Old Row, Barrow

Preliminary Ecological Appraisal Report

ER-6446-01

THT and L&Q Developments LLP

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Report reference	**ER-6446-01**
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Summary

This report is produced to inform THT and L&Q Developments LLP of potential ecological constraints associated with their proposed development site and the need for further reporting or output to support a planning application.

This report is based on a desk study of designated wildlife sites and records of protected or notable species, and an extended Phase 1 Habitat Survey carried out in September 2022.

Key Findings

The Site is of generally low ecological value, with mature trees bordering the Site providing the most value.

Surveys to confirm the status of roosting bats in buildings on-site are recommended.

The invasive non-native species Japanese knotweed and cotoneaster are both present on-site.

Metric score

The Site has been calculated to provide 3.44 Habitat Units and 0.81 Hedgerow Units. The development of the Site is unlikely to result in a net gain in Habitat Units, as such an off-setting contribution may be required.

Introduction

1. Brooks Ecological Ltd was commissioned by THT and L&Q Developments LLP to carry out a Preliminary Ecological Appraisal (PEA) of land at Old Row, Barrow.
2. This report is produced with reference to British Standard BS:42020 'Biodiversity Code of Practice for Planning and Development' and the CIEEM (2017) Guidelines for Preliminary Ecological Appraisal.

Purpose of a PEA

3. A PEA is an *initial assessment* of the baseline for a proposed development site and establishes whether the Site is likely to be constrained by ecology, and whether more information is needed to identify the ecological baseline.
4. The subsequent Preliminary Ecological Appraisal Report (PEAR) is intended to give guidance to a developer and assist with the early stages of project planning and design. Where a site is not complex or constrained, and no additional ecological input is necessary the PEAR *may* be sufficient, and suitable to support a planning application.
5. Biodiversity Accounting metrics are used to quantify the value of a Site in Biodiversity Units - which helps in the later stage of assessing the ecological impacts of the proposed development.
6. Biodiversity Units can help to inform avoidance, or on-site mitigation levels required; or as a last resort can translate to a direct monetary value where compensation (off-site) is required. Please be aware that they *can* significantly impact on costs and viability.

The Site

7. The application site 'the Site' comprises a single field with open access, an area used as a car park and a disused pub, with buildings and a garden.
8. The assessment uses a 2km area of search around the Site for records of protected and notable species and locally or nationally designated wildlife sites.

Figure 1 The Site (red line boundary).

Desk Study

Landscape

9. The Site is located at the north-eastern edge of the town of Barrow, approximately 3.7km south of Clitheroe.
10. The Site is bordered to the north, west and south by built-up areas of Barrow. To the east, fields used for grazing are present.
11. The wider landscape follows a similar trend, with more urban areas to the south, and farmland beyond. The Site is bound to the east by the A59 road.

Wildlife Corridors

12. The Site has poor connectivity to the wider landscape, with small and scattered trees and hedgerows in the immediate vicinity.
13. In the wider landscape, a railway line and the River Ribble act as features that could be used by a variety of species, but they are functionally separated from the Site.

Figure 2 Analysis of wildlife corridors and higher value habitat visible on mapping in relation to the Site.

Designated Sites

Statutory Designations

14. A search has been made to identify any nationally designated sites within a 2km radius of the Site, or internationally designated sites within a 10km radius. The results are shown in the below table.

Table 1 Statutory Designated Sites.

Site Name	Distance from Site	Designation	Summary Interest
Light Clough	Approx. 1.4km south-east	Site of Special Scientific Interest (SSSI)	Designated for geological reasons.

15. Direct and indirect impacts on the statutory designated site as a result of this development are unlikely due to the Sites separation and distance.

SSSI Impact Risk Zones (IRZs)

16. The Site lies within the IRZ for the Light Clough SSSI but does not fall into any of the highlighted categories which require the LPA to consult with Natural England in relation to potential impacts.

Non-Statutory Designations

17. There are seven Biological Heritage Sites in the search area. These are listed below and shown in Figure 3 overleaf.

- Calderstones Hospital Woodland/Railway Line
- Barrow Clough Wood
- Spring Wood
- Small Field
- Barrow Brook Field
- River Ribble from London Road Bridge, Preston, in West, to County Boundary, in East
- Hard Hill Common

18. None of the locally designated sites listed opposite are assessed as being within the Site's Ecological Zone of Influence (EZoI), given the Site's separation and distance, together with the nature of the proposals.

19. Direct and indirect impacts on locally designated sites, as a result of the proposals, would therefore not be expected.

Nature Improvement Area

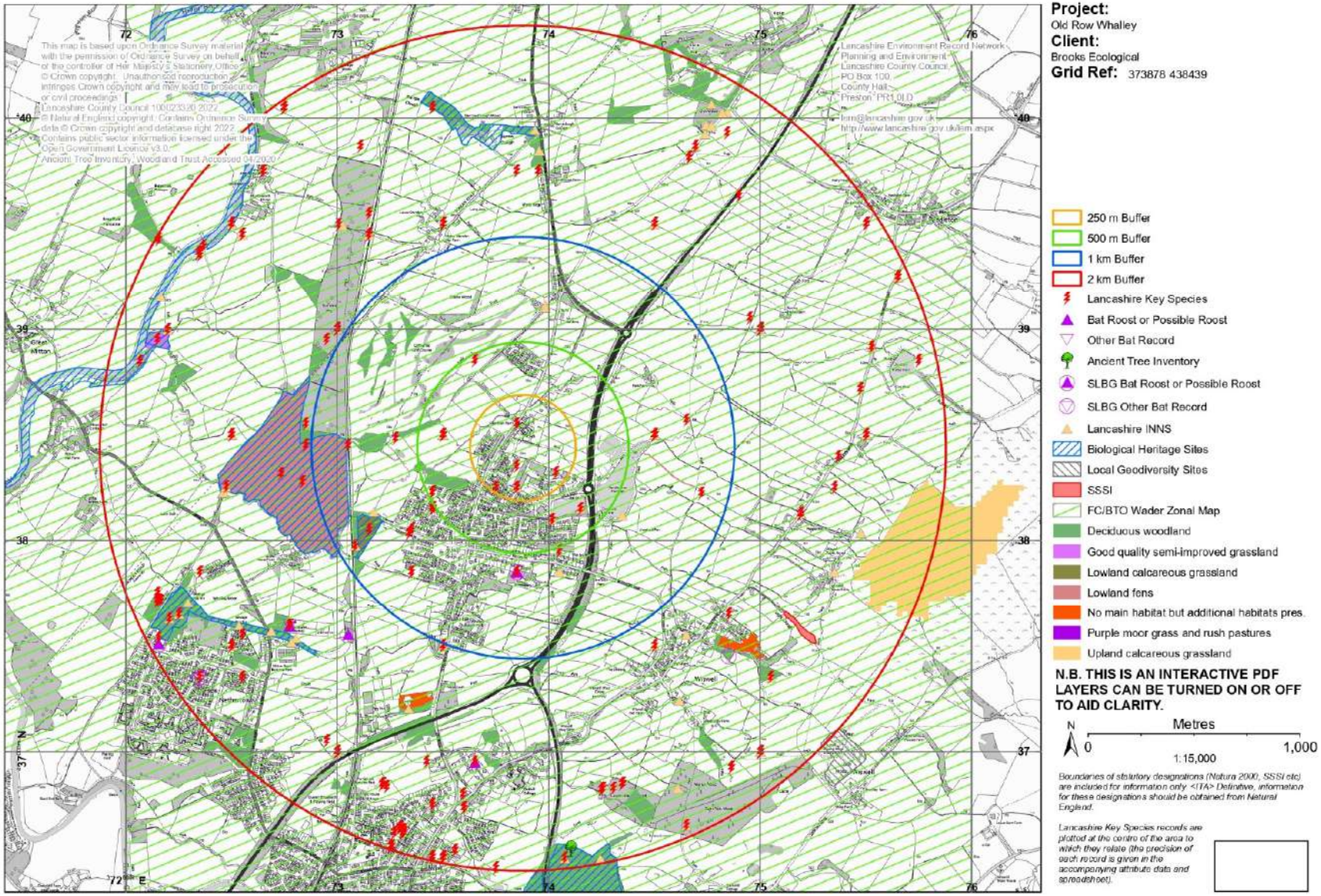
20. The Site is not located in a Nature Improvement Area.

