Hinchliffe Mill, Holmfirth, HD9 2NX

Biodiversity Net Gain (BNG) Statement

October 2022

Report reference	1507d
Revision	1
Prepared by	Toby Fisher CEnv MCIEM
Approved by	Andrew Westgarth CEnv MCIEM
Issue date	Rev 1. 31st October 2022

This report is valid for a period of 12 months from the earliest issue date.

Contents

1   Introduction

1.1.1.1   This document presents Biodiversity Net Gain (BNG) evidence in relation to the following planning application (Kirklees Council):

- *Application No. 2021/90800. Proposal: Redevelopment and change of use of former mill site to form 19 residential units (within a Conservation Area). Hinchliffe Mill, Water Street, Holmbridge, Holmfirth, HD9 2NX.*

1.1.1.2   The aim of this document is to present up-to-date Biodiversity Net Gain (BNG) information for the proposed development using the current proposed site layout. Please note that the BNG information presented in the Ecological Impact Assessment was based on a previous site layout slightly different site area.

1.1.1.3   In accordance with current DEFRA guidelines[1], the DEFRA Biodiversity Metric 3.1[2] has been used to calculate the baseline value of the site (before development) and the post-development value in order to calculate the Total Net Unit Change for Habitats and Rivers[3][4][5].

1.1.1.4   This document should be read in conjunction with the following:

- Habitat Baseline Plan (see Appendix 1).
- Proposed Habitats Plan (see Appendix 2).
- DEFRA Biodiversity Metric Spreadsheet (provided separately).

1.1.1.5   The BNG Assessment has been undertaken using the following Proposed Site Layout drawing:

- *Overall Site Plan. Proposed Residential Development, Hinchliffe Mill, Holmfirth, HD9 2NX. One17. Drawing no. 3372 (0-) 623. Rev G. 19.08.2022.*

---

[1] STEPHEN PANKS, NICK WHITE, AMANDA NEWSOME, MUNGO NASH, JACK POTTER, MATT HEYDON, EDWARD MAYHEW, MARIA ALVAREZ, TRUDY RUSSELL, CLARE CASHON, FINN GODDARD, SARAH J. SCOTT, MAX HEAVER, SARAH H. SCOTT, JO TREWEEK, BILL BUTCHER AND DAVE STONE 2022. Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide. Natural England.

[2] http://publications.naturalengland.org.uk/publication/6049804846366720

[3] Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). The UK Habitat Classification User Manual Version 1.1 at http://www.ukhab.org/

[4] A.M.Gurnell, J. England, S.J.Scott, L.J. Shuker. (2021). A GUIDE TO ASSESSING RIVER CONDITION. Part of the Rivers and Streams Component of the BioDiversity Net Gain Metric. BM3.0 version: August 2021.

[5] https://modularriversurvey.org/

2   Methodology

2.1   River Condition Assessment to inform BNG Calculations

2.1.1.1   To inform the Biodiversity Net Gain (BNG) Calculations, a River Condition Assessment (RCA) survey of the River Holme along the site's northern boundary was undertaken on 26th October 2022 in accordance with the standard methodology[1] [5] [6]. In accordance with the guidelines, based on the width of the watercourse and the size of the proposed development site, one MoRPh 5 survey was undertaken.

2.2   Habitat Condition Survey to inform BNG Calculations

2.2.1.1   To inform the Biodiversity Net Gain (BNG) Calculations, the habitat types and condition of the habitats within the site were assessed on 26th October 2022 in accordance with the standard methodology[3] [3].

2.3   BNG Calculations

2.3.1.1   The DEFRA Biodiversity Metric 3.1[2] has been used to calculate the baseline value of the site (before development) and the post-development value in order to calculate the Total Net Unit Change.

2.4   Personnel

2.4.1.1   The Habitat Condition Survey and BNG Calculations were undertaken by Toby Fisher CEnv MCIEEM and Morgane Accault ACIEEM.

2.4.1.2   The River Condition Assessment was undertaken by Toby Fisher CEnv MCIEEM (professionally trained and accredited in the use of the Modular River Survey).

2.5   Comments

2.5.1.1   The surveys were undertaken within the optimum season for Habitat Condition Surveys and River Condition Assessment. Due to health and safety considerations, the River Condition Assessment was undertaken from the bank-tops only; this is not considered to be a significant limitation. There were no other access restrictions and overall there were no significant limitations.

