

OUTLINE MITIGATION STRATEGY

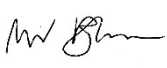
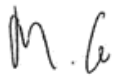
MAY 2022

Cornhill Regeneration Project,
Barnfield Road and Sunnyhills Road,
Leek,
Staffordshire,
ST13 5RJ

U R B A N
G R E E N



QUALITY MANAGEMENT

Project No.:	UG1145				
Project:	Cornhill Regeneration Project				
Location:	Barnfield Road and Sunnyhills Road, Cornhill, Leek ST13 5RJ				
Title:	Outline Mitigation Strategy				
Document Type:	OMS	Issue No.:	01		
Date:	03/05/2022				
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Revision Status:					
Rev:	Date:	Issue/Purpose/Comment:	Prepared:	Checked:	
02	09/05/2022	Updates following client comment	Mark Blacker	Jake Healy	

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1 Introduction

1.1 Background to the Scheme

Casey Group are proposing to develop land at Barnfield Road and Sunnyhills Road, Leek in Staffordshire (hereafter referred to as ‘the site’). The proposals include the demolition of former industrial buildings and redevelopment of the site to a residential area.

Urban Green have been appointed to complete an Outline Mitigation Strategy for this site, following the completion of a PEA in July 2021 (Urban Green, 2021).

The author of the report is Mark Blacker, ACIEEM, Senior Ecologist. Mark has experience providing ecological consulting services for a range of development schemes across the UK, including residential, commercial, and large infrastructure schemes.

1.2 Site Context

The site is located at National Grid Reference SJ 97749 55272 and comprises a total area of approximately 7.3ha (see Figure 1).

