Barns at Thurlstone Road, Penistone

Ecological Impact Assessment

23rd December 2024

Prepared by:

Middleton Bell Ecology, School House, Green Moor, Sheffield, S35 7DQ

Document ref: MBE/ECO/2024/024/01				
Purpose and Description	Originated	Checked	Reviewed	Date
For Planning	G Slack MCIEEM [redacted]	R Bell MCIEEM [redacted]	G Slack MCIEEM [redacted]	23rd December 2024

Contents

Site Name Barns at Thurlstone Road	
Local Authority Barnsley Council	**Grid Reference** SE 23735 03521
Surveyor Greg Slack MCIEEM	**Date of Survey** 06/08/2024
Soilscape Slowly permeable seasonally wet acid loamy and clayey soils.	**Designation of Site** None

UK Habitat Classification habitats on Site
Habitats: g4 – modified grassland, u1b5 – buildings, u1b6 – other developed land.
Protected/Notable Species, Constraints on Site
Bats (including a whiskered bat day roost), birds (including a barn owl roost, common amphibian species (but not great crested newts) and common invertebrate species. The presence of badgers, and hedgehogs has also been assumed on a precautionary basis.

1. Summary

1.1.1 This Ecological Impact Assessment for Barns at Thurlston Road, Penistone was commissioned on 5th August 2024. The survey was commissioned to inform a planning application for the conversion of the two barns present within the site. The site was located between the village of Thurlstone, and town of Penistone in South Yorkshire.

1.1.2 The site consisted of two barns, with hard standing between them providing access and parking. The site encompassed small areas of two adjacent fields, located to the east and south, which appeared to be managed for silage.

1.1.3 The habitats were considered to be of no more than Site level importance. Populations of bats and birds were potentially of Local importance with other ecological receptors unlikely to be of greater than Site level importance.

1.1.4 The likely unmitigated impacts of the development were considered to comprise:

- The conversion of two existing barns to three new dwellings and approximately 0.14 ha of modified grassland to vegetated garden
- The creation of approximately 0.09 ha of grass grid driveway and parking and planting of 54 m of new species rich hedgerows.
- The loss of a whiskered bat day roost and barn owl roost.
- The injury or killing of bats, birds, or common amphibians during the works.
- Increased lighting affecting nocturnal species.
- Biosecurity risks as a result of bringing in plants, and seeds for landscaping.
- A pollution event affecting the adjacent pond.

1.1.5 The following mitigation requirements are considered necessary:

- A licence from Natural England is required to permit the loss of the bat roost.
- Enhancement of the area of grassland between the driveway and Thurlstone road to create a more diverse and ecologically valuable habitat.
- Precautions to prevent injury to bats, birds, and amphibians during the work, including pre-works checks, a two stage cut, and timing considerations.
- Any new roofing or cladding membranes required to be safe for bats.
- New plants to be of UK provenance and sourced from UK suppliers.
- Integrated bat boxes to be included within the new dwellings. A barn owl box also to be put up, together with three swift boxes to be integrated into new buildings.
- Lighting restrictions will apply to protect nocturnal species.

1.1.6 The proposed development is expected to result in a biodiversity net gain of 0.13 Habitat Units (a 27.19 % gain). Although new hedgerows will be created within the site they will be garden boundary hedgerows and therefore not included in the biodiversity net gain calculations. As a result, no hedgerow calculation is applicable as none were present within the site's baseline.

1.1.7 The results of this survey and report are considered to be valid for a period of 24 months. After this time Middleton Bell Ecology should be contacted to determine the need for update survey.

2. Introduction

2.1.1 This Ecological Impact Assessment for Barns at Thurlston Road, Penistone was commissioned by Planning Consultant James Roberts, on behalf of the client David Barlow, on 5th August 2024. The survey was commissioned to inform a planning application for the conversion of the two barns present within the site. The proposed layout is shown in Appendix 1.

2.1.2 The survey area was approximately 0.33 ha in size. The site was located between the village of Thurlstone, and town of Penistone in South Yorkshire (Figure 1).

Figure 1. The site location is indicated by red line boundary shown

2.1.3 The purpose of this report is to present the findings of a desk-based study, UK Habitat Classification survey, and assessment of the site's suitability to support protected or notable species. The report includes consideration of the value, likely impacts and effects of the proposed development to protected and notable species and habitats. Detail on suitable mitigation and compensation measures necessary to avoid or reduce these impacts are included within the report.

2.1.4 Key legislation relating to designated sites, protected species, and habitats is detailed in Appendix 2. The implications of legislation are detailed in the body of the report where applicable.

3. Site Description

3.1.1 The site consisted of two barns, with hard standing between them providing access and parking. The site encompassed small areas of two adjacent fields located to the east and south, which appeared to mown several times annually for animal fodder. To the south of the fields a small woodland and the Trans-Pennine Trail were located. Thurlstone Road (the A628) was positioned immediately to the north of the site, with the River Don on the opposite side of the road. A dwelling with a mill pond was located to the west, with additional dwellings beyond. The Trans-Pennine Trail and the River Don were considered to provide excellent connectivity for fauna within the local area.

3.1.2 The site falls within National Character Area 37: The Yorkshire Southern Pennine Fringe National Character Area (NCA), a transitional landscape from the upland areas of the Southern Pennines NCA in the west through to the low-lying land of the Nottinghamshire, Derbyshire and Yorkshire Coalfield NCA to the east. The most striking aspect of the landscape is the mingling of predominantly 'gritstone' industrial towns and villages with the strong valley forms and pastoral agriculture of the Pennine foothills.

3.1.3 The Soilscapes resource[1] shows soils in the area to comprise slowly permeable seasonally wet acid loamy and clayey soils.

4. Methodology

4.1 Data Consultation

4.1.1 Barnsley Biological Records Centre were contacted in December 2024 to request the following information for locations within a 1.5 km radius of the site:

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

4.1.2 South Yorkshire Bat Group were also contacted to request bat records within 2 km of the site.

4.1.3 A search of the Multi-Agency Geographical Information for the Countryside (MAGIC) website was undertaken to determine the following for locations within a 2 km radius of the site:

- 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 6th August 2024 using UK Habitat Classification habitat survey methodology (UKHab Ltd, 2023) by Greg Slack MCIEEM. Greg is a competent ecologist with more than 15 years' experience and holds a Natural England bat survey licence (WML-A34-Level 4, 2017-28068-CLS-CLS) and Natural England great crested newt *Triturus cristatus* survey licence (CL08-Level 1, 2015-18073-CLS-CLS).

4.2.2 The surveyor methodically covered the site, searching for notable, rare or scarce plant species and evidence of protected species including bats and species of nature conservation importance (including a search of suitable features for signs of bats).

[1] http://www.landis.org.uk/soilscapes/ [accessed 9th July 2024]

Features of interest are presented on the UK Habitat Classification plan, using Secondary Codes and Target Notes.

4.2.3 Aerial photographs (Google Earth, Bing Mapping, and ESRI imagery) and Ordnance Survey mapping were studied to consider the 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.

4.2.4 The pond adjacent to the site was identified via aerial photographs and maps. It was visited to assess its suitability to support great crested newts using the methodology in Oldham *et. al.* (2000).

4.2.1 Habitats of Principal Importance (HPIs) and Species of Principal Importance (SPIs) included on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 were recorded. Any priority species and habitats included on the Local Biodiversity Action Plan (LBAP) were also noted if present.

Nocturnal Bat Surveys

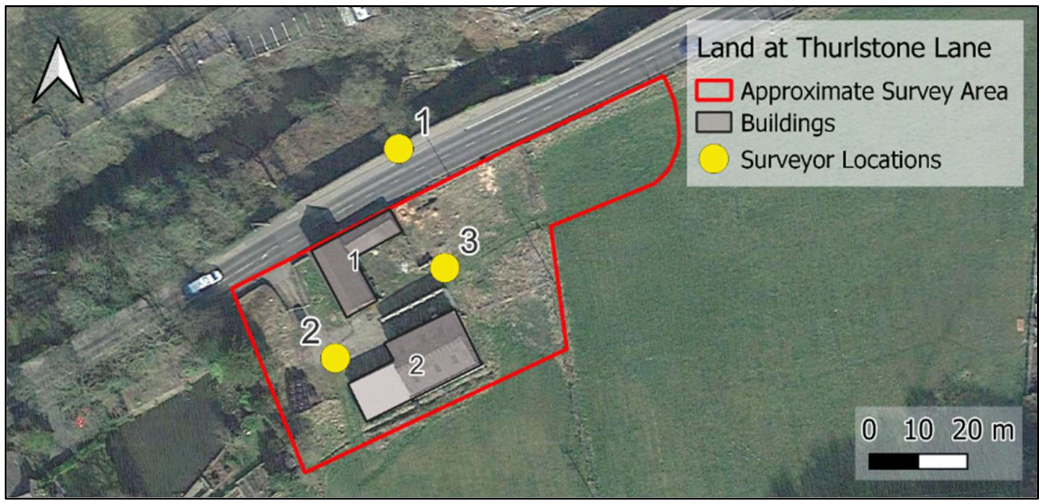
4.2.2 Two nocturnal dusk emergence bat surveys were completed on the stone barn (Building 1, Figure 2) on 7th August 2024 and 5th September 2024. Three surveyor positions were used on each occasion. The nocturnal surveys were conducted by:

- Greg Slack;
- Ian Wright Natural England bat survey licence (WML-A34-Level 2, 2023-11218-CLS-CLS);
- Carl Dixon; and
- Ollie Pearse.

