

LAND WEST OF ROWNALL ROAD, STAFFORDSHIRE MOORLAND

BNG BIODIVERSITY IMPACT ASSESSMENT

January 2024

Rev 1

	Revision details	Date
Rev 1	Slight changes made to Hedgerows H8 and H10. Not affecting total score	19/10/2024

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1 INTRODUCTION

1.1 Summary

Based on the Statutory Defra Biodiversity Metric calculations, the proposed development will result in an overall change in **Habitat Units to +126.41%** (+60.84 Habitat units), a change in **Hedgerow units to +49.97%** (+6.32 Hedgerow units) and a change in **watercourse units to 59.44%** (+0.88).

It is considered that with the proposed habitat implementation provided with this document and prescribed long-term management strategies, the application site will meet the 10% net gain target provided within the Environment Act (2021).

It is likely that a Biodiversity Gain Plan (BGP) and Habitat Management and Monitoring Plan (HMMP) will be required as part of a suitably worded planning condition.

All BNG mitigation strategies should follow the BNG Hierarchy:

- Avoiding adverse effects of the development on on-site habitat with a habitat distinctiveness score, applied in the biodiversity metric, equal to or higher than six;
- So far as those adverse effects cannot be avoided, mitigating those effects;
- So far as those adverse effects cannot be mitigated, habitat enhancement of on-site habitat;
- So far as there cannot be that enhancement, creation of on-site habitat;
- So far as there cannot be that creation, the availability of registered off-site biodiversity gain;
- So far as that off-site habitat enhancement cannot be secured, purchasing biodiversity credits.

No irreplaceable habitats are present on the application site.

No degradation activities have taken place which has altered the pre-development biodiversity value.

1.2 Background

S&C Energy Limited commissioned Weddles to assess the biodiversity value of the full planning application for site clearance to the construction of a battery energy storage system (BESS) facility.

The assessment will assess the change in ecological value of the proposed development and aid in the decision making for the planning application.

This report has been prepared by John Harvey MA (Hons.), ACIEEM, Senior Ecologist and checked by Neil Northrop BA DipLD MCIHort MARborA CMLI with over 16 years ecological field surveying, scoping, protected species surveys and report writing experience. Neil is also a Chartered Landscape Architect and professional member of the Arboricultural Association

This report will assess the existing site habitats and includes an assessment of the biodiversity change based upon The Statutory Defra Biodiversity Metric. This measuring tool accounts for biodiversity loss and gains impacted from developmental change.

1.3 Site Description

The redline application site is approximately 22.22ha in extent and was located at Grid Reference SJ 94707 48684, pertaining to a series of haylage / silage fields which at the time of assessment supported a sward approximately 20-30cm in height, with a continuous, largely homogeneous, species

composition. The fields were intersected by a series of native species-poor hedgerows with occasional drainage ditches, scattered mature trees and scrubby margins.

The wider surroundings supported further arable and pastoral fields with networks of boundary hedgerows and field margins creating connective corridors from the application site to the wider surroundings. The application site was positioned approximately 1km north-east from the village of Werrington and 1.3km south-west of Wetley Rocks. Wetley Moor Common Site of Special Scientific Interest (SSSI) was located approximately 0.9km to the west.

