Ironworks Retreat Development

As If By Magic Ltd

Habitat and Recreation Management Plan

AIBM Ecology

Document Control Sheet

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1.0 Introduction

1.1 Background

Previously in April 2016, White Young Green (WYG) were commissioned by Sally Woods to produce a Habitat Management Plan for the then proposed retreat development at the Ironworks, Devonshire Road, Millom, hereafter referred to as 'the site' (See Figure 1 Appendix A for location).

The purpose of the plan was to provide a practical guide to facilitate appropriate long-term management and protection of ecologically valuable features and habitats on site. A subsequent planning permission was obtained in 2018 and the original Habitat Management Plan was part of the documentation to be implemented as part of the permission and subsequent development.

Following significant design updates during 2019 and 2020, a new planning application was submitted, which received permission in January 2021. Whilst the new permission does not have a specific requirement for a Habitat Management Plan, it is considered important, given the location of the site and that ecology still is a central tenet of the development, that construction and operation of the development have a formal guide for ecological management of the site. In addition, at the request of regulators and in alignment with the Assessment of Likely Significant Effects (ALSE) report commissioned by Copeland Borough Council, mitigating for the potential impact of increased recreational pressure on the site of Special Scientific Interest (SSSI) and Special Protection Area (SPA) is part of this permission and so recreational mitigation is included in this update such that this document becomes the Habitat and Recreation Management Plan (HRMP) for the project.

As If By Magic Ecology Ltd (AIBM-E) are now carrying out the updates for As If By Magic Group (AIBM-G), following on from the work done by WYG. Dr Mark Hampton (MCIEEM[1], CEnv[2]) has worked on the Ironworks project since 2018 and is now employed as Associate Ecologist for AIBM-E, which keeps consistency throughout the project.

Much of the HRMP is still as per the original developed by WYG, as many elements will remain the same, such as the construction and operational processes. Consideration has been given to changes to elements such as foundation depth (any associated impact on potential contaminant release), surface water management, utilities, invasive non-native weeds (new car park location has a stand of Japanese Knotweed present), recreational impacts, habitat creation and biodiversity.

It should also be noted that there is a Landscape Management Plan (Barnes Walker, 2021), which details grassland, scrub, pond and tree management and in general is in-line with this HRMP. However, if there is a doubt as to management to be implemented, site conditions/monitoring should be considered to inform the correct management regime to be used.

1.2 Site Description

The site is located to the north of Devonshire Road in Millom at Ordnance Survey National Grid Reference SD 186 798 (see Figure 1 for location). The land is a brownfield site once occupied by reservoirsserving the local ironworks. These have been infilled with slag and the land left derelict. A former planning consent resulted in a road being constructed to serve a proposed employment park but the business park itself was never constructed. The access road and streetlights are still in situ. The exposed areas of slag support a sparse cover of plant species tolerant of the basic nature of the

[1] Full Member of the Chartered Institute of Ecology and Environmental Management.
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substrate, with areas of species diverse calcareous grassland, along with less diverse neutral and amenity grassland around the edges of the site. There is also a wetland area to the west of the site (ephemeral waterbody). The site boundary with Devonshire Road has been planted with a range of natural and ornamental trees and shrubs. Bramble scrub has invaded the eastern end of the site and along part of the boundary fence. Figure 2 in Appendix A is a Phase 1 Habitat Map of the site.

The land lies next to Ironworks Local Nature Reserve (LNR) which supports a breeding population of natterjack toads *Epidalea calamita*. Part of the site falls within Duddon Estuary Site of Special Scientific Interest (SSSI), and a small area falls within the Morecambe Bay and Duddon Estuary SPA and Ramsar Site designated for its international bird populations.

1.3 Development Proposals

The development consists of four distinct parts, with varying degrees of input in terms of habitat and recreational management as follows (see Figure 2, Appendix A for locations):

- The Ironworks Retreat (main site), which consists of two compartments:
    - Main site A (see Figure 2): the main area of the development and consists of the Octagon building, residential rotundas, and retreats, vardo wagons and airstreams, a communal kitchen and toilet/shower facilities, pathways and tracks, a small number of car park spaces for disabled access, sculptures alongside pond and species rich grassland creation/restoration and is within the Duddon Estuary SSSI boundary.
    - Main site B (see Figure 2): trackways and bare ground to the east of the area between and north of Millway and to the office block is considered part of this area, and will be subject to species rich grassland creation and management, which is main site B on Figure 2 (this area is subject to a land purchase and at present (as of August 2021) is not owned by As If By Magic Ltd, and is within the Duddon Estuary SSSI boundary.
- Millway: is an existing building to the east of the Ironworks Retreat but within the Ironworks site as a whole, which is to be refurbished to include a restaurant and treatment rooms (not SSSI).
- A car park to the east of Millway and Retreat on Borwick Rails (not SSSI).
- A new warehouse on Borwick Rails to the east of and adjacent to the car park (not SSSI).

In addition to the above development an existing office and workshop will be refurbished as further office and laboratory space (see Figure 2). The bulk of the HRMP relates to the main site, although consideration is given, in particular, to the car park and new warehouse areas in terms of vegetation clearance prior to construction starting. Further, Millway has a bat roost present, which will be covered under a Natural England Protected Species Licence and is not part of the HRMP.

In terms of the main site, the existing road and streetlights will be removed and re-landscaped to a similar substrate found across the rest of the site (re-won slag material). There will be a swale surface water system across the main site and an attenuation pond to the west of the site.

In addition, there will be a shallow water pool system to the east to encourage use of the site by natterjack toads, species-rich calcareous grassland will be restored/created in open areas of the site and grassland banks to the north (south facing) will be managed as short open grassland to encourage diversity, movement of toads and use by invertebrates.

Further, there will be a track system across the main site, that will be made up of site-won materials around which species rich grassland will be created/restored. It is not expected that any material will be brought in for landscaping purposes. Figure 3 in Appendix A is the development proposal/landscape drawing for the site (drawing M2685.04S).

2.0 Management Plan Objectives

The HRMP for the site is intended to cover the construction phase of the development and the first year's post-construction. The HRMP refers to the requirements of the National Planning Policy Framework, 2019, and especially with regards to those species and/or habitats given protection under UK wildlife legislation (see Appendix B for further detail on legislation and planning policy).

The HRMP also draws upon recommendations made within the following reports:

- AIBM-E (2021) Updated Phase 1 Habitat Map and Species Lists.
- AIBM-E (2021) Updated Reptile and Amphibian Survey, Spring-Autumn 2021.
- AIBM-E (2020) Technical Note: Measures to mitigate recreational impacts on the SPA.
- AECOM (2020) Ecology Summary Report, Spring 2020.
- AECOM (2019) Ecology Summary Report, Spring 2019.
- AECOM (2018) Updated Phase 1 Habitat Survey.
- WYG (2015) Devonshire Road, Millom. Extended Phase 1 Habitat Survey Report. Update report October 2015.
- WYG (2013a) Devonshire Road, Millom. Extended Phase 1 Habitat Survey Report.
- WYG (2013b) Devonshire Road, Millom. Breeding Bird Report.
- WYG (2013c) Devonshire Road, Millom. Reptile Survey Report.
- WYG (2013d) Devonshire Road, Millom. Natterjack Toad Survey Report.

The key objectives of this HRMP are:

- To retain/enhance areas of LBAP habitat and/or features of ecological value on site;
- To enhance habitats for target species including reptiles and natterjack toads;
- To enhance and create wetland habitat, including for natterjack toads;
- To restore/create areas of species-rich/short-turf communities;
- To enhance habitats within the site using areas of native planting;
- To allow compliance with relevant wildlife legislation;
- To ensure no additional recreational impact on bird species and other wildlife using the SPA; and
- To enhance the ecological value of the site, including non-target species, in perpetuity.

3.0 Roles and Responsibilities

AIBM-G will distribute the HRMP to all relevant personnel involved in the construction works. These include contractors and site visitors as appropriate, who will be bound by the terms therein. The site team will ensure that all persons working within the area of this Plan are briefed on relevant aspects by Toolbox Talks.

Specific responsibilities of the client, in relation to this HRMP will include:

- To adhere to the relevant provisions made within this document;
- To make sure that this plan is distributed to all relevant parties; and
- To make sure that all persons working within the area covered by this Plan are briefed on relevant aspects.

Any revisions made to this document will be re-issued to the developer and the Local Planning Authority.

3.1 Ecological Clerk of Works (ECoW)

If uncertainty regarding ecological issues, or if ecological supervision is required, an Ecological Clerk of Works will be appointed by the site owner to provide advice to the constructionteams and to check that the ecological protection and mitigation measures, as specified in this document, are implemented.

3.2 Biodiversity Champion

It is recommended that the site owner and construction company nominate a Biodiversity Champion for both the construction and operational phases of the development.

The Biodiversity Champion's role is to ensure that the actions detailed within this management plan are implemented against the management schedule in Section 9.0 of this document. A Biodiversity Champion's role is also to influence site activities during construction and once complete, the next five years in line with the recommendations of this report. The champion does not need to be an ecologist but should be familiar with this report and have sufficient authority and presence on site to influence activities. The Biodiversity Champion would ensure that all relevant management and monitoring takes place. The Biodiversity Champion would contact an ECoW in the event of uncertainties about ecological issues surrounding thedevelopment. General responsibilities of the Biodiversity Champion will include:

- Supervising and monitoring the implementation and maintenance of protective or mitigation measures as set out in this document as and if appropriate;
- Liaising with the project manager and all relevant stakeholders about ecological issues;
- Regular liaison with contractors as appropriate; and
- Producing inspection and progress reports for submission as appropriate.

4.0 Identification of Key Ecological Features and Habitats

This section summarises the ecological conditions recorded on site prior to development. The site has been subject to a suite of ecology surveys between 2013 and 2021 and the results are presented in the reports listed in Section 2 above.

4.1 Designated Sites

4.1.1 Statutory designated sites

The site forms part of Duddon Estuary Site of Special Scientific Interest (SSSI). This has been designated for its wintering and breeding bird populations, including internationally important numbers of redshank *Tringa totanus* and knot *Calidris canutus*, its saltmarsh and dune habitats, and the presence of natterjack toads.

Morecambe Bay and Duddon Estuary has also been designated as a Special Protection Area (SPA) and Ramsar Site designated for its internationally important populations of breeding and wintering birds, including over 110,000 wintering waders, diverse salt marsh habitats and geologicalformations. The proposed development site lies mainly outside this designation but next to the Ramsar and SPA boundaries but a small section ofless than 0.1 hectare lies within these sites.

The Iron Works Local Nature Reserve (LNR) abuts the northern boundary of the site and is known to support natterjack toads, unusual plant species on the calcareous slag, 20 bird species, 17 butterfly species, and 10 species of bumble bee.

4.2 Habitats

The following habitats were recorded during the extended Phase 1 habitat survey and subsequent surveys (WYG, 2015, AECOM 2018 and AIBM-E 2021). Most of these habitats will be retained within the development masterplan. An Extended Phase 1habitat map is provided as Figure 2 Appendix A. A species list, updated in 2021 is included in Appendix C.

- **Scrub** - The site supports areas of dense low-growing bramble scrub particularly towards the eastern end and along the southern boundary. There are also clumps of willow *Salix sp.* and Italian poplar *Alnus cordata* scrub and scattered scrub mainly towards the west of the site.

- **Scattered Trees** - The southern boundary of the site has been planted with a mixture of native and non-native trees and ornamental shrubs in the past to provide landscaped screening along Devonshire Road, the majority of which is outside the land ownership boundary. These well–established species include willows *Salix sp.*, Portugal laurel *Prunus lusitanica*, Italian alder, pine *Pinus sylvestris,* ash *Fraxinus excelsior*, *Escallonia*, white poplar *Populus alba*, rowan *Sorbus aucuparia,* Japanese rose *Rosa rugosa, Forsythia*, *Cotoneaster* species, hawthorn *Crataegus monogyna,* elder *Sambucus nigra,* silver birch *Betula pendula* and blackthorn *Prunus spinosa*.

- **Plantation Woodland** - There is a raised earth bund along the eastern edge of the site providing landscaping for the housing behind. This main habitat on the bund is coarser neutral grassland which has been planted more recently with a mixture of mainly native treespecies including ash, alder, oak *Quercus sp.,* and birch *Betula sp.*, which are immature andhave no potential for bats and/or barn owls.

- **Amenity Grassland** - There are strips of species-poor amenity grassland dominated by coarse false-oat grass *Arrhenatherum elatius* along the access roads and pavements. This is of low ecological value.

- **Neutral Grassland** - Neutral grassland is found towards the eastern end of the site where there appears to be more soil development overlying the slag. This supports a mix of coarseand fine grasses including false oat-grass, cock's-foot *Dactylis glomerata,* tufted hair grass *Deschampsia cespitosa,* Yorkshire fog *Holcus lanatus,* fescues and bents together with herbs such as yarrow *Achillea millefolium,* common knapweed *Centaurea nigra,* ox-eye daisy *Leucanthemum vulgare,* common bird's-foot trefoil *Lotus corniculatus,* ribwort plantain *Plantago lanceolata,* self-heal *Prunella vulgaris* and meadow vetchling *Lathyrus pratensis.* Thissward provides moderately rich habitat for a range of invertebrate species although the more nutrient rich and disturbed ground alongside the road is dominated by coarser grasses and is of lower ecological value. There is also neutral grassland to the far east of the overall development Site, where the car park is found, with similar but fewer numbers of species. Japanese knotweed *Reynoutia japonica* is found in the car park area (see Figure 2, Appendix A for location).

