

Cellarhead Battery Storage Site

BIODIVERSITY NETGAIN (BNG) ASSESSMENT

784-B040442 Rev 1

Conrad Energy

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EXECUTIVE SUMMARY

Contents	Summary
Site Location	The site is located at Cellarhead in Staffordshire (Postcode: ST9 0ND) and is centred at Ordnance Survey National Grid SJ 93982 48528
Proposals	The development proposals for the site include the provision of a battery storage site within the agricultural grassland field (approximately 0.6 hectares) and updating the current farm track to provide access to the site.
Scope of this Assessment	To fully assess the ecological impacts of the development through a Natural England 3.1 Biodiversity Net Gain Assessment.
Results	The overall result is a net gain of 2.78 habitat units (15.53%) and a net gain of 6.25 hedgerow units (218.67%).

1.0 INTRODUCTION

1.1 BACKGROUND

Tetra Tech was commissioned by Conrad Energy on 27th June 2022 to undertake a Biodiversity Net Gain Assessment of Cellarhead, Staffordshire, hereafter referred to as “the site”.

This report has been prepared by Tetra Tech Consultant Ecologist Monica Souza BSc (Hons) MSc ACIEEM and the conditions pertinent to it are provided in Appendix A.

1.2 SITE DESCRIPTION

The site is located at Cellarhead in Staffordshire (postcode: ST9 0ND) and is centred at Ordnance Survey National Grid SJ 93982 48528 (refer to Figure 1). It comprises an agricultural grazing pasture and farm track with associated hedgerows, drainage ditches and scattered trees. Surrounding the site are land pockets either demarked for arable or pasture. To the west of the site is Wetley Moor Common and extending further west from the site is arable land and pastures. The village of Werrington is located approximately 500m south from site. The city of Stoke-on-Trent with associated urban areas is 3 km west from site.. The closest main carriageway to access the site is Armshead road to the west.

1.3 DEVELOPMENT PROPOSALS

The development proposals for the site include the provision of a battery storage site within the grassland field (approximately 0.6 hectares) and updating the current farm track to provide access to the site.

1.4 PURPOSE OF REPORT

The aim of this BNG assessment is to:

- Quantify the pre-development baseline biodiversity units present on site;
- Quantify the likely post-development biodiversity units possible on site, based on the available indicative plans (Appendix B); and
- Calculate the likely change in biodiversity units from pre to post-development to provide an indication of the biodiversity losses / gains that may occur should the proposed development proceed.

2.0 METHODOLOGY

2.1 BIODIVERSITY OFFSETTING GUIDANCE

The assessment has been made using Biodiversity Metric 3.1 (Natural England, 2022), in conjunction with the user guide (Natural England, 2021b). This comprises the following steps, described in Section 0.

2.2 HABITAT CLASSIFICATION

2.2.1 Habitat Conversions

The pre-development habitats were mapped in accordance with the JNCC Phase 1 habitat types (JNCC, 2016) within the Ecological Appraisal (Tetra Tech, 2022); see figure 2. The areas of identified habitats were calculated in hectares (ha) to two decimal places. These habitats were assessed during the site survey and, where necessary, were updated to reflect the habitats as currently present on site. The habitats were converted into UKHab¹ classification (UK Habitat Classification Working Group, undated) for using the Natural England 3.1 Metric which are shown in **Error! Not a valid bookmark self-reference.**, with the pre-development habitats shown in Figure 3.

Table 1: Habitats present on site pre-development

Phase 1 habitat Category (Figure 2)	Corresponding UKHab Category (Figure 3)
Improved and poor semi-improved grassland	Grassland – Modified grassland
Tall Ruderal	Sparsely vegetated land – Ruderal/Ephemeral
Hardstanding	Urban – Developed land; sealed surface
Scrub – dense/continuous	Heathland and shrub – Bramble scrub
Arable	Cropland – Cereal crops
Scattered trees	Line of trees
Intact and defunct Hedgerows	Native Hedgerow

The Landscape plan (Appendix B) as well as discussion held with the wider project team were used to assess the post-habitat score. Each of the post-development habitats, were assigned a UKHab category and are listed on Table 2 to calculate the post-development Biodiversity Units, with the Post Development Plan shown using UKHab categories is on Figure 4.

¹ UK Habitat Classification system, available from: <https://ecountability.co.uk/ukhabworkinggroup-ukhab>

Table 2: Proposed habitats on site post-development

UKHab Category
Cropland - Cereal crops
Grassland - Other neutral grassland
Grassland - Modified grassland
Heathland and shrub – Bramble scrub
Heathland and shrub – Mixed scrub
Sparsely vegetated land - ruderal/Ephemeral
Urban - Developed land; sealed surface
Heathland and shrub - Bramble scrub
Heathland and shrub - Mixed scrub
Native hedgerow
Native hedgerow with trees

2.2.2 Area

The area of identified habitats is calculated in hectares. Length of hedgerow were assessed in kilometres

2.2.3 Habitat Distinctiveness

Each habitat is assigned a score for distinctiveness. Distinctiveness includes parameters such as species richness, diversity, rarity (at local, regional, national and international scales) and the degree to which a habitat supports species rarely found in other habitats (Treweek, et al., 2010). The categories for distinctiveness within Biodiversity Metric 3.1 are shown within Table 3.

Table 3: Categories and scores for distinctiveness

Categories	Score
Very High (Section 41 Priority Habitats that are threatened, internationally scarce and require conservation action)	8
High (Section 41 Priority Habitats)	6
Medium (Semi-natural habitats not classified as Priority Habitat)	4
Low (Habitat of low biodiversity value)	2
Very Low (Little or no biodiversity value)	0

2.2.4 Habitat Condition

The condition of each habitat is assessed using the methods set out in the *Biodiversity Metric 3.1: habitat condition assessment sheets with instructions* (Natural England, 2021c).

This approach determines how many of the condition criteria descriptions for each habitat type are met or are not met. For each habitat type, thresholds then apply for the numbers of condition criteria that must be met. For instance, if any of the eight condition criteria for ditches are not met, then the condition should be assigned as Moderate.

This is used as a guide but may be superseded where appropriate by other evidence and best ecological judgement. Where this is the case, additional information is provided in the tables used to the condition assessment.

Conditions and associated scores in the 3.1 Metric are as follows:

- Good: 3
- Fairly Good: 2.5
- Moderate: 2

- Fairly Poor: 1.5
- Poor: 1
- N/A Agriculture: 1
- N/A: 0

A number of lower distinctiveness habitats including urban habitats are assigned default values and do not require a detailed condition assessment.

