

Construction Ecological Mitigation/Enchantment and Management Plan

Survey site: Phoenix Works, Brookes Street, Middleton, M24 2WL

Client: KMM Group.

Date: 10/04/2026

Project:

This report is prepared to discharge planning conditions relating to an planning application with **Rochdale Borough Council**. The proposal is described as:

20no. affordable dwellings including associated landscaping and access following demolition of existing buildings

Planning Application Number:

23/00911/FUL

Introduction

This Construction Ecological/Mitigation, Enhancement and Management Plan (CEMPEMEMP) has been prepared for the above-named client to outline measures to be implemented during Phase 4 construction works at the above named site.

The purpose of this plan is to ensure the protection and mitigation of ecological receptors, adhere to best practices and industry standards, and provide adequate supervision by licensed professionals. The CEMP/EMEMP also outlines the management frameworks required for the planning and implementation of construction activities that comply with legislation and the environmental commitments.

The below table provides the wider ecological context of the site and details any associated planning conditions.

Site Context and Landscape History	
A detailed description and history is provided in the Bat and Nesting Bird survey (Echo Calls Bat Survey, 2021) and Preliminary Ecological Appraisal and Invasive Species Walkover report. (Arbtech, 2023).	
Planning Conditions	
Condition 4	No development shall take place (including any site clearance or preparation works) until a Construction Environmental Management Plan (CEMP) has been submitted to and approved in writing by the Local Planning Authority. For the avoidance of doubt, this shall include the following: a. the route of access and parking of vehicles of site operatives and visitors; b. loading and unloading of plant and materials; c. storage of plant and materials used in constructing the development; d. the erection and maintenance of security hoarding;

	<i>e. measures to protect surrounding sensitive receptors from noise, vibration and fugitive dust & debris both during and after the demolition and construction phase, including pollution pathways to controlled waters; and,</i> <i>f. measures to prevent the spread of mud including barrier protection and wheel washing facilities;</i> <i>g. the methodology for felling and removal from site of existing trees;</i> <i>h. details of any functional lighting of the site during the construction phase of the development; and</i> <i>i. Details of construction hours, including deliveries, which, for the avoidance of doubt, shall be limited to 08:00-18:00 Monday - Friday, 09:00-14:00 on Saturdays and no work on Sundays or Bank Holidays.</i> <i>The approved method statement shall be adhered to throughout the construction period. The development shall not be carried out otherwise than in accordance with the approved method statement without the prior written permission of the Local Planning Authority.</i> <i>Reason: To minimise detrimental effects to the amenity of surrounding residential occupiers and the natural environment during the construction phase, along with reducing dangers to highway safety in accordance with Policies DM1, T2, G7 and G9 of the adopted Rochdale Core Strategy, Policies JP-P1 and JP-G9 of the adopted Places for Everyone Joint Development Plan and the National Planning Policy Framework.</i>
<i>Condition 9</i>	<i>No development shall take place (including any site clearance, demolition or preparation works) until a reasonable avoidance measures statement for hedgehog and other small mammals has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved statement thereafter.</i> <i>Reason: In order to minimise potential risk to protected species and in accordance with Policy G7 of the adopted Rochdale Core Strategy, policy JP-G9 of the adopted Places for Everyone development plan and the National Planning Policy Framework.</i> <i>Reason for pre-commencement condition: site clearance poses a potential threat to protected species of small mammal and protective measures must therefore be agreed in advance.</i>
<i>Condition 21</i>	<i>No above ground works shall take place until a scheme of biodiversity enhancements for the site as set out in Section 9.8 of the Preliminary Ecological Appraisal by Arbtech dated 24.04.24 has been submitted to and approved in writing by the Local Planning Authority. The duly approved scheme shall be implemented in full prior to first occupation of the dwellings and retained thereafter.</i> <i>Reason: In the interests of enhancing biodiversity and habitat provision within the site in accordance adopted Rochdale Core Strategy Policies G6 and G7, Policies JP-G6 and JP-G7 of the adopted Places for Everyone Joint Development Plan and the National Planning Policy Framework.</i>

The below table describes the ecological baseline conditions on site.

Ecological Background Information

Detailed using desk study and site survey.

The site was subject to a Bat and Nesting Bird survey by Echo Calls Bat Surveys in September 2021. A further PEA and Invasive Species Walkover by Arbtech Consulting Ltd on 26th October 2023. A BNG report completed by Arbtech Consulting followed on from this in May 2024

Habitats identified at the site include-

- Modified grassland
- Sealed surfaces
- Buildings
- Mixed scrub
- Line of trees

This does not include habitats identified outside of the development boundary, in the wider site landscape.

Value for protected species on the site includes the following-

- **Birds-** The lines of trees and scrub provide ample nesting and foraging habitat for common birds. Due to the sites urban location the presence of notable bird species is considered unlikely as is the presence of overwintering bird populations.
- **Badgers-** No badger setts or badger activity was recorded on or within 30m of the site. The site is largely flat and covered in hard standing reducing suitability for sett excavation. Some earth banks are present around the boundaries which could be suitable however the site is surrounded by fencing and within a highly urbanised area which may reduce the likelihood of badgers utilising the site.
- **Bats-** Buildings on site were assessed as having low value for supporting roosting bats. No bat roosting behaviour was recorded during surveys undertaken by Echo Calls Bat Surveys. The lines of trees and areas of scrub on site are considered to provide suitable foraging and commuting habitat for bats.
- **Reptiles-** Areas of scrub and unmanaged grassland provide some suitable habitat for reptiles however due to the urban nature of the site it is considered unlikely that high number or rare reptile species are present/would migrate through the site.
- **Amphibians-** Habitats present within the site boundaries are considered to provide some suitable terrestrial habitat for common amphibians. Three ponds are present within 500m of the site however all three ponds are considered likely unsuitable to support GCN due to their large park nature including the presence of fish and waterfowl. Further the ponds are separated from the site by urban infrastructure including ain roads and kerbs which will act as a significant barrier.
- **Terrestrial mammals-** The habitats on the site and wider site are likely to support a variety of terrestrial mammals, such as hedgehogs, foxes, rabbits and rodents.

The following tables detail the proposed mitigation, habitat creation and biodiversity enhancement measures for the development as well as management requirements to ensure the longevity of these measures. as detailed in the PEA and BNG. These include further details of the habitats on site and the impacts of the development upon them and will be read in conjunction with this document.

Scope

This CEMP/EMEMP outlines construction and ecological measures for the following works:

20no. affordable dwellings including associated landscaping and access following demolition of existing buildings

Aims and Objectives

This report aims to identify key stakeholder requirements, ensure compliance by all stakeholders with all relevant legislation, minimise potential adverse effects on the environment and protected/notable species during construction, and provide site specific methods to avoid, minimise and mitigate construction effects on the environment and protected/notable species and to provide ecological and biodiversity enhancement measures for the site and include a management strategy in order to achieve long-term success and improvements.

Work Schedules and Ecological Presence

Work schedules will be developed to ensure activities with specific timing requirements are carried out in a manner that minimises harm to ecological receptors. These schedules will be provided to all relevant personnel and contractors involved in the project. The following measures will be implemented:

Ecological Clerk of Works

A qualified and suitably experienced ecologist will be present on-site during critical phases of construction activities, namely turf stripping. Their role will be to oversee and monitor compliance with the CEMP/EMEMP, provide guidance, and take immediate action to prevent any harm to ecological receptors. Should protected species be identified during vegetation clearance, works will be halted whilst a suitably licenced ecologist and/or Natural England is contacted.

Persons Responsible and Lines of Communication

A Development Biodiversity Champion is selected for the construction phase of the development. The Biodiversity Champion will be someone with significant influence during construction, such as the contract, site or project manager. They are responsible for ensuring all actions outlined in the approved CEMP/EMEMP are implemented including the provision of a toolbox talk prior to works commencing. Any queries with regards to the mitigation prescriptions will be addressed to the project ecologist and communication will be retained between the Development Biodiversity Champion and project ecologist and/or a suitably qualified Ecological Clerk of Works (ECoW) throughout the construction phase of the development where necessary to ensure the mitigation is applied and impacts to adjacent ecological receptors are effectively minimised. The project ecologist’s contact details are located on the title page of this report. It is recommended that the Biodiversity Champion informs the project ecologist and designated ECoW of the commencement of construction works and provides updates where necessary. The ECoW will provide ecological expertise and guidance throughout.