- **Calcareous Grassland** - Pioneer calcareous grassland covers areas of land next to bareslag and is the dominant habitat towards the western end of the site. This supports plant species tolerant of the basic conditions, many of which are not able to compete with species found on the more nutrient-rich neutral grassland. Species include red fescue *Festuca rubra*,creeping bent *Agrostis stolonifera,* common centaury *Centaurium erythraea,* fairy flax *Linum cartharticum,* mouse-ear hawkbit *Pilosella officinalis,* eyebright *Euphrasia sp.,* common bird's-foot trefoil*,* orchids (reported to be bee orchid *Ophrys apifera* present but not recorded), common cat's-ear *Hypochaeris radicata,* great mullein *Verbascum thapsus,* yellowwort *Blackstonia perfoliata* and carline thistle *Carlina vulgaris.* There are also hollowswhich support abundant glaucous sedge *Carex flacca.* These habitats have developed over slag used as an infill of the reservoirs previously occupying the site. The resultant habitat together with the bare ground and ephemeral/short perennial habitat, shrub and tall herbs which have colonised falls within the **UK Habitat of Principal Importance - Open Mosaic Habitats on Previously Developed Land**.

- **Ephemeral/short perennial** - Bare areas of slag are colonised by short perennials, rosette-forming species, ephemerals and opportunist species tolerant of the basic conditions. Species found on the site which are considered to be of local interest/notable/rare include blue fleabane *Erigeron acer*, yellowwort *Blackstonia perfoliata*, squinancywort *Asperula cynanchica*,eyebright sp.*Euphrasia* sp., prostate form of milkwort *Polygala vulgaris* sp., small toadflax *Chaenorhinum minus*, ploughman's spikenard *Inula conyza* – these are all found on the slagand are mainly at their northernmost extent in the UK. All but squinancywort were also found on the adjacent Local Nature Reserve. Orchids were also noted including northern marsh orchid *Dactylorchis purpurella*, bee orchid *Ophrys apifera*, common spotted orchid *Dacylorhiza fuchsia*, and fragrant orchid *Gymnadenia conopsea* on slag and basic grassland areas.

- **Tall Ruderal** - There are small patches of tall ruderal vegetation along the southern boundary comprising trees and shrubs including nettles and rosebay willowherb. There is apatch of reed canary grass *Phalaris arundinacea* alongside the bramble scrub in the east ofthe site.

4.3 Protected and Notable Species

The site has potential to support the following protected or notable species, and these are considered

in more detail below:

- **Terrestrial invertebrates** including Local BAP Priority Species and potentially Species of Principal Importance for conservation in the UK - no specific survey for invertebrates has been carried out to date but the site is known to support a biodiverse population, including many species of butterfly.

- **Natterjack toads** – surveys were completed in 2013 to show the distribution of natterjack toad breeding pools in the vicinity of the proposed development and to determine the likely extent of natterjack toad terrestrial habitat. In addition, terrestrial surveys for amphibians and reptiles were carried out in 2018 and 2021. One juvenile natterjack toad was found on the new warehouse site in 2018, but there is no evidence to suggest that the main retreat site is being used by natterjack toads. The 2021 survey recorded no natterjack toads anywhere on the site. Following discussion with Natural England, a supervised clearance of the new warehouse area was agreed, in concert with supervision by an ecologist of development works across the rest of the site. If natterjack toads are found in this area, the works would stop, and a Natural England mitigation licence be applied for.

  There is some suitable habitat for natterjack toadswithin the main site, but the permanent natterjack toad fence around the LNR and the fact that the breeding pool is surrounded by good natterjack terrestrial habitat means it is unlikely that theywould be using the development area. It was recommended that additional habitat creation should be provided and following future detailed discussions with Natural England, there are to be new breeding pools linking those already present, and improvement of the habitat surrounding the newly created breeding areas to enable more successful breeding in this location.

- **Reptiles and other amphibians** – surveys were undertaken in 2013 to establish the presence/likely absence of reptiles and amphibians. A small population of common lizard *Zootoca vivipara* was found around the edges of bramble scrub to the eastern end of the site and around the willow scrub close to the Ironworks LNR boundary to the western edge of the site. In 2018, a clearance of the main retreat site and car park area was carried out, including fencing the eastern most area as there was dense scrub here (not all areas were fenced). During the clearance, 7 common lizards, 12 common toads *Bufo bufo*, 2 smooth newts *Lissotriton vulgaris* and 4 frogs *Rana temporaria* were removed to the local nature reserve. The site is now kept unsuitable for use by maintaining the vegetation short. In addition, the eastern most section of the retreat area retains amphibian/reptile fencing (in good condition) and it is considered that this area is likely to remain clear of amphibians and reptiles as long as the vegetation along the fence it kept short.

  Mitigation will be needed to prevent death or injury to any amphibians and reptiles that may be present in the cleared unfenced areas and the new warehouse area, and compensation provided for any loss of reptile habitat following site development. Given the vegetation is now kept short (mowing and strimming) and all the scrub areas were cleared under supervision by an ecologist during 2018, it is unlikely that reptiles and amphibians will be using the site for shelter or hibernating but an ECoW will carry out supervised clearance as a further precaution, when areas are to be developed. The key disturbance will be some foundation work at specific areas where there is little or no vegetation and for digging utilities trenches, again in areas that are open, with low growing vegetation.

- **Breeding birds** – surveys were undertaken in 2013 and 39 bird species were recorded within the red line boundary and the immediate surrounding area. The vegetation along Devonshire

Road is mostly outside the ownership boundary and so will be retained within the final design for the development as this provides the nesting habitats required for the majority of the species recorded during the surveys. It is also recommended that all site clearance works are undertaken during the winter period i.e. October through to February, to avoid the bird breeding season. Should this not be possible then the site will be checked by a suitably qualified ecologist for nesting birds immediately prior to any site clearance.

- **Invasive non-native species** – Species of Cotoneaster and Japanese knotweed are found on the site. The Cotoneaster species are found on the main retreat site. The Japanese knotweed is found in the car park area to the east (see Figure 2, Appendix A) and around the main offices (2 small plants have been dug out and disposed of on-site).

5.0 Construction Management Plan (CMP)

This section describes the management activities to be carried out during the construction phase of the development. These activities have been designed to reduce the likelihood that any potential negative impacts will occur to ecological receptors on or adjacent to the site.

However, it should be noted that a Construction Environmental Management Plan (CEMP) has been completed for the project, which includes ecology, and this section of the HRMP should be read in conjunction with the CEMP.

It is recommended that all construction workers are provided with a 'Toolbox Talk' presentation prior to starting work on site so that they are made aware of the ecological issues relating to the site. This talk will detail the important ecological features on site, identifying their locations and explain the purpose of the HRMP. It is expected that this would be incorporated into the general Health and Safety briefing which is given to all workers when they first visit the site.

5.1 Retained Habitats

The proposals for development of a retreat making use of vardo wagons, airstreams and roundhouses will enable a significant area of the site to be left as existing habitat. The construction impacts will be limited to the digging of 'raft' foundations (shallow and limited land take) and erection on site of the main Octagon building, roundhouses and ancillary (kitchen, shower and toiletblock). The rest of the units will be mobile and not always present on site. The main foundations for the Octagon are will be shallow, raft foundations and concentrated largely on the area of unvegetated bare slag and concrete presently used for parking.

No significant loss of existing habitat is anticipated during the construction phase of the development. No tree clearance is needed, as units will be inserted between existing vegetation. There will be a need to put in utilities for the ancillary and residencies, which will include trenches for water and electricity. These are temporary and ground will be replaced back to original slag material and sown with seed collected from site (see Section 6 for further detail).

At present, the illegal use of motorcars and motorcycles within the site is making ruts in the surface and destroying vegetation. Excrement from dogs walked regularly over the site, fly-tipping, and dumping of garden and building refuse is further reducing the habitat quality.

The road will be removed, and access blocked to the main site other than from Millway for disabled access and emergency vehicles removing any further access by motor vehicles onto the site. This will allow the vegetation to recover on eroded areas and for the diverse range of both common and notable plants to colonise further.

5.1.1 General mitigation

The following general mitigation will be implemented to protect sensitive habitats within the site and in the wider area (more detail for construction is found in the CEMP):

- Site compounds and any access tracks will be of the minimum size needed for safe working. These will be fenced where necessary to prevent encroachment of machinery and materials onto adjacent vegetation;
- A safe system for the correct storage of materials/chemicals on site will be implemented to ensure that materials are stored in a suitable manner as to avoid potential impacts on vegetation. This is particularly important with liquids/chemicals which will not be stored near vegetated areas and will be stored on an impermeable base surrounded by a bund capable of containing any spillages or leakages;

- A safe system to remove construction waste at the earliest opportunity will be implemented to avoid contamination of ground and possible disturbance to wildlife and degradation of soil quality. Contractors should also avoid leaving construction waste on site which might be colonised by protected species such as common lizard or natterjack toad;
- The designated storage area will be maintained in a secure and clean manner. An adequate quantity of oil absorbent material will be stored on site and spillages cleared up immediately. All construction equipment will be maintained in good working order and checked regularly for spills/leaks;
- Appropriate cleaning/maintenance of machinery/tools on site will be undertaken at a sufficient distance from vegetated areas. Failure to do so may result in contaminated water entering the soil and reducing / increasing soil pH and increasing contaminant levels;
- Standard industry best practice guidance will be adopted to avoid pollution and dust;
- All construction workers will be made aware of the sensitivity of the surrounding habitats and it will be highlighted that no waste, including wastewater, is to be deposited either on site orin the surrounding area.

5.2 Impacted Habitat

Construction of the ancillary building will result in the loss of a small area of calcareous grassland. It is proposed to translocate this grassland to a receptor area to the north-east of the Octagon building (see Figure 3, Appendix A and Section 6 for further detail).

In addition, residencies will take small areas of bare ground, with some associated short-turf communities.

Further, placement of utilities pipes/cables will result in localised temporary impact of short-turf ephemeral communities. The disturbed ground will be replaced following the work and will be made good to allow the plant community to re-colonise. The ground will be re-seeded as required (see Section 6).

5.3 Protected and Notable Species

5.3.1 Nesting Birds

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy the nest (whilst being built or in use) or its eggs. Schedule 1 birds and eggs are given further protection whilst breeding and must not be disturbed whilst on the nest until the fledglings have left.

Small areas of scrub in the eastern section of the main retreat site were removed following reptile and amphibian clearance (see below) in October 2018, outside the bird nesting season (which is from March to September, weather dependent). However, bird breeding activity was checked prior to clearance as a precaution and no breeding birds were noted in the areas of scrub.

If further vegetation/scrub clearance is needed, the aim is again to do this outside of the bird breeding season. If this is not possible, each area of habitat to be cleared will be checked for nesting birds, prior to clearance by a suitably qualified ecologist.

If an active nest is found, then the nest and its immediate surroundings will need to be left undisturbed until nesting is complete, and the birds have fledged. A suitable species dependent buffer will need to be implemented.

5.3.2 Reptiles and amphibians

All native species of reptile are protected against intentionally killing and injury under the Wildlife and

Countryside Act 1981 (as amended). A small population of common lizard was identified around the edges of bramble scrub to the eastern end of the site and around the willow scrub close to the Ironworks LNR boundary to the western edge of the site. Mitigation is needed to ensure no harm to reptiles and amphibians (see below also) utilising the site. In 2018, a reptile and amphibian survey and translocation were carried out around the main building area, including the car park. The eastern part of the main site had scrub areas and was fenced, and reptiles and amphibians were moved from this area. Once clearance was complete, the scrub and areas of brick/stone rubble was removed under ecological supervision.

The rest of the site and part of the car park area to the east was surveyed and any animals found were removed. Following this survey and clearance the whole site was made unsuitable for reptiles and amphibians by vegetation clearance.

The temporary fence on the eastern section of the main retreat site remains in place and has been maintained for the purposes of keeping animals out of this area. However, the vegetation here remains managed as unsuitable for reptiles and amphibians. This fence will be removed during the construction phase.

As best practice, prior to any suitable areas being cleared, the ECoW will check for presence of any reptiles. Any found will be placed in the nature reserve.

5.3.3 Natterjack toads

Natterjack toads are a European protected species and are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

Main (Retreat) Site

There is existing permanent natterjack toad fencing between the development area and the LNR to prevent natterjack toads accessing the main site. It is unlikely that natterjack toads make use of the site currently, and past and recent detailed surveys have not found evidence of presence. However, a precautionary approach will be undertaken involving a toolbox talk provided to contractors and any other person making use of the site during construction and regular checks of the construction areas will be made. In the unlikely event of a natterjack toad being discovered on the site, a natterjack toad licenced ecologist or representative from Natural England should be contacted for advice and all work halted until further action has been taken to protect this species.

Further action is likely to involve removing any natterjacks from the land under a licence from Natural England, which will delay the construction phase. **A European Protected Species licence will be needed from Natural England prior to any further works on site should natterjack toad be found present within the site boundary.**

The permanent natterjack toad fencing along the boundary with the LNR will be removed on completion of construction to allow reptiles and amphibians to access the main site and provide connectivity between newly constructed natterjack toad ponds on the main site (see below) and the LNR breeding pools.

