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Acorn Lodge, Barnsley Construction Ecological Management Plan and Ecological Enhancement Management Plan.

January 2018

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1.0 INTRODUCTION.

- 1.1 In January 2018, Wold Ecology Ltd was commissioned by CAS Healthcare Properties Ltd to write an Ecological Enhancement Management Plan and Construction Ecological Method Statement for land at Acorn Lodge, Upper Sheffield Road, Barnsley (national grid reference SE 35331 05215) in South Yorkshire.
- 1.2 The proposed development involves partial site clearance and the erection of a 20-bedroom brain injury unit with associated infrastructure and landscaping.
- 1.3 An Ecological Enhancement Management Plan and Construction Ecological Management Plan is a requirement of Barnsley Metropolitan Borough Council decision (Ref: 2017/1360), as part of the planning application process. Conditions relating to the ecology of the site state:

13 - Upon commencement of the development full details of the mitigation measures identified in Section 7 of the Extended Phase I Habitat Assessment, including a timetable for their implementation, shall be submitted to and approved in writing by the Local Planning Authority. The development shall thereafter be implemented in accordance with the approved details.
Reason: To conserve and enhance biodiversity in accordance with Core Strategy Policy CSP 36
- 1.4 The purpose of this report is to outline the ecological issues associated with the development site and set out a Method Statement for the site clearance and construction associated with the development, in order to prevent damage to the most important ecological features and prevent any breaches of wildlife law.
- 1.5 This document provides information which is relevant to discharge condition 13 attached to the planning consent granted for the site.
- 1.6 As part of the Construction Ecological Management Plan (CEMP) and Ecological Enhancement Management Plan (EEMP) for the site, all personnel working at the construction site shall be made aware of this Method Statement and its contents.

2.0

AIMS.

- 2.1 It is recognised that planning is an essential component of virtually every human endeavour; conservation and countryside management should be no exception. A EEMP and CEMP was devised to ensure:
- Habitat lost during the works will be replaced – where applicable
 - The site will be enhanced for wildlife where possible
 - Compliance with statutory obligations and policy requirements
- 2.2 The overall aims of this EEMP and CEMP are:
- To ensure development is carried out in an appropriate manner and that features, and species of ecological importance are protected during the preconstruction/enabling and construction phases of the scheme.
 - To enable the delivery of the appropriate management of all semi-natural habitats that are to be retained, enhanced, or created within the completed scheme, to ensure that they continue to deliver benefits for local wildlife, recreation, and visual amenity – where applicable.
 - In addition, this report is also required so that the local authority comply with the Habitats and Species Regulations 2017 and to have regard to the purpose of conserving biodiversity in the exercise of their functions (Natural Environment and Rural Communities (NERC) Act 2006).
- 2.3 Responsibilities
- 2.3.1 The responsibility for carrying out the functions of this EEMP and CEMP will vary throughout the duration of the management period as follows:
- Pre-construction/Enabling Works Phase: All management and maintenance works of all features and species of ecological importance are the responsibility of the Principal Contractor appointed by the Developer and are to be completed by the Principal Contractor for sign-off by the Developer prior to the start of construction.
 - Construction Works Phase: All management and maintenance works of all features and species of ecological importance are the responsibility of the Developer, and are to be continued through to practical completion; and
 - Long-term Management Post-adoption: The responsibility for the management and maintenance works of all features and species of ecological importance postadoption will be the responsibility of the individual property owners, with exception to those areas of public open space that are to be the responsibility of the Private Management Company or similar appointed contractor.
- 2.4 The management scheme detailed within this CEMP and EEMP covers the provision, management, inspection, maintenance, repair, and replacement as necessary, taking into account factors including ecological, landscape, social, wildlife and amenity use for the land.