2.2.5 Strategic Significance

The strategic significance of a site within the Biodiversity Metric 3.1 is based upon whether the location of the development, and/or off-site work, has been identified locally as significant for nature. This is determined by information set out in local plans or policies.

Strategic significance scores in the Biodiversity Metric 3.1 are as follows:

- High strategic significance:
High potential & within area formally identified in local policy 1.15
- Medium strategic significance:
Location ecologically desirable but not in local strategy 1.1
- Low Strategic Significance:
Low potential and area/compensation not in local strategy/ no local strategy 1

The site and its habitats do not fall within an ecological network of strategic significance. Therefore, for this assessment, all habitats have been allocated a strategic significance of 'Location ecologically desirable but not in local strategy'. The site is within an agricultural landscape with strips of woodland on the surroundings.

2.2.6 Risk Factors

As part of any proposed habitat creation and restoration, risk factors must be considered, to correct for disparity, delay or risk; these are:

- Time to target condition; and
- Difficulty of restoration / creation.

To take this into account, creation of a habitat which will take many years to get to target condition or is difficult to recreate, would have a reduced biodiversity value compared to the same habitat already *in situ*. Therefore, to compensate for loss of that original habitat a larger area would be required as an offset.

Default values are provided for a range of habitats as part of the Biodiversity Metric 3.1. These may be altered if informed by knowledge of the site and proposed management prescriptions, as detailed within the habitat assessment tables.

2.3 LIMITATIONS

Two dry ditches were noted during the site survey but the vegetation within them indicated they do not typically hold water. The UKHab definition does not include dry ditches and there is no means in which to assess the condition of dry ditches. As such they were assessed in line with the terrestrial habitat contained in the dry ditch.

To conduct the assessment of habitats post-development required conversion of the Post Development Habitat Plan (Appendix B) into UKHab habitat categories. This information is then inputted into the Metric in terms of the habitat areas being retained, lost or enhanced. Whilst not a significant limitation, when using the metric calculation tool to convert the habitat types into UKHab types, the different habitat types do not exactly align.

The outputs of the metric are not absolute values but provide a proxy for the relative biodiversity worth of a site pre and post-development. The calculations within this report should be reviewed and updated should there be any changes to the habitats on site currently. As the change in biodiversity, units is determined by subtracting the number of pre-intervention biodiversity units (i.e. those originally existing on-site and off-site) from the number of post-intervention units (i.e. those projected to be provided), this report should be updated should the proposals for the site change

The metric does not override or undermine any existing planning policy or legislation, including the mitigation hierarchy, which should always be considered as the metric is applied. Furthermore, the metric does not change the protection afforded to biodiversity. Existing levels of protection afforded to protected species (such as for bats) and to habitats, are not changed by use of this or any other metric.

Assumptions on the management of the habitats are set out on Appendix D

3.0 RESULTS & EVALUATION

The data used to inform the condition assessments for the habitats pre- and post-development and calculations from the Biodiversity Metric 3.1 are provided in Appendix C and D.

The pre-development habitats have been mapped in accordance with UKHab for use with the Biodiversity Metric 3.1, as shown on Figure 3. Appendix B and Figure 4 shows the post-development habitats using the UKHab classifications.

3.1 HEADLINE HABITAT RESULTS

Headline habitat results are provided in Table 4. This shows the scores that will be achieved with the implementation of the habitats within the Figure 4 and achievement of the conditions as set out in Section 2.4 for created habitats. **Development proposals would likely result in a net gain of approximately 2.78 habitat units (15.53%) and a net gain of approximately 9.11 Hedgerow units (218.67%).**

Table 4: Headline Habitat Results

Project Stage	Habitat Type	Units
On-site baseline	Habitat units	17.89
	Hedgerow units	2.86
On site post-intervention (including habitat retention, creation & enhancement)	Habitat units	20.66
	Hedgerow units	9.11
Total net unit change (including all on-site habitat retention, creation and enhancement)	Habitat units	2.78
	Hedgerow units	6.25
Total net % change (including all on-site habitat retention, creation and enhancement)	Habitat units	15.53%
	Hedgerow units	218.67%

Based on the current Landscape plan and assumptions outlined in Appendix D

REFERENCES

- CIEEM, 2017. *Guidelines for Preliminary Ecological Appraisal*. 2nd ed. Winchester: CIEEM.
- JNCC, 2016. *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit*. Peterborough: JNCC.
- Treweek, J., Butcher, B. & Temple, H., 2010. *Biodiversity Offset: Possible methods for measuring biodiversity losses and gains for use in the UK*. s.l.:s.n.
- Natural England (2021c). The Biodiversity Metric 3.1. [Online] Available at: <http://publications.naturalengland.org.uk/publication/6049804846366720>

FIGURES

Figure 1 – Site Location Plan

Figure 2 – Phase 1 Habitat Plan

Figure 3 – Pre-Development UKHab Plan

Figure 4 – Post Development UKHab Plan



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Site Location Plan

Cellarhead - Battery Storage Site

Conrad Energy

Legend

Site boundary



Notes:

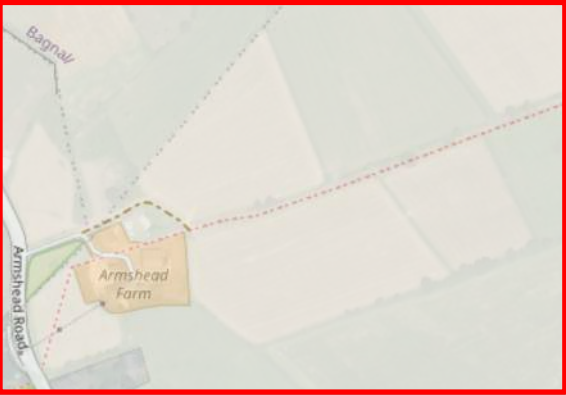
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Checked by: MS
Office: Southampton

