**Ironworks Retreat Development**

**As If By Magic Ltd**

# Construction Environment Management Plan

**AIBM** Ecology

## Document Control Sheet

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The methodology adopted and the sources of information used by AIBM-E in providing its services are outlined in this Report. The work described in this Report was undertaken between 15th April 2021 and 30th July 2021 and is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances. AIBM-E disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to AIBM-E's attention after the date of the Report.

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## Tables

# 1. Introduction

## 1.1 Background and the Scheme

In 2018, As If By Magic (AIBM) Ltd received planning permission for the Ironworks Retreat Development (the Project) at Devonshire Road, Millom, Cumbria. The planning permission had a Condition requiring a Construction Environment Management Plan (CEMP) to be written. AECOM Ltd was subsequently commissioned by AIBM to complete the CEMP for the Project.

Following significant design updates during 2019 and 2020 a new planning application was submitted, which received permission in January 2021. The new planning permission included a Condition (Condition 28) to update the CEMP as per the updated design and to include any additional requirements if needed. Condition 28 states:

*Before any development commences updated Sections 5 - 8 inclusive of the CEMP (2018) shall be submitted to and approved in writing by the Local Planning Authority. The revised CEMP shall be implemented as approved.*

*Reason*

*To ensure that relevant sections of the CEMP are updated to reflect the current application as subsequently revised.*

Sections 5 – 8 are Contamination, Water, Biosecurity and Biodiversity respectively.

The further updates have been included in this revision. As If By Magic Ecology Ltd (AIBM-E) are now carrying out the updates, following on from the work done by AECOM. Mark Hampton previously worked for AECOM and oversaw the original CEMP work. Mark now works for AIBM-E, which maintains consistency throughout the project. Much of the CEMP remains as per the original as many elements will remain the same during construction. As per the planning condition, 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; the new car park location has a stand of Japanese Knotweed (*Reynoutria japonica)* present, and biodiversity.

The development consists of four distinct parts as follows (see Figure 1, Appendix A for locations):

- The Ironworks Retreat (main site), which consists of two compartments:
    - Main site A (see Figure 1): 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 1): 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 1 (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 1).

The CEMP relates to the scheme as a whole and along with the main site consideration is given, in particular, to Millway, the car park and new warehouse areas in terms of vegetation clearance prior to construction starting and the construction process. Further, Millway has a bat roost present, which will be covered under a Natural England Protected Species Licence and is not part of the CEMP.

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. Figures 2 and 3 in Appendix A is the development proposal/landscape drawing for the site.

The main 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 main site falls within the Morcambe Bay and Duddon Estuary Special Protection Area (SPA) and Ramsar Site designated for its international bird populations. Given the site's location and sensitive designation, design measures have been a key tool in reducing the potential for environmental effects from the proposed scheme. For example, natterjack toad (*Epidalea calamita*) is present on the adjacent nature reserve and works will be sensitive to this species and the creation of a wetland habitat and appropriate landscaping will ensure this proposal includes enhancement and benefits to the biodiversity value of the site.

## 1.2 Purpose of the Construction Environmental Management Plan

This CEMP presents the approach and application of environmental control and management measures (CMM) for the construction of the scheme. The CEMP covers construction and aims to ensure that adverse effects from the construction phase of the scheme on the environment and the local communities are reduced and managed as far as reasonably practicable. It does not describe mitigation measures relating to the operation of the scheme. Design Mitigation (DM) measures are not specified within the CEMP, these are measures which are inherently built into the design. Any works related to the scheme undertaken under powers afforded by the planning permission will implement the appropriate and relevant measures set out in this CEMP. Where reference is made to the contractor, this refers to the relevant contractor responsible for the particular element of the scheme.

## 1.3 Other Control and Management Plans

Control management measures are also set out in several other plans and strategies, as listed in Table 1, which are to be adhered to and/or submitted as part of the discharge of planning conditions.

| Table 1: Construction Mitigation Plans Submitted with the Planning Application | |
|---|---|
| **Plan/Strategy** | **Description** |
| Surface Water Drainage Scheme | Describes measures to avoid and reduce likely adverse effects on surface water bodies |
| Drainage Statement | This will identify all known risks to the water environment and identify appropriate measures to prevent pollution during construction. |
| Landscape Plan for Main Site | Includes landscape architecture drawings illustrating how the landscape of the site will be once the site is operational. A landscaping and maintenance scheme for the off-site car park shall be submitted to and approved in writing by the Local Planning Authority. |
| Landscape and Maintenance Scheme for the offsite parking | Describes measures and monitoring requirements to be implemented during the operational stage for the offsite parking area |
| Site Investigation Scheme, including options appraisal, remediation strategy and verification plan | Outlines the intrusive testing carried out in assessing for possible contaminants on site. Following investigations, options appraisal, appraisal, remediation strategy and verification plan have been described to ensure the successful delivery of remediation work. |
| Habitat and Recreation Management Plan | Describes measures to provide a practical guide to facilitate appropriate long-term management and protection of ecologically valuable features and habitats on site. |
| Building Research Establishment Environmental Assessment Method (BREEAM) for the Octagon only. | This report provides information to determine whether the credits being assessed are achievable and/or can be awarded (note: this is just the communal building and restaurant element of the development). |

## 1.4 Compliance with Project Environmental Management Systems

As if By Magic and the appointed contractors will seek to maximise resource efficiency through reducing the amount of waste generated, minimising water consumption and making the most efficient use of energy. For example, the carbon footprint of the scheme will be reduced during construction by avoiding CO2 emissions where possible through, for instance, keeping construction vehicle movements to the minimum necessary for the safe and efficient construction of the proposed scheme.

The appointed contractor will prepare their own project Environmental Management System (EMS) prior to construction commencing. An EMS will be prepared for each element of the scheme. The contractors EMS will address:

- compliance with the CEMP and the other control and management documents set out in Table 1;
- compliance with environmental consents and permits;
- overall compliance with environmental legislation, and also approved codes of practice,

British Standards and industry best practice where necessary;

- detailed environmental management procedures to deliver the CEMP and other control and management plans including roles and responsibilities;
- monitoring and review arrangements;
- emergency procedures that are defined and adopted; and
- appropriate training and information for personnel.

## 1.5 Compliance with Legislation, Standards and Guidance

There is a broad range of legislation covering the different aspects of environmental protection. All prevailing and relevant legislative requirements will be adhered to during construction, for example those relating to protected species listed under the Wildlife and Countryside Act 1981 (as amended) and invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

These statutory requirements are supported by additional statutory guidance, 'standards' (such as British Standards (BS) or International Standards (ISO)) and other 'best practice' guidance, including industry codes of practice. Where relevant these will be adhered to during the construction of the scheme and will be kept under review and updated as required as a result of new or amended legislation, standards and guidance by As if By Magic and their contractors.

