Cuckstool Road, Denby Dale

Ecological Impact Assessment

28th November 2023

Prepared by:

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Purpose and Description	Originated	Checked	Reviewed	Date
For Planning	P Middleton MCIEEM	R Bell MCIEEM	G Slack MCIEEM	28/11/23

Site Name Cuckstool Road	Location Denby Dale, Huddersfield HD8 8RF
Local Authority Kirklees Council	**Grid Reference** SE 2330 0857
Surveyor Peter Middleton MCIEEM	**Date of Survey** 18/11/2021
National Character Area Nottinghamshire, Derbyshire and Yorkshire Coalfield	**Designation of Site** Part of site falls within Kirklees Wildlife Habitat Network
UK Primary Habitats g Grassland,	
Secondary (habitat) Codes 10 Scattered scrub, 11 Scattered trees, 16 Tall herb, 17 Ruderal/ephemeral, 48 – Non-native, 73 Bare ground, 133 Nutrient enriched substrate	
Protected/Notable Species, Constraints on Site Himalayan balsam, possibly Japanese knotweed, adjacent to lowland mixed deciduous woodland (included in Kirklees Wildlife Habitat Network)	
HPIs and SPIs under NERC Act 2006 Foraging bats	
Kirklees BAP None	

Contents

1. Summary

1.1.1 The Ecological Impact Assessment of land off Cuckstool Road, Denby Dale was commissioned by planning consultant Alistair Flatman on behalf of the client Britology on 17th November 2021. The survey was undertaken on 18th November 2021. The Biodiversity Metric calculations were revised in November 2023 and this report updated accordingly.

1.1.2 The survey was commissioned to inform an outline planning application for a proposed residential development comprising two dwellings.

1.1.3 The application area comprises a 0.35 ha lot of land supporting a habitat type classified broadly as grassland but comprising mainly tall herb, ephemeral, scrub and scattered trees. Of this area, 0.13 ha is included in the Kirklees Wildlife Habitat Network (KWHN). Bordering the northern boundary of the site is an area of lowland mixed deciduous woodland (also included in the KWHN). The application area is not considered to be of importance to any species or species group at greater than the site level.

1.1.4 New dwellings (to have green roofs), their associated gardens and parking areas will total approximately 0.1 ha. In order to help offset the scheme's ecological impact, the area of the site falling within the KWHN, and land between the two new houses, will be planted with a matrix of semi-natural habitats. Outside the bounds of the new houses planting will comprise mixed scrub, bordering the woodland, with other neutral grassland fronting Cuckstool Road. Extensive planting of native trees will take place within both the scrub and grassland areas. Habitat creation and management measures should be formalised in a Biodiversity Enhancement Management Plan (BEMP), the requirement for which could be secured by planning condition.

1.1.5 The following additional ecological constraints and associated recommendations to avoid/mitigate/compensate for potential impacts have been identified:

- Potential damage to the roots of trees to be retained. Root protection measures detailed in British Standard 5837 (2012): Trees in relation to design, demolition and construction, should be followed.
- Site clearance to be undertaken when it will not affect nesting birds (March to August) or to be proceeded by a nesting bird check undertaken by an ecologist.
- An invasive species management plan should be written and implemented. This should include control measures for Himalayan balsam and a summer re-inspection for Japanese knotweed.
- An ecologically friendly lighting plan should be developed for the scheme. This should include measures to prevent any light spill upon the adjacent woodland.

1.1.6 In addition to the mitigation and compensation detailed above, enhancement recommendations include:

- Integrated bat and swift boxes in each new dwelling.
- Fences to have holes (13 x 13cm) provided to permit hedgehog passage.

1.1.7 The scheme will result in a net gain of 1.12 Habitat Units which is a 46.11% increase on the baseline. In addition, 0.12 Hedgerow Units will be created.

1.1.8 The findings of this survey are considered to be valid for up to 24 months of the survey date. After this time re-survey of the site may be necessary.

2. Introduction

2.1.1 The Ecological Impact Assessment of land off Cuckstool Road, Denby Dale was commissioned by planning consultant Alistair Flatman on behalf of the client Johnathan Scott of Britology on 17th November 2021. The survey was commissioned to inform an outline planning application for a proposed residential development.

2.1.2 The initial scheme was to develop four new dwellings, with the proposals now scaled down to two dwellings. On the 13th September 2023, a revision of Biodiversity Metric calculations was commissioned by Johnathan Scott of Britology. This report has been revised to reflect current proposals and to include updated metric calculations. The field survey works have not been repeated.

2.1.3 The site consists of 0.35 ha of land off Cuckstool Road, Denby Dale. The site is on the south side of the A636 Wakefield Road (Figure 1), approximately 11.5 km southeast of Huddersfield town centre.

2.1.4 The purpose of this report is to present the findings of a UK Habitat Classification survey together with determining the potential for, or presence of, protected and notable species. An appended map of the site shows the habitats present. Where impacts can be confidently determined, recommendations in relation to avoiding, mitigating and compensating for these impacts are included in this report, together with biodiversity enhancement recommendations.

2.1.5 Key legislation relating to designated sites and protected species and habitats is presented in Appendix 3. The implications of legislation are detailed in the body of the report where necessary.

3. Site Description

3.1.1 The site consisted of 0.35 ha of land off Cuckstool Road, Denby Dale of which approximately 35 % lies within the Kirklees Wildlife Habitat Network (KWHN). Semi natural habitats on site within the red line boundary are restricted to a habitat type classified broadly as grassland but comprising mainly tall herb, ephemeral, scrub and scattered trees. Adjacent (within the blue line boundary) is an area of other lowland mixed deciduous woodland. The adjacent woodland was included in the survey to inform biodiversity offsetting options for the site. It appears that the eastern section of the site, which falls within the KWHN, has been cleared of scrub within the last five years.

3.1.2 Land surrounding the application area consists of residential properties to the south, east and west of the site, with woodland to the north and Denby Dale cricket pitch beyond this (Figure 1). The belt of woodland to the north of the application area extends further to the east and west, comprising a connective habitat linkage within the local area.

3.1.3 The site falls within National Character Area 38: The Nottinghamshire, Derbyshire and Yorkshire Coalfield. This National Character Area (NCA) comprises a generally low-lying area, with hills and escarpments above wide valleys, the landscape embraces major industrial towns and cities as well as villages and countryside. Over half of the NCA is currently designated as greenbelt land; this maintains some distinction between settlements and represents areas that are often under pressure for

development and changes in land use. Very little of the NCA is designated for geology or nature conservation, but instead the landscape is dotted with many pockets and patches of habitat where species find refuge. This is often on land that was once worked for minerals or occupied by major industry.

3.1.4 The Soilscapes resource shows soils in the area comprise freely draining slightly acid loamy soils.

Figure 1. The site location, as indicated by red line

4. Methodology

4.1 Data Consultation

4.1.1 West Yorkshire Ecology (WYE) were contacted in November 2021 to request the following information for locations within a 2 km radius of the site:

- Protected and notable species records
- The boundaries of non-statutory designated sites of nature conservation interest

4.1.2 A search of the Multi-Agency Geographical Information for the Countryside (MAGIC) website was undertaken to determine the following:

- The boundaries of statutory designated sites of nature conservation interest.
- The locations of historic European Protected Species (EPS) licences granted by Natural England.

4.2 Field Survey

UK Habitat Classification Survey

4.2.1 The site was surveyed on 18th November 2021 using the UK Habitat Classification survey methodology (Butcher *et al*., 2020) by Peter Middleton. The surveyor is a competent botanist who was a major contributor to the South Yorkshire Plant Atlas (Wilmore *et. al*., 2011). He has more than 20 years' experience of undertaking botanical surveys including appraisals of Local Wildlife Sites (LWSs) in Barnsley, Doncaster and East Yorkshire, as well as National Vegetation Classification (NVC) survey in the Yorkshire Dales National Park.

4.2.2 Notable, rare or scarce plant species were highlighted if present. Evidence of protected species or species of nature conservation importance was recorded where present at the time of survey. Species recorded are included within the report as appropriate. Information is presented on the UK Habitat Classification plan, using Secondary Codes and Target Notes where appropriate to identify particular features of interest, where appropriate.

4.2.3 Ariel photographs (Google Earth) were studied to place the site in its wider context and to look for ecological features that would not be evident on the ground during the walkover survey. This is particularly useful for identifying wildlife corridors and ponds but because the latter are often not apparent on aerial photographs, OS 1:25 000 scale maps are also used.

4.2.4 Habitats of Principal Importance (HPIs) and Species of Principal Importance (SPIs) are included on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 were noted together with priority species and habitats as included on the Local Biodiversity Action Plan (LBAP).