4.2.3 The surveyors each used a EM Touch bat detector and a night vision aid comprising either a Guide TK612 Gen2 Thermal Imaging Monocular, Canon XA10 infra-red camera or Panasonic VX980 infra-red camera. An additional infra-red camera was placed inside Building 1 to record any bats flying within the interior of the building prior to emergence. The infra red cameras each had additional separate infrared lights. The surveyor positions are shown in Figure 2.

4.2.4 Camera footage was reviewed as required to check and confirm the observations made by the surveyors.

Figure 2. Nocturnal survey surveyor locations



4.2.5 The nocturnal surveys were carried out in compliance with relevant Bat Survey Guidelines (Collins, 2023). The surveys continued from 15 minutes before sunset until 1.5 hours after sunset.

4.3 Method of Assessment

4.3.1 In line with CIEEM guidelines (CIEEM, 2017) the survey results were used to identify any ecological constraints to the proposed development, any further surveys, and any mitigation measures likely to be required. Opportunities for ecological enhancement measures were also included where possible.

4.3.2 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) were assigned a geographic level of importance for nature conservation. The highest level is international, decreasing through national, regional, county, local and lastly site importance.

4.4 Biodiversity Calculation

4.4.1 The Statutory Biodiversity Metric (Defra, 2023) was used to calculate the ecological impact of this scheme within the context of the blue line boundary site. 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'. The Statutory Biodiversity Metric 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.

4.5 Survey Limitations

4.5.1 No survey limitations were encountered.

5. Ecological Baseline

5.1 Summary

5.1.1 The site comprised the two barns with hard standing providing access to the site and buildings and parking. The area around the barns comprised modified grassland with some neglected areas comprising more ruderal vegetation. The survey area also encompassed part of the two adjacent fields which were also modified grassland which appeared to be managed to take a silage cut.

5.1.2 The arrangement of site habitats is shown on the UK Habitat plan in Appendix 3, whilst a full list of plant species recorded is provided in Appendix 4.

5.1.3 The habitats were considered to be of no more than Site level importance. Populations of bats and birds were potentially of Local impotence, with other ecological receptors unlikely to be of greater than Site level importance. The importance of each habitat type and species or species group is included in Table 4 at the end of Section 5.3.

5.2 Designated Sites

5.2.1 Three local wildlife sites were present within the 1.5 km desk study search area. No additional sites were returned by the 2 km MAGIC search. The sites are summarised in Table 1 below.

5.2.2 The closest site was Scout Dike Local Wildlife Site LWS located approximately 890 m northeast of the red line boundary.

Table 1. Designated sites present within 1.5 km of the site

Designation	Site	Ecological features	Distance, and Direction
Local Wildlife Site	Scout Dike Reservoir	Standing water used as a fishing lake with little aquatic vegetation. Some acid grassland and dry shrub/heath to the east of the site with coniferous plantation woodland to the southeast. Bluebell *Hyacinthoides non-scripta* have been recorded on site.	890 m northeast
Local Wildlife Site	Small Shaw and High Bank	A series of three slightly separated sites. The area within the 1.5 km desk study area comprised a single grazed slope with the western gorse *Ulex gallii* and dwarf heath elements severely under pressure from grazing cattle.	1130 m east
Local Wildlife Site	Royd Moor Reservoir	Reservoir surrounded by a complex fringe of mainly acidic habitats including exposed bedrock, semi-natural broadleaved woodland, unimproved acid grassland, dry heath and acid grassland mosaic, acid dry dwarf heath, dense scrub, scattered scrub, modified neutral grassland, marshy grassland and tall ruderal herb stands.	1430 m west

5.2.3 The closest area of ancient woodland was present approximately 1150 m south of the site.

5.3 Habitats

g4 – modified grassland

5.3.1 The modified grassland comprised areas of the adjacent fields and grassland between the two barns and around the driveway leading onto the site (Plate 1 to 4). The area to the west of the driveway was relatively neglected and comprised an area of ruderal vegetation, as did the area immediately south of the modern barn (Barn 2).

Plate 1. Area of modified grassland and tall ruderal around the stone barn (Building 1) viewed from the east

Plate 2. The modified grassland fields with barns behind viewed from the southwest

Plate 3. A typical example of the modified grassland sward within the mown fields

Plate 4. the tall ruderal area at the western edge of the survey area

5.3.2 The grass species present within the majority of the site comprised frequently recorded Yorkshire fog *Holcus lanatus*, and rarely recorded perennial rye grass *Lolium perenne* and cocksfoot *Dactylis glomerata*. Within the ruderal areas, rough meadowgrass *Poa trivialis* was locally abundant, and false oat grass *Arrhenatherum elatius* was rarely recorded.

5.3.3 Herb species within the majority of the grassland area comprised abundant ribwort plantain *Plantago lanceolata*, frequently occurring creeping buttercup *Ranunculus repens*, white clover *Trifolium repens* and bush vetch *Vicia sepium*. Meadow buttercup *Ranunculus acris* was occasionally recorded with rarely recorded species comprising ragwort *Jacobaea vulgaris*, red clover *Trifolium pratense*, broad-leaved dock *Rumex obtusifolius*, soft rush *Juncus effusus*, herb Robert *Geranium robertianum*, dandelion *Taraxacum officinale* and curled dock *Rumex crispus*. Within the ruderal areas herb species included abundant creeping thistle *Cirsium arvense* and common nettle *Urtica dioica*. Occasionally recorded species comprised birdsfoot trefoil *Lotus corniculatus*, bramble *Rubus fruticosus*, greater willowherb *Epilobium hirsutum* and ragwort *Jacobaea vulgaris*. Additional rarely recorded herb species within the ruderal area

comprised cow parsley *Anthriscus sylvestris*, lesser stitchwort *Stellaria graminea*, rosebay willowherb *Chamerion angustifolium* and mugwort *Artemisia vulgaris*.

5.3.4 The condition of the grassland was considered to be poor, principally because it failed Condition Criterion A which states that modified grassland must have 6-8 vascular plant species per m^2. The margins of the site had a higher number of species per square meter but across five quadrats the average number of species recorded was 5 per m^2 (the individual numbers recorded comprised 4, 4, 5, 5, and 7).

u1b5 – buildings

5.3.5 Two buildings were present within the site, a stone barn (B1, Figure 2), and a more modern barn (B2). The buildings are shown in Plates 1,2, 5, 6, and 7 and described in Appendix 5.

Plate 5. The west elevation of the stone barn.

Plate 6. The stone barn with the modern barn in the background viewed from the north

Plate 7. The modern barn viewed from the southwest

5.3.6 No condition assessment is applicable to this habitat type.

u1b6 – other developed land

5.3.7 The driveway, footpaths, and area between the barns comprised hard standing and areas of compacted gravel (Plates 1 and 7).

5.3.8 No condition assessment is applicable for this habitat type.

5.4 Species and Species Groups

5.4.1 The site was supported a whiskered bat day roost, was used by foraging bats, and as a barn owl roost, and was considered to also be suitable for nesting birds, and common invertebrate species.

Badger

5.4.2 The Barnsley Biological Records Centre provided records of badgers *Meles meles* within the search area. Due to the sensitive nature of badger records, their location is not discussed in this report None of the records were located within 200 m of the site.

5.4.3 While badgers are known to be present within the wider area, no badger setts or signs of badger presence were recorded during the survey. Badgers can have relatively large territories and the grassland areas within the site were broadly suitable for use by foraging badgers. However, the areas of grassland field beyond the survey area boundary, further south, were further from the road, and therefore further from disturbance; as well as being closer to woodland and the Trans-Pennine Trail which provides connectivity through the area. It's considered extremely unlikely that badgers regularly use the survey area, or that they use it extensively.

Hedgehog

5.4.4 The Barnsley Biological Records Centre provided 43 records of hedgehogs *Erinaceus europaeus* within the search area. The closest record was located approximately 300 m west-southwest of the site and dated from 2019.