Figure No. 1
Revision No. B

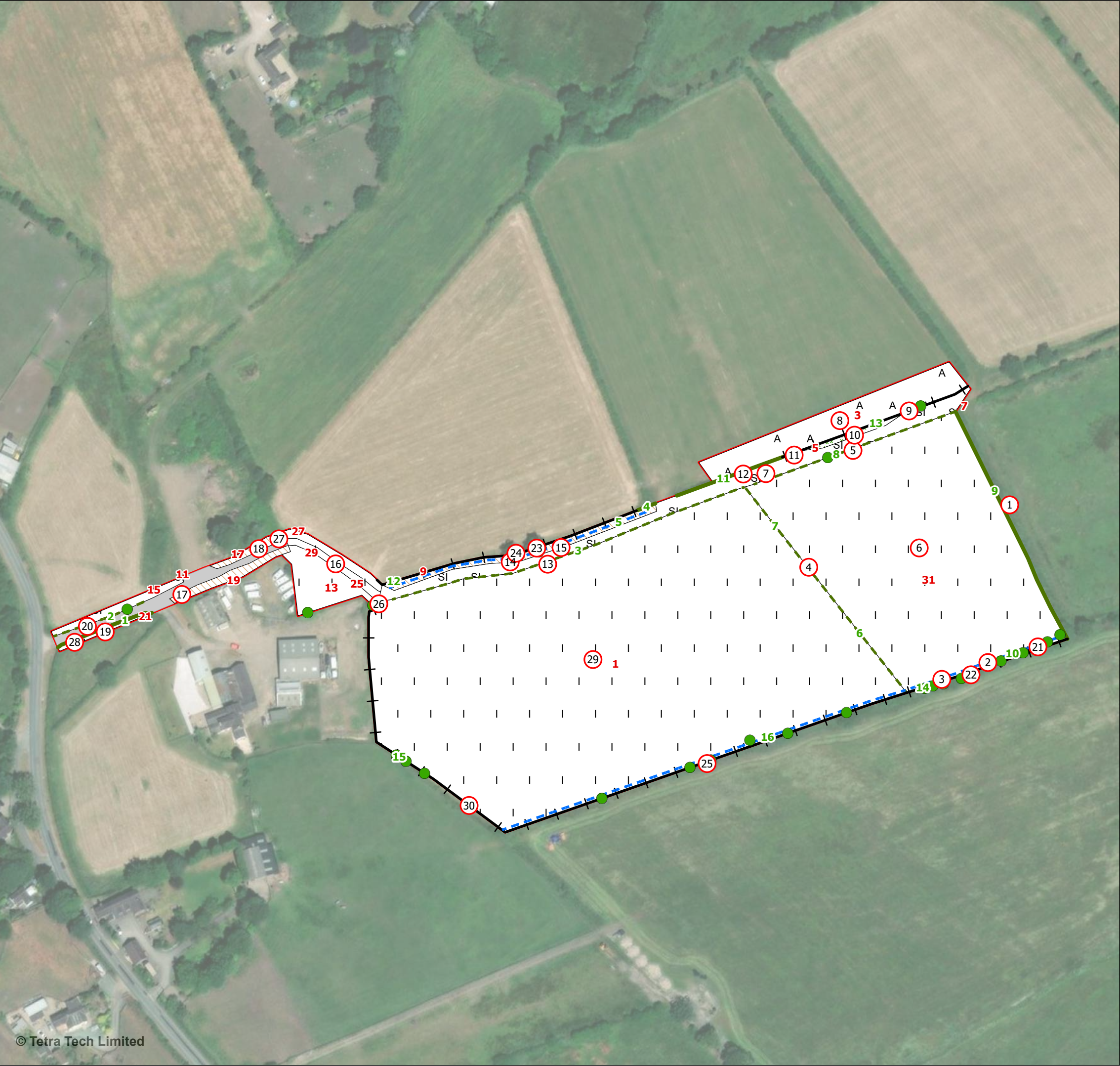
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Phase 1 Habitat Plan

Cellarhead - Battery Storage Site



Conrad Energy

Legend

- Site boundary
- Scrub - scattered
- Improved grassland
- Poor semi-improved grassland
- Tall ruderal
- Arable
- Hardstanding
- Intact hedge - native species-poor
- Defunct hedge - native species-poor
- Fence
- Dry ditch
- Scattered tree
- Target note

Notes:

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Checked by: GP
Office: Southampton

Figure No. 2
Revision No. B

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BNG Pre-Development Habitat Plan

Cellarhead - Battery Storage Site

Conrad Energy

Legend

- Site boundary
- Cropland - Cereal crops
- Grassland - Modified grassland
- Sparsely vegetated land - ruderal/Ephemeral
- Urban - Developed land; sealed surface
- Heathland and shrub - Bramble scrub
- Grassland - Other neutral grassland
- Line of trees
- Native hedgerow
- Target note

Notes:

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Figure No. 3
Revision No. B

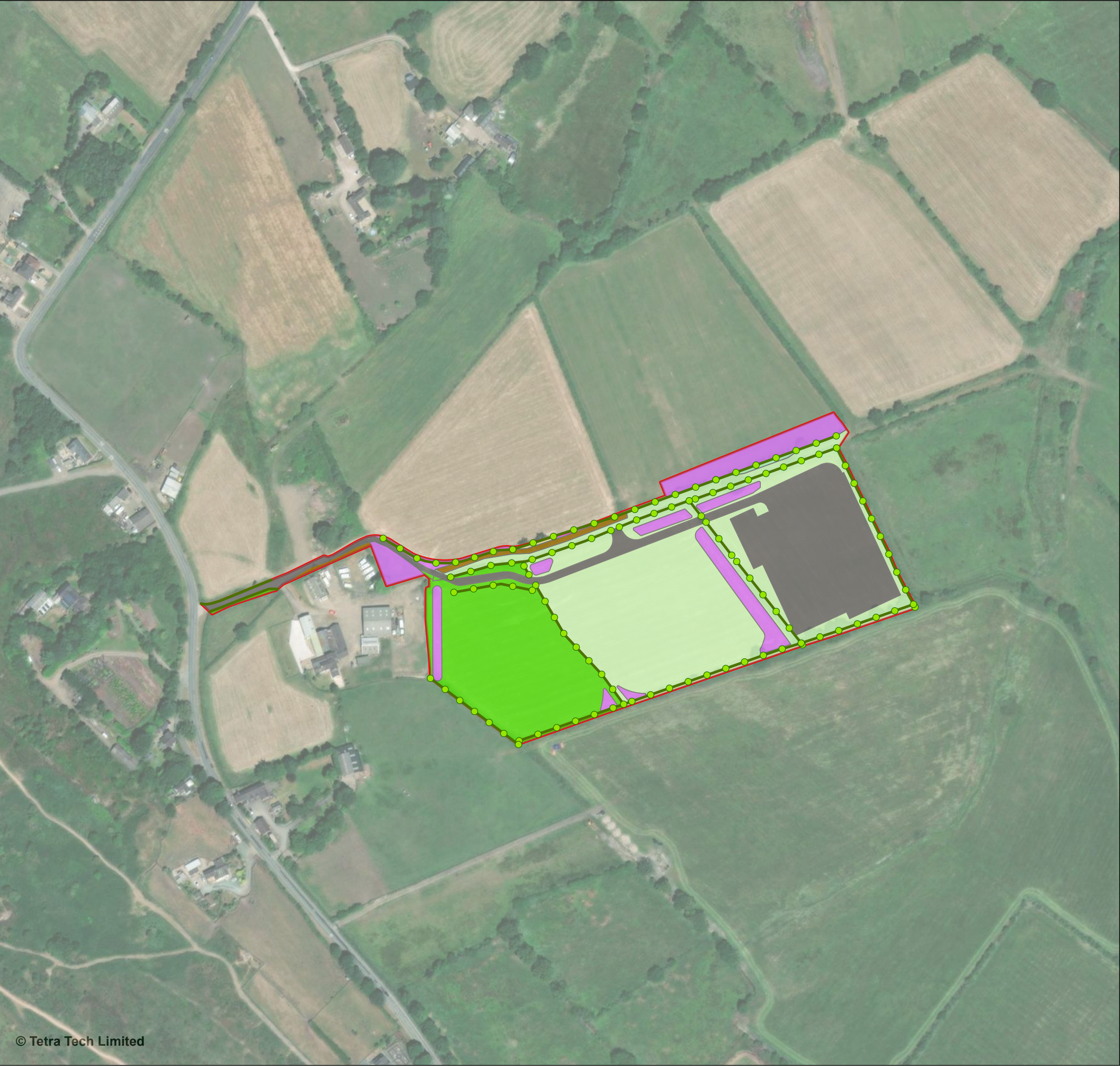
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BNG Post-Development Habitat Plan

