



ECOLOGYSOLUTIONS

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LAND AT WEAVERS FIELDS,
EARL SHILTON,
LEICESTERSHIRE

Biodiversity Net Gain Report

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1. INTRODUCTION

1.1. Background & Proposals

- 1.1.1. Ecology Solutions was commissioned by Barwood Land in June 2021 to establish that the proposed development delivers a long-term net gain for biodiversity through the application of the Biodiversity Metric 4.0 Calculation Tool.
- 1.1.2. The proposals for the site are for the construction of new residential development with associated infrastructure and open space (see Appendix 1).
- 1.1.3. After the submission of the original calculations (ref. 4955.Barwood.4.0.vf dated May 2023), Leicestershire County Council (LCC) provided a response on 26 May 2023 (see Appendix 3) which requested additional information as well as National Vegetation Classification surveys to better understand the grasslands within the site. Subsequently NVC surveys were undertaken and are set out, along with the additional information requested, within this updated report.

1.2. Site Characteristics

- 1.2.1. The Site is located to the southeast of the town of Earl Shilton. To the north, the Site is bordered by existing urban development and to the south and east, the Site is bordered by agricultural land with the A47 road and further open agricultural land beyond, while to the west the Site is bordered by existing urban development.
- 1.2.2. The Site comprises arable and semi-improved grassland, separated by hedgerows, ditches and trees. Areas of scrub are present, associated with the boundary features, and Earl Shilton Brook runs through the central part of the Site, with small areas of hardstanding also present.

1.3. Biodiversity Net Gain Report

- 1.3.1. This document assesses the level of Biodiversity Net Gain within the site. This report has been prepared with due consideration to the guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)^{1,2} in relation to Biodiversity Net Gain. This assessment is based on the results of the habitat surveys completed, as set out in the Ecological Assessment.

¹ CIEEM (2019). *Biodiversity Net Gain. Good Practice Principles for Development, A Practical Guide.*

² CIEEM, CIRIA, IEMA (2016). *Biodiversity Net Gain: Good Practice Principles for Development.*

2. BIODIVERSITY METRIC 4.0

- 2.1. The Biodiversity Metric 4.0 was released in March 2023 and uses habitat features as a proxy measure for capturing the value and importance of nature. It uses calculations to assess the importance of each habitat based on its size, ecological condition and location.
- 2.2. Measurements for habitats pre-development were calculated using QGIS. Information regarding the habitats present as well as their condition were based on information gathered during survey work.
- 2.3. The onsite river was subject to a River Condition Assessment (RCA) by an accredited Modular River Physical (MoRPh) survey surveyor. Five contiguous MoRPh surveys were undertaken to create a MoRPh 5 survey and this data was combined with a desk study to determine the type and condition of the river.
- 2.4. Measurements for the post-development situation were calculated using the Illustrative Masterplan and the Green Infrastructure Parameter Plan (drawing ref. 42523-WSPE-XX-XX-DR-A-0005_S1_P01.4 and 42523-WSPE-XX-XX-DR-A-00001_S0_P01.3 respectively), provided by WSP (see Appendix 1 and 2).

3. RESULTS AND DISCUSSION OF METRIC

- 3.1. This section should be read in conjunction with the Biodiversity Metric calculation tool which has been provided separately.

3.2. Baseline Habitat (Pre-Development)

- 3.2.1. Table 8 below summarises the habitats present on site while Tables 9 and 10 summarise the hedgerows and their conditions and Table 11 summarise the onsite watercourse (see Plans BNG1). A baseline total of 81.60 habitat units, 55.52 hedgerow units and 0.51 watercourse units are present onsite pre-development.
- 3.2.2. Habitats were classified based on their conformity to UK habitat classifications³ and condition assessments were completed for each habitat and hedgerow identified within the site. The Biodiversity Metric 4.0 User Guide – Technical Annex 2⁴ as well as professional judgment was used to inform the habitats' condition criteria.

3.3. Detailed Botanical Surveys

- 3.3.1. As requested by LCC, NVC surveys were undertaken within the site on 6 July 2023 for fields F1, F2, F3, F5 and F9. The methodology of this survey is set out below.

Methodology

- 3.3.2. A National Vegetation Classification (NVC) Survey was undertaken using an accepted methodology, whereby the area was assessed to identify and map homogenous stands of vegetation. Once delineated, the target grasslands within the survey area were subsequently surveyed using randomly placed quadrats. Five quadrats (2mx2m) were surveyed with data collected on the floral species present and their relative frequency within the quadrat (as a percentage cover). Further information was also collected on the location and characteristics of the sample plot such as its aspect, topography, hydrology and structural composition.
- 3.3.3. The recorded quadrat data was analysed using the MAVIS computer programme, which generates a series of outputs (10 in total) related to the best fit with NVC habitat types. The results generated are in a percentage format (e.g. 64% best fit to MG7 grassland). In accordance with the methodology, once the MAVIS analysis has been undertaken, the relevant NVC handbook⁵ is consulted and the habitat descriptions and keys are used to guide conclusions as to which vegetation type is present.
- 3.3.4. Regard has also been had to the more general species lists collected and other site characteristic to fully inform the conclusions drawn in allocating a NVC community type.

³ UKHab Ltd (2023). *UK Habitat Classification Version 2.0* (at <https://www.ukhab.org>)

⁴ Natural England (2023). *The Biodiversity Metric 4.0 User Guide – Technical Annex 2*, Natural England Joint Publication JP039.

⁵ Rodwell, J. S. (1992). *British Plant Communities: Volume 3: Grasslands and montane communities*. Cambridge. Cambridge University Press.

- 3.3.5. The optimum period for surveying grassland habitats is aligned with the time of year when most plant species have flowered, which typically falls between the months of May and July. However, it remains appropriate to undertake botanical surveys outside this period (typically from March to September), subject to a sufficient number of species being present to confidently inform any assessment. Given that the survey undertaken to inform this assessment was conducted in July, it is considered an accurate and robust assessment has been made.
- 3.3.6. It should also be recognised that data collected to inform the recognised NVC communities are not considered to be comprehensive or complete. As such any localised variance in any community will not necessarily be represented within the NVC system and may result in poorer fits with published descriptions. An element of professional judgement is therefore applied.

Results

- 3.3.7. As detailed above, the botanical survey was undertaken in two distinct parts. Firstly, fields F1, F2, F3, F5 and F9 were walked with notes taken on species present, structure and any distinction between homogenous stands of vegetation. Second, an NVC survey was undertaken for each community found. The results for these surveys are set out below.
- 3.3.8. Following the walkover survey that aimed to identify and differentiate vegetative communities, a quadrat survey of the grassland communities present within the site was undertaken.
- 3.3.9. As each field only has one community present, quadrat sampling was undertaken across each field. The species recorded, percentage cover and constancy across all quadrats are presented below.

Table 1: Floristic table for quadrat results of NVC survey of field F1. In line with NVC methodology constancy values V & IV = constant, III = common, II = occasional and I = rare.

Species		Q1	Q2	Q3	Q4	Q5	Constancy
<i>Arrhenatherum elatius</i>	False Oat	50	30	50	70	70	V
<i>Stellaria graminea</i>	Lesser Stitchwort	2	10	10	2	15	V
<i>Holcus lanatus</i>	Yorkshire Fog	20	50	40	0	5	IV
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	20	5	5	0	5	IV
<i>Potentilla reptans</i>	Creeping Cinquefoil	5	20	10	0	5	IV
<i>Lathyrus pratensis</i>	Meadow Vetchling	3	1	5	0	2	IV
<i>Galium aparine</i>	Cleavers	0	2	2	3	3	IV
<i>Dactylis glomerata</i>	<u>Cock's-foot</u>	10	0	10	5	0	III
<i>Elytrigia repens</i>	Common Couch	10	0	0	20	5	III
<i>Agrostis stolonifera</i>	Creeping Bent	10	10	0	0	0	II
<i>Ranunculus repens</i>	Creeping Buttercup	5	5	0	0	0	II
<i>Rumex acetosa</i>	Common Sorrel	2	0	0	0	1	II
<i>Cirsium arvense</i>	Creeping Thistle	0	5	2	0	0	II
<i>Festuca rubra</i>	Red Fescue	0	0	15	0	0	I
<i>Poa trivialis</i>	Rough Meadow-grass	0	0	0	5	0	I
<i>Trifolium repens</i>	White Clover	0	2	0	0	0	I
<i>Heracleum sphondylium</i>	Hogweed	0	0	20	0	0	I
<i>Achillea millefolium</i>	Yarrow	0	0	0	1	0	I

Table 2: Floristic table for quadrat results of NVC survey of field F2. In line with NVC methodology constancy values V & IV = constant, III = common, II = occasional and I = rare.

