



Construction environment Management Plan including Ecological Mitigation, Enhancement and Management Plan

Starling House, Birks Lane, Millhouse Green, Sheffield, S36 9NB

Mrs J Creek

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Industry Guidelines and Standards

This report has been written with due consideration to:

- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.

Proportionality

The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.

The desk studies and field surveys undertaken to provide a Preliminary Ecological Appraisal (PEA) might in some cases be all that is necessary.

(BS 42020, 2013)

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1.0 Introduction

Arbtech Consulting Limited was instructed by Mrs J Creek to produce an Ecological Mitigation, Enhancement and Management Plan for Starling House, Birks Lane, Millhouse Green, Sheffield, S36 9NB (hereafter referred to as “the site”).

A planning application “Form new river banking retaining wall to replace existing failed banking retaining wall” (hereafter referred to as “the proposed development”) is currently under consideration by Barnsley Metropolitan Borough Council (2022/0907).

A plan showing the proposed development is provided in Appendix 1.

The aim of this plan is to outline mitigation measures required to minimise impacts on biodiversity as well as to outline habitat creation and enhancement opportunities and long-term management which will ensure that a net gain in biodiversity is achieved and maintained on the site, in accordance with the National Planning Policy Framework (NPPF). Further, this report aims to provide a Construction Environmental Management Plan to ensure the protection of the adjacent water course during and post-construction works.

This plan has been informed by a Preliminary Ecological Appraisal which was completed by Arbtech Consulting Limited in 2022 (Arbtech 2022).

2.0 Site Context and Survey Information

2.1 Site Context

The site is located at National Grid Reference SE 22057 02994 and has an area of approximately 0.1ha comprising a tarmac driveway bordered by amenity grass and scattered trees, with the River Don immediately to the south. It is surrounded by dwelling to the north and agricultural fields and treelines to the south.

A site location plan is provided in Appendix 2.

2.2 Ecological Information

Table 1 summarises the survey findings for the site and outlines any potential impacts as a result of the proposed development along with recommendations and biodiversity enhancement opportunities, as detailed in the PEA (Arbtech 2022).

Table 1: Summary of baseline survey information, potential impacts, recommendations and biodiversity enhancement opportunities for the site (PEA, Arbtech, 2022)

Feature	Summary of Survey Findings and Impacts	Recommendations
<p>There are no notable habitats within the site however semi-improved grassland, lowland meadows and deciduous woodland are present within 2km of the site.</p> <p>Habitats within the site are common and widespread and have low ecological value however the adjacent river is likely to provide suitable habitat for wildlife.</p>	<p>No direct impacts to any notable habitats will occur as a result of the proposed development. However, due to the proximity of the site to the River Don, indirect effects such as pollution or tree damage could occur during construction.</p>	<p>Measures required to adhere to guidance, legislation and planning policies.</p> <p>Best practice measures to minimise the possibility of pollution and tree damage must be implemented during construction.</p>
<p>The adjacent river provides suitable otter habitat. A walkover survey concluded no evidence of otter activity within the immediate work area or within a 500m radius of the area.</p>	<p>The proposed development will not result in the loss of any riparian habitats however works will take place within the water course to allow for the reconstruction of the collapsed wall.</p>	<p>Owing to the nature of the proposed development and the low potential for impacts to otter, further otter surveys are considered to be disproportionate. A precautionary working method will be implemented during construction. See Table 5 for full details.</p>
<p>The adjacent river provides suitable water vole habitat however a walkover survey of the river concluded a lack of evidence of water voles within the immediate working area and within a 500m radius.</p>	<p>The proposed development will not result in the loss of any riparian habitats however works will take place within the water course to allow for the reconstruction of the collapsed wall.</p>	<p>Owing to the nature of the proposed development and the low potential for impacts to water voles, further water vole surveys are considered to be disproportionate. A precautionary working method will be implemented during construction. See Table 5 for full details.</p>

3.0 Ecological Mitigation, Enhancement and Enhancement Measures

3.1 Informative

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.

3.2 Persons Responsible and Lines of Communication

It is recommended that a Development Biodiversity Champion is selected for the construction phase of the development. The Biodiversity Champion should be someone with significant influence during construction, such as the contract or project manager. The Development Biodiversity Champion is responsible for ensuring all actions outlined in this EMEMP are implemented including the provision of a toolbox talk prior to works commencing. Any queries with regards to the mitigation prescriptions should be addressed to the project ecologist and communication should be retained between the Development Biodiversity Champion and project ecologist 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 or ECoW of the commencement of construction works and provides updates where necessary.

3.3 Mitigation Measures

Table 2 details the ecological mitigation measures to be implemented at the site.