Granted EPSM Licenses

21. A single European Protected Species Mitigation license has been issued within 1km of the Site.

22. A license allowing the destruction of a resting place for common pipistrelle was issued in 2011, approximately 700m south of the Site.

Figure 3 Lancashire Environment Record Network; Species and Designated Sites.



Survey

23. The survey was carried out during September 2022[1] and followed the principles of Extended Phase 1 Habitat Survey methodology (JNCC, 2010).

24. Enough time was afforded the surveyor to carry out the survey. The survey was not constrained by poor weather.

25. Whilst the majority of the Site was accessible, at least 10% of the Site was inaccessible due to very dense vegetation, which could not be closely inspected. This could have concealed invasive species or protected species evidence.

Habitat Appraisal

26. The Site's habitats are described in order on the following pages. In line with the requirement to provide information on **Biodiversity Net Gain (BNG**), habitats are named in accordance with the UK Habitats classification system - we have used the relevant UK Habs guidance in identifying habitats. Habitat descriptions are divided into the 'distinctiveness' categories used in the calculations - with more weight being afforded the more distinctive / important habitats.

27. Generally, the following apply to each tier of distinctiveness; although some authorities might highlight some lower distinctiveness habitats as having a higher importance locally. Where relevant we have highlighted these.

    Very Low Distinctiveness Habitats

28. Habitats of little or no habitat value i.e., lacking any significant native vegetation, but could still provide supporting habitat for protected or notable fauna such as birds or bats. In the context of BNG - their areas are included in calculation, but mitigation or compensation is not required.

    Low Distinctiveness Habitats

29. Habitats which are ubiquitous, often which have been created or modified by man. They tend to lack diversity of species and structure. They are unlikely to support notable flora but could still provide supporting habitat for protected or notable fauna. In the context of BNG they are included in calculations, but compensation / mitigation needs only to provide habitat of similar or higher distinctiveness.

    Moderate Distinctiveness Habitats

30. Habitats which are common but provide a higher level of structural and species diversity, though unlikely to support more notable assemblages, species of interest could be present here and they are more likely to be important supporting habitat to fauna. In the context of BNG mitigation needs to provide habitat of the same broad habitat type, or that of higher distinctiveness.

    High Distinctiveness Habitats

31. These are habitats which are more natural and contain more important assemblages of plants and potentially species which are rare in their own right. They will provide good supporting habitat for fauna. These habitats are likely to be targeted as conservation priorities and will be the subject of additional policy guidance or legislation. In the context of BNG whilst mitigation or compensation for loss or damage is possible, provision of more of the same type of habitat would be required – which (with a few exceptions) is likely to be difficult.

    Very High Distinctiveness Habitats

32. These are the UKs rarest / best habitats. They will be present in very particular locations and a range of rare or important plant and animal species will depend on the particular conditions they provide. These habitats will be the subject of restrictive policy guidance or legislation. Whilst the BNG metric does not preclude mitigation or compensation in respect of these habitats, creation of the same habitat type would be required and this would range between very difficult/expensive and impossible.

33. Each habitat is mapped and an area for each type is provided in the format of the DEFRA Biodiversity Metric 3.1 Calculation Tool. The areas can be used to quantify the impacts of development in an Ecological Impact Assessment if this is required by the Local Planning Authority.

Condition Assessment

34. Our condition assessment for each habitat described references where available the criteria set out in DEFRA (2021) Biodiversity Metric 3.1 Technical Supplement (1).

35. Habitats in the Low Distinctiveness tier tend to fall into the poor condition category by default. Where we feel this is not the case, we have explained our reasoning.

36. Habitats within the other higher tiers can fall into a range of conditions. We set out our reasoning based on the given criteria and guidelines.

[1] This Report has been prepared during October 2022 following a visit to the site in September 2022 and our findings are based on the conditions of the site that were reasonably visible and accessible at that date. We accept no liability for any areas that were not reasonably visible or accessible, nor for any subsequent alteration, variation or deviation from the site conditions which affect the conclusions set out in this report.

Habitats of Low/Very Low Distinctiveness

Figure 4 Approximate location and extent of these habitats.