5.4.5 While hedgehog are also known to be present within the area, no signs of hedgehog use of the site were recorded. Given the limited amount of grassland present, it is considered that the site is unlikely to be extensively used by hedgehogs, although they may move through the area and occasionally forage within the wider grassland.

Bats

Desk study

5.4.6 The Barnsley Biological Records Centre provided a total of 75 bat species records. The species listed comprised common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Daubenton's bat *Myotis daubentonii*, whiskered bat *Myotis mystacinus*, Brandt's bat *Myotis brandtii*, and noctule *Nyctalus noctula*. Additional records of bats within the *Myotis* genus and unidentified bat species were also returned. The closest record was a pipistrelle, recorded in 1997, approximately 60 m northwest of the site.

5.4.7 At the time of writing, records from South Yorkshire Bat Group had not yet been provided.

5.4.8 Five European Protected Species Licences for bats have been issued for locations within the two-kilometre search area. The details of the licences are given in Table 2 below.

Table 2. Bat EPS mitigation licences within 2 km

Species listed on the licence	Licence start date	Licence end date	What does the licence cover?	Approximate distance (m)	Direction
Common pipistrelle	03/10/2012	31/08/2014	Destruction of a resting place	608	West
Common pipistrelle and brown long-eared bat	10/10/2014	31/08/2015	Nothing stated	742	Northeast
Common pipistrelle and brown long-eared bat	09/05/2014	30/08/2014	Damage of a resting place	742	Northeast
Common pipistrelle	09/03/2011	01/02/2013	Destruction of a breeding site and resting place	947	East-Northeast
Common pipistrelle	14/10/2009	31/08/2011	Destruction of a breeding site and resting place	947	East-Northeast

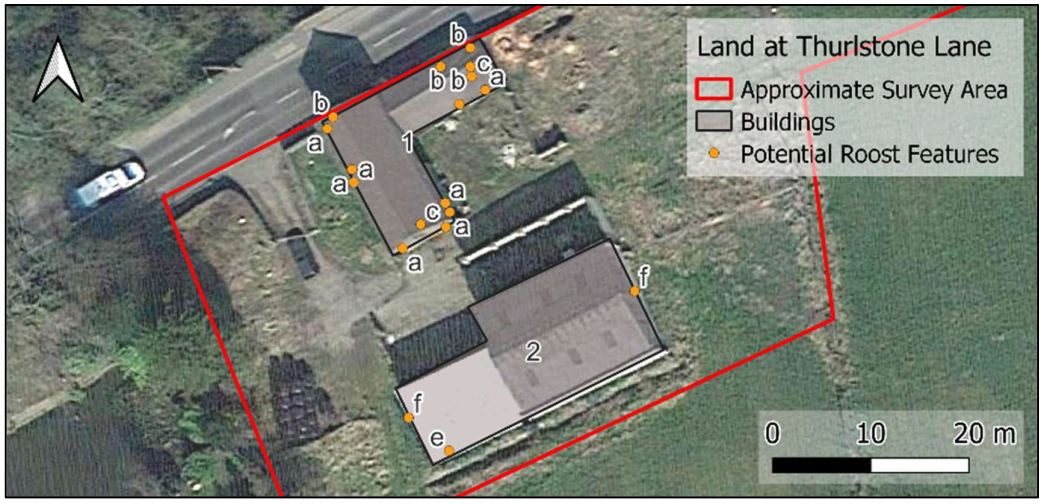
Roosting bats

5.4.9 The building inspection identified B1 as having moderate suitability to support roosting bats, and B2 as having negligible suitability to support roosting bats.

5.4.10 Suitable roost features on B1 comprised cracks in the masonry (a), missing and slipped slates (b and c), and missing ridge tiles (d). The inspection of B2 identified the presence of hollow concrete blocks at the southwest corner of the building (e), and

gaps behind verge capping (f). The hollow blocks were able to be checked with an endoscope from a ladder, and the gaps in the verge capping could be checked with a high powered torch and the presence of a roost ruled out. The locations of the potential bat roost features are shown on Figure 3 below.

Figure 3. Potential bat roost feature locations



5.4.11 The subsequent emergence surveys of B1 identified the presence of a whiskered bat day roost used by a single bat. Videos of the emerging bat on both surveys are available at: https://youtu.be/wpFBNQWtebQ?si=lZR6QjoJFNr_r3l5 and https://youtu.be/ymdYZd8D8FE.

5.4.12 The full bat survey results of the buildings are given in Appendix 5.

Foraging and commuting bats

5.4.13 The habitats within the site were considered suitable for use by foraging and commuting bats, although the River Don corridor and the pond in the adjacent garden were considered to be markedly better than habitats within the site. The nocturnal surveys confirmed that the site was used by common pipistrelle, whiskered bat, and noctule but with activity at a relatively low level.

Birds

5.4.14 The Barnsley Biological Records Centre provided 2973 bird records covering a total of 111 species. None of the records were for the site itself, the closest being a record of a kestrel *Falco tinnunculus,* approximately 45 m to the south of the site.

5.4.15 During the survey a barn owl was recorded using Building 2 as a roost site. The principal roost location appeared to be a wall top below the mezzanine. No additional roost or nest locations were recorded and only one barn owl was seen during the nocturnal bat surveys. The roost was active with approximately 20 pellets as well as feathers found within the barn and a concentration of features and splashing at the southeast corner (Plate 8). The barn owl was seen leaving Building 2 during the nocturnal surveys of Building 1.

Plate 8. barn owl evidence near the southwest corner of Building 2

5.4.16 The only other bird species recorded actively using (rather than flying over) the site was woodpigeon *Columba palumbus*.

5.4.17 Barn owl are listed on Schedule 1 of the Wildlife and Countryside Act (1981 as amended) (Appendix 2), but are listed as green (least concern) on the birds of conservation concern list (Stanbury *et. al*., 2021). Woodpigeon are a birds of conservation concern amber list species.

5.4.18 Both buildings were suitable for use by nesting birds and old small nests (likely to comprise blue tits *Cyanistes caeruleus* or similar species) were present, although there was no evidence that barn owl were nesting within the building. The grassland was considered unsuitable for use by ground nesting birds due to the predator shadow from the buildings and nearby trees.

Reptiles

5.4.19 No reptile records were provided by the Barnsley Biological Records Centre. Grass snake *Natrix helveticus* was the only reptile species with potential to be present within the search area but the lack of records in this well recorded location indicates that they are unlikely to be present.

Amphibians

5.4.20 The Barnsley Biological Records Centre provided seven amphibian records. Four records of common frog *Rana temporaria*, one record of common toad *Bufo bufo*, and two records of smooth newt *Lissotriton vulgaris*. The MAGIC search identified one European Protected Species Licences for great crested newts within the 2 km search area. The licence dated from 2009 and was located approximately 1850 m northwest of the site.

5.4.21 The pond to the east of the site (Plate 9) was subject to a great crested newt habitat suitability index assessment, which identified it as having poor suitability to support great crested newts (Appendix 6). The homeowners didn't think great crested newts were present. No other ponds were nearby which may have supported a meta-population of great crested newts, in combination with the pond in the adjacent property. Given the lack of nearby suitable ponds, in combination with the 'poor' habitat

suitability index score and lack of records, it is considered unlikely that great crested newts would be present within the area.

Plate 9. The pond located to the east of the site

5.4.22 Common frogs were identified from the pond adjacent to the site by the homeowners but they mentioned that predation by herons meant that it wasn't successful as a breeding pond.

Invertebrates

5.4.23 The Barnsley Biological Records Centre provided 1852 invertebrate records comprising a total of 287 species. None of the records were located within the site itself, the closest were a 2020 record of the non-native invasive species signal crayfish *Pacifastacus leniusculus* within the River Don approximately 10 m north of the site (on the opposite site of Thurlstone Road).

5.4.24 Due to the habitats present it was considered unlikely that a particularly rare or diverse invertebrate species assemblage was present.

Invasive species

5.4.25 Aside from the signal crayfish record located 10 m north of the site mentioned above, Barnsley Biological Records Centre provided records of Japanese knotweed *Reynoutria japonica*, Himalayan balsam *Impatiens glandulifera*, and one record of Montbretia *Crocosmia pottsii x aurea = C. x crocosmiiflora.* The closest records were for Japanese knotweed located along the River Don to the north of the site – again the closest record being approximately 10 m north of the site. The knotweed records dated from 2018. No non-native invasive species were recorded during the survey, although the area adjacent to the river was not specifically checked.

Value of habitats and species

5.4.26 No records or signs of other protected or notable species / species groups were identified for the site or surrounding area. It is therefore considered unlikely that additional protected or notable species use the site. The ecological value of the habitats and species present, or potentially present is given in geographic terms (from site to international value) in Table 4 below.

