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Preliminary Ecological Appraisal Report

ER-4661-01 PEA

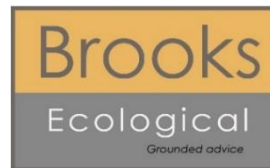
Countryside Properties UK Ltd

Report Reference: ER-4661-01

11/03/2020

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Summary

This report is produced to inform Countryside Properties UK Ltd of potential ecological constraints associated with the proposed development site.

Methodology

The 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 February 2020.

Findings - Key Points

- The site has been assessed as having a Biodiversity Unit score of 10.74 Habitat Units and 5.06 Hedgerow Units. Proposals will need to consider the NPPF hierarchy of Avoid - Mitigate – Compensate in minimising any loss of biodiversity. Efforts should be made to achieve a no net loss/ net neutral change in Biodiversity on Site or within any available blue line boundary land; where this is not feasible, the LPA are likely request that a contribution is made to address any residual shortfall in biodiversity gain, off-Site.
- Further survey is recommended for roosting bats within both on and off-Site trees.

Introduction

1. Brooks Ecological Ltd was commissioned by Countryside Properties UK Ltd to carry out a Preliminary Ecological Appraisal (PEA) of ER-4661-01 PEA (grid reference SE31810783).
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.
3. In anticipation of the adoption of DEFRA's Biodiversity Metric 2.0 we have used the UK Habitat Classification descriptions rather than the long established JNCC codes. These habitat classifications and 'the metric' are work in progress and could be subject to future change.

Purpose of a PEA

4. 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.
5. 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.
6. 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.
7. 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

8. The application site 'the Site' consists of open pasture field, bordered in part by hedgerow.
9. 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 boundary - red line