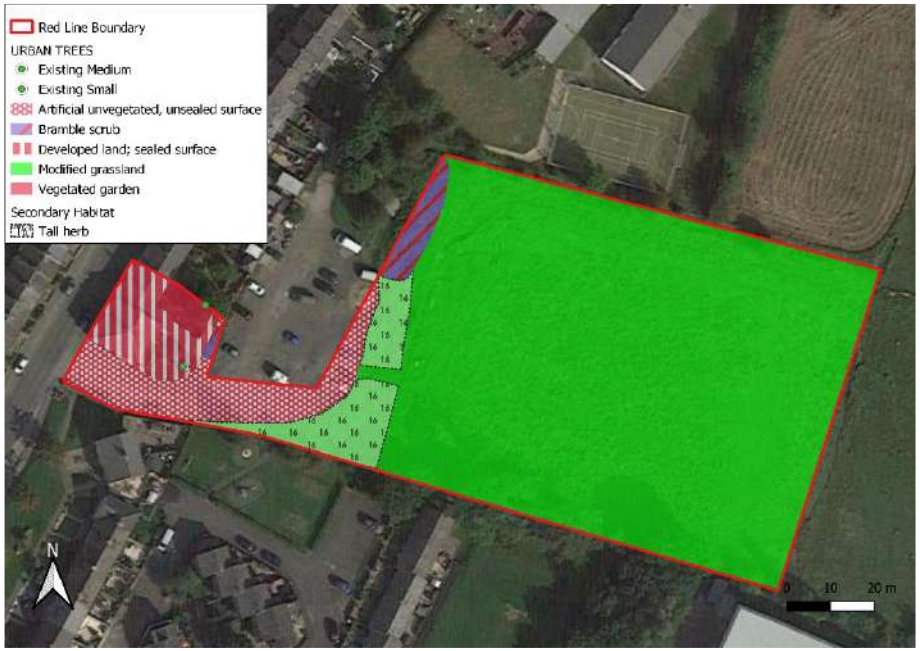


Table 2 Summary – Habitats of Low / Very Low Distinctiveness.

Habitat	Summary Description	Condition
g4 Modified grassland	The majority of the Site is covered by species-poor grassland. Palatable grasses are dominant including perennial rye grass, Yorkshire fog, crested dog's tail, red fescue, cock's foot and common bent, with forbs restricted to few widespread species such as creeping thistle, broad-leaf dock, ribwort plantain, creeping buttercup and white clover. An area close to the car park is covered by a variety of tall herb species such as nettles, rosebay willowherb and common hogweed. Note survey carried out outside of optimal period for assessing make up and condition of grassland.	Moderate

Grassland (low distinctiveness)		
	Pass/Fail	**Condition**
6-8 species?	P	6-7 including criterion 1 = Good 6 excluding criterion 1 = Moderate 4-5 = Moderate 0-3 = Poor
Varied sward height?	F	
Scrub <20%	P	
Damage <5%	P	
Bare ground 1-10%?	F	
Bracken <20%	P	
Absence of invasives	P	

Urban Tree	Two trees are present, close to the disused pub: one small willow and one medium ash.	Poor

Urban trees (including street trees)		
	Pass/Fail	**Condition**
>70% natives	P	5-6 = Good 3-4 = Moderate 0-2 = Poor
Continuous canopy gaps <10%	F	
Mature or veteran tree or 50% of block is	F	
No pruning evidence	P	
Deadwood, cavities etc. for birds	F	
> 20% canopy oversailing vegetation	F	

u1c Artificial unvegetated, unsealed surface	Hard standing/gravel surface used as a car park.	n/a
h3d Bramble scrub	Found in two places, one is a dense patch of bramble bordering the car park to the east, and the other is a small patch at the rear of the disused pub garden.	n/a
u1b Developed land; sealed surface	Buildings and hard standing land. Includes a disused pub and outbuildings.	n/a
231 Vegetated garden	A garden area, now unmanaged at the rear of the disused pub. Overgrown with ivy, raspberry, nettles, bindweed and small self-set saplings of willow.	n/a

Habitats of Low/Very Low Distinctiveness

Figure 5 – View of developed land; sealed surface

Figure 6 – View of vegetated garden

Figure 7 – View of modified grassland

Figure 8 – View of artificial unvegetated surface

Figure 9 – View of bramble scrub

Figure 10 – View of small urban tree

Habitats of Medium Distinctiveness

Figure 11 Approximate location and extent of these habitats.

w1g6 – Line of Trees

37. Two lines of trees are present: Hedgerow 1 on the northern boundary (line of trees associated with bank or ditch) and hedgerow 2 (line of trees) on the southern boundary.

38. (1) A short stretch of outgrown hawthorn trees, associated with a dry ditch. The ditch is filled with rosebay willowherb and bramble, as well as reed canary grass in places. Honeysuckle is growing over the bramble scrub towards the western end of the line of trees.

39. (2) A line of trees with a mixture of species and ages. Species present are hawthorn, willow, oak, apple, ash and elder. Specimens of oak and ash are mature. Ground flora beneath the trees is typical of the grassland found on-site, with a higher proportion of ruderal species such as hogweed and nettles.

40. All of the grassland is recently established, disturbed and relatively species poor.

Defra Metric Condition Assessment – Poor/Moderate

Line of trees			
	Pass/Fail		**Condition**
	1	**2**	
>70% natives	P	P	5 = Good
Continuous canopy gaps <10%	F	P	3-4 = Moderate
One mature or veteran tree	F	P	0-2 = Poor
6m veg strip either side	F	F	
95% plus trees healthy	F	P	
	Poor	Moderate	

Figure 12 View of northern tree line.

Figure 13 View of southern tree line.

DEFRA Metric (Baseline)[2]

41. This metric sets out the baseline for the Site - proposals should seek to **Avoid** areas of higher value, **Mitigating** any loss on-Site through retention and enhancement, or habitat creation.

Old Row, Barrow

A-1 Site Habitat Baseline

Condense / Show Columns | Condense / Show Rows | Main Menu | Instructions

	Habitats and areas			Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Ref	Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
1	Grassland	Modified grassland	0.7975	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required ≥	3.19
2	Heathland and shrub	Bramble scrub	0.0174	Medium	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required (≥)	0.07
3	Urban	Artificial unvegetated, unsealed surface	0.0708	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
4	Urban	Developed land; sealed surface	0.0412	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
5	Urban	Vegetated garden	0.0088	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required ≥	0.02
6	Urban	Urban Tree	0.0407	Medium	Poor	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required (≥)	0.16
7								
8								
9								
10								
		Total habitat area	0.98					3.44

[2] Our report provides an estimate of the sites value in Biodiversity Units. This is based on thorough assessment at the time of survey and using the information available at this time. In this assessment we have used the latest version of DEFRA's Biodiversity Metric Tool, the UK Habitats Classification and relevant guidance. This assessment requires subjective judgments to be made in terms of habitat type and condition and could be open to other interpretations. Reliance on the Unit Score, or conversion of this into a monetary value, would be at the developer's own risk. Where conversion to monetary value is required, it is always advisable to get calculations checked independently.

B-1 Site Hedge Baseline

Condense / Show Columns | Condense / Show Rows | Main Menu | Instructions

	UK Habitats - existing habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Baseline ref	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Condition	Strategic significance		Total hedgerow units
1		Line of Trees - Associated with bank or ditch	0.074	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Same distinctiveness band or better	0.30
2		Line of Trees	0.129	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Same distinctiveness band or better	0.52
3								
4								
5								
6								
7								
			0.20					0.81

Faunal Appraisal

42. The following pages discuss only the groups and species that could be reasonably expected to be found on the type of habitats present on, or adjacent to, the site.