Species		Q1	Q2	Q3	Q4	Q5	Constancy
<i>Arrhenatherum elatius</i>	False Oat	30	60	50	60	70	V
<i>Festuca rubra</i>	Red Fescue	10	15	10	5	10	V
<i>Stellaria graminea</i>	Lesser Stitchwort	3	10	15	3	5	V
<i>Holcus lanatus</i>	Yorkshire Fog	50	0	10	5	5	IV
<i>Alopecurus pratensis</i>	Meadow Foxtail	15	5	10	5	0	IV
<i>Agrostis stolonifera</i>	Creeping Bent	5	0	0	5	10	III
<i>Elytrigia repens</i>	Common Couch	5	0	15	10	0	III
<i>Rumex acetosa</i>	Common Sorrel	1	0	5	0	0	II
<i>Galium aparine</i>	Cleavers	2	5	0	0	0	II
<i>Phleum pratense</i>	Timothy	5	0	0	0	0	I
<i>Lolium perenne</i>	Perennial Rye	10	0	0	0	0	I
<i>Cerastium fontanum</i>	Mouse-ear	1	0	0	0	0	I
<i>Ranunculus repens</i>	Creeping Buttercup	5	0	0	0	0	I
<i>Fraxinus excelsior</i>	Ash sapling	0	0	0	1	0	I
<i>Heracleum sphondylium</i>	Hogweed	0	0	0	0	15	I
<i>Anthriscus sylvestris</i>	Cow Parsley	0	0	0	0	10	I

Table 3: Floristic table for quadrat results of NVC survey of field F3. In line with NVC methodology constancy values V & IV = constant, III = common, II = occasional and I = rare.

Species		Q1	Q2	Q3	Q4	Q5	Constancy
<i>Arrhenatherum elatius</i>	False Oat	40	60	60	70	50	V
<i>Festuca rubra</i>	Red Fescue	50	30	40	30	30	V
<i>Cirsium arvense</i>	Creeping Thistle	2	20	10	5	2	V
<i>Holcus lanatus</i>	Yorkshire Fog	50	10	0	10	5	IV
<i>Agrostis stolonifera</i>	Creeping Bent	5	5	0	0	20	III
<i>Anthriscus sylvestris</i>	Cow Parsley	0	2	0	3	2	III
<i>Stellaria graminea</i>	Lesser Stitchwort	2	0	0	0	2	II
<i>Cerastium fontanum</i>	Mouse-ear	1	0	0	0	4	II
<i>Poa trivialis</i>	Rough Meadow-grass	3	0	0	0	40	II
<i>Galium aparine</i>	Cleavers	0	0	3	2	0	II
<i>Ranunculus repens</i>	Creeping Buttercup	1	0	0	0	0	I
<i>Urtica dioica</i>	Nettle	0	0	10	0	0	I
<i>Alopecurus pratensis</i>	Meadow Foxtail	0	0	0	10	0	I
<i>Rumex acetosa</i>	Common Sorrel	0	0	0	0	15	I

Table 4: Floristic table for quadrat results of NVC survey of field F5. In line with NVC methodology constancy values V & IV = constant, III = common, II = occasional and I = rare.

Species		Q1	Q2	Q3	Q4	Q5	Constancy
<i>Arrhenatherum elatius</i>	False Oat	75	75	75	75	40	V
<i>Galium aparine</i>	Cleavers	3	5	5	5	5	V
<i>Stellaria graminea</i>	Lesser Stitchwort	1	5	5	5	0	IV
<i>Carex hirta</i>	Hairy Sedge	5	15	10	0	0	III
<i>Rumex acetosa</i>	Common Sorrel	1	0	5	5	0	III
<i>Festuca rubra</i>	Red Fescue	10	0	0	10	10	III
<i>Conopodium majus</i>	Pignut	0	2	2	1	0	III
<i>Cirsium arvense</i>	Creeping Thistle	0	3	3	3	0	III
<i>Achillea millefolium</i>	Yarrow	3	3	0	0	0	II
<i>Alopecurus pratensis</i>	Meadow Foxtail	0	5	0	0	10	II
<i>Poa trivialis</i>	Rough Meadow-grass	0	5	0	5	0	II
	Bare ground	0	0	10	0	0	I
<i>Deschampsia cespitosa</i>	Tufted hairgrass	0	0	0	0	30	I

Table 5: Floristic table for quadrat results of NVC survey of field F9. In line with NVC methodology constancy values V & IV = constant, III = common, II = occasional and I = rare.

Species		Q1	Q2	Q3	Q4	Q5	Constancy
<i>Arrhenatherum elatius</i>	False Oat	50	50	60	60	50	V
<i>Elytrigia repens</i>	Common Couch	10	5	10	5	0	IV
<i>Agrostis stolonifera</i>	Creeping Bent	20	0	10	5	10	IV
<i>Galium aparine</i>	Cleavers	5	5	0	5	5	IV
<i>Sonchus asper</i>	Prickly Sow-thistle	5	5	5	2	0	IV
<i>Cirsium arvense</i>	Creeping Thistle	5	0	5	5	3	IV
<i>Trifolium repens</i>	White Clover	5	5	2	5	0	IV
<i>Phleum pratense</i>	Timothy	5	5	0	5	10	IV
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	0	10	10	10	10	IV
<i>Urtica dioica</i>	Common Nettle	5	5	0	5	0	III
<i>Festuca arundinacea</i>	Tall Fescue	20	0	5	5	0	III
	Bare ground	10	10	0	5	0	III
<i>Ranunculus acris</i>	Meadow Buttercup	0	2	5	5	0	III
<i>Holcus lanatus</i>	Yorkshire Fog	10	0	10	0	0	II
<i>Festuca rubra</i>	Red Fescue	10	0	10	0	0	II
<i>Epilobium ciliatum</i>	American Willowherb	1	0	0	0	1	II
<i>Ranunculus repens</i>	Creeping Buttercup	2	0	0	5	0	II
<i>Rumex acetosa</i>	Common Sorrel	0	0	2	2	0	II
<i>Dactylis glomerata</i>	Cock's-foot	0	0	0	5	5	II
<i>Poa trivialis</i>	Rough Meadow-grass	0	0	0	5	5	II
<i>Alopecurus pratensis</i>	Meadow Foxtail	0	10	0	0	0	I
<i>Picris echioides</i>	Bristly Oxtongue	0	2	0	0	0	I
<i>Lactuca serriola</i>	Prickly Lettuce	0	2	0	0	0	I
<i>Stellaria graminea</i>	Lesser Stitchwort	0	2	0	0	0	I
<i>Anthriscus sylvestris</i>	Cow Parsley	0	0	2	0	0	I
<i>Lathyrus pratensis</i>	Meadow Vetchling	0	0	0	0	10	I
<i>Heracleum sphondylium</i>	Hogweed	0	0	0	0	3	I
<i>Potentilla reptans</i>	Creeping Cinquefoil	0	0	0	0	5	I
<i>Rubus fruticosus agg.</i>	Bramble	0	0	0	0	2	I

- 3.3.10. The results set out above coupled with other observations of the communities can be assessed in order to identify which NVC community best fits. In addition, computer programs such as MAVIS can be used to further analyse the data collected.

MAVIS Analysis

- 3.3.11. The MAVIS plot analyser was used to assist in classifying the above community. The outputs are discussed further below.

Field F1

- 3.3.12. A total of 18 species were recorded within the five quadrat samples of Field F1, with a mean species richness of 9.8 in each quadrat. False Oat-grass was constant and most abundant, with a mixture of Yorkshire-fog and

Sweet Vernal-grass also recorded as constant. Herbaceous species recorded as constant at relatively low abundances include Lesser Stitchwort, Creeping Cinquefoil, Meadow Vetchling and Cleavers.

3.3.13. The MAVIS outputs are listed below:

- NVC: MG1c 56.57
- NVC: MG1b 53.89
- NVC: MG9b 51.24
- NVC: MG1a 50.86
- NVC: MG1 47.99
- NVC: MG9 45.86
- NVC: W24 42.90
- NVC: MG7C 41.85
- NVC: MG4c 41.67
- NVC: MG1e 40.66

3.3.14. The MAVIS analysis lists MG1c as the best fit (56.57), although MG1b is slightly lower (53.89). MG1 and MG1a are also listed within close succession which also suggests a positive correlation with this community type.