Table 2 – Mitigation Measures

Works	Specification										
<p>Pollution prevention measures</p>	<p>The proposed works are to remove the remaining existing retained failed wall and the construction of a replacement wall. Specifically, the construction activities and potential pathways of damage/pollution from each are outlined below:</p> <table border="1" data-bbox="394 440 2036 1267"> <thead> <tr> <th data-bbox="394 440 999 472">Construction Activity</th> <th data-bbox="1010 440 2036 472">Potential Pollution Pathway</th> </tr> </thead> <tbody> <tr> <td data-bbox="394 472 999 651">Removal of existing partially failed breeze block wall</td> <td data-bbox="1010 472 2036 651"> <p>The following pathways of pollution from this construction activity has been identified:</p> <ul style="list-style-type: none"> • Water pollution from creation of waste products • Increased water run-off • Noise pollution • Dust creation • Water creation </td> </tr> <tr> <td data-bbox="394 651 999 829">Excavation of a new area behind the location of the new wall</td> <td data-bbox="1010 651 2036 829"> <p>The following pathways of pollution from this construction activity has been identified:</p> <ul style="list-style-type: none"> • Water pollution from creation of waste products • Increased water run-off • Noise pollution • Dust creation <p>Water creation</p> </td> </tr> <tr> <td data-bbox="394 829 999 1078">Installation of new gabion baskets in the newly excavated area</td> <td data-bbox="1010 829 2036 1078"> <p>The following pathways of pollution from this construction activity has been identified:</p> <ul style="list-style-type: none"> • Water pollution from storage of materials • Water pollution from creation of waste products • Increased water run-off • Noise pollution • Dust creation • Water creation </td> </tr> <tr> <td data-bbox="394 1078 999 1267">Installation of stone wall in same location as the existing failed breeze block wall</td> <td data-bbox="1010 1078 2036 1267"> <p>The following pathways of pollution from this construction activity has been identified:</p> <ul style="list-style-type: none"> • Water pollution from storage of materials • Water pollution from creation of waste products • Increased water run-off • Noise pollution • Dust creation </td> </tr> </tbody> </table>	Construction Activity	Potential Pollution Pathway	Removal of existing partially failed breeze block wall	<p>The following pathways of pollution from this construction activity has been identified:</p> <ul style="list-style-type: none"> • Water pollution from creation of waste products • Increased water run-off • Noise pollution • Dust creation • Water creation 	Excavation of a new area behind the location of the new wall	<p>The following pathways of pollution from this construction activity has been identified:</p> <ul style="list-style-type: none"> • Water pollution from creation of waste products • Increased water run-off • Noise pollution • Dust creation <p>Water creation</p>	Installation of new gabion baskets in the newly excavated area	<p>The following pathways of pollution from this construction activity has been identified:</p> <ul style="list-style-type: none"> • Water pollution from storage of materials • Water pollution from creation of waste products • Increased water run-off • Noise pollution • Dust creation • Water creation 	Installation of stone wall in same location as the existing failed breeze block wall	<p>The following pathways of pollution from this construction activity has been identified:</p> <ul style="list-style-type: none"> • Water pollution from storage of materials • Water pollution from creation of waste products • Increased water run-off • Noise pollution • Dust creation
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To limit impacts of pollution (outlined above) 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: PPG6: Working at Construction and Demolition Sites (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.

Site drainage:

It is recommended that the Biodiversity Champion ensures that:

- Pollution risks are identified pre-construction
- Pollutants are prevented from entering drains and water course
- If any pollutant enters a drain/water course, 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/water course 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

Materials storage and water run-off:

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).
- Stockpiles are located as far away as possible from the water course and on level ground to prevent any accidental run-off.

- 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.

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:

In the first instance:

- Re-use products and materials where possible.
- Recycle and compost material resources where possible.
- Attempt to recover energy from waste.

Where none of the above options offer an appropriate solution, waste disposal is the final option:

- 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.

Noise:

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 (i.e. works to commence one hour after sunrise and stop one hour before sunset)
- Using the quietest equipment and plant available
- Shutting down equipment when not in use
- Completing deliveries during working hours only (i.e. 9am – 5pm)

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 Vibratory system Drop hammer completely enclosed in box with opening at top for crane access Steel jacket completely enclosing drop hammer with dolly and polystyrene chips fed to impact surface to dissipate energy Pressed-in piling which generates its driving force from the frictional restraint of other piles
	Sheet pile	Acoustically dampen sheet steel piles to reduce levels of resonant vibration		
	Impact on pile	Use resilient pad (dolly) between pile and hammer head. Packing needs to be kept in good condition		
	Cranes cables, pile guides and attachments	Careful alignment of pile and rig		
	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

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	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
	Compressor or generator body shell	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 Enclose compressor or generator in ventilated acoustic enclosure	Up to 10 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 Ensure all leaks in air line are sealed	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
	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 Enclose breaker or rock drill in portable or fixed acoustic enclosure with suitable ventilation	Up to 10 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

Airborne particle suppression:

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.
- Site speed limit will be set at 5mph for all vehicles on site
- Ensure loading and unloading of materials is at the lowest drop height
- Ensure vehicles carrying dusty materials e.g. muck away, skips etc are securely and properly sheeted before leaving site
- Locate stockpiles out of the wind, or provide wind breaks to minimise dust creation