[6] A.M. Gurnell. (2021). APPLICATION AND TESTING OF THE RIVER CONDITION ASSESSMENT USING A CALIBRATION DATA SET. August 2021.

3 Baseline Conditions

3.1 River Condition Assessment (RCA)

3.1.1.1 The results of the RCA are presented in the DEFRA Biodiversity Metric 3.1 (provided separately).

3.1.1.2 The surveyed section of the River Holme was assessed as River Type C with 'moderate' condition (mean Preliminary Condition Score: 0.50; mean River Shape score: 1.90).

3.1.1.3 Watercourse (in-watercourse) encroachment is 'major'. Riparian encroachment is also 'major'.

3.2 Habitats and Habitat Condition

3.2.1.1 The Baseline Habitat Types for on-site and off-site areas are shown in Appendix 1. Habitat Conditions are presented below for all on-site areas.

3.2.2 Urban - Developed Land, Sealed Surface – Condition N/A

DEFRA Condition Assessment: No assessment required – automatically assigned score of 0.

3.2.3 Grassland; Other Neutral Grassland – Condition POOR

Table 1. DEFRA Condition Assessment: POOR (passes 4 of 6 criteria excluding criterion 1)

Condition Sheet: GRASSLAND Habitat Type (medium, high & very high distinctiveness)		Passes criteria?
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.	No
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Yes
3	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens.	No
4	Cover of bracken is less than 20% and cover of scrub (including bramble) is less than 5%.	Yes
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition1 and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	Yes
Additional Group (Non-acid types only)		
6	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	Yes
Condition Assessment Result	Condition Assessment Score	
Non-acid grassland Types		

Passes 5 of 6 criteria, including essential criterion 1 and 6.	Good (3)
Passes 3 or 4 of 6 criteria, including essential criterion 1.	Moderate (2)
Passes 0, 1, 2 criteria of 6 criteria; OR Passes 3 or 4 criteria excluding criterion 1 or 6	Poor (1)

3.2.4   *Lakes; Pond (Non-Priority Habitat) – Condition MODERATE*

Table 2. DEFRA Condition Assessment: MODERATE (passes 6 of 9 criteria)

Condition Sheet: POND Habitat Type		Passes criteria?
1	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Yes
2	There is semi-natural habitat (i.e. moderate distinctiveness or above) for at least 10 m from the pond edge.	Yes
3	Less than 10% of the pond is covered with duckweed or filamentous algae.	Yes
4	The pond is not artificially connected to other waterbodies, either via streams, ditches or artificial pipework.	No
5	Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps or pipework.	No
6	There is an absence of non-native plant and animal species[2].	Yes
7	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Yes
ADDITIONAL CRITERIA - only applicable to non-woodland ponds:		
8	In non-woodland ponds, plants, be they emergent, submerged or floating (excluding duckweeds)[3], should cover at least 50% of the pond area that is less than 3 m deep.	No
9	The surface of non-woodland ponds is no more than 50% shaded by woody bankside species.	Yes
Condition Assessment Result	Condition Assessment Score	
Non-Woodland Ponds		
Passes 9 of 9 criteria	Good (3)	
Passes 6, 7 or 8 of 9 criteria	Moderate (2)	
Passes 0, 1, 2, 3, 4 or 5 of 9 criteria	Poor (1)	
Footnote 1 - A woodland pond will be surrounded on all sides by woodland habitat.		
Footnote 2 - Any species included on the Water Framework Directive UKTAG GB High Impact Species List should be absent: WFD UKTAG (2021) Classification of aquatic alien species according to their level of impact [online]. Available from: UKTAG classification of alien species working paper v8.pdf (wfduk.org)		
• Frequently occurring non-native plant species include water fern Azolla spp., Australian swamp stonecrop Crassula helmsii, parrot's feather Myriophyllum aquaticum, floating pennywort Hydrocotyle ranunculoides and Japanese knotweed Fallopia japonica, giant hogweed		

Heracleum mantegazzianum (on the bank). • Frequently occurring non-native animals include signal crayfish Pacifastacus leniusculus, zebra mussels Dreissena polymorpha, killer shrimp Dikerogammarus villosus, demon shrimp Dikerogammarus haemobaphes, carp Cyprinus carpio.

Footnote 3 - If the pond is seasonal (i.e. dries out in most summers) then emergent species alone are likely to be found.