Cellarhead - Battery Storage Site

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Legend

- Site boundary
- Cropland - Cereal crops
- Grassland - Other neutral grassland
- Grassland - Modified grassland
- Sparsely vegetated land - ruderal/Ephemeral
- Urban - Developed land; sealed surface
- Heathland and shrub - Bramble scrub
- Heathland and shrub - Mixed scrub
- Native hedgerow
- Native hedgerow with trees



Notes:

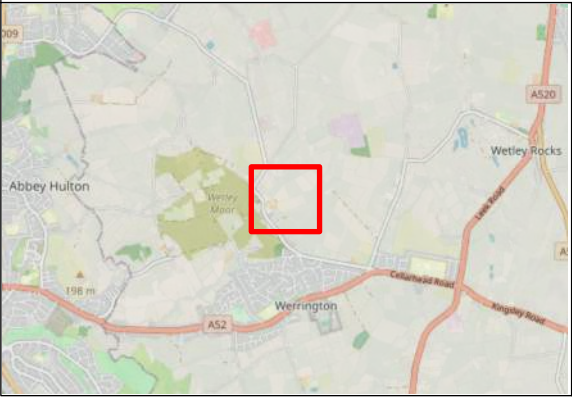
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Figure No. 4
Revision No. A

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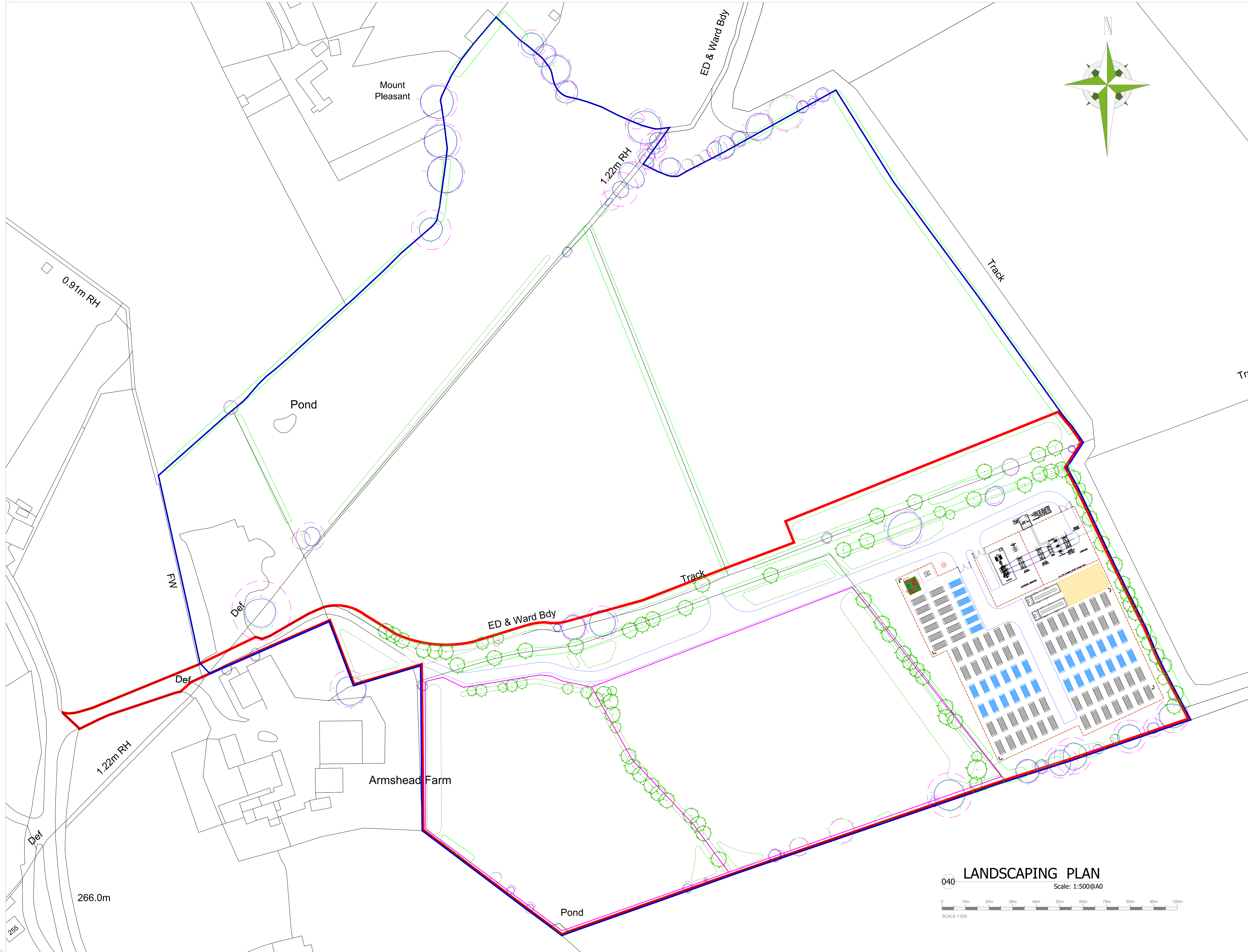
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The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

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APPENDIX B – LANDSCAPE PLAN



LANDSCAPING PLAN

LEGEND:

SITE INFRASTRUCTURE:

- RETAINED PROPERTY
- PROPOSED SITE
- MAINTENANCE ACCESS
- PERIMETER FENCELINE
- AREA RESERVED FOR DRAINAGE
- EXISTING HEDGEROWS
- EXISTING TREES WITH ROOT PROTECTION ZONES
- PROPOSED PLANTING
- PROPOSED TREE PLANTING

- SWITCH ROOM
- AUXILIARY TRANSFORMER
- AMENITY CABIN
- INVERTER UNIT
- BATTERY UNIT
- FIRE HYDRANT

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REVISIONS		

Design

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APPENDIX C –SITE BASELINE

The following tables outline the Condition Assessments undertaken with reference to the *Biodiversity Metric 3.1 habitat condition assessment sheets with instructions* (Natural England, 2021b). Please refer to the Ecological Appraisal Report (Tetra Tech 2022) for the detailed Target Notes. 'Ref' relates to the reference number on the Biodiversity metric Excel Spread Sheet provide along with this report.