3.3.15. MG1c is a False Oat-grass grassland with a Meadowsweet subcommunity, however, Meadowsweet was not recorded within any quadrats in F1 (or the wider field) and would be expected at a high constancy (up to 26-33% within each quadrat) if it were this community type. Other indicators were also recorded at considerably lower quantities than would be expected for this community type (i.e. Cock's-foot, Rough Meadow-grass and Hogweed) and so it is not considered this would be the correct categorisation.

3.3.16. MG1b is another False Oat-grass grassland with a Common Nettle subcommunity. Common Nettle was not recorded in the quadrats (but was noted as present in the field) and so this is considered likely to be a better fit.

3.3.17. MG9b is a Yorkshire Fog - Tufted Hairgrass grassland with a False Oat-grass subcommunity, however, Tufted Hairgrass was not recorded in the quadrats (albeit again it was noted in as present in the field).

3.3.18. As such, the MG1b community appears to be the best fit for F7 albeit with elements suggesting an MG9b (albeit less of a fit as Tufted Hair-grass would be expected as a constant in moderate abundance which is not the case).

3.3.19. These communities are not lowland meadow community types and are relatively widespread communities of lower botanical conservation value. Indeed, only one lowland meadow priority habitat indicator species (Meadow Vetchling) was recorded in the quadrats (albeit four indicators - Pignut, Birds-foot Trefoil, Black Knapweed and Autumn Hawkbit - were recorded outside quadrats (all rare in abundance)).

Field F2

- 3.3.20. A total of 16 species were recorded within the five quadrat samples of Field F1, with a mean species richness of 8.0 in each quadrat. False Oat-grass was constant and most abundant, with a mixture of Red Fescue, Yorkshire-fog and Meadow Foxtail also recorded as constant. The only herbaceous species recorded as constant was Lesser Stitchwort.
- 3.3.21. The MAVIS outputs are listed below:
- NVC: MG9b 48.73
 - NVC: MG1b 48.73
 - NVC: MG1a 47.06
 - NVC: MG1c 44.25
 - NVC: MG1 41.29
 - NVC: SM28 41.06
 - NVC: MG4c 40.75
 - NVC: MG9 40.58
 - NVC: MG11 40.31
 - NVC: MG7D 38.54
- 3.3.22. For field F2 the top affinity came out as both MG1b and MG9b (both 48.733%) while MG1a was the next best fit (47.06%). Whilst the top affinity was for MG1b there was no Common Nettle recorded in the quadrats (but again it was recorded in the wider field).
- 3.3.23. With regard to MG9b Tufted Hair-grass was not recorded within the quadrats and would be expected as a constant if it were this community.
- 3.3.24. With regard to MG1a (False Oat-grass community with a Red Fescue sub-community), a high constancy of Cock's-foot would be expected and this was not recorded within the F2 quadrats (but was recorded in the wider field).
- 3.3.25. Given the above, it is considered that the community is considered a best fit to an MG1b/MG1a type.
- 3.3.26. Neither of these communities are of the lowland meadow community types and are relatively widespread communities of lower botanical conservation value. Indeed, no lowland meadow priority habitat indicator species were recorded in the quadrats (albeit 4 indicators - Pignut, Meadow Vetchling, Black Knapweed and Goats Beard - were recorded outside quadrats (all rare in abundance)).

Field F3

- 3.3.27. A total of 14 species were recorded within the five quadrat samples of Field F3, with a mean species richness of 7.4 in each quadrat. False Oat-grass was constant and most abundant, with a mixture of Red Fescue and Yorkshire-fog also recorded as constant. The only herbaceous species recorded as constant was Creeping Thistle.
- 3.3.28. The MAVIS outputs are listed below:

- NVC: MG9b 52.85
- NVC: MG1b 52.69
- NVC: MG1a 52.53
- NVC: MG1c 45.83
- NVC: MG1 44.37
- NVC: MG9 44.18
- NVC: MG11 43.58
- NVC: MG11a 43.08
- NVC: W24 41.31
- NVC: OV24 39.47

3.3.29. For field F3, the top affinity came out as MG9b (52.85%) and just below that MG1b (52.69%) and MG1a (52.53%). As with Field F2 the lack of Tufted Hair-grass in the quadrats tends to rule out MG9b. Common Nettle was at a rare constancy (1 of 5 quadrats) but makes MG1b a more suitable fit for field F3. Cock's-foot was not recorded within the quadrats and would be expected as a constant for an MG1a community albeit it was recorded outside the quadrats. As such the community is considered a best fit to an MG1b/MG1a type.

3.3.30. As already cited above neither community are one of the lowland meadow community types and are relatively widespread communities of lower botanical conservation value. Again, no lowland meadow priority habitat indicator species were recorded in the quadrats (albeit 3 indicators - Meadow Vetchling, Pignut, and Great Burnet - were recorded outside quadrats (all at least occasional)).

Field F5

3.3.31. A total of 12 species were recorded within the five quadrat samples of Field F5, with a mean species richness of 7.2 in each quadrat. False Oat-grass was constant and most abundant, and also the only grass being recorded as constant. Herbaceous species recorded as constant were Lesser Stitchwort and Cleavers.

3.3.32. The MAVIS outputs are listed below:

- NVC: MG1a 41.15
- NVC: MG1b 40.19
- NVC: MG9b 39.79
- NVC: MG1c 37.28
- NVC: MG1 36.40
- NVC: S26b 34.24
- NVC: OV24b 33.98
- NVC: MG9 33.53
- NVC: OV24 32.35
- NVC: OV24a 32.10

3.3.33. Field F5 had the greatest affinity with MG1a (41.15%) and MG1b (40.19%). Again the next greatest affinity was MG9b (39.79%). There was a low constancy/abundance of Red Fescue which would be expected with

MG1a and no Common Nettle was recorded in the quadrats (but was present in the wider field) as would be expected for an MG1b. As with Field F2 the low levels of Tufted Hair-grass in the quadrats tends to rule out MG9b. However, the community is considered a best fit to an MG1a/MG1b type with some elements of MG9b.

- 3.3.34. As already cited above none of these are one of the lowland meadow community types and are relatively widespread communities of lower botanical conservation value. Pignut is a lowland meadow priority habitat indicator species that was recorded in 3 of the 5 quadrats (albeit 5 other indicators - Birds-foot Trefoil, Black Knapweed, Lady's Bedstraw, Meadow Vetchling and Great Burnet - were recorded outside quadrats (latter two at least occasional and others rarely)).

Field F9

- 3.3.35. A total of 29 species were recorded within the five quadrat samples of Field F9, with a mean species richness of 13.8 in each quadrat. False Oat-grass was constant and most abundant, with a mixture of Common Couch, Creeping Bent, Timothy and Sweet Vernal-grass also recorded as constant. Herbaceous species recorded as constant were Cleavers, Prickly Sow-thistle, Creeping Thistle and White Clover.

- 3.3.36. The MAVIS outputs are listed below:

- NVC: MG1b 55.21
- NVC: MG1c 55.17
- NVC: MG1 51.35
- NVC: MG1a 50.87
- NVC: MG9b 47.09
- NVC: OV26d 44.59
- NVC: MG9 44.57
- NVC: MG4c 44.47
- NVC: MG11 44.20
- NVC: M28b 42.70

- 3.3.37. Field F9 had the greatest affinity with MG1b (55.21%) and MG1c (55.17%). As with Field F1 the absence of Meadowsweet would rule out this community type as this species would be expected as a constant in quadrats. MG1b appears to be the best fit as Common Nettle was recorded in 3 of the quadrats (albeit at low abundance).

- 3.3.38. The next greatest affinities were MG1 (51.35%), MG1a (50.87%) and MG9b (47.09%). The fit with MG1/MG1a is relatively good and it is mainly the absence of Cock's-foot in the quadrats (albeit the species is present in the wider field). As with other fields the absence of Tufted Hair-grass in the quadrats tends to rule out MG9b. As such, the community is considered a best fit to an MG1a/MG1b (MG1) type.