3.0 GENERAL DESCRIPTION AND BACKGROUND.

- 3.1 Location : Acorn Lodge, Cambrian Oaks, Upper Sheffield Road, Barnsley, S70 4PX
County : South Yorkshire.
OS Grid Reference : SE 35331 05215
- 3.2 The habitats within the Application Site comprise scrub, interspersed with several scattered trees in an area of sub-urban housing. There are no statutory or non-statutory sites within the site boundary.
- 3.3 The Application Site is located on the southern edge of Barnsley, in an urban location. The wider Acorn Lodge site is approximately 1.5ha although the proposed building location (Application Site) is less than 0.5ha; it is immediately surrounded by residential dwellings, a care centre and urban infrastructure. Habitats within the wider area of the Application Site include a cemetery, plantation and semi-natural woodland habitats. The Application Site is surrounded by a small mesh security fencing and brick walls in excess of 2m which prevents dispersal opportunities into the grounds of Acorn Lodge.
- 3.4 Habitats within 2km are dominated by urban habitats including residential dwellings, commercial unit's industrial areas with scattered green belts in the form of river valleys and occasional pastoral agricultural land. Woodland cover in the locality is limited and occurs as small shelterbelts and plantations adjacent to watercourses. Habitat connectivity from the Application Site is poor, with the Application Site not connected to any ecologically valuable habitat; the urban nature of the Application Site also restricts terrestrial dispersal opportunities.
- 3.5 A summary of the surrounding habitat is (radius of < 2km from the site):
- Buildings – farm buildings and residential properties
 - Hedgerow
 - Mature trees and woodland
 - Dearne Valley Park
 - Arable
 - Mature private gardens
 - Ponds and watercourses
 - River Dearne
 - Grazed pasture
- 3.6 A Phase 1 Habitat Survey was undertaken by Wold Ecology Ltd on 29th August 2017. During the site visit, the whole of the Application Site and accessible neighbouring land was examined in detail.

4.0 ECOLOGICAL CONSTRUCTION METHOD STATEMENT.

- 4.1 The CEMP recommends the following measures which should be adopted to ensure potential adverse impacts to wildlife are avoided.

4.2 Birds

- 4.2.1 The applicant is reminded that, under the Wildlife and Countryside Act 1981, as amended (section 1), it is an offence to remove, damage or destroy the nest of any wild bird while that nest is in use or being built. Planning consent for a development does not provide a defence against prosecution under this act.
- 4.2.2 No removal of hedgerows, trees, shrubs or vegetation shall take place between mid-February and mid-September inclusive, unless a competent ecologist has undertaken a careful, detailed check of aforementioned for active birds' nests immediately before the vegetation is cleared and provided written confirmation that no birds will be harmed and/or that there are appropriate measures in place to protect nesting bird interest on site. Any such written confirmation should be submitted to the local planning authority.
- 4.2.3 Thick and overgrown hedgerows are often difficult to inspect fully and removal of a hedges/scrub during the spring/summer period is not recommend.
- 4.2.4 If nesting birds are found during the watching brief, works that will impact upon the nest will need to stop until the young have fledged.

4.3 Mammals (deer, badgers, hedgehogs etc.)

- 4.3.1 During the construction phase of the development, it is necessary to undertake a number of additional measures to safeguard any mammals which may become present within the development site. The following measures are recommended in respect to the Application Site:
- Site personnel are to be made aware of the potential presence of mammals using the Application Site, prior to site works finishing on an evening;
 - Any dangers within the construction site to mammals are to be identified and measures undertaken to minimise any such risk, in relation to the Application Site, this includes the following:
 - Any trenches or deep pits within the development site that are to be left open overnight will be provided with a means of escape should a mammal enter or be covered up. A means of escape could include a roughened plank of wood or similar, placed in the trench as a ramp to the surface. This is particularly important if the trench/pit is liable to fill with water.
 - Any trenches/pits will be inspected each morning to ensure no mammals have become trapped overnight. Should a mammal become trapped in a trench/pit, Wold Ecology should be contacted immediately for further advice.
 - The storage of any chemicals on site will be contained in such a way that they cannot be accessed or knocked over by any commuting mammals.
 - Open pipework greater than 75mm outside diameter should be blanked off at the end of each working day.
 - Care must be taken whilst carrying out vegetation clearance, or strimming. A thorough check of the vegetation prior to removal will help ensure that no hedgehogs are injured or killed during development works. Sleeping

hedgehogs frequently suffer severe injuries from trimmers.

- Avoid setting fire to piles of vegetation unless they have been turned, checked, or moved immediately prior to burning. Hedgehogs often get killed or injured in fires during vegetation removal and during early November.

4.4 Trees

- 4.4.1 An Arboricultural Method Statement has been produced separately by a qualified Arboricultural Consultant.