Amphibians

Desk evidence

43. Records have been returned of all common amphibian species (common frog, common toad, palmate newt, smooth newt and great crested newt).

44. There are 37 records of great crested newt (GCN) returned for the area, all of which are at least 1.5km away from the Site, separated by barriers of dispersal such as roads and development.

Field Evidence

45. Six ponds are present within 500m of the Site. All ponds are separated from the Site by barriers to dispersal of roads and built-up urban areas.

46. The grassland and scrub on-site offer suitable terrestrial habitat for this group, though the value of this is lowered by the lack of connectivity to waterbodies.

Summary Evaluation

47. Based on the absence of suitable breeding habitat, the likely absence of GCN can be reasonably concluded.

48. Low numbers of common amphibians could be expected to occur on the Site. However, the Site is unlikely to be of significant importance to any local populations.

Further Surveys and Recommendations

49. No further surveys or precautions are considered necessary.

Figure 14 Ponds mapped in relation to the Site.

Bats

Desk evidence

50. A total of eight records of bats have been returned for the search area. Records were returned for common pipistrelle, soprano pipistrelle, brown long-eared noctule bat and indeterminate pipistrelle species and unidentified bat species.

51. The closest to the Site is a record of a pipistrelle bat roost, located approximately 600m south of the Site, dating from 2009.

Field Evidence (Roosting)

52. The trees on and bordering the Site were all assessed for their potential to support roosting bats.

53. All were considered to be of negligible value to roosting bats apart from the five detailed in the table below.

Table 3 Bat Roost Suitability Assessment - Trees

Ref:	Notes	Suitability
T1	Group of hawthorn and willow with thick coverage by ivy, with the roots providing potential roosting locations	Low
T2	Mature ash with deadwood in the canopy. Broken limbs and rot holes visible.	Low
T3	Mature oak with deadwood in canopy and rot holes and tear outs visible.	Low
T4	Mature ash with deadwood in canopy, thick ivy coverage of the trunk and rot holes visible.	Low
T5	Mature oak with deadwood in the canopy and broken limbs.	Low

54. It is expected that all five trees with bat roost potential will be retained as a result of the development. However, some remedial works are recommended in the most recent tree survey report, to trees 1, 2 and 5. Should this work be carried out, further survey work may be required with regards to bats.

55. There are five buildings on-site that were assessed for their potential to support roosting bats. These include the disused pub (1), an attached former residential property (2) and a group of outbuildings (3, 4 and 5).

Table 4 Bat Roost Suitability Assessment - Buildings

Ref:	Notes	Suitability
B1	Disused pub. Two storey building of breeze block and render construction, with slate tile roof. Stone and mortar chimney stack is also present. Potential roost features include missing mortar on the chimney stack, gaps along the roof verge and under slates where the roof overhangs building 2 and gaps under the guttering on the western aspect.	Low
B2	Disused residential building, attached to pub. Also constructed from breeze blocks with render, with the roof covered by curved clay tiles. Has a brick-and-mortar chimney. Potential roost features include several slipped and raised tiles on both the west and east sides of the roof, lifted render on the western aspect, gaps above a window lintel stone on the western aspect, missing mortar around the chimney stack and gaps behind the guttering on both the west and east aspects, possibly allowing access into the roof space.	Low
B3	A small single storey outbuilding of brick construction with render and a slate tile roof. Many of the tiles are shifted and broken, with gaps and crevices throughout the roof.	Low
B4	A small single storey outbuilding of brick construction with render. Has a flat felt roof, a sheet metal roof and areas of slate tiles. The flat felt roof is damaged, with wooden beams exposed and several gaps and crevices associated, particularly on the south side. There is also damaged render and exposed brickwork with missing mortar close to where this building joins B1. Where this building meets building 2, there are several shifted and raised tiles, with crevices beneath.	Low
B5	A small single storey stone and mortar outbuilding, with sheet metal roofing. Some small gaps where mortar is missing in the western wall, facing into the garden of B2.	Low

Figure 15 Building plan.

Figure 16 Tree plan.

Field Evidence (foraging and commuting)

56. The majority of the Site is of low value for foraging and commuting bats, with hard surfaces devoid of vegetation and rank grassland. There is expected to be significant light spill from neighbouring buildings.

57. Trees around the edges of the Site will be of more value to bats and are expected to be retained as part of proposals.

Summary Evaluation

58. The buildings on-site have all been assessed as having features that could be used by roosting bats.

59. Five trees on-site also have features that could be used by roosting bats.

60. The rank grassland and scrub on-site is expected to be of low value to foraging and commuting bats, with poor connectivity to the wider landscape.

Further Surveys and Recommendations

61. Emergence surveys are recommended in relation to the buildings present on-site.

Bat Roost Suitability Assessment - Buildings

B1 General view

B2 General view

B3 General view

B4 General view - south

B4 General view - north

B5 Gaps in stone wall

B2 Gaps around and behind guttering

B1 Gaps along roof ridge

B3 and B4 gaps and damage

B4 gaps around bricks and render

B4 raised tiles

B2 gaps behind guttering

Bat Roost Suitability Assessment - Trees

T1 General view

T2 General view

T3 General view

T4 General view

T5 General view

Birds

Desk Evidence

62. A variety of bird species records were returned for the search area. Many are typical birds of urban and suburban areas, as well as records for more specialist woodland and moorland birds, which will make use of suitable habitat in the wider area, away from the Site.

63. Whilst some of the "garden birds" recorded may opportunistically make use of the Site, the abundance of similar habitat in the wider area means no species is likely to have dependence on the Site.

Field Evidence

64. The Site supports common and widespread habitats.

65. A small number of bird species were noted during the survey including woodpigeon, jackdaw, goldfinch and blackbird.

66. The disused buildings could also be used for nesting, with jackdaws seen around the chimney stacks, a common nesting site for this species.

Summary Evaluation

67. The Site is of a fairly small size and due to its location and adjacent land use, is subject to high levels of disturbance.

68. The Site is expected to support territories of various "garden" bird species, with the scrub, trees and ruderal vegetation present providing nesting habitat. As the Site is not likely to support key species, the significance of this is low.

Further Surveys and Recommendations

69. No further surveys are considered necessary to demonstrate current baseline in respect of birds.

70. Standard precautions apply in respect of restrictions on carrying out works during the nesting season. At this site, this relates to both vegetation clearance and building demolition, with birds likely to make use of the disused buildings.

Badgers

Desk evidence

71. There are no badger records within 200m of the Site, with no records returned for the search area for setts.

72. Two records were returned, both over 1km from the Site.

Field Evidence

73. The Site has suitability for foraging badgers with the large area of grassland.

74. None was found, although some parts of the Site could not be investigated due to dense vegetation.

Summary Evaluation

75. The Site provides habitat suitable for use by badgers but is subject to disturbance by the presence of a car park, neighbouring buildings and the land being open to and used by members of the public.