Table 2- Construction and Ecological mitigation measures

Ecological Mitigation Measures	This table includes any measure required to obtain or comply with planning permission or other consent and to comply with legislation.
Ecological Protection Areas and Buffer Zones	
Ecological protection areas and buffer zones within the project site. These areas will be demarcated using physical means of protection, such as exclusion fencing, to prevent unauthorised access and minimise disturbance to sensitive habitats.	
Tree Protection	
Tree root protection areas will be identified based on the existing tree inventory. A buffer from retained trees and woodland will be established and protected throughout the duration of construction activity in line with any Tree Protection Plan and the site access plan agreed with Client/contractor. No trenches or ground works will be completed within the specified buffer of any retained trees on site. Trees will be appropriately protected in accordance with BS 5837:2012 - “Trees in relation to design, demolition and construction – Recommendations”. As such, it is recommended that the trees are separated from construction works by protective fencing throughout the duration of the construction phase of the development. A fencing specification is included within Figure 1 below. Appropriate signage is to be included on the fencing in order to ensure that fences are not moved after establishing. As shown in Figure 2	

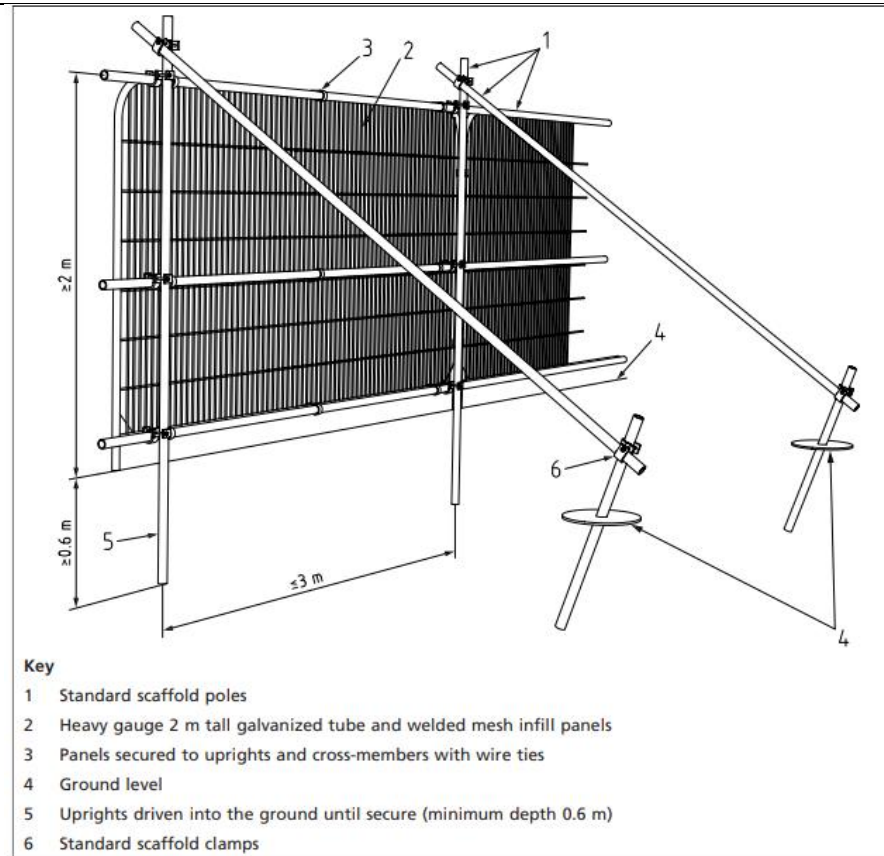


Figure 1: Default protective barrier specification (British Standards Institute 2012).



Figure 2 Appropriate signed to attached to root protection zone fencing- Source- www.Safetysignsandnotices.co.uk

Construction measures	
Vehicle Management	
<i>Routing of Construction and Delivery Vehicles</i>	All construction and delivery vehicles will access the site via the M62, Middleton Rd (A6046) and Rochdale Rd (A664) entering from the north east thereby avoiding larger sensitive residential areas and the town centre. Delivery times will be scheduled to avoid peak traffic hours (typically 08:00–09:30 and 16:30–18:00). Vehicles will be instructed to avoid narrow local lanes unless approved via a delivery management plan. All routes will be clearly marked on a site traffic management plan, which will be distributed to all suppliers and contractors. Parking and Turning Areas A designated temporary compound will be set up within the site boundary to accommodate:

	• Parking for construction workers and site personnel • Turning space for HGVs and delivery vehicles to prevent reversing onto the public highway Clear signage will be erected within the site to direct traffic to these areas and ensure safe, controlled movements. Temporary Traffic Management / Signage All necessary temporary traffic signage will be installed in accordance with Chapter 8 of the Traffic Signs Manual. Signage will include: • Advanced warning of construction access points • Speed restriction signs • “Construction traffic turning” signs at the site entrance If required, temporary traffic lights or marshals may be deployed during peak vehicle movement times to ensure safety and prevent disruption to the public highway. A Traffic Management Plan will be agreed with the local highways authority prior to commencement.
Pollution Prevention	
<i>Risk</i>	Pollution resulting from increased levels of water run-off, noise, and dust creation during construction works have limited potential to pollute Whit Brook.
<i>Statutory Compliance</i>	To limit impacts of pollution resulting from the construction phase of the development, construction works must be completed in accordance with current statutory guidelines relating to pollution prevention (Environmental Agency 2016). Furthermore, although withdrawn in 2015, pollution prevention guidelines detailed within guidance document: <i>PPG6: Working at Construction and Demolition Sites</i> (Environment Agency 2010) remain applicable to the site. Considering both the relevant statutory requirements and best practice measures detailed within guidance document PPG6, the below mitigation prescriptions are considered suitable to mitigate impacts of pollution during the construction phase of the development. The allocated Biodiversity Champion will be responsible for ensuring the below mitigation recommendations are undertaken successfully during the works.

<i>Materials Storage and Surface Water Runoff</i>	It is recommended that the Biodiversity Champion ensures that: • No stockpiles are created on exposed ground areas and ensure that all materials and chemicals are stored securely and safely on site in accordance with current Control of Substances Hazardous to Health (COSHH) regulations (HSE 2002). • Contaminated materials, chemicals, and other hazardous substances must be stored on an impermeable surface, in a bunded area, within any area of the site. • All chemicals and hazardous substances are stored away from areas where there is heightened risk of damage from impact or collision such as site traffic. • All chemicals and hazardous substances are labelled, containers are sealed when not in use and inspected regularly and fit for purpose. • Any damaged or old containers are replaced in line with the duty of care requirements. Note such containers may be considered hazardous waste. • Staff are trained in use of spill kits and emergency procedures. • Ensure there is a designated 'responsible person' on site at all times. • Lock storage facilities when not in use.
<i>Site Drainage</i>	It is recommended that the Biodiversity Champion ensures that: • Pollution risks are identified pre-construction. • Pollutants are prevented from entering drains where possible. • If any pollutant enters a drain, immediately stop the pollution with a physical block, stop the activity causing the pollution, then notify the Environment Agency for surface water drains or the local sewerage provider for foul water drains. If there's a spill, accident, or emergency, try and prevent pollutants entering the drains. • Report all pollution incidents to site management and the Environment Agency.

	- Inspect drains and protection measures frequently and maintain them during the construction activity. Well maintained drains will also reduce risks of flooding and subsequent surface water run-off. - As a last resort, should any pollutants be required to enter the drainage system on site, permission from Environment Agency or the local sewerage provider must be sought before discharging anything other than clean uncontaminated surface water to a drain and other surface waters or groundwater. Apply for permission early, as authorisation can take up to four months.
<i>Airborne particle suppression</i>	It is recommended that the Biodiversity Champion ensures that: - Effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. - Avoid explosive blasting, using appropriate manual or mechanical alternatives. - Bag and remove any biological debris or damp down such material before demolition. - Carry out regular site inspections to monitor compliance. - Ensure all vehicles switch off engines when stationary. - Avoid the use of petrol- or diesel-powered generators and use mains electricity or battery power where possible. - Only use cutting, grinding, or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction. - Ensure an adequate water supply on the site for effective dust/ particulate matter suppression/ mitigation, using non-potable water where possible and appropriate. - Use enclosed shuts and conveyors and covered skips.
<i>Noise</i>	The Biodiversity Champion must ensure that noise levels are kept to a minimum in accordance with best practice as defined in the Control of Pollution Act 1974 to avoid unacceptable levels of noise and vibrations. Further guidance can be found in British Standard 5228-1:2009. Such

measures applicable to the proposed development primarily include agreed working hours limiting night work, using the quietest equipment and plant available, shutting down equipment when not in use, and completing deliveries during working hours only. Most notably, prescriptions as to limit noise of plant machinery as detailed within **Table B.1** within the code of practice for noise control (British Standards Institution, 2014) is likely to have the most significant impact during construction activity. Table B.1 is shown below.