4.3 Methods of Assessment

4.3.1 The value and sensitivity of ecological features present on site were determined based on the guidance provided within 'Guidelines on Ecological Impact Assessment in the UK and Ireland' (CIEEM, 2018). Individual ecological receptors (habitats and species that could be affected by the development) for the scheme were assigned levels of importance for nature conservation. The highest level is international, then decreasing in order of importance through national, regional, county, local and lastly site.

4.4 Biodiversity Calculation

4.4.1 The Biodiversity Metric 4.0 (Natural England, 2023) was used to calculate the ecological impact of this scheme. This metric uses habitat as a proxy for wider biodiversity with different habitat types scored according to their relative biodiversity value. This value is then adjusted depending on the condition and location of the habitat, to calculate 'biodiversity units'. Biodiversity Metric 4.0 incorporates similar but separate calculations for habitats that require a different method of measurement such as hedgerows, lines of trees, rivers, streams and street trees. Calculations are undertaken in a purpose designed spreadsheet, which provides the main output of the process.

4.4.2 Google Earth images show that previous site clearance has taken place on approximately 50% of the site in 2019-20. The site's post development value has been calculated based upon the site baseline at the time of the survey in November 2021 and habitat creation measures detailed in the Landscape Masterplan (see Appendix 6).

4.5 Survey Limitations

4.5.1 The 2021 field survey was undertaken outside the recognised botanical survey season. This was not however considered a significant constraint in this instance given the habitat types present. It was considered possible to confidently characterise these habitats and to assess their condition during the November site survey.

5. Ecological Baseline

5.1 Data Consultation

5.1.1 Designated sites present within 2 km of the application area are detailed in Table 1. (see Appendix 4).

Table 1. Designated sites

Designation	Name	Interest	Distance from site
Local Wildlife Site (LWS)	Hob Royd Shrogg and Mary Greaves	Species rich acid woodland	1.3km northeast
	High Bridge Wood	Native bluebell cover	1.4km northeast
	Denby Delf	Species rich neutral grassland and habitat mosaic	1.5km southwest
	Turpin Hill	Species rich acid to neutral grassland	1.8km west

5.1.2 Both the eastern end of the application area (approximately 35 % of total area) and woodland along the northern boundary lie within the Kirklees Wildlife Habitat Network (KWHN). The Wildlife Habitat Network aims to meet the requirements of paragraph 114 of the National Planning Policy Framework for Conserving and enhancing the natural environment - Local planning authorities should: "set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure".

5.1.3 The closest area of ancient woodland to the site comprises Wither Wood, located c.530 m northwest of the site, which comprises a Ancient Replanted Woodland.

5.1.4 A consideration of the scheme's potential to impact designated sites is presented in Section 6 of the report.

5.1.5 Records of protected and notable species obtained are discussed in the species sections of the results.

5.2 Field Survey

UK Habitat Classification Survey

5.2.1 The arrangement of site habitats is shown on the UK Habitat Classification plan in Appendix 1, whilst a field survey botanical species list is provided in Appendix 2.

5.2.2 The site is considered to be of no more than site level importance to nature conservation for the habitats supported. The site is not considered to be of importance to any species or species groups at greater than the site level. The adjacent woodland, which falls within the blue line boundary, is considered to be of local level importance to nature conservation.

5.2.3 A detailed description of the site habitats and the site's potential to support protected and notable species is provided below.

Habitats

g - grassland (red line boundary) (with secondary codes 10, 11, 16, 17, 53, 73,133)

5.2.4 At the time of survey, at least 50 % of the site had fairly recently (2019-2020) been cleared of vegetation and topsoil. The remainder comprised an area of largely tall herb, with species present including abundant or frequent rosebay willowherb *Chamerion angustifolium*, great willowherb *Epilobium hirsutum*, nettle *Urtica dioic*a and creeping thistle *Cirsium arvense*. Grasses were almost absent and it appeared that this area had received an application of herbicide sometime in the recent past. Nipplewort *Lapsana communis* and cleavers *Galium aparine* were also locally abundant, together with occasional wavy bittercress *Cardamine flexuosa*, creeping buttercup *Ranunculus repens*, smooth sowthistle *Sonchus oleraceus* and rarely occurring purple toadflax *linaria purpurea* and green alkanet *Pentaglottis sempervirens*. This habitat showed obvious signs of nutrient enrichment as nettle and thistles in combination were abundant (Plate 1). Scrub present was restricted to occasional saplings of silver birch *Betula pendula* and bramble *Rubus fruticosus* agg. There were the remains of a previous building in this area.

Plate 1. View east from west end of site, tall herb in foreground

5.2.5 The eastern end of the site, which has had the topsoil removed (land falling within the KWHN) (Plate 2) supported some bare ground with mostly ruderal/ephemeral species including locally abundant wall lettuce *Mycelis muralis*, frequent wavy bittercress and occasional or rarely occurring creeping bent *Agrostis stolonifera*, American willowherb *Epilobium ciliatum*, yarrow *Achillea millefolium*, herb Robert *Geranium robertianum*, red campion *Silene dioica*, Himalayan balsam *Impatiens glandulifera*, common mallow *Malva sylvestris*, rape *Brassica napus* and dandelion *Taraxicum officinale* agg. (for full species list see Appendix 2). The grassland habitat was assessed as being in poor condition based upon the Condition Assessment Criteria stated in Biodiversity Metric 4.0 (Natural England, 2023). Site grassland was considered to be in poor condition, primarily due to it not comprising a good representation of the habitat type (a criterion considered to be essential to achieve either moderate or good condition).

5.2.6 Close to the centre of the site's southern boundary were two medium sized sycamore trees *Acer pseudoplatanus.* This area of the site supported abundant/frequent false oat grass *Arrhenatherum elatus* (see Plate 2). This suggested that the grassland present previously (before nutrient enrichment) corresponded with the NVC community MG1. Why this area has become nutrient enriched is unknown.

5.2.7 The two sycamore trees and a small wild cherry *Prunus avium* tree in the eastern corner of the site, were assessed against 'individual tree' Condition Assessment Criteria included in Biodiversity Metric 4.0 (Natural England, 2023)(see Table 2). One of the sycamore trees was considered to be in good condition with the other two trees considered to be in moderate condition.

Plate 2. View north from near the southern boundary with ephemeral in foreground, sycamore trees on right

Table 2. Trees considered against Biodiversity Metric 4.0 Condition Assessment Criteria

Criteria	Tree number		
	Sycamore	**Sycamore**	**Cherry**
A. The tree is a native species1[1]	Yes	Yes	Yes
B. The tree canopy is predominantly continuous	Yes	No	Yes
C. The tree is mature	Yes	No	No
D. There is little or no evidence of advers impact on tree health	Yes	Yes	Yes
E. Natural ecological niches are present	No	No	No
F. More than 20 % canopy is oversailing vegetation	Yes	Yes	Yes
Number criteria passed and condition	5 (good)	3 (moderate)	4 (moderate)

w1f7 Other lowland mixed deciduous woodland (blue line boundary)

5.2.8 The broadleaved woodland adjacent to the northern boundary of the application site was dominated by pendunculate oak *Quercus robur,* together with frequent silver birch and locally frequent hazel *Corylus avellana*. Occasional species included wild cherry, ash *Fraxinus excelsior*, sycamore, wych elm *Ulmus glabra*, silver birch and holly *Ilex aquifolium*. Rarely occurring species included rowan *Sorbus aucuparia* and cypress *Cupressaceae*. There was a varied understory present comprising occasional holly, rowan, ash, hazel and rarely occurring beech *Fagus sylvatica* (sapling). Given the time of year the survey was undertaken, little ground flora was recorded and consequently, a confident assessment of habitat condition was problematic, however, bramble was scattered throughout, and the woodland was considered to be in at least moderate condition as it scores 31 in the condition assessment criteria of the Biodiversity Metric 4.0.