## 1.6 Coding of Control and Management Measures

The following sections of the CEMP set out the control and management measures for the construction of the scheme; these include general principles along with topic specific controls. To provide clarity, the control measures which have been devised specifically for the proposed scheme fall under the heading titles which includes the wordings "site specific".

# 2. General Principles

## 2.1 Objective

To construct the scheme having regard to the safety and security of the public and construction staff and to mitigate the impact of general site operations.

## 2.2 Working Hours

The core working hours will be between the hours of 07:00 to 19:00 Monday to Saturday and between 08:00 and 16:00 on Sundays. The core working hours referred to above exclude start up and close down activities up to 01.00 hour either side of the core working hours. The following operations may take place outside the core working hours:

- the completion of works delayed or held up by severe weather conditions which disrupted or interrupted normal construction activities; and
- activity necessary in the instance of an emergency where there is a risk to persons or property.

## 2.3 Complaints Procedure

Any complaints associated with the construction of the scheme, including non-compliance with the CEMP and other management plans, will be reported, recorded and investigated using a complaints procedure developed by the contractor. The complaints procedure (including but not limited to complaints relating to noise, dust, vibration, pollution and construction traffic) will set out:

- how and to whom complaints can be made;
- a reasonable timeframe for responding to complaints;
- the potential remedies available to address complaints; and
- who to contact if the complainant is not satisfied with the outcome.

Primarily any minor issues or complaints relating to site incidents will be dealt with by the contractor's site management team. For the escalation of these issues or for more serious issues these will be dealt with by the As if By Magic project team.

## 2.4 Code of Conduct

The contractor will be a member of the Considerate Constructors Scheme or an equivalent scheme and will adhere to a Code of Conduct. The Code of Conduct will include sections on respecting the environment and communities. Site inductions and toolbox talks will be given to every construction worker on site and will include information about the natterjack toad and Duddon Estuary Site of Special Scientific Interest (SSSI) and information on resources available for learning more about the ecological sensitivity of the site.

## 2.5 Health and Safety

The health and safety of persons working on projects will be maintained in accordance with the Health and Safety at Work Act 1974 and the Construction (Design and Management) Regulations 2015[1] (CDM)

[1] http://www.legislation.gov.uk/uksi/2015/51/contents/made

and the principles and philosophy behind them. As such matters of health and safety are not considered further in this CEMP.

## 2.6 Inspections

The appointed construction contractor will undertake inspections, which will include monitoring conformance with the CEMP. Assessment forms will be completed during the checks.

Checks on equipment and facilities will be undertaken to reduce the risk of incidents occurring (for example oil leaks, or biosecurity breaches). Inspections will generally be undertaken on a weekly basis unless specified in other plans or licenses. As a minimum the following equipment will be inspected:

- fencing;
- waste storage facilities;
- oil separators;
- chemical storage facilities;
- bund integrity;
- foul water storage facilities;
- silt traps;
- drainage ditches and watercourses;
- attenuation ponds;
- storage vessels (including pumps, gauges, pipework and hoses);
- secondary containment (for example, secondary skins for oil tanks);
- spill response materials; and
- equipment with potential to leak oils and other liquids, for example, machinery, compressors and transformers.

Regular inspections, most likely weekly, will be undertaken by the contractors to ensure the checks are being undertaken correctly. The inspections will also include:

- reviewing the daily risk assessment forms;
- ensuring that corrective action is undertaken and rectified; and
- providing data for performance monitoring.

Immediate action including, if necessary, 'stopping the activity in question, where safe to do so', will be taken should any incidents or non-compliance with the CEMP be found during inspection.

## 2.7 Incident Procedure

Contractors will develop and implement a Pollution Incident Control Plan (PICP) which will detail their control measures and response in the event of any incident on site. The PICP will:

a) describe the procedure to be followed in the event of an incident (in accordance with the 'Incident Response' procedure below);

b) describe the procedure for the notification of appropriate emergency services, authorities and personnel on the construction site;

c) describe the procedure for the notification of relevant statutory bodies, environmental regulatory bodies, local authorities and the local water and sewer provider;

d) provide maps showing the locations of local emergency services facilities such as police stations, fire authorities, medical facilities, other relevant authorities, such as Natural England (NE) and also the address and contact details for each service and authority;

e) provide contact details for the persons responsible on the construction site for pollution incident response;

f) provide contact details of a competent spill response company which can be contacted at short notice for an immediate response;

g) ensure that site drainage plans and flood risk management plans are available on site and are kept up-to date; and

h) ensure staff competence and awareness in implementing plans and using pollution response kits.

## 2.8 Incident Response

All incidents associated with the construction of the scheme, including environmental incidents and non-conformance with the CEMP, will be reported and investigated in accordance with the PICP (unless stated differently in other Management Plans). The following procedure will be followed in the event of an incident and will be detailed further in the PICP:

- works related to the incident will stop when it is safe to do so;
- the relevant identified person such as a Project Engineer, Environmental Manageror SHESQ Manager will be contacted;
- the scale of the incident will be assessed:
  - if the incident is controllable by staff on site, remedial action will be taken immediately in accordance with the PICP;
  - if the incident cannot be controlled by the staff on site, emergency assistance will be sought; the appropriate enforcing authority will be contacted and informed as appropriate, including:
  - Environment Agency (EA) for incidents affecting rivers, groundwater, themarine environment, designated sites and major emissions to atmosphere;
  - the local sewerage undertaker for incidents affecting sewers;
  - the Local Authority Environmental Health Department for incidents that could affect the public;
- Project Manager and SHESQ Manager will instigate how the incident occurred;
- the findings will be sent to the appropriate enforcing authority where necessary; and
- an action plan will be prepared to determine why the incident occurred and whether any modifications to working practices are required to prevent a recurrence. If necessary, the CEMP, PICP and SHE Plan will be updated (and any other plans as

appropriate) and all workers will be notified.

## 2.9 Construction Site Layout and Good Housekeeping

The layout and operation of the construction compounds, working areas and, site offices (as required) will comply with the commitments in this CEMP. Good housekeeping practice will be applied at all times and all working areas will be inspected as required using a site audit programme and a report on compliance will be provided to As If By Magic Ltd on a monthly basis.

### 2.9.1 Fencing and Other Means of Enclosure

Working areas will be appropriately fenced off from members of the public and to prevent animals from straying onto a working area in a manner that does not impede the movement or foraging area of protected species. Fencing and other means of enclosure, including those required for mitigating effects on protected species, will be inspected daily initially and then regularly as appropriate, and repaired as necessary. Any temporary fencing will be removed as soon as reasonably practicable after completion of the works.