A-1 SITE HABITAT BASELINE

Table 5: Condition Assessment of Ref 1 & 2 (Target Note 6 – Modified Grassland)

Habitat	Grassland – Modified Grassland		
Condition Table	Low distinctiveness grassland condition sheet		
Condition Assessment	Assessment Criteria	Site Condition	Pass/Fail
	1: There must be 6-8 species per m2). Note - if a grassland has 9 or more species per m2 it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is essential for achieving good condition.	Species count was six	Pass
	2: Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Due to grazing sward was regular	Fail
	3: Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	No scrub was visible	Pass
	4: Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Heavy grazing on site	Fail
	5: Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Limited bare ground to around gate <5%	Pass
	6: Cover of bracken less than 20%.	No Bracken	Pass
Condition	7: There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition' (footnote *1) make up less than 5% of ground cover.	No non-natives species visible	Pass
	Good (3): Passes 6 or 7 of 7 criteria including passing essential criterion 1 Moderate (2): Passes 4 or 5 of 7 criteria including passing essential criterion 1 Poor (1): Passes 0, 1, 2 or 3 of 7 criteria; OR 4, 5 or 6 of criteria but failing criterion 1		Moderate

Table 6: Condition Assessment of Ref 3 (Target Note 7 – Modified Grassland)

Habitat	Grassland – Other neutral grasslands
Condition Table	Medium & High distinctiveness grassland condition sheet

Condition Assessment	Assessment Criteria	Site Condition	Pass /Fail
	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.	Species mix matches semi improved grassland on the JNCC definition which is the equivalent of other neutral grassland on the UKHab definition	Pass
	2: Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Due to use of track limited sward height	Fail
	3: Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Wheel ruts - 15% bare ground	Fail
	4: Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	No Bracken	Pass
	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 condition ¹ 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. Species indicative of sub-optimal condition for this habitat type include: Creeping thistle <i>Cirsium arvense</i> , spear thistle <i>Cirsium vulgare</i> , curled dock <i>Rumex crispus</i> , broad-leaved dock <i>Rumex obtusifolius</i> , common nettle <i>Urtica dioica</i> , creeping buttercup <i>Ranunculus repens</i> , greater plantain <i>Plantago major</i> , white clover <i>Trifolium repens</i> , cow parsley <i>Anthriscus sylvestris</i> ."	No non-natives species visible.	Fail
	6: There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	Species count was 10	Pass
Condition	Good (3): Passes 5 or 6 of 6 criteria including passing essential criterion 1 Moderate (2): Passes 3 or 4 of 6 criteria including passing essential criterion 1 Poor (1): Passes 0, 1 or 2 of 7 6 criteria; OR 3, 4, or 5 of criteria but failing criterion 1		Moderate

Table 7: Condition Assessment of Ref 4 (Target Note 16 – Modified Grassland)

Habitat	Grassland – Modified Grassland		
Condition Table	Low distinctiveness grassland condition sheet		
Condition Assessment	Assessment Criteria	Site Condition	Pass/Fail
	1: There must be 6-8 species per m ²). Note - if a grassland has 9 or more species per m ² it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is essential for achieving good condition.	Species count in was six	Pass

	2: Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Very even no change is sward height, likely recently sown	Fail
	3: Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	No scrub visible	Pass
	4: Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Limited damage likely due to it being for haylage	Pass
	5: Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Wheel ruts in section in redline - >5%	Fail
	6: Cover of bracken less than 20%.	No Bracken	Pass
	7: There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition' (footnote *1) make up less than 5% of ground cover.	No Non natives visible	Pass
Condition	Good (3): Passes 6 or 7 of 7 criteria including passing essential criterion 1 Moderate (2): Passes 4 or 5 of 7 criteria including passing essential criterion 1 Poor (1): Passes 0, 1, 2 or 3 of 7 criteria; OR 4, 5 or 6 of criteria but failing criterion 1		Moderate

Table 8: Condition Assessment of Ref 5(Target Note 14 & 18 – Sparsely Vegetated land Ruderal / Ephemeral)

Habitat	Sparsely Vegetated land – Ruderal / Ephemeral		
Condition Table	Urban condition sheet		
Condition Assessment	Assessment Criteria	Site Condition	Pass/Fail
	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.	Vegetation structure is not varied being dominated by ribwort plantain and greater willow herb	Fail
	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)."	Vegetation composition is not varied being dominated by ribwort plantain and greater willow herb	Fail
	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).	No non-native species identified	Pass
Condition	Good (3): Passes 3 of 3 core criteria; AND Meets the requirements for good condition within criteria 2 and 3 Moderate (2): 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		Poor

	Poor (1): Passes 0 or 1 of 3 core criteria	
--	--	--

Table 9: Condition Assessment of Ref 6 (Target Note 17 – Developed land; sealed surface)

Habitat	Urban – Developed land; sealed surface
Condition Table	n/a – no condition assessment required.
Condition	N/A - Other – default score allocated of 0

Table 10: Condition Assessment of Ref 7 (Target Note 10 – Heathland and Shrub Bramble Scrub)

Habitat	Heathland and Shrub – Bramble Scrub		
Condition Table	Scrub condition sheet		
Condition Assessment	Assessment Criteria	Site Condition	Pass/Fail
	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).	Dominated by bramble	Fail
	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	All scrub are of a similar age range	Fail
	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	No non-native species identified	Pass
	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Stunted due to grassland	Fail
	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Only a small area of habitat and managed either side being part of the linear feature	Fail
Condition	Good (3): Passes 3 of 3 core criteria; Moderate (2): Passes 2 of 3 core criteria; Poor (1): Passes 0 or 1 of 3 core criteria;		Poor

B-1 SITE HEDGE BASELINE

Table 11: Condition Assessment of Ref 1 (Target Note 3 – Line of Trees)