Plate 3. Woodland with holly understorey and bramble

[1] Though not strictly native sycamore is classed as being native in this instance due to time since introduction

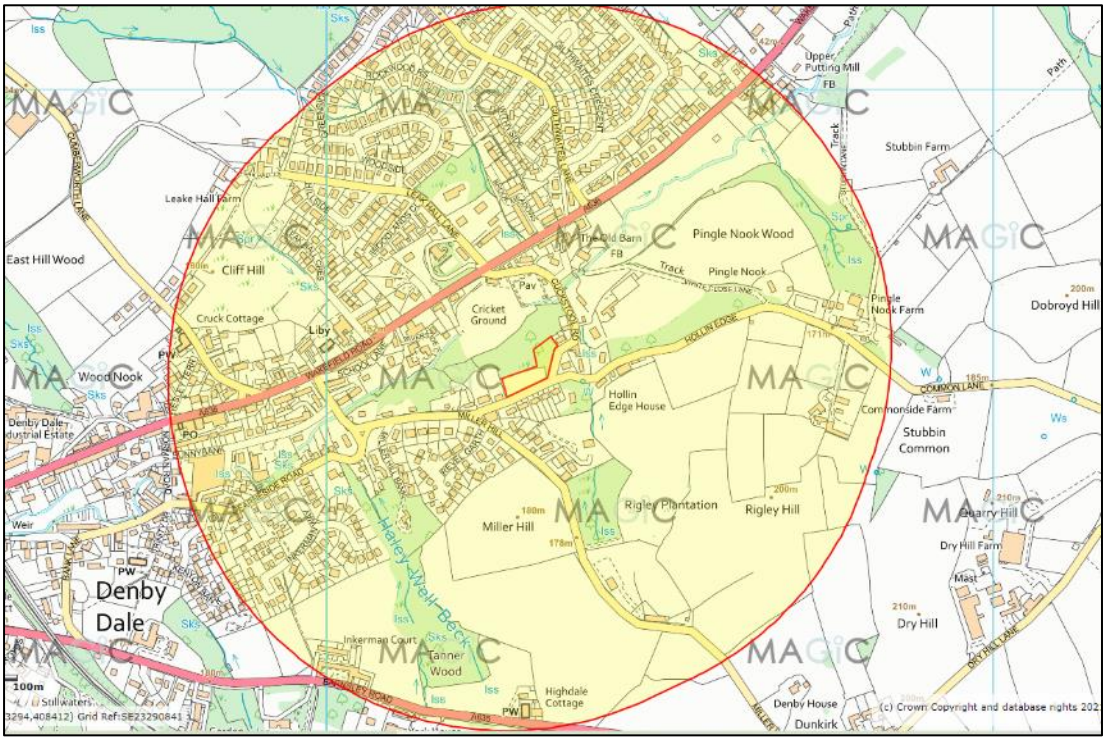
Plate 4. Woodland with holly understorey

Species and species groups

Amphibians

5.2.9 One Great Crested Newt (GCN) *Triturus cristatus* record was provided by WYE for a location within a 2 km radius of the site. Little information was provided other than the year (2000) and a six-figure grid reference for a location 460 m east of the site, in a location where no pond appears to be present.

Figure 2. 500 m radius around the site with no ponds found during pond search



5.2.10 No GCN EPS mitigation licences have been issued for any locations within a 2 km radius of the site.

5.2.11 No ponds were identified during the pond search for locations within 500 m of the application site (Figure 2). Taking into account the lack of ponds on site and barriers to GCN movement; GCN were considered unlikely to be a receptor to the proposed scheme.

Badger

5.2.12 No badger *Meles meles* records were provided by WYE for locations within 2 km radius of the site and the site does not fall within the area of increased probability of badger activity. No badger setts or other evidence of usage were found on site, or in locations within 50 m of the site. Whilst it is possible badger may use the site as part of a more extensive foraging area there was no indication that they regularly use the site for either foraging or resting.

Bats

Historical records

5.2.13 Forty-six bat records relating to at least three species were provided by WYE for locations within a 2 km radius of the site. Species included in the records comprised common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and noctule *Nyctalus noctula,* with other records ascribed to either an unidentified pipistrelle species or an unidentified species of bat. No records were received for the site itself. The closest record to site comprises a common pipistrelle roost, recorded in 2011, from a location 150 m southwest of the site.

5.2.14 No historic bat EPS mitigation licences have been obtained for any location within 2 km of the application site.

Trees/ bat foraging and commuting habitat

5.2.15 No site trees display potential for use by roosting bats. The woodland edge along the northern boundary of the site provides good foraging habitat and the woodland was expected to be of local level importance to foraging bats.

Birds

5.2.16 No birds were recorded on the site itself during the survey. However, the adjacent woodland in particular was expected to provide nesting and foraging habitat for a range of resident bird species and summer migrants. Species recorded in the woodland during the survey included blackbird *Turdus merula*, long tailed tit *Aegithalos caudatus* and robin *Erithacus rubecula*. The woodland would appear to have some appeal to song thrush *Turdus philomelus,* which is on the Amber List of the Birds of Conservation Concern (Stanbury *et al*., 2021).

Hedgehog

5.2.17 No hedgehog *Erinaceus europaeus* records were provided by WYE for any locations within a 2 km radius of the site. The site offered some appeal to this species but perhaps no more than is offered by surrounding habitats.

Invasive species

5.2.18 The data consultation with WYE revealed that Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera* were recorded on site in 2007. Both these plant species are invasive and listed on Schedule 9 of the Wildlife & Countryside Act 1981.

5.2.19 Whilst Himalayan balsam *Impatiens glandulifera* was recorded on site (see TN 1 in Appendix 1). No signs of Japanese knotweed were recorded during the field survey. It was however considered possible that rhizomes of this species had persisted in the soil following a prior occurrence of site clearance. It is known that Japanese knotweed rhizomes can persist for several years following a disturbance event before re-appearing above ground in a future year.

Invertebrates

5.2.20 The habitat present within the application area was not considered likely to support notable species of invertebrates.

Plants

5.2.21 No notable plant species were recorded during the survey. The nutrient enriched soils within the application area were not considered conducive to supporting rare or notable species of vascular plants. Less common, but still widespread species, were however noted in the area stripped of topsoil (Plate 2). The adjacent woodland was considered to have potential to support ancient woodland indicators, however, this area will not be impacted by the proposed scheme.

Reptiles

5.2.22 Two grass snake *Natrix helvetica* records were provided by WYE for locations within a 2 km radius of the site centroid. Both records were collected in 2014 from locations 1.87 and 1.95 km northwest of the site. Considering site habitats, the lack of waterbodies and the lack of much connectivity with suitable habitats elsewhere, reptiles were not considered likely to be a receptor to the proposed scheme.

Table 3. Ecological importance of each habitat, species or species group on site and adjacent

Habitat, Species or Species Group	Ecological value
Grassland	Site
Broadleaved woodland (off-site but on northern boundary)	Local
Amphibians	Site
Badger	Site (if present)
Bats	Local (adjacent woodland)
Birds	Site
Reptiles	Unlikely to be present
Invasive species	Himalayan balsam and possibly Japanese knotweed present on site
Invertebrates	Site
Plants	Site

5.3 Biodiversity Calculation

5.3.1 The on-site baseline results output of the Biodiversity Metric 4.0 tool is 2.42 Habitat Units (Appendix 5).

5.3.2 The adjacent woodland (blue line boundary) which is part of the Kirklees Wildlife Habitat Network was also surveyed. It was concluded that the woodland habitat is currently in at least moderate condition, and it was not considered possible to increase the condition of this woodland further through management interventions undertaken in connection with this scheme. As a result, enhancement measures agreed by the client relate only to the application area (within the red line boundary).

6. Assessment

6.1 Proposals

6.1.1 It is proposed to construct two detached dwellings at the western end of the site and in the centre (Appendix 6). Both dwellings will be located outside the area of the site included in the Kirklees Wildlife Habitat Network (Appendix 7). The new dwellings are to have green roofs and permeable grass grid driveways, with small gardens to the rear. Beech hedges will be present along most of the eastern and western boundaries of each house.

6.1.2 Existing trees on the site will be retained. In order to offset scheme impacts and to increase the appeal of the ecotone along the off-site woodland edge, it is proposed to establish a matrix of higher value semi-natural habitats between the two houses and at the eastern end of the site. These areas will comprise mixed native scrub, bordering the woodland, with other neutral grassland fronting onto Cuckstool Road. Extensive planting of native trees (43 new trees) will take place within both the scrub and grassland areas.

6.2 Biodiversity Calculations

6.2.1 The Headline Results output of Metric 4.0 is presented in Appendix 5, based on the proposed site habitats shown in Appendices 6 & 7. The metric shows a net gain of 46.11 % of the existing Habitat Units (1.12 Habitat Units) with an increase of 0.12 Hedgerow Units.

6.3 Assessment of Effects, Mitigation Measures and Enhancements

6.3.1 The assessment of effects, mitigation measures and selected enhancements are considered in relation to habitat, species or species group.

<u>Designated sites</u>

6.3.2 No impacts upon designated sites are anticipated due to the nature and scale of the development and distance of designated sites from the development area. With the exception of householders potentially discarding garden waste into the adjacent woodland which lies within the KWHN, no further impacts are anticipated. It is anticipated that the planting of new scrub between dwellings and at the eastern end of the site will complement the adjacent woodland and over time it is expected this scrub will succeed to broadleaved woodland.

6.3.3 The existing woodland to be north of the dwellings will be protected from potential tipping of garden waste by erecting the stopping of new gardens 1 m short of the woodland, with fencing to be erected and dense scrub to be planted between the end of the gardens and the woodland.

Habitats

6.3.4 The existing site grassland will be lost. This grassland comprises mainly undesirable tall herb species of low ecological value and the loss of this habitat is not considered to be of importance to nature conservation at greater than the site level. Habitats currently present on site are species poor and comprise species and habitat types which are widespread in the local area.