Further Surveys and Recommendations

76. Given the high levels of disturbance to the Site and the lack of field evidence found during the survey, no further work is recommended in relation to badgers.

Hedgehogs / NERC Act 2006 / Local BAP

Desk evidence

77. Hedgehogs are recorded within the search area.

Field Evidence

78. No evidence of hedgehogs was found on site.

Summary Evaluation

79. The Site provides suitable habitat for this species and measures to allow them to move through the Site post-development need to be planned for.

Further Surveys and Recommendations

80. Presence assumed no further surveys are considered necessary.

Invasive Non-Native Species (INNS)

81. INNS are species listed on Schedule 9 of the Wildlife and Countryside Act (1981), for which it is an offence to cause or allow it to grow in the wild.

82. The following species were noted[3]:

- Japanese knotweed – dead stems/stumps noted in the garden of building 2.
- Cotoneaster sp.

Survey constraints

83. This survey is constrained by the areas that were inaccessible due to the density of vegetation.

84. While some INNS have been identified in this preliminary survey it is not always possible to conclude full range of species present or their true extent due to factors such as season, accessibility, 3rd party attempts to hide evidence or undisclosed treatment programmes. For this reason, this report should not be relied upon as definitive evidence of the status of INNS.

85. This site presents a high risk of supporting undetected INNS based on the following factors:

- Areas of site inaccessible to survey
- Suboptimal survey season
- Potential for tipping of material

86. Should further assurances be needed in relations to INNS, a dedicated Invasive Weed Survey should be commissioned.

[3] Whilst our ecologists are trained in the identification of invasive species this report is not a dedicated invasive species survey. Detectability of invasive plant species can be affected by several factors, and conclusive determination status, or extent, is not possible through preliminary survey alone. As the presence of invasive species can generate significant costs to development, the client may wish to instruct a dedicated invasive species survey prior to entering into contracts.

Figure 17 Japanese knotweed stems. *Figure 18 Cotoneaster.*

Figure 19 INNS Location

Ecological Constraints & Opportunities

87. Most LPAs now require developments to demonstrate a 'no net loss' in biodiversity, or in some cases a 10% net gain. The Site has been assessed as having a Biodiversity Metric score of 3.44 Habitat Units and 0.81 Hedgerows Units.

88. Any net loss in biodiversity may need to be compensated for, through offsetting, which could require a financial contribution be made to the LPA's Habitat Fund, or a third-party broker.

89. The scheme should seek to minimise biodiversity loss by retaining as much existing vegetation as possible, and maximising the Site's biodiversity value post-development, by enhancing retained vegetation.

90. A Biodiversity Management Plan would be useful in defining these enhancements and can be secured by standard condition.

Constraints

91. Potential roost features for bats have been identified in all the buildings present on-site scheduled for demolition. An emergence survey to determine the presence of roosting bats is recommended.

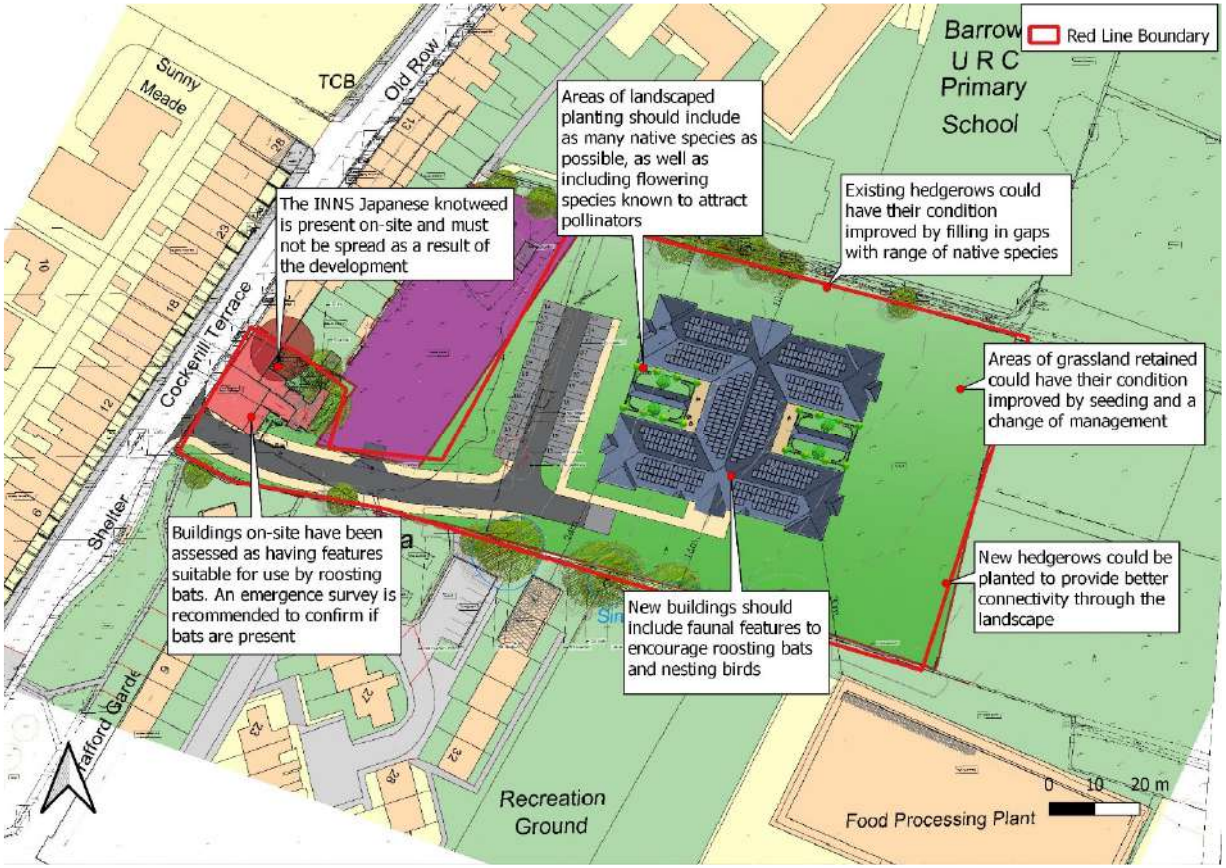
92. The INNS Japanese knotweed is present on-site in low numbers. Care should be taken to prevent the transport/spread of plants, seeds or contaminated soil related to this species.