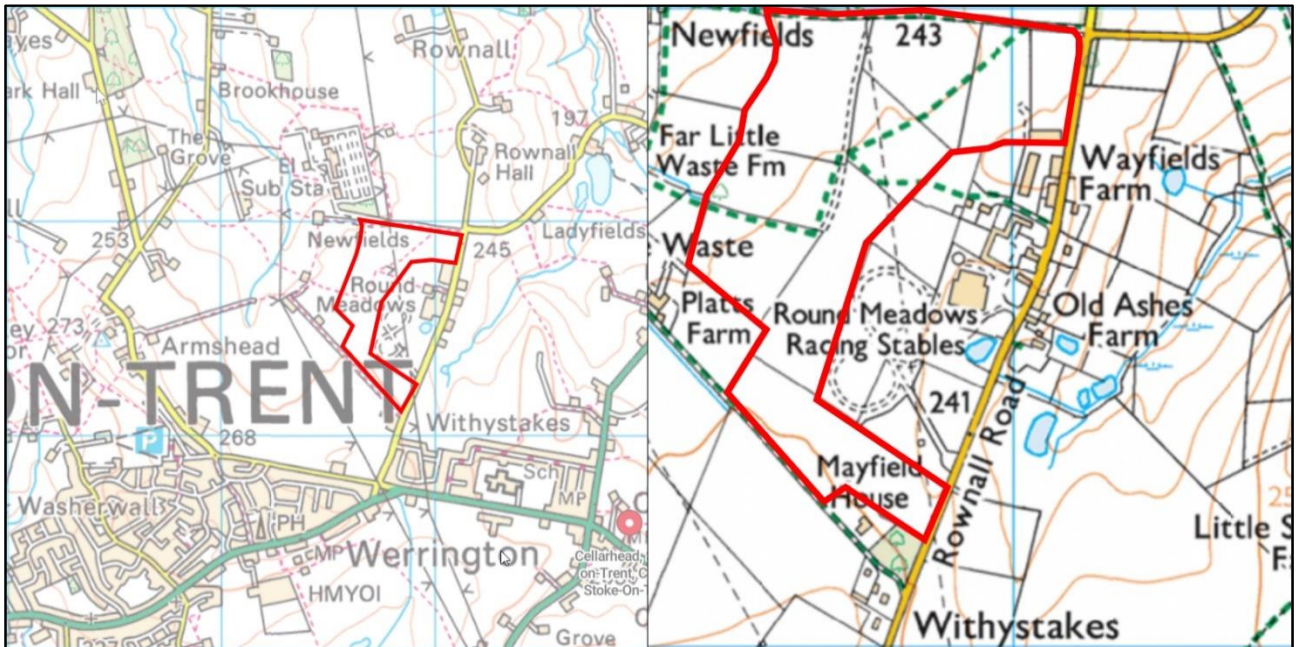


Figure 1: OS Map showing site location



Figure 2: Redline - development site boundary. Blue line – Site ownership / survey boundary

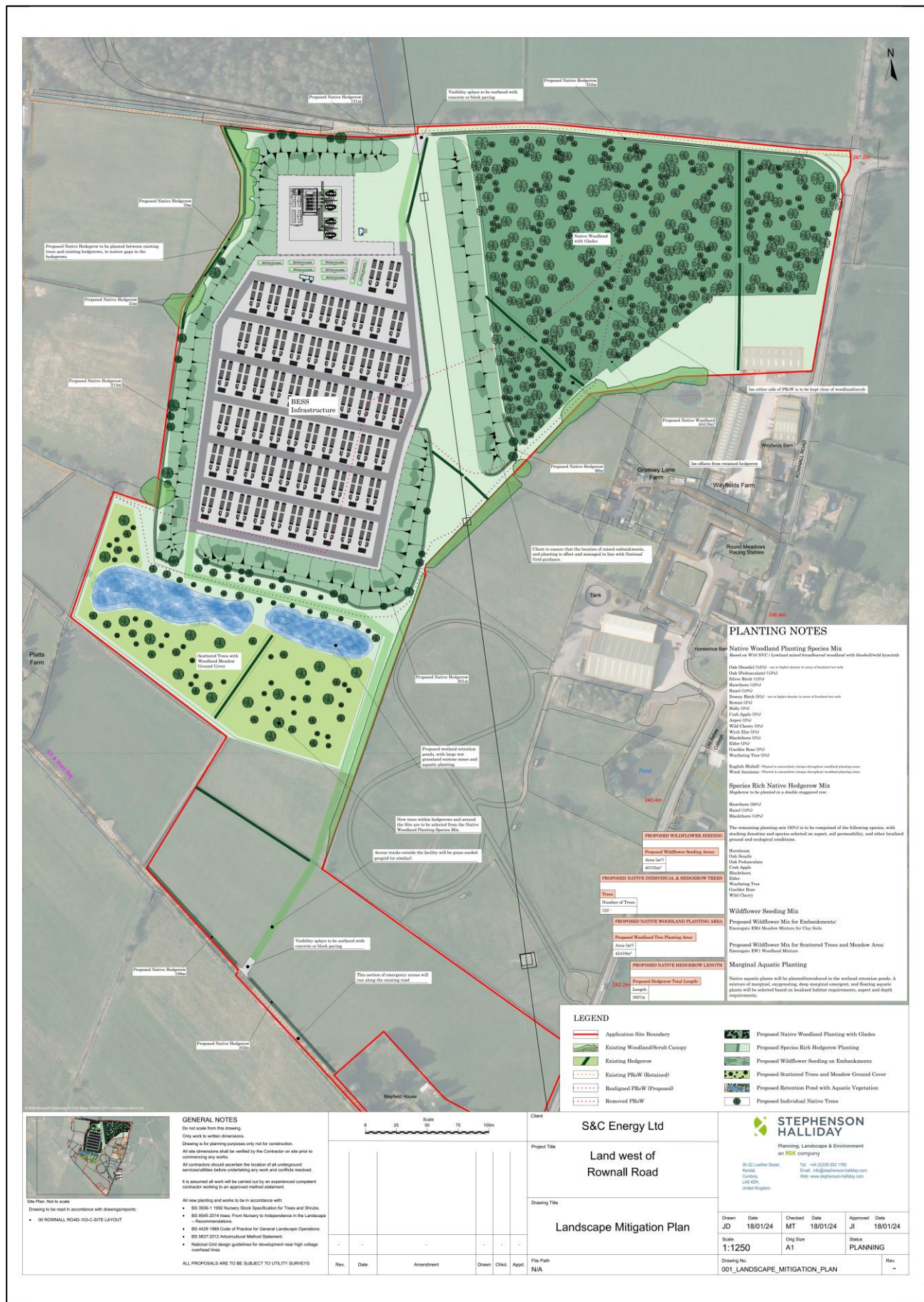
1.4 The Proposals

A planning application is being prepared for the construction of a battery energy storage system (BESS) facility incorporating a substation, and emergency and perimeter roads. Landscape proposals include planted bunds, attenuation, drainage, and woodland planting.