3.2.5   *Woodland and Forest; Other Woodland; Broadleaved – Condition POOR*

Table 3. DEFRA Condition Assessment: POOR (scores 23 out of 39)

No	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 points)	Score per indicator
	Condition Assessment Criteria – WOODLAND habitat type				
1	Age distribution of trees[1]	Three age classes present	Two age classes present	One age class present	1
2	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland[2]	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland	3
3	Invasive plant species[3]	No invasive species present in woodland	Rhododendron or laurel not present, other invasive species < 10% cover	Rhododendron or laurel present, or other invasive species > 10% cover	2
4	Number of native tree species	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	None to two native tree or shrub species across woodland parcel	2
5	Cover of native tree and shrub species	> 80% of canopy trees and >80% of understory shrubs are native	50-80% of canopy trees and 50-80% of understory shrubs are native	< 50% of canopy trees and <50% of understory shrubs are native	2
6	Open space within woodland[4]	10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply	21- 40% of woodland has areas of temporary open space	More than 40% of woodland has areas of temporary open space	3

Condition Assessment Criteria – WOODLAND habitat type				
No	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 points)	Score per indicator
7	Woodland regeneration[5]	All three classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland	1
8	Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback	11% to 25% mortality and/or crown dieback or low risk pest or disease present[6]	Greater than 25% tree mortality and or any high risk pest or disease present	1
9	Vegetation and ground flora	Ancient woodland flora indicators present	Recognisable NVC plant community present	No recognisable NVC community	1
10	Woodland vertical structure[7]	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots	2
11	Veteran trees[8]	Two or more veteran trees per hectare	One veteran tree per hectare	No veteran trees present in woodland	1
12	Amount of deadwood	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	1
13	Woodland disturbance[9]	No nutrient enrichment or damaged ground evident	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground	3
Total score (out of 39)					23
Condition Assessment Result			Condition Assessment Score		

Condition Assessment Criteria – WOODLAND habitat type					
No	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 points)	Score per indicator
Total score >32 (33 to 39)				Good (3)	
Total score 26 to 32				Moderate (2)	
Total score <26 (13 to 25)				Poor (1)	

Footnote 1 - See EWBG method INDICATOR 1 for more information. If tree species is not a birch, cherry or Sorbus: 0 – 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). A recognisable age class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age class' of young trees.

Footnote 2 - See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed.

Footnote 3 - See EWBG method INDICATOR 3 for more information. Check for presence of the following invasive non-native species: American skunk cabbage Lysichiton americanus; Himalayan balsam Impatiens glandulifera; Japanese knotweed Fallopia japonica; Cherry Laurel Prunus laurocerasus; Shallon Gaultheria shallon; Snowberry Symphoricarpos albus; Variegated yellow archangel Lamiastrum galeobdolon subsp. argentatum; and Rhododendron Rhododendron ponticum.

Footnote 4 - See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (e.g. glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (e.g. tarmac, buildings, rivers). Area is at least 10m wide with less than 20% covered by shrubs or trees.

Footnote 5 - See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, the regeneration indicator is gathers additional information by considering regeneration potential i.e. if seedlings, saplings and young trees are all present that means natural regeneration processes are happening.

Footnote 6 - See EWBG method INDICATOR 9 for more information and Table 3 for a list of diseases and pests and their risk level.

Footnote 7 - This indicator is looking at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer.

Footnote 8 - See EWBG method INDICATOR 12 for more information. All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value. Veteran trees can be classified if they have four out of the five following features: 1. Rot sites associated with wounds which are decaying >400 cm2; 2. Holes and water pockets in the trunk and mature crown >5 cm diameter; 3. Dead branches or stems >15 cm diameter; 4. Any hollowing in the trunk or major limbs; 5. Fruit bodies of fungi known to cause wood decay.

Footnote 9 - See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery or animal poaching; litter.

3.2.6 Heathland and Shrub; Mixed Scrub – Condition MODERATE

Table 4. DEFRA Condition Assessment: MODERATE (passes 3 of 5 criteria)

	Condition Assessment Criteria – SCRUB habitat type	Passes criteria?
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	No
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	Yes
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition[1] make up less than 5% of ground cover.	No
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Yes
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Yes

Condition Assessment Result	Condition Assessment Score
Passes 5 of 5 criteria	Good (3)
Passes 3 or 4 of 5 criteria	Moderate (2)
Passes 0, 1 or 2 of 5 criteria	Poor (1)
Footnote 1 - Species indicative of sub-optimal condition for this habitat type include: tree-of-heaven Alianthus altissima, holm oak Quercus ilex, turkey oak Quercus cerris, creeping thistle Cirsium arvense, common nettle Urtica dioica, cherry laurel Prunus laurocerasus, snowberry Symphoricarpos spp., buddleia Buddleja spp., cotoneaster Cotoneaster spp., Spanish bluebell Hyacinthoides hispanica (or hybrids).	