Desk Study

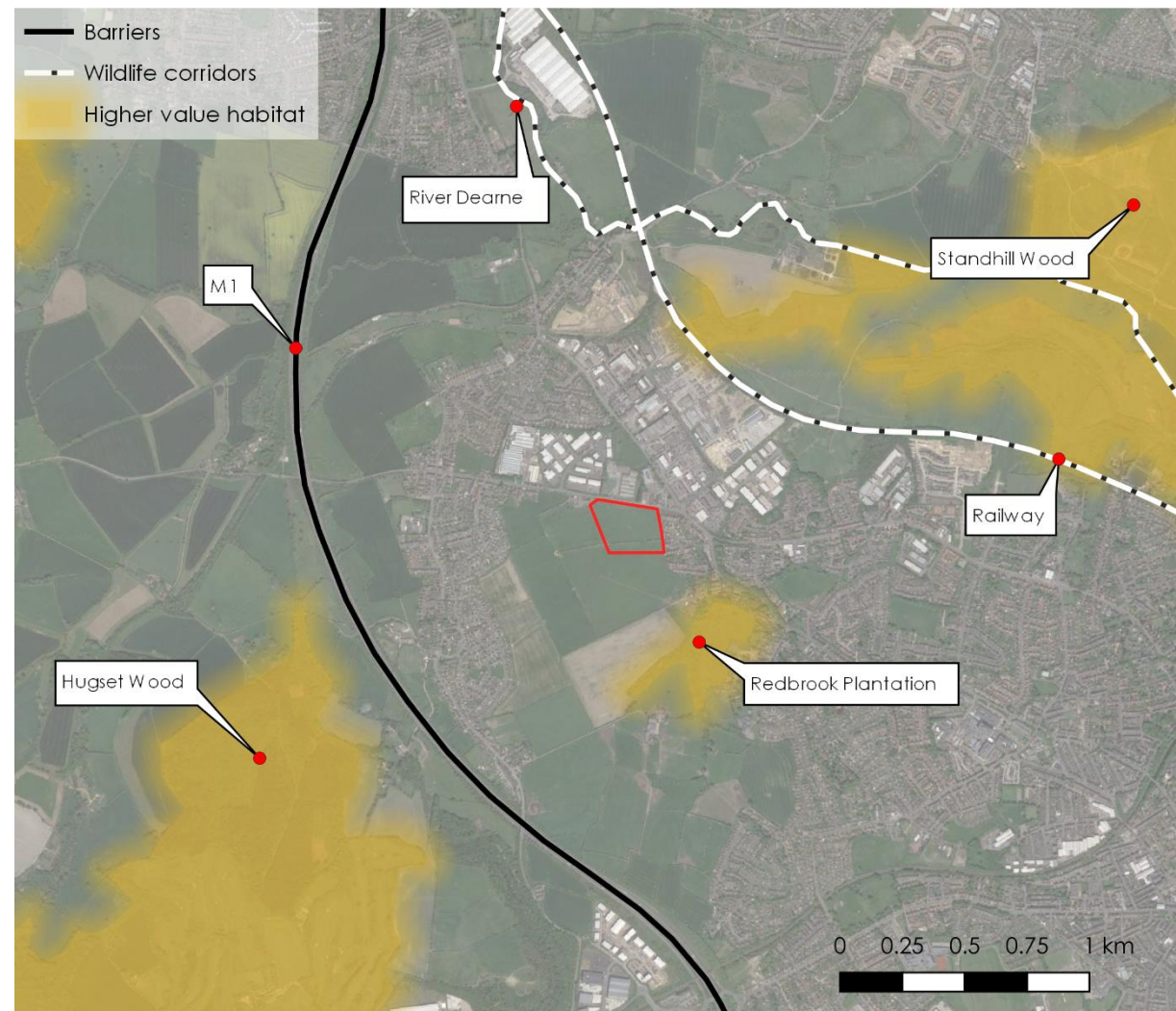
Landscape

10. The Site is located within Barugh Green, a village on the north-western outskirts of Barnsley. It is bound to the south and west by pasture fields. To the north runs Barugh Green Road and to the east residential properties.
11. Beyond these immediate boundaries, a mix of arable and pastureland extends south before giving way to the M1 motorway and the village of Dodworth. The village of Higham lies west, along with the M1 and agricultural land beyond. To the south-east, residential development increases in density with proximity to Barnsley town centre. A mix of residential, industrial and agricultural land stretches north.

Wildlife Corridors

12. There are no wildlife corridors within close proximity of the proposed development, the closest being a railway line and the River Dearne c.650m and c.1.1km north respectively. Both have no functional links to the Site.
13. Higher value habitat within the wider landscape largely consists of areas of broadleaved and plantation woodland. The closest being Redbrook Plantation and Craven Wood c.400m south.
14. The M1 motorway, c.1km west, provides a considerable barrier to the movement of many faunal groups from land further west.

Figure 2 Analysis of wildlife corridors and higher value habitat in relation to the Site



Waterbodies

15. Two ponds appear on mapping for within a 500m radius of the Site. The first (Pond 1) is a large ornamental pond located within a garden, c.90m west. The pond has vertical concrete sides.
16. The second pond (Pond 2) is found c.440m south, positioned along a minor watercourse.

Figure 3 Local waterbodies



Designated Sites

Statutory Designations

17. 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
Denby Grange Colliery Ponds	8.5km north-west	Special Area of Conservation (SAC)	Designated for its large breeding population of great crested newt.

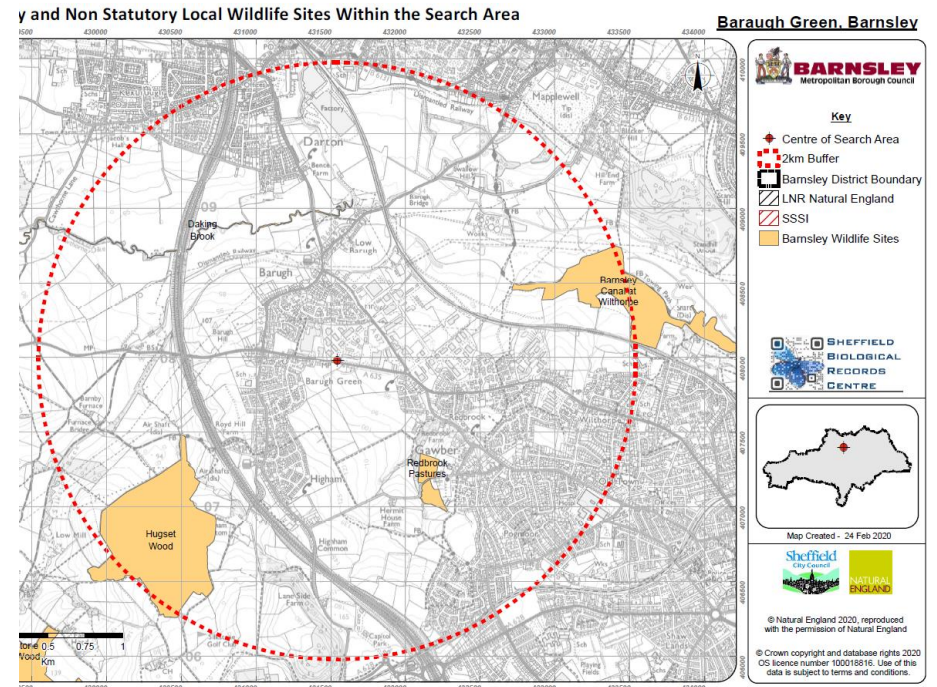
SSSI Impact Risk Zones (IRZs)

18. The Site lies within the IRZ for the Pye Flatts Meadows 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

19. There are three non-statutory designations in the search area, all designated as Barnsley Wildlife Sites (BWS). All are considered separated from the Site both by distance (>440m away) or by significant barriers to movement (M1).
20. Direct and indirect impacts on all local designations as a result of this development are therefore considered unlikely.