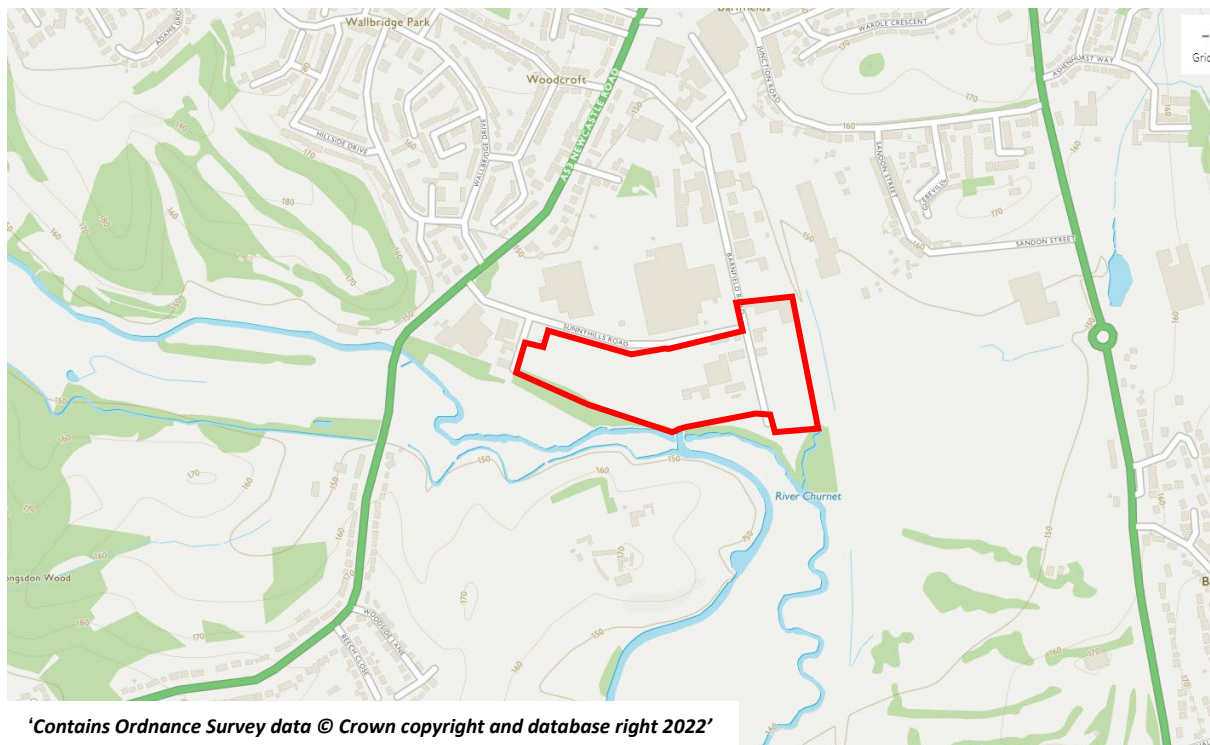


Figure 1 – Site Extent

The site is located on the rural-urban fringe of Leek, approximately 1.5km from the town centre. Sunnyhills Road borders the site to the north and Barnfield Road runs through the eastern part of the site. The A53 is present approximately 300m to the west and the A520 is present approximately 800m to the east. Westwood Golf Club is present approximately 700m to the west and Leek Golf Club is also present 1km to the south-east. The River Churnet is present 30m to the south.

1.3 Purpose of this Report

This report has been produced to provide mitigation proposals to support the proposed development. This report is based on desk study information, results of previous surveys, and an updated site visit in April 2022 and intends to fulfil the following purposes:

- determine what protected or notable species are likely to occur on the site and appropriate mitigation if necessary; and,
- assess the likely impacts of the proposed development on ecology.

It is understood the report will be used to support a planning application for the site.

Mitigation proposals will be reviewed following the completion of all recommended species specific surveys to ensure that they are relevant to the ecology of the site.

Further information and details of relevant UK legislation for those species which are formally protected is defined within Appendix 1 of the PEA (Urban Green, 2021).

2 Summary of Site Ecology

The site was subject to a field survey on 25th June 2021, by Katie Bird, Senior Ecologist at Urban Green. The weather conditions were 11°C, overcast (8/8 oktas), with precipitation throughout the survey. A full assessment of the site was undertaken, and all habitats present on site were mapped based on the standard methodology as detailed by *JNCC Handbook for Phase 1 Habitat Survey* (JNCC, 2010).

This site survey also involved a Preliminary Roost Assessment (PRA) of the site buildings and trees using a high-powered torch and close-focussing binoculars.

Ponds adjacent to the site were also assessed for their suitability to support great crested newts and they underwent a Habitat Suitability Index (HSI) assessment following the methodology set out in ARG UK Advice Notice 5 (Oldham *et al.*, 2010).

A summary of the baseline ecology conditions identified on site is provided within Table 1, for full details regarding the ecology of the site, please see the PEA (Urban Green, 2021).

Table 1 – Summary of Baseline Ecology present on site.

Feature	Description
Statutory Designated Sites	Two statutory designated sites were present within 5km of the site boundary: • Ladderedge Country Park Local Nature Reserve (LNR) • Combes Valley (SSSI)
Non-statutory designated sites	Five non-statutory designated sites were present within 1km of the site boundary: • Birchall Meadow Biodiversity Alert Site (BAS); • Ladydale Wood Pasture Sites of Biological Importance (SBIs); • Beech Close (SW of), Longsdon SBI; • Longsdon Wood & Cowhay Wood SBI; and, • Caldon Canal (south of Hollinhay Wood) SBI.
Habitats	Habitats identified on site comprised: • Hardstanding; • Ephemeral/short perennial; • Buildings; • Broadleaved woodland; • Scattered trees; • Dense/scattered scrub; and • Poor semi-improved grassland.
Notable plants	No notable plants were identified during the survey, and the site is not considered to be suitable to support such species due to its previous use as an active factory. Records of notable plant species, including eyebright (<i>Euphrasia</i> sp.) were returned from Ladderedge Country Park LNR, located 600m south of the site.
Invertebrates	The site provides a suitable mosaic that provides a variety of habitats to support a range of invertebrates.
Amphibians	Two ponds were present within 250m of the site that were assessed as providing poor suitability to support great crested newt but could support common amphibians.
Reptiles	The site has been colonised to provide a mosaic of habitats which can support a population of reptiles, with records of this species group present within the local area.