Habitat	Line of Trees		
Condition Table	Line of Trees		
Condition Assessment	Assessment Criteria	Site Condition	Pass/Fail
	More than 70% of trees are native species.	Species include pedunculate oak rowan birch and holly	Pass
	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Numerous gaps and more than 10% gaps	Fail
	Includes one or more mature or veteran tree.	All trees semi mature	Fail
	There is an undisturbed naturally vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other anthropogenic operations.	No - cattle damage around the trees evident; there is an electric fence to restrict cattle but the strip is narrower than 6 m	Fail
	At least 95% of the trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	All trees look healthy with limited cankers and wounds. Limited farming damage was noted with fencing attached to trees	Pass
Condition	Good (3): Passes 5 of 5 core criteria; Moderate (2): Passes 3 or 4 of 5 core criteria; Poor (1): Passes 0, 1 or 2 of 3 core criteria;		Poor

Table 12: Condition assessment of Ref 2 (Target Note 1 – Native Hedgerow)

Habitat	Native Hedgerow			
Condition Table	Hedgerow			
Condition Assessment	Attributes	Criteria	Site Condition	Pass/ Fail
	A1. Height	>1.5 m average along length	Height is over 1.5m	Pass
	A2. Width	>1.5 m average along length	Width is over 1.5m	Pass
	B1. Gap - hedge base	Gap between ground and base of canopy 90% of length	Limited gaps	Pass
	B2. Gap - hedge canopy	Gaps make up <10% of total length and No canopy gaps >5 m	Only one gap from an old gate <10%	Pass
	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	Browsing by cattle all the way to the hedge	Fail
	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate.	Docks, cleavers and nettle around base	Fail

	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	No non-natives identified	Pass
	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	No damage visible	Pass
Condition	No more than 2 failures in total; AND No more than 1 failure in any functional group: Good No more than 5 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition): Moderate Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition): Poor.			Moderate

Table 13: Condition assessment of Ref 3 (Target Note 4 – Native Hedgerow)

Habitat	Native Hedgerow			
Condition Table	Hedgerow			
Condition Assessment	Attributes	Criteria	Site Condition	Pass/ Fail
	A1. Height	>1.5 m average along length	Height is over 1.5m	Pass
	A2. Width	>1.5 m average along length	Width is over 1.5m	Pass
	B1. Gap - hedge base	Gap between ground and base of canopy 90% of length	Less than 90% gap	Pass
	B2. Gap - hedge canopy	Gaps make up <10% of total length and No canopy gaps >5 m	Numerous gaps along length of hedge - >10%	Fail
	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	Grazing to base	Fail
	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate.	Docks, cleavers and nettle around base	Fail
	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	No non-natives identified	Pass
	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Numerous areas of damage from livestock	Fail
Condition	No more than 2 failures in total; AND No more than 1 failure in any functional group: Good No more than 5 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition): Moderate Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition): Poor.			Moderate

Table 14: Condition assessment of Ref 4 (Target Note 5 – Native Hedgerow)

Habitat	Native Hedgerow			
Condition Table	Hedgerow			
Condition Assessment	Attributes	Criteria	Site Condition	Pass/ Fail
	A1. Height	>1.5 m average along length	Height is over 1.5m	Pass
	A2. Width	>1.5 m average along length	Width is over 1.5m	Pass
	B1. Gap - hedge base	Gap between ground and base of canopy 90% of length	Lots of leggy sections of hedge	Fail
	B2. Gap - hedge canopy	Gaps make up <10% of total length and No canopy gaps >5 m	Lots of gaps visible >10%	Fail
	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	Grazing to base	Fail
	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate.	Docks, cleavers and nettles around base	Fail
	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	No non-natives identified	Pass
	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Numerous areas of damage from livestock	Fail
Condition	No more than 2 failures in total; AND No more than 1 failure in any functional group: Good No more than 5 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition): Moderate Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition): Poor.			Poor

Table 15: Condition assessment of Ref 5 (Target Note 12 – Native Hedgerow)

Habitat	Native Hedgerow			
Condition Table	Hedgerow			
Condition Assessment	Attributes	Criteria	Site Condition	Pass/ Fail
	A1. Height	>1.5 m average along length	Height is over 1.5m	Pass
	A2. Width	>1.5 m average along length	Width is over 1.5m	Pass
	B1. Gap - hedge base	Gap between ground and base of canopy 90% of length	Limited gaps	Pass
	B2. Gap - hedge canopy	Gaps make up <10% of total length and No canopy gaps >5 m	Very limited gaps <10%	Pass
	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	Arable planting to base	Fail

	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate.	Docks, cleavers and nettles around base on south side	Fail
	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	No non-natives identified	Pass
	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Limited damage as no livestock in arable field	Pass
Condition	No more than 2 failures in total; AND No more than 1 failure in any functional group: Good No more than 5 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition): Moderate Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition): Poor.			Moderate

Table 16: Condition assessment of Ref 6 (Target Note 13 – Native Hedgerow)

Habitat	Native Hedgerow			
Condition Table	Hedgerow			
Condition Assessment	Attributes	Criteria	Site Condition	Pass/ Fail
	A1. Height	>1.5 m average along length	Height is lower than 1.5m	Fail
	A2. Width	>1.5 m average along length	Width is narrower than 1.5m	Fail
	B1. Gap - hedge base	Gap between ground and base of canopy 90% of length	Lots of leggy sections of hedge	Fail
	B2. Gap - hedge canopy	Gaps make up <10% of total length and No canopy gaps >5 m	Lots of gaps visible >10%	Fail
	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	Extensive grazing on one side and damage from wheel ruts the other	Fail
	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate.	Docks cleavers, and nettles around base on south side	Fail
	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Indian balsam in 10% of the hedge to the west	Fail
	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Damage from livestock and vehicles	Fail
Condition	No more than 2 failures in total; AND No more than 1 failure in any functional group: Good No more than 5 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition): Moderate Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition): Poor.			Poor

Table 17: Condition assessment of Ref 7 (Target Note 19 – Native Hedgerow)

Habitat	Native Hedgerow			
Condition Table	Hedgerow			
Condition Assessment	Attributes	Criteria	Site Condition	Pass/ Fail
	A1. Height	>1.5 m average along length	Height is over 1.5m	Pass
	A2. Width	>1.5 m average along length	Width is over 1.5m	Pass
	B1. Gap - hedge base	Gap between ground and base of canopy 90% of length	Hedge goes down to the ground	Pass
	B2. Gap - hedge canopy	Gaps make up <10% of total length and No canopy gaps >5 m	Hedge is continuous 0% gaps	Pass
	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	Undisturbed ground south of the hedge. Track to the north	Pass
	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate.	Nettles and cleavers in hedge	Fail
	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Indian balsam in 10% of the hedge to the west	Fail
	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Damage due to use of track	Fail
Condition	No more than 2 failures in total; AND No more than 1 failure in any functional group: Good No more than 5 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition): Moderate Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition): Poor.			Moderate