New Warehouse and Car Park

During a reptile and amphibian survey in 2018, a single juvenile natterjack toad was recorded in the new warehouse area (see Figure 4, Appendix A). An update reptile and amphibian survey in 2021, did not record any natterjack toads in the new warehouse area (or car park area). It is considered that the new warehouse and car park areas are not a key habitat location for any natterjacks still present on the wider LNR, but as with the rest of the development, tool box talks will be given to contractors as to the potential presence of the toads (and other amphibians and reptiles) and in addition, in this location, site clearance will be carried out under a method statement and supervised by a suitably qualified ecologist to ensure any amphibians or reptiles found will be moved to suitable habitat off-

site but local to the area (see below). If natterjack toads are found during the site clearance, then works will stop and **A European Protected Species licence will be required from Natural England prior to any further works.**

5.3.4 Invasive non-native species

An invasive non-native weeds (INNS) management plan will be completed as part of the construction process.

In summary, the Cotoneaster species will be spot sprayed three times (June, August and September) over two summers (2021 and 2022 or 2022 and 2023). The dead plants will be left in-situ and removed during construction works.

The Japanese knotweed stand will be removed using the Xtract method developed by Environet. This essentially involves removing soils with the rhizomes, which is then sieved to remove the rhizomes. The soil is then replaced and the rhizome is taken to Environet/s yard and incinerated.

Environet have been commissioned to carry out all the INNS work on site.

6.0 Habitat Creation/restoration

Newly created habitats are shown on the landscaping proposals by Barnes Walker drawing M2685.04S (Figure 3, Appendix A).

The following soft landscaping is proposed:

- Grassland translocation/creation/restoration;
- Ponds.

6.1 Grassland Translocation

The habitat at the location of the ancillary building is species rich calcareous grassland on thin soils. The proposal is to move (translocate) the grassland (donor vegetation) to an area approximately 70m north-east (receptor area). Both areas are flat and have ironworks slag material as the underlying substrate.

There are two options for stripping and laying: soil with turf fragments or strips of turf. It is not clear whether the vegetation will lift as turf, as the soils are very thin, and the underlying subsoil/slag surface could be very uneven. The feasibility of the turf technique will have to be assessed on the day and all the work will be supervised by the on-site ecologist. Timing of the translocation will be before end October or during March/early April, which are the two periods when the translocation should ideally be undertaken.

The receptor area is bare slag with some ephemeral species present. This will need to be prepared by breaking up the surface prior to receiving the donor vegetation. The stripped soil/removed turf will be placed in the prepared receptor area on the same day as stripping.

Donor Vegetation

- Baseline quadrat data of vegetation to be taken prior to removal of vegetation to inform receptor area establishment.
- Prior to translocation, excess top growth should be strimmed to approximately 4cm and raked off.
- An attempt will be made to assess whether the vegetation can be removed as a shallow turf mat.
- The soils are very thin and so a toothless bucket should be used to firstly see if the vegetation can be removed as turf but if not possible, then scrape as much material into a small pile sufficient to be moved to the receptor area.
- There are no issues with vehicles running on the stripped surface, as this will be bare slag and to be built on but running over the grassland surface should be avoided.

Receptor Area

- The receptor area will be prepared by breaking up the surface slag to a depth of around 10cm, this will then be shallow harrowed and lightly rolled as needed. The slag is generally a mix of stone and finer materials. The aim will be to ensure the finer materials (sand-like particles) are on the surface to allow the translocated material and soils to bind, although as there is soil present in the donor area it is not essential, but preferable.
- The soil stripped from the donor area should be back tipped and then spread over the area using a toothless bucket to a depth of approximately 10cm - 15cm.
- In areas where there are loose rocks, soil can be laid to leave exposed slag rather than achieving an overall soil cover.
- Each area within reach of the excavator, once laid could be pressed using the back of the

bucket to seal the surface.

- Should moving as turf prove possible, these would be laid as a patchwork over removed soil material to provide a rooting medium above the receptor slag surface.
- Once complete the area should be fenced to exclude construction machinery or any other disturbance.

Equipment to be used:

- Eight tonne excavator with 1m toothless bucket.
- Small dumper type trucks.

6.2 Grassland Creation

Species rich calcareous grassland creation/restoration will occur on various areas of the site. These are either areas where disturbance of existing vegetation (generally open ephemeral communities, rather than established calcareous grassland) will occur due to utilities and heating array placement or undisturbed bare slag that has been identified to undergo grassland creation.

Seed collection

Seed will be collected from main site and from the Local Nature Reserve next to the site and used for the grassland creation work. The collection from the LNR has been agreed with the landowner (Copeland Borough Council) and Natural England. A Habitat Regulations Assessment was carried out, due to the area being a Special Protection Area (SPA) and SSSI). The method agreed with Copeland Borough Council and Natural England is found in Appendix E. It includes ensuring natterjack toads are not affected by the seed collection.

In summary, the proposed method is to use a vacuum collector (STIHL Vacuum SH86 with blades removed) to suck up seeds from the target vegetation by slowly brushing the vacuum tip over the seed heads of the vegetation. For most species, this should be around 15-20cm above ground level, which will mean no disturbance to the ground will occur beyond the footfall of the operator.

Several of the target species are low growing, prostrate species, such as bird's foot trefoil and some species such as common knapweed also have robust seed pods which are unlikely to be collected up by the vacuum suction. It is proposed that these species have the seed collected by hand, which will avoid damage to natterjack toads if present, as well as allow controlled collection of the seed population to prevent over-collection.

Once a certain number of seed has been collected by the vacuum collector and by hand, the seed collection bag shall be emptied onto a tarpaulin sheet close to where harvesting took place, and the seed spread out onto the tarpaulin and left for at least 30 minutes to allow animals (such as invertebrates), which may have been collected, the chance to escape. The operator will also visually inspect the collected seed for any signs of life, before transferring the collected seed into its transport container.

Once enough seed has been collected, it will be transported off site for drying on tarpaulin sheets in a dry, well-lit, and well-ventilated room. Once the seed is fully dry it can be stored in a cool, dry container out of the light, until it is sown, likely the following year.

Ground preparation and sowing

In areas where the ground has been disturbed due to construction works, there will already be broken up material. The aim will be to ensure the finer slag materials are to the surface (during disturbance a stockpile of the separated finer and larger stone materials will be made as needed) and these will be lightly harrowed and rolled to create a seedbed.

In areas of undisturbed ground identified for grassland creation, the surface slag material will be

broken up and seedbed prepared with the aim to have the upper surfaces being of the finer (sand-like) slag material. Quadrat data of vegetation present will be taken to inform re-establishment success. A decision on the need to add nutrients to aid growth will be made. The slag surface has little or no soil and will have low nutrients and thus establishment may be aided by the addition of small amounts of a general fertiliser with phosphorous, nitrogen and potassium.

Seed will be sown at approximately 1-2g per metre in the areas that have been disturbed by construction works. There is likely to be a seedbank in these areas and the sown seed will supplement the existing seed bank. The areas sown will then be lightly rolled to aid seed contact with the surface.

In the new areas of grassland creation, which will generally be bare slag, the seed may be sown at a higher rate, although these will be in areas adjacent or close to existing calcareous grassland and therefore a seed source available for natural colonisation. A decision will be made at the time of sowing and will be monitored as to establishment. Further seed can be added as needed.

Monitoring, aftercare and management

The overall condition of the grassland is based on low nutrient and often compacted slag and little management has occurred on the grassland areas for the last 30 years. However, there are areas of scrub developing on site, over small areas of existing grassland.

Initial monitoring will be an annual assessment of the development of the vegetation. This will include taking fixed point photography to show development; quadrat vegetation data to be collected including a species list with an assessment of abundance using the DAFOR (**D**ominant, **A**bundant, **F**requent, **O**ccasional, **R**are) scale and a description of the cover and structure of the developing vegetation. A repeat quadrat survey will be undertaken once it is considered that the vegetation has developed sufficiently for this to provide a realistic comparison with the recording undertaken of the donor vegetation.

Requirements for cutting the establishing sward and for further seed and nutrient addition will be made in the first 12-24 months post sowing. As the site becomes operational, a management regime of grass cutting (annual, bi-annual or more) will be developed based on the monitoring programme.

6.3 Ponds/Pools

A series of pools (minimum 3) will be created to the east of the site (see Figure 3 Appendix A for design). The pools will be effectively shallow scrapes in open ground, and unshaded. The pools will be between 200mm and 500mm deep, grading from shallow edges/shelves to a deeper central section. The ground will be assessed as to the ability to hold water, to see if a butyl liner is needed. The aim will be to enhance the site for natterjack toads, providing additional breeding habitat.

Pool creation will be supervised by the licensed ecologist. The pools will initially be filled with water from site and will then fill/be maintained naturally with rainwater. The pH should be below 9.5, and preferably below 9.0 to be acceptable. The pond should be kept free of vegetation and silt, but growth of locally growing species of sedge and rush, and moss around the pond will be encouraged to provide some limited cover for emerging toadlets (English Nature, 1996).

An attenuation pond will be created in the western part of the site, where there is already areas of standing water and wetland vegetation. The area of the pond will be between 350-400m^2 with shallow shelving grading to a maximum depth of around 1.5m. In addition, two shallow scrapes to around 500mm depth will be created to the northeast, and linked to the attenuation pond, to encourage natterjack toads into this area of the site. The main pond will be planted up with native species such as brooklime *Veronica beccabunga*, marsh marigold *Caltha palustris*, yellow water lily *Nuphar lutea* and water forget-me-not *Myosotis scorpioides*. The ground will be assessed for its ability to hold water, to see if a butyl liner is needed. Pond creation will be supervised by the project ecologist. The pond will initially be filled with water from site and will then fill/be maintained naturally with rainwater.

This pond will also be linked to and fed by a surface water swale system that acts as surface water drainage for the site (see Figure 3, Appendix A).

6.4 Hibernacula

Brash and Log Piles

Brash and log piles will be used to create cover, provide additional structure to existing habitat and enhance prey availability. Brash/log piles can be created from the arisings of scrub control. Piles should be placed in a sunny location and set within existing vegetation (for example areas of long grass or scattered scrub), so there is cover immediately surrounding, or adjacent to, the pile. Brash does not need to be tightly compacted for reptiles – for a diverse structure, it is recommended that the central core be compacted, while the outer layers are laid more loosely on top. Vegetation growing through the outer edges of the brash pile will provide additional cover.

Hibernacula

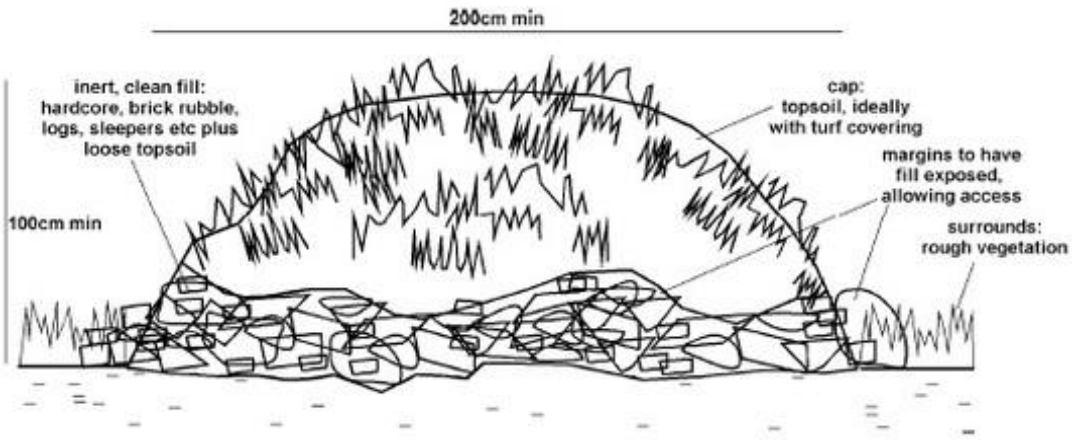
The creation of hibernacula will enhance the site for reptiles and amphibians.The hibernacula should be:

- In a sunny position;
- Well drained and not prone to flooding;
- Have openings to provide access points for reptiles or amphibians;
- Be located in a patch of favourable habitat such as tussocky grassland adjacent to trees/scrub;
- Be subject to minimal public disturbance;
- Size at least 4m long by 2 m wide by 1m high, and ideally much larger.

The body of a hibernaculum can have a range of materials. For example, cut timber, brash, inert hardcore, bricks, rocks, grubbed up tree roosts or building rubble. Materials that will decompose should not be placed beneath heavy components such as bricks or rocks, to avoid the risk of collapse. Wood chippings or loose topsoil can be incorporated into the construction to pack some of the larger cavities. There are supplies of rock and building debris present on the site which will be used in hibernacula construction.

There should be access points around the edges. These are best created by ensuring that timber or rubble protrudes from the edge, creating crevices that allow reptiles to get deep inside. It is not recommended to use pipes to create access points as reptiles appear to prefer using more ‘natural’ cracks and holes.

Figure 1: Example of a hibernaculum.



6.5 Lighting

A wildlife sensitive lighting scheme is recommended to reduce potential impacts on bats and other nocturnal wildlife. This will be carried out as part of the design of the scheme as per the CEMP. It is expected that there will be minimal requirements to light this development,but the recommendations are included below as guidance.