<p>Wildlife Protection Measures</p>	<p><i>Mammals</i></p> <p>The following recommendations are given in order to mitigate against potential harm to hedgehogs, badgers and other terrestrial mammalian fauna during the development works.</p> <ul style="list-style-type: none"> • Any trenches dug should either 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 • Cap any pipes over-night on site to avoid animals becoming trapped • Security lighting to be directed away from the undergrowth • Check work areas daily to ensure no animals are trapped <p><i>Amphibians and reptiles</i></p> <p>Herpetofauna will be protected by the implementation of a Reasonable Avoidance Measures (RAMs) approach applied to the site during the construction process. Contractors will adopt the following practices;</p> <ul style="list-style-type: none"> • Any materials will be stored on pallets on areas away from vegetation • Rubble created during the development will be safely disposed of in a skip. If no skip is available the rubble will be stored on pallets off the ground until it can be removed from site, to prevent herptiles from using the rubble piles for hibernation or refugia • Compost heaps or vegetation, log or rubble piles should be moved by hand prior to commencement of any work <p>If a great crested newts (or other common amphibians or reptiles) are found at any stage of the development, works must stop and Arbtech should be contacted for advice.</p> <p><i>Nesting birds</i></p> <p>Any vegetation clearance required should be undertaken outside the core nesting period 1st March to 31st August. If this timeframe cannot be avoided, a close inspection of the building/vegetation should 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 buffer until the young have fledged (species specific but typically 4-6 weeks).</p>
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3.3 Habitat Creation and Biodiversity Enhancement Measures

Table 3 details the habitat creation and biodiversity enhancement measures for the site.

Table 3 – Habitat Creation and Biodiversity Enhancement Measures

Works	Specification
<p>Native planting</p>	<p>There are 16No. trees located within an influencing distance of the development area (i.e. along the access driveway). All 16 trees will be retained and unimpacted by the proposed works.</p> <p>An additional four trees will be planted along the access driveway, as well as shrub planting.</p> <p>The following trees will be planted along the access drive:</p> <ul style="list-style-type: none"> • 2 x Alder <i>Alnus glutinosa</i> • 2 x Pedunculate oak <i>Quercus robur</i> <p>These should be purchased as ‘whips’, young bare root saplings a year old. They should be kept in their protective bags during transportation and planted within 4 days, after being kept in a frost-free environment and watered regularly. Planting should be completed between November and March. The soil preparation should include the removal any weeds or stones in the hedge path and to rotovate the soil and incorporate organic matter. The ground should not be frozen or waterlogged. In heavy clay or other difficult soils, a trench may need to be dug for planting. After planting, water the trees and add a layer of mulch to reduce weed competition to the growing saplings. See Appendix 3 for suggested location of new trees.</p> <p>Shrub planting will also be carried out along the access driveway. This will include a mixture of the following:</p> <ul style="list-style-type: none"> • hawthorn <i>Crataegus monogyna</i> • Guelder rose <i>Viburnum opulus</i> • Dog rose <i>Rosa canina</i> • Holly <i>Ilex aquifolium</i> <p>These should be purchased as ‘whips’, young bare root saplings a year old. They should be kept in their protective bags during transportation and planted within 4 days (or temporarily healed-in at least), after being kept in a frost-free environment and watered regularly. Planting should take place between November and March. See Appendix 3 for suggested area of shrub planting.</p>

Bat boxes

Bat boxes will be installed on site. These will provide excellent permanent roosting provision for local bats, and link to woodland, hedges, fields and other habitats in the wider landscape. The following bat boxes will be installed on existing mature trees on site:

- 1 x Beaumaris Woodstone Bat Box
- 1 x Vivara Pro WoodStone Bat Box

Bat boxes should be erected on a mature retained tree on site, between 3-5m above ground level, in a shady location facing south/south-westerly directions with clear flight paths to and from the entrance. They will be placed on different elevations of the same tree to allow bats to move from one box to another to maintain suitable microclimatic roost conditions throughout the day. See figure 1 below for pictures of the bat boxes and Appendix 3 for suggested placement. These should be installed on site upon completion of the proposed works.

Figure 1: Beaumaris Woodstone Bat Box and Vivara Pro WoodStone Bat Box



Birds

Bird boxes will be installed on site. These will provide excellent permanent nesting provision for birds, and link to woodland, hedges, fields and other habitats in the wider landscape.

The following bird boxes will be erected on existing trees on site:

- Vivara Pro Seville 32mm WoodStone Nest Box
- House Sparrow Nest Box
- Apex Robin Box

All nest boxes should be positioned at least 3m above ground level where they will be sheltered from prevailing wind, rain and strong sunlight. Small-hole boxes are best placed approximately 1-3m above ground on an area of the tree trunk where foliage will not obscure the entrance hole. See figure 2 below for pictures of the bird boxes and Appendix 3 for suggested placement. These should be installed on site upon completion of the proposed works.

Figure 2: Vivara Pro Seville Nest Box, House Sparrow Nest Box and Apex Robin Box



3.4 Management Requirements

Table 4 details the ecological management requirements for the site.