### 2.9.2 Lighting and Visual Intrusion

A lighting scheme for the project will be developed and agreed with the Local Planning Authority prior to works (Condition 21 of Planning Permission). This includes for protecting ecological receptors. Section 6.5 of the Habitat and Recreation Management Plan (AIBM-E, 2021) gives recommendations for reducing the impacts of lighting on ecological receptors and the lighting scheme will incorporate these where appropriate.

Construction compounds will not be lit at night outside of the working hours identified for the particular activity, except for welfare and site security cabins (as required), which will include low level lighting. Motion sensor lighting will be used in areas of high security risk.

Site or welfare cabins, equipment and lighting will be sited to minimise visual intrusion insofar as is consistent with the safe and efficient operation of the work site. Site lighting will be positioned and directed to reduce glare and nuisance to local residents and businesses. Winter working may require task-specific lighting due to the short day lengths when lighting would be required at the beginning and end of the day. Lighting will be used only when required during working hours for particular activities, unless otherwise stated and will comprise lighting of work areas and access and egress with low level directional lighting which is not towards sensitive receptors.

Implementation will comply with the Institute of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light (ILP, 2011) in so far as it is reasonably practicable and applicable to construction works. When lighting is necessary, appropriate lighting and luminaires will be used to reduce the impact of lighting on ecological resources, including nocturnal species. Lighting will be designed to minimise spillage into surrounding habitats, such as sensitive watercourses, hedgerows and woodland edges to avoid disturbance to wildlife. Guidance to help minimise the impact of artificial lighting on bats (Bat Conservation Trust, 2014) will be followed in so far as it is reasonably practicable and applicable to do so in relation to construction works.

### 2.9.3 Security

The construction compound (including offices as required) will be adequately secured to protect the public and prevent unauthorised entry to or exit from the site. Access to the construction compound will be limited to specified entry points only. Site-specific assessments of the security and trespass risk will be undertaken and appropriate control measures implemented.

### 2.9.4 Welfare

No living accommodation will be permitted on any of the construction sites. Onsite welfare facilities will be provided for all site workers and visitors. Welfare facilities will be kept clean and tidy. Workers' Safety Information Sheets covering work practices and Control of Substances Hazardous to Health (COSHH) safety data sheets will be prominently displayed in welfare cabins. Where portable generators are used to provide electricity for welfare units, industry best practice will be followed to minimise noise and pollution from such generators.

### 2.9.5 Waste Management

Movement of waste (including the reuse or recycling of materials on site) will be recorded in accordance with the Waste (England and Wales) Regulations 2011 (and its amendments) and the arrangements for auditing the actions of other parties in the waste handling chain. Waste will only be transported by appropriately licensed carriers.

The aim will be to minimise the volume of waste generated and maximise resource efficiency by applying the waste hierarchy (reduce – reuse – recycle – energy recovery - responsible disposal). Provision will be made for the recycling of wastes including scrap metal, timber, paper, cardboard, plastics, toner cartridges and batteries, in addition to waste oils from equipment and machinery where local schemes are available. Wastes of different types will be segregated on site using labelled skips, containers or bays indicating the types of waste each may accept and also the European Waste Code. Waste containers shall be in good condition and covered to prevent leachate spillage, waste escaping or ingress of rainwater as appropriate. Waste disposal will be carried out in accordance with the Waste (England and Wales) Regulations 2011 and Waste Management: The Duty of Care – A Code of Practice (1996) or subsequent amendments, as appropriate to current legislation.

Section 14 of the Wildlife and Countryside Act 1981 (as amended) is intended to prevent the release into the wild of certain plants (and animals) which may cause ecological, environmental, or socio-economic harm. Relevant plant species to which this applies are listed on Part II of Schedule 9. Schedule 9 plants, or any part of such a plant that may facilitate establishment in the wild and cause environmental harm, including whole plants, seeds, rhizomes, bulbs, corms and cuttings, or any materials such as soil that is contaminated with such plant or part of such plant, are likely to be classified as controlled waste if it is discarded, or is intended to be discarded. Section 33 of the Environmental Protection Act 1990 states it is an offence to deposit, treat, keep or dispose of controlled waste unless carried out under an environmental permit. Section 34 imposes a duty of care on persons who produce, import, dispose of, or treat controlled wastes. The Wildlife and Countryside Act 1981 (as amended) and Environmental Permitting Regulations 2016 will be complied with.

### 2.9.6 Pest Control

The risk of infestation by pests or vermin will be reduced by implementing appropriate storage and regular collection of putrescible waste. If infestation is found, removal and prevention measures will be implemented promptly in a manner that does not harm local wildlife. Any pest infestation of the construction site will be notified to the local authority as soon as is practicable.

### 2.9.7 Site Traffic Management

Traffic will be managed on site to prevent construction site vehicle incidents. On-site traffic management will be based on the following principles:

- Keeping pedestrians and vehicles apart;
- Minimising vehicle movements;
- Avoiding the need for turning vehicles wherever possible;

- Appropriate use of signage and instructions to all site staff and visitors; and
- Ensuring all vehicle operatives are qualified and competent.

# 3. Air Quality and Emissions

## 3.1 Objective

To reduce as far as practicable the emissions to air pollutants (dust, $PM_{10}$ emissions and road traffic and energy plant emissions) from construction activities and ensure the best practicable means are employed.

## 3.2 Dust and $PM_{10}$ Emissions

A certain amount of dust may be produced during dry weather conditions, but every effort will be made to keep this to a minimum. This will be achieved by visual assessment of dust emissions and application of control measures as appropriate. Precautions will also be taken to minimise the deposit of mud and dust on the public roads from vehicles arriving and leaving site (referred to as 'track out'). When this cannot be avoided, appropriate control measures will be applied.

## 3.3 General Measures

Contractors will apply the following general measures as necessary:

- where there is visible dust generation from working areas and stockpiles, during prolonged periods of dry weather, local spraying with water will be considered, using bowsers or temporary static sprays, as necessary, to suppress dust generation, where this is not likely to lead to other effects as a result of sediment laden runoff;
- erect solid barriers to enclose dusty activities or screen off (to at least as high as any stockpiles on site) near to sensitive receptors. Keep barriers and screens clean using wet methods;
- appropriate speed limit will be enforced on site to minimise dust generation (5-20 mph);
- the use of mechanical road sweepers on public roads around Devonshire Road to clean the roads (of dust and mud deposits) at appropriate intervals;
- ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) where reasonably practicable. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits;
- inspect on-site access tracks for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. Record all inspections of access tracks and any subsequent action in a site log book;
- except for stockpiles with a lifetime of less than 3 months, all stockpiles would be seeded with an appropriate seed mix to the existing habitat; and
- no burning of waste materials to be permitted on site.