The Bat Conservation Trust (BCT, 2014) recommends the following principles and design considerations when designing a lighting scheme:

- Avoid excessive lighting. Use only the minimum amount of light needed for the task.
- Do not illuminate bat roosts or important areas for nesting birds.
- Avoid installing lighting in ecologically sensitive areas such as: near ponds, lakes, rivers, areas of high conservation value; sites supporting particularly light-sensitive species of conservation significance (e.g. glow worms, rare moths, slow-flying bats) and habitat used by protected species.
- Consider employing a competent lighting designer who will apply the principals of providing the right light, in the right place, at the right time and controlled by the right system.
- Minimise the spread of light to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required.
- Consider the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can result in greater light spill or require more columns. Column height should be carefully considered to balance task and mitigation measures.
- Consider no lighting solutions where possible such as white lining, good signage and LED cats eyes. These options can also be effective. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times.
- Limit the times that lights are on to provide some dark periods. The task being lit often varies, for example roads are less used after 23.00hrs and car parks are empty. A lighting designer can vary the lighting levels as the use of the area changes reducing lighting levels or perhaps even switching installations off after certain times. This use of adaptive lighting can tailor the installation to suit human health and safety as well as wildlife needs.

For further information on bats and lighting refer to

http://www.bats.org.uk/pages/bats_and_lighting.html

7.0 Further Ecological Enhancement

The following ecological enhancements will be carried out to enhance the site for bats and nesting birds. Enhancement is encouraged as it helps to meet the government objectives for planning to protect and enhance biodiversity, in accordance with the *National Planning Policy Framework* (NPPF).

7.1 Bat Boxes

To increase the value of the site for bats, bat boxes or tubes will be installed along the tree belt next to Devonshire Road. Bats are a UK priority species and are also priority species within the Cumbria BAP.

A wide variety of models are available, and an ecologist can advise on the most suitable types for the proposed development (refer to Appendix D). Bat boxes should be sited according to manufacturer's instructions, but at least 4 metres high to be high enough to avoid disturbance by cats or the public. The boxes should be placed out of the way of strong wind and positioned where they can getsun for part of the day. Bats can use boxes as hibernation roosts in winter and as maternity roosts inthe summer. Therefore, to create a range of temperature variations the boxes should be installed facing different directions. It is recommended that the bat boxes be checked 2 years after construction on site is complete by a licensed bat worker and any necessary maintenance works undertaken.

All British bat species are fully protected through their inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and in Schedule 2 of The Conservation of Habitats and Species Regulations 2017 (as amended) as European protected species. Under the legislation, it is an offence to intentionally kill, injure or take a bat as well as intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat or disturb an animal while it is occupying a structure or place which it uses for that purpose. **Therefore, bat boxes cannot be disturbed by anyone without a licence after they have been installed.**

7.2 Bird Boxes

It is recommended that a variety of bird boxes are installed on trees or buildings within the site.

Bird boxes are an established technique for increasing the value of new landscapes to hole-nesting bird species and may help contribute to BAP targets. Bird boxes with different size entrance holes should be installed to encourage a range of species to nest, as the size of the entrance hole influences the species of bird that will occupy the box (see Appendix D for bird box recommendations).

"Tree-friendly" aluminium nails should be used for securing bird boxes to trees.

8 Recreational Management

A Habitat Regulations Assessment (HRA) was carried out during the planning phases to assess the impact of the development on the local Morecambe Bay and Duddon Estuary Special Protection Area (SPA). An element of the assessment was to consider the potential for increased recreational use of the area due to the development, which could cause disturbance (more visitors causing increased trampling, noise and visual impacts) to notified Special Protection Area (SPA) bird species as a result of this proposal.

An Appropriate Assessment was carried out to assess the recreational impacts and mitigation secured to ensure no impact on the integrity of the site. It was agreed that with mitigation no significant effects on the SPA would occur.

Suggested mitigation by NE and included in the HRA completed by Copeland Borough Council was as follows:

- Information packs for those staying at the site; signage highlighting the importance of the area for certain bird species and the importance of keeping dogs on leads; Signage/fencing to discourage informal access onto the nature reserve and promotion of the legal rights of way already in place – the main one of which is the route of the planned England Coast Path.

Further, comments and an objection to the development by the Royal Society for the Protection of Birds (RSPB) were made in July 2020, which were responded to in the previous response submission by As if By Magic on 5th August 2020. The RSPB objection was based on the following reasons:

- Recreational disturbance impacts – Borwick Rails (a notified feature of the Duddon Estuary SSSI) has been monitored by RSPB staff for a number of years and the site is the most important site within the Morecambe Bay and Duddon area for breeding ringed plover *Charadrius hiaticula* with 16 pairs regularly recorded. The biggest threat to this colony comes from recreational disturbance – particularly vehicle use, and dog walking. We are particularly concerned that the applicant has not sought to address recreational disturbance as part of the application, but rather is seeking to: "increase the permeability of the site from the SSSI".

The following gives more detail on mitigation for the assumed increase of recreational impact that will occur to the SPA due to the development. This was included in the HRA and is in response to requirements by NE and the RSPB (see above) as part of their objection to the proposed development, which has now been resolved.

Information Packs:

Information packs will be put together for visitors staying within the retreat. The packs will include maps of the local area, including the SPA, and will detail the importance of the estuary for bird species and those that may be utilising the Ironworks Nature Reserve such as ringed plover and the historic records of breeding little tern *Sternula albifrons*.

The pack will also reiterate the need to reduce disturbance to breeding birds in the local reserve and along the wider estuary, by keeping dogs on leads and not walking off designated pathways. Further, other species will be highlighted such as common lizard and natterjack toads that are found locally.

It is envisaged that packs will include A4 sheets, with maps on alongside leaflets detailing wildlife present, the history of the ironworks and a code of practice to ensure impacts from recreational use are reduced to a minimum (dogs on leads, staying on delineated pathways etc.).

Signs:

Two or three signs/information boards (e.g. A1 size wooden signs on posts/legs) will be erected within the retreat development to cover the access points into and out of the nature reserve. The precise content, siting and resourcing of the boards will be agreed with Copeland Borough Council.

As a minimum, the boards will detail the approved access routes and pathways and as guidance to the planned route(s) of the English Coastal Path. An example of the type of information board to be utilised on site is shown in Figure 1.

Figure 1: Example information board.

AIBM Ecologist:

An experienced ecologist is employed by AIBM to deliver ecological elements of the planning submission/permission. This includes much of the mitigation included in planning documents such as the NJT Mitigation Plan and the CEMP but will also include ensuring an educational aspect for both visitors to the retreat and staff working on the scheme. The following will be carried out both during the construction of the retreat, but also once it is operational as follows:

- Regular (once every 2-3 weeks during the breeding season/summer) wildlife talks and walks to visitors outlining the importance of the area ecologically and the species that are found in the local area.
- Regular (2-3 per year) workshops held for AIBM staff to introduce and develop staff understanding of the local wildlife and species ecology of those found in the local areas and around the estuary. This will allow all staff to be able to engage with visitors and local people as to the importance on the area in relation to ecology, why the area has such important designation associated with it and what needs to be done to ensure impacts are as limited as possible.
- Construction supervision and toolbox talks will be carried out regularly by the AIBM ecologist throughout the construction period. A species specific one in relating to the SPA – ringed

plovers etc. will be developed for the works period. The ecologist will act as a clerk of works throughout construction to ensure any impacts are minimized both on site, the adjacent nature reserve and the SPA as required (Note: this is detailed in other plans such as the CEMP).

It should be noted that fencing will exist between the retreat and the nature reserve to delineate the boundary (along with the existing earth bund that provides a visual and noise barrier between the reserve and the site); the nature reserve is not under the control of AIBM, and unless elements such as habitat management are specifically agreed with Copeland Borough Council, cannot do works such as fencing or footpath works within the nature reserve itself.

The proposed mitigation outlined above goes further than mitigation proposed by NE for the Coastal Path as summarised in the report: England Coast Path Stretch: Silecroft to Silverdale Report SCS 1: Beach car park, Silecroft to Green Road railway station (Natural England 2019). This report proposes to put signs and interpretation boards around the Borwick Rails area of the SPA, to encourage visitors to keep dogs on leads (so as not to roam unattended over the marsh areas) and to detail areas of restricted or no access. This mitigation was proposed to *"To reduce the risk of disturbance to feeding and roosting non-breeding waterbirds and ground nesting birds.* (Morecambe Bay and Duddon Estuary SPA, Duddon Estuary SSSI / Ramsar site)". The further mitigation proposed by AIBM goes beyond the NE mitigation for the SPA and importantly has key educational aspects that will aim to mitigate for increased recreational use of the area over and above that proposed by NE.

9 Operational Management Plan

This section provides details of the proposed management of the retained, enhanced and created habitats and features for five years following the completion of the construction programme. The management proposals below assume that created habitats have established successfully; if created habitats and vegetation (or parts thereof) have failed, then remedial action should be taken to re-establish them in the next annual cycle under the guidance of a suitably experienced ecologist. A checklist of actions is provided in Section 10.0.

9.1 Grassland Management

Grassland management is likely to be cutting, with a minimum of two cuts a year (spring and autumn) as required. However, given the nature of the site (extremely low nutrient status), the monitoring programme will inform the requirements for management.

In addition, any scrub encroachment on grassland areas will be managed by cutting and/or herbicide treatment.

9.2 Pond/Pool

It is important to maintain the open nature of the pools post construction and prevent the margins to be overgrown with emergent vegetation or algae. Encroachment of scrub in this area would be avoided. Any invasive species that colonise would be removed immediately. Natterjack toads need open areas for hunting at night and the open nature of the slag substrate would be maintained around the pond, although some cover will need to be left to allow safe emergence of the toadlets into the terrestrial environment.

The main attenuation pond will have some shallow areas and shelving that would be generally kept clear of vegetation. However, some planting will be carried out and areas of common spiked rush *Eleocharis palustris* that are present already will be maintained to encourage a variety of habitat. Monitoring of pond development will be carried out to inform management, but it is likely some vegetation clearance will be needed during the operation of the site.

9.3 Sparse vegetation on slag

The areas of sparse but unusual plant cover growing on the nutrient-poor alkaline slag are of importance to the site biodiversity and need to be maintained to retain this interest. Therefore, there may need to be annual clearance of more vigorous species and scrub which may invade the slag areas. Maintaining the open areas is also of importance to natterjack toads as these species require open areas for foraging at night. The site is not large, and this control is likely to be possible through hand clearance rather than through use of any herbicides.

9.4 Invasive species

Cotoneaster is spreading over the open slag areas on the site, adversely affecting rare and unusual plant species colonising the alkaline substrate. Several species of Cotoneaster are listed as non-native invasive species under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). The plants will be treated as soon as possible prior to construction starting (see above). Given local seed sources are present it is likely to return. To control reinvasion and further spread, the site will be regularly monitored during the summer to check for new growth. Any small/new shrubs will be carefully removed from the ground by hand, taking care to remove any loose berries which may be shed during removal, cut down/chipped on site and disposed of on-site to prevent the risk of spread.

Japanese knotweed is found on-site and will have been removed prior to construction starting (see above). The site will be monitored through operation during the summer for any new stands. If new areas are recorded a decision will be made as to whether it can be treated straight away by digging and disposal on site, or whether a specialist company is needed to remove the new area.

9.5 Retained amenity/rough grassland

The amenity grassland should be maintained as a short sward to allow nocturnal movement of natterjack toads, but also avoiding use as refuge habitat for amphibian and reptiles species in the daytime. The Landscape Plan (Barnes Walker 2021) has a regular cutting regime throughout the summer to maintain the amenity grass area as short grassland.

However, where grassland is left to grow for cover there may be a need to control excessive growth of coarse grassland. In this case it is important to implement a cutting regime that does not harm reptiles or amphibians. It is essential to avoid simultaneous removal of all taller vegetation cover across the site, or substantial areas of it. Cuts may be required during the summer months and if so a thorough search for reptiles and amphibians of the areas to be cut should be carried out.

Alternatively, cutting could be undertaken when reptiles and amphibians are least likely to be killed or injured, during the winter period of inactivity, when they are least likely to be above ground. In this case and in general, cutting should take place from November to February. Winter cutting or mowing should avoid creating large areas of short sward vegetation around hibernation sites, where reptiles need some cover on emergence in the spring. Site monitoring should be used to inform how the coarser grassland areas should be managed.

9.6 Reptiles and amphibians

Once construction is complete, and as mentioned above, the permanent reptile/amphibian fencing will be removed under an ecological clerk of works allowing access to the site. This will be removed during the reptile active season (March to October inclusive), to avoid disturbing any reptiles that may be hibernating along the fencing. Monitoring surveys are recommended in Years 3 and 5.

9.7 Natterjack Toads

Once construction has started, the temporary reptile/amphibian fencing will be removed under supervision allowing access to the site. Areas of permanent amphibian fencing to the eastern end of the site surroundingthe LNR will remain in place to prevent natterjacks accessing the road, but permanent fencing alongthe boundary with the LNR in the west will be removed supervised by an ecological clerk of works during spring/summer to allow connectivity between the sites and breeding ponds.

The following surveys will be completed in Years 3 and 5 (or as agreed with Natural England) to monitor the population on site and within the LNR:

- Spawn string counts;
- Check for tadpole /toadlet production;
- Calling males;
- Refugia searches;
- Night searching.

9.8 Bat boxes

Bat box checks will be made by a licensed bat worker in Year 2 at a time when the effects of disturbance are minimised (March/April or September/October), if there is no evidence of roosting bats, the boxes will be checked to see if they are in a reasonable condition and cleaned if necessary. If bats or evidence of use by bats is found, then a further check in Year 4 will be recommended. It is illegalto disturb roosting bats, a suitable licenced bat ecologist should be contacted for advice about bat box maintenance. Sometimes birds may occupy a bat box, in which instance, the (former) bat box should then be treated as a bird nest box.