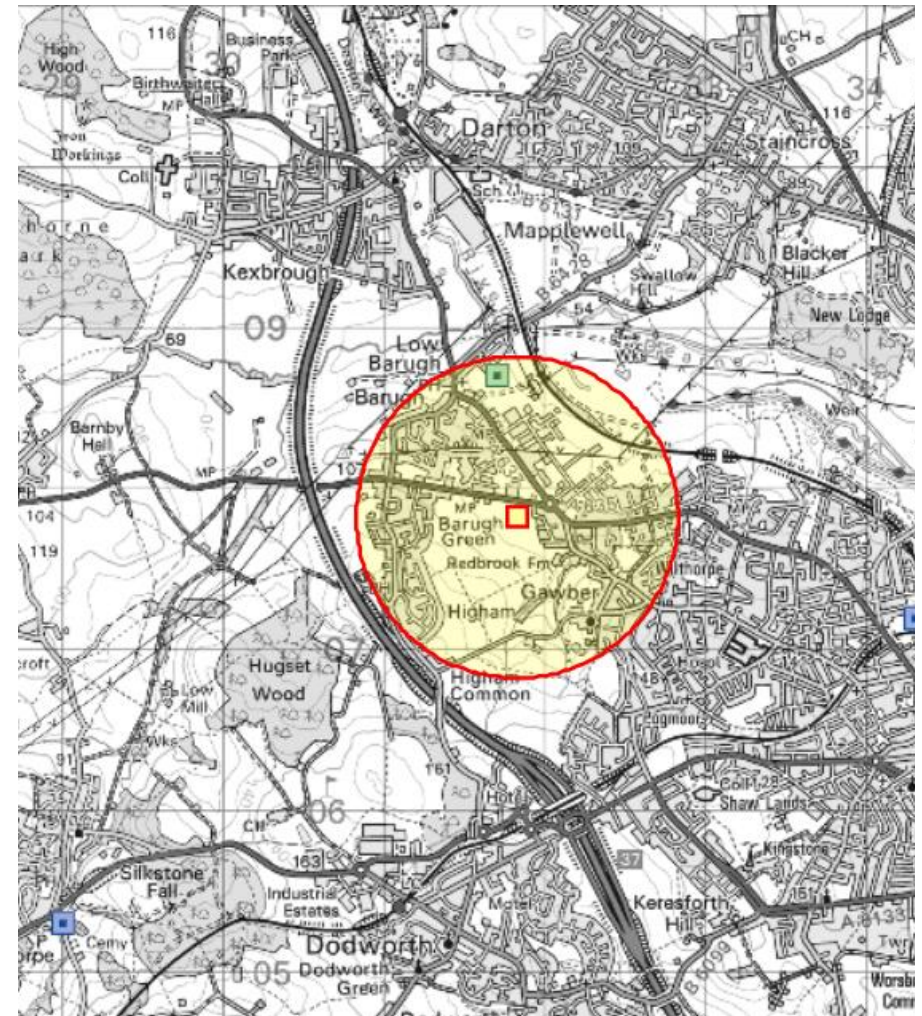
Figure 4 Barnsley Metropolitan Borough Council; Designated Sites



Granted EPSM Licenses

21. A search was made for granted European Protected Species Mitigation licenses within 1km of the Site. Two results were returned for great crested newt (GCN), both c.900m north and permitting the destruction of known resting areas.

Figure 5 Locally granted EPSM licenses (green marker)



Survey

Method

22. The survey was carried out during February 2020¹ and followed the principles of Extended Phase 1 Habitat Survey methodology (JNCC, 2010).

Limitations

23. Enough time was afforded the surveyor to carry out the survey. The survey was not constrained by poor weather.
24. Whilst the majority of the Site was accessible, at least 5% 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.
25. Timing of the walkover means some seasonal constraints were encountered, namely some non-wintergreen plant species will have been overlooked.

¹ This Report has been prepared during March 2020 following a visit to the site in February 2020 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.

Habitat Appraisal

Habitats identified

26. The Site is assessed as supporting the following habitats:
- G4 - Modified grassland
 - R1 - Ditch
 - 1170 - Street tree
 - HR5, HR6 and HR8 - Hedgerow
27. Each habitat is discussed in the following pages and the estimated area of these listed². 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

28. Our condition assessment for each habitat described references where available the criteria set out in The Biodiversity Metric 2.0 auditing and accounting for biodiversity TECHNICAL SUPPLEMENT Beta Edition.