Table B.1 Methods of reducing noise levels from construction plant

Plant	Noise reduction of plant			Alternative plant
	Source of noise	Possible remedies (to be discussed with machine manufacturers)	A-weighted sound reduction dB	
Hammer drive piling equipment	Pneumatic/diesel hammer or steam winch vibrator driver	Enclose hammer head and top of pile in acoustic screen	5 to 10	Bored piling
	Sheet pile	Acoustically dampen sheet steel piles to reduce levels of resonant vibration		Vibratory system
	Impact on pile	Use resilient pad (dolly) between pile and hammer head. Packing needs to be kept in good condition		Drop hammer completely enclosed in box with opening at top for crane access
	Cranes cables, pile guides and attachments	Careful alignment of pile and rig		Steel jacket completely enclosing drop hammer with dolly and polystyrene chips fed to impact surface to dissipate energy
	Power units or base machine	Fix more efficient sound reduction equipment or exhaust. Acoustically dampen panels and covers. When intended by the manufacturer, engine panels need to be kept closed. Use acoustic screens when possible		Pressed-in piling which generates its driving force from the frictional restraint of other piles
Earth-moving plant: • bulldozer • compactor • crane • dump truck • dumper • excavator • grader • loader • scraper	Engine	Fit more efficient exhaust sound reduction equipment Manufacturers' enclosure panels need to be kept closed	5 to 10	Alternative super silenced plant might be available. Consult manufacturers for details

Table B.1 Methods of reducing noise levels from construction plant (continued)

Plant	Noise reduction of plant			Alternative plant
	Source of noise	Possible remedies (to be discussed with machine manufacturers)	A-weighted sound reduction dB	
Compressors and generators	Engine Compressor or generator body shell	Fit more efficient sound reduction equipment	Up to 10	Super silenced plant is available. Consult manufacturers for details Electric-powered compressors are available as opposed to diesel or petrol Sound-reduced compressor or generator can be used to supply several pieces of plant. Use centralized generator system
		Acoustically dampen metal casing Manufacturers' enclosure panels need to be kept closed		
	Total machine	Erect acoustic screen between compressor or generator and noise-sensitive area. When possible, line of sight between top of machine and reception point needs to be obscured	Up to 10	
		Enclose compressor or generator in ventilated acoustic enclosure	Up to 20	
Pneumatic concrete breaker, rock drills and tools	Tool	Fit suitably designed muffler or sound reduction equipment to reduce noise without impairing machine efficiency	Up to 15	Hydraulic and electric tools are available For large areas of concrete, machine designed to break concrete in bending can be used Thermic lance
		Ensure all leaks in air line are sealed		
	Bit	Use dampened bit to eliminate ringing		
	Total machine	Erect acoustic screen between compressor or generator and noise-sensitive area. When possible, line of sight between top of machine and reception point needs to be obscured	Up to 10	
		Enclose breaker or rock drill in portable or fixed acoustic enclosure with suitable ventilation	Up to 20	
Rotary drills, diamond drilling and boring	Drive motor and bit	Use machine inside acoustic shed with adequate ventilation	Up to 15	Thermic lance

	Table B.1 Methods of reducing noise levels from construction plant			
	Plant	Noise reduction of plant		Alternative plant
		Source of noise	Possible remedies (to be discussed with machine manufacturers)	A-weighted sound reduction dB
Hammer drive piling equipment	Pneumatic/diesel hammer or steam winch vibrator driver	Enclose hammer head and top of pile in acoustic screen	5 to 10	Bored piling Vibratory system
	Sheet pile	Acoustically dampen sheet steel piles to reduce levels of resonant vibration		Drop hammer completely enclosed in box with opening at top for crane access
	Impact on pile	Use resilient pad (dolly) between pile and hammer head. Packing needs to be kept in good condition		Steel jacket completely enclosing drop hammer with dolly and polystyrene chips fed to impact surface to dissipate energy
	Cranes cables, pile guides and attachments	Careful alignment of pile and rig		Pressed-in piling which generates its driving force from the frictional restraint of other piles
	Power units or base machine	Fix more efficient sound reduction equipment or exhaust. Acoustically dampen panels and covers. When intended by the manufacturer, engine panels need to be kept closed. Use acoustic screens when possible		
Earth-moving plant: • bulldozer • compactor • crane • dump truck • dumper • excavator • grader • loader • scraper	Engine	Fit more efficient exhaust sound reduction equipment Manufacturers' enclosure panels need to be kept closed	5 to 10	Alternative super silenced plant might be available. Consult manufacturers for details
Implementation of the Waste Hierarchy	The Biodiversity Champion must ensure that all construction activity is completed in accordance with the Waste Hierarchy (Defra 2011) in an attempt to reduce the amount of waster produced during the construction phase of the development. As such, the construction phase must be completed in accordance with the below core principles: <i>In the first instance:</i> • Re-use products and materials where possible.			

	• Recycle and compost material resources where possible. • Attempt to recover energy from waste. <i>Where none of the above options offer an appropriate solution, waste disposal is the final option:</i> • Only transfer controlled waste to an “authorised person” (Waste Collection Authority, the holder of an Environmental Permit, Registered Water Carrier or Waste Disposal Authority). • Ensure that non-hazardous waste is transferred under a Waste Transfer Note which must be retained for two years. • Hazardous waste is moved under a waste consignment note that provides a clear description of the waste material. The consignment note must be retained for three years. • The waste is the responsibility of the company until it has been fully recovered or finally disposed of.
Biosecurity and Invasive Species Management¹	
<i>Invasive/non-native Species Mgt</i>	Himalayan Balsam was identified on the site, located within areas of mixed scrub particularly along the southern site boundaries. Construction activities risk spreading this species around the site, as well as being tracked into the wider environment via plant tyres, as well as through unwashed boots. A separate bespoke invasive species management plan has been prepared in order to address the required removal and management of the species.
Wildlife Protection – Precautionary Methods of Working-	

¹ <https://ccsbestpractice.org.uk/entries/biosecurity-preventing-the-introduction-of-invasive-species-to-site/>

[https://www.nonnativespecies.org/biosecurity/biosecurity-in-the-field/#:~:text=Basic%20biosecurity%20advice%20for%20site%20visits&text=If%20practical%20do%20not%20take,debris\)%20before%20leaving%20the%20site.](https://www.nonnativespecies.org/biosecurity/biosecurity-in-the-field/#:~:text=Basic%20biosecurity%20advice%20for%20site%20visits&text=If%20practical%20do%20not%20take,debris)%20before%20leaving%20the%20site.)

<i>Herpetofauna</i>	The presence of common amphibians is assumed to be at the site due to the presence of unmanaged grassland and scrub. No optimal reptile habitat was recorded on the site; it is therefore considered unlikely that the site is of importance to reptiles. However, it remains possible that low numbers could be present. The proposed works are not anticipated to lead to any levels of habitat loss or fragmentation likely to affect local population status for either amphibians or reptiles, but individuals may be injured or killed during clearance and construction. Ecological Clerk of Works A qualified ecologist will be present on site to act as an ecological clerk of works (EcOW) during the clearance of vegetation of value to reptiles and amphibians. The EcOW will complete a toolbox talk to contractors immediately prior to vegetation clearance works to highlight the potential presence of reptiles and amphibians and to outline indicators of their presence. Pre Development Vegetation Clearance Vegetation clearance works must take place outside of the typical hibernation period for reptiles and amphibians, which is typically between November and February. Reptiles and amphibians are mostly torpid during this timeframe and are thus most vulnerable to injury or death. Undertaking vegetation clearance works during their active period, typically between March and September, will allow individuals to disperse unperturbed to adjacent retained habitats. a) Before any development, the ground flora on the affected parts of the site will be strimmed down to 500mm, directed towards off site suitable habitat. Any reptiles that are found will be encouraged to move away of their own volition, or if in immediate danger or likely to find itself in danger, deposited in a bucket and placed by gloved hand outside of the development area in retained suitable habitat by a suitably experienced ecologist.
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- b) Any spoil/log or rubble piles will be destructively searched for reptiles at the same time.
- c) Vegetation removal will be phased in two stages: with an initial cutting of all vegetation to approximately 200-300mm from ground level.
- d) This will be followed by a rest period of at least 24 hours.
- e) The second cut will be to ground level/ bare ground. Reptiles and amphibians are most likely to be present at or just below ground level; the phased technique allows any individuals present at this vegetation level to disperse. e) In addition to phasing, any cutting will be conducted systematically, towards areas of retained habitat to encourage any individual reptiles and amphibians to retreat to retained habitat unharmed and thus preventing individuals from becoming trapped in a central habitat island.
- f) The development zone will be managed thenceforth as bare ground or close mown vegetation.