Feature	Description
Birds	The site is unlikely to provide significant habitat for ground nesting birds, however the trees and scrub present on site do provide suitable habitat for nesting passerine bird species. Additionally, the buildings present within the site may provide suitable habitat to support nesting barn owl.
Bats	Five buildings on site were assessed as providing bat roost potential, with a likely roost identified within Building 2. The habitats were also assessed to provide value to commuting and foraging bats, with habitats of greater value found around the periphery of the site.
Hedgehog	Suitable habitat to support this species is present on site and surrounding the site.
Brown Hare	The habitats on site are considered to be of limited value to support brown hare due to an absence of open grassland and arable fields.
Polecat	Suitable habitat to support polecat is present on site and surrounding the site.
European Otter	The River Churnet is considered suitable to support populations of otter and suitable habitat is present along the banks of this river for a holt.
Water vole	The River Churnet is considered to be unsuitable for water vole due to the high flow velocity of the river and lack of suitable bankside habitat.
Badger	No evidence of a badger sett was present on site, however suitable habitat to support this species is present adjacent to the site.
Invasive non-native species	No evidence of invasive non-native species was found on site at the time of survey.

3 Mitigation Proposals

3.1 Habitats

3.1.1 Open Mosaic Habitat on Previously Developed Land

The site forms an area of brownfield that has been left undisturbed for approximately 15 years. The habitats that have developed are important for a wide variety of species. To mitigate for the loss of this habitat on site, it is recommended that excess hardcore and rubble of varying sizes from the site clearance works is installed within cleared areas around the ponds present south of the site to create open, bare areas that can be colonised by similar species as those which are present on site.

Management should be undertaken to ensure that vegetation e.g., scrub, bramble, does not become dominant within these areas and that bare, open sections are maintained.

3.1.2 Scattered trees

The line of trees present along the northern boundary of the site will be retained within the site layout to ensure connectivity throughout the site and also to the surrounding environment.

Generally, the protection measures of retained trees will be through the use of temporary protective demarcation fencing to protect the trees and shrubs. The fencing must extend outside the canopy of the retained trees and must remain in position until all plots have been developed to ensure protection is provided throughout the construction phase. The AIA details the extent of tree loss and measures to protect retained trees.

Additional trees will be planted throughout the site to provide additional tree cover and connectivity within the site. Trees to be planted will be native species which will provide a greater level of nesting habitat than is currently present for notable bird species that are likely to utilise the site.

3.1.3 River Churnet

The River Churnet is located in close proximity to the south of the site, and there is a likelihood of increased levels of pollutants entering the river via ground and surface water sources during the construction stage. To minimise the risk of potential pollutants entering the water sources during the construction phase, it is recommended a detailed Construction and Environment Management Plan (CEMP) specific to the proposed development is produced. The CEMP would be detailed to avoid, minimise, and mitigate for negative impacts resulting from construction practices.

The operational phase of the development should consider appropriate measures to minimise pollutants entering the waters sources. Proposed drainage should consider measures to minimise this risk.

The CEMP's objectives should include the following:

- Demonstrate the responsible persons and lines of communication.
- Demonstrate the role and responsibilities on site of Ecological Clerk of Works (ECoW) and details of when the ECoW is required to oversee specific works as part of the construction phase.
- Demonstrate the role and responsibilities on site of the Ecological Control Officer (ECO)

- Demonstrate the potential impacts on protected/notable fauna, habitats and designated sites anticipated and confirmed to be on site and adjacent, in relation to the proposed construction activities.
- Demonstrate the proposed retention of habitats in order to maintain the site's ecological value for local wildlife using protective fences, exclusion barriers and warning signs.
- Describe the provision and maintenance of shelter for protected/notable species during the construction phase using protective fences, exclusion barriers and warning signs.
- Demonstrate the locations of 'Biodiversity Protection Zones' and outline the working methods to be followed during the construction phase, regarding retained habitats and associated fauna.
- Demonstrate physical measures and sensitive working practices to avoid or reduce impacts during construction on protected/notable species.
- Outline monitoring procedures of ecological features within the site during the construction phase where necessary.
- The location and timing of sensitive works to avoid harm to biodiversity features.

3.2 Species

3.2.1 Invertebrates

The PEA conducted in July 2021 (Urban Green, 2021), identified a mosaic of habitats including flower rich grassland and ephemeral/short perennial vegetation that are likely to provide a range of suitable habitats to support invertebrates at all stages of their life cycle.

