridors can be retained in the developed Site along Dob Sike and the Site's eastern and western boundaries.

7.1.4. Figure 7.1. shows the Landscape Masterplan. This sets out in broad terms the areas of habitat which will be retained and enhanced or created.

7.1.5. This plan is translated into UK Habs classifications in section 8 later.

Figure 7.1. Landscape Masterplan



Table 7.1 Mitigation put in place to address the effects identified in table 5.1

	Impact	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**.	There will be a loss of grassland, wet woodland, other woodland (broad-leaved) and scrub habitats from the Site. These losses are quantified in the Biodiversity Net Gain calculations provided alongside the report. The proposals have engaged with the BNG process in terms of minimising these losses as far as is possible, whilst aligning as far as is possible with the approved outline for the proposals for the Site which signal the Council's aspirations for the Site. In relation to the approved layout the current proposals provide better retention of grassland in the old railway area – align better with policy HS27 in this respect. Current proposals impact more on the old canal but seek to provide replacement reed-bed habitat here alongside large areas of new wildflower grassland occupying the attenuation basin areas. Birds will suffer most from the loss of habitat here with scrub breeding habitat removed to facilitate archaeology works. The Site's eastern and western and the south-eastern boundary with Dob Sike will all provide areas of new woodland and scrub planting which will mitigate this impact to some extent. Connectivity around the Site will be retained by retention and / or enhancement of green space at the Site boundaries and the Dob Sike Corridor.	Moderate Negative in respect of Birds Minor Negative in respect of other receptors
1b	**Damage to retained habita**t such as by storage of clearance machinery or materials in these areas.	The CEMP will detail installation of barrier fencing to protect retained habitat.	Neutral
1c	**Disturbance**. The noise and activity at the Site will render it, and areas immediately off-Site, inhospitable to wildlife during this period.	The CEMP will detail time limits to work on Site and the installation of screened fencing to limit visual disturbance of sensitive habitat.	Minor Negative

	Significant Effects - in the absence of mitigation	Mitigation / Compensation	Residual Magnitude
1d	**Pollution**. There is the potential for sediment or chemicals to be released from the Site, or into retained habitat during this stage.	The CEMP will detail silt fencing to protect retained habitat and watercourses and the location of bunded compounds for storage of machinery and materials	Neutral
1e	Potential effects on **Protected Species**. Precautions will be required to ensure that impacts on badgers, nesting birds, and the spread of Invasive Non-Native Species (INNS) can be avoided.	The CEMP will detail necessary pre-works checks for badgers, nesting birds and INNS. An INNS Management Plan is being enacted by the developer ahead of construction and is being coordinated with Site clearance.	Avoided entirely.

	Impact	Stage
2	**Construction activities** will take place over a 2-3 year period. Construction of roads 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	**Damage to retained habitat** such as by storage of machinery or materials in these areas.	The CEMP will detail installation of barrier fencing to protect retained habitat – creating a Biodiversity Protection Zone.	Neutral
2b	**Disturbance**. The noise and activity at the Site will render it, and areas immediately off-Site, inhospitable to wildlife during this period.	The CEMP will detail time limits to work on Site and the installation of screened fencing to limit visual disturbance of sensitive habitat.	Minor Negative
2c	**Pollution**. There is the potential for sediment or chemicals to be released from the Site during this stage.	The CEMP will detail silt fencing to protect retained habitat and watercourses and the location of bunded compounds for storage of machinery and materials.	Neutral

	Impact	Stage
3	**Landscaping activities** will take place period during the construction period and will, be phased around completion of roads and housing.	*Construction*

	Significant Effects - in the absence of mitigation	Mitigation / Compensation	Residual Magnitude
3a	**Damage to retained habitat** such as by storage of machinery or materials in these areas. Access will be required to retained areas to commence management, and in itself could result in damage.	The CEMP will detail installation of barrier fencing to protect retained habitat and any precautions required in accessing the Biodiversity Protection Zone The BMP will specify sensitive habitat creation and management activities.	Neutral
3b	**Pollution.** There is the potential for sediment or chemicals to be released from the Site during this stage.	The CEMP will detail silt fencing to protect retained habitat and watercourses and the location of bunded compounds for storage of machinery and materials.	Neutral
3c	**Inappropriate habitat creation** or management techniques could mean that the proposals fail to deliver on BNG commitments	The BMP will detail; the planting and management required to achieve BNG commitments. This will include monitoring so that evidence can be provided, or remedial action can put in place as required.	Neutral