A suitable systematic cutting technique is exemplified below in **Figure 3**.

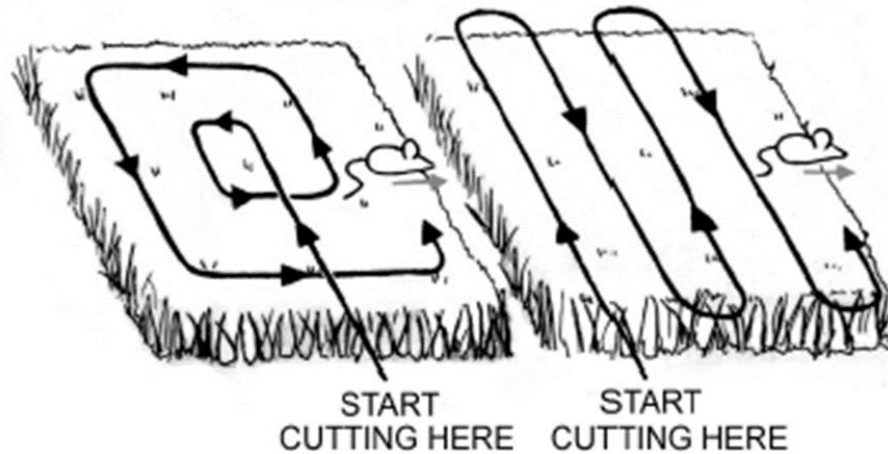


Figure 3: A schematic representation of vegetation cutting patterns as best to eliminate terrestrial opportunities for reptiles and amphibians within the construction zone.

Site Management During Construction

- During the course of construction works a site wide check for reptiles and amphibians must be carried out by contractors at the commencement of each working day, with any found relocated to safety outside of the working area. Any materials will be stored on pallets away from tall vegetation or boundaries.
- Rubble created during the development will be safely disposed of in a skip. If no skip is available the rubble will be stored off the ground (e.g. on pallets) until it can be removed from site, to prevent common reptiles and amphibians from using the rubble piles for hibernation or refugia.

	• All trenches will (where possible) be backfilled before nightfall, or a ramp will be left to allow amphibians to easily exit. Any trench that could not be closed the previous day must be checked for reptiles and amphibians at the beginning of the next working day; particularly where this is scheduled for infilling. • Any chemicals or pollutants used or created by the development will be stored and disposed of correctly according to COSHH regulations. • Where for any reason contractors are a non-compliant and rubble and other piled items are left on the floor overnight or for any period of time beyond that working day, they must be dismantled by hand. • Any reptiles or amphibians found must be encouraged to move away of their own volition, or if in immediate danger and unable to perambulate themselves, will be captured in gloved hand or by any other means avoiding injury and safely relocated to suitable cover within retained habitat. No amphibian will be handled via bare hand due to the risk they may absorb toxic compounds through their permeable skin. • If at any point GCN or reptiles are found during development, all works must cease until further advice has been obtained from a qualified ecologist and the relevant regulators.
<i>Birds</i>	The scrub and lines of trees on site provide foraging and nesting habitat for a wide range of species. Site will see a loss of scrub and lines of trees habitat while construction works takes place, but this will be compensated by the planting of trees and inclusion of bird boxes. Vegetation clearance and demolition of buildings will be undertaken outside the core nesting period 1st March to 31st August. If this timeframe cannot be avoided, a nesting birds check of the vegetation (and any remaining or regrowth vegetation from earlier cuts) will be undertaken, by the project ecologist or ECoW, within 48 hours prior to the commencement of work. All active nests will need to be retained with a species-appropriate (generally 5m) buffer until the young have fledged (species specific but typically 4-6 weeks).

	A watching brief will be undertaken during clearance in case any nests were not evident during the first check. The buffer will need to be increased in the event of the presence of any Schedule 1 species as reckless disturbance as well of destruction of the nests of such species is an offence. Buffer zones regarding schedule 1 species are on a case by case, species by species basis and must be reflected accordingly. If schedule 1 species are identified nesting, these areas must be retained, and suitable fencing and signage installed to prevent encroachment into these areas. It is an offence to recklessly disturbed adult and independent young in proximity to their nests as well as the nests themselves. Examples of appropriate installed work signs are shown in Figure 4. Signs can also be installed in regard to non-schedule 1 species, installed in full view in areas where nesting birds have been identified on the pre-work checks. The image shows two rectangular work signs stacked vertically. The top sign has a blue background and contains a white exclamation mark inside a blue circle on the left, and the text 'Nesting Birds' in white on the right. The bottom sign has a red background and contains a white 'no' symbol (a circle with a diagonal line) on the left, and the text 'Do not disturb' in white on the right. Both signs are enclosed in a thin black border. Figure 4- Work signage regarding nesting birds on the site. Source- www.Britishsafetysigns.co.uk
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<i>Bats</i>	Bat roosts are not expected to be directly impacted by the development but may be disturbed during commuting and foraging activities. A lighting strategy is provided later within the report.
<i>Badgers and hedgehogs</i>	The following recommendations are given in order to mitigate against potential harm to hedgehogs, badgers and other mammalian fauna during the development works. • Site clearance will be undertaken outside of the hedgehog hibernation season (November to March) insofar as is possible. • A toolbox talk will be given to contractors regarding the possible presence of hedgehogs at the site. • A staged approach will be adopted for vegetation clearance, whereby the vegetation will be strimmed to 30cm and left overnight to allow any hedgehogs to disperse. The vegetation can then be cleared to ground level and must be maintained at this level for the duration of construction to deter hedgehogs from the working area. • The work zone will be checked for wildlife prior to works commencing, with any fauna encouraged to move away via their own volition or transported by gloved hand to the reptile receptor area if this not be possible. This will only apply to smaller mammal species. Larger mammals such as badgers and foxes will not be transported by hand. • Any inadvertently injured wildlife will be taken to an appropriate local wildlife carer or vet. • Any trenches dug will ideally be backfilled before contractors leave. If this is not possible they will be covered at night or have a rough sawn plank placed in them to act as a ramp for any wildlife which may fall in. They must be checked for wildlife before backfilling. • Security lighting must be directed away from undergrowth and vegetated site boundaries. • Any chemicals or pollutants used or created by the development will be stored and disposed of correctly according to COSHH regulations.
Lighting Strategy	

The habitats on site have high habitat value for roosting, commuting and foraging bats and other nocturnal wildlife within what is at present a dark area.

Additional lighting could impact behaviour of wildlife and adversely affect the integrity of roosting and foraging resources. Any proposed external lighting will be installed in accordance with current guidance issued by the Bat Conservation Trust and Institute of Lighting Professionals: Guidance Note 08/18: Bats and Artificial lighting in the UK (BCT & ILP 2018).

The below strategy utilises light prescriptions detailed within this guidance to limit impacts of artificial lighting on bats and other light sensitive species using retained habitats on and directly adjacent to the site including badgers and hedgehogs.

In particular, the lighting strategy seeks to influence the lighting design so that impacts can be avoided to key habitats of value including:

- The species-specific habitat enhancements detailed below, predominantly the bird and bat boxes.
- Newly proposed landscaping.
- Retained habitats on and directly adjacent to the site.

The following lighting design prescriptions are considered suitable for the type and scale of the Development to minimise the impacts of artificial lighting on site or within the public realm on bats and other light sensitive species.