Additionally, during the site survey conducted in July 2021, a cinnabar moth (*Tyria jacobaea*) was observed on site. This species relies on ragwort (*Senecio jacobaea*) during its larval stage, which was also identified on site. To support the population of this species within the local area, it is recommended that ragwort is planted within Ladderedge Country Park to increase the availability to this food plant within the area.

Rotational mowing practices should be implemented within areas of grassland to allow flowering plants to set seed and provide a greater level of habitat diversity than is currently present.

Excess hardcore and rubble etc. from site clearance works will be used to create a mosaic of habitats around cleared areas with patches of bare ground and sparsely vegetated areas providing basking and burrowing opportunities for a wide variety of species.

Two poor quality ponds were present within Ladderedge Country Park, located adjacent to the southern boundary of the site. Restoring these ponds so that they hold water all year round will provide an additional habitat for a wide variety of invertebrate species that is not currently present on site, encouraging colonisation by species which rely on good quality ponds within their life cycle. These ponds should be planted with a range of marginal and aquatic vegetation to encourage colonisation and provide greater opportunities to support invertebrate species.

3.2.2 Reptiles

Open areas within the site provide suitable basking areas for reptiles, whilst the adjacent habitats are likely to support prey species.

The habitat present south of the site within Ladderedge Country Park will be managed and enhanced to provide greater habitat suitability for reptiles and mitigate for the amount of habitat that is to be lost on site due to the development.

Two poor quality ponds were present within Ladderedge Country Park. Restoring these ponds so that they hold water all year round will provide an additional source of prey for reptile species that prefer aquatic environments, such as grass snake. These ponds should be planted with a range of marginal and aquatic vegetation to encourage colonisation. Scrub around these ponds should be managed to maintain open areas preferable to reptiles for basking. Brash or log piles should be situated around each pond containing materials of a mix of sizes and shapes. Excess hardcore etc. arising from site clearance works can be used to create reptile hibernacula which will be used during the winter months. These should be placed in a sunny position facing south with suitable habitat surrounding them, and be approximately 4m long, 2m wide, and 1m high.

Large areas of grassland can be subject to a rotational mowing program where the area is split into smaller parcels, and one third of parcels are mown each year. This will create a diverse, tussocky structure and prevent succession to scrub. Mowing should be undertaken on days when reptiles are least likely to be active, e.g., during the winter months or on colder, cloudy days during the active season. This will provide suitable habitat for sheltering reptiles, as well as increase prey availability.

Vegetation cuttings can also be used to create grass snake egg-laying habitat. These should be at least 1m³ in area and be replenished regularly and be left undisturbed between June and September. Multiple heaps should be created in suitable areas within the site, in both full sun and partial shade, to increase chances of eggs surviving

To avoid impacts to individual reptiles, it is recommended that the following Reasonable Avoidance Measures are put into place during the construction period:

- If a reptile is encountered during construction, all works should immediately cease, and the reptile should be moved from the working area and placed at a safe distance within suitable habitat to the south of the site. Anyone handling a reptile should wear gloves at all times.
- No materials should be left within 5m of the site's southern and western boundaries.
- Any excavations left open overnight should be covered, if this is not possible a suitable means of escape should be added such as a ramp. A full check should be done of all excavations before backfilling occurs.

It is recommended that signs are placed within the residential development to inform residents of the value of Ladderedge Country Park for reptiles and to recommend that pet cats are kept inside as much as possible as they are keen predators of reptiles.

3.2.3 Amphibians

Two ponds are present within close proximity to the south of the site, and an additional pond present to the north of the site. These ponds are generally in poor condition; however, they could provide suitable habitat to support common amphibians. Restoring these ponds so that they hold water all year round will provide an increased level of suitable habitat for common amphibians to breed in, whilst reducing the level of mowing within grassland areas will provide additional shelter for these species. These ponds should be planted with a range of marginal and aquatic vegetation to encourage colonisation.

It is recommended that Reasonable Avoidance Measures are to be followed during site clearance and could be adopted within the recommended CEMP. All site contractors are to be inducted to the potential presence of the species. Any debris is to be cleared by hand, and any common amphibians located moved carefully, by hand, to outside of the development area.