	Impact	Stage
4	**The Site will be populated.** Units will be inhabited, and traffic and services will access the Site regularly. Pedestrian access across the Site and along rights of way will increase. Presence of domestic pets will increase.	*Operation*

	Significant Effects - in the absence of mitigation	Mitigation/Compensation	Residual Magnitude
4a	**Damage to retained and created habitat** such as by inappropriate use, littering, release of invasive species.	Landscaping has been designed to accommodate public access and buffering of sensitive habitats has been designed in. The BMP will specify interpretation panels for the old railway and Dob Sike areas to inform residents of the value of these areas and encourage their care.	Minor positive
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 will result in some predation and displacement.	Landscaping is designed to maximise the amount of habitat which groups such as birds can use for cover, and to provide connectivity. New nesting (for birds) and roosting (for bats) will be detailed in the BMP.	Minor negative
4c	In the absence of correct management retained and **created habitats** may not provide the necessary biodiversity units committed to through the BNG or planning process.	The BMP will provide full details of habitats to be created and their suitable management suitable management. The BMP will include monitoring so that evidence can be provided, or remedial action can put in place as required. Habitat provided will be managed and sustained in the long term.	Minor Positive
4d	**Exclusion of wildlife** from the developed Site – physically or through the lack of provided habitat	Landscaping is designed to allow movement of wildlife around the Site's boundaries. The BMP will specify the provision of routes through the Site for fauna such as hedgehogs, and of integrated roosts for bats and nesting sites for red-list birds present locally, such as house sparrow and starling.	Minor Positive

8. Biodiversity Net Gain

8.1.1. The requirement for, and the level of Biodiversity Net Gain (BNG) engagement required at this Site is to be resolved with the Local Planning Authority. Like many sites, the issue has been complicated by the granting of permission (and an outline layout) prior to consideration of BNG being a requirement or being adopted.

8.1.2. Using BNG measurement has enabled the project to quantify its impact and seek betterment as designs have evolved. The measurements are provided in this report for information at present.

8.1.3. Area calculations setting out the position of the proposals in relation to BNG are set out below. These are based on the Proposed Site 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 in the plan opposite.

8.1.4. Habitat areas within the development footprint are keyed in figure 8.1, with residual areas being allocated under the 'suburban mosaic of developed and natural surfaces. In land outside of the development footprint existing habitat types will be retained and enhanced, save for in the south - west of the Site where bracken and scrub will be cleared to restore neutral grassland. Areas withing the developed Site would be covered by a standard Landscape Management Plan, habitat areas - neutral grassland, scrub, reedbed and woodland by a Biodiversity Management Plan secured by standard condition

8.1.5. Achieving the required Biodiversity Net Gain position would 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.

8.2. Net Gain Calculations

8.2.1. The proposals will lead to an overall net loss in habitat units, with a shortfall of 20.86 Habitat Units (-38.16%) predicted.

8.2.2. There will be an increase in River Units of 1.98 (70.65%).

8.2.3. The client has been provided with a full copy of the Biodiversity Metric 3.0 Calculation Tool

Figure 8.1 Post development habitat types – within the development footprint



Table 8.1 Habitat Creation Summary extracted from Biodiversity Metric 3.0 Calculator tool