Habitats Summary Evaluation

29. The habitats are ascribed our own qualitative value, based on their plant community make up. This evaluation is independent of faunal value which is considered in later sections.

² The location and areas of habitats in this report are estimated and should not be relied on as a definite location and extent of any habitat or feature.

G4- Modified grassland

Area estimate: 4.712 ha

Figure 6a Approximate location and extent of habitat



30. This habitat covers the majority of the Site, being well-managed neutral grassland, currently grazed by horses. These fields have been improved through seeding and fertilisation, with subsequent horse grazing leaving a short sward, poached and waterlogged.

31. The sward is dominated by perennial rye grass with much smaller amounts of Yorkshire fog, bents and fescues alongside occasional meadow buttercup, white clover and broad-leaved dock.

Summary Evaluation

32. Species-poor grassland of low value.

Figure 6b Typical structure and composition of this habitat



Defra Metric Condition Assessment Poor

33. Meets 1 out of 5 criteria.

	Condition Assessment Criteria Grassland habitat type	Meets criteria?
1	Clearly and easily recognizable as a good example of this type of habitat.	No
2	Appearance and composition very closely matches the characteristics for the specific Priority Habitat	No
3	Wildflowers, sedges and indicator species for the specific Priority grassland habitat are very clearly and easily visible throughout the sward and occur at high densities in high frequency.	No
4	Undesirable species and physical damage is below 5% cover.	No
5	Cover of bare ground greater than 10%	No
6	Cover of bracken less than 20% & cover of scrub and bramble less than 5%.	Yes

R1 - Ditch

Area estimate: 0.073 ha

Figure 7a Approximate location and extent of habitat



34. Found running alongside three of the hedgerows, one of which is off-Site. At the time of the survey, these held water with a slow flow along the two on-Site ones. Although, given the lack of submerged, floating or emergent plants, it is thought likely that these only hold water post heavy rainfall.

Summary Evaluation

35. Drainage ditches damaged by poaching which do not hold permanent standing or flowing water. No scare or notable species; likely to be present.

Figure 7b Typical structure and composition of this habitat



Defra Metric Condition Assessment Poor

36. All three drainage ditches fail the same criteria, failing at least 5 and drying out.

	Condition Assessment Criteria Ditches habitat type	Meets criteria?
1	Good water quality, with no signs of pollution (water should not be green or turbid).	No
2	Clear water is dominated by plants, be they submerged or floating (note dominance of duckweed is a sign of eutrophication).	No
3	A range of submerged and floating leaved plants are present (at least 10 species per 20m of ditch, or 7 spp. Per 150m of canal).	No
4	A marginal fringe of emergent vegetation is present.	No
5	Water body is not impacted by use of riparian land.	No
6	If a fish assemblage is present, it comprises of a range of native spp.	No
7	Sufficient water levels are maintained; i.e. a minimum summer depth of c.50cm in minor ditch and 1m in main drain.	No
8	Less than 10% of ditch is heavily shaded.	No
9	Absence of non-native species.	Yes
10	Less than 10% cover of filamentous algae and/ or duckweed.	Yes

1170- Street trees

Area estimate: 0.011 ha

Figure 8a Approximate location and extent of habitat



- 37. Young to semi-mature trees are noted along the northern boundary hedgerow- these are included in the 'Hedgerow' habitat below.
- 38. In addition, a semi-mature oak is found to the east, (T1 in figure above). This displays lighting damage.
- 39. Tree 2 - a mature ash, is rooted off-Site to the west and overhangs the boundary.

Summary Evaluation

- 40. Native trees of intrinsic value.

Figure 8b Onsite tree 1 (left) and off-Site tree 2 (right)



Defra Metric Condition Assessment Moderate

- 41. Automatically assigned a score of 2.

Hedgerows- Length estimate: 0.66 km

HR5- Native hedgerow with trees associated with ditch

HR6- Native hedgerow associated with ditch

HR8- Native hedgerow

Figure 9a Approximate location and extent of habitat



42. Hedgerow forms the northern and western boundaries (H1, H2 and H3), with a fourth cutting through the southern portion of the Site (H4). All are dominated by hawthorn with H2, H3 and H4 also including small amounts of blackthorn, dog rose, garden privet and bramble. These three hedgerows have been managed and are intact, ranging between 2-4m in height, with a width of c.1-2m.
43. H1 has been managed less frequently, likely a result of it being bounded by a drainage ditch and footpath. It now supports semi-mature tree standards, and alongside hawthorn, occasional blackthorn, elder, ash, sycamore, honeysuckle and bramble were noted.
44. The field layer of all comprises modified grassland habitat.