Table 4 – Management Requirements

Activity	Year 1	Every Year for 30 Years
New tree/shrub planting	<input type="checkbox"/> Replace any tree failures with planting of the same species to prevent gaps from developing. <input type="checkbox"/> Top of the mulch where necessary and water monthly or when dry.	<input type="checkbox"/> Any plants that die in the first 5 years will need to be replaced to prevent gaps developing.
Bat and bird boxes	<input type="checkbox"/> Install the site's provision of habitat boxes for bats, birds, invertebrates and hedgehogs.	<input type="checkbox"/> Check annually and replace any boxes that are broken or fall down e.g. during storms. The checks are to be carried out from ground level only to check for any damage/breakage, and therefore can be carried out by an unlicensed individual. If any bat boxes are required to be removed due to damage/replacement then the boxes will be need to be checked by a suitability qualified and licence ecologist prior to removal to determine the presence/absence of roosting bats, following which recommendations for the removal of the boxes can be made.

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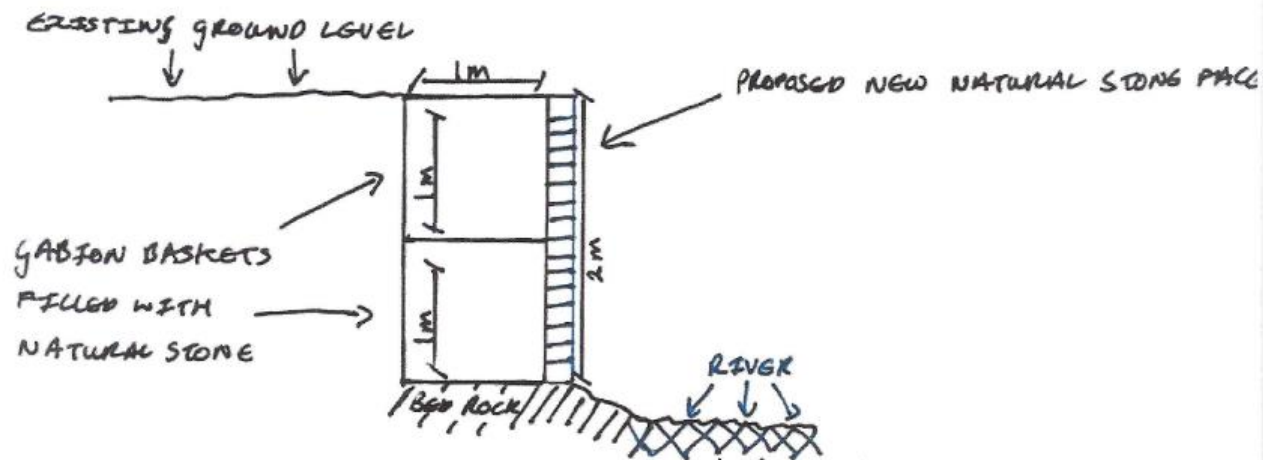
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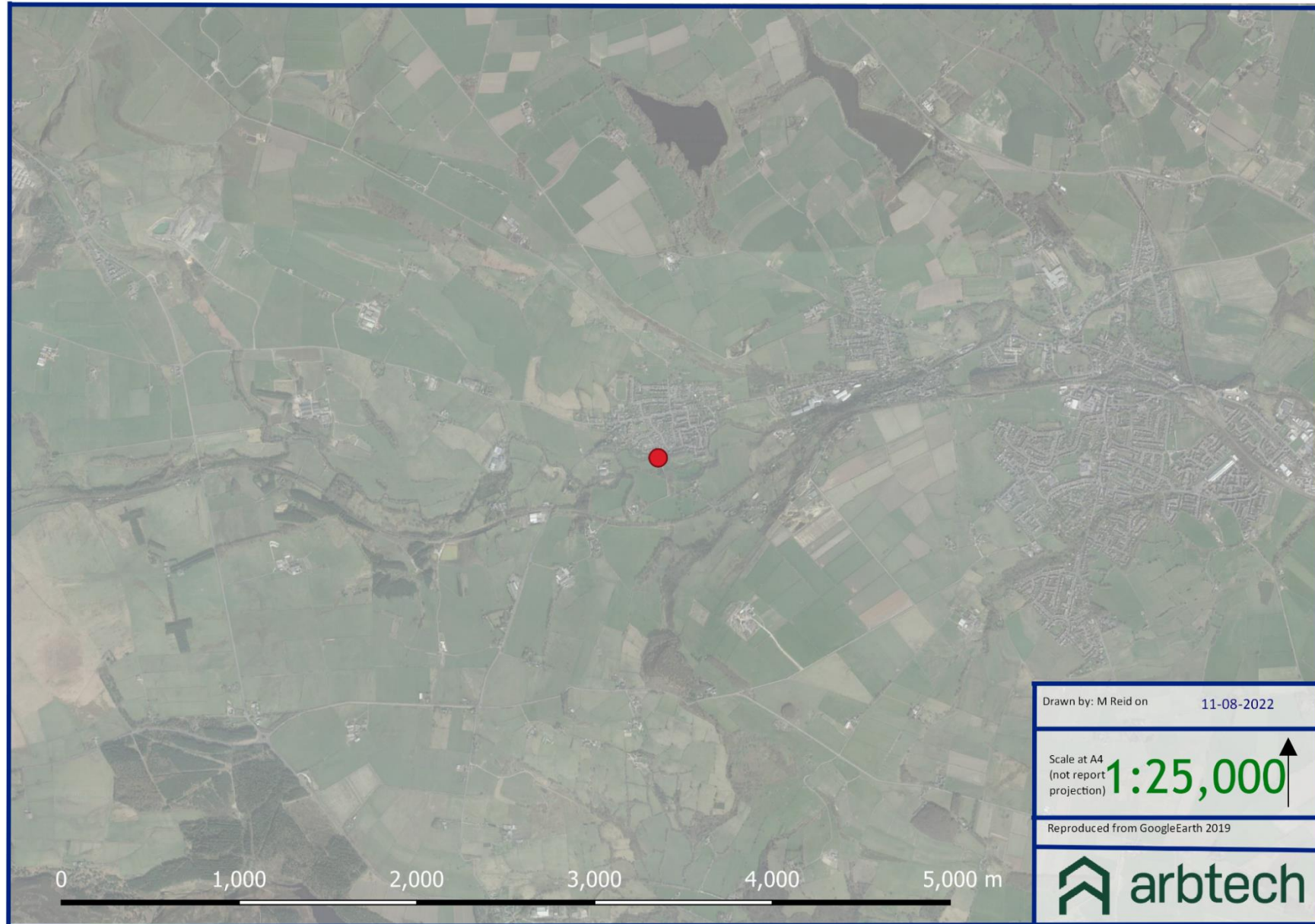
Appendix 1: Proposed Development Plan