Table 4. Ecological importance of each habitat, species or species group using the site

Habitat, Species or Species Group	Ecological value
g4 – modified grassland	Site
u1b5 – buildings	Site
u1b6 – other developed land	Negligible
Badger	Site (if present)
Hedgehog	Site (if present)
Bats	Local
Birds	Local
Reptiles	Unlikely to be present
Amphibians	Site
Invertebrates	Site
Invasive species	N/A

6. Assessment

6.1 Proposals

6.1.1 The assessment of impacts is based upon a consideration of the conversion of the two buildings to form three dwellings, the use of a grass grid for the driveway and parking areas, and planting of native species garden boundary hedgerows. The proposed plan is shown in Appendix 1.

6.1.2 The presence of the following protected and notable species are known, or have been assumed: badgers, hedgehogs, bats (including a whiskered bat day roost in Building 1), birds (including a barn owl roost in Building 2), common amphibian species, and common invertebrate species.

6.2 Assessment of Impacts

6.2.1 The likely potential impacts of the development were considered to comprise:

- The conversion of approximately 0.14 ha of modified grassland to vegetated garden.
- The conversion of two existing barns to form three new dwellings.
- The creation of approximately 0.09 ha of grass grid driveway and parking.
- The planting of 54 m of new species rich hedgerows between the gardens and shared driveway.
- The loss of a whiskered bat day roost and an active barn owl roost.
- The injury or killing of bats, birds, or common amphibians during the vegetation clearance and various construction activities, or (for bats specifically) through inappropriate construction materials.
- Increased lighting affecting nocturnal species such as hedgehogs, bats, and nocturnal invertebrates.
- Biosecurity risks as a result of bringing in plants, and seeds for landscaping.
- A pollution event affecting the adjacent pond.

6.2.2 Mitigation measures have been proposed with the aim of increasing the intrinsic value of the retained habitats within the site, and their value to the protected and notable species present and potentially present. Additional measures have been included to ensure the safety of protected and notable species during the proposed work. It is not anticipated that any additional impacts to the species known to be, or potentially, present within the site would arise.

6.3 Further Survey, Mitigation, and Enhancement Measures

Protection of bats

6.3.1 **As a result of a bat roost being present within the stone barn (Building 1) a mitigation licence must be obtained from Natural England in order to demolish the building**. A licence application can only be submitted once planning permission has been granted and once any pertinent planning conditions relating to wildlife have been signed off (where feasible to do so).

6.3.2 Although the building does not have any significant hibernation suitability, it cannot be

ruled out. Therefore, as a precaution, it is recommended that the demolition work occurs outside the core bat hibernation period, taken to be December to February inclusive.

6.3.3 To ensure bats are not killed or injured during the demolition, a toolbox talk must be provided to all demolition staff by an experienced bat ecologist at the start of the demolition period. The toolbox talk should identify the presence of the known bat roost to demolition contractors. The toolbox talk should highlight:

- bat protection legislation,
- the bat roost location,
- identification of signs of bats,
- the presence and location of the other potential bat roost features identified within the building (and any that may be created during the work),
- how to remove or open up suitable bat roost features where work is required, and
- what to do in the event a bat is discovered.

6.3.4 The loss of the whiskered bat roost should be mitigated for through the inclusion of two integrated bat boxes into both the converted stone barn (Figure 4) and converted modern barn (Figure 5). It is recommended that an additional release box is installed on a nearby tree, to allow any bats found during the demolition to be safely released and ensure continuous roost provision is available on site during the construction works.

Figure 4. Suitable bat box location on Building 1

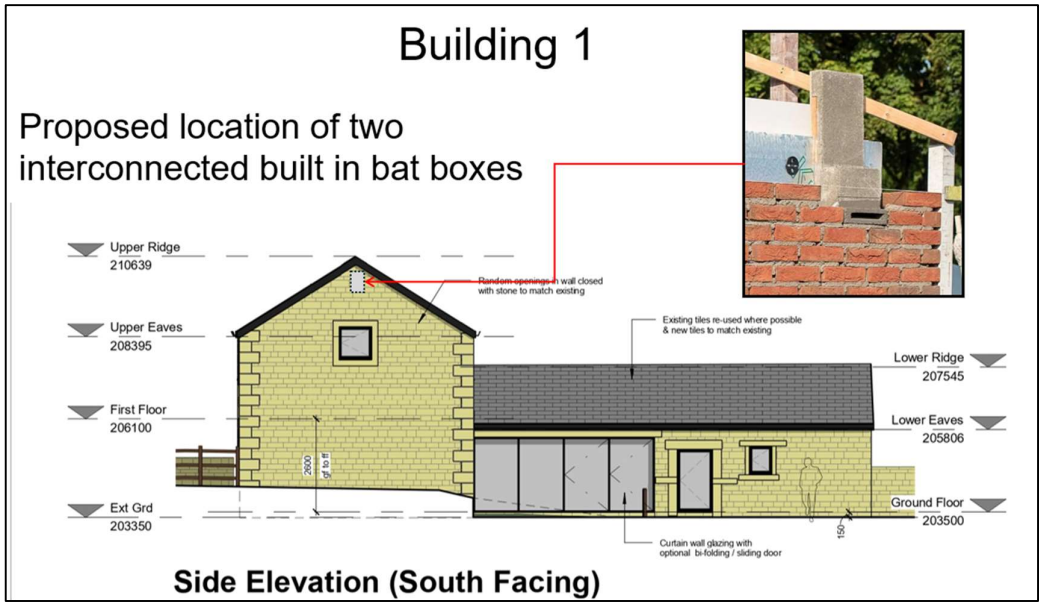
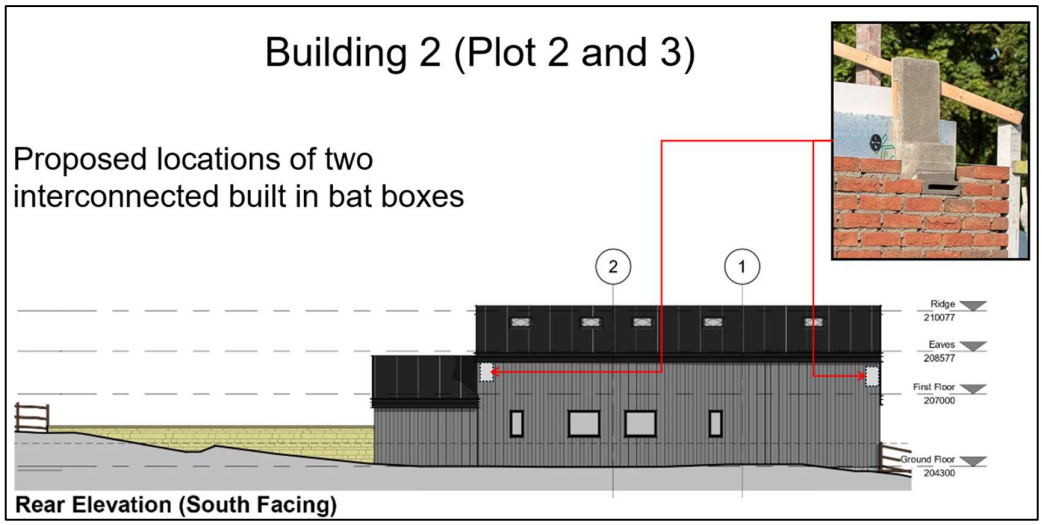


Figure 5. Suitable bat box locations on Building 2



6.3.5 We recommend the use of bat safe roofing felt as standard, with Type 1F bitumen coated felt the best option for known bat roosts or areas with bat mitigation. Standard breathable roofing felts are not safe for use in bat roosts. Further information on this issue is included in Appendix 7.

6.3.6 The design of outside lighting should be carefully considered in line with guidance from the Institute of Lighting Professionals and the Bat Conservation Trust Guidance (IILP, 2023).

Protection of birds

6.3.7 Birds such as swallows can continue to nest in buildings up to the end of September and barn owls can nest at any time of the year, although the peak nesting time is between March and August. It is recommended that construction works commence outside the peak nesting bird season if possible and, although no barn owl nest was recorded (just a roosting barn owl), it is recommended that the buildings are checked for the presence of nesting birds prior to the start of construction whatever the date. If active nests are present they must be retained with a suitable buffer until the young have fledged (Appendix 2). Barn owl are legally protected against disturbance as well as their nests being protected.

Protection of amphibians

6.3.8 It is recommended that any long vegetation is cut in two stages, with the vegetation initially removed to a height of approximately 30 cm, then subsequently cut to ground level. The vegetation should be removed in a systematic manor working outwards towards areas suitable for amphibians to retreat to. If amphibians are found, they should be left to move out of the area of their own accord, or an ecologist contacted for further advice. If they are in danger they could be physically moved and placed in a safe sheltered location nearby.