9.9 Bird boxes

The nests of most birds harbour fleas and other parasites, which remain to infest young birds that hatch the following year; so, the RSPB provides the following advice for maintaining bird nest boxes.

Old nests should be removed in the autumn, from August onwards, once the birds have stopped using the box. Use boiling water to kill any remaining parasites, and let the box dry out thoroughlybefore replacing the lid. Insecticides and flea powders must not be used. If there are unhatched eggs in the box, these may be removed legally only between September and January and must bedisposed of. A small handful of clean hay or wood shavings (not straw) placed in the box after cleaning may provide an ideal hibernation site for small mammals or a roost for some birds. It is normal for a few eggs to not hatch, or for some young to die; blue tits and great tits lay up to 14 eggs to allow for such losses. Cold weather and food shortage may lead to nest desertion, or to only the strongest young surviving. The death of one parent or interference from animals or humans mayalso cause desertion.

Nest boxes in use should not be inspected.

10 Checklist of Actions

A checklist of actions is provided in Table 1 below.

In the post construction phase, it will be the client's responsibility to ensure monitoring is conducted to decide the effectiveness of those actions put in place to achieve the management plan objectives (refer to Section 2 above). See also the Landscape Management Plan (Barnes Walker 2021) for further detail on management regimes. Below is guide and where additional issues are identified that are not currently covered in this management plan, or where it is considered that revised maintenance regimes are needed to maximise the ecological valueof the site, recommendations for changes to management prescriptions will be made as appropriate.

Table 1: Checklist of Actions

Task	Recommended Month / Season	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Construction						
Toolbox talk – to be given to all contractors to ensure they are aware of the ecological issues that relate to the site.	Any and regular/ongoing during construction.					
Install temporary reptile/amphibian fencing	Completed. Checks and monitoring minimum 6 weeks prior to works on site.					
20 days trapping out reptiles.	Initial clearance completed; monitoring for use to inform further clearance needs prior to works starting. Mid-April and June and Sept - Oct.					
Creation/restoration of grassland	Autumn					
Creation of pond	Autumn					
Creation of brash piles /hibernacula	Autumn					
Removal of temporary reptile/ amphibian fencing once construction is complete.	During and after all site work is complete. March-Oct					
Operation						
Replacement of any failed trees and shrubs	See Landscape Management Plan					
Removal of grass and weeds 1m diameter around newly planted shrubs/ trees	See Landscape Management Plan					
Watering, feeding and pruning trees	See Landscape Management Plan					
Mowing of amenity grassland	Spring/Summer See Landscape Management Plan					

Task	Recommended Month / Season	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Coarse Grassland	See Landscape Management Plan – possibly to include winter months to March					
Monitoring of species-rich grassland and mowing regime subject to monitoring recommendation	Spring and autumn					
Monitoring of scrub/invasive species	All year round					
Monitoring of pond vegetation	All year round					
Monitoring reptile populations	April, May andSeptember.					
Monitoring natterjack populations	Between April andSeptember.					
Maintaining and cleaning bird boxes	Nov - Jan					
Monitoring bat boxes for disrepair	Dec - Jan					

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Office of the Deputy Prime Minister (2005) Government Circular: Biodiversity and Geological Conservation – Statutory obligations and their impact within the planning system.

Statutory Instrument 2000 No. 192; The Conservation (Natural Habitats &c.) Regulations 1994 (as amended), HMSO

Statutory Instrument 2010 No. 490; The Conservation of Habitats and Species Regulations 2010 (as amended), HMSO

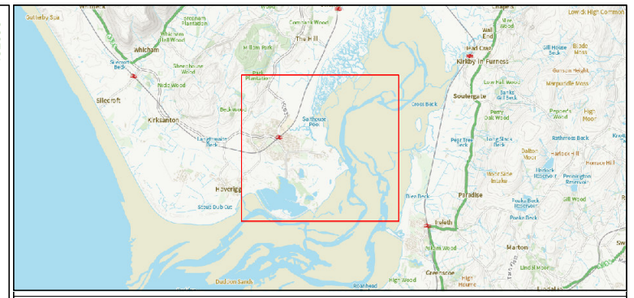
Wildlife and Countryside Act, 1981 (as amended), HMSO

https://www.gov.uk/guidance/natterjack-toads-protection-surveys-and-licences

https://www.gov.uk/guidance/reptiles-protection-surveys-and-licences

http://www.rspb.org.uk/makeahomeforwildlife/advice/helpingbirds/nestboxes/smallbirds/maintenance.aspx

APPENDIX A – Figures



Survey Information

	Site boundary

Source:
Ordnance Survey © Crown copyright 2021, All rights reserved. Licence Number 100049837.

N

0 50 100 200 300 400 500
Metres

PROJECT TITLE

THE OLD IRONWORKS, MILLOM, CUMBRIA

DRAWING TITLE

Figure 1: Site Location Plan

VER	DATE	COMMENTS	Drawn	Checked
1.0	30/06/21	Site Location	MP	MH

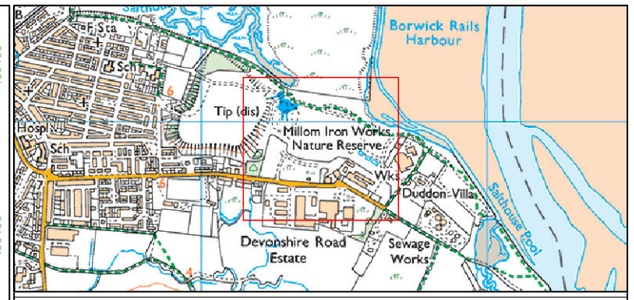
DRAWING NUMBER:

AIBMECOLOGY/OldIronworks/Millom/Location

SCALE	1:15,000	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

AIBM Ecology

The Warehouse
Devonshire Road
Millom
Cumbria
LA18 4JP



Survey Information

	Site compartments
	Semi-mature plantation woodland
	Dense scrub
	Calcareous grassland
SI	Semi-improved neutral grassland
	Pond
	Wetland / standing water (ephemeral)
	Short turf / open ephemeral community with calcareous influence (lots of bare ground)
	Mix of open disturbed ground with vegetation and semi-improved grassland
	Mainly bare ground / bare slag / occasional vegetation
	Bare ground
	Hardstanding / road
	Building
	Japanese knotweed
	Area containing orchids
	Fence
	Sermi-mature trees and shrubs

N

0 5 10 20
Metres

PROJECT TITLE

THE OLD IRONWORKS, MILLOM, CUMBRIA

DRAWING TITLE

Figure 2: Phase 1 Habitat Compartment Map - June

VER	DATE	COMMENTS	Drawn	Checked
1.1	20/07/21	Phase 1 - Compartments	MP	MH

DRAWING NUMBER:

AIBMECOLOGY/OldIronworks/Millom/Phase12021

SCALE	1:1,800	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

AIBM Ecology

The Warehouse
Devonshire Road
Millom
Cumbria
LA18 4JP

NOTES:

Protection of Existing Grassland Areas:
During construction, all reasonable precautions shall be taken to minimise disturbance to, and movements across existing grassland areas. Any tracking or other areas of disturbance should be carefully graded and feathered in to existing levels.

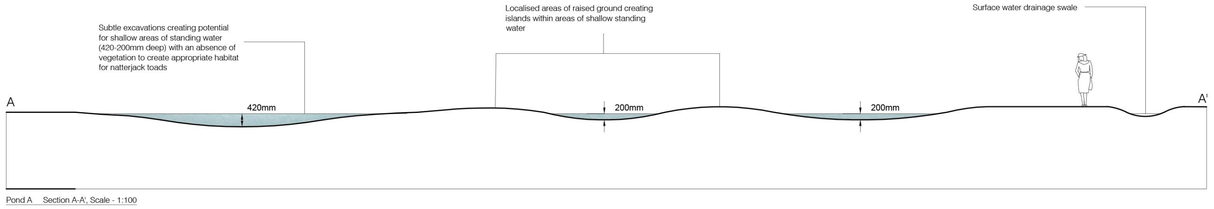
Pond Earthworks:
Rubbish, concrete, metal, glass and decayed vegetation are to be removed and disposed of off-site.
Re-graded areas are to be feathered into the existing levels using subsoil within the upper 300mm (min).
Adjacent areas which may have been disturbed should be reinstated in accordance with above note.

Plants/Trees General
To be materially undamaged, sturdy, healthy and vigorous in condition.
To be of good shape without elongated shoots and characteristic of the species.
To be grown in a suitable environment in order to be fully hardy.
To be free from pests, discolouration, weeds and physiological disorders.
Budded or grafted plants to be bottom worked.
All trees, hedging, shrubs and plants to comply with BS 3936 specification for nursery stock.
Species will be true to name and of British origin/provenance where appropriate.
Note: sizes shown are minimum.
All planting to be watered as required immediately after planting
All new trees to be positioned in accordance with the requirements of Table A.1, BS5837:2012.
Any works to existing trees to be carried out in accordance with the guidance set out in BS3998:2010.

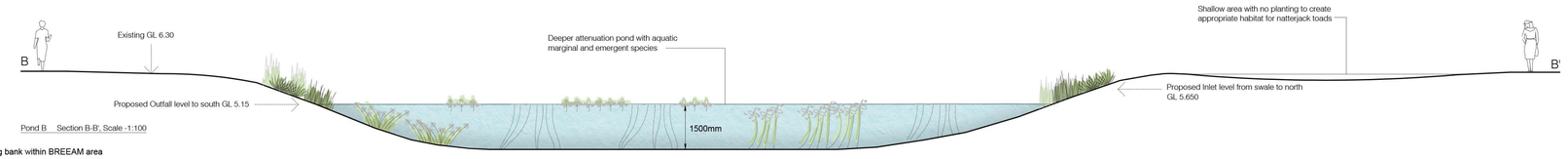
Ornamental Hedging & Trees
Hedging - Griselinia plants for hedgerow to eastern car park should be consistent in species, cultivar and clone to ensure a uniform hedge. Hedgerow to be planted on a triple staggered row. Plants and rows to be 50cm apart with trenches wide enough to accommodate the full spread of the roots. Trench should be backfilled with as dug topsoil to BS.3882.15. Container grown plants to be planted to depth of original root collar in accordance with BS4428.
Trees - Tree pits for Extra Heavy Standard trees to be 1200mm x1200mm x 900mm deep minimum, size to be adjusted if football is larger. The bottom of the pits are to be broken up if compacted and a 200mm depth of no fines material (clean grevel or broken stone graded 20-40mm) placed at the base of the pit to ensure good drainage. The sides of the pit are to be scarified and backfilled with as dug topsoil to BS3882:2015. Trees are to be supported with an appropriate underground guying system to BS.4043 (such as Arborguy strapped anchor deadman guying system (by Green Blue Urban) (www.greenblue.com tel: 01424 717797. At completion carefully spread a general purpose mulch - prepared in accordance with PAS 100 - to an even depth of 5cm (sample supplier Green Tech Tel: 01423 332100).

Native Tree & Shrub Planting
Native tree and shrub whip plants to be protected from rabbits using appropriate proprietory flexible rabbit guards. Areas of new planting to be kept free of weeds during establishment using secured mulch matting. Bare root plants to be notch planted to depth of root collar in accordance with BS4428. Container grown plants to be planted to depth of original root collar in accordance with BS4428. All plants planted into mulch mats to be planted with appropriate long release fertiliser pellets (e.g. Osmocote Tel: 01282 873333), applied in accordance with the manufacturer's recommendations and directions.

Tree Stakes for Selected Standard Trees
Stakes to be 65mm diameter tanalised softwood and pointed at one end. Top of stake to be 600mm above ground level and fixed to tree with 1 No suitable rubber tie and spacer. Stake to be firm in ground, position stake at time of planting.



Pond A Section A-A', Scale - 1:100



Pond B Section B-B', Scale -1:100

NM1:
Native Species Tree and Shrub Planting to be implemented where the former access road entered the site. Plants are to be implemented at a density of 1no plant/sq m, notch planted (apart from Ilex which shall be pit planted) and protected with an appropriate proprietory, flexible, rabbit proof guard. Species to be set out in groups of 3 to 6.
NM2:
Areas of Native Species Tree and Shrub Planting to be implemented along the southern boundary to supplement the existing boundary trees and shrubs to create a more durable, robust landscape buffer. Plants are to be implemented at a density of 1no plant/sq m, notch planted (apart from Ilex which shall be pit planted) and protected with an appropriate proprietory, flexible, rabbit proof guard. Species to be set out in groups of 3 to 6.
NM3:
Areas of Native Species Tree and Shrub Planting to be implemented around existing substation to screen from view. Plants are to be implemented at a density of 1no plant/sq m, notch planted (apart from Ilex which shall be pit planted) and protected with an appropriate proprietory, flexible, rabbit proof guard. Species to be set out in groups of 3 to 6.