A landscape mitigation plan has been prepared by Stephenson Halliday drawing 001, an extract of which is provided in Figure 3 below.

1.5 Planning Status

The site is in Staffordshire under the development control of Staffordshire County Council (SCC).



2 METHODS

2.1 Assessing Biodiversity

This BNG Biodiversity Impact Assessment summarises and expands upon a submitted Defra BNG Metric which assigns a proposed development site (Baseline and Post-Development) with a specific score, in Biodiversity Units, which is based on an assessment of broad habitat type, area extent, distinctiveness value and condition.

Baseline field assessments were undertaken using the latest available version of UKHabs assessment notation (v2.0.1), and where necessary translated to determine 'best-fit' broad habitats within the Defra BNG Metric. The methodology for determining habitat distinctiveness and condition values follows the guidelines set out by the User Guide¹ and Technical Supplement² for Biodiversity Metric 4.0.

Habitat types are classified into three bands of 'distinctiveness' which are: priority habitats as defined in the NERC Act 2006 (high), such as open mosaic habitat on previously developed land, semi-natural habitats (medium), such as species-rich grasslands and managed habitats, such as arable farmland (low).

Additional 'multipliers' are applied to the creation of habitats within the metric to account for factors that may impact the eventual biodiversity value of a given habitat, including variable temporal, spatial and delivery factors.

Linear habitats (such as hedgerows and ditches) are measured separately to the rest of the site habitats and included within a separate section – hedge and river baseline and creation. The aim is to achieve a 10% net-gain for hedgerow and river units as well as for biodiversity units.

Where projected post-development habitats and conditions are shown, the value can only be accepted if it can be demonstrated by the applicant that the gain will be maintained for at least 30 years after creation, through planning condition, obligation or a conservation covenant. Every effort has been made to provide a feasible assessment informed by ecological expertise which will be set out in subsequent documentation as part of a BGP. In some cases, a reasonable worst-case scenario assessment will be adopted to cover for the unknown uncertainty associated with long-term habitat management.

2.2 Mapping

Habitats and linear features were mapped within the latest version of QGIS software to enable area calculations. The proposed layout was overlayed onto the existing layout using the georeferencing tool, and the proposed post-development habitats measured. Polygons and lines used to measure existing habitat areas were labelled numerically.

2.3 Limitations

While the baseline assessment survey visit was undertaken outside of the optimum period for vegetation surveys it is not considered to have been a limitation in identifying the range and diversity of habitats onsite.

¹ Panks et al. (2023) Biodiversity Metric 4.0 Auditing and accounting for biodiversity – User Guide. Natural England. Natural England

² Panks et al. (2023) Biodiversity metric 4.0: Auditing and accounting for biodiversity - Technical Supplement. Natural England

3 ONSITE BASELINE

3.1 A-1 Onsite Habitat Baseline

The majority of the application site was dominated by swards of grassland which was thought to be used for haylage or silage. The sward was approximately 20cm – 30cm high at the time of the assessment and was homogenous across each of the fields with the same productive grass species mix being used in every field. It was assumed that the fields were sown and mown during the same period as each had the same species composition and level of growth.

Along the boundaries of the site, occasional overhanging lines of trees were identified, recorded as other woodland. Modified grassland and encroaching bramble scrub was also found along the field margins.

Habitat Type	Area (ha)	Distinctiveness	Condition	Strategic Significance	Habitat description and Condition Criteria	Baseline Habitat Units
Temporary grass and clover leys	21.7252 (5.0468 retained)	Low	Condition Assessment N/A	Not identified within local strategy	N/A	43.45 (10.09 retained)
Other woodland, broadleaved	0.2006 (0.2006 retained)	Medium	Poor	Ecologically desirable	Score = 20 ³	0.88 (0.88 retained)
Modified grassland	0.082 (0.082 retained)	Low	Good	Not identified within local strategy	Passing 6/7 (A, B, C, D, F and G)	0.49 (0.49 retained)
Bramble scrub	0.1175 (0.1175 retained)	Medium	Condition Assessment N/A	Not identified within local strategy	N/A	0.47 (0.47 retained)
Developed land; sealed surface	0.0953 (0.0953 retained)	Very Low	N/A – Other	Not identified within local strategy	No condition assessment	0.00
Rural tree	0.3542 (0.342 retained)	Medium	Moderate	Not identified within local strategy	Each tree assessed individually, all being Moderate.	2.83 (2.74 retained)
Total Habitat Units						48.13 (14.67 retained)

Table 1: Summary of Baseline Habitats

³ Refer to submitted PEA (Land West of Rownall Road – PEA – November 2023) Section 4.3.6 for breakdown of passing criteria



Figure 4: c1b grassland as seen from the eastern boundary of the site



Figure 5: A section of g4 grassland located along the eastern boundary



Figure 6: H6, a typical boundary hedgerow within the application site with an adjacent ditch.

