



Document No.2334 PEA – Preliminary Ecological Appraisal

East Midland Zoological Society, Burton Rd, Atherstone CV9 3PX

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1. Non-technical Summary

This Preliminary Ecological Appraisal has assessed the ecological value of land at East Midland Zoological Society / Twycross Zoo, Burton Road, Atherstone, CV9 3PX, and identified the main ecological constraints and recommendations associated with the proposed development. The proposed development comprises the construction of three zoo-related structures to be used as a home education block, nursery and kitchen.

The survey area is split between two separate areas: the main works area and a separate Forest Schools area. The main works area comprises modified grassland, bare ground, tall ruderal vegetation, a tall coniferous hedgerow, a line of poplar trees, mature fir and Prunus trees, fencing and a small single skin shed. The second area comprises taller ruderal vegetation and defunct hedgerow.

The key findings of the appraisal are summarised below:

- No statutory designated sites, priority habitats or Tree Preservation Orders were identified within 1km of the proposed development areas.
- The site lies within the Leicestershire, Leicester and Rutland Local Nature Recovery Strategy area. The wider Twycross Zoo estate is also associated with its own biodiversity objectives, including a target to manage/protect 30% of its land for nature by 2030.
- The site also lies within a Countryside Stewardship species targeting area for corn bunting and lapwing. These species are associated with open farmland and grassland habitats, although the immediate works area is considered to provide limited suitability for these species.
- The habitats within the main works area are generally of low ecological value, being dominated by modified grassland, bare ground and managed habitats. However, retained boundary vegetation, including the coniferous hedgerow, mature trees and line of poplars, provides localised ecological value.
- The mitigation area is of greater ecological value than the main works area due to the presence of tall ruderal vegetation, grassland and blackthorn scrub, which provide cover, foraging habitat and habitat connectivity for common wildlife.
- Bat roosting potential is considered negligible for the small single-skin timber shed and accessible trees assessed from ground level. A visible cavity / wound feature was recorded on one mature boundary tree within the poplar/tree line; however, this feature does not provide access into the trunk or an enclosed void and the full extent of the feature is visible externally. No potential roost feature was therefore identified, and no evidence of roosting bats, including droppings, staining or feeding remains, was recorded. No further bat roost survey is considered necessary based on the current proposals, unless new works are proposed to trees that reveal previously unseen suitable features.
- The site provides moderate potential for foraging and commuting bats, primarily associated with boundary vegetation, the line of poplar trees, mature trees and ruderal habitats. Sensitive lighting will therefore be required to maintain dark corridors and avoid light spill onto retained habitats.
- The site provides moderate potential for nesting birds, particularly within the coniferous hedgerow, mature trees, line of poplars, blackthorn scrub and dense ruderal vegetation. Vegetation clearance should be undertaken outside the main bird nesting season, March to August inclusive, where practicable, or following a nesting bird check by a suitably qualified ecologist.
- Great crested newt potential is considered negligible. A large pond is present approximately 460m from the proposed development area and approximately 150m from the forest school area; however, fish and waterfowl were observed within the pond during the site visit, reducing its suitability for breeding great crested newt. General amphibian precautions should still be followed during vegetation clearance and groundworks.
- The proposed development area is considered to provide negligible potential for reptiles, badger, hedgehog and other mammals due to its enclosed and managed character. The forest school area provides low potential for reptiles and moderate potential for badger, hedgehog and other mammals due to the presence of tall ruderal vegetation, grassland and blackthorn scrub.
- No invasive non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981, as amended, were recorded during the walkover survey.
- The River Mease Special Area of Conservation is the nearest Habitats Site requiring consideration in the wider area. Significant effects are considered unlikely, subject to standard construction safeguards, including pollution prevention, sediment control, appropriate drainage management and avoidance of contaminated run-off entering drainage features, watercourses or connected habitats.
- Biodiversity Net Gain and ecological enhancement will be delivered through the Landscape and Ecological Enhancement Scheme, drawing reference DJOGS L&EES 2189.2 rev1. Enhancement measures should align with statutory BNG requirements, the Leicestershire, Leicester and Rutland Local Nature Recovery Strategy, and Twycross Zoo's wider biodiversity objectives.

Subject to the implementation of the recommended mitigation, avoidance and precautionary measures, the proposed development is considered capable of proceeding without significant adverse ecological effects. Required measures include protection of retained trees and boundary vegetation, nesting bird safeguards, sensitive lighting for bats, precautionary vegetation clearance methods within the mitigation area, pre-commencement badger checks where appropriate, general amphibian precautions, pollution prevention measures and ecological toolbox talk for contractors.

2. Introduction

2.1 Purpose of this report

This Preliminary Ecological Appraisal (PEA) has been prepared to provide an initial assessment of the ecological receptors present within East Midland Zoological Society, Burton Rd, Atherstone CV9 3PX. The purpose of the appraisal is to establish the baseline ecological value of the site, identify potential constraints or opportunities associated with the proposed development, and assess any relevant legislative or policy considerations.

Specifically, the report:

- Outlines the habitats and species recorded on site during the survey.
- Identifies ecological receptors of potential importance and any constraints to development.
- Highlights where further targeted surveys are required to assess risks to protected or priority species.

- Recommends mitigation, avoidance and enhancement measures proportionate to the level of risk.
- Provides initial guidance on how statutory Biodiversity Net Gain (BNG) requirements, under the Environment Act 2021, can be integrated into the design process.

This PEA is intended to inform the planning process, support decision-making, and provide a basis for subsequent ecological survey and mitigation strategies.

2.1.1 Personnel

The site and accessible adjacent land were surveyed by Ecologist Alexander Billingsley BSc (Hons) Ecology on 9th June 2026, in clear and sunny conditions with air temperatures between 12-16 °C. The report was prepared by Alex and checked by senior ecologist Richard Billingsley BSc (Hons) Ecology.

2.2 Site location and description

Site Location

The site is located at East Midland Zoological Society / Twycross Zoo, Burton Road, Atherstone, CV9 3PX, within the settlement of Norton-juxta-Twycross, close to the Leicestershire / Warwickshire border. The site is accessed from Burton Road / the A444 corridor and lies within a predominantly rural landscape context, with the wider area comprising a mixture of Zoological Park infrastructure, managed grounds, pasture, arable land, hedgerows, scattered trees, small woodland blocks and nearby village development associated with Twycross and Norton-juxta-Twycross. At a national landscape scale, the site lies within National Character Area 72: Mease/Sence Lowlands, which is described by Natural England as a gently rolling agricultural landscape centred on the Rivers Mease, Sence and Anker, extending across parts of Leicestershire, Warwickshire, Staffordshire and Derbyshire, with a generally rural character, small villages, red-brick farmsteads, hedgerow networks, scattered trees and occasional historic parkland.

Site Description

The survey area is split between two separate areas: the main works area (area A) and a separate forest school area (area B).

The main works area comprises a small, enclosed parcel of modified grassland with areas of bare ground and a patch of tall ruderal vegetation dominated by common nettle. The area is enclosed by a tall coniferous hedgerow and a line of poplar trees, which provide screening and some structural habitat around the site margins. Mature trees are also present within the area, including fir and Prunus species. A small structure is present within the site, comprising an old single skin shed. This structure was assessed as having no visible cavities, crevices or other features suitable for roosting bats. The whole works area is enclosed by fencing with a locked gate, limiting public access. A public right of way is present immediately outside the fenced boundary and passes adjacent to the site.

The Forest school area is separate from the main development area and is dominated by tall ruderal vegetation, including broad-leaved dock, creeping thistle and common nettle. A defunct hedgerow dominated by blackthorn is present adjacent to the mitigation area, providing some boundary structure and potential habitat connectivity for common wildlife.



Figure 2.2 Site Location: Satellite image using Google Earth. The image on the left shows the site in which the proposed works are taking place, the image on the right is where the mitigation is occurring.

2.3 Proposed Development

The proposed development will include the construction of three structures to be used as a home education block, nursery and a kitchen. No proposed layout has been provided for the Forest school area at this time however this is shown as a parcel of land labelled -Forest schools area B on *Figure 2.3b: L&EES page 7 of this PEA*

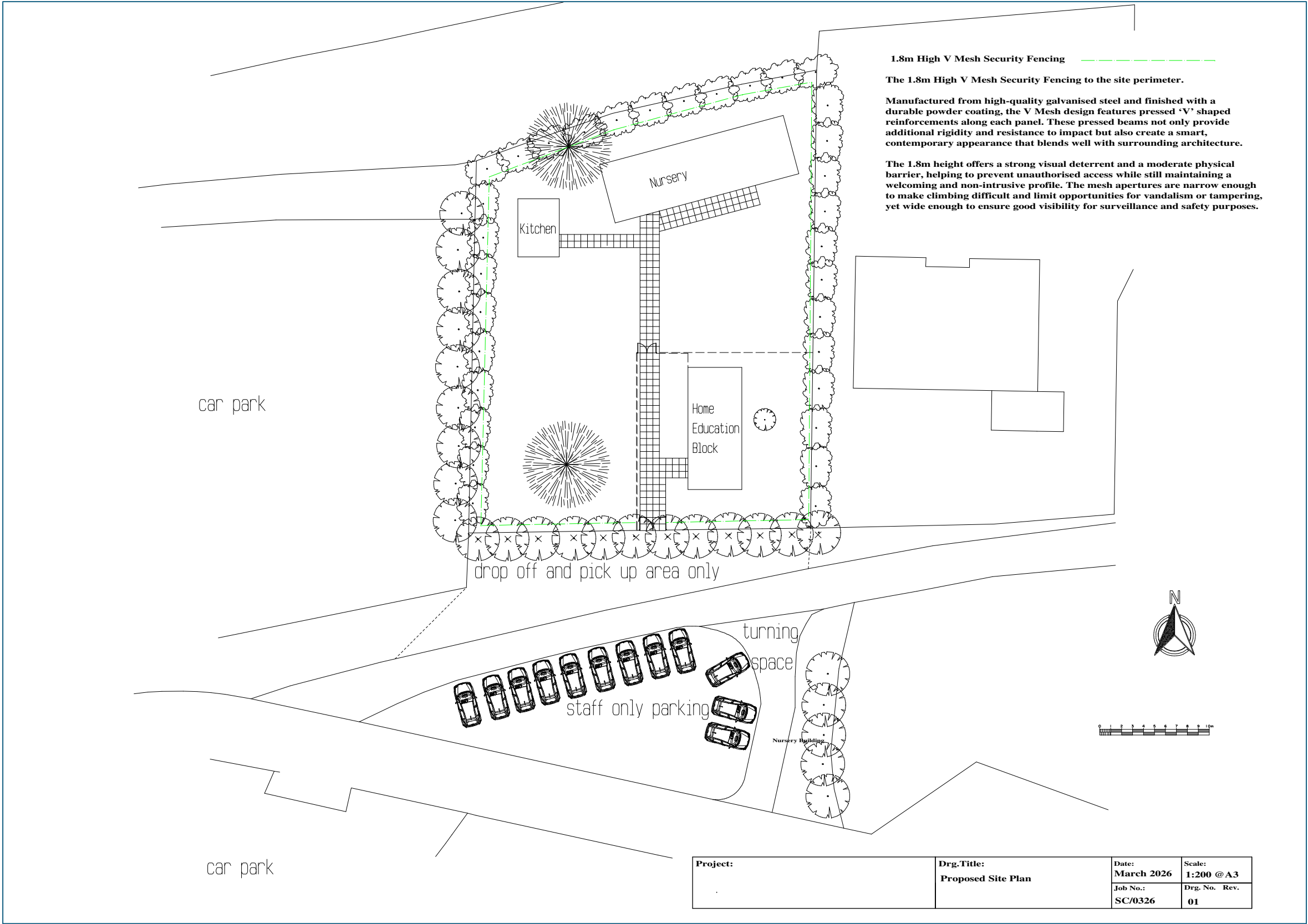


Figure 2.3a: Proposed development

Landscape & Ecological Enhancement Scheme.