Lighting design prescriptions recommended for the Site comprise:

- Boundary trees must not be illuminated to ensure the present dark zones are retained.
- Reducing the operating time of any installed public realm lighting and levels of illuminance provided via: Part-night operation. Turning off lights between certain hours, for example between midnight and 06:00.
- The use of motion sensors will be avoided to ensure no unnecessary light spill occurs during night-time hours. Where the use of motion sensors cannot be avoided, lights must be set to be turned on for no longer than 1 minute.
- Wall lights and security lights will be 'dimnable' and set to the lowest light intensity settings. There are several products on the market that allow the control of the light intensity and the duration that the lights are on.

- Avoiding light spill via: The use of directional lighting by using luminaires with rear shields and an upwards lighting ratio of zero; and Consideration to the height and spacing between lighting columns where practicable. Examples include stud LED or footpath lighting. There will be no bare bulbs and no light pointing upwards. The spread of light will be kept in line with or below the horizontal. Use low-level lighting in conjunction with hoods, cowls, louvers and shields.
- Lights will be directional to ensure that light is directed to the intended areas only.
- Light type: Use of lamps that minimise UV emissions or use UV filters to reduce the attractiveness of the lamp to invertebrates. Use high-pressure sodium or LED lamps, ideally warm white as its function as an invertebrate attractant is relatively low.
- The use of landscaping as to block light spill where appropriate.
- Install lighting systems that deliver no greater than a 3lux average illuminance, with a maximum horizontal illuminance of 0.6 uniformity (subject to appropriate maintenance factors).
- Use narrow spectrum light sources to lower the range of species affected by lighting.
- Use light sources that emit minimal ultra-violet light.
- Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue shortwave length content they will be of a warm / neutral colour temperature <4,200 kelvin.
- External lighting will be on PIR sensors that are sensitive to large objects only (so that they are not triggered by passing bats) and will be set to the shortest time duration to reduce the amount of time the lights are on.
- All lighting on the developed site will make use of the most up to date technology available.

Consideration will be taken for internal lighting as well as external light. Measures in order to reduce light spillage from internal lighting are displayed below in **Figure 5**

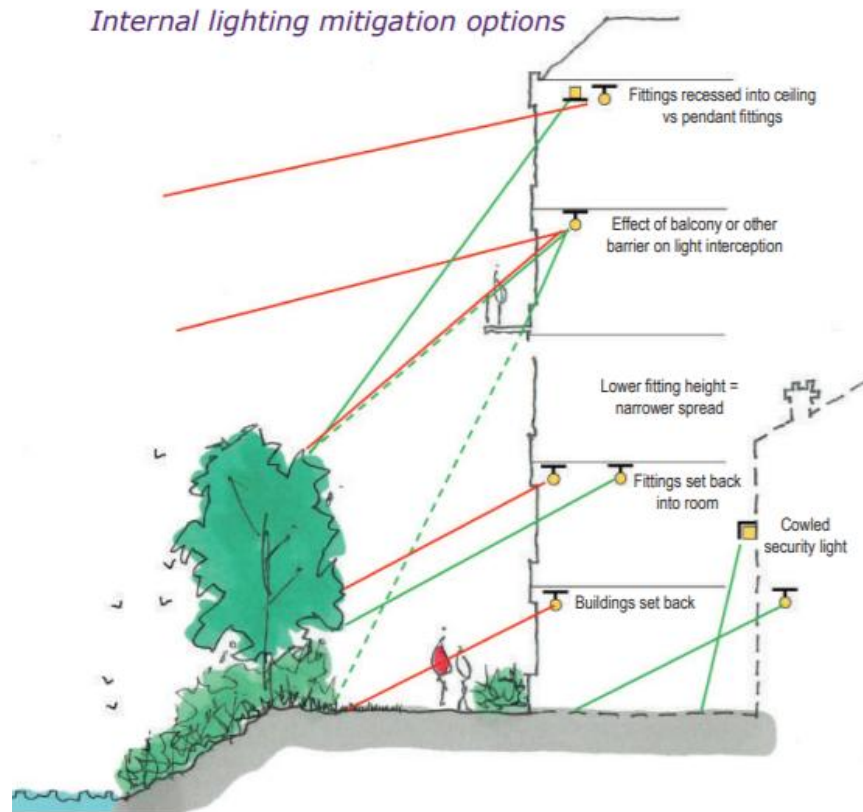


Figure 5- Mitigation measures for internal lighting.

2.0 Habitat Creation and Biodiversity Enhancement Measures

Table 3 details the habitat creation and biodiversity enhancement measures for the site. These are also illustrated in **Appendix 2 for habitat** and **3 for fauna species**.

Ecological/Biodiversity enhancement and management measures	This table includes any measure required to obtain or comply with planning permission, conditions ,or other consent and to comply with legislation.
Works	Specification
wild meadow grassland	Overview: It is proposed create new areas of modified grassland within public areas of the site. Objectives: - To create modified grassland in moderate condition by passing condition criteria A, C, F, & G (as a minimum) in accordance with the Grassland – Low distinctiveness Habitat Type Condition Sheet and BNG Assessment. - To create grassland that will be suitable for amenity purposes whilst also providing pollination, foraging, and commuting opportunities for protected and/ or notable species groups, including badgers, herptiles, hedgehogs, invertebrates, bats, and birds. - To undertake landscaping works in compliance with BS 4428:1989 – The Code of Practice for General Landscape Operation. Creation Method: Ground preparation A soft strip of the current base substrate must be undertaken in the first instance and removed from the area to provide bare soil suitable for sowing the seed mix. The bare soil will be subject to light rolling or trampling to provide a firm base prior to seeding Seeding To be undertaken in the spring between April and May or in the Autumn between September and October. The following seed rates are recommended: 40kg/ha or 4g/m² Proposed seed mix: It is proposed to seed the grassland with Emorsgate EM2 General Purpose Meadow Mixture. This seed mix contains 5no. grass species and 15no. wildflower species. The mixture contains no dominant grass species. Due to this diversity and absence of dominant species, the number of grass and wildflower species present per m² is increased; it is therefore considered reasonable to assume a species diversity of 6-8 species per m². For exact specifications, please refer to: https://wildseed.co.uk/about-us/. Risks:

	• Poor establishment – unsuitable soil conditions, drought, waterlogging, or inappropriate seed mix may result in poor germination and establishment • Dominance of undesirable or competitive species – aggressive grasses or ruderal species may outcompete target species, reducing botanical diversity • Colonisation by invasive or problem species – invasive non-native or undesirable species may establish following soil disturbance, reducing habitat condition by failing criterion G • Extreme weather – prolonged drought, heavy rainfall, flooding, or unseasonal weather may negatively affect the establishment and ongoing condition of the grassland • Damage from public access or site operations – trampling, vehicle movements, or machinery may cause soil compaction or localised damage to the sward • Inadequate aftercare and monitoring – lack of appropriate management, monitoring, or remedial action may compromise the long-term success of the grassland. Management prescriptions covering a 30-year term: Table 3.1: Modified Grassland management prescriptions. <table><tr><th>Management</th><th>When</th><th>Rationale</th><th>BNG condition criteria compliance</th></tr><tr><td>Cut monthly during the growing season</td><td>Between April and October. Cutting frequency may be adjusted following monitoring, where required to achieve the target condition.</td><td>Cutting monthly will allow a neat and tidy appearance whilst allowing more species to effectively colonise.</td><td>A, C, F, & G.</td></tr><tr><td>Turn and dry the cut grass over 3-5 days before removing arisings off-site</td><td>Following cuts in May and September.</td><td>This allows any seeds present to drop, encouraging species diversity and invertebrates to relocate unharmed.</td><td>A.</td></tr><tr><td>Do not apply chemical fertilisers</td><td>At all times.</td><td>The use of chemical fertilisers will encourage vigorous grasses and weeds to grow or cause large areas of bare ground due to inhospitable growing conditions.</td><td>D & E.</td></tr></table>	Management	When	Rationale	BNG condition criteria compliance	Cut monthly during the growing season	Between April and October. Cutting frequency may be adjusted following monitoring, where required to achieve the target condition.	Cutting monthly will allow a neat and tidy appearance whilst allowing more species to effectively colonise.	A, C, F, & G.	Turn and dry the cut grass over 3-5 days before removing arisings off-site	Following cuts in May and September.	This allows any seeds present to drop, encouraging species diversity and invertebrates to relocate unharmed.	A.	Do not apply chemical fertilisers	At all times.	The use of chemical fertilisers will encourage vigorous grasses and weeds to grow or cause large areas of bare ground due to inhospitable growing conditions.	D & E.
Management	When	Rationale	BNG condition criteria compliance														
Cut monthly during the growing season	Between April and October. Cutting frequency may be adjusted following monitoring, where required to achieve the target condition.	Cutting monthly will allow a neat and tidy appearance whilst allowing more species to effectively colonise.	A, C, F, & G.														
Turn and dry the cut grass over 3-5 days before removing arisings off-site	Following cuts in May and September.	This allows any seeds present to drop, encouraging species diversity and invertebrates to relocate unharmed.	A.														
Do not apply chemical fertilisers	At all times.	The use of chemical fertilisers will encourage vigorous grasses and weeds to grow or cause large areas of bare ground due to inhospitable growing conditions.	D & E.														
Tree and Shrub Planting	Overview New native tree and shrub planting and a combination of both native and ornamental shrubs are proposed across the site as shown on the proposed landscape plans and within the BNG proposal (see Appendix 1 and 2). This will focus primarily to include a range of native species,																