5.0 ECOLOGICAL ENHANCEMENT TARGETS.

5.1 Conservation of features

- 5.1.1 Following field surveys and a desktop study conducted by Wold Ecology during August 2017, the following habitats and species have been targeted for enhancement and protection within this management plan document.

5.1.2 Habitats

- Trees – see arboricultural report.

5.1.3 Species

- Birds
- Bats
- Hedgehog

6.0 HABITAT MANAGEMENT PRESCRIPTIONS.

6.1 Trees

- 6.1.1 The development planting scheme follows the criteria highlighted in UKWAS. Consequently, native, and local provenance trees and shrubs that are typical for the area should be planted. In addition, fruit bearing trees and shrubs should be considered to increase winter food sources for birds. The landscaping plan will continue habitat connectivity to other sites and enhance dispersion of fauna. The following species should be considered:

- Field maple *Acer campestre*
- Rowan *Sorbus aucuparia*
- Crab apple *Malus sylvestris*
- Wild cherry *Prunus avium*
- Hazel *Corylus avellana*
- Whitebeam *Sorbus aria*
- Dogwood *Cornus sanguinea*

- 6.1.2 Planting operations shall be carried out in general accordance with the requirements of Sections 7, 8 and 9 of B.S. 4428: 1989 'Recommendations for General Landscape Operations (Excluding Hard Surfaces)'.

- 6.1.3 All plants shall be adequately and carefully packed and protected to survive transport, by whatever means, to the site without damage in loading, transit, or unloading. If in spite of these precautions, roots, branches, or shoots suffer slight damage, they shall be carefully pruned. If major damage has occurred, the plant shall be rejected and replaced.
- 6.1.4 All plants are to be of the species and variety indicated within this report. If, however, any plants are unobtainable at the time of ordering, the contractor is to inform the Employer immediately and submit a list of alternatives for consideration.
- 6.1.5 Heeling In: After delivery, if planting is not carried out immediately, root balled plants shall be placed cheek to cheek and the ball covered with sand or fine soil and watered to prevent drying out. Bare rooted plants shall be heeled-in by placing the roots in a prepared trench and covering them with fine soil which shall be watered in to avoid air pockets round the roots.
- 6.1.6 Dig out holes large enough to receive the roots of the plant fully extended and well spread out. Carefully work top-soil among roots and backfill. Plants to be well firmed by heeling and the surface left neat and even. Planting must be to the same depth as in the nursery. Care must be taken not to disturb the root balls and not let any roots dry out at any time.
- 6.1.7 Watering: Shrubs and trees shall be well watered in immediately after planting mulch: Apply 75mm mulch over whole of planting bed immediately after watering in. The full topsoil will be wetted without displacing seeds, seedlings, or soils. The frequency of watering will be regular to ensure the continual establishment of all trees and shrubs.
- 6.1.8 Planting Season: Unless otherwise specified, all transplanting shall be carried out between the end of October and the end of March. Container grown trees may be transplanted at times other than these at the discretion of the Project Manager. The transplanting shall be carried out when the weather is dull, and the ground is moist and workable. On no account must the planting take place when there is freezing wind.
- 6.1.9 Transplanting in Frosty Conditions: Planting of trees in frosty conditions will only be permitted if adequate precautions are taken. The prepared root balls must have additional wrapping. The bottom and sides of the tree pits, and the piles of top-soil, must be protected from freezing by the use of boards, tarpaulins, or other approved materials.
- 6.1.10 All tree stock must comply in all respects with the current edition of B.S. 3936. Trees shall be well grown nursery stock free from disease, true to type and of a size scheduled in accordance with the approved method of measurement.
- 6.1.11 Trees to be protected for 5 years with a 90cm rabbit spiral and cane.

6.2 Apple trees

- 6.2.1 Historical data gathered from England show that over the whole country orchard area has declined by 57% since 1950 (English Nature 2005). Orchards are hotspots for biodiversity in the countryside, supporting a wide range of wildlife and containing BAP priority habitats and species, as well as an array of Nationally Rare

and Nationally Scarce species. The wildlife of orchard sites and apple trees depends on the mosaic of habitats they encompass, including fruit trees, scrub, hedgerows, hedgerow trees, the orchard floor habitats, fallen dead wood and associated features such as ponds.