Pond B Planting Schedule

SPECIES	SIZE / SPEC	PLANTING DEPTH	DENSITY no/M²	TOTAL NO
Brooklime - Veronica beccabunga*	Plugs	0 - 7cm	6	60
Frogbit - Hydrocharis morsus-ranae	Bare root	Any	-	45
Marsh Marigold - Caltha palustris*	Plugs	0 - 10cm	6	60
Ragged Robin - Silene flos-cuculi*	Plugs	Shallow edges	7	75
Water forget-me-not - Myosotis scorpioides*	Plugs	0 - 7cm	5	54
Water lily - Nuphar luteum	Bare root	30 - 90cm	-	45
Yellow flag - Iris pseudacorus*	Plugs	0 - 15cm	5	54

Pond B Planting:
* Denotes plants are to be planted in small clumps around the edges and shallow areas of Pond A whilst ensuring that circa 80% of the shallow margins to the pond are kept clear.

Native Species Hedgerow H2

SPECIES	QUANTITY
Acer campestre 90-120cm, BR - 10%	38
Crataegus monogyna 90-120cm, BR - 50%	188
Corylus avellana 90-120cm, BR - 15%	57
Prunus spinosa 90-120cm, BR - 15%	57
Ilex aquifolium 90-120cm, BR - 5%	19
Viburnum opulus 90-120cm, BR - 5%	19

Native Species Tree & Shrub Planting Schedule

SPECIES	SIZE/ SPEC	NM1 Area 220 m² 1no plants/sq m	NM2 Area 590 m² 1no plants/sq m	NM3 Area 83 m² 1no plants/sq m
Alnus glutinosa - 20%	60 - 90cm br transp	40	106	14
	10 - 12cm selected std	4	12	2
Betula pendula - 20%	60 - 90cm br transp	40	108	14
	10 - 12cm selected std	4	12	2
Crataegus monogyna - 30%	60 - 90cm br transp	66	177	25
Euonymus europaea - 10%	60 - 90cm br transp	22	59	9
Ilex aquifolium - 5%	3 litre container	11	30	4
Taxus baccata - 5%	80 - 100cm rootballed	11	30	4
Populus alba - 10%	60 - 90cm br transp	20	54	7
	10 - 12cm selected std	2	6	2

Key - Landscape Layout

The essence of this scheme is to retain and enhance the site's existing characteristics by maintaining and where practicable, enhancing the high ecological and biodiversity value of the site through the proposals. A traditional landscape design approach wasn't considered to be appropriate due to the sensitivities of the site and surrounding landscape. As a result an ecology led design process has focused on retaining existing features by minimising direct effects upon the more sensitive parts of the site. The lodges are to be placed upon an EcoBase that is breathable and allows for the vegetation underneath to grow through. Two new wetland habitat areas are also proposed.

Rotunda
See architects drawings for details.

Ancillary Buildings
See architects drawings for details. Green roof with species reflecting site ecology of calcareous grassland/open ephemeral communities.

Various Rotunda Lodges
See architects drawings for details.

Vardo
Total: 4no. on EcoBases

Classic Airstream
Total: 12no. on EcoBase

Footpaths
Meandering paths through the site to be surfaced using existing on site substrate (site won stone & gravel).

Proposed Access Tracks
Existing road to be removed. Access tracks across the site to utilise existing sub-base. Surface to be existing slag substrate from site with sward to central verge

Sculptural Elements

AIBM Office Landscaping
Raised beds to the front of the office building (in timber or corten steel) with granite paving to entrances and Tobermore Hydropave Standard Flags 400x400mm (permeable) to path

*In order to contain/limit/control vehicular and pedestrian access, the edges of the access track/footpaths are to be defined by placing rocks of existing slag (to be won from the site and or adjacent areas). The rocks should vary in size and should be between circa 275mm (largest) and 75mm (smallest), in all dimensions. The largest rocks are to be placed immediately adjacent to the access track/footpaths, smaller sized rocks should be placed up to 1m from the access track/road edge, with rocks of a varying size (between the indicated parameters) placed within the 1m offset.

Existing Neutral Grassland
Existing Neutral Grassland: Semi-improved grassland with relatively low diversity and is a mix of course and finer grasses. To be retained, where Lodges/units are positioned within these areas, EcoBases are proposed to minimise any effects upon the grassland. *See Management Plan for details.*

Calcareous Grassland
Existing unimproved calcareous grassland that is species rich - retained where the lodges/units are positioned and avoided as much as possibly during construction. Where disturbance occurs areas to be restored back to calcareous grassland utilising seed collected from site - EcoBases are proposed to minimise any effects upon the existing grassland - *See Management Plan for details.*

Existing Bare Ground with Ephemeral/Pioneer Species
Areas of bare ground with a diverse array of species reflecting calcareous conditions, especially within the area to the east of the spine road. Area to be retained and disturbed as little as possible, existing clumps of cotoneaster to be spot treated and cut back once dead. Where disturbance occurs areas to be restored back to calcareous grassland utilising seed collected from site. The lodge arrangement has been designed to minimise the effect upon these areas. *See Management Plan for details.*

Areas for Calcareous Grassland Creation/Restoration
Areas identified for calcareous grassland creation/restoration that are at present low quality (or bare ground) habitat. This will be carried out utilising seed collected from site and adjacent nature reserve. The ground to be prepared by cutting (as needed), rotavating (disturbance) and rolling (depending on conditions). If considered necessary nutrient addition will be carried out (at low levels) to encourage initial plant growth. Seed to be sown at around 1-2g per meter to aid local seed bank and local colonisation.

Existing Areas of Brambles
Brambles to be cleared to facilitate the development. Thereafter brambles are to be managed as wildlife habitat. *See Management Plan for details.*

BREEAM Boundary

Proposed Pond
Ponds to be profiled to Ecologist's specifications and in accordance with sections above. Pond A to have bare faced sides free from planting. Pond B to be planted in accordance with Pond B Planting Schedule. *See Management Plan for details.*

Existing Fence
Post and Rail fence to be retained.

Existing Trees and Shrubs
To be retained. Belt of trees to be managed where necessary, tidied and cleared of litter. *See Management Plan for details.*

Proposed Native Species Trees and Shrubs
See schedule for species mixes, sizes and quantities for areas NM1, NM2 and NM3

Proposed Trees
North of Millway to be mix of 2 no. Sorbus aria and 3 no. Betula pendula, South of Millway to be 2 no. Sorbus aria and 3 no. Multistem Birch
Betula pendula & Sorbus aria: 10-12cm selected standard
Multistem Birch: 1.5-2m height

Proposed Trees & Hedgerow to Car Park
H1 - Griselinia littoralis. Planted in a triple staggered row 50cm apart. 400no - 3lt container grown. 5 per linear metre. Trees to be 9 no. Alnus cordata 10-12cm Selected Standard

Native Species Hedgerow
H2 - Planted in a triple staggered row 50cm apart. 5 per linear metre. See schedule for species mix and quantities.

Proposed Surface Drainage Swales

Proposed Filter Drains

Cycle Shelter & Substation
Cycle shelter to be a lightweight galvanised steel frame covered with native species climbers - Lonicera peryclemenum (native woodbine) and Humulus lupulus (common hop)

Entrance to Millway
Setts - reclaimed sett threshold with brick piers to entrance.

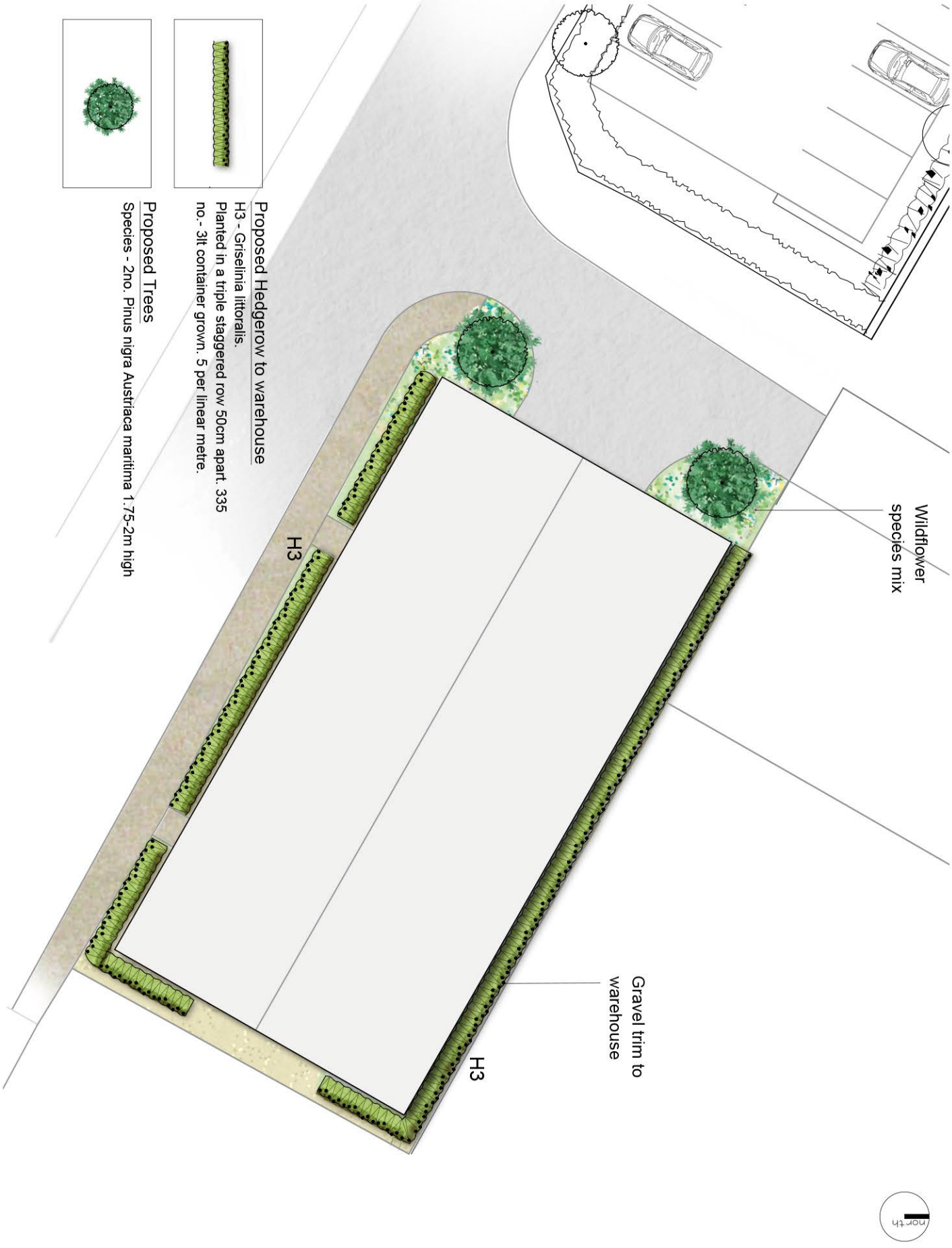
Driveway & Parking Areas
Surfaced in bitmac with parking bays and kerbs defined with reclaimed setts.

Millway Outdoor Dining
Surfaced in grey granite flags.

Millway Paving
Tobermore Hydropave Standard Flags 400x400mm (permeable) around Millway

Unit 6 Longley Lane
Northenden, Manchester
M22 4WT
T: 0161 946 0808
E: design@barneswalker.co.uk
W: www.barneswalker.co.uk
BARNES WALKER

DWG TITLE. Landscape Layout
PROJECT TITLE. Millom Ironworks, Millom, Cumbria
DRAWN BY. DY/HB
CHECKED BY. NF
DATE. 02.2019
SCALE. 1:500@A1
DWG NO. M2685.04S
CLIENT. AIBM LTD
WORK STAGE. Planning



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DWG NO.
M2685-05C

CLIENT.
AIBM LTD

WORK STAGE.
PLANNING

SCALE.
1:250@A4

DWG TITLE.
LANDSCAPE LAYOUT - WAREHOUSE

PROJECT TITLE.
Millom Ironworks, Millom, Cumbria

DATE.
05.2020

DRAWN BY.
HB

CHECKED BY.
NF

APPENDIX B Legislation and Planning Policy

Legislation

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

The UK is no longer a member of the European Union (EU). EU legislation as it applied to the UK on 31 December 2020 is now a part of UK domestic legislation. EU legislation which applied directly or indirectly to the UK before 11.00 p.m. on 31 December 2020 has been retained in UK law as a form of domestic legislation known as 'retained EU legislation'.

The Secretary of State for the Environment, Food and Rural Affairs and Welsh Ministers have made changes to parts of the Conservation of Habitats and Species Regulations 2017 (referred to as the 2017 Regulations) so that they operate effectively. Most of these changes involve transferring functions from the European Commission to the appropriate authorities in England. All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

The 2017 Regulations consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose European Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales.

The Regulations relate to sites which are important for either habitats or species (listed in Annexes I and II of the Habitats Directive respectively). Sites of Community Importance (SCIs) are identified and those that significantly contribute to the conservation of habitats and species threatened in Europe must be designated by EU Member States as Special Areas of Conservation (SACs) or Special Protection Areas (SPAs). Criteria are set out in Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive), which supports rare or vulnerable bird species, or large numbers of regularly occurring migratory bird species. These sites form a network termed Natura 2000.

The original Regulations transposed the EU Directive on Natural Habitats, and Wild Fauna and Flora 9/43/EEC) into domestic legislation. Amendments in 2007 and 2009 addressed several gaps and inconsistencies in the original legislation and provided a greater legal certainty and clarity in a number of areas. In April 2010, the Regulations were brought up to date to consolidate changes made since 1994. The Regulations afford a high level of protection to a variety of species that are considered important at a European scale. The Regulations identify European Protected Species and various habitats of importance within the European Union, with important sites for these habitats/species or both being designated as special Areas of Conservation (SAC). Any proposed works that may have a significant effect on a SAC or Special Protection Area (SPA) should be assessed in relation to the site's 'conservation objectives', i.e. the reasons for which the site is designated.