	such as silver birch, rowan, pear and maple. These will be planted predominantly around the entrances to the new dwellings and along the site boundaries Approximately 34 trees are to be planted round the site within garden and public areas. Ornamental species such as laurel, rhododendron and non-native cotoneasters listed on the schedule 9 invasive species list must be avoided. Objectives: - To plant individual trees in moderate condition by passing condition criteria A, B, C, and F (as a minimum) in accordance with the Individual Trees Habitat Type Condition Sheet and BNG Assessment. - To plant trees that will provide pollinating, foraging, and refuge opportunities for protected and/ or notable species groups, including invertebrates, bats, and birds. Tree planting Creation Method: Ground preparation and planting The locations for tree planting will be cleared and reduced to compacted permeable bare ground in preparation for planting. Planting substrate must comprise site-won material with any deficiencies made up of imported topsoil compliant with BS 3883:2015. Each tree will be pit planted upright within the centre in accordance with BS 4428:1989, within a hole at least 500mm greater than the root system when fully spread and at a depth 250mm greater than the root system. Root balls will be soaked thoroughly in water and loosened to expose restricted roots before planting. The planted trees will then be backfilled, ensuring there are no air pockets around roots or any roots protruding out of the ground. Timing The land will be prepared during the summer, ready for planting between November and March. Planting trees before the new year helps ensure better rooting and subsequent establishment, including faster growth during the first growing season. Species All tree species will be native and sourced from a nearby supplier where possible to ensure local provenance. Risks: - Tree failure and/or poor establishment - poor stock quality, drought stress, or unsuitable soil conditions may lead to mortality - Damage from pests, diseases, or vandalism - disease and vandalism can reduce survival rates
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- Inappropriate species selection - trees not suited to local soil, hydrology, climate, or landscape context may fail or cause long-term management issues.
- Extreme weather - drought, flooding, high winds, or frost can negatively affect the establishment of young trees
- Damage during maintenance – mowing and strimming may damage stems or roots
- Inadequate aftercare and monitoring - lack of watering, inspections, or replacement planting may compromise the long-term success of trees.

Management prescriptions covering a 30-year term:

Table 3.2: New tree planting management prescriptions.

Management	When	Rationale	BNG condition criteria compliance
Prepare planting area in summer, in preparation for autumn/ winter planting.	Year 1 – June/ July/ August	To ensure the ground is dry and workable.	n/a
Plant native trees only within prepped areas in Autumn, whereby the canopy oversails the vegetation	Year 1 – September/ October/ November	To ensure trees take root and establish prior to the first growing phase, the following spring.	A & F
Standard trees will be staked and tied using a 75mm diameter stake with the bark removed. The stakes will be long enough to allow for 600mm of the stake to be driven into each pit. Stakes will be fitted prior to tree planting to prevent root damage.	Year 1 – Immediately prior to planting.	Protect roots from damage.	B & D
Ensure the stakes and ties are not restricting growth and are not damaged. Replace where necessary.	Year 2 onwards – Checked annually for the first 5 years.	Ensure growth isn't stunted.	B & D
Remove stakes and ties.	Year 5 in Spring – April/ May	Allow trees to grow unperturbed once established.	B & D
Removal of spent flowers is to be done	Years 1 – 5 - Twice annually, late	Allows trees to place more	B & D

	through 'deadheading'	spring and in the Autumn.	energy into re-growth.	
	At the end of each growing season, all plant failures are to be 100% replaced	Year 2 onwards - Checked annually for the 30-year term after each growing season in Autumn.	To ensure the success of planted trees.	B & D
	Remove weeds	Year 2 onwards - Checked annually for the 30-year term after each growing season in Autumn.	Reduce competition for resources.	B & D
	Application of bark mulch at a depth of 50 mm	Year 2 onwards - Checked annually for the 30-year term after each growing season in Autumn.	Reduce competition for resources.	B & D
	Do not apply chemical fertilisers	At all times.	The use of chemical fertilisers will encourage vigorous grasses and weeds to grow	D
	Watering should be undertaken before and after planting out, and as necessary for the continued thriving of all planting.	Annually - for the 30-year term, when required following prolonged periods of drought.	Ensures plants do not dry out and subsequently fail.	B
	Undertake any pruning requirements outside of the nesting bird season, which is between March and September inclusive.	At all times.	Ensure no active bird nests are impacted by maintenance works.	E
Native Hedgerow Planting	Overview: It is proposed to create ~0.117km native hedgerow, as shown as proposed landscape plans and within the BNG proposal Appendix 1 & 2. Objectives - To achieve a moderate condition for newly planted native hedgerows by passing condition criteria A1, A2, B1, B2, & D1 (as a minimum) in accordance with the Hedgerows Habitat Type Condition Sheet and BNG Assessment. - To create hedgerows that will provide pollinating, foraging, commuting, and refuge opportunities for protected and/ or notable species groups, including badgers, hedgehogs, herptiles, invertebrates, bats, and birds. - To undertake landscaping works in compliance with BS 4428:1989 – The Code of Practice for General Landscape Operation. Creation Method:			

	• Ground preparation Prepare the ground by digging over a strip approximately 60-90cm (2-3ft) wide and one spit (or spade blade) deep. Soils that become waterlogged in winter may require a permanent drainage system. Alternatively, form the soil into a ridge about 15-20cm (6-8in) high and 50-70cm (20-28in) across to plant into • Planting Plants should be positioned set back from hardscape boundaries to allow space for the hedgerow to develop and mature prior to requiring any significant management/ cutting back. Plant density should focus on achieving a hedgerow width >1m; as such, plants should be planted in a staggered double row approximately 45-60cm apart, where individual plants are planted 90cm apart within each row • Timing It is best to prepare the land during the summer ready for planting between November and March. Planting before the new year helps ensure better rooting and subsequent establishment including faster growth Risks: • Poor establishment and/or plant failure – poor stock quality, unsuitable soil conditions, drought, waterlogging, or planting at an inappropriate time of year may result in high mortality • Damage from pests, disease, or browsing – rabbits, deer, livestock, pests, or plant diseases may damage young plants and reduce establishment success • Competition from weeds and grasses – excessive weed growth may suppress young hedgerow plants and slow establishment • Damage during maintenance operations – strimming, mowing, or use of machinery may damage young plants or root systems • Extreme weather – drought, frost, flooding, or prolonged wet conditions may negatively affect establishment and early growth • Failure of protective measures – absence or failure of guards, fencing, or mulching may increase risk of damage from browsing, desiccation, or vandalism • Inadequate aftercare and monitoring – lack of watering, weed control, replacement planting, or monitoring may compromise the long-term success and structure of the hedgerow. Management prescriptions covering a 30-year term: Table 3.3: Hedgerow management prescriptions.
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		Management	When	Rationale	BNG condition criteria compliance
		At the end of each growing season, all plant failures are to be 100% replaced	When required - checked annually in Autumn.	To maintain amenity and wildlife value.	B1 & B2
		If required, provision of stakes and guards. Guards to be left on for a minimum of 5 years	N/A	Protect from damage	A1 & A2
		Stakes should be checked, and any broken or damaged stakes during this time would be removed (as above) and replaced with ties re-fixed	When required -checked annually in Autumn.	Maintain protection	D2
		Remove weeds	When required - checked twice annually in early spring and in Autumn.	Reduce competition for resources and nutrients, etc., by weeds	D1
		Application of bark mulch at a depth of 50 mm	Immediately after planting and then when required, checked annually in Autumn.	Reduce competition for resources and nutrients, etc., by weeds	D1
		Do not apply chemical fertilisers	At all times.	The use of chemical fertilisers will encourage vigorous grasses and weeds to grow	C2
		Apply a light dressing of well-rotted manure	Annually in the winter	Note that the overuse of manure fertilisers will encourage vigorous grasses and weeds to grow.	A1 & A2
		Watering should be undertaken before and after planting out, and as necessary for the continued thriving of all planting.	When required -provide more water during periods of drought and less water during times of prolonged rain.	Ensures plants do not dry out and subsequently fail.	A1, A2, B1, & B2
		Check and replace any plant failures once a year	For the first 5 years	To ensure no gaps form.	A1, A2, B1, & B2
		Once the hedgerow reaches an average height of 1.5m or above along the hedgerow length, this height or above	To be checked annually once the hedgerow reaches 1.5m in height.	To ensure the hedgerow is not maintained at a low level of value to biodiversity.	A1