Habitat enhancement and creation

6.3.9 The new sections of hedgerow along will be planted with a native species-rich

hedgerow mix sourced from a reputable UK based supplier. If possible, the plants will be of UK provenance.

6.3.10 The hedgerows will be well watered during planting. In the three months after planting, they will be watered weekly. For the following two years they should also be watered during periods of dry weather. It is recommended that the hedgerows should be cut in late winter (January or February). The late cut would ensure the fruit and berries are available for overwintering birds. This information will be made available to the new householders. The hedgerows will also support a range of invertebrate species which will in turn support hedgehogs, bats and birds.

6.3.11 New areas of lawn to be created, or existing areas to be restored, will be sown with a grass mix that includes fine grasses and wildflowers that will thrive in short grass[2]. Advice on how to take care of a flower rich lawn is given on the Plant Life website[3]. This will benefit the invertebrates in the local area and the other wildlife such as hedgehogs, amphibians, birds and bats, that feed on them.

6.3.12 The area of grassland to the east of the buildings between the drive and Thurlstone Road will be enhanced to create an area of other neutral grassland. No fertiliser, pesticides or herbicides will be used on this area and it will be kept as permanent grassland (i.e. not ploughed or sown with other crops). The grass should not be cut between April and mid-August to allow plants to flower and seed. After cutting the arisings should be removed.

6.3.13 It is not anticipated that additional topsoil will be required. In the event it is necessary to bring in topsoil it must be peat free and compliant with British Standard: BS3882:2015.

Bird boxes

6.3.14 To compensate for the loss of the barn owl roost within Building 2, a barn owl box will be installed. This should be installed on the western elevation of Building 2. Boxes within or attached to buildings have the best success rate with tree mounted boxes better than pole mounted boxes.

6.3.15 To compensate for the loss of additional bird nesting opportunities, it is recommended that an additional three swift boxes (one per dwelling) are incorporated into the converted buildings. This is in line with the Barnsley Biodiversity and Geodiversity Supplementary Planning Document (Barnsley Metropolitan Borough Council, 2024). The boxes should be placed at wall top height, or at the top of a gable and should ideally face north, east, or west.

Nocturnal species (hedgehogs, bats, and nocturnal insects)

6.3.16 To prevent excessive light spill and disturbance to nocturnal species lighting restrictions will apply. No external lighting should be included on the southern elevation of Building 2.

6.3.17 Lighting must be low level (less than 4 m) and downwards facing. Lights must be a

[2] An example of a flower rich short sward seed mix is available from: https://www.wildflowerlawnsandmeadows.com/product/wild-flower-lawn-seed-mix/
[3] Information on how to mow a lawn to maximise the presence of wildflowers can be found at https://nomowmay.plantlife.org.uk/what-is-no-mow-may/wild-flower-lawn/

warm white colour (<2700 Kelvin) in line with good practice guidance (ILP, 2023). Where possible lighting should be activated only by PIR sensors so that for the majority of the time the site remains unlit.

Pollution

6.3.18 If storage of liquids or any refuelling on site is required it should be done in a designated location away from the western site boundary. The designated location should have spill kits available and staff within the site should be trained in their use.

6.4 Biodiversity Calculations

6.4.1 The Headline Results output of The Statutory Biodiversity Metric is presented in Appendix 8, based on the proposed site habitats shown in the proposed UK Habitats Map included as Appendix 9. The development is projected to result in a net gain of 0.13 Habitat Units (a 27.19 % gain). Although new hedgerows will be planted within the site, they will comprise garden boundary hedgerows and are therefore not included in the biodiversity net gain calculations.

6.5 Conclusion

6.5.1 The site is known to be used by roosting bats and barn owl. The impact of the proposed development in the absence of mitigation is relatively low on all other protected and notable species with a likely neutral impact predicted. The mitigation measures proposed including bat boxes and a barn owl box will help to maintain the biodiversity present within the site. The proposed development is expected to result in a significant biodiversity net gain as measured by the Statutory Biodiversity Metric.

6.5.2 The results of this survey and report are considered to be valid for a period of 24 months. After this time Middleton Bell Ecology should be contacted to determine the need for update survey.

7. References

Barnsley Metropolitan Borough Council (2024) Supplementary Planning Document Barnsley Biodiversity and Geodiversity. Available online at: https://www.barnsley.gov.uk/media/uqcn3wiv/biodiversity-and-geodiversity-spd-2024.pdf

CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal, 2nd edition.* Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.

Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines. The Bat Conservation Trust.

ILP (2023) Guidance Note 08/23 Bats and Artificial Lighting At Night. Bat Conservation Trust and Institute of Lighting Professionals.

DEFRA (2023) The Statutory Biodiversity Metric User Guide (draft). DEFRA.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10(4), 143-155.

Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., & I Win (2021) *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain.* British Birds 114: 723-747. Available online at: www.britishbirds.co.uk/content/status-our-bird-populations

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

Appendix 1. Proposed Plan

The proposed site plan is shown overleaf (not to scale).

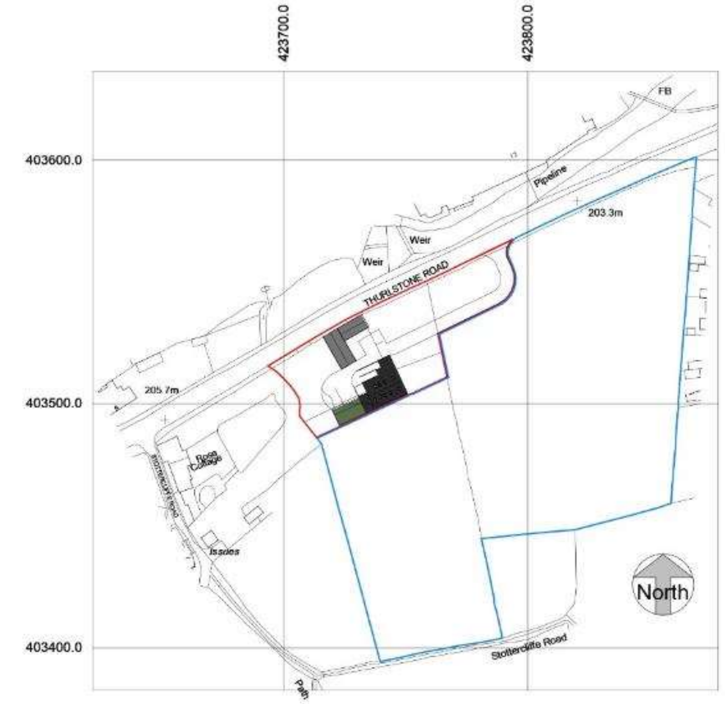
Scale 1: 50 @ A1 (1: 100 @ A3)

Scale 1: 100 @ A1 (1: 200 @ A3)

Scale 1: 200 @ A1 (1: 400 @ A3)

Scale 1: 500 @ A1 (1: 1000 @ A3)

Scale 1: 1250 @ A1 (1: 2500 @ A3)



Site Location Plan
1 : 1250

Site Plan
1 : 200

NOTES

IMPORTANT NOTES

ALL MEASUREMENTS MUST BE CHECKED ON-SITE PRIOR TO COMMENCEMENT OF ANY WORKS.

ANY UNDERGROUND DRAINAGE ROUTES ARE INDICATIVE ONLY. TBC BY BUILDER ON-SITE & APPROVED BY YW AND BC PRIOR TO COMMENCEMENT OF ANY WORKS.

CADVIS3D HOLDS NO RESPONSIBILITY FOR UNDERGROUND DRAINAGE ON-SITE. YORKSHIRE WATER MAPPING REQUEST RECOMMENDED TO CHECK FOR EXISTING UNDERGROUND DRAINAGE RUNS (IF AVAILABLE)

ALL STRUCTURAL ALTERATIONS TBC BY APPOINTED STRUCTURAL ENGINEER. ANY ALTERATIONS TO PROPOSED DESIGN DUE TO STRUCTURAL CONSTRAINTS IDENTIFIED BY ENGINEER TO BE AGREED/APPROVED BY CLIENT PRIOR TO COMMENCEMENT OF ANY WORKS

CDM DUTIES TO BE CARRIED OUT BY PRINCIPLE CONTRACTOR. PRE CONSTRUCTION INFORMATION & HEALTH AND SAFETY FILE TO BE PROVIDED BY PRINCIPLE DESIGNER PRIOR TO COMMENCEMENT OF ANY WORKS.