6.3.5 New buildings (with green roofs), associated gardens, parking areas (comprising permeable grass grids) and introduced shrub will total approximately 0.10 ha, with the remainder of the site to be planted with a matrix of higher value mixed scrub, grassland and standard trees, as already described. Habitat creation and management measures should be formalised in a Biodiversity Enhancement Management Plan (BEMP), the requirement for which could be secured by planning condition.

6.3.6 The development risks damage to the root systems or stems of site trees both onsite and outwith the northern boundary as a result of construction works. Existing trees at the boundaries will be retained. British Standard 5837 (2012): Trees in relation to design, demolition and construction, should be followed. Root Protection Zones (RPZ's) should be calculated and implemented to prevent harm to trees on-site or near the boundary. This should also apply to any trees out-with the site, up to 5 m from the boundary.

Species and Species Groups

Bats

6.3.7 Foraging bats may be impacted by a long-term increase in artificial lighting, particularly if this impacts trees on the northern boundary (woodland edge). An ecologically sensitive external lighting plan should be developed for the site. Artificial lighting has been shown to restrict the range of bat species that may use an area, as well as disrupting the ecology of other nocturnal species (i.e. moths). The lighting plan should look to restrict external lighting to the minimum level necessary. Use of passive infra-red sensor operation triggered lighting on a relatively short timer is recommended in order to reduce time of operation. Where lighting is necessary, it is advised that lighting is low height, low output, directional and of a warm colour tone. No light spill should occur across the integrated bat boxes.

6.3.8 In addition to the scrub planting detailed in 6.2.5, a roost enhancement for bats will be provided. One cavity box will be integrated to the fabric of each of the new dwellings.

Birds

6.3.9 Direct impacts upon birds are likely to be negligible as a result of the scheme, as the site is not considered to be of more than site level importance to any species.

6.3.10 Nesting birds are subject to legal protection (Appendix 3) which amongst other things makes it an offence to take, damage or destroy a bird nest. In the absence of mitigation, the removal of scrub has potential to result in the destruction of active nests.

Consequently, site clearance should not be undertaken during the bird nesting period (March-August (inclusive)).

6.3.11 Enhancements for birds will be provided through the installation of swift boxes in each new dwelling. These units will be installed under eaves, integral to the fabric of the buildings on the north or east elevations. Studies have shown that swift *Apus apus* boxes are used by a varied range of nesting birds that utilise buildings; consequently, these boxes will also provide potential nesting space for house sparrow *Passer domesticus* and starlings *Sturnus vulgaris*.

Invasive species

6.3.12 The site should be revisited during the 2024 growing season (April-October) to check for the presence of Japanese knotweed.

6.3.13 Measures to eradicate both Himalayan balsam (and if present also Japanese knotweed) from the site should be detailed within an Invasive Species Management Plan, to be written and implemented prior to development works proceeding.

Hedgehogs

6.3.14 Direct impacts upon hedgehog will be avoided through the creation of new on-site foraging habitats and by affording free movement throughout the built area of the site. Fences to rear gardens will have holes (13 cm x 13 cm) provided at junctions.

6.4 Conclusions and Residual Effects

6.4.1 The mitigation and enhancement measures proposed are considered to minimise the likely negative impacts to ecological receptors, and maximise the opportunities for ecological enhancement. If implemented in full, the scheme is considered likely to be result in a positive impact of importance to nature conservation at the site level.

6.4.2 The scheme is anticipated to result in a net gain of 1.12 Habitat Units which equates to a 46.11 % increase in the site's ecological value. In addition, 0.12 Hedgerow Units will be created through the planting of a new hedgerow.

7. References

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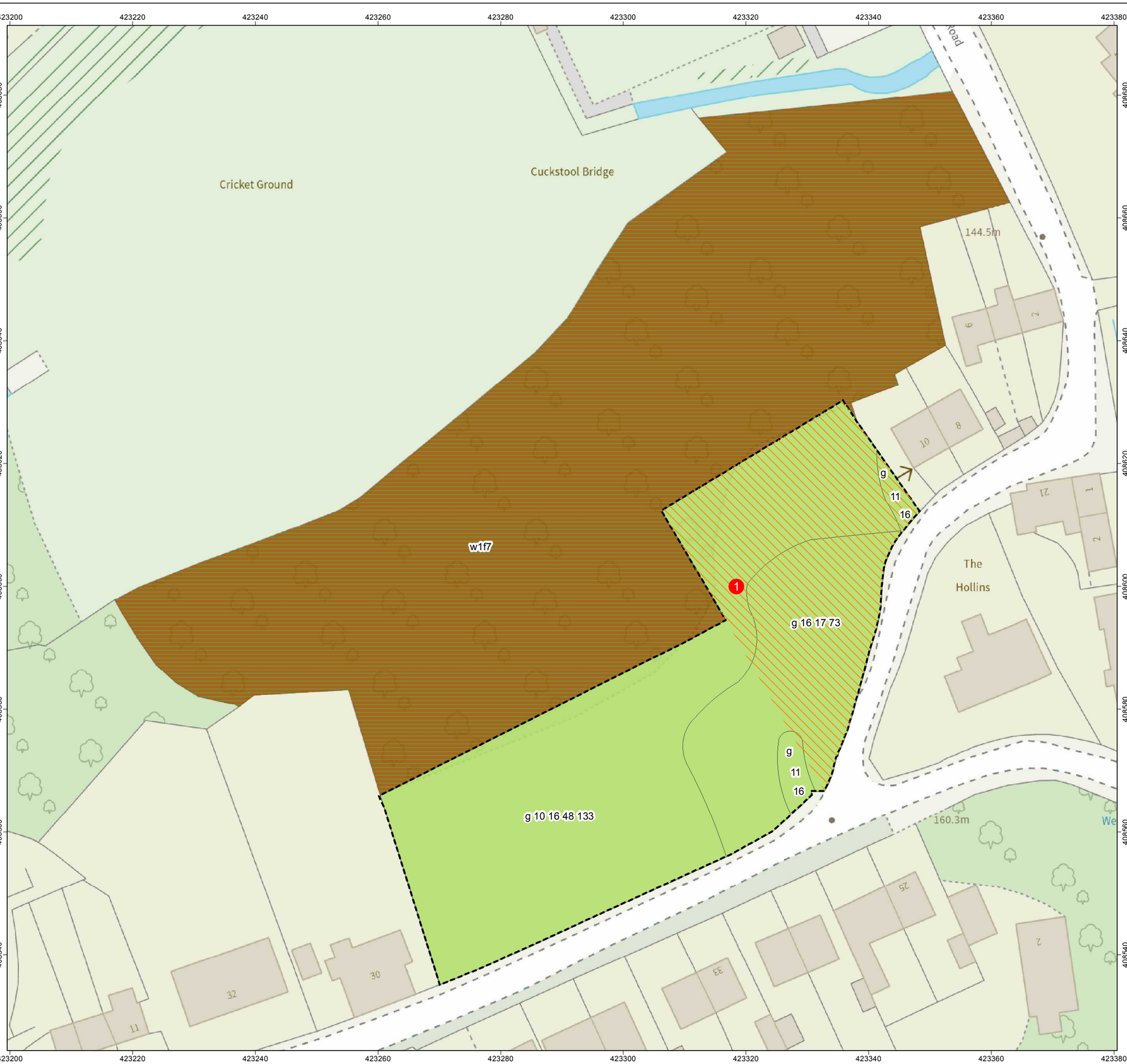
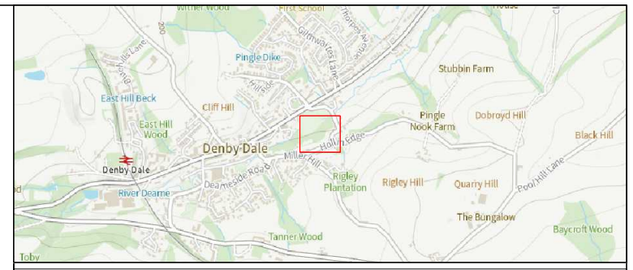
Appendix 1. UK Habitat Classification Plan





Survey Information	
	Site boundary (3,526.8m^2)
	Area within Kirklees Wildlife Habitat Network (1,304.6m^2)
UK Habitat Survey (Primary Habitats)	
	g - Grassland (3,526.8m^2)
	w1f7 - Other Lowland mixed deciduous woodland
X	Target note

Secondary codes:

10 - Scattered scrub
11 - Scattered trees
16 - Tall herb
17 - Ruderal/ ephemeral
48 - Non-native
73 - Bare ground
133 - Nutrient-enriched substrate

Target notes:

1 - Indian balsam

N

0 2.5 5 10
Metres

PROJECT TITLE

CUCKSTOOL ROAD, DENBY DALE

DRAWING TITLE

Figure 1. UK Habitat Survey Plan

VER	DATE	REMARKS	Drawn	Checked
1.4	28/01/22	UKHab	MP	PM

DRAWING NUMBER:
MIDDLETONBELLECOLOGY/Cuckstool/UKHab

SCALE	1:600	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

Middleton Bell Ecology
33 Wilthorpe Road, Barnsley, South Yorkshire, S75 1JA
www.middletonbellecology.co.uk
T: 01226 286282