Bleachcroft Way, Barnsley

A-2 Site Habitat Creation

Condense / Show Columns | Condense / Show Rows | Main Menu | Instructions

Post development/ post intervention habitats																		
						Ecological connectivity			Strategic significance			Temporal multiplier		Difficulty multipliers				
Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier	Time to target condition/years	Time to target multiplier	Difficulty of creation category	Difficulty of creation multiplier	Habitat units delivered	Comm	Assessor comments
Urban - Artificial unvegetated, unsealed surface	1.31	V.Low	0	N/A - Other	0	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	1.000	Low	1	0.00		Stone surfaced paving
Urban - Suburban/ mosaic of developed/ natural surface	5.88	Low	2	Poor	1	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0.965	Low	1	11.35		Balance of developed site - housing plots , gardens and landscaped areas - smaller / complex paving / turfed areas included here.
Urban - Developed land; sealed surface	0.11	V.Low	0	N/A - Other	0	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	1.000	Low	1	0.00		Access / Distributor Roads
Urban - Amenity grassland	0.12	Low	2	Fairly Poor	1.5	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	2	0.931	Low	1	0.34		Larger areas of amenity grassaland and informal pitches
Grassland - Other neutral grassland	0.6	Medium	4	Moderate	2	Medium	Moderately connected habitat	1.1	Within area formally identified in local strategy	High strategic significance	1.15	10	0.700	Low	1	4.25		Areas planted as flower rich grassland - includes detentiaon basins at this stage although aspiration is for higher value habitat here. Managed to moderate condition. Policy HS27 seeks retention of neutral grassland on developed site
Heathland and shrub - Mixed scrub	0.27	Medium	4	Moderate	2	Medium	Moderately connected habitat	1.1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3	0.899	Low	1	2.14		New planted scrub managed to moderate condition
Urban - Street Tree	0.81	Low	2	Moderate	2	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	27	0.382	Low	1	1.24		152 street and garden trees
Totals	8.29														Total Units	19.31		

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C-3 Site River Enhancement

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Post development/ post intervention habitats																	
	Baseline habitats							Strategic significance		Temporal multiplier	Difficulty multipliers	Riparian encroachment					
Baseline ref	Baseline habitat	Proposed (Pre-populated can be overridden)	Distinctiveness movement	Condition movement	Length KM	Distinctiveness	Condition	Strategic significance	Strategic significance	Time to target condition/years	Difficulty of enhancement	Extent of encroachment	River units delivered	Comme	Assessor comments
1	Rivers & Streams (Other)	Rivers & Streams (Other)	Medium - Medium	Poor - Moderate	0.7	Medium	Moderate	Low potential/ action not identified in any plan.	Low Strategic Significance	8	Medium	4.01 - 6 m	4.78		River corrioror will be cleared of rubbish and INNS managed.
					0.70							Enhancement	4.78		

Bleachcroft Way, Barnsley

A-3 Site Habitat Enhancement

Condense / Show Columns | Condense / Show Rows | Main Menu | Instructions

	Baseline habitats	Post development/ post intervention habitats: Change in distinctiveness and condition			Area (hectares)	Distinctiveness	Condition	Ecological connectivity	Strategic significance	Temporal multiplier	Difficulty multiplier	Habitat units delivered	Comments
Baseline ref	Baseline habitat	Proposed habitat (Pre-populated but can be overridden)	Distinctiveness change	Condition change				Ecological connectivity score	Strategic significance	Time to target condition/years	Difficulty of enhancement		Assessor comments
1	Grassland - Bracken	Grassland - Other neutral grassland	Medium - Medium	Poor - Fairly Good	0.06	Medium	Fairly Good	Low	Within area formally identified in local strategy	12	Low	0.55	Policy HS 27 seeks retention of neutral grassland on site. Remnant moderate vale grassland will be restored and expanded to take in this . Managed to Fairly good condition in the longer term
2	Grassland - Other neutral grassland	Grassland - Other neutral grassland	Medium - Medium	Moderate - Fairly Good	0.13	Medium	Fairly Good	Low	Within area formally identified in local strategy	10	Low	1.41	Policy HS 27 seeks retention of this neutral grassland on site. Remnant moderate value grassland will be restored, expanded and managed to Fairly good condition in the longer term.
3	Grassland - Other neutral grassland	Grassland - Other neutral grassland	Medium - Medium	Poor - Moderate	0.22	Medium	Moderate	Low	Within area formally identified in local strategy	10	Low	1.72	Policy HS 27 seeks retention of neutral grassland on site. Retained grasslands will be managed to at least moderate condition alongside created and restored neutral grassland
6	Heathland and shrub - Mixed scrub	Heathland and shrub - Mixed scrub	Medium - Medium	Fairly Poor - Moderate	0.58	Medium	Moderate	Low	Area/compensation not in local strategy/ no local strategy	3	Low	4.52	Retained scrub will be managed to remove INNS and rubbish and create clearings and/or boundary herbs.
9	Wetland - Reedbeds	Wetland - Reedbeds	High - High	Poor - Moderate	0.02	High	Moderate	Low	Area/compensation not in local strategy/ no local strategy	10	Medium	0.18	Retained canal / reed bed will be managed to retain reed-bed habitat in the longer term and improve diversity.
10	Woodland and forest - Other woodland; broadleaved	Woodland and forest - Other woodland; broadleaved	Medium - Medium	Moderate - Fairly Good	0.15	Medium	Fairly Good	Low	Within area formally identified in local strategy	10	Medium	1.54	Referred to in Local Plan Policy HS27. Woodland will be cleared of rubbish and INNS controlled and management put in place to diversify ground flora
11	Woodland and forest - Wet woodland	Woodland and forest - Wet woodland	High - High	Moderate - Fairly Good	0.06	High	Fairly Good	Low	Within area formally identified in local strategy	10	Medium	0.93	Referred to in Local Plan Policy HS27. Woodland will be cleared of rubbish and INNS controlled and management put in place to diversify ground flora
12	Heathland and shrub - Mixed scrub	Heathland and shrub - Mixed scrub	Medium - Medium	Fairly Poor - Fairly Good	0.34	Medium	Fairly Good	Low	Within area formally identified in local strategy	5	Low	3.65	Policy HS 27 seeks retention of neutral grassland on site. Remnant moderate value grassland will be restored through control of this scrub area and managed to Fairly good condition in the longer term.
				Total site area	1.56						Enhancement total	14.49	