CLIENT TO BE MADE AWARE OF DUTIES UNDER CDM AND ENSURE HEALTH AND SAFETY MEASURES ARE IN PLACE. ALL CONTRACTORS AND DESIGNERS TO BE COMPETENT TO CARRY OUT THEIR DUTIES UNDER CDM. SEE RELEVANT GOVERNMENT WEBSITE FOR MORE INFORMATION

WORK MUST NOT COMMENCE UNTIL ALL RELEVANT BUILDING REGULATIONS APPROVALS ARE IN PLACE & CDM / HSE DOCUMENTATION IS COMPLETE AND ISSUED TO ALL RELEVANT PARTIES

DRAWING TO BE USED FOR PLANNING PURPOSES ONLY NOT FOR CONSTRUCTION

No	Date	Dr	Description

scale	drawn	apprv
As indicated	PSI	DB

date: NOV 2024

status: PLANNING

job no	dwg no	rev
2355	A(90)-01	

Cadvis3d
....making dreams happen
ARCHITECTURAL DESIGN SERVICES

Head Office:

The Towers, 237 Wakefield Rd, Lepton, Huddersfield, West Yorkshire, HD8 0DH

Tel: 01484 937123 / 07955 898269
Email: info@cadvis3d.co.uk

www.cadvis3d.co.uk

multi-award winning design

project:
Barn Conversion Project,
Old Barns, Thurlstone Road,
Penistone, S36 9QQ

client:
Mr D Barlow

title:
Site Plan - As Proposed

Appendix 2. Relevant Legislation and Planning Policy

Wildlife legislation relating to statutory designated sites and species is summarised in Table A2.1 and A2.2 below. This legal information is intended for summary only, and the original legal documents should be consulted if a detailed understanding is required.

Table A2.1. Legislation relating to designated sites and habitats

Designated Site	Legal Status
Local Nature Reserves (LNR)	LNRs are of local, but not necessarily national, importance. An LNR can also be an SSSI (Site of Special Scientific Interest), but often is not, or may have other designations. Except where the site is an SSSI, there is no legal necessity to manage an LNR to any set standard and there is no national legal protection specifically for LNRs. An LWS has certain protection against development on and around it. This protection is usually given via the local plan, (produced by the Local Planning Authority (LPA), and often supplemented by local by-laws.
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.
Hedgerows	Hedgerows that meet certain criteria are protected by The Hedgerows Regulations 1997, under which it is an offence to remove or destroy such hedgerows without permission from the Local Planning Authority.

Table A2.2. Legislation relating to species

Species	Legal Status
European protection	
European Protected Species (EPS) (including bats	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

Species	Legal Status
	• 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.
National protection	
European Protected Species and other species including adder, grass snake, common lizard, and water vole	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.
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.

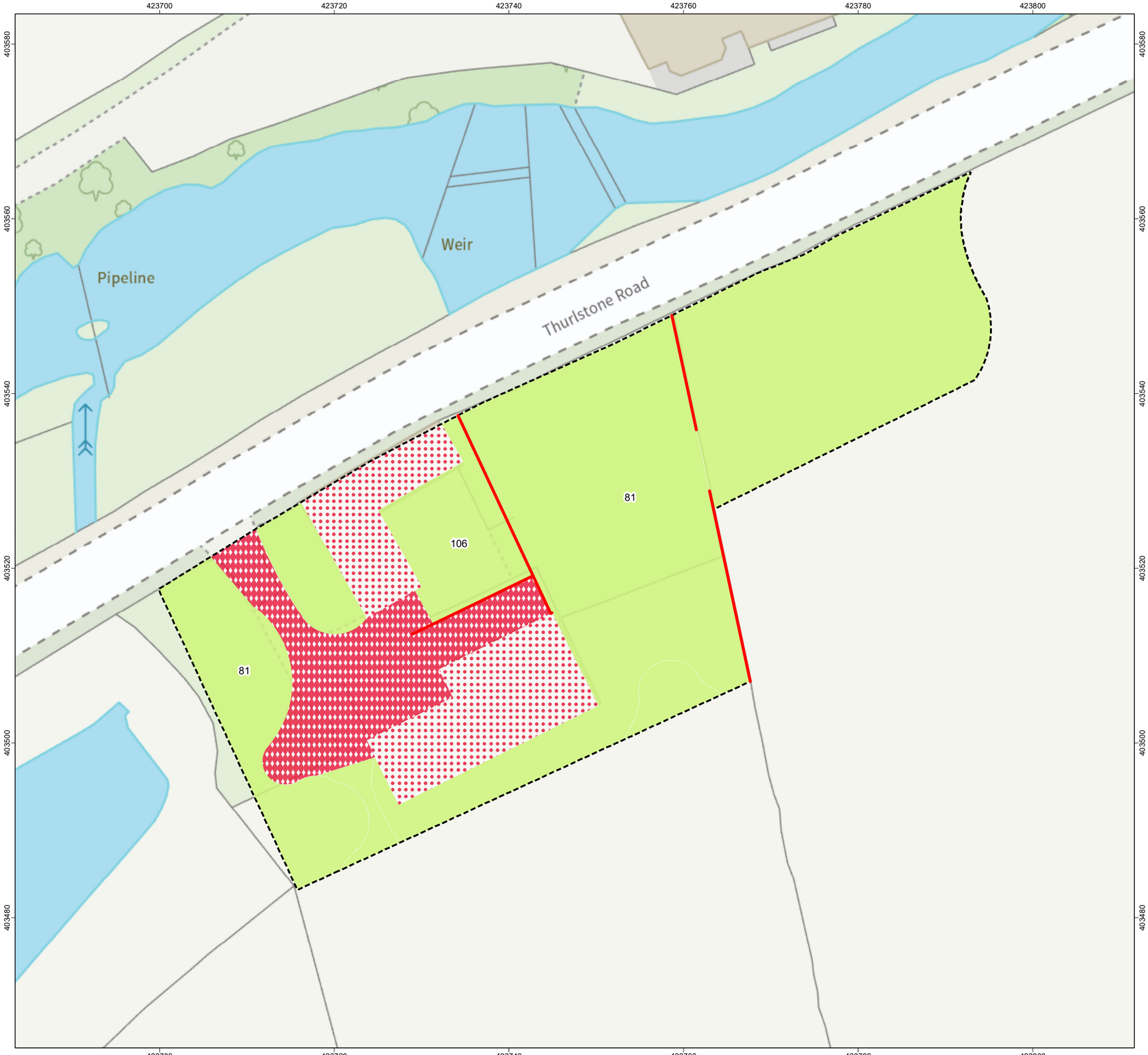
Species and Habitats of Principal Importance

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 2024. This document states that plans should 'protect and enhance biodiversity by identifying sites of importance for biodiversity' and the conservation, restoration and re-creation of priority habitats, and ecological networks and should 'pursue opportunities for securing measurable net gains for biodiversity'. It also puts an emphasis on refusing development which would result in 'significant harm to biodiversity which cannot be mitigated or compensated for' or the 'loss or deterioration of irreplaceable habitats (such as ancient woodland)' unless there are 'wholly exceptional reasons and a suitable mitigation strategy exists'.

Appendix 3. UK Habitat Classification Plan



Survey Information	
	Survey area (3,300.0m^2)
UK Habitat Survey (Primary Habitats)	
	g4 - Modified grassland (2,480.0m^2)
	u1b5 - Building (429.6m^2)
	u1b6 - Other developed land (390.4m^2)
	114 - Dry stone wall (76.3m)

Secondary codes:

81 – Ephemeral or ruderal
106 - Mown

N

0 2.5 5 10 15
Metres

PROJECT TITLE

LAND AT THURLSTONE LANE

DRAWING TITLE

Figure 1. UK Habitat Survey Plan

VER	DATE	REMARKS	Drawn	Checked
2.0	13/12/24	UKHab	MP	GS

DRAWING NUMBER:

MIDDLETONBELLECOLOGY/Land ThurlstoneLane/UKHab

SCALE	PLOT SIZE	DATUM	PROJECTION
1:425	A3	OSGB	BNG

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

Appendix 4. Plant Species Recorded on Site

The plant species and their relative abundance within the habitats present on site are shown in Table A4.1 below.

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

Table A4.1. Plant species recorded and their relative abundance

Common name	Latin name	DAFOR
ribwort plantain	*Plantago lanceolata*	A
Yorkshire fog	*Holcus lanatus*	F
rough meadowgrass	*Poa trivialis*	LA
false oat grass	*Arrhenatherum elatius*	R
cocksfoot	*Dactylis glomerata*	R
perennial rye grass	*Lolium perenne*	R
timothy grass	*Phleum pratense*	R
creeping buttercup	*Ranunculus repens*	F
white clover	*Trifolium repens*	F
bush vetch	*Vicia sepium*	F
creeping thistle	*Cirsium arvense*	LA
common nettle	*Urtica dioica*	LA
cleavers	*Galium aparine*	LF
greater willowherb	*Epilobium hirsutum*	LO
birdsfoot trefoil	*Lotus corniculatus*	LO
bramble	*Rubus fruticosus*	LO
meadow buttercup	*Ranunculus acris*	O
cow parsley	*Anthriscus sylvestris*	R
mugwort	*Artemisia vulgaris*	R
rosebay willowherb	*Chamerion angustifolium*	R
herb robert	*Geranium robertianum*	R
soft rush	*Juncus effusus*	R
curled dock	*Rumex crispus*	R
broad-leaved dock	*Rumex obtusifolius*	R
ragwort	*Senecio jacobaea*	R
lesser stitchwort	*Stellaria graminea*	R
dandelion	*Taraxacum officinale*	R
red clover	*Trifolium pratense*	R

Appendix 5. Bat Survey Results

Building inspections

Building descriptions, and the features suitable for use by roosting bats are shown in Table A5.1 below.