3.2 B-1 Onsite Hedge Baseline

Fourteen native hedgerows defined sections of the site boundaries and intersected through the application site. Each hedgerow was recently flailed to a height of between 1.5m and 2m. Each hedgerow was dominated by Common Hawthorn (*Crataegus monogyna*) with some hedgerows supporting Common Holly (*Ilex auifolium*), and very occasional Oak (*Quercus*) species. H6 featured a ditch, below, and H2, H6 and H14 supported occasional trees at a rate of approximately 1 per 30m section. H7 was noticeably more species rich than others within the application site; the hedge was dominated by Common Hawthorn, but also including occasional Holly, Elder (*Sambucus nigra*) and Silver Birch (*Betula pendula*).

Habitat Type	Length (km)	Distinctiveness	Condition	Strategic Significance	Habitat description and Condition Criteria	Baseline Habitat Units
Native hedgerow (H1)	0.083 (0.083 retained)	Low	Good	Ecologically desirable	Failing C1	0.55 (0.55 retained)
Native hedgerow with trees (H2)	0.116 (0.058 retained)	Low	Good	Ecologically desirable	Failing C1 and E1	1.53 (0.62 retained)
Native hedgerow (H3)	0.036 (0.036 retained)	Low	Good	Ecologically desirable	Failing C1	0.24 (0.24 retained)
Native hedgerow with trees (H4)	0.194 (0.068 retained)	Low	Good	Ecologically desirable	Failing B2 and C1	1.28 (0.45 retained)
Native hedgerow (H5)	0.137	Low	Moderate	Ecologically desirable	Failing B1, C1 and D2	0.60
Native hedgerow with trees – associated with bank or ditch (H6)	0.161	Medium	Good	Ecologically desirable	Failing B1, C1, E1 and E2	4.25
Native hedgerow (H7)	0.142	Low	Moderate	Ecologically desirable	Failing B1, C1 and D2	0.62
Native hedgerow (H8)	0.146 (0.146 retained)	Low	Good	Ecologically desirable	Failing B1 and C1	0.96 (0.96 retained)
Native hedgerow (H9)	0.152	Low	Moderate	Ecologically desirable	Failing A1, B1 and C1	0.67
Native hedgerow (H10)	0.124 (0.124 retained)	Low	Good	Ecologically desirable	Failing B1 and C1	0.82 (0.82 retained)
Native hedgerow (H11)	0.116 (0.116 retained)	Low	Moderate	Ecologically desirable	Failing A1, B1 and C1	0.51 (0.47 retained)
Native hedgerow (H12)	0.07 (0.07 retained)	Low	Good	Ecologically desirable	Failing A1 and C1	0.46 (0.46 retained)

Native hedgerow (H13)	0.156 (0.156 retained)	Low	Good	Ecologically desirable	Failing B1 and B2	1.03 (1.03 retained)
Native hedgerow (H14)	0.039 (0.39 retained)	Low	Moderate	Ecologically desirable	Failing B1, B2 and C1	0.17 (0.17 retained)
Total Hedge Units						12.64 (6.59 retained)