Appendix 2. Plant Species Recorded on Site

D = Dominant, **A** = Abundant, **F** = Frequent, **O** = Occasional, **R** = Rare

Species	Common name	DAFOR Rating	Habitat
Cupressaceae	Cypress	R	w1f7
Hedera helix	Ivy	Loc A	w1f7
Ulmus glabra	Wych Elm	O	w1f7
Acer pseudoplatanus	Sycamore	O	w1f7
Prunus avium	Wild Cherry	O	w1f7
Crataegus monogyna	Hawthorn	R	w1f7
Quercus robur	Pedunculate Oak	D	w1f7
Corylus avellana	Hazel	Loc F	w1f7
Fagus sylvatica	Beech	R	w1f7
Fraxinus excelsior	Ash	O	w1f7
Sorbus aucuparia	Rowan	R	w1f7
Dryopteris dilatata	Broad Buckler-fern	F	w1f7
Betula pendula	Silver Birch	F	w1f7
Ilex aquifolium	Holly	F	w1f7
Pentaglottis sempervirens	Green Alkanet	R	g
Ranunculus repens	Creeping Buttercup	O	g
Galium aparine	Cleavers	F	g
Epilobium hirsutum	Great Willowherb	F	g
Holcus lanatus	Yorkshire-fog	O	g
Urtica dioica	Common Nettle	F	g
Lapsana communis	Nipplewort	Loc A	g
Mycelis muralis	Wall Lettuce	Loc A	g
Cardamine flexuosa	Wavy Bitter cress	O	g
Chamerion angustifolium	Rosebay Willowherb	F	g
Cirsium arvense	Creeping Thistle	F	g
Agrostis stolonifera	Creeping Bent	O	g
Epilobium ciliatum	American Willowherb	F	g
Achillea millefolium	Yarrow	R	g
Geranium robertianum	Herb-Robert	R	g
Arrhenatherum elatius	False Oatgrass	R	g
Sonchus oleraceus	Smooth Sow-thistle	O	g
Lotus corniculatus	Bird's-foot-trefoil	R	g
Saxifraga oppositifolia	Purple Saxifrage	R	g
Silene dioica	Red Campion	O	w1f7 & g
Impatiens glandulifera	Indian Balsam	O	g
Senecio laxifolius	Senecio	R	g
Dactylis glomerata	Cock's-foot	O	g
Brassica napus	Rape	R	g
Rubus fruticosus agg.	Bramble	O	g & w1f7

Species	Common name	DAFOR Rating	Habitat
Taraxacum officinale agg.	Dandelion	O	
Malva sylvestris	Common Mallow	R	
Verbena bonariensis	Argentinian Vervain	R	

Appendix 3. Relevant Legislation and Policy

Wildlife legislation relating to statutory designated sites and species is summarised in Table A1 and A2 below. This legal information is intended for summary only, and the original legal documents should be consulted if a detailed understanding is required.

Table A1. Legislation relating to designated sites and habitats

Designated Site	Legal Status
Local Wildlife Site (LWS)	While they have no direct legal status, Local Wildlife Sites are considered important enough to receive recognition within the planning system. National planning policy requires local authorities to identify Local Wildlife Sites and provide for their protection through local policy.

Table A2. Legislation relating to species

Species	Legal Status
European protection	
European Protected Species (EPS) (including bats, Great Crested Newt (GCN), otter and hazel dormouse)	These animal species and their breeding sites or resting places are protected under Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which makes it illegal to: • Intentionally or deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs. • Deliberately disturb such an animal. • Damage or destroy a breeding site or resting place of such an animal. European Protected Species (EPS) licences can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed: • The development is for reasons of overriding public interest. • There is no satisfactory alternative; and • The favourable conservation status of the species concerned will be maintained and/or enhanced. Under Regulation 9(5) of the Conservation Regulations, Planning Authorities have a legal duty to 'have regard to the requirements of the EC Habitats Directive in the exercise of their functions'. This means that they must consider the above 3 tests when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations. As a consequence, Planning Applications for such developments must demonstrate that the 3 tests will be passed.

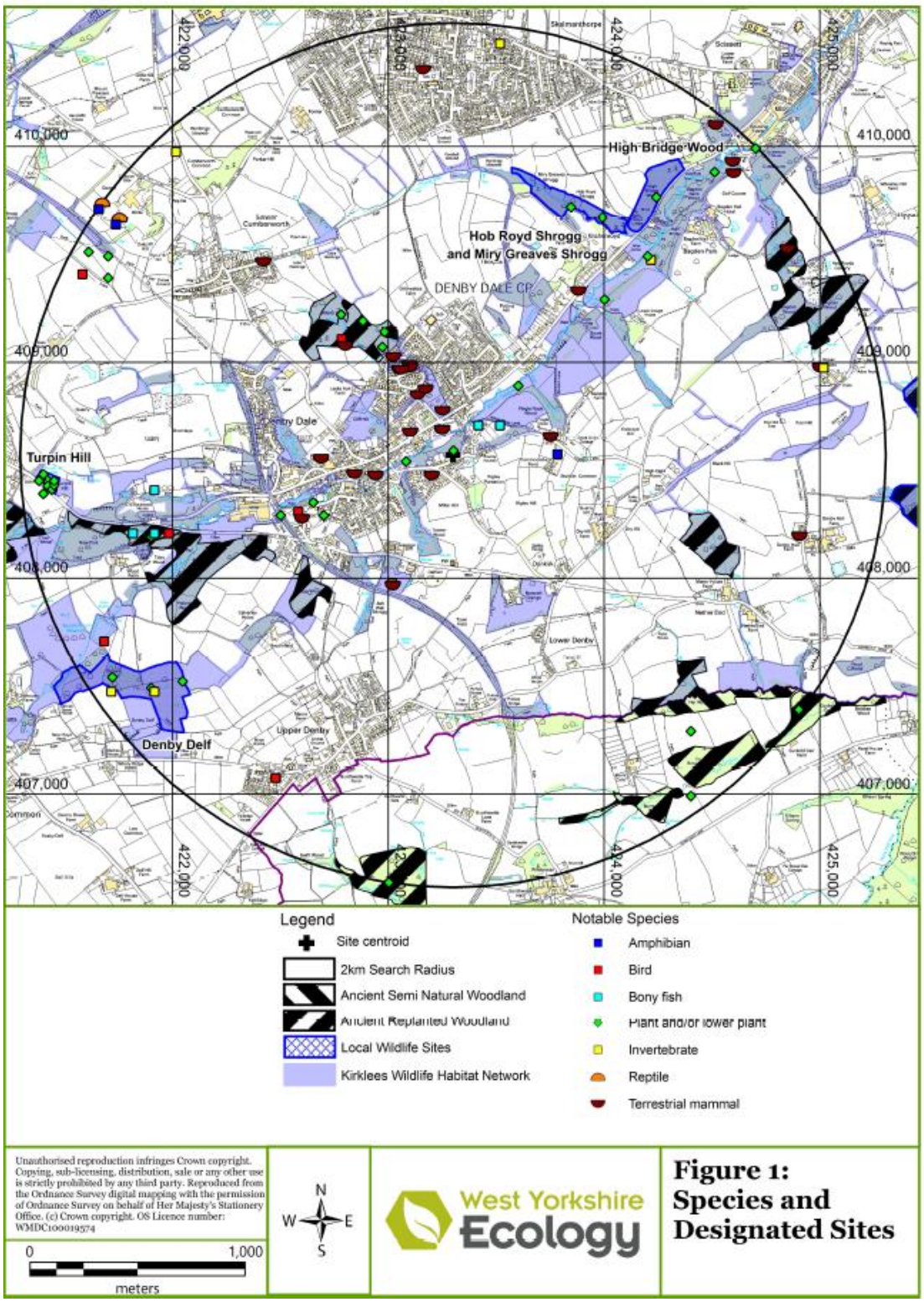
Species	Legal Status
	Natural England also allow sites to be registered on the Bat Low Impact Class Licence to permit activities that would otherwise be unlawful under the Conservation Regulations where the 3 tests can be passed and the bat roosts to be impacted are of low conservation status.
National protection	
European Protected Species and other species including water vole and white clawed crayfish	These animals receive full protection under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: • Intentionally kill, injure or take any such animal. • Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and • Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.
Common amphibians and reptile species	These animals receive limited protection under The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal to intentionally kill or injure any such animal.
Badger	The Protection of Badgers Act 1992 makes it illegal to wilfully kill or injure a Badger or attempt to do so and also make it illegal to intentionally or recklessly interfere with a Badger sett. This includes damaging or destroying a sett, obstructing access to a sett and disturbing a Badger while it is occupying a sett. Licences can be granted by Natural England to permit sett closure and/or disturbance between July and November inclusive.
Schedule 1 birds	Special penalties relate to offences concerning birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to intentionally or recklessly disturb any Schedule 1 bird or their dependent young while nesting.
All bird species	All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: • Intentionally kill, injure or take any wild bird. • Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.
Invasive species	The Wildlife and Countryside Act 1981 (as amended) contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 of the Act. In relation to Schedule 9 plants, it is an offence to plant or otherwise cause these plant species to grow in the wild.