6.2.2 Planting of additional apple trees around the site will attract woodland edge species such as bullfinch *Pyrrhula pyrrhula* and song thrush *Turdus philomelos*. English Nature (2005) state that pipistrelle *Pipistrellus pipistrellus* and noctule *Nyctalus noctula* bats forage over orchards, both of which are protected species and protected within the biodiversity action plan.

6.2.3 The soft landscaping scheme includes the planting of apple trees; the table below identifies the apple varieties that are suitable for the north of England. This list is not exhaustive and further species can be added, subject to client's requests and availability (Source – Northern Fruit Group). All apple trees will be planted in pairs.

Cultivar	Type	Comments
Fillingham Pippin	D	This apple was raised from seed or cuttings from America by Mr Fillingham of Swanland. It's a good crisp, sharp eater and unusually, it can be propagated from cuttings. Circa 1835.
Hornsea Herring	C	At one time in Hornsea, it was a condition for some tenants that a Hornsea Herring had to be planted and tended. The apple originates from circa 1855.
Balsam	B	A Yorkshire variety, also known as Green Balsam. Recorded in 1831, this cooking apple could be found in most gardens and was 'peculiar to the northern parts of Yorkshire' where it was known as 'the farmer's wife's apple'.
Hunthouse	C	Legend has it that Hunthouse or Hunt House was taken by Captain Cook when he sailed out from Whitby. It helped to prevent scurvy amongst his crew and dates back to pre-1800.
Ribston Pippin	D	Also known as the Glory of York, this is the most famous Yorkshire variety. It's a strong-tasting 'aromatic' traditional apple. If you like a classic English dessert apple, then this is one to try.
Bloody Ploughman	D	Named in 1883, its name is reputedly taken from a ploughman caught stealing apples on the Megginch estate and shot for it by the gamekeeper. On finding the apples, the ploughman's wife threw them on to a rubbish heap and one of the seedlings that emerged was rescued and subsequently named.
Yorkshire Beauty	C	Also known as Greenup's Pippin, it was introduced in the late 1700s and came from the garden of a shoemaker in Keswick. It is a big angular apple which has a rosy flush.
Bramley Seedling	C	Very popular and highly regarded as the 'world's best cooking apple', it dates back to 1809. The original tree is still thriving in Nottinghamshire.
Cockpit Improved	B	This dual purpose apple dates back to 1902 and is sweeter than the original Cockpit variety.

D = Dessert; C = Culinary; B = Both.

- 6.2.4 It is imperative to the success of each tree that it is kept weed free and watered after planting. All trees will be protected by a 0.6m tube and stake. This will be removed and replaced with a stake and tie, after approximately 5 years.
- 6.2.5 The table below summarises the various rootstock to which the cultivar can be grafted too.

Rootstock	Height in metres	Age of first fruiting (yrs)	Comments
‘M27’	1.5m (5 ft)	2-3	Very dwarfing and require good growing conditions to maintain high yields.
‘M9’	2.5m (8 – 10 ft)	3-4	Doesn’t produce strong roots and will need staking permanently. Not recommended for the north of England.
‘M26’	3m (10 – 12 ft)	3-4	Doesn’t require staking unless in really exposed areas. It will withstand moderate competition from weeds and grass
‘MM106’	4.5m (15 – 17 ft)	4-5	The most widely planted rootstock for apples in commercial orchards.
‘MM111’	6m (20+ ft)	6-7	Crown can spread to 4.5m (16 ft) and may require a professional to assist with pruning.

- 6.2.6 It is recommended that M26 or MM106 are planted on site. M26 and MM106 are compact yet robust trees that will thrive in the conditions and meet the compact demands of the land parcel. The height of the trees will also allow a clear walking tunnel beneath.
- 6.2.7 An application of chicken pellets will be applied annually during March; this will follow the recommended application rates highlighted on the product. The pellets will be applied to the ground underneath the whole canopy of the tree.

7.0 SPECIES MANAGEMENT PRESCRIPTIONS.

7.1 Birds

7.1.1 It is concluded that the Application Site is a good habitat for woodland edge and urban bird species with various designations. There is nesting potential for a range of bird families such as finches, warblers, sparrows, thrushes and chats at the site. Several simple management prescriptions can improve the site for breeding bird species.