### 3.3.1 Site Layout

The site layout will be planned so that machinery and dust-generating activities, such as soil screening, are located as far away from sensitive receptors as practicable. Where practical materials that have a potential to produce dust will be removed from site as soon as reasonably practicable, unless being re-used on site.

### 3.3.2 Storage and Handling of Materials

In relation to storage and handling of material the following measures will be adhered to:

- handling and transfer of soil and dusty materials will be controlled to reduce dust generation. During material handling operations the number of handling operations will be kept to a minimum to ensure that dusty material is not moved or handled unnecessarily;
- sand and other aggregates will be covered, bulk cement and other fine powder materials will be delivered in enclosed tankers and stored with suitable emission control systems to prevent escape of material;
- for smaller supplies of fine powder materials bags will be sealed after use and stored appropriately to prevent dust;
- minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate;
- when loading vehicles in the vicinity of receptors and under dry windy conditions conducive to dust dispersal, material handling methods will be used that minimise the generation of airborne dust. Drop heights will be kept to a minimum. Where there are visible dust issues and under prolonged dry conditions sources will be dampened down; and
- avoid scabbling (roughening of concrete surfaces), if possible.

## 3.4 Road Traffic and Energy Plant Emissions

The following measures will be implemented:

- using low emission vehicles and plant fitted with catalysts, diesel particulate filters or similar devices where practicable;
- ensuring that all vehicles hold current certification and that they comply with the exhaust emission regulations for their class;
- ensuring all vehicles switch off engines when not in use (no idling vehicles); and
- reduce the use of diesel- or petrol-powered generators and using mains electricity or battery powered equipment where practicable.

## 3.5 Monitoring

As set out in Section 2.6 the contractor will undertake inspections, which will include monitoring compliance with the CEMP. Inspections and monitoring will include:

- Check of site works in relation to ecological receptors such as the SSSI and SPAare not likely to be impacted by the works;

- Procedures detailed in the Habitat and Recreation Management Plan and Natterjack Toad Mitigation Plan is being adhered to;

- Agree a representative dust monitoring scheme that is representative of the dust risk at relevant worksites Where possible commence baseline monitoring at least three months or as soon as practicable thereafter before work commences on site;

- Monitoring of dust and recording of inspection results; and

- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

# 4. Noise and Vibration

## 4.1 Objective

To control and limit noise and vibration levels, so far as reasonably practicable, so that noise sensitive receptors are protected from excessive or unnecessary noise and vibration levels arising from construction activities.

## 4.2 Noise and Vibration Control

The proposed hours of work during the construction phase are set out in section 2.2 of this document. Standard best practice construction working methods will be adopted which include:

- all vehicles, plant and equipment associated with the construction works will be properly maintained in good efficient working order, fitted with effective exhaust silencers and operated in such a manner to avoid causing excessive noise emissions;
- low noise generators and quieter plant and equipment will be used, as far as reasonably practicable;
- static plant (such as pumps, compressors and generators) and equipment liable to create noise and/or vibration whilst in operation will, as far as reasonably practicable, be positioned so as to cause minimum noise disturbance, i.e. located away from sensitive receptors;
- audible warning systems, such as vehicle reversing sirens, will normally be set to as low a setting as is compatible with safety requirements; white noise reversing alarms will be used where it is considered safe to do so;
- loading and unloading activities will be located as far a reasonably practicable away from sensitive receptors;
- access tracks will be well maintained during construction works and any potholes will be filled in and any uneven surfaces smoothed out as soon as reasonably practicable;
- plant and equipment will be shut down when not in use;
- drop heights of materials will be minimised; and
- employees, sub-contractors, and persons employed on site will not cause unnecessary noise from engine revving etc.

# 5. Contamination

## 5.1 Objective

To protect people and the environment through the identification and control of contamination, if encountered, during construction.

## 5.2 Preliminary Risk Assessment

In accordance with Planning Condition 15 of the original planning submission, which remains relevant to current planning permission the following schemes must include the following components to deal with the risks associated with contamination on the site, and shall be submitted to and approved, in writing, by the local planning authority:

1) A preliminary risk assessment which has identified:

   a) All previous uses;
   b) Potential contaminants associated with those uses;
   c) A conceptual model of the site indicating sources, pathways and receptors, potentially unacceptable risks arising from contamination of the site.

2) Site investigation scheme, based on 1) to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off-site.

3) The results of the site investigation and detailed risk assessment referred to in 2) and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.

4) A verification plan providing details of the data that will be collected to demonstrate that the works set out in the remediation strategy in 3) are complete and identifying any requirements for longer term monitoring of pollutant linkages, maintenance and arrangement for contingency action.

Following a Phase 1 geo-environmental desk study and a site investigation it has been concluded that as no significant foundations are being dug there would be limited disturbance of any contaminated material (Earth Environmental & Geotechnical Ltd, 2017a&b).

In 2020, and as part of the updated design that was granted planning permission in January 2021, the buildings will again have limited foundation work with raft foundation proposed for the Octagon and Ancillary buildings, and on review of the information held from the 2017 work, it is similarly concluded that there will be little or no disturbance of contaminated material. In 2021, additional ground investigations will be carried out to inform this conclusion, which will need to be confirmed by the structural engineer once the additional investigation works have been undertaken to confirm that raft foundations are suitable.

It should be noted that there was one area where Lead exceeded recommended levels considered safe to human health and Beryllium exceeded levels recommended for area with residential use. In addition, trace levels of asbestos were found in one of the investigation areas local to the communal building (the Octagon). Further, it should also be noted that soil leacheate tests and controlled waters tests in terms of potential for movement of contaminants (given the development) have not been carried out as part of this process.

The proposed scheme is situated in a Radon Affected Area as defined by the Health Protection Agency. Full Radon protection measures shall be determined and implemented in accordance

with BRE BR211 2015 and with approval from the Local Authority.

## 5.3 Control Measures

This CEMP has been prepared and should be used on site to manage environmental impacts during construction. This will include measures for controlling dust and general pollution from construction operations to the surface and groundwater environments and details of the approach to soil management (to ensure protection, conservation and reinstatement of soil material, its physical and chemical properties and functional capacity for its intended end use).

The construction project should be undertaken in line with the relevant Pollution Prevention Guidelines (PPGs) as examples of best practice and the relevant Guidance for Pollution Prevention (GPP) Documents. GPP documents are based on relevant legislation and reflect current good practice. The GPP documents have replaced the withdrawn PPGs, however where no GPP is yet available the information provided within the relevant PPGs is still considered as best practice. All relevant guidance documents have been listed below:

- **PPG1: Understanding your environmental responsibilities**

  An introduction to pollution prevention including containment, waste and emergency planning.