Summary Evaluation

45. Intact hedgerows dominated by hawthorn.

Figure 9b Typical structure and composition of this habitat



Defra Metric Condition Assessment All moderate

46. All four hedgerows are given a condition assessment of 'moderate'.
47. See Appendix 2 for condition assessment table.

DEFRA Metric (Baseline)³

48. This metric sets out the baseline for the Site - proposals should seek to achieve at least a 'no net loss' situation through **Avoiding** areas of higher value, **Mitigating** any loss on-Site through retention and enhancement, or habitat creation. The Local Planning Authority *may* require you to **Compensate** any residual loss elsewhere - either through direct works or an off-setting contribution.

Ref	Habitats and areas			Habitat distinctiveness	Habitat condition	Ecological connectivity	Strategic significance	Suggested action to address habitat losses	Ecological baseline
	Broad Habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Ecological connectivity	Strategic significance		Total habitat units
1	Grassland	Grassland - Modified grassland	4.712	Low	Poor	Medium	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	10.37
2	Lakes	Lakes - Ditches	0.073	Medium	Poor	Medium	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	0.32
3	Urban	Urban - Street Tree	0.011	Low	Moderate	Medium	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required	0.05
4									
5									
6									
7									
8									
Total site area ha			4.79					Total Site baseline	10.74

Baseline ref	UK Habitats - existing habitats			Habitat distinctiveness	Habitat condition	Ecological connectivity	Strategic significance	Suggested action to address habitat losses	Ecological baseline
	Hedge number	Hedgerow type	length KM	Distinctiveness	Condition	Ecological connectivity	Strategic significance		Total hedgerow units
1	H1	Native Hedgerow with trees - Associated with bank or ditch	0.232	Medium	Moderate	High	Area/compensation not in local strategy/ no local strategy	Like for like or better	2.1344
2	H2 and H3	Native Hedgerow - Associated with bank or ditch	0.206	Medium	Moderate	High	Area/compensation not in local strategy/ no local strategy	Like for like or better	1.8952
3	H4	Native Hedgerow	0.225	Low	Moderate	High	Area/compensation not in local strategy/ no local strategy	Same distinctiveness band or better	1.035
4									
5									
6									
7									
8									
Total Site length/KM			0.66					Total Site baseline	5.06

³ 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.

Faunal Appraisal

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

Records

49. There are 23 records of amphibians, relating to great crested newt, smooth newt, common toad and common frog. All records are found either >800m north along the River Dearne or south of the M1.

Field Evidence

50. Two standing waterbodies are found on mapping for within a 500m radius, as shown in figure 3. Pond 1 is considered unsuitable for breeding amphibians given its ornamental nature with concrete vertical sides, and a high likelihood of it containing fish.
51. Pond 2 is considered more suitable to amphibians. Whilst located along a minor watercourse, inspection found it to support standing water, offer some macrophyte cover, likely rarely dries and is surrounded by suitable terrestrial habitat.



Figure 10

Pond 2

52. Based upon this, the Natural England Rapid Risk Assessment tool was consulted in relation to potential offences against the protected great crested newt; see table overleaf.

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	No effect	0
Maximum:		0.04
Rapid risk assessment result:		GREEN: OFFENCE HIGHLY UNLIKELY

53. Based on the risk assessment, development of the Site is considered 'Highly Unlikely' to result in an offence in relation to great crested newt, and further survey of Pond 2 is therefore unlikely to be required.

Summary Evaluation

54. Based on the lack of GCN records and suitable breeding habitat in the ecological zone of influence, the likely absence of the protected great crested newt is reasonably concluded. The Site seems highly unlikely to be of importance to any other amphibian populations.

Further Surveys

55. No further surveys or precautions are considered necessary.

Bats

Records

56. Forty-one records of bats have been returned, relating to common pipistrelle, soprano pipistrelle, noctule, Daubentons, brown long-eared, Leisler's and indeterminate vesper bat species.
57. None of the records relate to the Site, with the closest located c.130m north being a bat recorded in flight. Of the records, 2 relate to roosts, both of which are found >1.5km from the Site.

Field Evidence

Potential Roost sites

Buildings: No buildings are present.

Trees: One tree is found on Site and one overhangs the western boundary, as identified in Figure 8a. Both trees support features for roosting.

Tree 1- Likely hit by lightning with a number of vertical cracks present from the ground to the canopy.

Tree 2- One limb has been damaged, now offering access into the limb cavity.