8.2.4. This assessment has used DEFRA Biodiversity Metric 2.0. Spreadsheet Calculator. Although The DEFRA Biodiversity Metric 3.0 was released during production of this report, the Site's assessment and design has all been based on the categories and values in DEFRA 2.0 - the guidance reproduced below and provided with the 3.0 version is followed here:

> Users of the previous Biodiversity Metric 2.0 should continue to use that metric (unless requested to do otherwise by their client or consenting body) for the duration of the project it is being used for as they may find that the biodiversity unit values metric 2.0 generates will differ from those generated by Biodiversity Metric 3.0

Table 8.2 Headline Summary extracted from Biodiversity Metric 3.0 Calculator tool

Bleachcroft Way, Barnsley

Headline Results

Return to results menu

On-site baseline	*Habitat units*	54.66
	Hedgerow units	0.00
	River units	2.80
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	*Habitat units*	33.80
	Hedgerow units	0.00
	River units	4.78
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation, enhancement &	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention/creation)	*Habitat units*	-20.86
	Hedgerow units	0.00
	River units	1.98
Total net % change (including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	-38.16%
	Hedgerow units	0.00%
	River units	70.65%

9. Timing Issues

9.1.1. The standard constraint surrounding nesting birds and vegetation clearance, should be applied with any clearance taking place outside of the nesting season.

9.1.2. Should closure of the outlier badger sett just off-Site be required this would need to take place during the period July to November, with suitable survey and licensing in place well ahead of this.

10. Cumulative Effects

10.1.1. No in-combination effects with other development have been identified.

11. Offsite Measures or Compensation

11.1.1. The scheme is expected to result in a net loss for biodiversity on-Site (as measured through the BNG process), however the LPA has granted permission for a similar outline layout, without requirement for off-Site compensation - similarly this is not anticipated in respect of the current application.

12. Enhancement

12.1.1. Opportunities to provide enhancement, and how to secure this, have been identified in Figure 6.1 and Table 6.1 above and will be detailed in the BMP and Landscaping Plan documents to be produced as a standard conditions of planning.

13. Monitoring

13.1.1. The CEMP document will detail the role of an Ecological Clerk of Works (ECoW) in overseeing protection measures.

13.1.2. The BMP document will identify any management specific monitoring which might be required in respect of habitat enhancement proposed.

14. Policy and Legislation

14.1.1. 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.

14.1.2. In relation to the Local Plan Policy HS27 which applies to the Site the proposals seek to retain as much of the wet woodland at Dob Sike as possible and will retain and restore the better grassland associated with the old railway line.

15. Conclusion

15.1.1. Mitigation to be agreed by standard conditions of planning will be able to address all significant effects resulting from the development.

15.1.2. The scheme is not able to deliver a net gain for biodiversity on site, but this is a position consistent with the Site's allocation, and the outline permission granted for the Site previously.

15.1.3. Proposals have engaged with the ecological information available on the Site and the mitigation hierarchy - they have been able to retain (avoid impacts on) some of its more valued features – such Dob Sike Corridor and old railway grasslands, or to propose mitigation on-Site for the loss of features such as reed-beds.

15.1.4.

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