- **GPP2: Above ground oil storage tanks**

  This will advise the correct storage of oils across the Areas for permanent and temporary works, particularly within the proposed SEC and contractor compounds to minimise the risk of causing pollution.

- **GPP5: Works and maintenance in or near water**

  Given the proximity of the River Don to the proposed areas of temporary and permanent works (including) the proposed bridge construction there is the potential to cause pollution, transfer non-native species and can impact on the bed ad banks of a watercourse.

- **PPG 6: Working at construction and demolition sites**

  An overarching document providing best practise principles and examples to be used as guidance on how to prevent pollution.

- **PPG 7: Safe Storage – the safe operation of refuelling facilities**

  Including guidance on small scale liquid refuelling of plant and machinery on site to prevent damage to surface waters, groundwater, land and air.

- **GPP8: Safe storage and disposal of used oils**

  The correct handling of waste during the construction period and during ongoing maintenance, including waste oils, must be safe and secure. Waste minimisation is the preferred option. Waste is regulated under the Duty of Care Regulations. Oil storage is regulated under the Oil Storage Regulations (see GPP2).

- **GPP13: Vehicle washing and cleaning**

  Effluent and run-off from vehicle washing and cleaning can damage the environment and pollute rivers, streams, burns and groundwater. It may be a legal requirement to arrange the collection and disposal of effluent and run off. If vehicle wash areas are required on site these should be managed appropriately.

- **GPP19: Vehicles: Service and Repair**

  The repair and maintenance of machinery and plant must be conducted in an appropriate location and properly managed.

- **PPG 20: Dewatering underground ducts and chambers**

  Protection of controlled waters during any dewatering works to avoid pollution.

- **GPP21: Pollution incident response planning**

  Production of a plan will help to prevent or reduce environmental damage of such an incident occurs. A template is available to assist the production.

- **PPG 26: Safe Storage – drums and intermediate bulk containers (IBCs)**

  Good practice guidance for the safe storing and handling of small containers and IBCs to reduce the risk of pollution from sites to land, surface waters and ground water.

Based on available soil contamination test results there is a low-moderate potential risk from soil contamination to construction workers, ground workers and members of the public. The following measures are to be followed:

- Appropriate industry best practice and published guidelines will be followed to reduce pollutant and sediment movement during construction.

- EA guidance on the assessment of risks from potentially contaminated land will be followed in line with Contaminated Land Report 11 (CLR11);

- All construction activities shall adhere to the best practices outlined in British Standards Institution code of practice for noise and vibration control on construction and open sites (Part 1 and Part 2) BS 5228.

- All construction equipment will be maintained in good working order and any associated noise attenuation measures such as engine casings and exhaust silencers shall remain fitted at all times.

- The site will be closed to all non-site staff. Clear signage and barriers will direct all non-site staff or visitors to the site office in the first instance to undertake the appropriate inductions before entering site;

- A Construction Traffic Management Plan will be prepared to secure appropriate

  routing of construction traffic;

- Construction works are required to wear appropriate PPE;

- Site health and safety plans are to be developed and followed;

- On site washing facilities and welfare should be available;
- Construction will not be undertaken during extreme wet weather where erosion of sediments and risk from flooding may increase and where there is a risk of structural damage to soils during handling;
- All fuel and chemical storage will comply with relevant storage regulations. Fuels, lubricants, solvents etc. will be stored in appropriately bunded areas and a range of other pollution prevention measures taken;
- Suitable precautions will be taken to prevent spillages from equipment containing small quantities of hazardous substances;
- Groundwork contractors must develop a soil management plan which includes methods dealing with known areas of contamination and any unanticipated soil contamination;
- Importation of 300mm of clean topsoil within areas of soft landscaping;
- Deep excavations may require de-watering. Water pumped or removed from excavations will be passed through a silt-separator tank or equivalent, and discharge to ground. If there was a requirement to discharge to surface water a permit would be sought from the EA prior to undertaking such operations;
- Asbestos was encountered during the site investigation; therefore care should be taken during groundworks. Work will stop if any previously unidentified contamination is encountered until the nature and concentration of the contaminant(s) are determined and appropriate risk control measures implemented;
- Clay bungs or other vertical barriers will be constructed within trench excavations where deemed necessary to prevent the creation of preferential drainage pathways or to prevent the creation of preferential migration pathways for contaminants (where suspected);
- Excavated material comprising the subsoil, rock or made ground, will be stored separately to prevent mixing. Excavated material will be stored appropriately and away from nearby surface water features. Any potentially contaminated soil will be stored on an impermeable surface and covered to reduce leachate generation and potential migration to surface waters;
- If it is not possible to re-use arisings on site (if suitable), waste will be removed from site to an appropriately licensed waste disposal facility. Appropriate hazardous waste category screening should be undertaken prior to collection from site;
- Measures contained in relevant Defra and Environment Agency best practice guidance on the control and removal of invasive weed species will be implemented; and
- The main works contractor will cease work and advise the Animal Health Regional Office should animal bones be discovered that indicate a potential burial site.

## 5.4 Remediation Plan

Prior to this CEMP being completed it has been concluded by As if By Magic, in agreement with their contamination specialists (Earth Environmental Ltd) in 2018 (original planning permission consent) and subsequently by MPG Consulting (and their consultants) in 2021 that due to the limited risk of disturbing contaminated material, a remediation plan or verification report, as detailed in Planning Condition 15 (Points 3 and 4 above) are not thought necessary given the scale of the development.

The desk report and the site investigation scheme (Earth Environmental Ltd (EE), 2017a&b) and additional surveys in 2021 are sufficient in addressing this condition. No remediation plan is required. The CEMP at present does not consider contamination issues further.

Once the additional ground surveys are completed the CEMP will be updated to reflect those findings and include any changes to the methodology presented here.

# 6. Water Environment

## 6.1 Objective

To implement working methods to protect surface and groundwater resources from pollution and other adverse impacts including changes to water levels, flows and quality.

## 6.2 Introduction

Within 500 m of the site, one culvert and two secondary rivers have been identified (see drawing 6E on EE Site Investigation and Report Appendix 1A, 2017). A Strategy Report and a Management & Maintenance Plan will be completed by MPG Consulting and approved prior to works starting. The CEMP will be updated as required, but the Plan will give further detail to the flowing sections, specifically to the drainage strategy (Section 6.4).

A range of techniques will be employed prior to and during construction to protect the water environment and which are set out in the following sections. Works will also be carried out in strict accordance with the requirements of the relevant Environmental Permitting Regulations. The following three general principles will be adhered to:

- prevent siltation and contamination of existing drainage systems and natural water environments;
- ensure that surface water discharged to the water environment from construction areas does not exceed pre-development runoff rates (subject to a minimum rate of 5 litres per second to minimise the risk of blockage of outfall structures); and
- ensure the routes of existing flows (groundwater, surface and watercourse flows) are not impacted.