DJOGS Ltd have provided a L&EES in support of the development proposal and to optimise biodiversity value within the site. The scheme retains most of the on-site green infrastructure with only one small tree removed. Ecological enhancements are proposed in front of the homeschool classroom, within the staff parking area and within the proposed forest school area. This includes enhanced grassland, mixed native hedges, other neutral grassland, native scrub and tree planting. Bird nest and bat roost boxes are also proposed. The scheme is designed to provide educational interest, amenity value and address mandatory 10% BNG requirement.

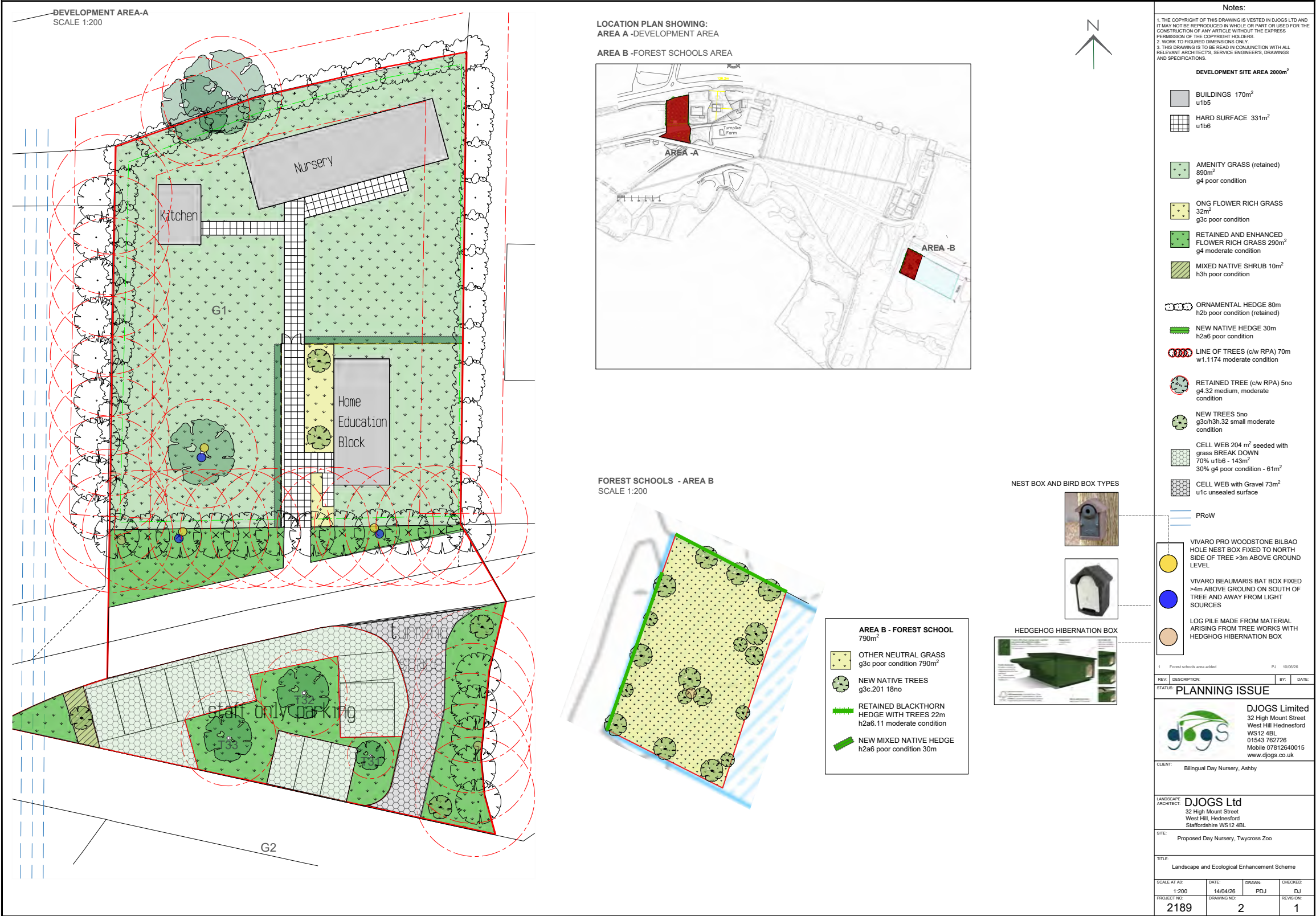


Figure 2.3b: L&EES

2.4 Policy and Legislative Context (summary)

The appraisal and proposed development are subject to a range of legislative provisions and planning policy requirements relevant to ecology and biodiversity.

Key legislation:

- Conservation of Habitats and Species Regulations 2017 (as amended): affords strict protection to European Protected Species (e.g. bats, great crested newts) and Habitats Sites.
- Wildlife and Countryside Act 1981 (as amended): protects wild birds, certain animals and plants, and prohibits the spread of invasive species.
- Protection of Badgers Act 1992: makes it an offence to harm badgers or interfere with their setts; sett location data is confidential.
- Natural Environment and Rural Communities (NERC) Act 2006, Section 41: places a duty on public bodies to conserve and enhance priority habitats and species.
- Environment Act 2021: introduces mandatory 10% Biodiversity Net Gain (BNG) to be secured for at least 30 years through a Habitat Management and Monitoring Plan (HMMP) and legal agreement.

National planning policy:

- National Planning Policy Framework (NPPF, 2024): requires developments to follow the mitigation hierarchy, conserve and enhance biodiversity, protect valued landscapes and ecological networks, and deliver measurable net gains for biodiversity.

3. Desk Study & Site Context

3.1 Desk study sources

A desk-based review of ecological data and mapping resources was undertaken to provide wider context to the site survey. Sources consulted included:

- Badger records (within a 1 km search radius).
- Bat species records (within a 2 km search radius).
- Other mammals.
- Reptile and amphibian data including great crested newt (GCN) records.
- MAGIC Map (DEFRA): to identify statutory designations, priority habitats, ancient woodland and Agri-environment scheme data.
- NBN Atlas: to review species records and distribution trends at a broader scale.
- Aerial imagery and OS mapping: used to identify ponds, riparian woodland and hedgerow connectivity in the wider landscape.
- Phase 1 habitat plan: baseline mapping provided by the client (*2334 Phase 1 Habitat Map.pdf*).

This combined desk study information was used to inform the field survey, highlight potential ecological constraints and identify species or habitats requiring further consideration in the appraisal.

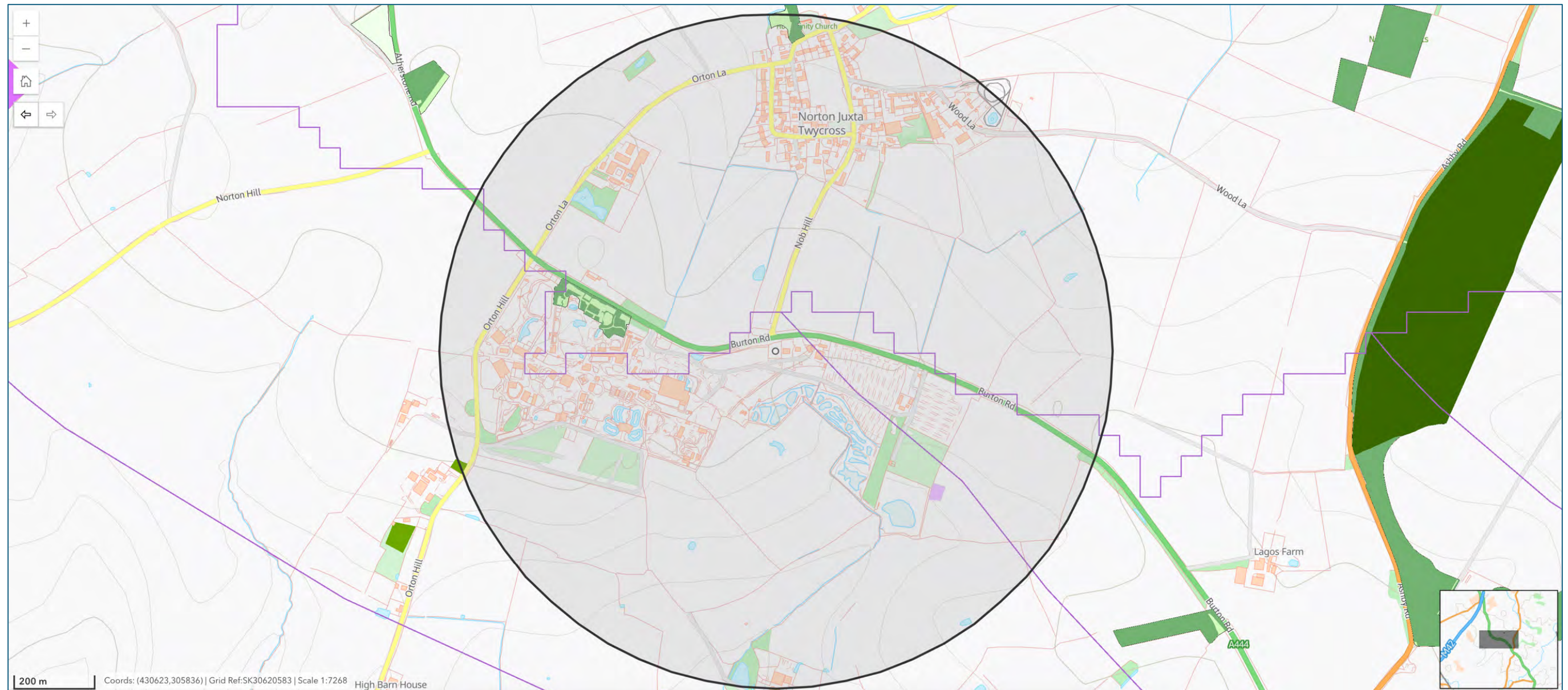
3.2 Designations within 1km

Statutory Sites

No statutory designated sites are located within 1km of the proposed development site; therefore, no direct impacts on statutory designated sites are anticipated as a result of the proposals.