- 3.3.39. As already cited above none of these are one of the lowland meadow community types and are relatively widespread communities of lower botanical conservation value. Only one lowland meadow priority habitat indicator species was recorded in 1 of the 5 quadrats – Meadow Vetchling

(albeit 2 other indicators – Pignut and *Carex* species - were recorded outside quadrats (both rarely found)).

Conclusion

- 3.3.40. As mentioned for all of the fields above, none of the grassland communities which best describe the fields would be considered as communities of the lowland meadow type. In addition, for a habitat to meet the definition of lowland meadow, it must also match the UKHabs definition⁶ of lowland meadow which defines lowland meadow as:

“A neutral grassland that meets at least two of these three criteria:

- 1. >15 species m² (including grasses and excluding bryophytes);*
- 2. >30% cover of broadleaved herbs and sedges (excluding White Clover *Trifolium repens*, Creeping Buttercup *Ranunculus repens* and injurious weeds);*
- 3. <10% cover of rye grasses and White Clover *Trifolium repens*.*

AND EITHER ≥4 of these indicators at least ‘present’ on the DAFOR scale.

OR ≥3 of these indicators at least ‘occasional’ on the DAFOR scale (but not limited to field corners or edges).”

- 3.3.41. Each of the fields surveyed above were compared to this definition and these criteria and the results can be found in Table 6 below.

Table 6: Comparison of surveyed fields to UKHabs 2.0 lowland meadow criteria.

Criterion	F1	F2	F3	F5	F9
1	X (9.8 species)	X (8 species)	X (7.4 species)	X (7.2 species)	X (13.8 species)
2	X (28.6% cover)	X (16.2% cover)	X (17.2% cover)	X (14% cover)	X (28% cover)
3	✓	✓	✓	✓	✓
4 (must be achieved)	✓ (5 indicators present but only one in quadrats)	✓ (4 indicators present but none in quadrats)	✓ (3 indicators present occasionally but none in quadrats)	✓ (6 indicators present but only one in quadrats)	X (3 indicators but not occasional and only 1 in quadrats)
Lowland Meadow	No	No	No	No	No

- 3.3.42. As can be seen from the above table none of the grasslands surveyed should be defined as lowland meadow. It is instead considered that these grasslands may be defined as other neutral grassland for which the metric uses the UKHabs definition which defines other neutral grassland as:

⁶ UKHab Ltd (2023). *UK Habitat Classification Version 2.0* (at <https://www.ukhab.org>)

“A neutral grassland that does not meet the definition of either g3a or g3b AND that meets at least three of these four criteria:

1. *>20% cover of broadleaved herbs and sedges;*
2. *>8 species per m² (including forbs, grasses, sedges and rushes, and excluding bryophytes);*
3. *≥1 grass species that is not generally sown for intensive agricultural production (ie Rye-grasses *Lolium* spp., Timothy *Phleum pratense*, Cock’s-foot *Dactylis glomerata*, Meadow fescue *Festuca pratensis*) is at least abundant;*
4. *Cover of Rye-grasses *Lolium* spp. And White Clover *Trifolium repens*, where present, is <30%.*

3.3.43. The surveyed fields are again compared to these criteria in the table below.

Table 7: Comparison of surveyed fields to UKHabs 2.0 other neutral grassland criteria.

Criterion	F1	F2	F3	F5	F9
1	✓ (28.6% cover)	X (16.2% cover)	X (17.2% cover)	X (14% cover)	✓ (28% cover)
2	✓ (9.8 species)	X (7.8 species)	X (7.4 species)	X (7.2 species)	✓ (13.8 species)
3	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓
Other Neutral Grassland	Yes	No	No	No	Yes

3.3.44. Given the above, it is considered that fields F1 and F9 should be classified as other neutral grassland. Whilst fields F2, F3 and F5 do not technically meet the criteria for other neutral grassland, it was decided that they should be still be classified as other neutral grassland (in poor condition) as this is considered to be a better representation of the habitat than modified grassland.

3.4. River Assessment

3.4.1. As mentioned above MoRPh surveys were undertaken upon the watercourse within the site. Part of this survey includes measuring the dimension of the river channel and while measuring these dimensions it was considered that the watercourse through the site is very likely to be overdeep. The Guide to Assessing River Condition⁷ defines overdeep as:

3.4.2. *“a river channel whose depth relative to its width suggests that the bed has been incised/dredged and/or the bank tops have been raised with the result that flood flows are less likely to connect with the bank tops and floodplain than if the channel cross-profile were unmodified.”*

⁷ A.M. Gurnell, J. England, S.J. Scott, L.J. Shuker, *A Guide to Assessing River Condition: Part of the Rivers and Streams Component of the Biodiversity Net Gain Metric – Updated November 2022.*

3.4.3. The guide also states that:

“River shape is used to assess the likelihood of a surveyed channel being sufficiently overdeep to adversely affect its hydrological/ecological lateral connectivity:

If River shape has a value of < 2 the river is highly likely to be overdeep.

If River shape has a value of < 4 the river is likely to be overdeep, especially if the Average width is greater than 10 m.

...

If the presence of an overdeep channel seems to be a reasonable judgement then the RCA for your site should be reduced by one class (e.g. from Good to Fairly Good, or from Moderate to Fairly Poor)”.

3.4.4. Where:

$$\text{River Shape} = \frac{\text{Average MoRPh width}}{\text{Average (water depth + lower bank height)}}$$

3.4.5. For the watercourse within the site the River Shape for the MoRPh 5 survey was 1.51. Given this result it is considered that the watercourse within the site is overdeep and as such, the condition of the river should be reduced by one class (e.g. moderate to fairly poor) as set out above.

Table 8. Summary of baseline onsite habitats assessed against the Biodiversity Metric 4.0 Calculation Tool condition sheets.

Baseline Habitat	Baseline Area (ha)	Condition Sheet	Condition Assessment		Condition	Ecological Features and Condition Notes	Post-development Area (ha)		
			Criteria Number	Criteria Achieved (Y/N)			Retained	Enhanced	Lost
Cereal Crops	4.28	N/A	-	-	N/A	Arable fields within the site.	0.00	0.00	4.28
Modified Grassland	5.98	Grassland Habitat Type (Low Distinctiveness)	A	N	Poor (5 / 7 Passed) Failed Criteria 1 which is essential for Moderate condition	Fields F4, F19 and F20 are semi-improved grassland fields and are considered to have the least ecological value of the grassland fields within the context of the site.	4.33	0.00	1.65
			B	N					
			C	Y					
			D	Y					
			E	Y					
			F	Y					
			G	Y					
Other Neutral Grassland	3.79	Grassland Habitat Type (Low Distinctiveness)	A	N	Poor (3 / 6 Passed) Failed Criteria 1 which is essential for Moderate condition	Fields F2, F3 and F5 do not technically meet the criteria for other neutral grassland, however other neutral grassland (in poor condition) is considered to be a better representation of the habitat than modified grassland.	0.00	0.63	3.16
			B	N					
			C	Y					
			D	Y					
			E	Y					
			F	N					
Developed Land; Sealed Surface	0.19	N/A	-	-	N/A	Existing roads and hardstanding from within the site.	0.00	0.00	0.19
Other Neutral Grassland	4.54	Grassland Habitat Type (medium, high & very high Distinctiveness)	A	Y	Moderate (4 / 6 Passed)	Field F1 and F9 qualify as other neutral grassland as shown above.	0.37	0.00	4.17
			B	N					
			C	Y					
			D	Y					
			E	Y					
			F	N					

Baseline Habitat	Baseline Area (ha)	Condition Sheet	Condition Assessment		Condition	Ecological Features and Condition Notes	Post-development Area (ha)		
			Criteria Number	Criteria Achieved (Y/N)			Retained	Enhanced	Lost
Pond (Non Priority Habitat)	0.08	Pond	A	Y	Moderate (7 / 9 Passed)	Pond P1 is a non-priority habitat pond surrounded by scrub.	0.07	0.00	0.01
			B	N					
			C	Y					
			D	Y					
			E	Y					
			F	Y					
			G	Y					
			H	Y					
			I	N					
Ruderal / Ephemeral	2.40	Urban	1	N	Poor (1 / 3 Passed)	The areas beneath the hedgerows are somewhat bare, with sparsely occurring common and widespread species.	1.82	0.00	0.58
			2	N					
			3	Y					
Mixed Scrub	1.04	Scrub	A	Y	Poor (2 / 5 Passed)	Existing areas of scrub.	0.33	0.00	0.71
			B	N					
			C	Y					
			D	N					
			E	N					

Table 9. Summary of baseline hedgerows.