## 6.3 Pollution Control

Pollution prevention measures will be adopted, where required, in accordance with the existing Pollution Prevention Guidelines (PPGs) where still relevant and the new GPPs including:

- PPG1: General Guide to the Prevention of Pollution (2013);
- PPG3: Use and design of oil separators in surface water drainage systems (2006);
- PPG6: Working at Demolition and Construction Sites (2012);
- PPG7: Safe Storage – The safe operation of Refuelling Facilities (2011);
- GPP13: Vehicle washing and cleaning (2017); and
- Getting Your Site Right: Industrial and Commercial Pollution Prevention.

In addition to complying with the general committed measures reported in this CEMP, as set out in Section 2.7 a specific Pollution Incident Control Plan (PICP) will be prepared and implemented. It will include, or cross-refer to, Environmental Emergency and Contingency Procedures. The PICP will be in place prior to the commencement of works, setting out procedures for pollution control and emergency response measures in the event of accidental spillage or leakage. Generic mitigation measures within the Pollution Incident Control Plan will include (as necessary):

- fuels and oils at the construction compounds, on site and at work areas to be

managed in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and in accordance with the GPP2 Above Ground Oil Storage Tanks;

- fuel to be stored within secure bunded fuel tanks with an impermeable bund capacity of 110% of the tank volume;
- chemicals to be stored in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations i.e. in a secure COSHH Store including an impermeable storage area with secondary containment for spill management;
- suitable quantities of pollution control equipment such as sorbent pads, sorbent granules, booms or similar material to be readily available at the temporary construction compounds, on site and at work areas at all times and to be regularly checked;
- spillage kits will be available and staff will be trained in their use. The kits will be

  checked regularly and replaced after an event;
- "Emergency Grab Packs" or spill kits to be carried in site vehicles and mobile plant and larger kits with fuel bowsers and emergency vehicles if used;
- emergency communications (mobile phones or radios) to be carried with relevant personnel;
- all plant and equipment to be inspected before use on site and maintenance and servicing records checked;
- all static plant, such as pumps and generators, to have integral driptrays (be self bunded) where possible or as a second preference external drip trays that are to be checked daily;
- mobile plant are to be maintained in good working order. Larger items of plant such as excavators to undergo daily recorded inspections by a competent person (usually the operator) for any defects such as leaking hoses. Where defects are evident the item of plant shall be removed from site immediately and serviced or replaced as soon as possible;
- where vehicle wash facilities are provided, no chemicals or grit will be used and silt traps/oil interceptors will be installed in accordance with PPG6 Working at Construction and Demolition Sites and GPP13 Vehicle Washing and Cleaning;
- water from wheel washing facilities and concrete wash down areas will be contained and not allowed to soak into surrounding ground. Used water will be channelled toa containment tank for disposal off site or to the foul sewer (once treated where required).
- appropriate method statements will be in place prior to undertaking maintenance of vehicles at designated areas in the temporary construction compounds only;
- machinery which remains on site overnight will be kept more than 10 m from drains/watercourses or waterbodies, to reduce any risk of contamination;

## 6.4 Drainage Management

Prior to the commencement of works a surface water drainage scheme and plan and a detailed drainage strategy will be prepared by MPG Consulting. These plans will specify measures to minimise the impact of the construction on existing drainage systems and surface water run-off. This will be developed following detailed drainage investigations and hydrological assessments, which will determine potential location specific risks in relation to the water and natural environment and identify appropriate control measures to reduce the risks. A phased approach may be taken to the development of the drainage strategy to reflect the phasing of the construction programme and the different elements of the scheme.

### 6.4.1 Drainage Design

It is the policy for all surface water systems for development sites to be designed using SuDS (Sustainable Drainage Systems) wherever possible. It is therefore proposed to adopt appropriate SuDS throughout the development wherever possible with specific target areas being:

- disposal of surface water at source;
- no increase and ideally a reduction in peak flows to watercourse or sewer, thereby not increasing flood risk downstream of connection;
- no increase and ideally a reduction in total volume of run-off to watercourse or sewer, thereby not increasing flood risk downstream of connection;
- improvement of water quality arriving at watercourse, thereby reducing potential for pollution downstream of the connection point;
- reduction of potable water demand through possible rainwater recycling; and
- replication of natural drainage patterns, particularly groundwater recharge.

### 6.4.2 Surface Water Drainage Plan – Site Specific

A finalised surface water drainage plan shall be submitted and agreed in writing by the Local Planning Authority. The drainage strategy will specify appropriate design and control measures. These measures will be designed to ensure no increase from the existing runoff rates. In the first instance ground conditions on site will be investigated to establish soil characteristics for the design of suitable SuDS features. Reduced run-off rates from the site may be affected by SuDS methods such as:

- specification of sympathetic broad-leafed species in planting with high rainfall interception and water demand;
- disposal via infiltration structures on site;
- encouraging run-off to landscaped areas;
- disposal of run-off through porous pavings; and
- appropriate surface water re-use on site.

The following site-specific measures would be implemented on site:

- design of the drainage scheme to incorporate silt traps and oil interceptors as required to reduce the sediment and pollutant load of the surface water discharge to a level which would be highly unlikely to cause a significant negative effect on any qualifying features of the SAC (A Habitat Regulations Assessment (HRA) has been carried out for the scheme and proposed mitigation measures (as detailed in the CEMP) and scheme design was considered satisfactory to ensure no impact on the SPA);

- drain grids shall not be used in the drainage plan due to the potential for natterjack toads to become trapped in them;

- the drainage scheme will limit discharges of treated and surface water drainage to normal greenfield rates;

- infiltration should be the preferred method of surface water treatment for the site. If infiltration is not possible, a hybrid system should be considered.

### 6.4.3 Inspections

An inspection programme will be developed and implemented prior to installing any drainage systems and routine cleaning will be carried out throughout construction. If on inspection any blockages are identified these will be removed.

# 7. Biosecurity

## 7.1 Objective

To avoid the spread of invasive non-native species (INNS), pests and pathogens during construction. In summary, the impacted invasive species are cotoneaster species and Japanese knotweed *Reynoutria japonica* on the site. Japanese Rose *Rosa rugosa* is know locally but is not directly impacted by the works at present.