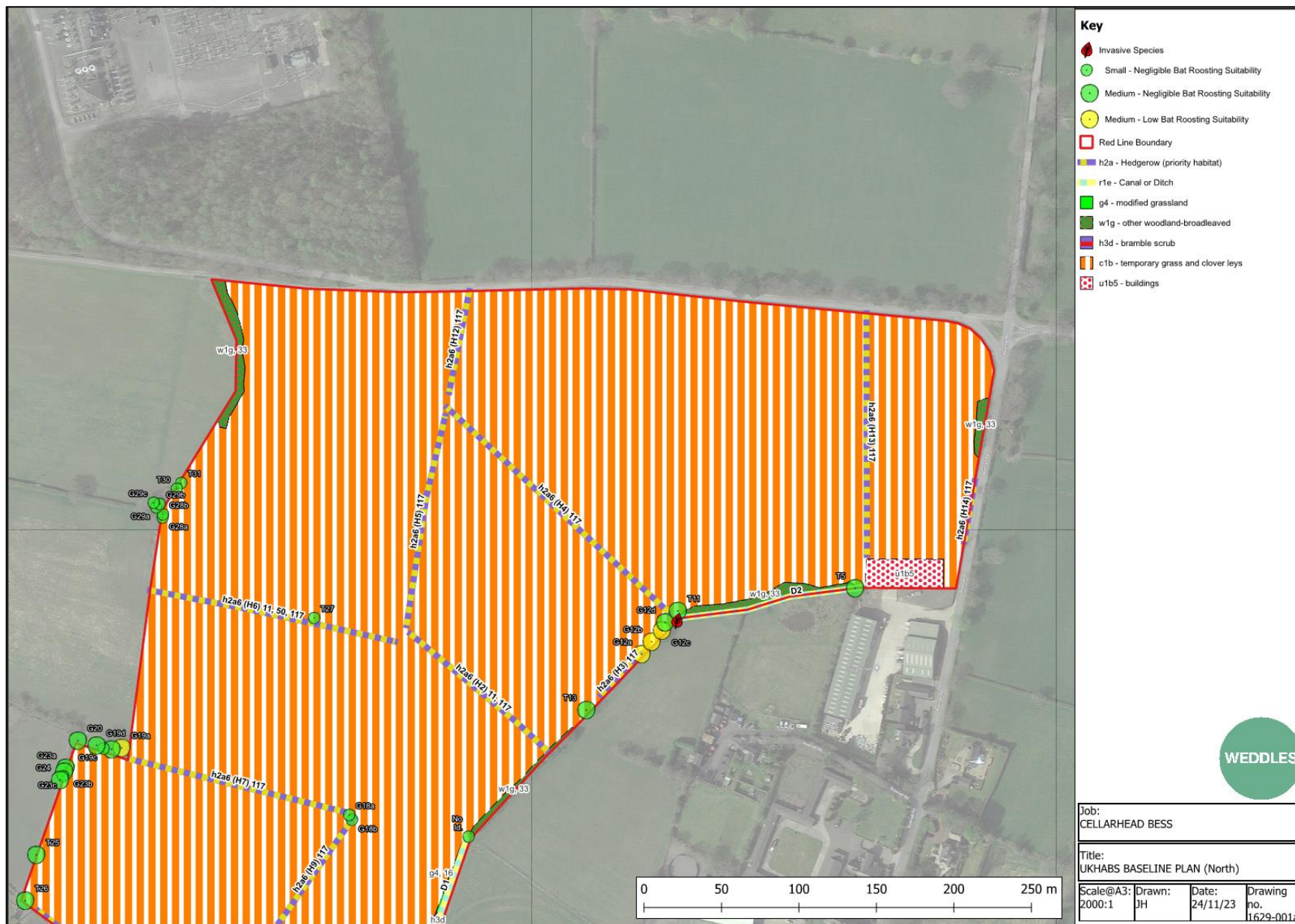
Table 2: Summary of Onsite Hedge Baseline

3.3 C-3 Onsite Watercourse

Two irrigation ditches were recorded within the application development site located along the eastern boundary of the application site. The associated riparian habitat was abutting the application site. The flowrate of the ditches as observed during the preliminary assessment was approximately 10cm p/s, supporting a water depth of 30cm and 45° sloping banks.

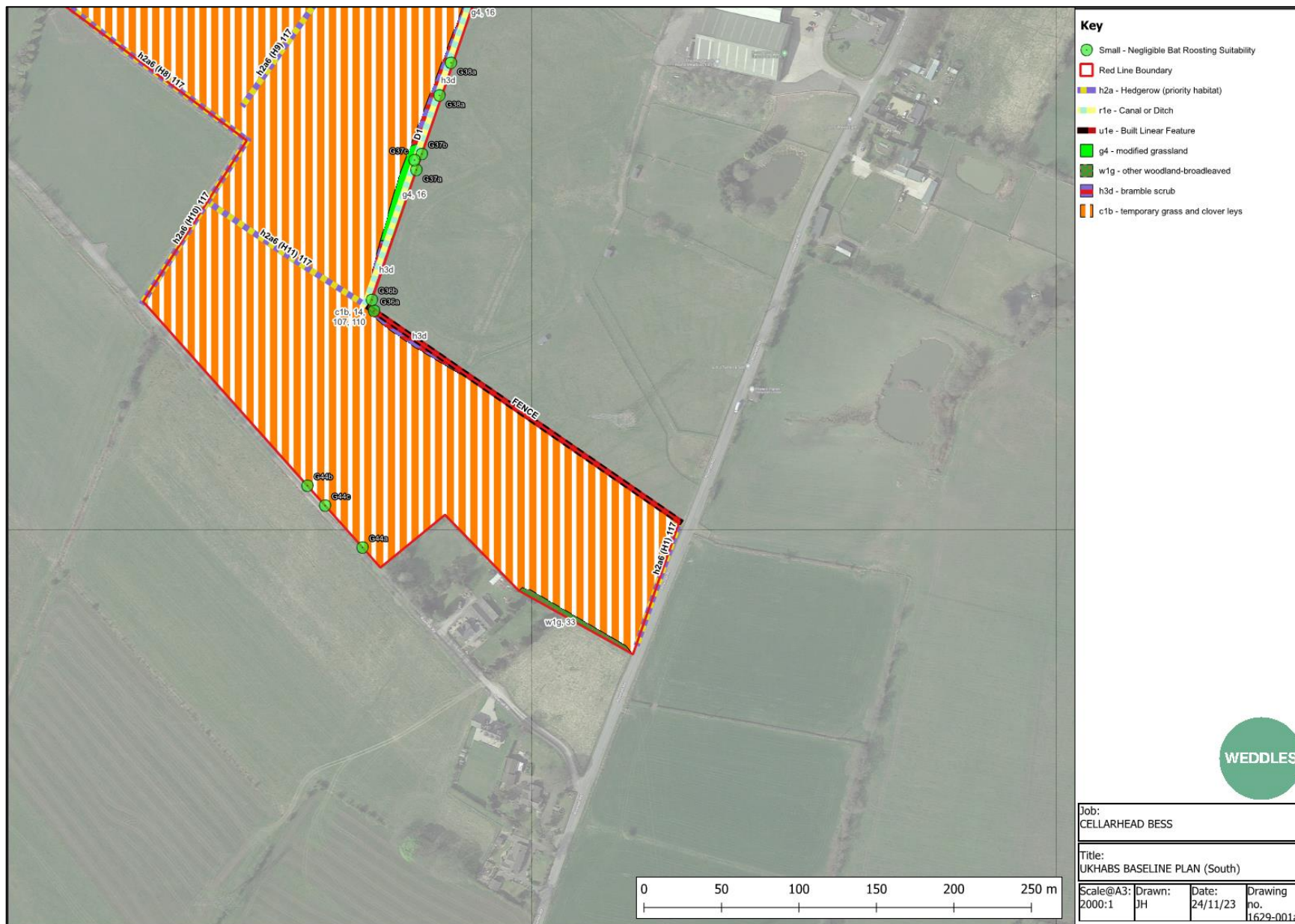
Habitat Type	Length (km)	Distinctiveness	Condition	Strategic Significance	Ditch description and Condition Criteria	Baseline Habitat Units
Ditches	0.255 (0.255 enhanced)	Medium	Poor	Not identified within local strategy	Passing 4 of 8 (A, C, E and H).	1.02 (1.02 enhanced)
Ditches	0.117 (0.117 retained)	Medium	Poor	Not identified within local strategy	Passing 4 of 8 (A, C, E and H).	0.47 (0.47 retained)
Total Watercourse Units						1.49 (0.47 retained and 1.02 enhanced)