Priority Habitats

No priority habitats are located within 1km of the proposed development site; therefore, no direct impacts on priority habitats are anticipated as a result of the proposals.



3.3 Local Nature Recovery Strategy and Twycross Zoo Biodiversity Context

The site lies within the Leicestershire, Leicester and Rutland Local Nature Recovery Strategy area. This strategy identifies strategic priorities and mapped opportunity areas for nature recovery across the county area, including the protection, restoration and creation of habitats of local biodiversity value. The wider Twycross Zoo estate is also associated with a site-specific biodiversity ambition to manage/protect 30% of its land for nature by 2030. Biodiversity mitigation and enhancement associated with the proposed works should therefore seek to contribute to these local nature recovery objectives where practicable, including through habitat creation, improved habitat connectivity and measures benefiting native species.

3.4 Tree Preservation Orders

There are no tree preservation orders on or around the proposed development areas.

3.5 Priority species for Countryside Stewardship targeting

The proposed development site lies within a Countryside Stewardship species targeting area for corn bunting (*Emberiza calandra*) and lapwing (*Vanellus vanellus*). These species are associated with open farmland and grassland habitats and are recognised as priority farmland birds. Although the habitats within the immediate works area are limited in extent and suitability, the wider rural landscape may provide opportunities for these species. Enhancement measures should therefore seek to support farmland bird objectives where practicable, including appropriate grassland management, native hedgerow enhancement, seed-bearing plants and reduced disturbance within suitable habitat areas.

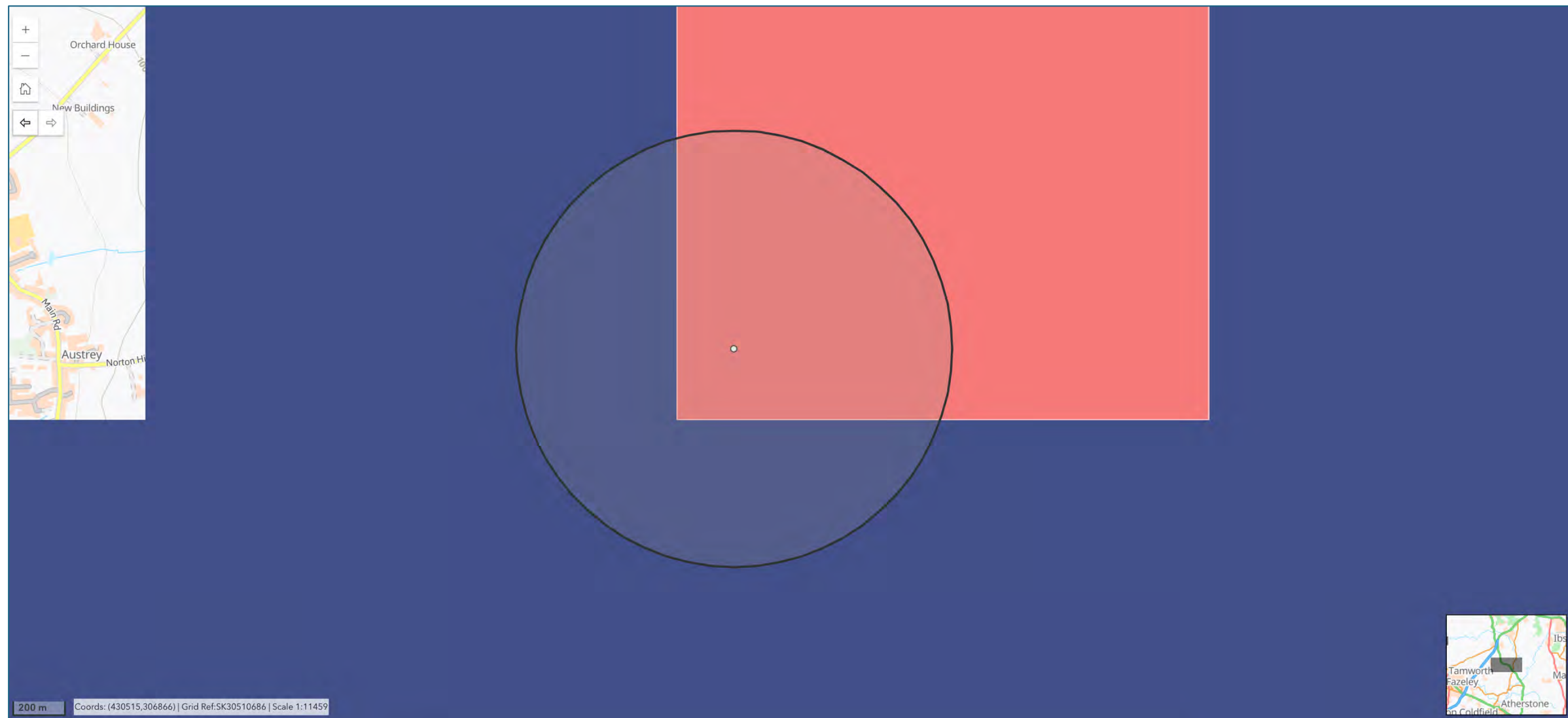


Figure 3.5: MagicMap showing countryside stewardship targeting species within 1km of the proposed development.

3.6 Notable species records (Within 1km except bats which is within 2km)

Birds

Records returned within the search area include woodpigeon (*Columba palumbus*), robin (*Erithacus rubecula*), blackbird (*Turdus merula*), magpie (*Pica pica*), starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), carrion crow (*Corvus corone*), blue tit (*Cyanistes caeruleus*), wren (*Troglodytes troglodytes*), greenfinch (*Chloris chloris*), dunnoek (*Prunella modularis*), great tit (*Parus major*), chaffinch (*Fringilla coelebs*), collared dove (*Streptopelia*

decaocto), goldfinch (*Carduelis carduelis*), pied wagtail (*Motacilla alba*), mallard (*Anas platyrhynchos*), jackdaw (*Coloeus monedula*), great spotted woodpecker (*Dendrocopos major*), coal tit (*Periparus ater*), long-tailed tit (*Aegithalos caudatus*), moorhen (*Gallinula chloropus*), song thrush (*Turdus philomelos*), mistle thrush (*Turdus viscivorus*), black-headed gull (*Chroicocephalus ridibundus*), tawny owl (*Strix aluco*), fieldfare (*Turdus pilaris*), swallow (*Hirundo rustica*), tufted duck (*Aythya fuligula*), coot (*Fulica atra*), goldcrest (*Regulus regulus*), yellowhammer (*Emberiza citrinella*), grey heron (*Ardea cinerea*), chiffchaff (*Phylloscopus collybita*), redwing (*Turdus iliacus*), jay (*Garrulus glandarius*), pheasant (*Phasianus colchicus*), little grebe (*Tachybaptus ruficollis*), reed bunting (*Emberiza schoeniclus*), kestrel (*Falco tinnunculus*), bullfinch (*Pyrrhula pyrrhula*), whitethroat (*Curruca communis*), house martin (*Delichon urbicum*), stock dove (*Columba oenas*), linnet (*Linaria cannabina*), blackcap (*Sylvia atricapilla*), treecreeper (*Certhia familiaris*), green woodpecker (*Picus viridis*), reed warbler (*Acrocephalus scirpaceus*), lesser black-backed gull (*Larus fuscus*), grey wagtail (*Motacilla cinerea*), rock dove (*Columba livia*), herring gull (*Larus argentatus*), skylark (*Alauda arvensis*), red-legged partridge (*Alectoris rufa*), mute swan (*Cygnus olor*), common sandpiper (*Actitis hypoleucos*), rook (*Corvus frugilegus*), tree sparrow (*Passer montanus*), nuthatch (*Sitta europaea*), kingfisher (*Alcedo atthis*), common gull (*Larus canus*), siskin (*Spinus spinus*), lapwing (*Vanellus vanellus*), teal (*Anas crecca*), swift (*Apus apus*), Canada goose (*Branta canadensis*), Cetti's warbler (*Cettia cetti*), brambling (*Fringilla montifringilla*), sedge warbler (*Acrocephalus schoenobaenus*), raven (*Corvus corax*), snipe (*Gallinago gallinago*), green sandpiper (*Tringa ochropus*), lesser redpoll (*Acanthis flammea cabaret*), meadow pipit (*Anthus pratensis*), waxwing (*Bombycilla garrulus*), little egret (*Egretta garzetta*), great black-backed gull (*Larus marinus*), yellow wagtail (*Motacilla flava*), grey partridge (*Perdix perdix*), cormorant (*Phalacrocorax carbo*), golden plover (*Pluvialis apricaria*), great crested grebe (*Podiceps cristatus*), sand martin (*Riparia riparia*), woodcock (*Scolopax rusticola*), Arctic tern (*Sterna paradisaea*) and garden warbler (*Sylvia borin*).

Bats (Within 2km)

Records returned within the search area include brown long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), Daubenton's bat (*Myotis daubentonii*) and noctule (*Nyctalus noctula*).

Amphibians & reptiles

Records returned within the search area include common toad (*Bufo bufo*), common frog (*Rana temporaria*), smooth newt (*Lissotriton vulgaris*), palmate newt (*Lissotriton helveticus*), great crested newt (*Triturus cristatus*) and grass snake (*Natrix helvetica*).

Other mammals

Records returned within the search area include rabbit (*Oryctolagus cuniculus*), feral cat (*Felis catus*), grey squirrel (*Sciurus carolinensis*), mole (*Talpa europaea*), red fox (*Vulpes vulpes*), wood mouse (*Apodemus sylvaticus*), hedgehog (*Erinaceus europaeus*), badger (*Meles meles*), harvest mouse (*Micromys minutus*), field vole (*Microtus agrestis*), muntjac (*Muntiacus reevesi*), common shrew (*Sorex araneus*), weasel (*Mustela nivalis*), bank vole (*Myodes glareolus*), water shrew (*Neomys fodiens*), roe deer (*Capreolus capreolus*), house mouse (*Mus musculus*), polecat (*Mustela putorius*) and brown rat (*Rattus norvegicus*).