Species and Habitats of Principal Importance
Planning authorities have a duty under Section 40 of the NERC Act 2006 to have regard to priority species and habitats in exercising their functions including development control and planning. In compliance with Section 41 of the NERC Act, the Secretary of State has published a list of species and habitats considered to be of principal importance for conserving biodiversity in England under the UK Post-2010 Biodiversity Framework. This is known as the list of Habitats and Species of Principal Importance (HPI/SPI). The HPI/SPI list is used to guide planning authorities in implementing their duty under the NERC Act.

National Planning Policy Framework
The National Planning Policy Framework for England was revised in 2021. The NPPF's policy on biodiversity has been summarised by the Government as: "The Framework underlines that the planning system should seek not just to protect, but, where possible to enhance biodiversity – making sure we don't just have isolated pockets of wildlife, but rich and connected green spaces for all kinds of species to thrive. Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland."

Local Biodiversity Action Plans
The HPI/SPI list included on Section 41 of the NERC Act 2006 is supported by a series of Local Biodiversity Action Plans (LBAPs), usually set up on a local authority local authority administrative boundary basis. Each LBAP identifies those habitats and species considered to be most important in that area (usually referred to as priority habitats and species). Commonly, an LBAP will identify a number of habitats and species for which "action plans" have been prepared.

Appendix 4. Designated Sites Map



Appendix 5. Metric 4.0 Headline Results

Land off Cuckstool Road				
Headline Results	Return to results menu			
Scroll down for final results ⚠				
On-site baseline	*Habitat units*	2.42		
	Hedgerow units	0.00		
	Watercourse units	0.00		
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	3.54		
	Hedgerow units	0.12		
	Watercourse units	0.00		
On-site net change (units & percentage)	*Habitat units*	1.12	46.11%	
	Hedgerow units	0.12	N/A	
	Watercourse units	0.00	0.00%	
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%	

Appendix 6. Landscape Masterplan

LANDSCAPE KEY

SOFT LANDSCAPE

Planting: refer to planting schedule & Specification for planting details

Existing Retained Trees, Woodland & Vegetation
Retained planting both within and outside the site boundary. To be protected where required in accordance with BS 5837:2012 for the duration of construction.

Proposed Extra Heavy Standard Native Trees
425-600cm height, 14-16cm girth, Root Ball (RB), Min 200cm clear stem

Proposed Heavy Standard Garden Trees
350-425cm height, 12-14cm girth, Root Ball (RB), 175-200cm clear stem

Proposed Standard Native Trees
250-300m height, 8-10cm girth, Root Ball (RB), 175-200cm clear stem

Proposed Single Species Hedgerow
Proposed native single species hedgerows to plot frontages and boundaries to extend.

Proposed Native Scrub mix
Proposed areas of mixed native scrub to be planted with a naturalistic scalloped edge to maximise habitat value and replicate natural establishment. To be undersown with a shade tolerant meadow seed mix.

Enhanced Meadow Grassland
Existing areas of meadow to be enhanced and reseeded to improve habitat value.

Proposed Flowering Lawn
Flowering lawn to front gardens. To be subject to a reduced mowing regime once established to allow the mix to flower.

Proposed Lawn
Proposed lawn to rear gardens to be turf or lawn seed as per specification.

HARD LANDSCAPE & BOUNDARIES

Proposed Gravel Surfacing to Parking Areas
Surfacing to be permeable. Specification in accordance with architectural/engineers detail.

Proposed Grass Grid to Driveways
Surfacing to be permable. Specification in accordance with architectural/engineers detail.

Proposed Dry Stone Wall to Highway Boundary
Dry Stone wall along frontage with Cuckstool Road. Specification in accordance with architectural/engineers detail.

Proposed Boundary Fencing to Rear Gardens
Boundary fence defines the domestic boundary of each plot.

OTHER

Proposed dwellings

Red line application boundary

SOFTWORKS SPECIFICATION NOTES

The contractor is responsible to ensure that no products or practices are to be used that do not comply with relevant British Standards, Codes of Practice and Construction Regulations. Contractor to be fully satisfied with locations and off sets of services prior to excavations.

SITE CLEARANCE

1. **Site clearance generally:** Where necessary remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil. Remove stones exceeding 75 mm. Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
2. **Existing trees & vegetation:** Retain and protect trees and vegetation in accordance with BS 5837 where necessary. Grub up any large roots and dispose of without undue disturbance of soil and adjacent areas. In order to comply with UK legislation in regard to the Wildlife and Countryside Act 1981 (as amended), any tree or vegetation removal and/or management must take place outside of the bird nesting season (March to September inclusive). Where this cannot be achieved, nesting bird checks must be undertaken by a suitably qualified ecologist within 24 hours of the works.
3. **Works within the root protection area (RPA):** There shall be no areas of storage, trafficking of machinery, cultivation, ripping or mechanical rotivation, or importing of top soil, within the root protection area (RPA) of the existing trees to be retained. Where paths and hard surfacing is proposed within the retained tree RPA's, a No Dig methodology is to be adopted. Underground reinforcement, such as Cell Web (or similar approved) to be utilised in these locations. No trenches shall be dug within the RPA of the existing trees. New hedging plants within the RPA of the existing trees shall be notch planted. All of the above must be in accordance with BS 5837.

SOIL

4. **Site preparation:** Where required all existing topsoil and subsoil shall be stripped and stored separately on site. Heaps must not exceed 3m in height and should be used within 12 months in accordance with BS 4425 (Code of practice for general landscape operations).
5. **Soil Sampling:** Existing topsoil and inert sub soils, shall be analysed in accordance with BS 3882 to determine available nutrients, texture, organic matter content and pH. Where require, existing soils are to be improved in accordance with BS 3882:2015
6. **Cultivation:** Flail existing ruderal vegetation to ground level and remove arisings prior to cultivation. All areas to receive final layers of topsoil are to be de-compacted prior to spreading. Earth works vehicles to be small scale and tracked (loose-tipping) to minimise compaction, however chosen method for decompaction will be site specific dependant on size and soil conditions. Additional care must be taken as to not damage soil structure. All objects and stones over 75mm brought to the surface during decompaction are to be removed from the prepared surface layer. If existing subsoil horizon is found to consist of heavy clay, all proposed seeded areas to be tine ripped to 200mm depth at 300mm centres to increase drainage. Areas to be seeded to be chain harrowed to a fine tilth and lightly rolled to provide firm seed bed. Remove all stones over 30mm dia in any direction. Imported soil material: Import as necessary to make up any deficiency of topsoil and/or subsoil existing on site to complete the work and mitigate deficiencies. All imported material must conform with industry standards BS 8601 (Subsoil), BS 3882 (Topsoil) and CLEA limits on heavy metals. Topsoil to be General purpose, 10mm screened and locally sourced (unless otherwise stated).
7. **Soil build up:** Existing topsoil and subsoil to be retained and reused on site within the landscape scheme where possible. Prior to spreading all topsoil to be screened to remove large stones and other deleterious materials, such as plant roots, leaves and clay. Topsoil to be loose-tipped and spread over de-compacted subsoil/receiving area. The total minimum rooting depth for planting, after settlement, should be: Grass 450mm; Planted areas 600mm; Trees 900mm. Topsoil depths for these areas should not normally exceed 300mm with the following minimum depths for each area: Grass 150mm; Planted areas 300mm; Trees 300mm. Meadow & wildflower seeding to be sown directly onto prepared subsoil.
8. **Finished level of topsoil after settlement:**
   - Above adjoining paving or kerbs: 25 mm;
   - Below dpc of adjoining buildings: Not less than 150 mm;
   - Shrub areas: Higher than adjoining grass areas by 50 mm;
   - Within root spread of existing trees: Unchanged;
   - Adjoining soil areas: Marry in;
   - Thickness of turf or mulch: Included.

ADDITIVES

9. **Compost to tree/shrub pits:** To be as per BS PAS 100: well rotted sterilised spent mushroom compost max. pH 6.7 or Target Treestart compost. The contractor shall provide a Certificate of Analysis to show that the material being supplied complies with the above criteria. Incorporate spent mushroom compost or equivalent approved peat free compost into tree and planting pits at a rate of 3 parts topsoil to 1 part compost, thoroughly mixed together.
10. **Fertiliser to ornamental shrub beds:** Apply slow release fertiliser, Scotts 'Enmag' 4.19.10 NPK or equivalent approved at a rate of 50 gms/sq. metre over topsoil surface and fork into top 225mm spit.