	must be retained. Once the hedgerow reaches an average width of 1.5m or above along the hedgerow length, this width or above must be retained. A minimum 1m strip of natural vegetation will be maintained on either side of the hedgerow base.	To be checked annually once the hedgerow reaches 1.5m in width. At all times.	To ensure the hedgerow is not maintained at a thin density of worse value to biodiversity. To maintain a valuable ground flora.	A2 C1
Bat Boxes	Overview: A total of five bat boxes will be installed on the site. These will be installed as intergrade bat boxes within the walls of the new dwellings. The proposed locations are shown on the plans provided in Appendix 3. Details of the bat boxes recommended for the sites are as follows: <i>Integrated bat boxes to be integrated into the façade of new buildings</i> - The recommended integrated bat bricks will be constructed of woodcrete/ woodstone. Boxes of this construction are known to require minimal maintenance and have a lifespan of 25 years plus. 5 No. Integrated Eco Bat Box with Cavity (or similar) (see Figure 6) will be installed into the façade of new buildings within either the new home or new nurse building.. This bat brick type is suitable for integration into a range of building types including brick walls, timber cladding, and stone and are suitable to support a range of species including common pipistrelles <i>Pipistrellus pipistrellus</i> and soprano pipistrelles <i>Pipistrellus pygmaeus</i> which are likely to be present in the local area. - The bat boxes will be positioned 3-5m above ground level facing a southwest elevation with a clear flight path to and from the entrance, away from artificial light and facing vegetated habitats.			



Figure 6: Integrated Eco Bat Box with cavity suitable for a range of crevice dwelling bat species.

(Photo credit: <https://www.wildcare.co.uk/integrated-eco-bat-box-cavity.html>)

Recommended management:

The proposed bat boxes are designed to require no management or maintenance. Furthermore, preventing physical disturbance of bat boxes will increase the chances of occupation by roosting bats. However, it is recommended that the bat boxes are inspected annually for the first five years outside of the typical active season for bats (May to September inclusive) following installation. Bat boxes must be replaced if they are damaged, removed, or have fallen from their recommended location.

Bird Boxes

Twelve bird boxes are recommended to be installed on site. Integrated and external bird boxes are proposed for this site, this is to include swift/house sparrow terraced style boxes and general purpose boxes.

Bird box specification:

- The recommended bird boxes will be constructed of woodcrete/ woodstone. Boxes of this construction are designed to require no maintenance and a lifespan of 25 years plus.
- 6x Woodstone Nest Boxes (or a similar alternative brand) with 28mm entrance holes are proposed on the new dwellings, as shown in **Figure 7**.
- Woodstone Nest Boxes will be positioned approximately 1.5-3m above ground level where they will be sheltered from prevailing wind, rain and strong sunlight. Box positions will not be facing south as a result.

- Due to the height of the building and the surrounding of trees, swift boxes are not recommended for this site due to the high volume of obstacles which would deter swifts from this area.



Figure 7 Woodstone Nest Box – source arkwildlife.co.uk

Integrated bird boxes to be integrated into the façade of new buildings

- The recommended bird boxes will be constructed of woodcrete/ woodstone. Boxes of this construction are known to have minimal maintenance and have a lifespan of 25 years plus.
- 6 No. Vivara Pro WoodStone House Sparrow Nest Boxes (or similar) (see **Figure 8**) will be installed into the façade of new buildings. This bird box type is designed to provide enhanced nesting opportunities for house sparrow *Passer domesticus*. House sparrows are priority species listed on Section 41 of the NERC Act. However alternative species like tits will also utilise these boxes if sparrows are not present.
- The bird box will be positioned approximately 3m above ground level facing a northern elevation where they will be sheltered from prevailing wind, rain and strong sunlight.



Figure 8: Vivara Pro WoodStone House Sparrow Nest Box Nest Box (image credit arkwildlife.co.uk)

Recommended Management:

The proposed bird boxes are designed to require no management or maintenance. Furthermore, preventing physical disturbance of bird boxes will increase the chances of occupation by nesting birds. However, it is recommended that the bird boxes are inspected annually for the first five years outside of the typical nesting bird season (March to September inclusive) following installation. External bird boxes must be replaced if they are damaged, removed, or have fallen from their recommended location. Internal bird boxes will not be blocked or removed.

Invertebrate house

5 No. Bee bricks will be installed into the fabric of the walls of the new buildings during construction. These will be installed around 1m in height, on a southern facing elevation which receives sun at some part during the day.

Any additional bricks that wish to be installed will continue to provide additional opportunities.

Colour of bee brick can be chosen to match brickwork of new walls. As show in in **Figure 9**



Figure 9- variety of bee brick colours-source - <https://www.nhbs.com/>

Logs and deadwood from the site clearance will be retained and stacked within a quiet corner of the site underneath the trees. This will provide deadwood for invertebrate species, as well as provide secure areas for any reptiles or amphibians in the area.

This will also continue to provide a food source for other fauna, such as hedgehogs.

The location of the log pile is noted on the map in Appendix 3.

Hedgehog House

Three hedgehog houses will be installed adjacent to the southern and northern boundaries close to adjacent areas of vegetation (**Figure 10**). A hedgehog house suitable for the site (or a similar alternative brand) can be found here: <https://www.nhbs.com/hedgehog-house> This is to be installed in a quiet area, near retained or created shrub and hedgerows. Ideally hedgehog houses will be in an area where it will not be regularly disturbed. Hedgehog houses can also be partially buried underneath turf to hide it greater (**Figure 11**) to create a more permanent structure.



Figure 10: Hedgehog house (image credit www.nhbs.co.uk)

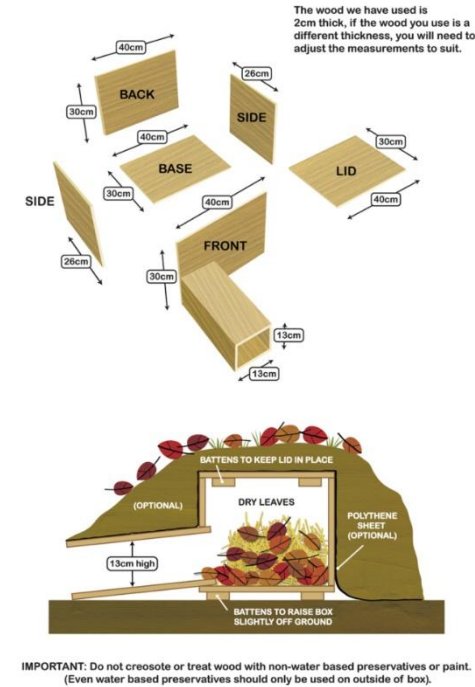


Figure 11- Permanent buried hedgehog house- source www.Britishhedgehogs.org.uk

Access points

Access will be provided for hedgehogs on the site. This will include the installation of hedgehog access points within the fencing around the site in particular along boundaries abutting neighbouring residential dwellings to allow for species dispersal.