3.2.7 Sparsely Vegetated Land - Ruderal/Ephemeral – Condition MODERATE

Table 5. DEFRA Condition Assessment: MODERATE (passes 2 of 3 criteria):

	Condition Assessment Criteria – URBAN habitat type	Passes criteria?
1	Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.	No
2	There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife).	Yes
3	Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	Yes

Condition Assessment Result	Condition Assessment Score
Passes 3 of 3 core criteria; AND Meets the requirements for good condition within criteria 2 and 3	Good (3)
Passes 2 of 3 core criteria; OR Passes 3 of 3 core criteria but does not meet the requirements for good condition within criteria 2 and 3	Moderate (2)
Passes 0 or 1 of 3 core criteria	Poor (1)

4   Proposals

4.1.1   Habitats

4.1.1.1   The Proposed Habitat Types for on-site areas are shown in Appendix 2.

4.1.1.2   Future management of the Proposed Habitats will be presented separately in a Biodiversity Enhancement and Management Plan (BEMP).

4.1.2   Rivers

4.1.2.1   As shown on the Overall Site Plan (Overall Site Plan. Proposed Residential Development, Hinchliffe Mill, Holmfirth, HD9 2NX. One17. Drawing no. 3372 (0-) 623. Rev G. 19.08.2022.), the proposed development will involve some minor works within 10 metres of the river channel (i.e. riparian zone) including a new footpath, swale and planting in the north-eastern part of the site.

4.1.2.2   The details of any drainage proposals within 10 metres of the river channel will be confirmed at the detailed design stage. In accordance with BNG[1], the on-site post-development encroachment is defined as 'major' encroachment in watercourse (in-watercourse) terms; and also 'major' encroachment in riparian terms, i.e. no change from the on-site baseline condition.

4.1.2.3   Options for on-site river improvements have been considered, e.g. removal of Japanese Knotweed. Such improvements are anticipated to improve the mean preliminary condition score from the current score of 0.50 but are anticipated to remain below the Lower Threshold for 'Fairly Good' Condition (River Type C) of 1.4 and therefore would be insufficient to achieve a River Condition Score greater than 'moderate'[4].

4.1.2.4   Further details of proposed improvements, potentially including control of Non-Native Invasive Plant Species will be presented separately in a Biodiversity Management & Monitoring Plan (BMMP).

5 BNG Calculation Results

5.1 Habitat Baseline, Retention and Creation

5.1.1.1 The Baseline Habitat Types for on-site and off-site areas are shown in Appendix 1.

5.1.1.2 The Proposed Habitat Types for on-site and off-site areas are shown in Appendix 2

5.1.1.3 The proposed development layout is shown in the following drawing:

- *Overall Site Plan. Proposed Residential Development, Hinchliffe Mill, Holmfirth, HD9 2NX. One17. Drawing no. 3372 (0-) 623. Rev G. 19.08.2022.*

5.1.1.4 The BNG Calculations are presented separately in the DEFRA Metric 3.1 MS Excel spreadsheet.

5.2 BNG Results

5.2.1.1 The development will result in the following changes:

- Habitat Units: Total Net Habitat Unit Change of -2.70 (negative; equivalent to a loss of 23.83%).
- Hedgerow Units: Total Net Hedgerow Unit Change of +1.06 (positive; equivalent to a gain of 100%).
- River Units: Total Net River Unit Change of 0.00 (neutral; equivalent to a change of 0.00%).

Appendix 1. Baseline Habitat Types

Legend:

- Red Line Boundary
- Developed land; sealed surface
- Mixed scrub
- Other neutral grassland
- Other woodland; broadleaved
- Ponds (Non- Priority Habitat)
- Ruderal/Ephemeral

Appendix 2. Proposed Habitat Types

Legend:

- Red Line Boundary
- Bioswale
- Developed land; sealed surface
- Mixed scrub
- Other neutral grassland
- Other woodland; broadleaved
- Ponds (Non- Priority Habitat)
- Vegetated garden
- Native Hedgerow
- Proposed Large
- Proposed Medium
- Proposed Small