3.2.4 Birds

The site is adjacent to Ladderedge Country Park LNR. This designated site is known to support populations of willow tit. Enhancement of the ponds present adjacent to the southern boundary of the site within Ladderedge Country Park should include areas of willow planting to provide increased habitat for this species and other tree and scrub nesting bird species. The amount of woodland present along the River Churnet can also be increased to provide a stronger linear feature and will also provide increased level of shelter which will encourage bank nesting species such as kingfisher to colonise the area.

Any site clearance works (including foundation removal and buildings) should be undertaken outside of the breeding bird season (March to September, inclusive). If this is not possible, a suitably experienced ecologist should check the habitat for breeding bird activity no more than 48 hours before clearance. If nesting activity is found, nests must be left in situ until the young have fledged.

Building 1 and 8 have the potential to support nesting barn owl, though no evidence of the species was identified during the survey. It is recommended that the presence of barn owl within the buildings is considered within the recommended CEMP, with appropriate working methods included.

3.2.5 Hedgehog

Hedgehogs are deemed likely present on site. As such, during site clearance, the introduced shrub should be removed by hand to ensure no sheltering hedgehogs are impacted by the works. If hedgehogs are located, they should be carefully moved by hand to an area outside of the construction workings. These measures could be outlined within the recommended CEMP.

3.2.6 Polecat

Polecat are anticipated to be on site. The reasonable avoidance measures relating to badgers (see Section 3.2.8) also considers the presence of this species and will minimise risk of killing and/or injuring individuals.

3.2.7 Bats

Roosting Bats

Buildings 2, 3, 6, 7, and 9 were assessed as providing potential to support a bat roost. Internal access was not possible to some of these buildings, so they have been assessed precautionarily. In summary:

- Building 3 and 7 has low bat roosting potential.
- Building 6 and 9 has moderate bat roosting potential.
- Building 2 has high bat roosting potential (likely roost through identification of bat droppings at entrance point).
- Building 1, 4, 5, 8, 10 and 11 had negligible bat roosting potential.

Further bat surveys are recommended to be conducted on each of the buildings identified with bat roost potential, following good practice guidance in Collins (2016).

All buildings present within the site are proposed to be demolished to facilitate the development. If evidence of a roost is confirmed with any of the buildings, a licence from Natural England will be required.

The surveys will fully inform the level of mitigation required. Replacement bat boxes will be installed within the woodland present to the south of the site to mitigate for the loss of roosting opportunities due to the demolition of the site buildings. This woodland is present adjacent to the River Churnet, which is likely to be of high value for commuting and foraging bats and therefore subject to a high level of bat activity. The bat boxes to be installed will target crevice dwelling bat species, which are most likely to use the features present within the buildings on site. A suitable number of bat boxes will be provided which will provide a greater level of roosting provision than is currently present on site.

Commuting and Foraging Bats

The retention of the habitats of highest value and the recommendation of creation of species rich habitats will compensate for the loss of foraging. The proposed landscaping scheme should include appropriate planting, favouring native species. Compensatory planting should include a diverse flood meadow mixture to increase floristic diversity to attract invertebrate prey and increase foraging opportunities for bats.

The habitat present off site within Ladderedge Country Park is of high value to commuting and foraging bats. Enhancing the quality of the ponds present off site will provide a variety of habitats that will support a greater abundance of invertebrate prey to support foraging bats. Enhancements to the woodland present within Ladderedge Country Park will lead to strengthening of the linear features

The habitats surrounding the site are anticipated to be the most valuable commuting and foraging habitat for the local bat population. This habitat is offsite and outside the remit of the client. However, the recommended CEMP should mitigate potential impacts to this habitat and should consider lighting and working hours.

Slow-flying species such as brown long-eared and *Myotis* species, are known to be in the local area. These species are sensitive to lighting and may be impacted by the proposed development, should no mitigation for lighting be considered.

Lighting mitigation should follow the guidance outlined in the Institute for Lighting Engineers document “Guidance for the Reduction of Obtrusive Lighting” (2005) and BCT’s “Bats and Artificial Lighting in the UK” (2018).