Table 3: Summary of Onsite River Baseline



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4 ONSITE POST DEVELOPMENT

4.1 A-2 Habitat Creation

The proposed application site includes a range of design and landscape interventions designed specifically for biodiversity and wildlife. The landscape mitigation plan (Stephenson Halliday 001_LANDSCAPE MITIGATION_PLAN, January 2024) has been developed with ecological input to increase each respective habitat condition as far as reasonable.

Grassland

Carefully selected seed-mixes will be sown will be reflective of the soil conditions, acidity, and where possible, be of local provenance. Wet / mesic areas around proposed fire suppressant ponds to the south of the main compound will include marginal and wet seed mixes with cespitose grasses and rushes present to ensure that structural variety. Areas adjacent to the proposed woodlands and along existing and proposed hedgerows will be sown with shade tolerant mixes and bunds will be sown with nectar-rich flowering mixes to attract pollinators.

Long-term management will be secured, aiming to provide the grassland sward with varying lengths and structure. This can be achieved in part by the relocation of the public right of way within the grassland areas to flattened suppressed areas. Mob grazing / low-intensity sheep grazing may also be utilised to keep sward lengths low.

The bunds located around the peripheries of the BESS compound will also be created with nutrient-poor subsoil (rather than fertile rich, loamy, topsoil) including yellow-rattle (*Rhinanthus minor*), both in an attempt to reduce as far as possible graminoid dominance and to ensure that the species per m² achieves above 10.

Woodland / Trees

Woodland trees will include, but not limited to, oak (*Quercus sp.*), beech (*Fagus sylvatica*), field maple (*Acer campestre*), yew (*Taxus baccata*), honeysuckle (*Lonicera periclymenum*), hazel (*Coryllus avellana*) and hornbeam (*Carpinus betulus*) planted at a variety of densities with compartments up to 1-2m clear stem and others up to 3-5m clear stem) at a variety of dimensions (ranging from feathered to extra-heavy standard). The woodland will also include clearings (20-40% of total woodland area) and glades (along existing hedgerow lengths).

Ash (*Fraxinus excelsior*) and elm (*Ulmus species*) will also be provided within the woodland to ensure that decay features are incorporated after the time to condition has elapsed (15 years)

Deer fencing will also be erected along the entire periphery of the proposed woodland block to ensure that herbivore damage remains low. Tree guards will also be used until year 5.

Long term woodland management plans will include monitoring for invasive species and removal where required, supplementary planting, coppicing and proofing / repairing fences.

At least 30 singular / grouped trees around the site which have been mapped as individual trees within the BNG Metric. Each will be native stock of local provenance and selected based on which species are currently succeeding in the extant site (i.e oak, beech and field maple)

Wetland / Pond

Wetlands will be incorporated into the design plans, located to the south of the BESS compound which will contain water throughout the year (in accordance with fire suppression regulation). As such, a

variety of emergent and submerged plants will be planted covering at least 50% of the pond area. A pond edge seed mixture will be utilised along the margins of the pond areas.