The new Regulations simplified the species protection regime to better reflect the Habitats Directive, providing a clear legal basis for surveillance and monitoring of European Protected Species (EPS). The Regulations also amended the WCA, updating Schedules 5 and 8 to consider provisions made by the Habitats Regulations 1994 in relation to the protection of EPS. They also offered further clarification to Part 4 of Section 9 considering "reckless" offences on wild animals, which was previously amended by the CROW Act 2000.

In 2012, the Regulations were further amended to place new duties on public bodies to take measures to preserve, maintain and re-establish habitat for wild birds. They were also amended to ensure certain provision of the Habitats Directive and the Birds Directive were transposed clearly and Section 15 was amended to make clear that Local Nature Reserves can be designated for re-establishing bird habitat

The current Regulations came into force on 28th December 2018. They amended the Conservation of Habitats and Species Regulations 2017, the Neighbourhood Planning (General) Regulations 2012, the Town and Country Planning (Permission in Principle) Order 2017 and the Town and Country Planning (Brownfield Land Register) Regulations 2017.

Regulation 2 amends the Conservation of Habitats and Species Regulations 2017 ("the Habitats

Regulations") applicable to special development orders, local development orders, neighbourhood development orders, simplified planning zones, enterprise zones and the conversion of footpaths into cycle tracks to incorporate the habitats assessments provisions in regulation 63 of the Habitats Regulations. Except for the conversion of footpaths into cycle tracks, this regulation also incorporates regulations 65 and 66 for the review of existing decisions and consents.

Regulation 2 also amends the Habitats Regulations to allow for the application of regulation 63 to applications for permission in principle.

Regulation 3 amends the Neighbourhood Planning (General) Regulations 2012 to change the prescribed condition relating to habitats for the purpose of examination of neighbourhood development plans to require that a neighbourhood development plan complies with the provisions applicable to land use plans in Chapter 8 of Part 6 of the Habitats Regulations.

Regulation 4 amends the Town and Country Planning (Permission in Principle) Order 2017 to change the definition of habitats development (for which a local planning authority may not grant permission in principle) to incorporate the habitats assessment process under regulation 63 of the Habitats Regulations.

Regulation 5 amends the Town and Country Planning (Brownfield Land Register) Regulations 2017 to change the definition of habitats development (which a local planning authority may not enter onto Part 2 of the Brownfield Land Register) to incorporate the habitats assessment process under regulation 63 of the Habitats Regulations.

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 is the major domestic legal instrument for wildlife protection in the UK, and is the primary means by which the following are implemented:

The Convention on the Conservation of European Wildlife and Natural Habitats ('the Bern Convention'); and
The Council Directive 79/409/EEC on the Conservation of Wild birds (the 'Bird Directive')

Wild Birds

The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally:

- kill, injure, or take any wild bird, take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Natural Environment and Rural Communities Act 2006), or take or destroy an egg of any wild bird.

- Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young.

- The Secretary of State may also designate Areas of Special Protection (subject to exceptions) to provide further protection to birds. The Act also prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

Other Animals

The Act makes it an offence (subject to exceptions) to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Flora, Fungi and Lichens

The Act makes it an offence (subject to exceptions) to intentionally) pick, uproot or destroy:

any wild plant listed in Schedule 8, or
unless an authorised person, to intentionally uproot any wild plant not included in Schedule 8,
to sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Non-native Species

The Act contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales. It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

The Countryside and Rights of Way (CroW) Act, 2000

Part III of this Act deals specifically with wildlife protection and nature conservation in England and Wales. The CroW Act strengthened the safeguards afforded to SSSIs.

Natural Environment and Rural Communities (NERC) Act 2006

Section 41 of the NERC Act requires the listing of habitats and species that are considered to be of principle importance for the conservation of biodiversity in England, including habitats and species in England that have been identified as priorities within the UK Biodiversity Action Plan (UKBAP).

The NERC Act requires that the Section 41 list be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the NERC Act 2006 'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions.

The EU Invasive Alien Species Regulations 2014
The EU Invasive Alien Species Regulations sets out to address the problems concerned with invasive alien species (IASs) to protect native biodiversity and ecosystem services and minimize and mitigate the human health and/or economic impacts that IASs can have. It sets out rules to prevent and manage the introduction and spread of IASs in the EU through prevention, early detection and rapid eradication, and management.

National Planning Policy Framework (NPPF)

The NPPF came into being in March 2012 and was revised and updated in July 2018, relevant sections are as follows (although full details should be considered, which are found at https://www.gov.uk/government/publications/national-planning-policy-framework--2):

Section 15 of the NPPF relates specifically to "Conserving and Enhancing the Natural Environment". Paragraph 170 states that "*Planning policies and decisions should contribute to and enhance the natural and local environment by:*

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."

Paragraph 171 states that Plans should: distinguish between the **hierarchy of international, national and locally designated sites**; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a **strategic approach to maintaining and enhancing networks of habitats and green infrastructure**; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries

Paragraph 174 states that: *To protect and enhance biodiversity and geodiversity, plans should:*

a) Identify, map and safeguard components of local wildlife-rich habitats and wider **ecological networks**, including the hierarchy of international, national and locally designated sites of importance for biodiversity; **wildlife corridors and stepping stones** that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and

b) promote the **conservation, restoration and enhancement of priority habitats**, **ecological networks** and the protection and **recovery of priority species**; and identify and **pursue opportunities for securing measurable net gains for biodiversity**.

Paragraph 175 states: *When determining planning applications, local planning authorities should apply the following principles:*

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) **development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it** (either individually or in combination with other developments), **should not normally be permitted**. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) **development resulting in the loss or deterioration of irreplaceable habitats** (such as ancient woodland and ancient or veteran trees) **should be refused,** unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while **opportunities to incorporate biodiversity improvements in and around developments should be encouraged**, especially where this can secure measurable net gains for biodiversity.

Paragraph 176 states: ***The following should be given the same protection as habitats sites****:*
potential Special Protection Areas and possible Special Areas of Conservation;

a) listed or proposed Ramsar sites; and

b) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

Paragraph 177 states: **The presumption in favour of sustainable development does not apply where development requiring appropriate assessmen**t because of its potential impact on a habitats site is being planned or determined.

APPENDIX C Plant Species List

Calcareous Grassland Species List (Schedule 9 INNS highlighted in yellow)

Scientific name	Common name
Achillea millefolium	Yarrow
Agrostis stolonifera	Creeping bent
Alchemilla vulgaris agg.	Lady's-mantle agg.
Alnus cordata	Italian alder
Anagallis arvensis	Scarlet pimpernel
Anthoxanthum odoratum	Sweet vernal-grass
Anthyllis vulneraria	Kidney vetch
Arrhenatherum elatius	False oat-grass
Bellis perennis	Daisy
Betula pubescens	Downy birch
Brachypodium sylvatica	False brome
Bromus hordeaceus	Soft brome
Carex flacca	Glaucous sedge
Carex distans	Distant sedge
Carex otrubae	False fox-sedge
Centaurea nigra	Common knapweed
Centurium erythraea	Common centuary
Cerastium fontanum	Common mouse-ear
Cirsium arvense	Creeping thistle
Cirsium vulgaris	Carline thistle
Cirsium palustre	Marsh thistle
Cotoneaster horizontalis	Wall cotoneaster
Cotoneaster spp.	Cotoneaster spp.
Crataegus monogyna	Hawthorn
Cynosurus cristatus	Crested dog's-tail
Dactylis glomerata	Cock's-foot
Dactylorhiza fuchsii	Common spotted-orchid
Dactylorhiza purpurella	Northern marsh orchid
Digitalis purpurea	Foxglove
Equisetum arvense	Field horsetail
Erigeron acer	Blue fleabane
Euphrasia officinalis agg.	Eyebright agg.
Festuca rubra agg.	Red fescue
Hieracium sp.	Hawkweed sp.
Holcus lanatus	Yorkshire-fog
Hypericum perforatum	Perforate St. John's- wort
Hypochaeris radicata	Cat's-ear
Juncus conglomeratus	Compact rush
Juniperus communis	Common juniper
Lathyrus pratensis	Meadow vetchling
Leontodon hispidus	Rough hawkbit
Leucanthemum vulgare	Oxeye daisy
Linum catharticum	Fairy flax
Lotus corniculatus	Common bird's-foot-trefoil

Luzula campestris	Field wood-rush
Medicago lupulina	Black medick
Myosotis arvensis	Field forget-me-not
Myosotis ramosissima	Early forget-me-not
Pilosella officinarum	Mouse-ear-hawkweed
Poa trivialis	Rough meadow-grass
Polygala vulgaris	Common milkwort
Potentilla reptans	Creeping cinquefoil
Ranunculus acris	Meadow buttercup
Ranunculus repens	Creeping buttercup
Rosa spinosissima	Burnet rose
Rubus fruticosus agg.	Blackberry
Salix caprea	Goat willow
Salix repens	Creeping willow
Salix x reichardtii.	Hybrid sallow
Sheradia arvensis	Field madder
Trifolium pratense	Red clover
Ulex europaeus	Gorse
Veronica chamaedrys	Germander speedwell
Vicia cracca	Tufted vetch
Vicia sativa ssp. *nigra*	Narrow-leaved vetch

Ephemeral Habitat Species List (Schedule 9 INNS highlighted in yellow)

Scientific name	**Common name**
Achillea millefolium	Yarrow
Agrostis stolonifera	Creeping bent
Alnus cordata	Italian alder
Anagallis arvensis	Scarlet pimpernel
Arenaria serpyllifolia	Thyme-leaved sandwort
Bellis perennis	Daisy
Betula pubescens	Downy birch
Blackstonia perfoliata	Yellow-wort
Carex flacca	Glaucous sedge
Carex nigra	Common sedge
Catapodium rigidus	Fern grass
Centaurea nigra	Common knapweed
Cerastium fontanum	Common mouse-ear
Cirsium palustre	Marsh thistle
Cotoneaster horizontalis	Wall cotoneaster
Cotoneaster integrifolius	Entire-leaved cotoneaster
Cynosurus cristatus	Crested dog's-tail
Festuca rubra agg.	Red fescue
Filago vulgaris	Common cudweed
Helminthotheca echioides	Bristly oxtongue
Hieracium sp.	Hawkweed sp.
Holcus lanatus	Yorkshire-fog

Scientific name	Common name
Hypericum perforatum	Perforate St. John's wort
Juncus articulatus	Jointed rush
Lathyrus pratensis	Yellow meadow vetchling
Leontodon hispidus	Rough hawkbit
Lotus corniculatus	Common bird's-foot-trefoil
Pillosella officinarum	Mouse-ear-hawkweed
Plantago lanceolata	Ribwort plantain
Plantago major	Greater plantain
Poa annua	Annual meadow-grass
Potentilla anserina	Silverweed
Prunella vulgaris	Selfheal
Rubus fruticosus agg.	Blackberry
Rumex crispus	Curled dock
Salix repens	Creeping willow
Sonchus oleraceus	Smooth sow-thistle
Sonchus asper	Prickly sow-thistle
Taraxacum agg.	Dandelion agg.
Trifolium dubium	Lesser trefoil
Tussilago farfara	Colt's-foot

Semi-improved Neutral Grassland Species list

Scientific name	Common name
Achillea millefolium	Yarrow
Agrostis stolonifera	Creeping bent
Anthriscus sylvestris	Cow parsley
Arrhenatherum elatius	False oat-grass
Artemisia vulgaris	Mugwort
Bellis perennis	Daisy
Carex otrubae	False fox-sedge
Centaurea nigra	Common knapweed
Cerastium fontanum	Common mouse-ear
Chamerion angustifolium	Rosebay willowherb
Cirsium arvense	Creeping thistle
Cirsium palustre	Marsh thistle
Cynosurus cristatus	Crested dog's-tail
Dactylis glomerata	Cock's-foot
Epilobium hirsutum	Great willowherb
Equisetum arvense	Field horsetail
Festuca rubra agg.	Red fescue agg.
Galium album	Hedge bedstraw
Heracleum sphondylium	Hogweed
Holcus lanatus	Yorkshire-fog
Hypochaeris radicata	Cat's-ear
Lathyrus pratensis	Meadow vetchling
Leucanthemum vulgare	Oxeye daisy
Lolium perenne	Perennial rye-grass

Scientific name	Common name
Lotus corniculatus	Common bird's-foot-trefoil
Plantago lanceolata	Ribwort plantain
Poa trivialis	Rough meadow-grass
Potentilla reptans	Creeping cinquefoil
Ranunculus acris	Meadow buttercup
Ranunculus repens	Creeping buttercup
Rosa canina agg.	Dog rose agg.
Rubus fruticosus agg.	Blackberry
Rumex crispus	Curled dock
Senecio jacobaea	Common ragwort
Taraxacum agg.	Dandelion agg.
Tragopogon pratensis	Goat’s-beard
Trifolium pratense	Red clover
Trifolium repens	White clover
Urtica dioica	Common nettle
Vicia cracca	Tufted vetch
Vicia hirsuta	Hairy tare
Vicia sepium	Bush vetch

Inundation Habitat Species List

Scientific name	Common name
Agrostis stolonifera	Creeping bent
Betula pubescens	Downy birch
Cardamine flexuosa	Wavy bittercress
Carex viridula ssp *oedocarpa*	Common yellow-sedge
Carex divulsa ssp. *leersii*	Grey sedge ssp. leersii
Carex flacca	Glaucous sedge
Carex distans	Distant sedge
Carex otrubae	False fox-sedge
Dactylorhiza purpurella	Northern marsh orchid
Eleocharis palustris	Common spike-rush
Epilobium hirsutum	Great willowherb
Leontodon hispidus	Rough hawkbit
Potentilla anserina	Silverweed
Ranunculus flammula	Lesser spearwort
Ranunculus repens	Creeping buttercup
Salix caprea	Goat willow
Salix repens	Creeping willow

APPENDIX D – Bat, Bird and Insect Boxes and Tubes

Introduction

The information in this appendix relates to bat and bird boxes that can be easily incorporated into building and landscape plans. The information provided is not exhaustive and provides examples of some of the types of boxes available.