Opportunities

93. Opportunities stem from the enhancement of the Site's pre-established green infrastructure, maintaining connectivity around Site. This could be achieved through the planting of new hedgerows, linking the existing tree lines along the Site boundary, as well as improving the condition of the grassland and hedgerows retained on-site.

94. Proposals should seek to implement integral faunal boxes within new development where possible. Details on enhancement opportunities should be set out in a BMP which can be produced as a standard condition of planning.

Figure 20 Constraints and Opportunities Plan.



Conclusions and Recommendations

Planning considerations		
Recommendation	Rationale	When
R1 Additional Surveys	Bat emergence surveys	April - September
R2 Produce a layout which minimises loss of biodiversity.	Engage with the Constraints and Opportunities set out above, involve your ecologist in designs at an early stage. The proposals will need to consider the NPPF hierarchy of Avoid - Mitigate – Compensate in minimising any loss of biodiversity. The LPA is likely to be seeking at least a no-net-loss situation and could request that a contribution is made to address any residual loss here, off-Site. Your layout may need to change to accommodate your findings from R1 surveys.	During the design process
R3 Biodiversity Net Gain Strategy (BNS)	Engage an ecologist to work with the design team to maximise available Biodiversity Units on site.	During the design process
R4 Landscape Design	Make sure your landscape architect follows ecological advice or the BNS to maximise Biodiversity Units on site and make sure there are no design conflicts.	During the design process
R5 Calculate final Biodiversity Impact Score	Using DEFRA metric to quantity net gain/loss of biodiversity.	After a fixed design is agreed.
R6 Produce a CEMP (Biodiversity)	To show how the site will be built without affecting surrounding habitats and minimising risk of affecting protected or notable fauna. The CEMP will detail the following protection measures: Location of Biodiversity Protection zones or fences Dealing with known or discovered invasive species (Strike out if we recommend an INNSMP) Pre- or during- clearance ecology checks for protected species. Protected/notable species method statements where licensing in not needed. Nesting bird management	Delivery report Suitable for planning condition.
R7 Produce a Biodiversity Management Plan	To specify in detail how the development will cater for biodiversity on site and to show how habitats incorporated through the Biodiversity Net Gain Strategy be maintained in the condition that the Biodiversity Calculations were based on.	Delivery report Suitable for planning condition.

Other considerations (managing legal or financial risks)		
Issue	Rationale	When
R8 INNS Management Plan	This provides a formal INNS Survey and sets out management prescriptions and timings in detail. It can provide security for the Main Contractor and assurance for future Site operators / purchasers / owners.	Best initiated at an early stage (INNS Survey would ideally be complete April - October)

Outline Biodiversity Net Gain (BNG) Implications

95. The NPPF and most aligned local policies require that development achieves a 'no net loss' or unquantified 'net gain' situation for biodiversity. The Environment Bill now mandates a 10% net gain position, although there is a two-year grace period before this mandate becomes enforced nationally (anticipated November 2023). Many LPA's have pre-empted this with revised policies and SPG's, some are providing a means of developers contributing to strategic off off-Site enhancement where BNG can't be secured on Site.

96. Pre-application discussions with the LPA should aim to identify their approach to BNG from an early stage.

97. Outline BNG Implications at this Site have been calculated below. This is based on an outline calculation from the plan provided. Figures are provided for habitat area units only.

98. **This is not the final calculation** but provides what is hoped is a useful illustration to work forward from. Proposals will still be required to work within the NPPFs mitigation hierarchy of Avoid, Mitigate, Compensate and by doing so losses are likely to reduce. Similarly, high quality landscaping proposals and provision of natural green space would also help to reduce any deficit.

Table 4 BNG outline calculations

Pre-development Baseline Units	Post Development Units *	Units still required to achieve No Net Loss	Units still required to achieve 10% Net Gain
3.88	2.11	1.77	2.158

99. BNG is very much an evolving situation and the importance of pre-application discussions is again emphasised. For purely illustrative purposes if this project was in our home district of Leeds the 'backstop' position of achieving BNG through the LPA's contribution scheme would incur a cost of £20,000 /unit plus 20% facilitation and monitoring fees https://www.leeds.gov.uk/planning/conservation-protection-and-heritage/achieving-net-gain-in-biodiversity-guidance-for-developers

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Appendix 1 Habitats and Ecological Features

Appendix 2 List of species recorded

American dogwood	*Cornus sericea*
Apple	*Malus sp.*
Ash	*Fraxinus excelsior*
Bindweed	*Convolvulus arvensis*
Bracken	*Pteridium aqulinum*
Bramble	*Rubus fruticosus agg.*
Broad-leaved dock	*Rumex obtusifolius*
Buddleja	*Buddleja davidii*
Cock's foot	*Dactylis glomerata*
Common bent	*Agrostis capillaris*
Cotoneaster	*Cotoneaster sp.*
Cow parsley	*Anthriscus sylvestris*
Creeping buttercup	*Ranunculus repens*
Creeping sedum	*Phedimus spurius*
Creeping thistle	*Cirsium arvense*
Crested dog's tail	*Cynosurus cristatus*
Cypress sp.	*Chamaecyparis sp.*
Dandelion	*Taraxacum officinale agg.*
Dog rose	*Rosa canina*
Elder	*Sambuca nigra*
Hairy willowherb	*Epilobium hirsutum*
Hawthorn	*Crataegus monogyna*
Hedge woundwort	*Stachy sylvatica*
Herb robert	*Geranium robertianum*
Honeysuckle	*Lonicera periclymenum*
Ivy	*Hedera helix*
Kenilworth ivy	*Cymbalaria muralis*
Nettle	*Urtica dioica*
Oak	*Quercus robur*
Perennial ryegrass	*Lolium perenne*
Ragwort	*Jacobaea vulgaris*
Red clover	*Trifolium pratense*
Red fescue	*Festuca rubra*
Reed canary grass	*Phalaris arundinacea*
Ribwort plantain	*Plantago lanceolata*
Rosebay willowherb	*Chamerion angustifolium*
Scarlet firethorn	*Pyracantha coccinea*
Silverweed	*Argentina anserina*
Sow thistle	*Sonchus oleraceus*
Tufted hair grass	*Deschampsia cespitosa*
White clover	*Trifolium repens*
Willow	*Salix caprea*
Wood avens	*Geum urbanum*
Wooly mouse-ear chickweed	*Cerastium tomentosum*
Yorkshire fog	*Holcus lanatus*

Appendix 3 Explanatory Notes and Resources Used

Site Context

Aerial photographs published on commonly used websites 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 approach can be very useful in determining if a site is potentially a key part of a wider wildlife corridor or an important node of habitat in an otherwise ecologically poor landscape. It can also identify potentially important faunal habitat (in particular ponds) which could have a bearing on the ecology of the application site. Ponds may sometimes not be apparent on aerial photographs so we also refer to close detailed maps that identify all ponds issues and drains.