7.1.2 In order to increase nesting opportunities for birds, 4 Schwegler bird boxes will be erected throughout the site. These boxes will target species of conservation concern. A summary of recommended bird boxes are listed below:

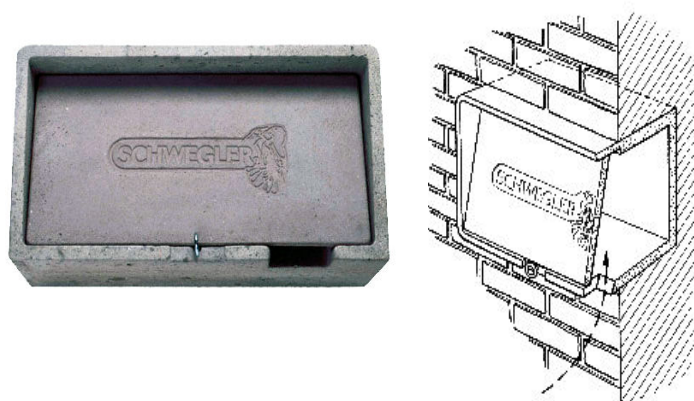
Name	Description	Number
Schwegler Nest Box 1B	Entrance hole 32 mm.	2
Schwegler swift box #25	Brick building box	2

7.1.3 Boxes will be placed so that the entrance does not face the prevailing wind, rain, and strong sunlight. The sector from north to south east should be used, with south facing boxes positioned in more shaded areas. Boxes will be positioned away from the damp side of the tree trunk, usually told by algae, lichen and moss growth. Boxes on trees will also be angled downwards to stop rain blowing into them.

7.1.4 Many species will use boxes at a wide variety of heights however to give the box protection in areas with a lot of human or mammalian predator activity they should be placed approximately 3-4 metres above ground level A clear flight path should be available to and from the nest box. Boxes attached to buildings will be erected close to eaves or gable apexes.

7.1.5 Swifts breed in colonies, so whilst boxes don't have to be placed on the same building as one another, it is recommended that they are situated in clusters of nearby buildings close together. As a general rule, the more boxes which are present increases the likelihood that they will become occupied by a colony. Likelihood of swifts taking them up is greatly increased if swifts already breed within that particular village or town.

Figure 1 – Swift box



7.4 Bats

- 7.4.1 Freshwater, woodland, grassland, urban gardens, trees, and amenity green space are suitable foraging habitats for bats whilst linear habitats such as hedgerows and streams are particularly important commuting routes between roosts and foraging ground. Management of these habitats as outlined above will aim to maintain a favourable status of local populations by encouraging bat usage through the provision of additional roosting opportunities, habitat enhancement and maintaining commuting routes.
- 7.4.2 Amenity areas can provide good foraging grounds for bats. Green areas can be improved by growing night-scented flowers and other flowers favoured by insects. Suitable species include and may be added to the grassland/tree margins:
- Foxglove *Digitalis purpurea*
 - Cowslip *Primula veris*
 - Red campion *Silene dioica*
 - Marjoram *Origanum vulgare*
 - Ox-eye daisy *Leucanthemum vulgare*
 - Red clover *Trifolium pratense*
 - Evening primrose *Oenothera biennis*.
 - Honeysuckle *Lonicera periclymenum*.
 - Wild Clematis *Clematis virginiana*
- 7.4.3 Leaving areas of uncut grass and providing open water will attract insects. Trees and shrubs in gardens will provide cover and additional feeding grounds. Green areas can be improved by planting native species of trees and shrubs as these support more invertebrates than the ornamental varieties.
- 7.4.4 Lighting
- 7.4.4.1 Lighting has a detrimental effect on bat activity; many bats will actually avoid areas that are well lit. Lighting can cause habitat fragmentation by preventing bats from commuting between roosts and foraging grounds (A.J Mitchell-Jones 2004).
- 7.4.4.2 The impact on bats can be minimised by the use of low pressure sodium lamps or high-pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.
- 7.4.4.3 Luminaire and light spill accessories - Lighting should be directed to where it is needed, and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres, and shields to direct the light to the intended area only.
- 7.4.4.4 If applicable, the height of lighting columns in general should be as short as is possible as light at a low level reduces the ecological impact. However, there are cases where a taller column will enable light to be directed downwards at a more acute angle and thereby reduce horizontal spill. For pedestrian lighting this can take the form of low level lighting that is as directional as possible and below 3 lux at ground level. Aim for lighting column of 5m or less, hooded and cowled to prevent light spill, for main lighting columns