Hedgerow Number	Hedgerow Type	Length (km)	Condition Sheet	Condition	Ecological Features and Condition Notes	Post-development Length (km)		
						Retained	Enhanced	Lost
H02	Species-rich native hedgerow with trees - associated with bank or ditch	0.26	Hedgerow	Good	H02 is a gappy unmanaged species-rich hedgerow associated with a bank.	0.26	0.00	0.00

Hedgerow Number	Hedgerow Type	Length (km)	Condition Sheet	Condition	Ecological Features and Condition Notes	Post-development Length (km)		
						Retained	Enhanced	Lost
H03	Species-rich native hedgerow	0.04	Hedgerow	Good	H03 is an unmanaged species-rich hedgerow.	0.00	0.03	0.01
H04	Native hedgerow	0.03	Hedgerow	Good	H04 is an unmanaged hedgerow.	0.00	0.03	0.00
H05	Species-rich native hedgerow - associated with bank or ditch	0.13	Hedgerow	Good	H05 is an unmanaged species-rich hedgerow associated with a wet ditch	0.00	0.13	0.00
H06	Native hedgerow	0.10	Hedgerow	Good	H06 is a gappy unmanaged hedgerow.	0.00	0.00	0.10
H07	Species-rich native hedgerow	0.17	Hedgerow	Good	H07 is an unmanaged species-rich hedgerow.	0.00	0.16	0.01
H08	Species-rich native hedgerow with trees - associated with bank or ditch	0.22	Hedgerow	Good	H08 is a gappy unmanaged hedgerow with trees associated with a wet ditch.	0.20	0.00	0.02
H09	Native hedgerow with trees - associated with bank or ditch	0.05	Hedgerow	Good	H09 is an unmanaged species rich hedgerow associated with a wet ditch.	0.00	0.05	0.00

Hedgerow Number	Hedgerow Type	Length (km)	Condition Sheet	Condition	Ecological Features and Condition Notes	Post-development Length (km)		
						Retained	Enhanced	Lost
H10	Species-rich native hedgerow	0.23	Hedgerow	Good	H10 is a gappy and unmanaged species-rich hedgerow.	0.00	0.22	0.01
H11	Species-rich native hedgerow with trees	0.04	Hedgerow	Good	H11 is an unmanaged species rich hedgerow.	0.04	0.00	0.00
H15	Species-rich native hedgerow with trees	0.21	Hedgerow	Good	H15 is a gappy face-managed species rich hedgerow with trees.	0.21	0.00	0.00
H28	Species-rich native hedgerow with trees	0.31	Hedgerow	Good	H28 is an unmanaged species rich hedgerow with trees.	0.31	0.00	0.00
H32	Native hedgerow	0.06	Hedgerow	Good	H32 is an unmanaged hedgerow.	0.00	0.06	0.00
H33	Native hedgerow	0.18	Hedgerow	Good	H33 is an unmanaged hedgerow.	0.00	0.18	0.00
H34	Species-rich native hedgerow	0.26	Hedgerow	Good	H34 is a gappy and unmanaged species-rich hedgerow.	0.00	0.25	0.01
H42	Species-rich native hedgerow	0.24	Hedgerow	Good	H42 is an unmanaged species-rich hedgerow.	0.00	0.21	0.03
H43	Species-rich native hedgerow with trees	0.10	Hedgerow	Good	H43 is a gappy and unmanaged species-rich hedgerow.	0.09	0.00	0.01

Hedgerow Number	Hedgerow Type	Length (km)	Condition Sheet	Condition	Ecological Features and Condition Notes	Post-development Length (km)		
						Retained	Enhanced	Lost
H47	Species-rich native hedgerow with trees	0.10	Hedgerow	Moderate	H47 is an unmanaged species rich hedgerow with trees.	0.00	0.05	0.05
H48	Native hedgerow	0.08	Hedgerow	Good	H48 is an unmanaged hedgerow.	0.00	0.08	0.00
H49	Native hedgerow with trees	0.18	Hedgerow	Good	H49 is a gappy box-cut hedgerow.	0.00	0.17	0.01
H50	Native hedgerow	0.39	Hedgerow	Good	H50 is a box-cut hedgerow.	0.00	0.39	0.00
H51	Native hedgerow	0.21	Hedgerow	Good	H51 is a face-managed hedgerow.	0.00	0.21	0.00
H52	Native hedgerow with trees	0.07	Hedgerow	Moderate	H52 is a box-cut hedgerow with trees.	0.00	0.07	0.00

Hedgerow Number	Hedgerow Type	Length (km)	Condition Sheet	Condition	Ecological Features and Condition Notes	Post-development Length (km)		
						Retained	Enhanced	Lost
H53	Native hedgerow with trees	0.21	Hedgerow	Moderate	H53 is a box-cut hedgerow with trees.	0.00	0.18	0.00
H54	Native hedgerow with trees	0.08	Hedgerow	Moderate	H54 is a box-cut hedgerow with trees.	0.00	0.00	0.08
H55	Native hedgerow	0.17	Hedgerow	Good	H55 is a part box-cut, part face-managed hedgerow.	0.00	0.16	0.01
H56	Native hedgerow with trees	0.22	Hedgerow	Moderate	H56 is a box-cut hedgerow with trees.	0.00	0.22	0.00
H57	Species-rich native hedgerow	0.19	Hedgerow	Good	H57 is an unmanaged hedgerow within the site but appears to be subject to cutting within the adjacent school.	0.00	0.00	0.19

Table 10. Summary of baseline hedgerows assessed against the Biodiversity Metric 4.0 Calculation Tool condition sheets.

Hedgerow Number	Criteria Achieved (Y / N)										Condition	No. of Woody species	Bank / Ditch
	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2			
H02	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Good	7	Bank
H03	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Good	5	-
H04	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Good	4	-
H05	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Good	7	Wet Ditch
H06	Y	Y	Y	N	Y	Y	Y	Y	-	-	Good	4	-

Hedgerow Number	Criteria Achieved (Y / N)										Condition	No. of Woody species	Bank / Ditch
	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2			
H07	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Good	6	-
H08	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	7	Wet Ditch
H09	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	5	Wet Ditch
H10	Y	Y	Y	N	Y	Y	Y	Y	-	-	Good	6	-
H11	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	8	-
H15	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Good	8	-
H28	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Good	8	-
H32	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Good	3	-
H33	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Good	3	-
H34	Y	Y	Y	N	Y	Y	Y	Y	-	-	Good	7	-
H42	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Good	5	-
H43	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Good	4	-
H47	Y	Y	Y	Y	N	N	Y	Y	N	Y	Moderate	5	-
H48	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Good	2	-
H49	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Good	3	-
H50	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Good	4	-
H51	Y	Y	Y	Y	Y	N	Y	Y	-	-	Good	3	-

Hedgerow Number	Criteria Achieved (Y / N)										Condition	No. of Woody species	Bank / Ditch
	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2			
H52	Y	Y	Y	Y	N	N	Y	Y	N	Y	Moderate	3	-
H53	Y	Y	Y	Y	N	N	Y	Y	N	Y	Moderate	4	-
H54	Y	Y	Y	Y	N	N	Y	Y	N	Y	Moderate	4	-
H55	Y	Y	Y	Y	N	Y	Y	Y	-	-	Good	4	-
H56	Y	N	Y	Y	N	Y	N	Y	N	Y	Moderate	3	-

Table 11. Summary of baseline rivers assessed against using a river condition assessment and the Biodiversity Metric 4.0 User Guide.

River	River Type	Length (km)	Condition	Watercourse Encroachment	Riparian Encroachment	Ecological Notes	Post-development Length (km)		
							Retained	Enhanced	Lost
Main Watercourse	Other Rivers and Streams	0.084	Poor	No Encroachment	No Encroachment / No Encroachment	River Condition score of -0.381 and River Type of K. River is considered to be overdeep.	0.000	0.084	0.000
Main Watercourse	Culvert	0.005	Poor	N/A - Culvert	N/A - Culvert	Culverted section of the main watercourse	0.000	0.005	0.000

3.5. Post-Development

- 3.5.1. Table 12 below summarises the habitats that are proposed post-development while tables 13 and 14 detail the enhanced onsite hedgerows. Tables 15 and 16 summarise the enhanced hedgerows and table 17 summarises the enhanced watercourses. Finally, baseline and post-development scores are compared in Table 18.
- 3.5.2. The landscape strategy includes a variety of species-rich habitats and will comprise amenity grasslands, species-rich wildflower grasslands, broadleaved woodlands and attenuation features as well as tree planting across the site.
- 3.5.1. A total of 45.92 habitat units, 68.21 hedgerow units and 0.59 watercourse unit are present onsite post-development.
- 3.5.2. The targeted conditions for proposed habitats will be achieved through appropriate management undertaken during the operational phase of the proposals. This will ensure that the proposed habitats continue to offer biodiversity benefit in the future.