Designated Sites

A search of the MAGIC (Multi-Agency Geographic Information for the Countryside) website was undertaken. The MAGIC site is a Geographical Information System that contains all statutory (e.g. Sites of Special Scientific Interest [SSSI's]) as well as many non-statutory listed habitats (e.g. ancient woodlands and grassland inventory sites). It is a valuable tool when considering the relationship of a potential development site with nearby important habitats. In addition, information from the local record holders was referred to on locally designated sites.

Functional linkage with off-Site habitats

When assessing these we consider whether the Site could be functionally linked to them, considering links such as:

- Hydrological links - is the Site upstream downstream, or could ground water issues affect it?
- Physical links - is the site in close proximity and could it be directly or indirectly affected by construction and operational effects? Conversely it may be that despite proximity major barriers separate the two.
- Recreational links - do footpaths and roads make it likely that increased recreational pressure could be felt?
- Habitat links - is the site part of a network of similar habitat types in the wider area? These could be joined by linear corridors or could simply be 'stepping stones of habitat of similar form or function.

Method

Phase 1 habitat survey methodology (JNCC, 2010). This involves walking the site, mapping and describing different habitats (for example: woodland, grassland, scrub). The survey method was "Extended" in that evidence of fauna and faunal habitat was also recorded (for example droppings, tracks or specialist habitat such as ponds for breeding amphibians). This modified approach to the Phase 1 survey is in accordance with the approach recommended by the Guidelines for Baseline Ecological Assessment (IEA, 1995) and Guidelines for Preliminary Ecological Appraisal (CIEEM 2017).

Faunal Appraisal

This section first looks at the types of habitat found on Site or within the sphere of influence of potential development, then considers whether these could support protected, scarce or NERC Act 2006 Section 41 species (referred to collectively as 'notable species').

Records of notable species supplied from a 2km area of search by Lancashire Environment Record Network are used to inform this appraisal.

We discuss further only notable species or groups which could be a potential constraint due to the presence of suitable habitat and their presence (or potential presence) in the wider area. We screen out and do not present accounts of notable species or groups which do not meet these criteria – in some cases it may be necessary to explain this reasoning.

Consideration is given to the Local Biodiversity Action Plan (LBAP), which for this site is the 'Lancashire Biodiversity Action Plan'.

Priority Species		Priority Habitats
Black-tailed Godwit	Freshwater White-clawed Crayfish	Arable Farmland
Farmland Birds	Jennings Proboscis Worm	Broadleaved and Mixed Woodlands
Hen Harrier	Whorl Snails	Calcareous Grassland
Lapwing	Birds-eye Primrose	Limestone Pavement
Reed Bunting	Black Poplar	Moorland and Fell
Skylark	Dwarf Cornel	Mossland
Song Thrush	Flat-Sedge	Reedbed
Twite	Great Butterfly Orchid	Rivers and Streams
Bats	Lady's-slipper Orchid	Salt Marsh and Estuarine Rivers
Brown Hare	Lancaster Whitebeam	Sand Dune
Otters	Narrow Small-Reed	
Red Squirrel	Purple Ramping-fumitory	
Water Vole	Rock Sea Lavender	
Belted Beauty Moth	Sea Bindweed	
Dorus Profuges- a hoverfly		
High Brown Fritillary		
Large Heath Butterfly		
Northern Brown Argus		
Pearl-bordered Fritillary		
Shining Guest Ant		
Southern Wood Ant		
Wall Mason Bee		
Freshwater Pearl Mussel		

Bats

Bat roosting potential is classified according to the following criteria set out below, taken from the Bat Conservation Trust Good Practice Guidelines (2016).

Bat Roosting Suitability of Buildings and Trees

Suitability	Criteria
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions, and/or suitable surrounding habitat to be used on a regular basis or by a larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protections, conditions and surrounding habitats.

Evaluation

In evaluating the Site, the ecologist will take into account a number of factors in combination, such as:

- the baseline presented above,
- the site's position in the local landscape,
- its current management and
- its size, rarity or threats to its integrity.

There are a number of tools available to aid this consideration, including established frameworks such as Ratcliffe Criteria or concepts such as Favourable Conservation Status. Also of help is reference to Biodiversity Action Plans in the form of the Local BAP and Section 41 of the NERC Act (2006) to determine if the site supports any Priority habitats or presents any opportunities in this respect.

The assessment of impacts considers the generic development proposals from which potential effects include:

- Vegetation and habitat removal
- Direct effects on significant faunal groups or protected species
- Effects on adjacent habitats or species such as disturbance, pollution and severance
- Operation effects on wildlife such as noise and light disturbance

Appendix 4 Bat Activity Survey Rationale

The Bat Conservation Trust Guidelines (BCTG) (Collins 2016) is now widely accepted as providing a basis and rationale for scoping and conducting bat surveys. It is acknowledged that the guidelines provide a wealth of background and are a very useful tool in standardising approaches to survey, it is also felt that an over reliance on some of the guidelines within this document can result in the provision of complicated surveys where they have significant consequences for the cost, or timescale of a large project, but could never deliver positives for bat conservation.

Taking the BCTG document as a whole, Chapter 2 helps the reader understand whether or not surveys are required, and that in the context of planning and development survey is required in relation to ensure;

- the avoidance of legal offences, and;

- the provision of a sufficient level of information - such that will allow the Local Planning Authority to make an informed decision on the proposals and their potential impacts on the Favourable Conservation Status (FCS) of bats.

Attendance at seminars presented by, and discussions with, those involved in production of the BCTG document has emphasised the point that it is within the remit of the consultant ecologist to make a decision on the necessity and scope of surveys - they will use the guidelines in doing so but are not in any way bound by them: this is reflected in Section 1.1 of the guidelines -

'The Guidelines do not aim to either override of replace knowledge and experience. It is accepted that departures from the guidelines (e.g. either decreasing or increasing the number of surveys carried out or using alternative methods) are often appropriate. However, in this scenario an ecologist should provide documentary evidence of (a) their expertise in making this judgement and (b) the ecological rationale behind the judgement. '

Such decisions require a consideration of the potential of the project to impact on bat habitat, alongside analysis of the value of habitat on and around the site and of local records and the likelihood that bats might occur in significant numbers. Our reports aim to present information on how we have arrived at our decision on the Site, what assumptions we have based this on, and where further survey is recommended we indicate what the objective of this survey should be and how best this would be achieved.

The Site provides limited suitability for commuting and foraging bats, with poor connectivity to the wider landscape and parts of the Site expected to be lit during the night. In addition, the areas of most value (trees lining the boundaries of the Site) are expected to be retained by the proposals. For this reason, further survey is not considered necessary.