Foraging and commuting habitat

58. The majority of the Site is low value grassland. The hedgerows will provide commuting and foraging features but given these do not directly connect to areas of more significant habitat, it is thought unlikely that any local bat populations will be dependent upon them.

Summary Evaluation

59. The Site offers potential for roosting.
60. The hedgerows offer the only features of value to commuting and foraging bats, although these are considered to be only of very limited value.

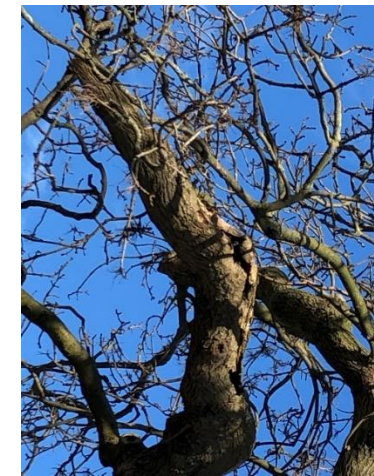
Further Surveys

61. Should either tree require removal or major pruning works, further emergence survey or climbed endoscopic inspection of trees is recommended.
62. Further activity surveys are not considered necessary, although recommendations are made later in the report to mitigate for the loss of the hedgerows.

Figure 11a Tree 1 with lightening damage



Figure 11b Tree 2 cracked limb



Birds

Records

63. Neary 2500 records of birds have been returned, distributed throughout the surrounding landscape. These detail a wide range of species, 60 of which are amber / red listed.

Field Evidence

64. A small number of common bird species were noted during the survey, namely house sparrow within the hedgerows and a large feeding flock of starlings using the grassland.

Summary Evaluation

65. The hedgerows and trees will offer feeding and nesting opportunities for common garden / farmland species, whilst the grassland may be of use to species such as skylark. However, as the site will not support key species the significance of this is low.

Further Surveys

66. Further surveys are not considered necessary to demonstrate current baseline in respect of birds.
67. Standard precautions apply in relation to pre-clearance.

Badger

Records

68. Badger records have been returned, but their locations are considerably separated from the Site.

Field Evidence

69. No signs were noted during the walkover survey.

Summary Evaluation

70. The Site presents very limited opportunities for badger and no evidence of their presence was recorded.

Further Surveys

71. Further surveys are not considered necessary.

Hedgehog

Records

72. Hedgehogs are recorded within the search area.

Field Evidence

73. No evidence of hedgehogs was found on site.

Summary Evaluation

74. The Site provides suitable habitat for this species and measures to allow them to access gardens need to be planned for.

Further Surveys

75. Presence assumed no further surveys are considered necessary.

Reptiles

Records

76. There are no records of reptiles in the area.

Field Evidence

77. No field evidence was found.

Summary Evaluation

78. The lack of reptile populations and the Site's very limited connectivity to higher value habitat or dispersal routes means the it's very unlikely to support this group.

79. Reptiles are assessed as likely absent from the site.

Further Surveys

80. No further surveys or precautions 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. No INNS were found.

Survey constraints

83. Although no INNS have been identified in this preliminary survey it is not always possible to conclude absence from preliminary survey alone 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 absence of INNS.
84. This site presents a low risk of supporting undetected INNS based on the following factors:
 - Areas of site inaccessible to survey
 - Suboptimal survey season
 - Proximity to nearby potential sources of infection
 - Potential for tipping of material
85. Should further assurances be needed in relations to INNS you should commission a dedicated Invasive Weed Survey.

Ecological Constraints

86. The principal ecological constraint relates to the hedgerows throughout the Site and these should be retained and protected. Where their loss is necessary, it should be overcompensated for through native hedgerow / tree planting.
87. There is potential for roosting bats to be present within trees.

Figure 12 Constraints identifiable at the PEA stage*



*further constraints may be identified by any additional surveys recommended in this or other reports.

Ecological Opportunities

88. The Site offers good opportunities for ecological enhancement, largely through increasing its connectivity. This could be achieved through new native hedgerow and tree planting both along the southern and eastern boundaries and across the centre.
89. Retained hedgerows could be enhanced, through beating up with a range of native species and developing the ground flora. Improvement of the adjacent drainage ditches could also be achieved, through dredging and managing the banks to benefit wildlife.
90. Within the development, areas of public open space and any new attenuation basins could be designed to be ecologically valuable with wildflower rich habitats.
91. The installation of roosting, nesting or hibernation features for fauna will also be beneficial and any new garden fences should be permeable so that hedgehogs can have access through the Site.

Figure 13 Ecological Opportunities



Conclusions and Recommendations

92. Further survey is recommended to support a planning submission, with additional information and output likely to be needed to fix a layout or help manage legal and financial risks.