Construction lighting should not be directed towards retained and surrounding habitats. The construction lighting may impact bats which are sensitive to light. Directional lighting will be achieved by angle and orientation of beam, use of a cowl, louvre or other light shield, or a combination of these.

An External Lighting Scheme had not been produced on the writing of this report. As such, the following recommendations are to be considered within the scheme during its condition, to minimise impacts of lighting. The recommendations are as follows:

- Keep site lighting to minimum levels.
- Luminaries should lack UV elements and preferably LED lighting with a warm white light should be used over cool white light (ideally <2700Kelvin).
- Lighting should feature peak wavelengths greater than 550nm.

- Internal lighting should be positioned away from windows to minimise light spill.
- Light placement should be downward facing to prevent excess horizontal or vertical light spill.
- The use of integrated fittings such as cowls, shields, louvres, and hoods, that effectively contain light spill from unintended areas.
- The use of hard landscaping features to block light and create dark corridors.
- Avoid illuminating any suitable bat habitats, particularly boundary habitats and the River Churnet and Caldron Canal, which are likely valuable commuting and foraging habitat for bats.
- Use of timed security lights should be set on motion-sensors and using short, 1-minute timers, to minimise light use.
- Column heights of lighting can be considered to minimise light spill.

3.2.8 Badger

It is not anticipated the proposed development will impact the species as the majority of habitat of highest value for the species (i.e., broadleaved woodland) will not be impacted by the proposed development. It is considered that the badgers located within the local area and on site are generally tolerant to anthropogenic disturbance as the site is located within a commercial area.

The following Precautionary Working Methods will be adhered to during construction phase to ensure that no badgers are impacted by the proposed development, and could be adopted within the recommended CEMP:

- All site operatives will be inducted to the potential presence of the species and the species legal protection.
- All site operatives will be inducted as to identifying potential badger setts and should be vigilant if they suspect they locate a new sett during works and inform the site manager immediately. A minimum 20m buffer will be maintained from the potential sett until an ecologist has been to site.
- All excavations will be battened at a 45-degree angle or ramps to be positioned to allow escape should animals become trapped.
- All site machinery and materials will be appropriately stored to avoid harm to the species, notably between July and November each year when extra care is needed to avoid potential impacts on pregnant females.

3.2.9 Otter

The River Churnet is considered to provide suitable habitat to support populations of otter, with suitable mature trees present along the banks that may provide suitable holt locations.

An otter survey to search for the presence of otter holts was conducted on site by Urban Green in April 2022. Regular evidence of otter use of the River was identified, including multiple spraints and footprints, however no otter holts were identified within close proximity of the site, as such it is not anticipated that the development will have an adverse impact on otter populations found within the River Churnet.

Due to proximity of the site to the River Churnet, it is recommended that the following Reasonable Avoidance Measures should be followed throughout the construction phase:

- All site personnel are to be inducted through use of a toolbox talk, on the presence of otters, their legal protection and working limits.
- Prior to any works taking place to the outfall into the River Churnet, an inspection for the presence of otter should be undertaken.
- Regular inspections of the watercourse and its banks for any sign of otter holts or activity. These should be undertaken by an ecologist at regular intervals during the operation of the site.
- Any man-made excavations, trenches or pits relating to the development that must remain open overnight, will either be securely fenced off or covered up overnight to avoid entrapment of otters, if left open, access ramps (e.g., mammal ladders, a roughened plank or even a ramp of earth) will be placed within the excavation each night near to crossing points to allow any animals that accidentally fall into the excavation a means of climbing out.
- Any temporarily exposed open pipe system will be capped in such a way as to prevent otters gaining access, as this may happen when contractors are off-site.
- Nocturnal lighting should be directed away from Wellington Brook.

In the unlikely chance an otter is discovered on site, works must cease immediately, and the project ecologist is to be contact immediately and Natural England are to be informed.

4 Conclusion

This report provides mitigation proposals to support the proposed development at land at Barnfield Road and Sunnyhills Road. The proposals contained within this report are based on desk study information and the likely presence of species within the site, prior to surveys being conducted.

Mitigation proposals will be reviewed following the completion of all recommended surveys to ensure that they are relevant to the ecology of the site.

5 References

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