Proposed Habitat	Area (ha)	Distinctiveness	Target Condition	Strategic Significance	Condition criteria	Habitat Units Delivered
Other neutral grassland	6.6752	Medium	Good	Formally identified within local strategy ⁴	Passing 6/6	64.51
Other neutral grassland	0.2103	Medium	Good	Formally identified within local strategy ⁵	Passing 6/6	2.03
Ponds (non-priority)	0.3523	Moderate	Moderate	Not identified within local strategy	Passing 6/9 (B, C, F, G, H and I)	2.53
Developed land; sealed surface	4.4843	Very low	N/A – Other	Not identified within local strategy	N/A	0.00
Other woodland; broadleaved	4.6007	Medium	Moderate	Ecologically desirable	A=2, B=3, C=3, D=3, E=3, F=2, G=2, H=2, I=1, J=2, K=1, L=2, M=3 (Total =29)	23.73
Rural trees	0.4886	Medium	Moderate	Not identified within local strategy	Passing 4/6 (A, B, C, F)	1.49
Artificial unvegetated, unsealed surface	0.3596	Very low	N/A – Other	Not identified within local strategy	N/A	0.00
Total proposed habitat units						95.37

Table 4: Summary of Post-Development Habitats

4.2 B-2 Hedgerow Creation

All proposed hedgerows along the peripheries of the application site and adjacent to regular and emergency access drives will be planted with at least 6 native species, of which none will become dominant to ensure that a species-rich canopy is achieved.

All hedgerows will be higher than 1.6m to comply with visibility specifications and will be planted in double staggered rows to ensure a hedgerow width of at least 2m. Shade-tolerant grassland species mixtures (see section 4.1) will achieve an undisturbed ground understory of perennial vegetation.

Long term management of all hedgerows within the site will ensure vertical 'gapiness', canopy continuity and monitoring will remove damaging neophytes and invasive species.

Proposed Habitat	Length (km)	Distinctiveness	Target Condition	Strategic Significance	Condition criteria	Habitat Units Delivered
Species-rich native hedgerow (H15)	0.349	Medium	Moderate	Ecologically desirable	Moderate	2.57

⁴ Qualifies under 'Species-rich Farmland' Ecosystem Action Plan (<http://sbap.org.uk/actionplan/eap/index.php?eap=SRF>)

⁵ Qualifies under 'Species-rich Farmland' Ecosystem Action Plan (<http://sbap.org.uk/actionplan/eap/index.php?eap=SRF>)

Species-rich native hedgerow (H16)	0.148	Medium	Moderate	Ecologically desirable	Moderate	1.09
Species-rich native hedgerow (H17)	0.395	Medium	Moderate	Ecologically desirable	Moderate	2.91
Species-rich native hedgerow (H18)	0.503	Medium	Moderate	Ecologically desirable	Moderate	3.70
Species-rich native hedgerow (H19)	0.069	Medium	Moderate	Ecologically desirable	Moderate	0.51
Species-rich native hedgerow (H20)	0.113	Medium	Moderate	Ecologically desirable	Moderate	0.83
Species-rich native hedgerow (H21)	0.103	Medium	Moderate	Ecologically desirable	Moderate	0.76
Total proposed linear units						12.37

Table 5: Summary of Post-Development Linear Habitats

4.3 C-3 Watercourse Enhancement

The existing watercourses currently passes conditions A (Good water quality), C (less than 10% cover of filamentous algae), E (physical damage on less than 5% of length) and H (Absence of INNS). To increase the habitat condition score to 'Moderate' from 'Poor', two additional criteria must be fulfilled. Long-term management will aim to pass additional criteria D (a fringe of marginal vegetation along 75% of the ditch) and G (Less than 10% of the ditch is heavily shaded). The latter of which is not achievable on D2 as this will require tree removal.