3.7 Desk Study Summary

The desk study identified no statutory designated sites, priority habitats or Tree Preservation Orders within 1km of the proposed development areas; therefore, no direct impacts on these receptors are anticipated. The site lies within the Leicestershire, Leicester and Rutland Local Nature Recovery Strategy area, and the wider Twycross Zoo estate is associated with biodiversity objectives relating to habitat creation, connectivity and native species benefit. The site also lies within a Countryside Stewardship species targeting area for corn bunting and lapwing, indicating wider landscape relevance for farmland bird conservation.

Protected and notable species records returned within the search area included a range of birds, bats, amphibians, reptiles and mammals. Bat records within 2km included brown long-eared bat, common pipistrelle, soprano pipistrelle, Daubenton's bat and noctule. Amphibian and reptile records included common toad, common frog, smooth newt, palmate newt, great crested newt and grass snake. Mammal records included hedgehog, badger, harvest mouse, polecat and other common species. These records indicate that protected and priority species are present within the wider landscape and should be considered in relation to habitat suitability within the proposed works and mitigation areas.

4. Methods

4.1 Desk study

A desk-based review of existing ecological information was undertaken to provide context for the field survey and to highlight potential ecological receptors requiring consideration. The following sources were consulted:

- MAGIC Map (DEFRA): to identify statutory designations, ancient woodland, priority habitats, and Environment Agency datasets relating to watercourses.
- National Biodiversity Network (NBN) Atlas: to review records of species of conservation concern within the wider area.
- Aerial imagery and Ordnance Survey mapping: to assess the distribution of ponds, hedgerows, riparian woodland, and wider connectivity of the landscape.
- Phase 1 habitat plan: baseline mapping provided (*2334 Phase 1 Habitat Map.pdf*) to support habitat identification and cross-check site observations.

Search radii were applied in line with standard guidance:

- 1km for general protected species and habitat records.
- 2 km for bats and records relevant to licensing considerations.

This information was used to guide the scope of the walkover survey, identify potential ecological constraints, and inform recommendations for further surveys and mitigation.

4.2 Field survey

Surveyor and date(s):

The site and accessible adjacent land were surveyed by Alexander Billingsley on 9th June 2026.

Weather and survey conditions:

The survey was undertaken in fine and dry conditions, with temperatures between 12-16 °C and good visibility. Overall conditions were suitable for habitat recording and for making general observations of faunal activity.

Survey scope and coverage:

- All accessible land within the red line boundary was inspected.
- Adjacent sites were viewed from boundary lines.

Habitat survey method:

- The site was walked systematically, and habitats were classified using Phase 1 Habitat Survey (JNCC, 2010) with cross-reference to UK Habitat Classification (UKHab, 2020).
- Habitats and features with potential for protected or notable species were identified and assessed.
- Target Notes (TN1–TN14) were used to describe key habitat parcels and features of interest, supported by photographic evidence.

4.3 Photographic Record

		
Modified grassland within the main works area enclosed by tall coniferous hedgerow.	Modified grassland within the works area with mature Prunus tree and surrounding coniferous boundary hedgerow.	Tall ruderal vegetation dominated by common nettle within the main works area.

		
Line of mature poplar trees along the boundary of the main works area.	Small single-skin timber shed within the main works area, assessed as having negligible bat roost potential.	Locked gate and boundary fencing enclosing the main works area, with adjacent coniferous hedgerow.
		
Chain-link gate and fencing enclosing the main works area, with mature boundary trees.	Access track and managed grassland adjacent to the main works area, with scattered trees along the route.	Bare ground and access area adjacent to the wider Zoological park infrastructure.

		
Access track leading towards the mitigation area, with tall ruderal vegetation along the margins.	Tall ruderal vegetation within the mitigation area, including broad-leaved dock, creeping thistle and common nettle.	Tall ruderal vegetation and bare gravel/hardstanding within the mitigation area.
		
Grassland and scattered scrub within the wider mitigation area.	Grassland dominated by Yorkshire fog and common bent within the mitigation area.	Grassland margin with adjacent dense scrub and defunct blackthorn hedgerow.

4.4 Standards and guidance

The survey and appraisal followed recognised professional standards and guidance:

- CIEEM (2017, updated 2021): *Guidelines for Preliminary Ecological Appraisal*.
- JNCC (2010): *Phase 1 Habitat Survey Handbook*.
- UKHab Ltd (2020, updated 2021): *UK Habitat Classification – Field Survey Guidance*.
- Relevant species-specific guidance (Natural England / CIEEM) for bats, great crested newt, reptiles, and birds.
- Biodiversity Net Gain calculations will reference the Statutory Biodiversity Metric v1.04 (England).

4.5 Limitations

The following limitations apply to the PEA survey:

- Timing: The survey was completed in spring, which is generally appropriate for broad habitat assessment; however, some botanical features and winter visitor birds may be less apparent at this time of year.
- Single visit: As a single walkover survey, it cannot confirm the absence of cryptic, seasonal or low-density species (e.g. reptiles or great crested newt).
- Tree assessment: Trees were assessed from ground level only; no climbed inspections, internal cavity checks or other aerial surveys were undertaken at this stage.

- Access: Full access was available to all areas within the site and to accessible land immediately adjacent.

5. Results

5.1 Habitats (UKHab classification) and Phase 1 map



5.2 Target Notes

Target Notes (Phase 1 Mapping):

Target Note 1 – Modified grassland within Area A

Area A supports modified grassland comprising common and widespread grassland species. The sward is generally species-poor and appears subject to regular management, with areas of short grassland and localised bare ground. The habitat is of low botanical value but may provide limited foraging opportunities for common invertebrates, birds and small mammals.

Target Note 2 – Tall ruderal vegetation within Area A

A patch of tall ruderal vegetation is present within Area A and is dominated by common nettle. This habitat provides some structural diversity within the otherwise modified grassland and may offer limited cover and foraging habitat for common invertebrates, small mammals and other widespread species.

Target Note 3 – Tall coniferous hedgerow enclosing Area A

Area A is enclosed in part by a tall coniferous hedgerow. This feature provides dense screening and boundary structure and may offer nesting opportunities for common bird species during the breeding season. The hedgerow may also provide limited shelter and connectivity for commuting wildlife within the wider zoo landscape.

Target Note 4 – Line of poplar trees associated with Area A

A line of poplar trees is present along the boundary of Area A. These trees provide vertical structure and may offer opportunities for nesting birds and limited commuting or foraging habitat for bats. No detailed aerial inspection was undertaken as part of the Phase 1 habitat survey, and any trees proposed for removal or direct impact should be subject to appropriate checks for protected species constraints.

Target Note 5 – Chain-link fence and locked access gate to Area A

Area A is enclosed by chain-link fencing with a locked gate. This limits public access and restricts movement into the enclosed area. The fence itself is of negligible ecological value, although vegetation associated with the fence line may provide limited habitat for common invertebrates and small mammals.

Target Note 6 – Public right of way adjacent to Area A

A public right of way passes adjacent to Area A. This represents an existing source of pedestrian disturbance along the site boundary. Associated verge and boundary vegetation may provide limited foraging and commuting habitat for common wildlife, but the route itself is of negligible intrinsic ecological value.

Target Note 7 – Bare ground track / access areas associated with Area A

Bare ground and access areas are present within or adjacent to Area A. These habitats are of negligible botanical value due to regular disturbance and compaction. However, sparsely vegetated margins may support opportunistic ruderal species and provide limited basking or foraging opportunities for common invertebrates.

Target Note 8 – Mature trees within and around Area A

Mature trees are present within and around Area A, including fir, Prunus and poplar species. These trees contribute to the structural diversity of the site and may provide nesting opportunities for common birds, shelter for invertebrates and limited foraging or commuting value for bats. Trees were assessed from ground level only during the survey.

Target Note 9 – Tall ruderal vegetation within Area B

Area B comprises the forest school area and is now limited to the area of tall ruderal vegetation. This habitat is dominated by common and widespread ruderal species, including creeping thistle, broad-leaved dock and common nettle. Although botanically limited, the vegetation provides structural cover and may support common invertebrates, small mammals and foraging birds. Area B provides greater ecological value than the more intensively managed habitats within Area A due to its taller vegetation structure and reduced management. The tall ruderal vegetation extends into the wider field.

Target Note 10 – Grassland adjacent to Area B, excluded from the reduced mitigation area

Grassland dominated by Yorkshire fog and common bent is present adjacent to Area B; however, this grassland is no longer included within the reduced mitigation area. It should therefore be treated as adjacent habitat rather than part of the proposed mitigation area. The sward appears relatively species-poor but may provide limited foraging and commuting opportunities for common wildlife.

Target Note 11 – Defunct blackthorn hedgerow adjacent to Area B

A defunct hedgerow dominated by blackthorn is present adjacent to Area B. Although gappy and not intact throughout, this feature provides boundary structure and potential nesting habitat for common birds. It may also provide cover, foraging habitat and connectivity for small mammals, hedgehog and invertebrates. The hedgerow should be retained and protected where practicable during implementation of mitigation works.

Target Note 12 – Surrounding hardstanding, roads and car parks

The wider surrounding area includes roads, car parks, access tracks and other hardstanding associated with the zoological park. These habitats are of negligible intrinsic ecological value, although vegetated margins and planted areas may provide limited opportunities for common wildlife. Existing levels of vehicle movement, lighting and human activity are likely to reduce the suitability of these areas for more sensitive species.

Target Note 13 – Zoological park infrastructure

The wider site context includes built infrastructure and managed grounds associated with Twycross Zoo. These areas are subject to regular human activity and management but may include planted areas, scattered trees, hedgerows and landscaped habitats which provide localised opportunities for common birds, bats, invertebrates and small mammals.

Target Note 14 – Adjacent nature reserve / wider habitat area

The wider Twycross Zoo estate includes areas managed for biodiversity and nature conservation. These habitats are likely to provide greater ecological value than Area A and should be protected from indirect impacts such as encroachment, pollution, dust, noise and inappropriate lighting during works. Area B should contribute to the wider ecological enhancement of the site through appropriate management of tall ruderal vegetation and protection of adjacent scrub and boundary habitats.

5.3 Protected and notable species

A summary of species groups assessed during the PEA is provided in Table 5.3.

Preliminary Roost Assessment - Bats

A preliminary ground-level roost assessment was undertaken of accessible trees and the small single-skin timber shed within the proposed works area by a suitably qualified ecologist. The assessment was undertaken from ground level using close-focusing binoculars where appropriate and was limited to features visible from accessible land. Features searched for included cavities, woodpecker holes, splits, cracks, rot holes, lifted bark, hazard beams, dense ivy, loose boarding, roof void access points, droppings, staining and feeding remains.

The small single-skin timber shed was assessed as having negligible bat roost potential due to the absence of suitable cavities, crevices, gaps, lifted materials or enclosed roof void access points. No evidence of roosting bats was recorded on or around the structure.