Table 18: Condition assessment of Ref 8 (Target Note 20 – Native Hedgerow)

Habitat	Native Hedgerow			
Condition Table	Hedgerow			
Condition Assessment	Attributes	Criteria	Site Condition	Pass/ Fail
	A1. Height	>1.5 m average along length	Height is lower than 1.5m	Fail
	A2. Width	>1.5 m average along length	Width is narrower than 1.5m	Fail
	B1. Gap - hedge base	Gap between ground and base of canopy 90% of length	Very leggy	Fail
	B2. Gap - hedge canopy	Gaps make up <10% of total length and No canopy gaps >5 m	Lots of gaps	Fail
	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	Lots of disturbed ground likely from livestock and trampling	Fail

	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate.	Nettles and cleavers visible	Fail
	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	No non-natives identified	Pass
	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Damage due to livestock	Fail
Condition	No more than 2 failures in total; AND No more than 1 failure in any functional group: Good No more than 5 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition): Moderate Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition): Poor.			Poor

APPENDIX D—SITE HABITAT CREATION AND ENHANCEMENT

The following tables outline the Condition Assessments undertaken with reference to the *Biodiversity Metric 3.1 habitat condition assessment sheets with instructions* (Natural England, 2021b). A cautious approach has been taken throughout when assessing the condition of the post-development habitats and hedgerows.

A-2 HABITAT CREATION

The habitats created will include Urban developed surface in the form of the proposed development and the access road as well the modified neutral grassland within the field around the development area; it is anticipated that the earth works would cause substantial damage to the existing grassland and therefore it will be necessary to create a new grassland after the completion of the works. The remaining habitat on site will be retained and where possible enhanced.

Table 19: Condition assessment of Urban – Developed land; sealed surface

Habitat	Urban – Developed land; sealed surface
Distinctiveness	V. Low
Condition Table	n/a
Condition Assessment	n/a – no condition assessment required.
Result	N/A - Other – default score allocated of 0

Table 20: Condition Assessment of Grassland - Other Neutral Grassland

Habitat	Grassland – Other neutral grasslands		
Condition Table	Medium & High distinctiveness grassland condition sheet		
Condition Assessment	Assessment Criteria	Management Recommendations*	Pass /Fail
	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.	the area should be seeded with meadow mixture (Such Meadow Mixture EM22)	Pass
	2: Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	It is not expected this criterion would be passed /	Fail
	3: Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	No agricultural or industrial activity should take place in this area so as to prevent damage from livestock and vehicles.	Pass
	4: Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	The grassland should be mowed once a year at the end of August and the remains should be removed from the site.	Pass
	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 condition ¹ 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. Species indicative of sub-optimal condition for this habitat type include: Creeping thistle <i>Cirsium arvense</i> , spear thistle <i>Cirsium vulgare</i> , curled dock <i>Rumex crispus</i> , broad-leaved dock <i>Rumex obtusifolius</i> , common nettle <i>Urtica dioica</i> , creeping buttercup <i>Ranunculus repens</i> , greater plantain <i>Plantago major</i> , white clover <i>Trifolium repens</i> , cow parsley <i>Anthriscus sylvestris</i> .	It is recommended that invasive species are removed from the site; however, given the current agricultural use of the land and the land surrounding it will likely be challenging to prevent the colonisation of self seeded species that indicate sub-optimal conditions.	Fail
Condition	6: There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	The above seed mix would like result in over 9 species per metre squared	Pass
	Good (3): Passes 5 or 6 of 6 criteria including passing essential criterion 1 Moderate (2): Passes 3 or 4 of 6 criteria including passing essential criterion 1 Poor (1): Passes 0, 1 or 2 of 7 6 criteria; OR 3, 4, or 5 of criteria but failing criterion 1		Good

* Note that the condition result is reliant on the management recommendations being followed.

² <https://wildseed.co.uk/product/mixtures/complete-mixtures/general-purpose-meadow-mixtures/standard-general-purpose-meadow-mixture/>

B-2 SITE HEDGEROW CREATION

A total of 250m of hedgerows with trees will be created. It is expected to have at least moderate condition as detailed below.

Table 21: Condition assessment of hedgerows and lines of trees - Native hedgerow with trees

Habitat	Native Hedgerow with trees				
Distinctiveness	Medium				
Condition Table	Hedgerow				
Condition Assessment	Attributes	Criteria	Description	Management	Pass/ Fail
	A1. Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height).	The hedgerow must be at least 1.5m high.	Pass
	A2. Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (e.g. blackthorn suckers) are only included in the width estimate when they >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion 162 for up to a maximum of four years (if undertaken according to good practice).	The hedgerow must be at least 1.5m in width.	Pass
	B1. Gap - hedge base	Gap between ground and base of canopy 90% of length (unless 'line of trees')	This is the vertical gappiness of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are	The hedgerow must be managed so as to prevent gaps and if any appear the	Pass

			acceptable (see page 65 of the Hedgerow Survey Handbook).	area must be replanted.	
	B2. Gap - hedge canopy	Gaps make up <10% of total length and No canopy gaps >5 m	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall gappiness, but are not subject to the >5 m criterion (as this is the typical size of a gate).	The hedgerow must be managed so as to prevent gaps.	Pass
	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and is present on one side of the hedge (at least).	"This is the level of disturbance (excluding wildlife disturbance) at the base of the hedge. Undisturbed ground should be present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedge. This criterion recognises the value of the hedge base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches."	As areas adjacent to the hedge are expected to comprise pasture used grazing and the road, this criterion will not be passed	Fail
	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate.	The indicator species used are nettles <i>Urtica spp.</i> , cleavers <i>Galium aparine</i> and docks <i>Rumex spp.</i> . Their presence, either singly or together, should not exceed the 20% cover threshold.	Due to nutrient input from grazing livestock this criterion is unlikely be passed.	Fail
	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Neophytes are plants that have naturalised in the UK since AD 1500. For information on neophytes see the JNCC website and for information on invasive non-native species see the GB Non-Native Secretariat website.	Invasive species (Indian balsam) on site should be removed prior to works. Management should remove any new invasive species that appear on site	Pass

	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting).	Livestock may damage the hedgerow	Fail
	Additional group - applicable to hedgerows with trees only				
	E1. Tree age	At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species	This criterion addresses if there are sufficient mature trees (within the scope of planning timescales) which are of higher value to biodiversity.	Trees will be planted along the hedgerow. At least one of the trees planted at every 30 m should be old enough to be mature within 20 years.	Pass
	E2. Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	Livestock may damage the hedgerow	Fail
Condition	Good: No more than 2 failures in total; AND No more than 1 failure in any functional group: No more than 5 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition): Moderate Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition): Poor.				Moderate

* Note that the condition result is reliant on the management recommendations being followed.