Including bat and bird boxes throughout the development site has a number of benefits:

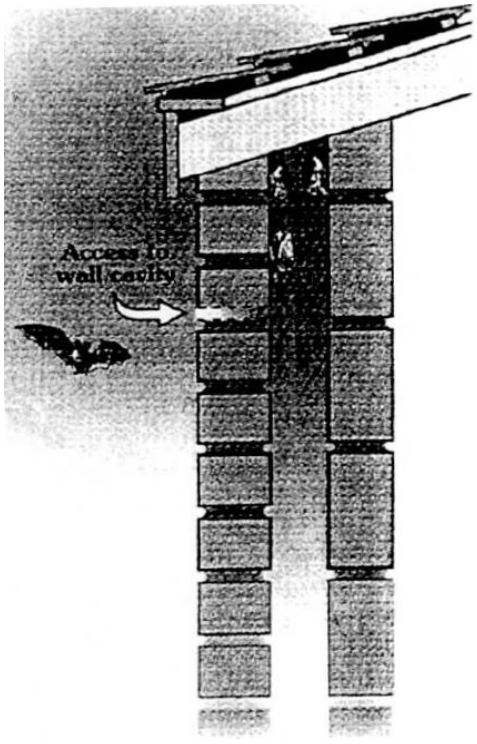
- Any roosting or resting places lost as a result of the work will be replaced;
- The ecological value of the site will be enhanced;
- Priority species within the UK and local Biodiversity Action Plans (BAPs) will be encouraged.

Bats

For Buildings

The inclusion of a variety of bat bricks, tubes and boxes for buildings is recommended to encourage a diversity of bat species. Bat bricks and tubes require no maintenance.

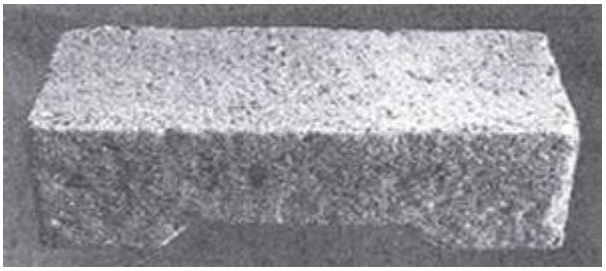
Bat Access and Roost Bricks



Source: Marshalls Clay Products (approved by the Bat conservation Trust)

'… Marshall Clay Products have been producing a Bat Access Brick specially designed to help the country's badly depleted bat population by provided access to wall cavities or roof spaces where most bat colonies tend to be (see diagram). In recent years bats have been declining at an alarming rate. Nearly all colonies tend to be on the outside of houses, in wall cavities, under slates, flashing or tiles, et c. … Contrary to popular opinion, bats do not make pests and do absolutely no damage to buildings or roof timbers, indeed many people encourage bat colonies in their area because of the large number of insect pests, woodworm, et c. which they eat. Most colonises will use a house for only a few weeks in summer

before dispersing in autumn.'



Marshall's Bat Access Brick, which is now also available in stone.

A Bat Brick should ideally be placed as high as possible at the gable apex or close to the soffit.

Marshalls Clay Products - Quarry Lane,Howley Park, Woodkirk, Dewsbury, West Yorkshire, WF12 7JJ – Tel: (01132) 203535, Fax: (01132) 203555.

Bat Tube

Brick bat tubes are designed for buildings, or underneath bridges, arches or tunnels, where conditions are relatively humid. They are particularly useful for new buildings or bridges to attract bats, or to provide new roost sites where existing buildings with bats are being renovated.

This long box can be installed within brick masonry, beneath plasterwork or wood panelling, or incorporated into concrete structures such as factory buildings or bridges. Inside it contains a woodcrete surface, a roughened wood board, and a metal mesh, providing a choice of roosting areas depending on the weather conditions and the bats' habits. This box is maintenance-free as the entrance slit is at the bottom.

No painting required, but if painting is necessary a natural breathable paint should be used.

Width: 20cm; Height: 47.5cm; Depth: 12.5cm; Entrance Width: 15cm; Entrance Depth: 2cm; Weight: 13kg

Bat Box

This type of box is made of woodcrete and is expected to last approximately 25 years. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats. Woodcrete (75% wood sawdust, concrete and clay mixture).

Width: 27cm; Height: 43cm; Weight: 8.3kg.

For Trees

Woodcrete boxes have the highest rates of occupation of all box types. The 75% wood sawdust, concrete and clay mixture allows natural respiration, stable temperature, and durability. They are long lasting (approx. 25 years) and are rot- and predator-proof. Hang from a tree branch near the trunk, or fix to a trunk with the supplied 'tree-friendly' aluminium nail. Attractive to smaller British bats.

Material: Woodcrete (75% wood sawdust, concrete and clay mixture); Diameter: 16cm; Height: 33cm; Weight: 4kg.

Bird Boxes

A variety of bird box designs could be installed throughout the development site to attract a diversity of species. Open fronted boxes will attract species such as robins, pied wagtails and spotted flycatchers, while boxes with entrance holes will attract tits, wrens and tree sparrows. Roost pockets will be used by roosting birds over the winter and by smaller species, such as wrens, for nesting in the spring.

Open Fronted Boxes

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and black redstarts and is best sited on the walls of buildings with the entrance on one side.

These woodcrete boxes are designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

Boxes with Entrance Holes

This box is attractive to smaller birds such as tits, wrens and tree sparrows. Sparrow terraces are also available.

Insect Boxes

As with the bat and bird boxes, a variety of insect boxes is recommended to encourage a diversity of species.

Wooden Insect House

A general insect habitat for beneficial insects in summer and, later in the year, over wintering ladybirds and lacewings. Locate in a sheltered place near nectar or pollen plants or by a pond.

Durable and strong construction in acacia, oak or larch with no maintenance necessary. Dimensions: 22 × 13.5 × 13.5cm.

APPENDIX E – Seed Collection Methodology

Millom Ironworks Grassland Seed Harvesting

Background

As if By Magic Ltd has received planning permission for a sanctuary/retreat development at the former Ironworks site on Devonshire Road in Millom (Grid Ref: SD 1831 7984) (hereafter known as the Site). The sanctuary/retreat will comprise residential cabins, vardo wagons and airstreams; communal toilet/shower facilities; a building for communal assembly, sculptures and a restaurant and treatment facility. The scheme includes associated landscaping and a car parking and a warehouse, located to the east of the Site.

The Site is located adjacent to the Ironworks Local Nature Reserve (LNR) and falls within the Duddon Estuary Site of Special Scientific Interest (SSSI). In addition, a small area of the site falls within the Duddon Estuary Special Protection Area (SPA) and Ramsar Site designated for its international bird populations.

The Site has a good range of calcareous grassland species, with a mixture of dry calcareous, and also damper calcareous flush type species. The site supports several ponds that are suitable habitat for the Natterjack Toad *Epidalea calamita* which are listed as a European Protected Species under Annex IV of the European Habitats Directive and are protected in the UK under the Wildlife and Countryside Act 1981 and as a priority species under the post-2010 Biodiversity Framework. There are also several nationally scarce Butterflies present on the site which use some of the target wildflower species as larval foodplants.

As part of the development, the aim is to maintain as much of the species rich grassland as possible. However, there will be areas where disturbance will occur, due to the need for trenches for utilities and access. In addition, areas not to be disturbed where species rich grassland does not occur or is in poor condition will be subject to species rich grassland creation and restoration. The aim of this project is to collect seed of the calcareous grassland habitat, both from the main development site and the Local Nature Reserve, adjacent to the Site to aid species rich grassland creation and restoration using local seed of desirable species.

Permission is required for collecting seed from the wider LNR, that is owned by Copeland Borough Council, which has been received; alongside this permission a Habitat Regulations Assessment (HRA) is needed (to be completed by Natural England) to ensure no adverse impact of the project on the status of the SSSI. A consent to carry out the work from Natural England will also be sought. No permission is required for collecting seed from the development site.
This document will set out a methodology of seed harvesting that ensures there are no adverse effects on any species on the SSSI and LNR, which will inform the consent from all parties and the HRA.

Seed Harvesting Methodology

The proposed methodology is to use a vacuum collector (STIHL Vacuum SH86 with blades removed) to suck up seeds from the target vegetation by means of slowly brushing the vacuum tip over the seed heads of the vegetation. For the majority of species, this should be around 15-20cm above ground level, which will mean no disturbance to the ground will occur beyond the footfall of the operator.

Several of the target species are low growing, prostrate species, such as *Lotus corniculatus* and some species such as *Centaurea nigra* also have robust seed pods which are unlikely to be collected up by the vacuum suction. It is proposed that these species have the seed collected by hand, which will avoid damage to protected species, as well as allow controlled collection of the seed population to prevent over-collection.

Once a certain amount of seed has been collected by the vacuum collector and by hand, the seed collection bag shall be emptied onto a tarpaulin sheet on the site, within close proximity to where harvesting took place, and the seed spread out onto the tarpaulin and left for at least 30 minutes to allow any animals (such as invertebrates) which may have been sucked up the chance to escape back into the site. The operator shall visibly inspect the collected seed when spread out on the tarpaulin for any signs of life, before transferring the collected seed into its transport container.

Once enough seed has been collected, it shall be transported off site for drying, which will take place on tarpaulin sheets in a dry, well-lit, and well-ventilated room. Once the seed is fully dry it can be stored in a cool, dry container out of the light, until it is required to be sown, likely the following year.

The harvesting should be carried out on a dry, ideally sunny day so that the harvested seed does not get wet whilst on the tarpaulin sheets, and this will also mean invertebrates will be more active and therefore less likely to be sucked up by the vacuum.

Harvesting location

The seed shall be collected from the Millom Ironworks LNR and Duddon Estuary SSSI, land owned by Copeland Borough Council (shown by the red hatching on Figure 1). The seed will be sown on the development Site (as shown by green hatching on Figure 1),

Harvesting dates and target species

It is proposed that 3 visits are carried out throughout the season to allow a wide a range of species of possible to have their seed harvested. To enable this, an early, mid-season and late season visit will be required.

Early Visit – Late June 2021 Target species

Anthoxanthum odoratum
Hypochaeris radicata
Leucanthemum vulgare
Luzula campestris
Mediacago lupulina
Myosotis sp.
Pilosella officinarum
Plantago lanceolata
Trifolium dubium

Mid Visit – Late July 2021 Target species

Anthyllis vulneraria
Carex flacca
Dactylorhiza sp.
Digitalis purpurea
Hieracium sp.
Lathryus pratensis
Leontodon hispidus
Linum catharticum
Lotus corniculatus
Trifolium pratense
Sheradia arvensis
Veronica chamaedrys
Vicia sp.

Late Visit – early September 2021 Target species

Achillea millefolium
Anagallis arvensis
Centaurea nigra
Centurium erythraea
Cirsium vulgaris
Euphrasia sp.
Erigeron acer
Hypericum perforatum

Minimising any risks on impacting Natterjack Toad and other species on the SSSI/LNR

The potential risks from trampling and species being sucked up into the seed collection bag

Care shall be taken in any vegetation, particularly tussocky vegetation by constantly looking out for any signs of toads or toad activity. It is extremely unlikely that the vacuum harvester would have the suction power strong enough to suck up an amphibian, but as an extra precaution, the vacuum nozzle shall not be held closer to the ground than 15cm, and any seeds from prostrate species such as *Lotus corniculatus* shall be collected by hand. The vacuum nozzle shall not be inserted into any dense or tussocky vegetation.

Any creature that has inadvertently been sucked up into the seed bag shall get the chance to escape once the seed is spread out onto a tarpaulin and left for a minimum of 30 minutes. The spread seed shall be examined for any signs of living creatures, and their escape back onto the site would be aided. This methodology will mean the risk to Natterjack toads and other amphibians is negligible.

Depleting the seed source of the site as to cause a negative impact on botanical regeneration and other wildlife

To avoid overharvesting the site, seed shall only be collected from patches with a certain area, so a good proportion of seed is left on the site. This will likely amount to only 20% of seed taken out of a certain block or set. The nature of the vacuum collector also means that usually only a certain portion of seed is collected up from a seed head.

When collecting target and prostrate species seed by hand, no more than 50% of the seed shall be taken from one plant, as to leave 50% of the seed on site for both wildlife and botanical regeneration.

Risk to Butterflies and other Invertebrates

Care shall be taken to avoid contact with any Butterflies of other invertebrates such as Bees which may be basking or feeding on the vegetation. Hand collection of seed on the key foodplants *Lotus corniculatus* and *Anthyllis vulneraria* should minimise impacts on Butterfly larvae.