The line of mature boundary trees, including poplar trees, was assessed from ground level. One mature tree was recorded with a visible cavity / wound feature on the stem. On inspection, the feature was open and visible externally, did not continue into the trunk, and did not provide access to an enclosed void or any suitable roosting space for bats. It is therefore assessed as having negligible bat roost potential and is not considered to represent a potential roost feature. Other inspected trees and hedgerow features visible from ground level were not found to support obvious potential roost features; however, the upper canopy was partly obscured by foliage and tree height.

On this basis, no further bat roost survey is considered necessary for the shed or the trees assessed from ground level, based on the current proposals. Retained boundary trees and hedgerows should still be protected from inappropriate lighting due to their moderate value for foraging and commuting bats. If the scope of works changes, or if future tree works reveal previously unseen cavities, splits or other suitable roosting features, advice should be sought from a suitably qualified ecologist before works proceed.



Photo 5.3a: Line of mature boundary trees / poplar trees assessed from ground level for potential roost features.



Photo 5.3b: Mature boundary tree canopy and stems; upper canopy inspection limited by height and foliage density.

	
Photo 5.3c: Visible cavity / wound feature on a mature boundary tree. The feature is open, fully visible externally and does not provide access into the trunk or an enclosed void; it is assessed as negligible for roosting bats.	Photo 5.3d: Boundary tree line above coniferous hedgerow, providing structural habitat and a potential bat commuting / foraging corridor.

Table 5.3 — Likelihood of occurrence of protected and notable species

Group	Likelihood	Evidence / Constraints
Bats (roosting)	Negligible	The small single-skin timber shed was assessed as having negligible bat roost potential, with no suitable cavities, crevices, gaps or roof void access points recorded. Ground-level assessment of mature boundary trees identified one visible cavity / wound feature within the poplar/tree line; however, this feature was open and fully visible externally, did not provide access into the trunk or an enclosed void, and is therefore not considered to represent a potential roost feature. No evidence of roosting bats, including droppings, staining or feeding remains, was recorded during the walkover survey. Other trees and hedgerows visible from ground level were not found to support obvious additional potential roost features; however, the assessment was limited by dense foliage, height and ground-level visibility. No further bat roost survey is considered necessary based on the current proposals, unless future works reveal previously unseen suitable features.
Bats (foraging/commuting)	Moderate	The site is considered to offer moderate potential for foraging and commuting bats. This is primarily associated with the boundary hedgerows, lines of trees and mature trees, which provide suitable flight lines through and around the site. The presence of ruderal vegetation also provides potential for increased invertebrate abundance, which may offer foraging opportunities for common bat species. Sensitive lighting should therefore be implemented to maintain dark corridors and avoid light spill onto boundary vegetation, mature trees and areas of ruderal habitat.
Breeding birds	Moderate	The site is considered to offer moderate potential for breeding birds. This is primarily associated with the tall coniferous hedgerow, line of poplar trees, mature trees and defunct blackthorn hedgerow, which provide suitable nesting and sheltering habitat for common bird species. Ruderal vegetation within the works and mitigation areas may also provide limited cover and foraging opportunities. Vegetation clearance should therefore be undertaken outside the main bird nesting season, March to August inclusive, or following a nesting bird check by a suitably qualified ecologist where works during this period cannot be avoided.
Great crested newt (GCN)	Negligible	The site is considered to offer negligible potential for great crested newt. A large pond is present approximately 460m from the proposed development area and approximately 150m from the mitigation area. However, fish and waterfowl were observed within the pond during the site visit, reducing its suitability for great crested newt breeding due to predation pressure and disturbance. The proposed development area comprises enclosed modified grassland, bare ground and managed habitats of limited terrestrial suitability. The mitigation area contains taller ruderal vegetation and grassland which may provide some terrestrial cover; however, given the reduced suitability of the nearby pond, the limited extent and nature of affected habitats, and absence of field evidence, great crested newt is not considered to represent a significant constraint to the proposed works. General amphibian precautions should still be followed during vegetation clearance and groundworks.
Reptiles	Negligible - Low	The proposed development area is considered to offer negligible potential for reptiles, being largely enclosed and comprising modified grassland, bare ground and regularly disturbed habitats of limited suitability. However, the mitigation area is considered to offer low potential for reptiles due to the presence of taller ruderal vegetation, grassland and adjacent defunct blackthorn hedgerow, which may provide limited cover, foraging and commuting opportunities. As a precaution, any vegetation clearance within the mitigation area should be undertaken using Reasonable Avoidance Measures, including a staged cut and directional clearance towards retained habitat.
Badger	Negligible - Moderate	The proposed development area is considered to offer negligible potential for badger, with no setts or field signs recorded and habitats present being limited in suitability due to enclosure, disturbance and the presence of modified grassland, bare ground and managed areas. However, the mitigation area is considered to offer moderate potential for

		badger due to the presence of blackthorn scrub, tall ruderal vegetation and less intensively managed habitat, which may provide cover, foraging opportunities and potential sett-building habitat. A pre-commencement badger check should therefore be undertaken within the mitigation area prior to vegetation clearance or groundworks.
Hedgehog	Negligible - Moderate	The proposed development area is considered to offer negligible potential for hedgehog, with habitats present being limited in suitability due to enclosure, disturbance, modified grassland, bare ground and managed areas. However, the mitigation area is considered to offer moderate potential for hedgehog due to the presence of blackthorn scrub, tall ruderal vegetation and less intensively managed grassland, which may provide cover, foraging opportunities and commuting habitat. As a precaution, vegetation clearance within the mitigation area should be undertaken sensitively, with staged clearance, hand-searching of dense vegetation or refugia where required, and contractor awareness measures in place.
Mammals	Negligible - Moderate	The proposed development area is considered to offer negligible potential for other mammals, with habitats present being limited in suitability due to enclosure, disturbance, modified grassland, bare ground and managed areas. However, the mitigation area is considered to offer moderate potential for other mammals due to the presence of blackthorn scrub, tall ruderal vegetation and less intensively managed grassland, which may provide cover, foraging opportunities and commuting habitat for common species such as small mammals, fox, rabbit and mustelids. As a precaution, vegetation clearance within the mitigation area should be undertaken sensitively, with staged clearance, hand-searching of dense vegetation or refugia where required, and contractor awareness measures in place.
Invasive Non-Native species (INNS)	None	No schedule 9 invasive species recorded during walkover.

6. Evaluation & Discussion

6.1 Evaluation of ecological features

The habitats recorded on site are generally of low to moderate ecological value, but several features are of Parish–Local importance and contribute to wider landscape connectivity. Their evaluation is summarised in Table 6.1.

Table 6.1 — Evaluation of ecological features

Feature	Importance	Rationale
Modified grassland	Negligible	Species-poor and subject to regular management, with limited botanical interest. Provides limited foraging value for common invertebrates, birds and small mammals.
Ruderal vegetation	Site - Local	Areas of ruderal vegetation dominated by common nettle, creeping thistle and broad-leaved dock provide structural diversity, cover and foraging opportunities for common invertebrates, small mammals and birds. Ruderal vegetation within the mitigation area has greater ecological value than the smaller patch within the main works area due to its extent and connectivity with adjacent scrub and grassland.
Line of poplar trees	Local	Provides vertical structure and a potential flight line for commuting and foraging bats. Also offers nesting opportunities for common birds and contributes to habitat connectivity around the main works area.
Coniferous hedgerow	Site - Local	Provides dense boundary structure, screening and potential nesting habitat for common birds. May also function as a sheltered commuting route for bats and other wildlife within the wider Zoological park landscape.
Mature trees	Local	Mature fir, Prunus and poplar/boundary trees contribute to structural diversity and provide potential nesting habitat for common birds, shelter for invertebrates and foraging or commuting value for bats. One visible cavity / wound feature was recorded on a mature boundary tree from ground level; however, the feature is open, fully visible externally and does not provide access into the trunk or an enclosed void. It is therefore assessed as negligible for roosting bats and is not considered to represent a potential roost feature. Other visible mature tree features were not found to support obvious additional potential roost features from ground level.
Blackthorn scrub / defunct blackthorn hedgerow	Local	Provides dense cover, potential nesting habitat for birds and foraging/commuting habitat for hedgehog, badger, reptiles and other small mammals. The feature also contributes to habitat connectivity within the mitigation area.
Bare ground / access tracks	Negligible	Regularly disturbed and compacted habitat with negligible botanical value. Sparsely vegetated margins may support opportunistic ruderal species and limited invertebrate activity.
Surrounding Zoo infrastructure, roads and car parks	Negligible	Built development, roads, car parks and hardstanding are of negligible intrinsic ecological value, although planted margins and scattered trees may provide localised opportunities for common wildlife.

6.2 Protected and Priority Species

- Great crested newt (GCN):** Great crested newt (GCN): The site is considered to offer negligible potential for great crested newt. A large pond is present within the wider area, located approximately 460m from the proposed development area and approximately 150m from the mitigation area. Fish and waterfowl were observed within the pond during the site visit, reducing its suitability for great crested newt breeding due to predation pressure and disturbance. The proposed development area is largely enclosed and comprises modified grassland, bare ground and managed habitats of limited terrestrial suitability. The mitigation area contains taller ruderal vegetation and grassland, which may provide some terrestrial cover; however, the affected habitats are limited in extent and are not directly connected to a high-suitability breeding pond. Given the distance of the pond from the proposed development area, the reduced suitability of the pond, the nature of the habitats affected and the absence of field evidence, great crested newt is not considered to represent a significant constraint to the proposed works. No targeted great crested newt survey is considered necessary, provided the works remain limited to the assessed areas and no additional suitable ponds, ditches or terrestrial refugia are affected.