A-3 HABITAT ENHACMENT

'Ref' relates to the reference number on the Biodiversity metric Excel Spread Sheet provide along with this report.

Areas of modified grassland, arable land and cropland will be enhanced into mixed scrub all areas of mixed scrub are expected to achieve at least moderate condition as detailed below. (Note that in some of the site proposals this areas of mixed scrub area referred to as broad leaved woodland, however due to their small extent it was considered as mixed scrub for the purposes of the BNG assessment)

Table 22: Condition assessment of Heathland and Shrub – Mixed Scrub (Ref 1,4 and 8)

Habitat	Heathland and Shrub – Mixed Scrub		
Condition Table	Scrub condition sheet		
Condition Assessment	Assessment Criteria	Management	Pass/Fail
	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).	Scrub will comprise a diverse planting including English oak, alder, silver birch, field maple, rowan, hazel, hawthorn, blackthorn, goat willow, holly, dog rose,	Fail
	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	All scrub will be of a similar age range	Fail
	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	No non-native species identified	Pass
	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Stunted due to grassland	Fail
	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Scrub will be a small area of the post-development site which means glades & rides would be infeasible	Fail
Condition	Good (3): Passes 3 of 3 core criteria; Moderate (2): Passes 2 of 3 core criteria; Poor (1): Passes 0 or 1 of 3 core criteria;		Moderate

The field in the centre of the site will be enhanced from modified grassland to other neutral grassland. It is expected to achieve at least moderate condition as detailed below.

Table 23: Condition Assessment of Grassland - Other Neutral Grassland (Ref 4)

Habitat	Grassland – Other neutral grasslands		
Condition Table	Medium & High distinctiveness grassland condition sheet		
	Assessment Criteria	Management	Pass /Fail

Condition Assessment	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.	the area should be overseeded with meadow mixture (Such Meadow Mixture EM23)	Pass
	2: Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	It is not expected this criterion would be passed	Fail
	3: Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	No agricultural or industrial activity should take place in this area so as to prevent damage from livestock and vehicles.	Pass
	4: Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	The grassland should be mowed once a year at the end of August and the remains should be removed from the site.	Pass
	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 condition ¹ 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. Species indicative of sub-optimal condition for this habitat type include: Creeping thistle <i>Cirsium arvense</i> , spear thistle <i>Cirsium vulgare</i> , curled dock <i>Rumex crispus</i> , broad-leaved dock <i>Rumex obtusifolius</i> , common nettle <i>Urtica dioica</i> , creeping buttercup <i>Ranunculus repens</i> , greater plantain <i>Plantago major</i> , white clover <i>Trifolium repens</i> , cow parsley <i>Anthriscus sylvestris</i> .	It is recommended that invasive species are removed from the site; however, given the current agricultural use of the land and the land surrounding it will likely be challenging to prevent the colonisation of self-seeded species that indicate sub-optimal conditions.	Fail
	6: There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	The above seed mix would like result in over 9 species per metre squared	Pass
Condition	Good (3): Passes 5 or 6 of 6 criteria including passing essential criterion 1 Moderate (2): Passes 3 or 4 of 6 criteria including passing essential criterion 1 Poor (1): Passes 0, 1 or 2 of 7 6 criteria; OR 3, 4, or 5 of criteria but failing criterion 1		Moderate

³ <https://wildseed.co.uk/product/mixtures/complete-mixtures/general-purpose-meadow-mixtures/standard-general-purpose-meadow-mixture/>

A-4 HEDGEROW ENHANCEMENT

Most hedgerows on site (except those at the site entrance to the west) will be enhanced so as to become a hedgerow with trees. The line of trees will also be enhanced so as to become a hedgerow with trees. The enhanced hedgerows and line of trees are expected to become a hedgerow with trees in at least moderate condition.

Habitat	Native Hedgerow with trees				
Distinctiveness	Medium				
Condition Table	Hedgerow				
Condition Assessment	Attributes	Criteria	Description	Management	Pass/ Fail
	A1. Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height).	The hedgerow must be at least 1.5m high.	Pass
	A2. Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (e.g. blackthorn suckers) are only included in the width estimate when they >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion 162 for up to a maximum of four years (if undertaken according to good practice).	The hedgerow must be at least 1.5m in width.	Pass
	B1. Gap - hedge base	Gap between ground and base of canopy 90% of length (unless 'line of trees')	This is the vertical gappiness of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	The hedgerow must be managed so as to prevent gaps and if any appear the area must be replanted.	Pass

	B2. Gap - hedge canopy	Gaps make up <10% of total length and No canopy gaps >5 m	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall gappiness, but are not subject to the >5 m criterion (as this is the typical size of a gate).	The hedgerow must be managed so as to prevent gaps.	Pass
	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and is present on one side of the hedge (at least).	"This is the level of disturbance (excluding wildlife disturbance) at the base of the hedge. Undisturbed ground should be present for at least 90% of the hedgerow length, greater than 1m in width and must be present along at least one side of the hedge. This criterion recognises the value of the hedge base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches."	As areas adjacent to the hedge are expected to pasture used grazing and the road, this criterion will not be passed	Fail
	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate.	The indicator species used are nettles <i>Urtica spp.</i> , cleavers <i>Galium aparine</i> and docks <i>Rumex spp.</i> . Their presence, either singly or together, should not exceed the 20% cover threshold.	Due to nutrient input from grazing livestock this criterion will not be passed.	Fail
	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Neophytes are plants that have naturalised in the UK since AD 1500. For information on neophytes see the JNCC website and for information on invasive non-native species see the GB Non-Native Secretariat website.	Invasive species (Indian balsam) on site should be removed prior to works. Management should remove them should new invasive species appear	Pass
	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence	Livestock may damage the hedgerow	Fail

		damage caused by human activities	of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting).		
	Additional group - applicable to hedgerows with trees only				
	E1. Tree age	At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species	This criterion addresses if there are sufficient mature trees (within the scope of planning timescales) which are of higher value to biodiversity.	Trees will be planted along the hedgerow. At least one of the trees planted at every 30 m should be old enough to be mature within 20 years.	Pass
	E2. Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	Livestock may damage the hedgerow	Fail
Condition	Good: No more than 2 failures in total; AND No more than 1 failure in any functional group: No more than 5 failures in total; AND does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition): Moderate Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition): Poor.				Moderate