7.4.4.5 Security lighting power, it is rarely necessary to use a lamp of greater than 2000 lumens (150 W) in security lights. The use of a higher power is not as effective for the intended function and will be more disturbing for bats. Many security lights are fitted with movement sensors which, if well installed and aimed, will reduce the amount of time a light is on each night. This is more easily achieved in a system where the light unit and the movement sensor are able to be separately aimed. If the light is fitted with a timer this should be adjusted to the minimum to reduce the amount of 'lit time'. The light should be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible. This lit area must avoid being directed at, or close to, any bats' roost access points or flight paths from the roost. A shield or hood can be used to control or restrict the area to be lit. Avoid illuminating at a wider angle as this will be more disturbing to foraging and commuting bats as well as people and other wildlife.

7.4.4.6 At this site, lights will **not** be mounted where they will shine directly on to bat boxes or the surrounding woodland and tree cover habitat used by foraging and commuting bats.

7.4.5 New bat roosting opportunities

7.4.5.1 Assessment of the site in August 2017 (Wold Ecology 2017) noted no roosting opportunities for bats. Consequently, the provision of bat roosting opportunities will enhance the value of the site for bats.

7.4.5.2 Two Schwegler 1FR will be sited on the west elevation of the new building. Schwegler Bat Boxes are recommended and well tested boxes. Bat boxes should be erected on south, east or west elevations; 3-5 metres above ground level with free flight paths.

7.4.5.4 The **1FR** is an attractive box designed specifically to be fitted on the external wall of a house, barn, or other building. Equally appealing to bats as a roost or a nursery, it features a special porous coating to help maintain the ideal temperature inside along with a rough sawn front panel to enable the bats to land securely.

Figure 2 - Schwegler 1FR Boxes



7.4.5.5 The majority of these boxes are self-cleaning as they are designed so that the droppings fall out of the entrance. This reduces the possibility of smell during the summer months. For more information on designs and installation of bat boxes see: www.schwegler-natur.de and www.bct.org.uk.

7.4.5.6 Timber treatment must be carried out using Permethryn type chemicals on the Natural England list of approved safe chemicals. New pre-treated timbers i.e. tanalised timber will be allowed to dry thoroughly before use, if applicable. New

timbers will be thoroughly brushed with a stiff yard brush to remove any crystalline residues before use.

A list of Natural England approved paints and timber treatments are available at http://www.naturalengland.org.uk/Images/Bat%20roost%20timber%20treatment_tcm6-10167.pdf

7.5 Hedgehogs

7.5.1 Encouraging thick shrub bases and areas of rough grassland will offer good hedgehog habitat within the Application Site. Hedgehogs favour lawned grassland in close proximity to rough grassland for foraging where they can access soil invertebrates on evenings.

7.5.2 Two hedgehog houses should be positioned around the site within the margins of grassland or shrub planting. These will provide important breeding and hibernation sites for hedgehogs within the local area. Boxes should be sited out of direct sunlight with the entrance facing away from prevailing winds, in or under thick vegetation. The boxes should be situated away from busy roads or areas of high disturbance.

Figure 3 - example of a hedgehog house



www.hedgehog-rescue.org.uk

7.5.3 Providing connectivity between habitats by leaving gaps below fences, gates and walls will allow hedgehogs access in and out of the site.

7.5.4 Hedgehogs can roam around 2km a night and hedgehog holes should be incorporated into all the garden and perimeter fences new home developments. These small holes will be placed at ground level and will measure 130mm in diameter and enable hedgehogs to roam freely through gardens and communal areas, so they can forage for food and find suitable nesting areas.

Locations of mitigation features within the Application Site.



7.6 Timing

7.6.1 Currently the exact timescale of the proposed development works is unknown.

Prescribed work	Timing	Comments
Toolbox talk	Before construction works	
Tree felling/vegetation clearance.	Mid September – Mid February	Or carefully checked by a suitably qualified ecologist to confirm no active nests are present during the summer period.
Tree planting.	October to March	
Erection of bat boxes.	Before March 2019	
Erection of bird boxes.	Before April 2019	
Replacement trees.	October to February	Failed trees and hedge plants will be replaced.
On-site inspection	TBC	An ecologist will visit the site and confirm that the mitigation measures have been implemented.

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