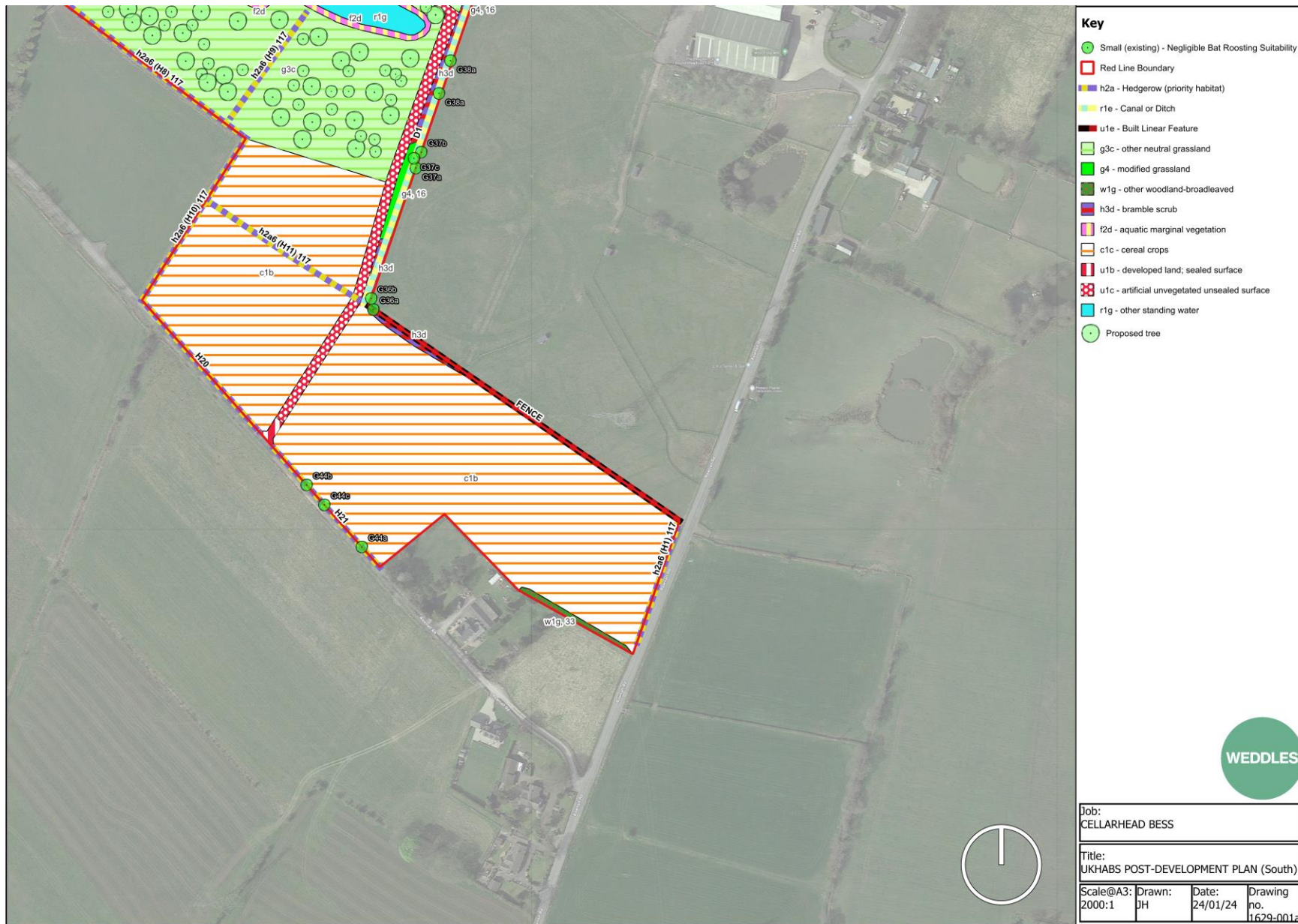
D1 located along the eastern boundary of the application site will be subjected to enhancement measures. Bramble scrub which is currently matted over the top of the stream in various places will be removed, this will ensure that marginal vegetation (i.e rushes, *Typha*, loosestrife, milfoil.. etc) can succeed when planted.

Habitat Type	Length (km)	Distinctiveness	Condition	Strategic Significance	Ditch description and Condition Criteria	Baseline Habitat Units
Ditches	0.255 (0.255 enhanced)	Medium	Poor > Moderate	Not identified within local strategy	Passing 4 of 8 (A, C, E and H). Enhanced to achieve D and G	1.02 > 1.90



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- Key**
- Small (existing) - Negligible Bat Roosting Suitability
 - Red Line Boundary
 - h2a - Hedgerow (priority habitat)
 - r1e - Canal or Ditch
 - u1e - Built Linear Feature
 - g3c - other neutral grassland
 - g4 - modified grassland
 - w1g - other woodland-broadleaved
 - h3d - bramble scrub
 - f2d - aquatic marginal vegetation
 - c1c - cereal crops
 - u1b - developed land; sealed surface
 - u1c - artificial unvegetated unsealed surface
 - r1g - other standing water
 - Proposed tree



Job: CELLARHEAD BESS			
Title: UKHABS POST-DEVELOPMENT PLAN (South)			
Scale@A3: 2000:1	Drawn: JH	Date: 24/01/24	Drawing no. 1629-001a

WEDDLES

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5 EVALUATION

Based on the Statutory Defra Biodiversity Metric calculations, the proposed development will result in an overall change in **Habitat Units to +126.41%** (+60.84 Habitat units), a change in **Hedgerow units to +49.97%** (+6.32 Hedgerow units) and a change in **watercourse units to 59.44%** (+0.88).

Trading rules were satisfied as part of the proposed development.

On-site baseline	Habitat units	48.13	
	Hedgerow units	12.64	
	Watercourse units	1.49	
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	108.97	
	Hedgerow units	18.96	
	Watercourse units	2.37	
On-site net change (units & percentage)	Habitat units	60.84	126.41%
	Hedgerow units	6.32	49.97%
	Watercourse units	0.88	59.44%
Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	Habitat units	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	60.84	
	Hedgerow units	6.32	
	Watercourse units	0.88	
Spatial risk multiplier (SRM) deductions	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	

Figure 7: Headline results from BNG Defra Metric