PLANTING

11. **Generally:** Minimise trafficking of graded slopes. All plants to be preferably planted between Nov. - March. Nursery stock trees and shrubs to be in accordance with BS 3936 and BS 8545, to be supplied and planted in accordance with British Standards and the Horticultural Association's Plant Handling Guide. Container grown shrubs to be thoroughly watered before planting; trees and bare root shrubs watered after planting.
12. **Times of year for planting:**
    - Deciduous Trees, hedges and shrubs: Late October to late March.
    - Evergreen hedges and shrubs: September/ October or April/ May.
    - Container grown plants: At any time if ground and weather conditions are favourable. Watering and weed control to be provided as necessary.
13. **Shrub/Hedge planting pits:** Timing: Excavate 1-2 days (maximum) before planting. Pit sizes: Wide enough to accommodate roots/toughs when fully spread and 75 mm deeper than root system. Pit bottom improvement Break up to a depth of 150 mm, incorporating 25g of slow-release fertiliser per planting pit. Where existing planting and roots are present plants are to be notch planted to minimise disruption/root damage.
14. **Backfilling material:** Reuse excavated material.
15. **Watering:** Immediately after planting, thoroughly and without damaging or displacing plants or soil.
16. **Firming:** Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
17. **Tree pit sizes:** Standard trees excavate a tree pit 1.2m x 1.2m x 900mm. Break up sides and bottom of pits to a depth of 100mm to ensure free drainage.
18. **Tree pit treatment:** Soil ameliorant worked into pit bottoms. Pit sides to be scarified and backfilling material to be in accordance with topsoil and subsoil specification.
19. **Drainage Layer:** Provide 200mm layer washed, clean gravel to base of pits to aid drainage (tree pit to be actively drained if poor draining soil or clay discovered by contractor).
20. **Tree Accessories:** Typically trees in soft landscape to be staked unless stated otherwise by the Landscape Architect. Underground guying is recommended for semi mature trees or trees within hard landscape and in public areas. Trees to be staked using 1m long x 75mm dia. round timber stakes (size of stakes to be adjusted to suit size of tree). Cross member to be installed 75mm x 25mm (larger trees will need large cross members). Locate proprietary Hessian ties on cross member to secure tree and prevent rubbing. Short stakes (<1.0m high) with biodegradable Hessian ties are recommended to encourage wind tolerance and prevent rubbing. Tree pit accessories by Green Tech or similar: Underground guying and perforated plastic irrigation/ ventilation pipe to landscape architects approval.
21. **Root Barriers:** To be used wherever the installed rootball will be within 2m of a building foundation or within proximity to underground utilities (distance at which root barrier is required is as per utility providers standards and should be confirmed prior to installation). Root barrier by Green Tech or similar to be installed vertically in accordance with supplier recommendations.
22. **Protective fencing/guards:** Newly planted areas or individual plants are to include rabbit/deer proof fencing. Either perimeter mesh fencing or individual biodegradable plastic free spiral guards/shelters/tubes are to be installed around all planting where required. Where areas are fenced, mesh to be 1m min above ground and buried 300mm below ground.
23. **Mulching:** Approved medium course chipped tree bark composted for at least 4 weeks. Particle size 25-75mm dia, max. 20% fines, pests and disease free and free of Methyl Bromide contamination. Clear any weeds, ensure soil is thoroughly moistened prior to applying mulch. All planting areas inc. trees, hedges and planting beds should receive an even 75mm depth of bark mulch, adjoining edge of mulch to be 15mm min. below adjacent hardstanding to avoid spillage. 50mm depth of mulch is only suitable for higher quality ornamental bark (<5% fines, 5-35mm size etc.). All bark should be FSC certified. Option to use biodegradable mulch mats to control moisture, soil temperature, erosion and weeds. All trees within grass are to have a 1.5m diameter mulch circle.
24. **Seeding and making good existing grass areas:** Steep embankments to be hydroseeded where required. After cultivating, grading and fertilizing prepare seed bed to fine, firm tilth with good crumb structure (Depth: 25 mm). Rake to a true, even surface, friable and lightly firmed but not over compacted. Remove surface stones/earth clods. Extend cultivation into existing adjacent amenity grassed areas sufficient to ensure full marrying in of levels where required. Evenly distribute seeds at an application rate of 35g/m² or as per supplier recommendations. Establish good seed contact with the root zone to promote healthy, consistent growth. Lightly harrow or rake to cover seed. Thoroughly water completed seeding until germination as necessary to keep the surface damp and soil most but not water logged.
25. **Cutting In:** Where cutting planting beds into existing grassed areas, the surrounding grass shall be protected and made good as necessary. These areas to be made good by preparing and re-seeding area.
26. **Seed mixes:** John Chambers Lawn/Meadow seed or similar approved.
27. **Turf Preparation:** Lay turf with minimum possible delay after lifting. If delay occurs, lay turf out on topsoil and keep moist. Do not lift turf in frosty weather or if ground waterlogged. Arrange phased delivery timescales to avoid need for excessive stacking. Stacking height 1m (max). Do not use dried out or deteriorated turf. After cultivating, grading and fertilizing prepare seed bed to fine, firm tilth with good crumb structure (Depth: 25 mm). Rake to a true, even surface, friable and lightly firmed but not over compacted. Remove surface stones/earth clods. Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
28. **Turf Implementation:** Turf to be laid in Spring and summer within 18 hours of delivery; and Autumn and winter within 24 hours of delivery. Do not lay turf when persistent cold or drying winds are likely to occur or soil is frost bound, waterlogged or excessively dry. Planks to be laid on previously laid turf. Do not walk on prepared bed or newly laid turf. Turf laid along contours with staggered, close butted joints. Do not stretch turf. At the edges, whole turfs to overlap line, trimmed to a true line. Remove high spots and fill hollows with fine soil to adjust levels Lightly and evenly firm as laying proceeds to ensure full contact with substrate. Do not use rollers. Dress turf with Sharp sand at a rate of 2kg/m2 and brushed in to completely fill joints. Thoroughly water completed turf immediately after laying. Check that water has penetrated into the soil below. Use hardy low maintenance amenity turf suitable for use in shade (To BS 3969).
29. **Seed Preparation and Implementation for Wildflower Areas:** No addition of nutrient to soil required. Method to suit soil type, proposed usage, location and weather conditions during and after sowing. A friable firm seed bed required, weed free, alleviation of compaction to a depth of 100-200mm, sowed on a firm and fine tilth. Seed bed preparation to be conducted in dry conditions, close to the time of sowing Remove surface stones/earth clods. Marry in with adjacent levels where required. Evenly distribute seeds at the manufacturers recommended application rate. Establish good seed contact with the root zone to promote healthy, consistent growth. Lightly harrow or rake to cover seed. Thoroughly water completed seeding.

MAINTENANCE

30. 1 year Defects Liability Period applies. All dead or failing plants to be replaced the following growing season. Maintain a weedfree bare earth area 600mm dia minimum around individual trees and shrubs. Herbicide shall only be used where necessary and if use is required it should be a non-residual translocated herbicide and spot applied/applied with spray guard. Application and use to be in accordance with EA guidance. Prior to spraying ensure all spirals are tight to ground level and leaves within spray range are fully enclosed.
31. **Arisings:** Remove. Trim all edges.
32. **Weed control:** Substantially free of broad leaved weeds.
33. **Method:** Application of a suitable selective herbicide. Remove any stones 25 mm in any dimension brought to the surface.
34. **Watering:** To ensure establishment.

NOTE: Works to be carried out in accordance with the most up to date and current British Standards referenced within this specification.

PLANTING SCHEDULES:

Tree Planting

NATIVE TREES

Total	Species	Height mm	Girth	Size	Spec.
3	Acer campestre (Ac)	250-300	8-10cm	S	B, clear stem 175-200mm
1	Acer campestre (Ac)	350-425	12-14cm	HS	B, clear stem 175-200mm
1	Acer campestre (Ac)	425-600	14-16cm	EHS	B, clear stem min 200mm
6	Betula pendula (Bp)	250-300	8-10cm	S	B, clear stem 175-200mm
1	Betula pendula (Bp)	350-425	12-14cm	HS	B, clear stem 175-200mm
2	Betula pendula (Bp)	425-600	14-16cm	EHS	B, clear stem min 200mm
4	Prunus avium (Pa)	250-300	8-10cm	S	B, clear stem 175-200mm
1	Prunus avium (Pa)	425-600	14-16cm	EHS	B, clear stem min 200mm
4	Quercus robur (Qr)	250-300	8-10cm	S	B, clear stem 175-200mm
2	Quercus robur (Qr)	425-600	14-16cm	EHS	B, clear stem min 200mm
1	Sorbus aria (Sa)	250-300	8-10cm	S	B, clear stem 175-200mm
3	Sorbus aria (Sa)	350-425	12-14cm	HS	B, clear stem 175-200mm
4	Sorbus aucuparia (Sau)	250-300	8-10cm	S	B, clear stem 175-200mm
4	Ulmus glabra (Ug)	250-300	8-10cm	S	B, clear stem 175-200mm
37					

ORNAMENTAL TREES

Total	Species	Height mm	Girth	Size	Spec.
3	Malus 'John Downie' (MJD)	350-425	12-14cm	HS	RB, clear stem 175-200mm
2	Pyrus calleryana 'Chanticleer' (PycC)	350-425	12-14cm	HS	RB, clear stem 175-200mm
2	Sorbus aucuparia 'Joseph Rock' (SJR)	350-425	12-14cm	HS	RB, clear stem 175-200mm
7					

To be planted as per specification. All trees are to be mulched and supported in accordance with their size.