Table A5.1. Bat Survey Results

<table>
<tr><td rowspan="4">Building 1

Moderate bat roost suitability</td><td colspan="2"> 

  </td></tr>
<tr><td>Description</td><td>Two storey stone barn with single storey extension to make an L shape. The two-pitched roof of both the two and single storey sections were covered with stone slates. The two storey section had been relatively recently reroofed, the slates were backed with a breathable membrane, and it was in good condition. The roof was supported by queen post trusses, purlins and rafters. The single storey section had not been reroofed and it was backed with a blue plastic liner, some of the slates and liner had been damaged at the eastern end.</td></tr>
<tr><td>Features of bat potential</td><td>Cracks in masonry (a), missing and slipped slates (b and c), and a missing ridge tile (d). Bats could also access the barn via open doorways and windows with additional roosting opportunities internally on top of roof timbers and wall tops.</td></tr>
<tr><td>Bat evidence</td><td>None recorded.</td></tr>
</table>

<table>
<tr><td rowspan="4">Building 2

Negligible bat roost suitability</td><td colspan="2"> 
  </td></tr>
<tr><td>Description</td><td>A two-storey modern barn with an internal mezzanine storage platform. A single storey extension was present at the western end of the building. The building was constructed from a concrete frame with concrete blocks. The two storey section had a two pitched roof and the single storey section had a lean-to roof. The top section of the walls and the roof were covered by corrugated fibre-cement boards.</td></tr>
<tr><td>Features of bat potential</td><td>The walls at the western end of the single storey section were constructed from hollow concrete blocks which can be used by roosting bats. However these blocks were thoroughly inspected from a ladder with an endoscope and found to be lacking any bats or signs of bats.
  </td></tr>
<tr><td>Bat evidence</td><td>None recorded.</td></tr>
</table>

Nocturnal surveys

7th August 2024 – dusk emergence survey

The temperature at the beginning of monitoring was 15^0C, with four oktas cloud cover and a light to gentle breeze (Beaufort Scale 2 – 3). The temperature dropped to 14^0C

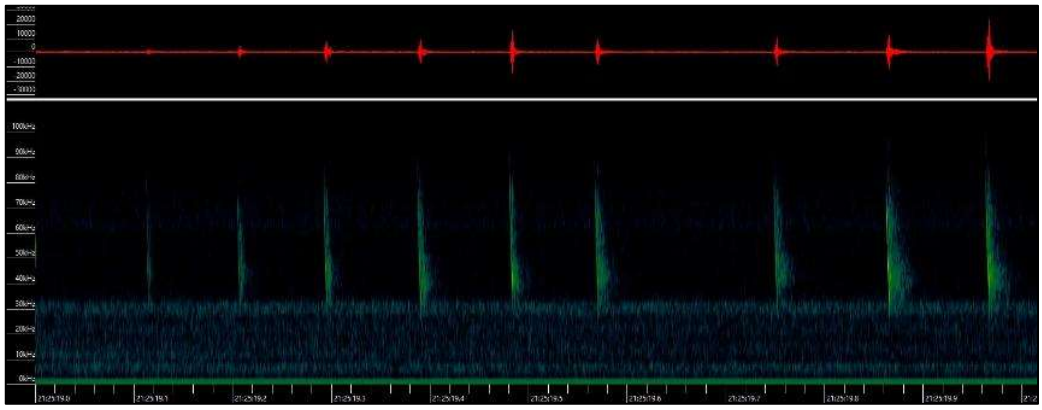
during the survey and the cloud cover dissipated, with the wind becoming more consistently Beaufort Scale 3. No rain was recorded throughout.

Sunset was at 20:50. The light levels in front of the north elevation of the building were considered to be relatively high during the survey, as that elevation was lit by the nearby streetlights (Plate A5.1).

Plate A5.1. View of B1 from Surveyor Position 3 at 21:56 on 7th August 2024 (66 minutes after sunset)

A bat considered to be a whiskered bat was recorded emerging from a wall top roost at the southern gable end of B1 at 21:25 (35 minutes after sunset). A video of the emerging bat is available here: https://youtu.be/wpFBNQWtebQ. The bat was identified as a whiskered bat on the basis of its sonogram, roost location, and emergence time. A screenshot of the sonogram of the emerging bat is given in Plate A5.2 below.

Plate A5.2. Sonogram of the emerging whiskered bat



The first bat recorded during the survey was the emerging bat followed by a common pipistrelle recorded at 21:30 (40 minutes after sunset) and a noctule recorded at 21:34 (45 minutes after sunset). Other than the emerging bat no additional *Myotis* activity was recorded during the survey, common pipistrelle acticity was relatively sporadic and noctule activity was only recorded on two occasions. Overall the level of bat activity

recorded by the surveyors was low.

5th September 2024 – dusk emergence survey

The temperature at the beginning of monitoring was 15^0C, with full (eight oktas) cloud cover and a gentle breeze (Beaufort Scale 3). Over the course of the survey the temperature dropped to 14^0C, the wind and cloud cover remained the same. No rain was recorded throughout. Sunset was at 19:45.

A bat of a *Myotis* species, thought to be the a whiskered bat, was again recorded emerging from the southern gable of the building at 20:27 (42 minutes after sunset). A video of the emerging bat is available at: https://youtu.be/ymdYZd8D8FE.

The first bat recorded during the survey was a common pipistrelle recorded at 20:14 (29 minutes after sunset). Common pipistrelle were then recorded relatively regularly by the surveyor in position 1 and it was considered likely that this activity was associated with the River Don to the north. Other than the emerging bat, only one additional instance of *Myotis* activity was recorded. This was recorded late in the survey at 21:07 (82 minutes after sunset).

No other bat species were recorded.

Records

In accordance with best practice and the requirements of bat licensing, bat records collected during surveys are supplied to the relevant biological record centres and bat groups. The records to be supplied in accordance with this survey are shown below. House names/numbers are not given out by record holding organisations except under very particular circumstances

Date	Species	Address	OS Grid Reference	Notes
05/09/2024	Whiskered bat	Thurlstone Barns, Thurlstone	SE 23727 03521	Roost – 1 bat
05/09/2024	Common pipistrelle	Thurlstone Barns, Thurlstone	SE 23737 03517	In flight record
07/08/2024	Noctule	Thurlstone Barns, Thurlstone	SE 23737 03517	In flight record

Appendix 6. Pond HSI Results

Pond Number	Location	Pond Area	Pond Drying	Water Quality	Shade	Fowl	Fish	Ponds	Terrestrial Habitat	Macrophytes	HSI	Suitability
Pond 1	Zone A	c. 550 m^2	Never Dries	Moderate	25 %	Major	Possible	0	Moderate	5 %	0.40	Poor

Appendix 7. Roofing and Cladding Membranes

Standard roof membranes can cause the death of significant numbers of bats. Traditional bitumen coated roofing felt is recommended where roosting bats are expected to be present.

The problem

Standard non-bitumen coated membranes (including most breathable membranes) used below roof slates and tiles present a significant problem for bats. Over time, strands pull away from the surface of these materials as bats crawl over them. These fuzzy strands are very strong and can tangle and trap bats, sometimes causing the death of bats over multiple years[4].

One example we have encountered comprised a pipistrelle roost which formed in a building extension constructed in 2009. Over the course of just 13 years the roofing felt degraded to the extent that it trapped and killed more than 10 bats. Fortunately, the problem in this roost was identified and remedial work was undertaken to replace the roofing membrane in 2022.

Plate A3.1. Four dead pipistrelles tangled in breathable roofing membrane

Although a new roof might be considered to lack potential bat access points, that is often not the case. Roofs covered with stone slates almost always have gaps large enough to be accessed by bats, this is often also the case where imitation stone slates are used. On older buildings the uneven roof timbers and/or building design also often results in gaps on wall tops and between slates. Even on new builds it is often possible for bats to access potential roosts via features such as dry verge capping. Some bats can access a space no wider than a biro pen, therefore it is not surprising that they can find their way into most buildings.