- **Nesting birds:** The site is considered to offer moderate potential for nesting birds. Suitable nesting and sheltering habitat is primarily associated with the tall coniferous hedgerow, line of poplar trees, mature trees and defunct blackthorn hedgerow. Ruderal vegetation within the works and mitigation areas may also provide limited cover and foraging opportunities for common bird species. Vegetation clearance should therefore be undertaken outside the main bird nesting season, March to August inclusive, where practicable. If clearance is required during this period, a nesting bird check should be completed by a suitably qualified ecologist prior to works commencing.
- **Hedgehog:** The proposed development area is considered to offer negligible potential for hedgehog due to enclosure, disturbance, modified grassland, bare ground and managed habitats. However, the mitigation area is considered to offer moderate potential for hedgehog due to the presence of blackthorn scrub, tall ruderal vegetation and less intensively managed grassland, which provide potential cover, foraging habitat and commuting opportunities. Precautionary working methods should therefore be adopted during vegetation clearance within the mitigation area, including staged clearance, careful hand-searching of dense vegetation or refugia where required, and contractor awareness measures.
- **Bats:** The small single-skin timber shed within the main works area is considered to offer negligible potential for roosting bats due to the absence of suitable cavities, crevices, gaps or roof void access points. Ground-level assessment of the mature boundary trees identified a visible cavity / wound feature on one mature tree within the poplar/tree line; however, the feature was open, visible externally and did not provide access into the trunk or an enclosed void. It is therefore assessed as negligible for roosting bats and is not considered to represent a potential roost feature. No evidence of roosting bats, including droppings, staining, feeding remains or audible/visible bat presence, was recorded during the walkover survey. The remaining trees and hedgerows were assessed from ground level and, where visible, were not found to support additional obvious potential roost features; however, dense foliage, height and the ground-level nature of the assessment limited full inspection of the upper canopy. The site is considered to offer moderate potential for foraging and commuting bats due to boundary hedgerows, lines of trees and mature trees, which provide flight lines through and around the site. Ruderal vegetation may also support increased invertebrate abundance and provide foraging opportunities for common bat species. A sensitive lighting strategy should therefore be implemented to avoid light spill onto boundary vegetation, mature trees, flight lines and ruderal habitats.
- **Badger:** The proposed development area is considered to offer negligible potential for badger, with no setts or field signs recorded and habitats present being limited in suitability due to enclosure, disturbance, modified grassland, bare ground and managed areas. However, the mitigation area is considered to offer moderate potential for badger due to the presence of blackthorn scrub, tall ruderal vegetation and less intensively managed habitat, which may provide cover, foraging opportunities and potential sett-building habitat. A pre-commencement badger check should therefore be undertaken within the mitigation area prior to vegetation clearance or groundworks.
- **Reptiles:** The proposed development area is considered to offer negligible potential for reptiles, being largely enclosed and comprising modified grassland, bare ground and regularly disturbed habitats of limited suitability. The mitigation area is considered to offer low potential for reptiles due to the presence of taller ruderal vegetation, grassland and adjacent defunct blackthorn hedgerow, which may provide limited cover, foraging and commuting opportunities. As a precaution, vegetation clearance within the mitigation area should be undertaken using Reasonable Avoidance Measures, including a staged cut and directional clearance towards retained habitat.
- **Other mammals:** The proposed development area is considered to offer negligible potential for other mammals, with habitats present being limited in suitability due to enclosure, disturbance, modified grassland, bare ground and managed areas. The mitigation area is considered to offer moderate potential for other mammals due to the presence of blackthorn scrub, tall ruderal vegetation and less intensively managed grassland, which may provide cover, foraging opportunities and commuting habitat for common species such as small mammals, fox, rabbit and mustelids. Vegetation clearance within the mitigation area should therefore be undertaken sensitively, with staged clearance, hand-searching of dense vegetation or refugia where required, and contractor awareness measures in place.

6.3 Non-native invasive species

No plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded during the site walkover survey.

6.4 Evaluation Summary

The habitats recorded within the survey areas are generally of low to moderate ecological value. The main works area is dominated by modified grassland, bare ground and managed habitats of limited botanical interest, although the coniferous hedgerow, line of poplar trees and mature trees provide localized structure, nesting opportunities for birds and potential commuting or foraging habitat for bats. The mitigation area supports taller ruderal vegetation, grassland and blackthorn scrub, which provide greater ecological value through cover, foraging habitat and connectivity for common wildlife.

Protected species constraints are generally limited within the main works area. The small single-skin timber shed and accessible trees assessed from ground level are of negligible potential for roosting bats. One mature boundary tree was recorded with a visible cavity / wound feature, but the feature was open, fully visible externally and did not provide access into the trunk or an enclosed void; it is therefore not considered to represent a potential roost feature. Great crested newt, reptiles, badger, hedgehog and other mammals are considered to be of negligible potential within the main works area. Moderate potential is identified for breeding birds and foraging/commuting bats associated with trees, hedgerows and ruderal habitats. The mitigation area provides higher suitability for badger, hedgehog, other mammals and limited suitability for reptiles due to the presence of blackthorn scrub, tall ruderal vegetation and less intensively managed grassland. No Schedule 9 invasive non-native plant species were recorded. Subject to precautionary working methods, nesting bird safeguards, sensitive lighting, protection of retained trees and pre-commencement checks where required, significant adverse ecological effects are not anticipated.

7. Potential Impacts

The likely ecological impacts of the proposed development have been assessed based on the habitats and species recorded on site, as well as the sensitivity of receptors in the surrounding landscape. Impacts are considered both during the construction phase and the operational phase.

7.1 Construction phase

Construction activities have the potential to cause temporary and permanent ecological impacts through vegetation clearance, ground disturbance, pollution, and increased disturbance. Key risks include:

- Vegetation removal and disturbance:
 - Clearance of modified grassland, tall ruderal vegetation and small areas of bare or sparsely vegetated ground is proposed to facilitate the development. Construction activities may also result in indirect disturbance to retained boundary features, including the tall coniferous hedgerow, line of poplar trees, mature trees and adjacent vegetation. These features provide potential nesting habitat for birds and commuting or foraging routes for bats and should therefore be retained and protected during works where practicable. Vegetation clearance within the mitigation area may also affect tall ruderal vegetation, grassland and blackthorn scrub, which provide cover and foraging habitat for common wildlife; precautionary working methods should therefore be implemented.
- Pollution and runoff risks:
 - Accidental spills of fuel, oil or chemicals could affect soil quality if not appropriately controlled.
 - Construction dust and sediment run-off could indirectly affect adjacent habitats.
- Disturbance (lighting, noise, vibration):
 - Temporary artificial lighting, noise and vibration may cause disturbance to wildlife, including the displacement of foraging and commuting bats and disturbance to breeding birds using boundary vegetation.
- Encroachment onto adjacent habitats:
 - Without appropriate safeguards, there is a risk of accidental damage to retained trees and hedgerows adjacent to the site through inappropriate storage of materials, vehicle movements or contractor access.

7.2 Operational phase

Once operating, the development may give rise to longer-term ecological pressures. Key risks include:

- Lighting impacts:

Inappropriate external lighting could reduce the dark corridor function of site boundaries, with potential effects on commuting and foraging bats and other nocturnal fauna.
- Disturbance from visitors, staff and operational use:

The proposed development comprises zoo-related facilities within the existing Twycross Zoo estate, including a home education block, nursery and kitchen. These uses are consistent with the existing operational character of the site and are not expected to result in a significant change in baseline disturbance levels. The main potential operational disturbance relates to increased localised human activity, lighting and maintenance around the new structures, which should be managed to avoid adverse effects on retained boundary vegetation, commuting and foraging bats, nesting birds and the nearby mitigation area.
- Habitat degradation and fragmentation:

The proposed development will result in the loss of a small area of modified grassland, tall ruderal vegetation and bare or sparsely vegetated ground within the main works area. These habitats are of limited botanical value and are not considered to make a significant contribution to wider habitat connectivity. Retained boundary features, including the coniferous hedgerow, line of poplar trees and mature trees, provide the main structural habitat links around the works area and should be protected during construction and operation. The separate mitigation area provides an opportunity to compensate for minor habitat losses and improve ecological value through appropriate habitat creation, enhancement and long-term management, including grassland enhancement, ruderal habitat management and strengthening of scrub or hedgerow connectivity where practicable.

7.3 Potential Impacts Summary

The proposed development has the potential to cause temporary ecological impacts during construction through vegetation clearance, ground disturbance, pollution, lighting, noise and accidental encroachment into retained boundary habitats. Key receptors include the coniferous hedgerow, line of poplar trees, mature trees, ruderal vegetation, nesting birds, foraging and commuting bats, and common mammals using the mitigation area.

During operation, the main potential ecological pressures relate to external lighting, localised human activity and ongoing management around the new zoo-related facilities. The development will result in the loss of a small area of modified grassland, ruderal vegetation and bare or sparsely vegetated ground of limited botanical value. Retained boundary vegetation should be protected to maintain habitat connectivity, while the separate mitigation area provides an opportunity to compensate for minor habitat losses and deliver habitat enhancement through appropriate long-term management.

8. Mitigation, Avoidance & Precautionary Measures

The following measures are recommended to avoid, reduce, or mitigate ecological impacts associated with the proposed development. These measures should be secured through planning conditions and a Construction Environmental Management Plan (CEMP), where appropriate.

8.1 Retention and protection of habitats

- Retained boundary features, including the tall coniferous hedgerow, line of poplar trees, mature trees and adjacent vegetation, should be protected throughout the construction phase.
- Construction activities, material storage, plant movement and contractor access should be kept within the defined working area wherever practicable to avoid accidental encroachment into retained habitats.
- Protective fencing should be installed where required prior to vegetation clearance, groundworks or construction activities to prevent damage to retained trees, hedgerows and boundary vegetation.
- The root protection areas of retained mature trees should be avoided where practicable, and any works within or adjacent to root protection areas should follow appropriate arboricultural guidance.
- The mitigation area should be protected from unnecessary disturbance, compaction, pollution, storage of materials or vehicle tracking during the construction phase.

- Vegetation clearance should be limited to the minimum area required to facilitate the proposed development and associated mitigation works.
- Existing habitat links around the site, including boundary vegetation, mature trees and scrub/hedgerow features, should be retained where practicable to maintain connectivity for birds, bats, hedgehog and other common wildlife.
- Any temporary disturbance to grassland, ruderal vegetation or bare ground outside the main construction footprint should be reinstated or enhanced following completion of works.
- Site operatives should be briefed on the ecological sensitivities of retained habitats and the requirement to avoid damage, pollution or encroachment.

8.2 Vegetation clearance timing

- Vegetation clearance should be limited to the minimum area required to facilitate the proposed development and associated mitigation works.
- Clearance of trees, hedgerows, scrub and dense ruderal vegetation should be undertaken outside the main bird nesting season, which runs from March to August inclusive, wherever practicable.
- Where vegetation clearance is required during the nesting bird season, a pre-commencement nesting bird check should be undertaken by a suitably qualified ecologist no more than 24–48 hours before works commence.
- If an active nest is identified, works affecting the nest or surrounding habitat should stop and an appropriate buffer should be established until the young have fledged and the nest is no longer active.
- Vegetation within the mitigation area, including tall ruderal vegetation and blackthorn scrub, should be cleared or managed sensitively due to its suitability for nesting birds, hedgehog, badger, reptiles and other common wildlife.
- Where clearance of dense vegetation, scrub or refugia is required, works should proceed carefully and directionally towards retained habitat to allow any animals present to disperse.
- Tall vegetation should be reduced using a staged cut where practicable, with an initial cut to approximately 150 mm, followed by a second cut to approximately 50 mm after at least 48 hours.
- Cleared vegetation should be removed from the working area or stored in a designated location away from construction activity, retained habitats and potential wildlife refuges.
- Contractors should receive a toolbox talk before vegetation clearance begins, covering nesting birds, reptiles, hedgehog, badger and the procedure to follow if protected or notable species are encountered.