Proposed section through the new gabion wall at Starling House, Millhouse Green



SCALE - 1:50

Appendix 2: Site Location Plan



Appendix 3: Ecological Mitigation, Enhancement and Management Plan



Appendix 4: Legislation and Planning Policy

LEGAL PROTECTION

National and European Legislation Afforded to Habitats

International Statutory Designations

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are sites of European importance and are designated under the EC Habitats Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the Habitats Directive) and the EC Birds Directive 2009/147/EC on the conservation of wild birds (the Wild Birds Directive) respectively. Both form part of the wider Natura 2000 network across Europe.

Under the Habitats Directive Article 3 requires the establishment of a network of important conservation sites (SACs) across Europe. Over 1000 animal and plant species, as well as 200 habitat types, listed in the directive's annexes are protected in various ways:

Annex II species (about 900): core areas of their habitat are designated as Sites of Community importance (SCIs) and included in the Natura 2000 network. These sites must be managed in accordance with the ecological needs of the species.

Annex IV species (over 400, including many Annex II species): a strict protection regime must be applied across their entire natural range, both within and outside Natura 2000 sites.

Annex V species (over 90): their exploitation and taking in the wild is compatible with maintaining them in a favourable conservation status.

SPAs are classified under Article 2 of the Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds both for rare bird species (as listed on Annex I) and for important migratory species.

The Conservation of Habitats and Species Regulations 2017 (as amended) form the legal basis for the implementation of the Habitats and Birds Directives in terrestrial areas and territorial waters out to 12 nautical miles in England and Wales (including the inshore marine area) and to a limited extent in Scotland and Northern Ireland.

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention covers all aspects of wetland conservation and recognises the importance of wetland ecosystems in relation to global biodiversity conservation. The Convention refers to wetlands as “*areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres*”. However, they may also include riparian and coastal zones. Ramsar sites are statutorily protected under the Wildlife & Countryside Act 1981 (as amended 01.04.1996) with further protection provided by the Countryside and Rights of Way (CRoW) Act 2000. Policy statements have been issued by the Government in England and Wales highlighting the special status of Ramsar sites. The Government in England and Wales has issued policy statements which ensure that Ramsar sites are afforded the same protection as areas designated under the EC Birds and Habitats Directives as part of the Natura 2000 network (e.g. SACs & SPAs). Further provisions for the protection and management of SSSIs have been introduced by the Nature Conservation (Scotland) Act 2004.

National Statutory Designations

Sites of Special Scientific Interest (SSSI) are designated by nature conservation agencies in order to conserve key flora, fauna, geological or physio-geographical features within the UK. The original designations were under the National Parks and Access to the Countryside Act 1949 but SSSIs were then re-designated under the Wildlife & Countryside Act 1981 (as amended). As well as reinforcing other national designations (including National Nature Reserves), the system also provides statutory protection for terrestrial and coastal sites which are important within the European Natura 2000 network and globally.