Mixed Species Native Hedge:

SINGLE SPECIES NATIVE HEDGE

Name	Age	Size	Spec	Notes
Fagus sylvatica	1+1	60-90cm	BR	Hedge to be planted as a double staggered row 450mm apart (5/lin m)

To be planted as per specification. Biodegradable plastic free tubes and cane supports to be provided to each plant, where required. All hedges to be mulched in accordance with specification.

Mixed Species Native Scrub:

NATIVE SCRUB MIX

% of Mix	Species	Age	Size in cm	Spec.
15	Corylus avellana	1+0	40-60cm	BR
10	Cornus sanguinea	1+0	40-60cm	BR
30	Crateageus monogyana	1+1	40-60cm	BR
5	Ilex aquifolium	1	40-60cm	2L
15	Prunus spinosa	1+1	60-80cm	BR
10	Rosa canina	1+1	40-60cm	BR
5	Sambucus nigra	1+1	60-80cm	BR
10	Viburnum opulus	1+1	40-60cm	BR

To be utilised for areas of new planting and to enhanced and infill areas of retained existing mixed scrub. To be planted as per specification in staggered rows, at 1m centres. Planted in groups of 3-17nr. of a single species. Biodegradable plastic free tubes and cane supports to be provided to each plant, where required. Areas of new planting to be undersown with a woodland/shade tolerant seed mix where required

Seed Mixes:

LAWN SEED MIX

John Chambers Prize Lawn Grass Seed

Sowing rate @ 35g/m²

Amenity PRG, Chewings Fescue, Slender Red Fescue, Dawrf Turf Perennial, Browntop Bent

TURF

Premier lawn turf roll

Hard wearing turf to include rye grass

To be laid where require instant coverage/areas to be made good following construction. (Supplier as approved by landscape architect)

AMENITY FLOWERING LAWN

John Chambers Heritage Flowering Lawn 80% Grass Seed Wildflower Mix

Sowing rate @ 5g/m²

Low Maintenance Grass Seed, Lady's Bedstraw, Common Bird's Foot Trefoil, Bulbous Buttercup, Cat's Ear, Red Clover, White Clover, Cowslip, Common Daisy, Common Dandelion, Harebell, Autumn Hawkbit, Rough Hawkbit, Black Medick, Common Mouse-Ear, Field Pansy, Wild Pansy, Hoary Plant

SPECIES RICH MEADOW MIX

John Chambers Heritage Butterfly Meadow 80% Grass Seed Wildflower Mix

Sowing rate @ 5g/m²

Low Maintenance Grass Seed, Common Bird's Foot Trefoil, Red Campion, White Campion, Red Clover, Oxeye Daisy, Common Dandelion, Hemp-Agrimony, Common Knapweed, Greater Knapweed, Wild Marjoram, Black Medick, Yellow Melilot, Garlic Mustard, Musk Mallow, Devil's-bit Scabious, Field Scabious, Small Scabious, Selfheal, Soapwort, Red Valerian, Common Vetch, Kidney Vetch, Wild Pansy, Viper's Bugloss, Wild Mignonette, Teasel, Corn Chamomile, Cornflower, Dame's Violet

SHADE TOLERANT MEADOW MIX

John Chambers Pro Woodland and Shaded Area 80% Grass Seed Wildflower Mix

Sowing rate @ 5g/m²

Low Maintenance Grass Seed, Bluebell, Agrimony, Hedge Bedstraw, Garlic Mustard, Hedge Woundwort, Wood Avens, Ragged-Robin, Red Campion, Selfheal, Sweet Cicely, Common Poppy, Wild Angelica, Foxglove, Wood Sage, Nettle-leaved Bellflower, Common St John's Wort, Upright Hedge-Parsley

All seed mixes are to be be sown as per suppliers recommendations. Meadow and wildflower seeding to be subject to a reduced mowing regime once extablished. To incorporate mown margin/edge where required. Areas of retained grassland to be made good where required utilising the suggested seed mixes.

Bulb Planting:

NATIVE BULBS MIX

Species	Grade	Density
Anemone nemorosa	12/30	50/m2
Hyacinthoides non-scripta	6/7	20/m2
Oxalis acetosella		100/m2
Narcissus pseudonarcissus	10/15	35/m2

UK cultivated stock to be used for native bulbs

Notes:

1. Not for construction all dimensions to be confirmed on site
2. Based on Proposed Site Plan 2280A(90)-01 By Cadvis3d
3. Refer to architects/engineers drawing for hard landscape, boundary treatments, site levels, drainage, retaining walls.
4. Build ups/footings to engineers specification.
5. Contractor to be fully satisfied with locations of services prior to excavations.
6. All existing trees to be protected to BS 5837.

NOTES:

Trees & Services

- Where paths and hard surfacing is proposed within close proximity to trees all construction is to be in accordance with BS 5837: 2012
- Root barriers / root protection measures are to be incorporated where required in accordance with guidelines where existing and proposed trees and vegetation are within 2m of proposed building or trees are in close proximity to services (details to be agreed).
- Tree and shrub planting proposed within drainage easements to be approved by local water authority. Planting to incorporate root protection measures around services or planting pits to ensure the sewer system is resistant to tree root ingress in accordance with the current Code for Design.
- Contractor shall comply with NJUG publication, volume 4 'Guidelines For The Planning, Installation And Maintenance Of Utility Services In Proximity To Trees' together with BS 5837:2012 Trees in Relation to Construction. Where conflict arises refer to the British Standard.

Scale 1:200

0 5 10 20

Project: Residential Development, Cuckstool Rd		**Client:** Britology			
Title: Outline Landscape Masterplan		**Drawn:** LW	**Chk'd:** LW	**App'd** SH	
Drawing Number: PWP 811 001	**Revision:** DR	**Drawing Scale:** 1:200@A1			

DRAFT

Rev	Date	Detail	Made	Chk'd	App'd
00	20/11/23	For Coordination Purposes Only	LW	LW	SH

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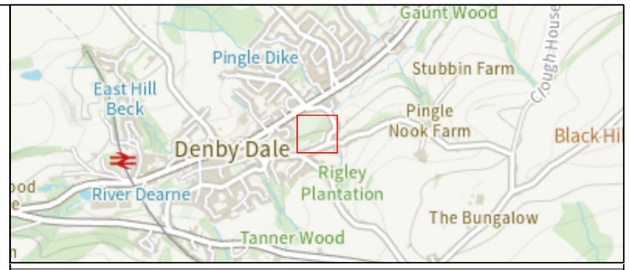
PWP DESIGN

Appendix 7. Post Development UK Habitat Classification Plan



Survey Information
Site boundary (3,526.8m^2)
Area within Kirklees Wildlife Habitat Network (1,304.6m^2)

UK Habitat Survey (Primary Habitats)
w1f7 - Other Lowland mixed deciduous woodland
h3h - Mixed scrub (1,210.3m^2)
g3c - Other neutral grassland (1,313.5m^2)
u1c - Artificial unvegetated, unsealed surface (84.8m^2)
86 - Green roof (252.0m^2)
828 - Vegetated garden (666.2m^2)
h2b - Non-native and ornamental hedgerow (128.5m)
Retained medium tree (2)
Retained small tree (1)
Newly planted small tree (43)

Area within Kirklees Wildlife Habitat Network:

g3c - Other neutral grassland (436.2m^2)
h3h - Mixed scrub (868.4m^2)

Retained small tree - 1
Newly planted small tree - 15

N

0 5 10 20
Metres

PROJECT TITLE

CUCKSTOOL ROAD, DENBY DALE

DRAWING TITLE

Figure 2. Proposed Development Layout

VER	DATE	REMARKS	Drawn	Checked
3.2	27/11/23	Proposal	MP	RB

DRAWING NUMBER:

MIDDLETONBELLECOLOGY/Cuckstool/Proposal

SCALE	PLOT SIZE	DATUM	PROJECTION
1:600	A3	OSGB	BNG

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