Planning considerations		
Recommendation	Rationale	When
R1 Further survey	Further detailed survey to confirm presence or likely absence of roosting bats will be required should either on or off-Site tree be impacted- either through major pruning works or removal. The presence of bats could represent a constraint to development and could have a bearing on the layout and a Natural England Mitigation Licence may be required prior to works commencing, in order to derogate offences that might otherwise be committed.	Climbed endoscopic inspection (any time of year) or emergence survey (May – August)
R2 Produce a layout which minimises loss of biodiversity	The Site has been assessed as having an Ecological Baseline score of <u>10.74 Habitat Units and 5.06 Hedgerow Units</u> . 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 a 10% net gain in biodiversity. Engage with the Constraints and Opportunities set out above, involve your ecologist in designs at an early stage. It may be of benefit to produce a Green Infrastructure Plan or an ecologically led Landscape Concept Design* to submit with the application – given sufficient detail this could remove the need for a separate Landscape Master Plan and would help show how this process had been engaged with.	During the design process
R3 Ecological Impact Assessment (EclA)	Once the layout has been fixed and all ecological surveys completed, an EclA can then be produced which summarises the potential impacts of the proposed development on the Site's baseline. As part of this assessment, the Biodiversity Net Gain calculations will be completed, with post development metrics being based on the Site Layout and Landscape Masterplan; with measurements provided by the client/ architect.	Prior to submission.
R4 Produce a Biodiversity Management Plan	To specify in detail how the development will cater for biodiversity on site and to show how habitats will be maintained in the condition that the Biodiversity Calculations were based on.	Suitable for planning condition.

* Due to the increasing adoption of biodiversity net gain Brooks Ecological has taken the step of providing our own in-house landscape design team, we are in a position to help you produce any of the landscape plans needed for submission. Please contact our team for further details.

Other considerations (managing legal or financial risks)		
Issue	Rationale	When
R5 Nesting bird management	To prevent the proposed works impacting on nesting birds, any required hedgerow clearance will need to be undertaken outside of the breeding bird season which is 1st March – 31st August inclusive. Any clearance required during the breeding bird season should be preceded by a nesting bird survey to ensure that the law is not contravened through the destruction of nests and that any active nests are identified and adequately protected during the construction phase of the development. Nesting management can be set out in the CEMP if one is produced.	Pre- and during - clearance

References

- The Biodiversity Metric 2.0 auditing and accounting for biodiversity TECHNICAL SUPPLEMENT, Beta Edition 29th July 2019
- The UK Habitat Classification Habitat Definitions Version 1.0 UK Habitat Classification Working Group May 2018
- Andrews H. L. (2011) *A habitat key for the assessment of potential bat roost features in trees*.
- Bat Conservation Trust (2016) *Bat Surveys For Professional Ecologists – Good Practice Guidelines*
- BSI (2013) British Standards Institute *BS:42020:2013 Biodiversity — Code of Practice for Planning and Development*.
- CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal*.
- English Nature (2004) *Bat Mitigation Guidelines*. English Nature, Peterborough.
- English Nature (2001) *Great Crested Newt Mitigation Guidelines*. http://www.naturalengland.org.uk/Images/GreatCrestedNewts_tcm6-21705.pdf
- Fay N. (2007) *Defining and Surveying Veteran and Ancient Trees* <https://www.treeworks.co.uk/about-treework/publications>
- Gent T and Gibson S, 2003, *Herpetofauna Workers' Manual*, JNCC
- Hill et al. 2005, *Handbook of Biodiversity Methods*. Cambridge
- JNCC (2004) *The Bat Workers Manual*. 3rd Edition.
- Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*
- Ratcliffe, D.A. (1977) *A Nature Conservation Review*, Cambridge University Press

Appendix 1 Habitats and Ecological Features



Appendix 2 Hedgerow Condition Assessment

	Favorable condition attributes and criteria: Hedgerows		H1	H2	H3	H4
A1	Height	>1.5m average along length	Yes	Yes	Yes	Yes
A2	Width	>1.5m average along length	No	Yes	Yes	Yes
B1	Gap – hedge base	Gap between ground and base of canopy <0.5m for >90% length	Yes	Yes	Yes	Yes
B2	Gap – hedge canopy continuity	Gaps make up <10% of total length and no canopy gaps >5m	No	Yes	Yes	Yes
C1	Undisturbed ground and perennial vegetation	>1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length & present on one side of hedge at least	No	No	No	No
C2	Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of area of undisturbed ground	No	No	No	No
D1	Invasive and neophyte species	>90% of hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Yes	Yes	Yes	Yes
D2	Current damage	>90% of hedgerow of undisturbed ground is free of damage caused by human activities	Yes	Yes	Yes	Yes