Local Statutory Designations

Local authorities in consultation with the relevant nature conservation agency can declare Local Nature Reserves (LNRs) under the National Parks and Access to the Countryside Act 1949. LNRs are designated for flora, fauna or geological interest and are managed locally to retain these features and provide research, education and recreational opportunities.

Non- Statutory Designations

All non-statutorily designated sites are referred to as Local Wildlife Sites (LWS) and can be designated by the local authority for supporting local conservation interest. Combined with statutory designation, these sites are considered within Local Development Frameworks under the Town and Country Planning system and are a material consideration during the determination of planning applications. The protection afforded to these sites varies depending on the local authority involved.

Regionally Important Geological Sites (RIGs) are the most important geological and geomorphological areas outside of statutory designations. These sites are also a material consideration during the determination of planning applications.

The Hedgerow Regulations 1997

The Hedgerow Regulations 1997 are designed to protect 'important' countryside hedgerows. Importance is defined by whether the hedgerow (a) has existed for 30 years or more; or (b) satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

Under the Regulations, it is against the law to remove or destroy hedgerows on or adjacent to common land, village greens, SSSIs (including all terrestrial SACs, NNRs and SPAs), LNRs, land used for agriculture or forestry and land used for the keeping or breeding of horses, ponies or donkeys without the permission of the local authority. Hedgerows 'within or marking the boundary of the curtilage of a dwelling-house' are excluded.

National and European Legislation Afforded to Species

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) aims to promote the maintenance of biodiversity by requiring the Secretary of State to take measures to maintain or restore wild species listed within the Regulations at a favourable conservation status.

The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

The Wildlife and Countryside Act (WCA) 1981 (as amended)

The Wildlife and Countryside Act (WCA) 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1979, implemented 1982) and implements the species protection requirements of EC Birds Directive 2009/147/EC on the conservation of wild birds in Great Britain (the birds Directive). The WCA 1981 has been subject to a number of amendments, the most important of which are through the Countryside and Rights of Way (CRoW) Act (2000).

Other legislative Acts affording protection to wildlife and their habitats include:

- Deer Act 1991
- Natural Environment & Rural Communities (NERC) Act 2006
- Protection of Badgers Act 1992
- Wild Mammals (Protection) Act 1996

Badgers

Badgers *Meles meles* are protected under The Protection of Badgers Act 1992 which makes it an offence to:

- Wilfully kill, injure, take, or attempt to kill, injure or take a badger
- Cruelly ill-treat a badger, including use of tongs and digging
- Possess or control a dead badger or any part thereof
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett or any part thereof
- Intentionally or recklessly disturb a badger when it is occupying a badger sett
- Intentionally or recklessly cause a dog to enter a badger sett
- Sell or offers for sale, possesses or has under his control, a live badger

Effects on development works:

A development licence will be required from the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) for any development works likely to affect an active badger sett, or to disturb badgers whilst they occupy a sett. Guidance has been issued by the countryside agencies to define what would constitute a licensable activity. It is no possible to obtain a licence to translocate badgers.

Birds

With certain exceptions, all birds, their nests and eggs are protected under Sections 1-8 of the WCA. Among other things, this makes it an offence to:

- Intentionally (or recklessly in Scotland) kill, injure or take any wild bird
- Intentionally (or recklessly in Scotland) take, damage or destroy (or, in Scotland, otherwise interfere with) the nest of any wild bird while it is in use or being built
- Intentionally take or destroy an egg of any wild bird
- Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.
- Intentionally or recklessly obstruct or prevent any wild bird from using its nest (Scotland only)

Certain species of bird, for example the barn owl, bittern and kingfisher receive additional protection under Schedule 1 of the WCA and are commonly referred to as “Schedule 1” birds.

This affords them protection against:

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young
- Intentional or reckless disturbance of dependent young of such a bird
- In Scotland only, intentional or reckless disturbance whilst lekking
- In Scotland only, intentional or reckless harassment

Effects on development works:

Works should be planned to avoid the possibility of killing or injuring any wild bird or damaging or destroying their nests. The most effective way to reduce the likelihood of nest destruction in particular is to undertake work outside the main bird nesting season which typically runs from March to August. Where this is not feasible, it will be necessary to have any areas of suitable habitat thoroughly checked for nests prior to vegetation clearance.

Schedule 1 birds are additionally protected against disturbance during the nesting season. Thus, it will be necessary to ensure that no potentially disturbing works are undertaken in the vicinity of the nest. The most effective way to avoid disturbance is to postpone works until the young have fledged. If this is not feasible, it may be possible to maintain an appropriate buffer zone or standoff around the nest.

Amphibians and Reptiles

The sand lizard *Lacerta agilis*, smooth snake *Coronella austriaca*, natterjack toad *Epidalea calamita*, pool frog *Pelophylax lessonae* and great crested newt *Triturus cristatus* receive full protection under Habitats Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
 - To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
 - To impair their ability to hibernate or migrate
 - To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

With the exception of the pool frog, these species are also listed on Schedule 5 of the WCA and they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other native species of reptiles are protected solely under Schedule 5, Section 9(1) & (5) of the WCA, i.e. the adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis*. It is prohibited to:

- Intentionally or recklessly kill or injure these species.