## 7.2 Invasive Non-Native Species Method Statement

Best practice methodology will be followed when removing invasive non-native species (INNS). The following general techniques will be employed as required to avoid the spread of INNS, pests and pathogens during construction and ensure legal compliance:

- pre-construction surveys of INNS have been carried out to detect extent and new occurrences and spread of known areas within the Scheme boundary;
- INNS within the development footprint that are not directly impacted but are in areas which will potentially be disturbed by construction activity, will be demarcated, and fenced off where practical. Demarcation may include an exclusion buffer a set distance from visible above ground portions of the INNS. The distance will be established and will be species specific – stand-off distances typically range from 2m to 7m. The exclusion area will be declared a contaminated area and will be 'out of bounds'. Signage will show relevant information to ensure that all workers are aware that it is a restricted area;
- if work is required within affected areas (including the buffer zone), including works to manage INNS present in such areas, then biosecurity measures will be set up within the exclusion zone, the specifics of which will be species specific and set out within a site-specific INNS Management Plan. These measures may include boot, clothing, and tool wash facilities for use by all operatives before leaving the exclusion zone. A jet wash facility or tough brushes will be required to clean the wheels and other parts of plant and machinery which may have come into contact with any part of the INNS in question. Operatives will be trained in the correct use of the cleaning facilities;
- rubber wheeled, or rubber tracked vehicles must be used during operations in contaminated areas to minimise any possible contamination from INNS seeds or fragments and propagules being trapped in metal tracks of machines;
- repeated (at least monthly), monitoring of affected areas will be required throughout the construction period to identify any areas of re-grow or new areas of INNS that may require further eradication works or isolating. Monitoring will also determine if the exclusion buffer areas remain effective;
- disposal of disinfectant used during the scheme would be undertaken in accordance with standard procedures;
- disposal of disinfectant used during the proposed scheme would be undertaken in accordance with standard procedures; and
- all washing-down of vehicles (including wheel washing) and equipment will take place in designated areas and wash water will be prevented from passing untreated into

watercourses and groundwater in accordance with the Environment Agency's GPP 13.

Further detail is found in the INNS Management Plan, that should be read in conjunction with the CEMP.

## 7.3 Summary of Site Specific Invasive Non-Native Species Mitigation Measures

### 7.3.1 General Measures

Landscaping proposals should include locally sourced and disease-free native species appropriate to the locality. Proposals should not include the importation of topsoil to the site.

### 7.3.2 Cotoneaster

Cotoneaster has been identified on site. For more information, please refer to the Invasive Non-Native Weeds Management Plan (AIBM-E, 2021). Cotoneaster (non-native invasive species under the Wildlife and Countryside Act 1981 (as amended)) and any other identified invasive plant species on site are to be removed as soon as possible. Best practice methodology will be followed when removing Cotoneaster; shrubs will be treated over a two-year period. Environet Ltd have been commissioned to do this work during 2021 and 2022.

### 7.3.3 Japanese Rose

Japanese rose has been identified on site, although is not directly impacted by the works. However, treatment may be undertaken by cutting, herbicide application or excavation of the plants and root rhizome system if it is considered necessary. If this is deemed the case during construction the seedbank must also be considered. Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the EcoW if they have suitable experience.

All material containing Japanese rose must be handled and disposed of in a way which does not result in the potential for further spread. Soils containing Japanese rose would be disposed of following the appropriate duty of care, as required by law.

### 7.3.4 Japanese Knotweed

Japanese knotweed is not on the main site but is found in the car park area and therefore the site operatives should be aware of this species and the issues surrounding it. A method statement has been completed as part of the INNS Plan to ensure this species is managed in-line with legislation.

Again, Environet have been commissioned to remove the stands of Japanese Knotweed from the site. This will be carried out using a specific method (Xtract), which removes the above ground stems and rhizome from the soil. The soil is then placed back in the location from where it was removed, and the stems and rhizome will be taken safely to an Environet office and landholding to be incinerated.

Any operations involving Japanese knotweed would be controlled as recommended by the Environment Agency guide – Managing Japanese Knotweed on Development Sites: The Knotweed Code of Practice (version 3, amended 2013) and the Welsh Government guide - Control of Japanese Knotweed in Construction and Landscape Contracts Model specification (2011).

### 7.3.5 Additional INNS located on site

Appendix B outlines INNS that have not been found on site during Phase 1 Habitat Surveys. Should any of the INNS listed in Appendix B be identified on site, the control and management measures listed in Appendix B would be adheredto.

## 7.4 Surveys and Monitoring

INNS will only be treated and/or eradicated within the working areas. Site checks will be made throughout the construction period to identify any regrowth or new areas of INNS that may require further eradication works or isolating.

Regular checks of appropriate information sources would be undertaken to identify occurrences and imposed restrictions with regards to diseases such as avian flu. All restrictions must be adhered to and may include restricted movements within prevention zones.

Contractors will produce Biosecurity Risk Assessments incorporating a means of reviewing for compliance. These are to include methods for prevention and monitoring the spread of INNS and diseases.

# 8. Biodiversity and Nature Conservation

## 8.1 Objective

To ensure appropriate measures are adopted to protect habitats and species in accordance with good practice and statutory provisions/legislative requirements.

## 8.2 Background Information

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. Duddon Estuary has also been designated as a Special Protection Area (SPA) and Ramsar Site for its international assemblage of bird populations. The proposed development lies mainly outside this designation but adjacent to the Ramsar and SPA boundaries. However, a section of less than 0.1 hectare lies within the designated site.

The Morecambe Bay SSSI (designated for its internationally important populations of breeding and wintering birds, including over 110,000 wintering waders, diverse salt marsh habitats and geological formations) is situated less than 200m north of the site. Morecambe Bay has also been designated as a Special Area of Conservation (SAC), SPA and Ramsar Site, again for its internationally important assemblage of bird populations.

The Iron Works Local Nature Reserve (LNR) abuts the northern boundary of the site and is known to support natterjack toads and an important assemblage of breeding (including skylark) and over wintering bird species.

Statutory protected sites, priority habitat, amphibians (specifically natterjack toads *Epidalea calamita*) and reptiles are the main ecological issues of potential relevance at this site as confirmed through an Extended Phase 1 Habitat Survey undertaken by White Young Green (WYG) in 2015, which was followed up by an ecological walkover survey by AECOM in June 2018 and further surveys and reporting in 2018 and 2020 (AECOM 2019 and 2020). In addition, a breeding bird report 2013, a reptile survey 2013 and 2018, natterjack toad survey 2013 and an amphibian survey in 2018 and 2021 have provided background information to the site. These reports are detailed in the Habitat and Recreation Management Plan (AIBM-E 2021) and should be read in conjunction with the CEMP.

In terms of the SSSI status, Natural England has no objection to the plans and overall, the site meets none of the criteria associated with the designation (birds, habitats - sand dunes and saltmarsh - or natterjack toads). However, the site does contain priority habitat in the form of Open Mosaic Habitats on Previously Developed Land.