Appendix 3 List of species recorded

Annual meadow grass	<i>Poa annua</i>	Dandelion	<i>Taraxacum officinale</i> agg.
Ash	<i>Fraxinus excelsior</i>	Dog rose	<i>Rosa canina</i>
Bent	<i>Agrostis</i> sp.	Elder	<i>Sambucus nigra</i>
Bindweed	<i>Calystegia sepium</i>	False oat grass	<i>Arrhenatherum elatius</i>
Blackthorn	<i>Prunus spinosa</i>	Fescues	<i>Festuca</i> spp.
Bramble	<i>Rubus fruticosus</i>	Garden privet	<i>Ligustrum ovalifolium</i>
Broad leaved dock	<i>Rumex obtusifolius</i>	Hawthorn	<i>Crataegus monogyna</i>
Broadleaved willowherb	<i>Epilobium montanum</i>	Herb robert	<i>Geranium robertianum</i>
Chickweed	<i>Stellaria media</i>	Lesser celandine	<i>Ranunculus ficaria</i>
Cleavers	<i>Galium aparine</i>	Meadow buttercup	<i>Ranunculus acris</i>
Clover	<i>Trifolium</i> sp.	Meadow grass	<i>Poa</i> sp.
Cock's-foot	<i>Dactylis glomerata</i>	Nettle	<i>Urtica dioica</i>
Common bent	<i>Agrostis capillaris</i>	Oak	<i>Quercus</i> sp.
Common honeysuckle	<i>Lonicera periclymenum</i>	Perennial rye grass	<i>Lolium perenne</i>
Common mouse-ear	<i>Cerastium fontanum</i>	Ribwort plantain	<i>Plantago lanceolata</i>
Common ragwort	<i>Senecio jacobaea</i>	Rosebay willowherb	<i>Chamerion angustifolium</i>
Creeping bent	<i>Agrostis stolonifera</i>	Spear thistle	<i>Cirsium vulgare</i>
Creeping buttercup	<i>Ranunculus repens</i>	Sycamore	<i>Acer pseudoplatanus</i>
Cuckoo flower	<i>Cardamine pratensis</i>	White clover	<i>Trifolium repens</i>
		Yorkshire fog	<i>Holcus lanatus</i>

Appendix 4 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 Sheffield Biological Records Centre 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.

Local Biodiversity Action Plan

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

Species/Group	Habitat
Hedgehog	Mixed deciduous woodland
Bats	Upland oakwood
Water Vole	Wet woodland
Otter	Parkland and veteran trees
Grey Partridge	Traditional orchard
Bittern	Scrub
Kestrel	Coniferous woodland
Little Ringed Plover	Hedgerows
Lapwing	Arable field margins
Barn Owl	Acid grassland
Skylark	Neutral grassland
Tree Sparrow	Floodplain grazing marsh
Twite	Amenity grassland
Great Crested Newt	Upland heathland
Salmon	Lowland heath
Bullhead	Reedbeds
White-clawed Crayfish	Lowland fen
Glow Worm	Upland flushes, fens and swamps
Dingy Skipper	Rush pasture
Bluebell	Blanket bog
	Standing water and ponds
	Running water, rivers & streams
	Open Mosaic Habitats on Previously Developed Land
	Built environment and gardens

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
<i>Negligible</i>	Negligible habitat features on site likely to be used by roosting bats.
<i>Low</i>	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.
<i>Moderate</i>	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).
<i>High</i>	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 5 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 or 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 hedgerows will be of some use to the local bat populations for commuting / foraging. However, the lack of connectivity to higher value habitat in the wider landscape, means that the bats will unlikely have any real dependence on the Site. Usage of the Site is easy to predict, and further survey is establishing its baseline is considered unnecessary.

Appendix 6 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, water vole 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 from 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 2018. 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 “*contribute to protecting and enhancing our natural environment*” and “*help to improve 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 functions for wildlife*” (P118).

Section 15 details conserving and enhancing the natural environment; policies and decisions should be “*protecting and enhancing 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 (P170). Allocations of land for development should, “*prefer land of lesser environmental value, where consistent with other policies in this Framework and take a strategic approach to maintaining and enhancing networks of habitats*” (P171).

The Framework sets out ways to minimise the impacts on biodiversity through “*identifying, mapping and safeguarding 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 the “*conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and (the need to) identify and pursue opportunities for securing measurable net gains for biodiversity*” (P174).

It is made clear in P175 that local planning authorities should apply principles when determining planning applications. Planning permission should be refused “*if significant harm to biodiversity resulting in 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 incorporate biodiversity improvements in and around developments should be encouraged, 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.