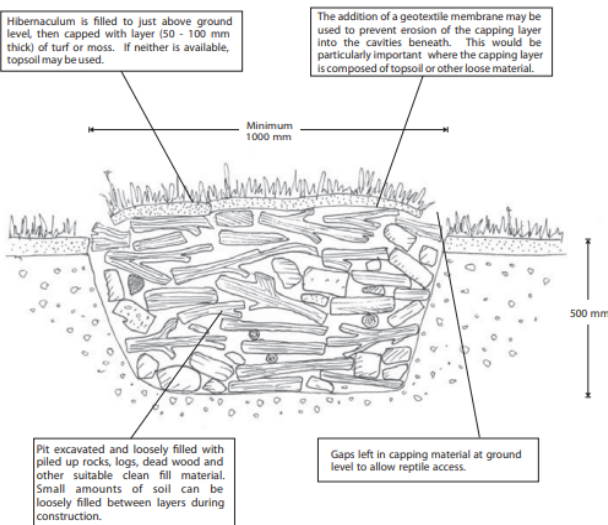
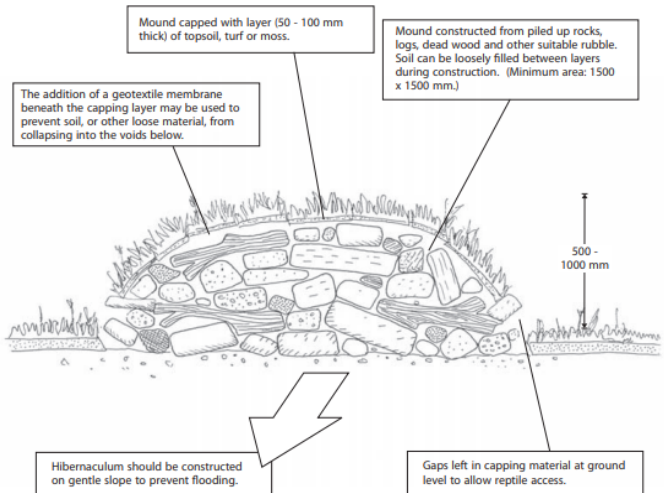
Gaps in the fencing will be a minimum 15 x 15cm. A hedgehog highway plaque will be installed over these gaps to indicate the reasoning and to prevent these being accidentally being fixed or blocked off, as demonstrated in **Figure 12**.

This will also include gaps between the closed board fencing between the gardens, which will provide safe movement across the site. Location of suitable gaps are noted in the map in appendix 3. This will also provide movement access for smaller fauna such as reptiles.

Deadwood and brash areas created as part of the reptile mitigation plan would also benefit hedgehogs in providing hibernation opportunities.



Figure 12- Hedgehog highway plaque- Source- www.Wildcare.co.uk

Reptile/amphibian hibernacula	One hibernacula will be created using natural materials such as logs, stone, vegetation arising and earth. This can be done using material from the site clearance. This will continue to provide enhanced refuge and over-wintering opportunities at the site for reptiles. Examples of two suitable designs are demonstrated in Figure 13. These can be installed within meadow areas. Full details on this are provided in the Reptile Mitigation and Enhancement plan (Arbtech Ltd 2024) Hibernaculum on free-draining ground Where ground conditions allow, the hibernaculum should be incorporated into a shallow pit. This design is more likely to remain frost-free, and will be less obtrusive and thus unlikely to be subject to interference.  Hibernaculum on impermeable ground Where ground conditions are impermeable, then an 'above-ground' or mounded design should be utilised in order to prevent the hibernaculum from flooding. This design should also be used if it is not possible to excavate a pit for any other reason.  Figure 13- A representation of a man-made hibernaculum. Appropriate signage indicating presence or the hibernacula feature will be implemented to prevent removal, or accidental damage.
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Compliance and Reporting

The EMEMP/CEMP requires stakeholders to comply fully with the pre-construction and construction-related elements of any mitigation strategies agreed with the Local Planning Authority and Natural England under any license requirements. Construction activities will therefore be conducted strictly in accordance with the approved CEMP. Regular inspections and monitoring will be undertaken to ensure compliance with the plan's requirements.

Any deviations or incidents that may affect ecological receptors will be immediately reported to the designated ecologist / Natural England. Updates to the EMEMP/CEMP will be relayed to the Local Planning Authority.

The EMEMP/CEMP will be periodically reviewed and updated as necessary throughout the construction phase to address changing site conditions and evolving ecological considerations.

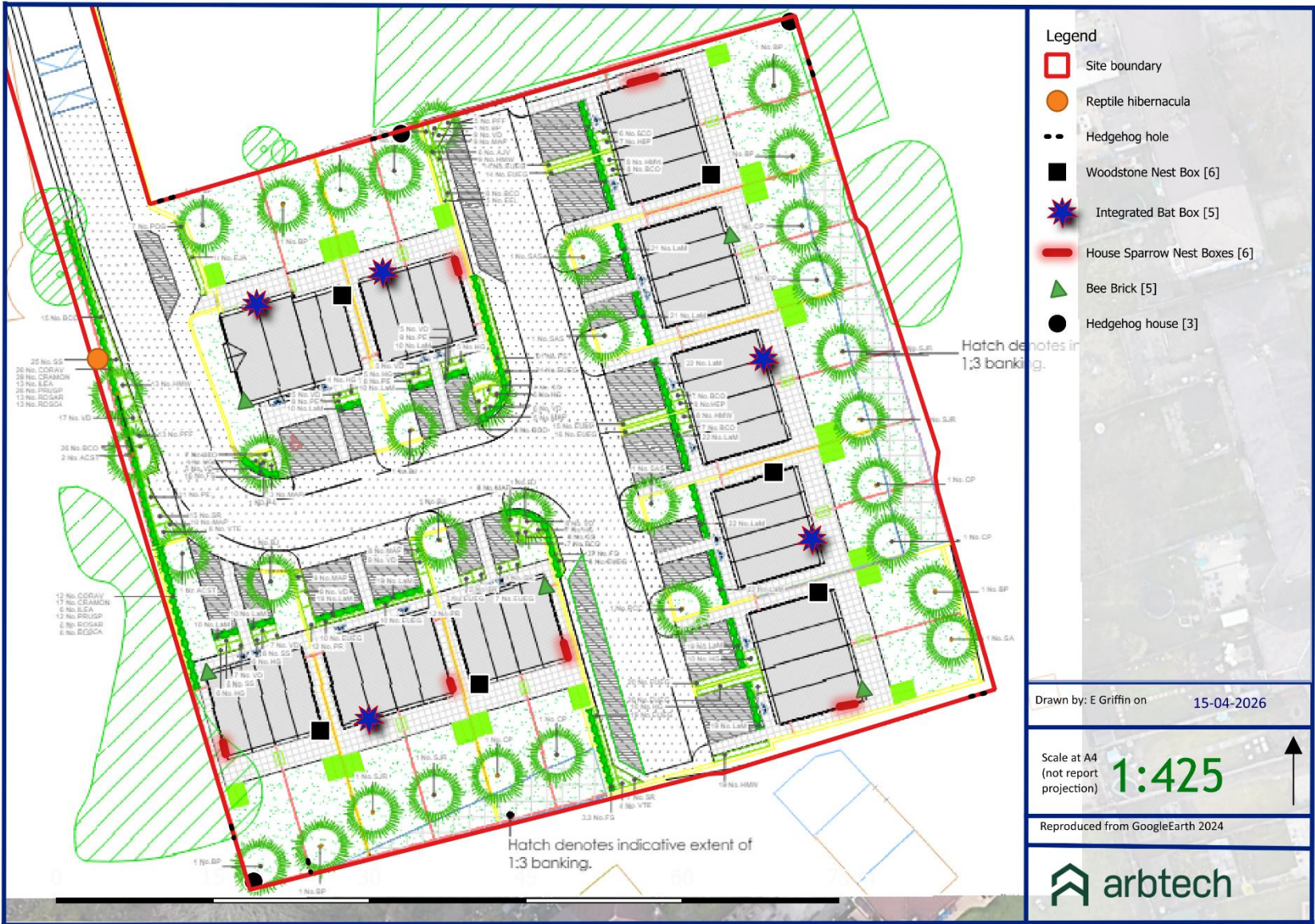
Appendix 1: Site Landscape master plan



Appendix 2: Habitat on-site creation and enhancements.



Appendix 3: Species specific enhancements.



Appendix 4: Mitigation measures.



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Amended	2.1		