Effects on development works:

A European Protected Species Licence (EPSL) issued by the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) will be required for works likely to affect the breeding sites or resting places amphibian and reptile species protected under Habitats Regulations. A licence will also be required for operations liable to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licences are to allow derogation from the relevant legislation, but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Although not licensable, appropriate mitigation measures may also be required to prevent the intentional killing or injury of adder, grass snake, common lizard and slow worm, thus avoiding contravention of the WCA.

Water Voles

The water vole *Arvicola terrestris* is fully protected under Schedule 5 of the WCA. This makes it an offence to:

- Intentionally kill, injure or take (capture) water voles
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection

- Intentionally or recklessly disturb water voles while they are occupying a structure or place used for shelter or protection

Effects on development works:

If development works are likely to affect habitats known to support water voles, the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) must be consulted. It must be shown that means by which the proposal can be re-designed to avoid contravening the legislation have been fully explored e.g. the use of alternative sites, appropriate timing of works to avoid times of the year in which water voles are most vulnerable, and measures to ensure minimal habitat loss. Conservation licences for the capture and translocation of water voles may be issued by the relevant countryside agency for the purpose of development activities if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will then only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of works.

Otters

Otters *Lutra lutra* are fully protected under the Conservation Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
 - To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
 - To impair their ability to hibernate or migrate
 - To affect significantly the local distribution or abundance of the species
 - Damage or destruction of a breeding site or resting place

Otters are also currently protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

Effects on development works:

A European Protected Species Licence (EPSL) issued by the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) will be required for works likely to affect otter breeding or resting places (often referred to as holts, couches or dens) or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, and rear young). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored

Bats

All species are fully protected by Habitats Regulations 2010 as they are listed on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. All bats)
- Deliberate disturbance of bat species in such a way as:
 - To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
 - To impair their ability to hibernate or migrate
 - To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Bats are afforded the following additional protection through the WCA as they are included on Schedule 5:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

Effects on development works:

A European Protected Species Licence (EPSL) issued by the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) will be required for works are likely to affect a bat roost or an operation which are likely to result in an illegal level of disturbance to the species will require an EPSM licence. The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

Hazel Dormice

Hazel dormice *Muscardinus avellanarius* are fully protected under Habitats Regulations through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species
- Deliberate disturbance of species in such a way as:
 - To impair their ability to survive, breed, or reproduce, or to rear or nurture young;
 - To impair their ability to hibernate or migrate
 - To affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place

Dormice are also protected under the WCA through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection

Effects on development works:

Works which are liable to affect a dormice habitat or an operation which are likely to result in an illegal level of disturbance to the species will require a European Protected Species Licence (EPSL) issued by the relevant countryside agency (i.e. Natural England, Natural Resources Wales (NB: Hazel Dormouse are entirely absent from Scotland)). The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

White Clawed Crayfish

There is a considerable amount of legislation in place in an attempt to protect the White-clawed crayfish *Austropotamobius pallipes*. This species is listed under the European Union's (EU) Habitat and Species Directive and is listed under Schedule 5 of the Wildlife and Countryside Act (1981). This makes it an offence to:

- Protected against intentional or reckless taking
- Protected against selling, offering or advertising for sale, possessing or transporting for the purpose of sale

It is also classified as Endangered in the IUCN Red List of Endangered Species. As a result of this and other relevant crayfish legislation such as the Prohibition of Keeping of Live Fish (Crayfish) Order 1996, a series of licences are needed for working with White-clawed and non-native crayfish. These are:

- A licence to handle crayfish (therefore survey work) in England
- A licence for the keeping of crayfish in England and Wales with an exemption for Signal crayfish (England).
- People in the post-code areas listed with crayfish present prior to 1996 do not need to apply for consent for crayfish already established. It does not, however, allow any new stocking of non-native crayfish into waterbodies. Consent for trapping of non-native crayfish for control or consumption is most likely to be granted in Thames and Anglian regions in the areas with "go area" postcodes.
- Harvesting of crayfish is prohibited in much of England and in any part of Scotland and Wales.

Effects on development works:

The relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) will need to be consulted about development which could impact on a watercourse or wetland known to support white clawed crayfish. Conservation licences for the capture and translocation of crayfish can be issued if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of the works.

Wild Mammals (Protection Act) 1996

All wild mammals are protected against intentional acts of cruelty under the above legislation. This makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention, due care and attention should be taken when carrying out works (for example operations near burrows or nests) with the potential to affect any wild mammal in this way, regardless of whether they are legally protected through other conservation legislation or not.

Legislation Afforded to Plants

With certain exceptions, all wild plants are protected under the WCA. This makes it an offence for an 'unauthorised' person to intentionally (or recklessly in Scotland) uproot wild plants. An authorised person can be the owner of the land on which the action is taken, or anybody authorised by them.