8.3 Bats – trees and lighting

- The small single-skin timber shed and accessible trees assessed from ground level were assessed as having negligible potential for roosting bats. One mature boundary tree was recorded with a visible cavity / wound feature, but the feature was open, visible externally and did not provide access into the trunk or an enclosed void; it is therefore not considered to represent a potential roost feature.
- One structure is present within the main works area, comprising an old single skin shed. This was assessed as having negligible bat roost potential, with no suitable cavities, crevices, gaps or other roosting features recorded.
- Trees and hedgerows within and around the site were assessed from ground level. A visible cavity / wound feature was recorded on one mature boundary tree within the poplar/tree line; however, the feature was open, visible externally and did not provide access into the trunk or an enclosed void. Other trees and hedgerows visible from ground level were not found to support obvious additional features suitable for roosting bats, such as cavities, splits, cracks, lifted bark or other potential roost features.
- No evidence of bat activity, including droppings, staining, feeding remains or other field signs, was recorded at the time of survey.
- Boundary hedgerows, the line of poplar trees, mature trees and ruderal vegetation may provide moderate potential for foraging and commuting bats by providing flight lines, sheltered edges and potential invertebrate prey.
- A sensitive lighting strategy should be implemented during construction and operation to maintain dark corridors and avoid light spill onto boundary vegetation, mature trees, the line of poplar trees, coniferous hedgerow and ruderal habitats.
- Lighting should follow current Bat Conservation Trust and Institution of Lighting Professionals guidance and should include warm-white LED luminaires, directional shielding, low mounting heights and avoidance of unnecessary lighting.
- External lighting should be directed away from retained vegetation and should be limited to the minimum required for safety and operational use.
- Where practicable, lighting should be controlled by timers, dimmers or PIR sensors to reduce the duration and intensity of illumination.
- Any unexpected discovery of bats during works should result in works stopping immediately in that area, with advice sought from a suitably qualified ecologist before works recommence.

8.4 Reptile Reasonable Avoidance Measures (RAMS)

- The proposed development area is considered to offer negligible potential for reptiles due to its enclosed character, modified grassland, bare ground and regularly disturbed habitats.
- The mitigation area is considered to offer low potential for reptiles due to the presence of taller ruderal vegetation, grassland and adjacent defunct blackthorn hedgerow, which may provide limited cover, foraging and commuting habitat.
- Reptile Reasonable Avoidance Measures should be implemented as a precaution during vegetation clearance or habitat management works within the mitigation area.
- Vegetation clearance should be undertaken during suitable weather conditions, ideally when temperatures are above 10°C and reptiles, if present, are active and able to move away from works.
- Clearance should be undertaken using a staged cut, with an initial cut to approximately 150 mm, followed by a second cut to approximately 50 mm after at least 48 hours.
- Clearance should proceed directionally towards retained suitable habitat, such as retained grassland, ruderal vegetation, scrub or hedgerow margins.
- Arisings should be removed carefully from the working area or placed in designated locations away from active construction zones to avoid creating refuges within the development footprint.
- Any potential refugia, including log piles, rubble, stored materials or dense vegetation, should be checked carefully before removal.
- If a reptile is encountered during works, works should pause in that area and the animal should be allowed to move away into retained suitable habitat.

- Contractors should receive a toolbox talk before works commence, covering reptile identification, habitat suitability and the procedure to follow if reptiles are encountered.

8.5 Great Crested Newt Reasonable Avoidance Measures (RAMS)

- Great crested newt is of negligible potential within the proposed development area and mitigation area.
- A large pond is present approximately 460m from the proposed development area and approximately 150m from the mitigation area.
- Fish and waterfowl were observed within the pond during the site visit, reducing its suitability for great crested newt breeding due to predation pressure and disturbance.
- The main works area comprises enclosed modified grassland, bare ground and managed habitats of limited terrestrial suitability for great crested newt.
- The mitigation area supports some taller ruderal vegetation and grassland, which may provide limited terrestrial cover; however, the nearby pond is of reduced suitability and no field evidence of great crested newt was recorded.
- No targeted great crested newt survey is considered necessary based on the current assessment, provided the works remain limited to the assessed areas and no additional suitable ponds, ditches or terrestrial refugia are affected.
- If the scope of works changes, or if works are proposed closer to the pond or within areas of higher suitability terrestrial habitat, the need for further great crested newt assessment should be reviewed by a suitably qualified ecologist.
- As a precautionary measure, vegetation clearance should be undertaken sensitively, using staged and directional clearance where dense vegetation is present.
- Any log piles, rubble, stored materials or other potential refugia should be dismantled carefully by hand if affected by the works.
- Excavations should be covered overnight or fitted with a means of escape, such as a shallow ramp, to prevent amphibians and other wildlife becoming trapped.
- Pipes and open-ended materials should be capped or stored off the ground overnight.
- If a great crested newt or other amphibian is encountered during works, works should stop in that area and advice should be sought from a suitably qualified ecologist before works recommence.

8.6 Hedgehog measures

- The proposed development area is considered to offer negligible potential for hedgehog due to its enclosed character, modified grassland, bare ground and regularly disturbed habitats.
- The mitigation area is considered to offer moderate potential for hedgehog due to the presence of blackthorn scrub, tall ruderal vegetation and less intensively managed grassland, which may provide cover, foraging habitat and commuting opportunities.
- Vegetation clearance within the mitigation area should be undertaken sensitively and limited to the minimum area required.
- Dense vegetation, scrub and potential refugia should be checked carefully before clearance or disturbance.
- Vegetation clearance should proceed directionally towards retained suitable habitat to allow any hedgehogs present to disperse away from the working area.
- Any log piles, brash piles, stored materials or accumulated vegetation should be dismantled carefully by hand where they are affected by works.
- Excavations should be covered overnight or fitted with a means of escape, such as a shallow ramp, to prevent hedgehogs and other wildlife becoming trapped.
- Pipes and open-ended materials should be capped or stored off the ground overnight.
- Any new fencing associated with the mitigation area should remain permeable to hedgehog where practicable, for example through the provision of small gaps at ground level.
- Contractors should receive a toolbox talk before works commence, covering hedgehog identification, habitat suitability and the procedure to follow if a hedgehog is encountered.
- If a hedgehog is encountered during works, works should pause in that area and the individual should be allowed to move away into retained suitable habitat.

8.7 Invasive Non-Native Species (INNS)

No plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded during the site walkover survey.

8.8 Pollution prevention and site management

- A Construction Environmental Management Plan should be implemented to control risks of pollution, dust, sediment run-off and accidental damage to retained habitats.
- Fuel, oils, chemicals and other potentially polluting materials should be stored securely in designated areas with appropriate secondary containment.
- Refueling and storage of chemicals should take place away from retained boundary vegetation, the mitigation area, drainage features and any nearby waterbodies.
- Cement, concrete washout and other alkaline materials should be managed within designated contained areas and should not be allowed to enter soils, drains or watercourses.
- Measures should be implemented to prevent dust, sediment and surface water run-off from affecting retained vegetation, the mitigation area, nearby waterbodies or the wider nature reserve.
- Construction materials, spoil, machinery and welfare facilities should be stored within designated areas and should not be placed within retained hedgerows, scrub, ruderal vegetation, grassland enhancement areas or beneath retained trees.
- Contractor access and vehicle movements should be restricted to defined routes to prevent soil compaction, habitat damage and encroachment into retained or enhanced habitats.
- Site operatives should receive ecological toolbox talks covering retained habitats, protected species precautions, pollution prevention and procedures to follow if protected or notable species are encountered during works.
- The working area should be kept tidy, with waste materials removed regularly to avoid creating unnecessary refugia or pollution risks.

8.9 Summary

Mitigation and precautionary measures are recommended to avoid or reduce ecological impacts during construction and operation. Retained boundary features, including the coniferous hedgerow, line of poplar trees, mature trees and adjacent vegetation, should be protected from damage, encroachment, pollution and inappropriate lighting. Vegetation clearance should be limited to the minimum required and undertaken outside the main bird nesting season where practicable or following a pre-commencement nesting bird check if works are required between March and August inclusive.

The small single-skin timber shed and accessible trees assessed from ground level have negligible potential for roosting bats. The visible cavity / wound feature recorded on one mature boundary tree was open, visible externally and did not provide access into the trunk or an enclosed void; it is therefore not considered to represent a potential roost feature. Boundary vegetation, trees and ruderal habitats provide moderate potential for foraging and commuting bats. A sensitive lighting strategy should therefore be implemented to maintain dark corridors. Precautionary Reasonable Avoidance Measures should be applied during vegetation clearance in the forest school area B, with nesting bird safeguards, badger checks where appropriate, hedgehog precautions and pollution prevention measures implemented as set out in this report.

Great crested newt is of negligible potential, although general amphibian precautions should be followed, including covering excavations overnight, capping open pipes and stopping works if a great crested newt or other amphibian is encountered. No invasive non-native plant species were recorded. A Construction Environmental Management Plan should secure pollution prevention, dust and run-off controls, defined access routes, appropriate material storage, protection of retained and enhanced habitats, and ecological briefings for site operatives.

9. Enhancements & Biodiversity Net Gain (BNG)

9.1 BNG Approach

Biodiversity Net Gain (BNG) for the site will be delivered through on-site habitat creation and enhancement measures designed to achieve at least the statutory minimum 10% net gain in accordance with the Environment Act 2021. A Landscape and Ecological Enhancement Scheme has been prepared for the proposed development under drawing reference DJOGS L&EES 2334.2, which sets out the proposed habitat creation, enhancement and mitigation measures associated with the scheme.

The proposed development is located within the wider Twycross Zoo estate, which is associated with its own biodiversity and nature recovery objectives, including a target to manage/protect 30% of its land for nature by 2030. The BNG and enhancement approach should therefore seek to align with these site-specific objectives where practicable, while also contributing to the Leicestershire, Leicester and Rutland Local Nature Recovery Strategy area. Measures should include appropriate habitat creation and enhancement, improved habitat connectivity, sensitive management of grassland and ruderal habitats, strengthening of scrub and hedgerow features, sensitive lighting, and provision of features benefiting native species such as birds, bats, hedgehog, invertebrates and other common wildlife.

The final BNG calculation should be confirmed using the statutory biodiversity metric, with long-term management and monitoring secured for a minimum of 30 years through an appropriate Habitat Management and Monitoring Plan, planning condition and/or legal agreement where required.