Table 12. Summary of post-development habitats assessed against the Biodiversity Metric 4.0 Calculation Tool condition sheets.

Created Habitat	Created Area (ha)	Condition Sheet	Condition Assessment		Condition	Ecological Features and Condition Notes
			Criteria Number	Criteria Achieved (Y/N or Points)		
Developed Land, Sealed Surface	8.55	N/A	-	-	N/A - Other	Developed land comprising roads, buildings, pathways, play areas and other hardstanding.
Modified Grassland	0.23	Grassland Habitat Type (Low Distinctiveness)	A	N	Poor (5 / 7 passed) Failed Criteria 1 which is essential for Moderate condition	Areas of newly created modified grassland.
			B	N		
			C	Y		
			D	Y		
			E	Y		
			F	Y		
			G	Y		
Other Neutral Grassland	1.19	Grassland Habitat Type (medium, high & very high Distinctiveness)	A	Y	Moderate (5 / 6 Passed) Failed Criteria 6 which is essential for Good condition	Areas of newly created other neutral grassland.
			B	Y		
			C	Y		
			D	Y		
			E	Y		
			F	N		
Urban Trees	1.8322	Urban Trees	A	Y	Moderate (4 / 6 Passed)	50 medium trees will be planted as part of the proposed development.
			B	N		
			C	N		
			D	Y		
			E	Y		
			F	Y		
Sustainable Urban Drainage Feature	0.88	Urban	A	Y	Good (5 / 5 Passed)	Newly created SUDS feature will include planting of native species and will contain standing water.
			B	Y		
			C	Y		
			E1	Y		
			E2	Y		

Created Habitat	Created Area (ha)	Condition Sheet	Condition Assessment		Condition	Ecological Features and Condition Notes
			Criteria Number	Criteria Achieved (Y/N or Points)		
Vegetated Garden	3.90	N/A	-	-	N/A - Other	Vegetated gardens will be present, associated with the newly constructed residential dwellings. The area for the vegetated gardens is calculated as 45% of the residential areas.

Table 10. Summary of enhanced baseline habitats assessed against the Biodiversity Metric 4.0 Calculation Tool condition sheets.

Baseline Habitat	Baseline Condition	Enhanced Habitat	Enhanced Area (ha)	Condition Sheet	Ecological Enhancements	Condition Assessment		Post-enhancement Condition
						Criteria Number	Criteria Achieved (Y/N or Points)	
Other Neutral Grassland	Poor	Other Neutral Grassland	0.63	Grassland Habitat Type (medium, high & very high Distinctiveness)	The areas of poor quality other neutral grassland will be subject to overseeding with an appropriate seed mix, where appropriate, and subject to a suitable management regime to increase the floristic diversity of the habitat.	A	Y	Moderate (5 / 6 Passed) Failed Criteria 6 which is essential for Good condition
						B	Y	
						C	Y	
						D	Y	
						E	Y	
						F	N	

Table 13. Summary of enhanced hedgerows.

Hedgerow Number	Baseline Hedgerow Type	Length Enhanced (km)	Post Enhancement Hedgerow Type	Condition Sheet	Baseline Condition	Post Enhancement Condition	Ecological Features and Condition Notes
H03	Species-rich native hedgerow	0.03	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with tree planting.
H04	Native hedgerow	0.03	Species-rich native hedgerow	Hedgerow	Good	Good	Hedgerow to be enhanced with bolster planting.
H05	Species-rich native hedgerow - associated with bank or ditch	0.13	Species-rich native hedgerow with trees - associated with bank or ditch	Hedgerow	Good	Good	Hedgerow to be enhanced with tree planting.
H07	Species-rich native hedgerow	0.16	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with tree planting.
H09	Native hedgerow with trees - associated with bank or ditch	0.05	Species-rich native hedgerow with trees - associated with bank or ditch	Hedgerow	Good	Good	Hedgerow to be enhanced with bolster and tree planting.

Hedgerow Number	Baseline Hedgerow Type	Length Enhanced (km)	Post Enhancement Hedgerow Type	Condition Sheet	Baseline Condition	Post Enhancement Condition	Ecological Features and Condition Notes
H10	Species-rich native hedgerow	0.22	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with tree planting.
H32	Native hedgerow	0.06	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with bolster and tree planting.
H33	Native hedgerow	0.18	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with bolster and tree planting.
H34	Species-rich native hedgerow	0.25	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with tree planting.
H42	Species-rich native hedgerow	0.21	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with tree planting.
H47	Species-rich hedgerow with trees	0.05	Species-rich native hedgerow with trees	Hedgerow	Moderate	Good	Hedgerow to be enhanced through the creation of vegetated margins and improvements to the ground flora.
H48	Native hedgerow	0.08	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with bolster and tree planting.
H49	Native hedgerow with trees	0.17	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with bolster planting.
H50	Native hedgerow	0.39	Species-rich native	Hedgerow	Good	Good	Hedgerow to be enhanced with bolster and tree planting.

Hedgerow Number	Baseline Hedgerow Type	Length Enhanced (km)	Post Enhancement Hedgerow Type	Condition Sheet	Baseline Condition	Post Enhancement Condition	Ecological Features and Condition Notes
			hedgerow with trees				
H51	Native hedgerow	0.21	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with bolster and tree planting.
H52	Native hedgerow with trees	0.07	Species-rich native hedgerow with trees	Hedgerow	Moderate	Good	Hedgerow to be enhanced with bolster planting.
H53	Native hedgerow with trees	0.18	Species-rich native hedgerow with trees	Hedgerow	Moderate	Good	Hedgerow to be enhanced with bolster planting.
H55	Native hedgerow	0.16	Species-rich native hedgerow with trees	Hedgerow	Good	Good	Hedgerow to be enhanced with bolster and tree planting.
H56	Native hedgerow with trees	0.22	Species-rich native hedgerow with trees	Hedgerow	Moderate	Good	Hedgerow to be enhanced with bolster planting.

Table 14. Summary of post enhancement hedgerows assessed against the Biodiversity Metric 4.0 Calculation Tool condition sheets.

Hedgerow Number	Criteria Achieved (Y / N)										Post Enhancement Condition	No. of Woody species	Bank / Ditch
	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2			
H03	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H04	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H05	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	Wet Ditch

Hedgerow Number	Criteria Achieved (Y / N)										Post Enhancement Condition	No. of Woody species	Bank / Ditch
	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2			
H07	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H09	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	Wet Ditch
H10	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H32	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H33	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H34	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H42	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H47	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H48	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H49	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H50	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H51	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H52	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H53	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H55	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-
H56	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Good	≥5	-

Table 17. Summary of enhanced watercourses assessed through RCA and the Biodiversity Metric 4.0 User Guide.

River	Baseline River Type	Enhanced River Type	Enhanced Length (km)	Baseline Condition	Post-enhancement Condition	Watercourse Encroachment	Riparian Encroachment	Ecological Notes
Main Watercourse	Other Rivers and Streams	Other Rivers and Streams	0.084	Poor	Fairly Poor	No Encroachment	Minor / Minor	Enhancement of river through removal of reinforcement, removal of culvert, creation of wetland (SUDS) within the riparian zone and other natural habitats. Minor encroachment from roads.
Main Watercourse	Culvert	Other Rivers and Streams	0.005	Poor	Fairly Poor	No Encroachment	Minor	De-culverting of culverted section of the main watercourse.