Certain rare species of plant, for example some species of orchid, are also fully protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). This prohibits any person from:

- Intentionally (or recklessly in Scotland) picking, uprooting or destruction of any wild Schedule 8 species (or seed or spore attached to any such wild plant in Scotland only)
- Selling, offering or exposing for sale, or possessing or transporting for the purpose of sale, any wild live or dead Schedule 8 plant species or part thereof
- In addition to the UK legislation outlined above, several plant species are fully protected under Schedule 5 of The Conservation of Habitats and Species Regulations 2010. These are species of European importance. Regulation 45 makes it an offence to:
 - Deliberately pick, collect, cut, uproot or destroy a wild Schedule 5 species
 - Be in possession of, or control, transport, sell or exchange, or offer for sale or exchange any wild live or dead Schedule 5 species or anything derived from such a plant.

Effects on development works:

A European Protected Species Licence (EPSL) will be required from the relevant countryside agency (i.e. Natural England, Natural Resources Wales, Scottish Natural Heritage) for works which are likely to affect species of planted listed on Schedule 5 of the Conservation or Habitats and Species Regulations 2010. The licence is to allow derogation from the legislation through the application of appropriate mitigation measures and monitoring.

Invasive Species

Part II of Schedule 9 of the WCA lists non-native invasive plant species for which it is a criminal offence in England and Wales to plant or cause to grow in the wild due to their impact on native wildlife. Species included (but not limited to):

- Japanese knotweed *Fallopia japonica*
- Giant hogweed *Heracleum mantegazzianum*
- Himalayan balsam *Impatiens glandulifera*

Effects on development works:

It is not an offence for plants listed in Part II of Schedule 9 of the WCA 1981 to be present on the development site, however, it is an offence to cause them to spread. Therefore, if any of the species are present on site and construction activities may result in further spread (e.g. earthworks, vehicle movements) then it will be necessary to design and implement appropriate mitigation prior to construction commencing.

Injurious weeds

Under the Weeds Act 1959 any landowner or occupier may be required prevent the spread of certain 'injurious weeds' including (but not limited to):

- Spear thistle *Cirsium vulgare*
- Creeping thistle *Cirsium arvense*
- Curled dock *Rumex crispus*
- Broad-leaved dock *Rumex obtusifolius*
- Common ragwort *Senecio jacobaea*

Effects on development works:

It is a criminal offence to fail to comply with a notice requiring such action to be taken. The Ragwort Control Act 2003 establishes a ragwort control code of practice as common ragwort is poisonous to horses and other livestock. This code provides best practice guidelines and is not legally binding.

NATIONAL PLANNING POLICY (ENGLAND)***Environment Act 2021***

The Environment Act 2021 (EA 2021) received Royal Assent on 9 November 2021 and is expected to become fully mandated within the next couple of years. The Act principally creates a post Brexit framework to protect and enhance the natural environment. Through amendments to the Town and Country Planning Act 1990, the Act will require all planning permissions in England (subject to exemptions which is likely to include householder applications) to be granted subject to a new general pre-commencement condition that requires approval of a biodiversity net gain plan. This will ensure the delivery of a minimum of 10% measurable biodiversity net gain. The principal tool to calculate this will be the Defra Biodiversity 3.0 Metric. Works to enhance habitats can be carried out either onsite or offsite or through the purchase of 'biodiversity credits' from the Secretary of State. However, this flexibility may be removed (subject to regulations) if the onsite habitat is 'irreplaceable'. Both onsite and offsite enhancements must be maintained for at least 30 years after completion of a development (which period may be amended).

National Planning Policy Framework 2021

The National Planning Policy Framework promotes sustainable development. The Framework specifies the need for protection of designated sites and priority habitats and species. An emphasis is also made on the need for ecological infrastructure through protection, restoration and re-creation. The protection and recovery of priority species (considered likely to be those listed as species of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006) is also listed as a requirement of planning policy.

In determining a planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; measurable gains in biodiversity in and around developments are incorporated; and planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

The Natural Environment and Rural Communities Act 2006 and the Biodiversity Duty

Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'.

Section 41 of the Act requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity'. This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

EUROPEAN PROTECTED SPECIES POLICIES

In December 2016 Natural England officially introduced the four licensing policies throughout England. The four policies seek to achieve better outcomes for European Protected Species (EPS) and reduce unnecessary costs, delays and uncertainty that can be inherent in the current standard EPS licensing system. The policies are summarised as follows:

- Policy 1; provides greater flexibility in exclusion and relocation activities, where there is investment in habitat provision;
- Policy 2; provides greater flexibility in the location of compensatory habitat;
- Policy 3; provides greater flexibility on exclusion measures where this will allow EPS to use temporary habitat; and,
- Policy 4; provides a reduced survey effort in circumstances where the impacts of development can be confidently predicted.

The four policies have been designed to have a net benefit for EPS by improving populations overall and not just protecting individuals within development sites. Most notably Natural England now recognises that the Habitats Regulations legal framework now applies to 'local populations' of EPS and not individuals/site populations.