Safe roofing membranes (and membranes behind cladding)

From a bat perspective, the best membrane option for areas where roosts are expected comprises traditional hessian-backed Type 1F bituminous felt. This product has been widely and safely used as a secondary weather barrier since approximately the 1950s/1960s. Wooden sarking has also been used for many decades and if appropriately treated, is safe for use in bat roosts. Wooden sarking also has the benefit of providing adding additional insulation

[4] Wearing S. Essah E., Gunnel K. & Bonser R. (2013) Double jeopardy: the potential for problems when bats interact with breathable roofing membranes in the United Kingdom. Architecture and Environment

and is usually breathable.

At the time of writing (and to our knowledge) two products have passed the 'snagging propensity' test; consequently these products are approved by Natural England for use in bat roosts. This test attempts to replicate the wear and tear which results from bats crawling over the membrane. The approved products are: TLX BatSafe[5,6] and SIGA Majcoat 350. Although they have passed this test, it is unclear how these membranes will degrade in the medium and long term, particularly in larger bat roosts. Therefore we do not recommend that they are used for roosts with multiple bats, and particularly for large (maternity roosts). A third product, SIGA Majcoat 200 SOB Diffusion, passed the test for its upper surface only. This product should not be used in known bat roosts or locations where bat mitigation is to be installed. Although none of these products are considered to be as safe as traditional Type 1F bituminous felt, they may provide an option for roofs where future bat use cannot be ruled out, and a breathable solution is required.

Additional considerations

In recent years a fairly substantial proportion of the lofts we have surveyed which had existing breathable felt, were found to have been damaged by wasps (Plate A3.2). The wasps appear to have chewed holes in the felt and formed nests. This doesn't appear to be a problem associated with traditional bitumen coated roofing felt. Any holes within roofing felt are likely to significantly reduce its functionality as a secondary weather barrier. Where bats or birds come into contact with breathable roofing membranes, they can also damage it causing it to leak, they can also significantly reduce the breathability of the felt in that location.

Plate A3.2. Damage to a breathable roofing membrane adjacent to a wasp nest

Traditional bituminous Type 1F roofing felt is a non-breathable product and therefore ventilation is required. Sufficient ventilation can be usually be achieved, even in buildings with vaulted ceilings, however, some consideration during the design stage is required. Products to increase the ventilation within roofs where bituminous Type 1F felt has already been installed are also available.

[5] https://www.gov.uk/government/publications/bats-apply-for-a-mitigation-licence#full-publication-update-history:~:text=Use%20of%20safe%20roofing%20membranes

[6] TLX BatSafe requires all joints and cut edges to be taped in order to prevent the fraying of bare edges.

Appendix 8. Biodiversity Net Gain Headline Results

The Biodiversity Net Gain Final Results show a net gain of 0.13 Habitat Units (a 27.19 % gain).

Headline Results

Return to results menu

Scroll down for final results ⚠

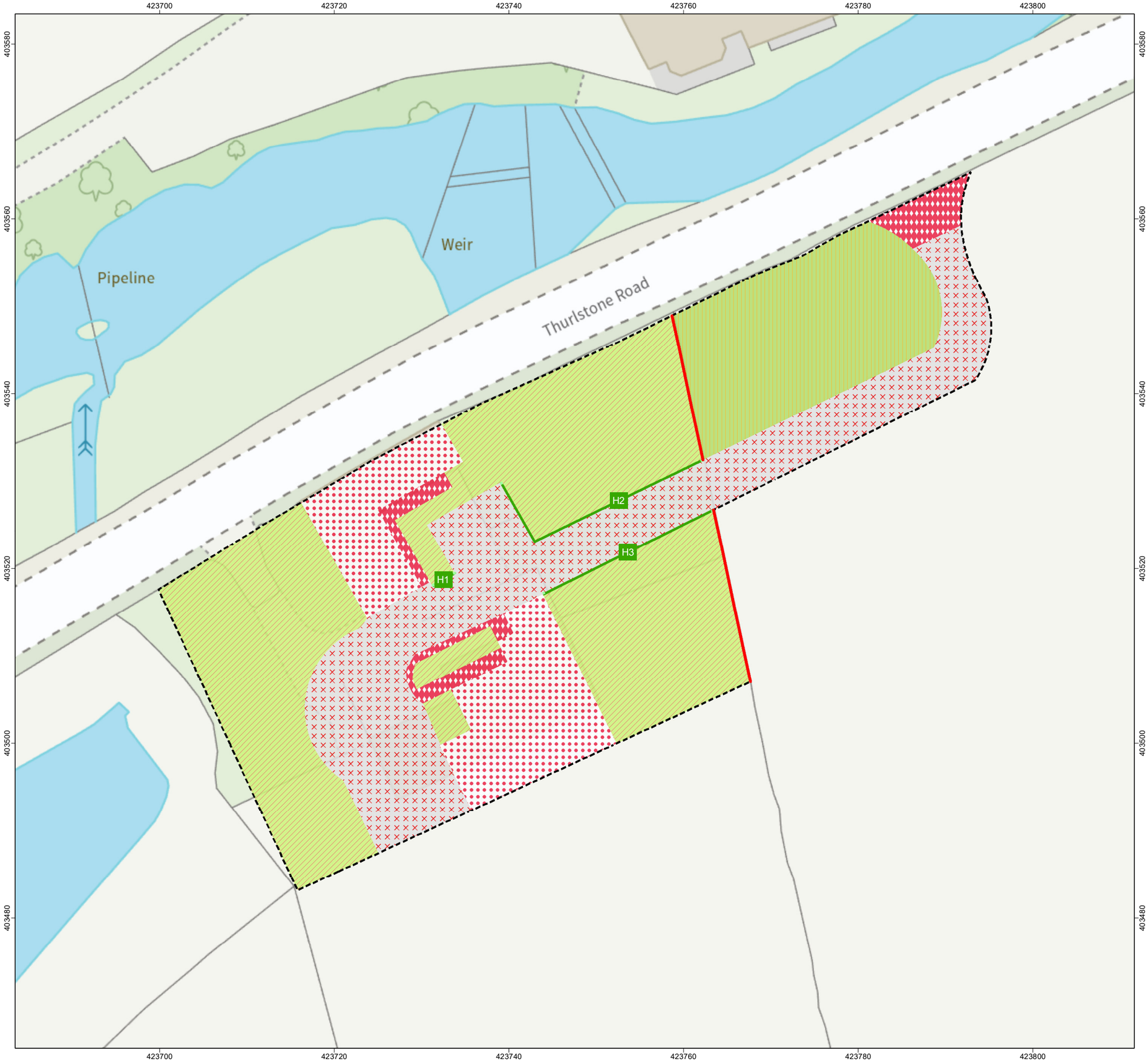
On-site baseline	*Habitat units*	0.50
	Hedgerow units	0.00
	Watercourse units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.63
	Hedgerow units	0.00
	Watercourse units	0.00
On-site net change (units & percentage)	*Habitat units*	0.13
	Hedgerow units	0.00
	Watercourse units	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
	Hedgerow units	0.00
	Watercourse units	0.00
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.13
	Hedgerow units	0.00
	Watercourse units	0.00
Spatial risk multiplier (SRM) deductions	*Habitat units*	0.00
	Hedgerow units	0.00
	Watercourse units	0.00

FINAL RESULTS

Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.13
	Hedgerow units	0.00
	Watercourse units	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	27.19%
	Hedgerow units	0.00%
	Watercourse units	0.00%
Trading rules satisfied?	Yes ✓	

Unit Type	Target	Baseline Units	Units Required	Unit Deficit
Habitat units	10.00%	0.50	0.55	0.00
Hedgerow units	10.00%	0.00	0.00	0.00
Watercourse units	10.00%	0.00	0.00	0.00

Appendix 9. Proposed Plan Shown Using The UK Habitat Classification System



Survey Information	
	Survey area (3,300.0m^2)

UK Habitat Survey (Primary Habitats)	
	g3c - Other neutral grassland, enhanced (485.5m^2)
	u1b5 - Building (427.5m^2)
	u1b6 - Other developed land (106.9m^2)
	u1f - Sparsely vegetated urban land (853.9m^2)
	828 - Vegetated garden (1,426.2m^2)
	h2a5 - Species-rich native hedgerow (54.1m)
	114 - Dry stone wall (37.0m)

N

0 2.5 5 10 15
Metres

PROJECT TITLE

LAND AT THURLSTONE LANE

DRAWING TITLE

Figure 2. Proposed Habitat Plan

VER	DATE	REMARKS	Drawn	Checked
2.0	13/12/24	Proposed	MP	GS

DRAWING NUMBER:
MIDDLETONBELLECOLOGY/Land ThurlstoneLane/Proposed

SCALE	PLOT SIZE	DATUM	PROJECTION
1:425	A3	OSGB	BNG

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