Table 18. Summary of Biodiversity Net Gain results

On-site Baseline	Habitat Units	81.60
	Hedgerow Units	55.52
	River Units	0.51
On-site Post-intervention	Habitat units	45.92
	Hedgerow Units	68.21
	River Units	0.59
Off-site Baseline	Habitat Units	0.00
	Hedgerow Units	0.00
	River Units	0.00
Off-site Post-intervention	Habitat Units	0.00
	Hedgerow Units	0.00
	River Units	0.00
Total Net Unit Change	Habitat units	-35.68
	Hedgerow Units	12.69
	River Units	0.07
Total net Percentage Gain	Habitat Units	-43.72 %
	Hedgerow units	22.85 %
	River Units	14.08 %

4. SUMMARY AND CONCLUSIONS

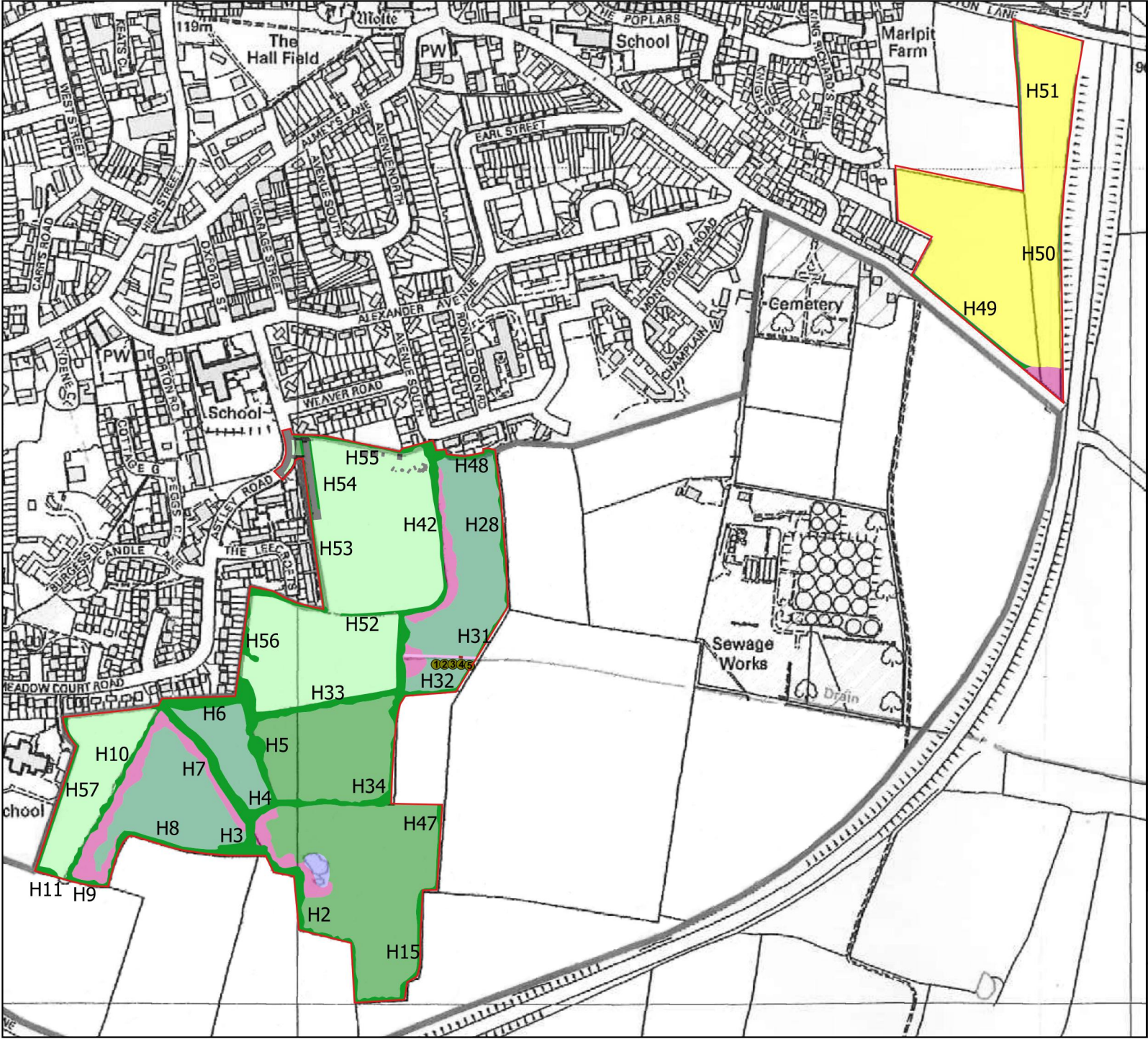
- 4.1. Ecology Solutions was commissioned by Barwood Land in June 2021 to establish that the proposed development delivers a long-term net gain for biodiversity through the application of the Biodiversity Metric 4.0 Calculation Tool.
- 4.2. The proposals for the site are for the construction of new residential development with associated infrastructure and open space.
- 4.3. In order to assess biodiversity net gain as part of the proposed development, a calculation was undertaken using the DEFRA Biodiversity Metric 4.0 Calculation Tool. Plan BNG1 shows the measurements of existing habitats within the site, and Plan BNG2 shows the measurements of proposed habitats.
- 4.4. A baseline total of 81.60 habitat units, 55.52 hedgerow units and 0.51 watercourse units are present pre-development while a total of 45.92 habitat units, 68.21 hedgerow units and 0.59 watercourse units are present post-development. As such, the proposed development will achieve a decrease of 43.72% in habitat units and an increase of 22.85% in hedgerow units and 14.08% in watercourse units.
- 4.5. It should be noted that the DEFRA Biodiversity Metric calculation does not take into consideration measures relating to protected or notable species. The provision of new wildflower grassland will provide enhanced foraging opportunities for bats, birds and Badgers, terrestrial habitat for amphibians, as well as opportunities for invertebrates. Hedgerow enhancements and new landscape planting will provide enhanced foraging and navigational opportunities for bats, foraging opportunities for Badgers, foraging and nesting opportunities for birds and hibernation opportunities for amphibians, as well as enhanced habitat for invertebrates.
- 4.6. A number of additional enhancements will also be provided as part of the proposed development, that are not accounted for within the net gain calculation. This includes bat boxes providing enhanced roosting opportunities for bats and bird boxes providing enhanced nesting opportunities for birds, as well as the provision of log piles that will provide enhanced hibernation opportunities for amphibians and invertebrates post-development.
- 4.7. The calculation indicates that a net gain in biodiversity for hedgerows and watercourses can be achieved under the current development proposals. Furthermore, it has also been demonstrated that the proposals would achieve a net gain in excess of 10%, for hedgerows and watercourse units which is cited as the minimum net gain requirement in the recent Environment Act 2021 (albeit not yet mandatory through Regulation at time of writing). However, the calculations show that a net loss in habitat units will be achieved as a result of the proposed development. As such, provision of offsite habitats, payments into an offsite scheme or some other type of mitigation will need to be agreed / provided to meet the minimum requirement of a 10% net gain.
- 4.8. As such, it is considered that it has been demonstrated that the proposed development (will appropriate provision for area habitats) can achieve an overall net gain in biodiversity over the existing situation. It is also considered that the development proposals will deliver a further net gain in biodiversity through the

additional enhancement measures detailed above that are not accounted for within the calculation.

PLANS

PLAN BNG1

Existing Habitats



KEY:

- SITE BOUNDARY
Area - 22.30ha
- OTHER NEUTRAL GRASSLAND
Condition - Moderate
Area - 4.54ha
- OTHER NEUTRAL GRASSLAND
Condition - Poor
Area - 3.79ha
- MODIFIED GRASSLAND
Condition - Poor
Area - 5.98ha
- CEREAL CROPS
Condition - N/A
Area - 4.28ha
- MIXED SCRUB
Condition - Poor
Area - 1.04ha
- RUDERAL: AREA UNDER HEDGEROW
Condition - Poor
Area - 2.40ha
- DEVELOPED LAND
Condition - N/A
Area - 0.19ha
- POND (NON PRIORITY)
Condition - Moderate
Area - 0.08ha
- OTHER RIVER
Condition - Poor
Length - 0.084km
- CULVERT
Condition - Poor
Length - 0.005km
- INDICATIVE MoRph SURVEY LOCATION



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4955: LAND AT WEAVERS FIELDS,
EARL SHILTON - APPLICATION A

PLAN BNG1: EXISTING
HABITATS

Rev: C
Oct 2023

PLAN BNG2

Proposed Habitats



KEY:

 SITE BOUNDARY
Area - 22.30ha

 ENHANCED OTHER NEUTRAL GRASSLAND
Condition - Poor to Moderate
Area - 0.63ha

 RETAINED OTHER NEUTRAL GRASSLAND
Condition - Moderate
Area - 0.37ha

 RETAINED MODIFIED GRASSLAND
Condition - Poor
Area - 4.33ha

 RETAINED MIXED SCRUB
Condition - Moderate
Area - 0.33ha

 RETAINED POND (NON PRIORITY)
Moderate Condition
Area - 0.07ha

 RETAINED RUDERAL / EPHEMERAL
AREA UNDER HEDGEROW
Condition - Poor
Area - 1.82ha

 CREATED OTHER NEUTRAL GRASSLAND
Condition - Moderate
Area - 1.19ha

 CREATED MODIFIED GRASSLAND
Condition - Moderate
Area - 0.23ha

 CREATED SUDS
Condition - Good
Area - 0.88ha

 CREATED RESIDENTIAL
Condition - N/A
Area - 8.66ha

 CREATED DEVELOPED LAND
Condition - N/A
Area - 3.79ha

N

↑



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4955: LAND AT WEAVERS FIELDS,
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PROPOSED HABITATS

Rev: B
Oct 2023

APPENDICES

APPENDIX 1

Illustrative Masterplan



Key

Site Boundary (65.35 ha)

0 m 300 m
Scale 1:5000 @ A3
© 2014 Google

Earl Shilton

Illustrative Masterplan

September 2023



APPENDIX 2

Green Infrastructure Parameters Plan

H:\Projects\42523 Earl Shilton\Deliver Stage\Design_Technical\Drawings\ACAD\42523-WSPE-XX-XX-DR-A-00001_S0_P01.3.dwg Originator: MIKE RIGNALL



Key

Site Boundary

Green Infrastructure Parameters:

Retained hedgerow and smaller tree clusters

Existing tree to be retained

Existing pond to be retained

Existing Sports Pitches to be retained

Accessible Natural Green Space

Casual Informal Play Space

Equipped Children's Play Space

Sustainable Urban Drainage (SuDS)

0 m

300 m

Scale 1:5000 @ A3

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Earl Shilton

Green Infrastructure Parameters Plan

September 2023

42523-WSPE-XX-XX-DR-A-00001_S0_P01.3

APPENDIX 3

Leicestershire County Council Response dated 26th
May 2023

Subject: FW: Earl Shilton 23/00330/OUT & 21/01511/OUT - BNG Consultation responses from LCC

Importance: High

From: Sarah Postlethwaite <Sarah.Postlethwaite@leics.gov.uk>
Sent: Friday, May 26, 2023 3:49 PM
To: chris.brown@hinckley-bosworth.gov.uk
Cc: Bend, Anna <anna.bend@wsp.com>; Deaville, Helena <helena.deaville@wsp.com>
Subject: Earl Shilton 23/00330/OUT & 21/01511/OUT - BNG

Hi Chris

Regarding the BNG info submitted for these applications, my comments are below:

23/00330/OUT App A (Barwood)

This area contains fields 1, 3 & 5 that are referred to in the ES as being species-rich grassland of greater ecological value. Fields 2 & 9 are also species-rich, albeit of a slightly lower quality (see plan below for ref). The species found in all of these fields (1,2,3,5,9) indicate that this is highly likely to be degraded lowland meadow (which has declined in condition due to a lack of management). These include knapweed, great burnet and pignut, which would not be present had the site ever been ploughed or agriculturally improved. Lowland meadow is a habitat of principle importance under section 41 of the NERC Act due to its rarity. It may also qualify as irreplaceable habitat if it's historic use can be demonstrated (more guidance on this within BNG soon to be released). I visited the site last week and these indicator species are still present.

Currently all this grassland has been categorised as 'other neutral grassland' (rather than as lowland meadow, which would score more highly) within the BNG metric, which I feel does not reflect it's true value. The only way to quantify the area/actual presence of lowland meadow is through an NVC (National Vegetation Classification) survey, which needs to be undertaken before the end of September.

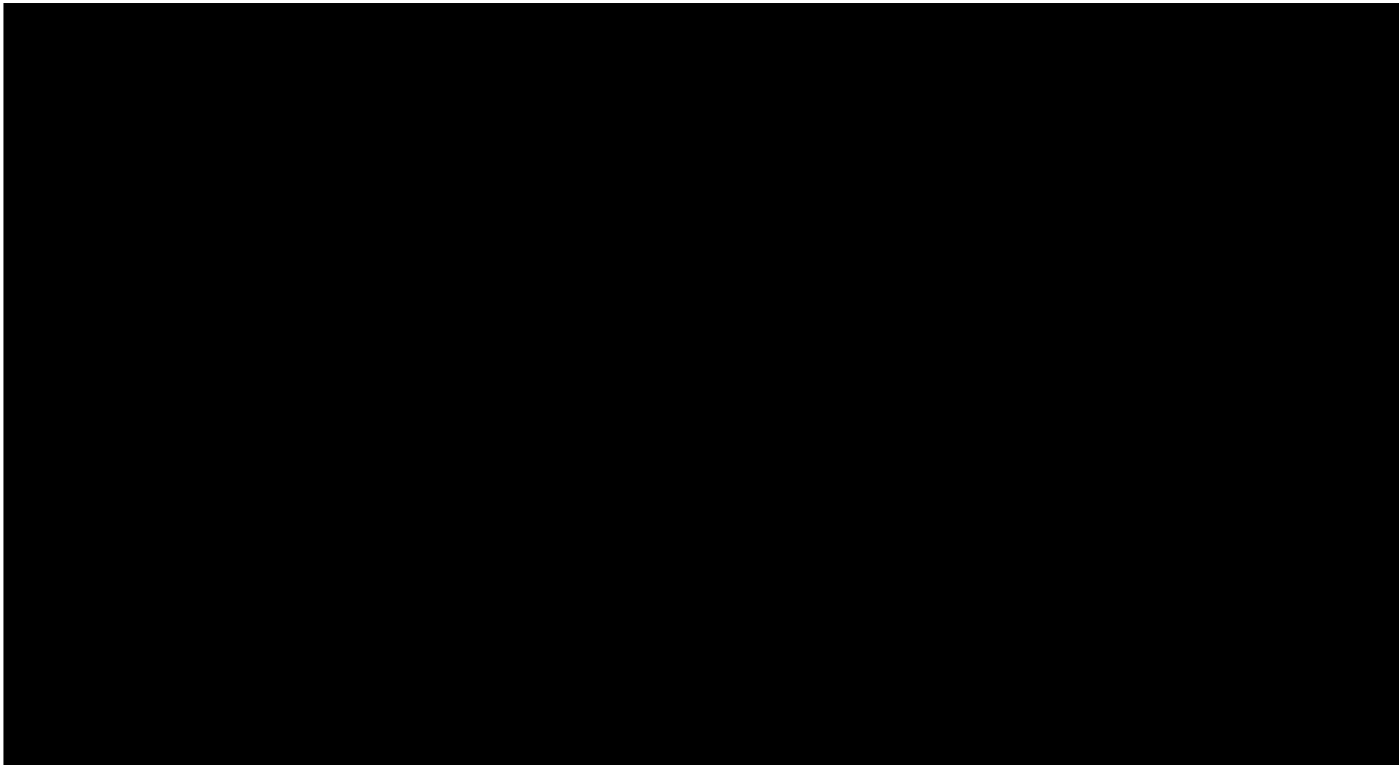
The pond in field 1 is shown as being retained within the metric, but it is not shown on the indicative layout plan. This should be retained, as it still holds water and is of ecological value.

There are a number of hedgerows that are potentially 'important' under the Hedgerow Regs - classified as 'species-rich native hedgerow with trees – of medium to high distinctiveness' within the metric. Some of these are shown as being enhanced in the metric, when the proposed layout shows them as being removed entirely (eg hedgerow 34). The full impact on these important hedgerows cannot accurately be assessed until the final layout is known, but this should be designed so as to retain them, with a buffer zone of at least 5m either side.

The watercourse element of the metric has not been completed, and is required on all watercourses within the red line boundary, since the brook runs through part of the site (field 5). Water voles are known to be present along this brook, indicating that it has water all year round. See section 10 from the BNG User Guide below.

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In summary: there is some disconnect between the metrics and the indicative layouts, meaning the percentages of net loss/gain in the metrics cannot be taken at face value; additional, more detailed surveys of the species-rich grassland areas are required in order that the metric baseline scores and layouts can be better informed; and the watercourse element of the metrics is missing entirely.

Regards,

Sarah

Sarah Postlethwaite MCIEEM

Senior Planning Ecologist

Leicestershire County Council

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