This assessment was made by David Lovett MBiolSci (Hons) ACIEEM who has 9 years' experience of scoping and delivering bat surveys and has carried out many activity surveys.

Appendix 5 Wildlife Legislation, Policy and Guidance

This is not an exhaustive list but sets out briefly the relevance of Legislation, Policy and Guidance in terms of planning applications and this assessment.

Legislation

Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (EC Habitats Directive).
Provides framework at an international (EU) level for the consideration / protection of European Protected Species (EPS), and habitats through the designation of sites.
Council Directive 79/409/EEC on the Conservation of wild birds (EC Birds Directive) and The Ramsar Convention on Wetlands of International Importance (1971)
Provides framework at an international (EU) level for the consideration / protection of important bird populations and the sites on which they are dependant.
The Conservation of Habitats and Species Regulations (2010)
This transposes 1) into UK law and provides the basis on which all EPS are protected and impacts on them can be licensed in the UK.
The Wildlife and Countryside Act (1981) as amended
This provides the basis on which UK species are legally protected or restricted and confers protection on Sites of Special Scientific Interest SSSIs. It contains annexes of plants and animals which are legally protected as well as those which are considered to be invasive or harmful. It provides the basis on which impacts on such species can be licensed in the UK and provides controls on work on or near SSSIs.
The Countryside and Rights of Way Act 2000 (CRoW)
Provides a statutory basis for nature conservation, strengthens the protection of SSSIs and UK protected species and requires the consideration of habitats and species listed on the UK and Local Biodiversity Action Plans (UKBAP / LBAP).
Natural Environment and Rural Communities Act 2006 (NERC)
Sets out the responsibilities of Local Authorities in conserving biodiversity. Section 41 of the Act requires the publishing of lists of habitats and species which are "of principal importance for the purpose of conserving biodiversity". At present these largely reflect those making up the UKBAP lists.
Hedgerows Regulations (1997)
Define and provide protection for Important Hedgerows.
Protection of Badgers Act (1992)
Protects badgers from persecution, this includes excavation / development in the proximity of setts.

Protected Sites

Statutory EU / International Protected Sites
Special Areas of Conservation (SACs); and Special Protection Areas (SPAs) and Ramsar Sites contain examples of some of the most important natural ecosystems in Europe. Work on or near these sites is strictly protected and Local Authorities will be expected to carry out 'Appropriate Assessment' of development in proximity of them. In this case there is often an increased burden on the developer in relation to provision of information and assessment.
Statutory UK Protected Sites
Local Nature Reserves (LNRs); National Nature Reserves (NNRs); Sites of Special Scientific Interest (SSSIs) all receive strict protection under UK legislation. Work in or in proximity to these sites would be restricted with any needing to be agreed with Natural England. Natural England now provide guidance on the nature of development which could impact on SSSIs through Impact Risk Zones.
Locally Protected Sites
Local Authorities have a variety of protected wildlife sites designated at a local or regional level. These are gradually being brought under the banner of Local Wildlife Sites (LWS) but at present a plethora of different designations exist - all subject to local policy.
Protected Species
European Protected Species
A number of species (most relevantly bats, great crested newts [GCN], and otters) receive strict protection from killing, injury and disturbance under The Conservation of Habitats and Species Regulations (2010). Protection is also conferred on the habitats on which they rely such as roost space in the case of bats and ponds and fields etc. in the case of GCN.
UK Protected Species
A number of species (including bats, GCN, watervole and white clawed crayfish) are strictly protected under The Wildlife and Countryside Act (1981) as amended, from killing, injury, disturbance and damage or destruction of their resting places etc. Certain species (such as reptiles) and some birds (such as barn owl) receive partial protection e.g. at certain times of the year or form certain activities only. All nesting bird species are protected from damage or destruction of their nests - whilst active.

Invasive species

Schedule 9 of the Wildlife and Countryside Act (1981) as amended, lists these species and makes it an offence to cause or allow their spread in the wild. This often has impacts on development and planning in relation to the presence of invasive plant species such as: himalayan balsam (*Impatiens glandulifera),* japanese knotweed (*Fallopia japonica*) and giant hogweed *(Heracleum mantegazzianum*).

Planning Policy / Guidance

The National Planning Policy Framework (NPPF):

The National Planning Policy Framework was updated in July 2021. The most relevant paragraphs from the NPPF are set out below.
The approach to assessing the natural environment is now embedded within the definition of what 'sustainable development' is and this falls under one of three objectives of the planning system – the 'environmental objective' applying in this case. Paragraph 8c (P8c) of the NPPF states that sustainable development should "*protect and enhance our natural, built and historic environment"*, including "*improving biodiversity*". P10 sets out the Framework's presumption in favour of sustainable development.
Section 11 of the NPPF details making effective use of land. The Framework states that planning policies and decisions should *"take opportunities to achieve net environmental gains – such as developments that would enable new habitat creation"* and should "*recognise that some undeveloped land can perform many functions, such as for wildlife"* (P120).
Section 15 details conserving and enhancing the natural environment; policies and decisions should be "protecting and enhancing valued landscape [and] sites of biodiversity […] value", "recognise the intrinsic character and beauty of the countryside" and contribute to conserving and enhancing the natural environment and reducing pollution (P174). Allocations of land for development should, "allocate land with the least environmental or amenity value, where consistent with other policies in this Framework" and "take a strategic approach to maintaining and enhancing networks of habitats" (P175).
The Framework sets out ways to minimise the impacts on biodiversity through plans which "identify, map and safeguard components of local wildlife rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity" and promote the "conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity" (P179).
It is made clear in P180 that local planning authorities should apply a set of principles when determining planning applications. Planning permission should be refused *"if significant harm to biodiversity resulting from development cannot be avoided […], adequately mitigated, or, as a last resort, compensated for"*. Development should not normally be permitted where an adverse effect on a SSSI is likely, and "*opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity"*.

Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services.

This strategy builds on the Natural Environment White Paper (June 2011) - Setting out the current UK Government's approach to nature conservation. It promotes a more coherent and inclusive approach to conservation and the valuing in economic and social terms of economic resources.
The strategy promotes initiatives such as Biodiversity Offsetting, Nature Improvement Areas and a focus on well-connected natural networks and introduces the concept of securing a 'no net loss' situation with regard to UKBAP / Section 41 habitats and species.
ODPM circular 06/05 (2005) Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within the Planning System Provides guidance to Local Authorities on their obligations to biodiversity – particularly in relation to assessing planning applications and ensuring the adequacy of information.

BSI (2013) British Standards Institute BS 42020:2013 Biodiversity — Code of Practice for Planning and Development.

Provides a standard for the biodiversity assessment and development industries and decision makers such as Local Planning Authorities to work to.