10. Habitats Regulations Assessment (HRA) – Screening Note

The proposed development has been considered in relation to the Conservation of Habitats and Species Regulations 2017 (as amended). These Regulations require the competent authority, typically the Local Planning Authority, to consider whether a plan or project is likely to have a significant effect on any Habitats Site, either alone or in combination with other plans or projects.

10.1 Screening outcome

No Habitats Sites are located within or immediately adjacent to the proposed development areas. The proposed works comprise the construction of zoo-related facilities within the existing Twycross Zoo estate, including a home education block, nursery and kitchen, together with associated mitigation and enhancement measures. The works are small in scale and are located within existing managed zoo land.

The River Mease Special Area of Conservation is the nearest Habitats Site requiring consideration in the wider area. Potential impact pathways to the SAC are considered unlikely, provided standard construction safeguards are implemented, including pollution prevention, sediment control, appropriate drainage management and avoidance of contaminated run-off entering drainage features, watercourses or connected habitats.

The proposed drainage arrangements should be confirmed. Where the development would result in an increase in foul wastewater discharge within the River Mease SAC catchment, the relevant nutrient neutrality requirements, including use of the River Mease nutrient neutrality calculator and/or any applicable Local Planning Authority mitigation mechanism, should be considered separately as part of the planning application. Where no increase in foul discharge is proposed, this should be confirmed within the planning submission.

10.2 In-combination effects

Potential in-combination effects with other plans or projects have been considered. Given the small scale and nature of the proposed development, its location within the existing operational zoo estate, and the implementation of standard pollution prevention and site management controls, no likely significant in-combination effects on any Habitats Site are anticipated.

10.3 Conclusion

Subject to implementation of standard construction-phase safeguards, including pollution prevention and run-off controls secured through the CEMP, the proposed development is not considered likely to have a significant effect on any Habitats Site, either alone or in combination with other plans or projects. On this basis, a full Habitats Regulations Assessment / Appropriate Assessment is not considered necessary.

11. Conclusions & Recommendations

11.1 Conclusions

This Preliminary Ecological Appraisal identified the proposed development areas at East Midland Zoological Society / Twycross Zoo, Burton Road, Atherstone, CV9 3PX as being of generally low to moderate ecological value. The main works area comprises modified grassland, bare ground, tall ruderal vegetation, a small single skin shed, coniferous hedgerow, a line of poplar trees and mature fir and Prunus trees. The separate forest school area supports taller ruderal vegetation and defunct blackthorn hedgerow.

No statutory designated sites, priority habitats or Tree Preservation Orders were identified within 1km of the proposed development areas. The site lies within the Leicestershire, Leicester and Rutland Local Nature Recovery Strategy area and within a Countryside Stewardship species targeting area for corn bunting and lapwing. The wider Twycross Zoo estate is also associated with its own biodiversity objectives, including managing/protecting 30% of its land for nature by 2030. Biodiversity mitigation and enhancement should therefore contribute to local nature recovery priorities where practicable.

The small single-skin timber shed and accessible trees assessed from ground level were assessed as having negligible potential for roosting bats. One mature boundary tree was recorded with a visible cavity / wound feature, but this feature was open, visible externally and did not provide access into the trunk or an enclosed void; it is therefore not considered to represent a potential roost feature. No evidence of roosting bats was recorded. Moderate potential was identified for foraging and commuting bats due to boundary vegetation, mature trees, the poplar line and ruderal habitats. The site also provides moderate potential for breeding birds, particularly within trees, hedgerows, scrub and dense ruderal vegetation. The proposed development can proceed without significant adverse ecological effects, subject to implementation of the mitigation, avoidance and enhancement measures set out within this report.

Subject to implementation of the recommended mitigation and precautionary measures, the proposed development is considered capable of proceeding without significant adverse ecological effects. Required measures include protection of retained boundary habitats and mature trees, vegetation clearance outside the nesting bird season or following pre-commencement checks, sensitive lighting to protect bat flight lines, precautionary Reasonable Avoidance Measures within the mitigation area, pre-commencement badger checks where appropriate, pollution prevention controls and ecological toolbox talk for contractors.

Biodiversity Net Gain and ecological enhancement should be delivered through the Landscape and Ecological Enhancement Scheme DJOGS L&EES 2189.2 rev1, with habitat creation, enhancement and long-term management aligned with the statutory BNG requirements, the Leicestershire, Leicester and Rutland LNRS, and Twycross Zoo's wider biodiversity objectives.

11.2 Recommendations

Table 11.2 — Summary of recommendations

Feature / Issue	Risk / Constraint	Recommendation / Action
Retained boundary vegetation	Potential damage to coniferous hedgerow, poplar line, mature trees and adjacent vegetation during construction	Retain and protect boundary vegetation throughout works. Use protective fencing where required and keep materials, machinery, storage and contractor access within defined working areas.
Mature trees and line of poplars	Potential root damage, canopy damage, nesting bird use and bat commuting/foraging value associated with mature boundary vegetation. Bat roosting potential is assessed as negligible for the shed and accessible trees assessed from ground level.	Avoid unnecessary works within root protection areas. Trees should be retained where practicable and protected from damage, soil compaction and lighting impacts. If future works reveal previously unseen cavities, splits or other suitable roosting features, advice should be sought from a suitably qualified ecologist before works proceed.
Breeding birds	Suitable nesting habitat in coniferous hedgerow, mature trees, poplar line, blackthorn scrub and dense ruderal vegetation	Undertake vegetation clearance outside March to August inclusive where practicable. If works are required during this period, complete a nesting bird check by a suitably qualified ecologist 24–48 hours before works commence. Active nests must be protected until no longer active.
Bats - Roosting	Small single-skin shed assessed as negligible roost potential. Accessible trees assessed from ground level are also assessed as negligible for roosting bats. The visible cavity / wound feature recorded on one mature boundary tree is open, fully visible externally and does not provide access into the trunk or an enclosed void.	No further bat roost survey is required for the shed or accessible trees assessed from ground level based on current findings and current proposals. If future works reveal previously unseen potential roost features, further assessment by a suitably qualified ecologist should be undertaken before works proceed. If bats or evidence of bats are unexpectedly encountered, works must stop and advice should be sought from a suitably qualified ecologist.
Bats – foraging and commuting	Moderate potential associated with hedgerows, mature trees, poplar line and ruderal vegetation	Implement a sensitive lighting strategy during construction and operation. Avoid light spill onto boundary vegetation, mature trees, poplar line, coniferous hedgerow and ruderal habitats. Use warm-white LEDs, directional shielding, low mounting heights and timers/PIR controls where practicable.

Reptiles	Negligible potential in main works area; low potential in mitigation area due to ruderal vegetation, grassland and blackthorn scrub	Apply precautionary Reasonable Avoidance Measures within the mitigation area, including staged vegetation clearance, directional clearance towards retained habitat, checking refugia and toolbox talks.
Great crested newt / amphibians	Negligible potential: pond located approximately 460m from the proposed development area and approximately 150m from the mitigation area, with fish and waterfowl observed, reducing breeding suitability	No targeted GCN survey is considered necessary based on current assessment, provided works remain within the assessed areas and no additional suitable ponds, ditches or terrestrial refugia are affected. General amphibian precautions should be followed, including careful clearance of refugia, covering excavations overnight, capping open pipes and stopping works if a GCN or another amphibian is encountered. If the scope of works changes or moves closer to the pond, further ecological review may be required.
Badger	Negligible potential in main works area; moderate potential in mitigation area due to blackthorn scrub and tall ruderal habitat	Complete a pre-commencement badger check of the mitigation area prior to vegetation clearance or groundworks. If any sett or field signs are identified, works should stop and advice should be sought from a suitably qualified ecologist.
Hedgehog	Negligible potential in main works area; moderate potential in mitigation area	Vegetation clearance in the mitigation area should be undertaken sensitively, with staged and directional clearance, hand-checking of dense vegetation/refugia, covered excavations and capped pipes. New fencing should remain permeable to hedgehog where practicable.
Other mammals	Potential use of mitigation area by small mammals, fox, rabbit and mustelids	Apply precautionary working methods, including careful clearance of dense vegetation, checking potential refugia, maintaining escape routes from excavations and delivering contractor toolbox talks.
Invasive non-native species	No Schedule 9 invasive plant species recorded	No specific INNS mitigation required. If suspected invasive species are later identified, works should stop in the affected area and ecological advice should be sought.
Pollution and run-off	Risk of dust, sediment, fuel, oil, chemical or cement contamination affecting retained habitats, nearby waterbodies or wider nature reserve	Secure pollution prevention through a CEMP. Store fuels/chemicals with secondary containment, manage cement washout in contained areas, control dust and run-off, restrict vehicle movements and avoid storage within retained or enhanced habitats.
Forest School area	Risk of disturbance, compaction or poor establishment of habitat enhancement measures	Protect mitigation land from unnecessary vehicle tracking, material storage and disturbance. Manage habitats in accordance with DJOGS L&EES 2189.2 rev1 and any supporting BNG requirements.
BNG and enhancement	Requirement to deliver measurable biodiversity net gain and align with Twycross Zoo biodiversity objectives	Implement the Landscape and Ecological Enhancement Scheme DJOGS L&EES 2189.2 rev1. Habitat creation and enhancement should align with Twycross Zoo's wider biodiversity objectives, including habitat connectivity, grassland/ruderal management, scrub/hedgerow strengthening and features for native species.
Construction management	Risk of accidental harm to protected/notable species and retained habitats	Provide ecological toolbox talks to contractors before works begin, covering retained habitats, nesting birds, bats, reptiles, amphibians, hedgehog, badger, pollution prevention and stop-work procedures.

12. Legislation & Policy

- Wildlife & Countryside Act 1981 (as amended).
- Conservation of Habitats & Species Regulations 2017 (as amended).
- Protection of Badgers Act 1992.
- Natural Environment & Rural Communities (NERC) Act 2006 — Section 41.
- Environment Act 2021 — mandatory 10% BNG, ≥30-year management.
- Ministry of Housing, Communities and Local Government (2024). National Planning Policy Framework. December 2024, as amended February 2025.

13. References

- Natural England / Defra (2026). Statutory Biodiversity Metric Tools and Guides. Current version.
- CIEEM (2017, updated 2021). Guidelines for Preliminary Ecological Appraisal.
- CIEEM (2017, updated 2021). Guidelines for Ecological Report Writing.
- JNCC (2010). Handbook for Phase 1 Habitat Survey.
- UKHab Ltd (2020, updated 2021). UK Habitat Classification – Field Survey Guidance.
- Natural England — standing advice.
- Statutory Biodiversity Metric v1.04 (2023).
- MAGIC Map (DEFRA).

- NBN Atlas.
- Twycross Zoo (2026). Twycross Zoo expands nature reserve in major step to exceed UK biodiversity targets.