A Habitat and Recreation Management Plan (AIBM-E, 2021) has been written for the development, which includes both construction and operational mitigation to be implemented during the scheme. This is the main document for ensuring nature conservation interests are protected and enhanced and should be adhered to both during construction and for the 5-year maintenance period post construction.

In ecological terms the minimal loss of the habitats on the site will have limited consequences for wildlife. Any indirect impacts to on-site and adjacent habitats will be temporary and minor and can be prevented or reduced during the proposed works through the designation of areas for the safe storage of materials, the scheduling of appropriate site briefings, and the protection of any adjacent / retained habitats.

The following is a summary of general measures to ensure protection of nature conservation interests on and local to the scheme but where there is any doubt in terms of procedures the Habitat and Recreation Management Plan will take precedence.

## 8.3 Summary of General Biodiversity and Nature Conservation Control Measures

Method Statements would be in place during construction to ensure compliance with biodiversity commitments and requirements. The method statement should include the following:

- timing of works;
- destructive searching of potential refugia by an appropriately licensed ecologist;
- staged vegetation clearance; and
- arrangements for translocating any animals found during the works to suitable habitat.

In addition, an Ecological Clerk of Works (ECoW) role will be maintained contracted for the duration of the works. The ECoW will ensure the following:

- Supervision of vegetation clearance and construction works as required (including checking for nesting birds in the breeding season);
- Giving Toolbox Talks to construction contractors and site staff;
- Site checks on a regular basis (at least monthly during construction)
- Advising on works to enable reduction in impact of sensitive ecological receptors
- Liaison with regulators such as Natural England as required

The ECoW will not be present on site every day during construction but will go to site as and when required to do toolbox talks and site supervision along with regular site checks.

### 8.3.1 Protection of Habitats

The following general control measures would be followed:

- minimising working areas and vegetation clearance within designated sites and areas of protected habitat to only that essential for works;
- there are no ponds on site, although there is an ephemeral waterbody in the centre of the western area of the scheme. This will be enhanced as a waterbody as an attenuation pond along with areas to encourage use by natterjack toads once the main development is complete.
- demarcation of non-working areas within designated sites and areas of protected habitat and close to sensitive species to protect habitat; and
- use appropriate material for access tracks to ensure no lasting change in soil type.

### 8.3.2 Protection of Species

The following general control measures would be implemented:

- tree clearance works for trees with suitable features for bat roosts, would be supervised and/or monitored bat licence appointed person, where appropriate;
- obvious mammal trails would be kept clear of obstructions where possible;
- all areas to be affected will be checked for evidence of nesting birds a maximum of 24 hrs prior to the vegetation removal or tree felling works taking place;
- If an active bird's 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. Asuitable species dependent buffer will need to be implemented;
- A second nesting bird check would then be undertaken to ensure the tree or vegetation does not contain any further active nests prior to felling or removal works taking place;
- where possible, work will be phased so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March-September inclusive for most bird species). This will ensure compliance with the Wildlife and Countryside Act 1981 (as amended). Where this timing cannot be complied with,
- above ground level vegetation clearance could be undertaken where suitable methods are available and under the supervision of an ECoW;
- any animals found should be captured and released off-site. Site preparation between November and February should consider the potential presence of hibernating animals; and
- a reptile translocation programme will be implemented prior to the start of the development (see below for further detail)

## 8.4 Summary of Site-specific Biodiversity and Nature Conservation Control Measures

Along with measures associated with the Habitat and Recreation Management Plan (AIBM, 2021) all of the mitigation measures identified in Assessment of Likely Significant Effects" (Gibson 2017 & 2020 update) shall be implemented before the development is brought into use. Those measures are outlined below, for a full description of these measures please refer to the document Assessment of Likely Significant Effects (Gibson, 2017 & 2021).

### 8.4.1 Toolbox Talk

Construction workers are to be provided with a 'Toolbox Talk' presentation prior to commencing work on site so that they are made aware of the ecological issues relating to the site. This talk would be incorporated into the general Health and Safety briefing when construction workers first visit the site.

This talk will detail the important ecological features on site, sensitivity of the surrounding habitats, purpose of the Habitat and Recreation Management Plan and it will be highlighted that no waste, including wastewater, is to be deposited either on site or in the surrounding area.

The induction will include advice on best practice regarding all ecological issues in advance of any works commencing and would include the following recommendations to reduce the risk of harming or disturbing species during the construction phase:

- emergency procedure: In the event that a protected/notable species is found, or, evidence of such species or its resting/nesting place is identified during site clearance, then works in that area must cease until further advice has been sought from an ecologist;

- works at night: where possible works after dark will be avoided to minimise disturbance and the impact of noise and light pollution to wildlife foraging/commuting nearby to the site. When works after dark cannot be avoided, any lighting would only be used where necessary for safe working, and be designed to be sympathetic by minimising light spill on the habitats adjacent to the works area;

- daily checks of any excavations would be made by contractors prior to commencing work to ensure that no foxes, hedgehogs or other animals have become trapped in excavations. Should a trapped protected/notable species be found within the works, an ecologist would be immediately contacted for advice;

- consideration would be given to the location of any gravel storage, or piles of materials that may create mounds suitable for digging (e.g. burrow creation). Any such piles would be checked on a daily basis by contractor staff to ensure that no digging/burrowing activity has taken place. If the mounds are to be in place overnight, the safest approach may be to temporarily fence them to ensure that animals cannot access the material; and

- if sick or injured animals are found, then the animal should be admitted to a wildlife hospital or centre for relocation.

Before any work commences a site meeting would be undertaken with an agreed suitably qualified landscape representative of the LPA to identify, record and implement the woodland/ vegetation protection areas.

### 8.4.2 Pollution Control

As detailed above standard practices will be employed to ensure little or no impact on environmental receptors on or local to the site. The measures set out within this document would ensure secondary effects on biodiversity would be managed. For example, the pollution prevention measures outlined in Section 6.3 of this report would be appropriate in managing pollution effects on ecological receptors.

### 8.4.3 Tree Protection

During construction, the root protection areas of the principal trees located along the southern boundary would be demarcated with Heras fencing or equivalent.

### 8.4.4 Natterjack Toads

Site clearance and initial groundworks would be undertaken to a non-licensed method statement, including ecological supervision of works, to protect natterjack toads. In the event of a natterjack toad being discovered on the site, a natterjack toad licensed ecologist or representative from Natural England should be contacted immediately for advice and all further work halted. Mitigation for natterjacks will involve evacuation of natterjacks from the land under license from Natural England. A European Protected Species license will be required from Natural England for any natterjack toad mitigation if they are found on site prior to or during construction.

A Natterjack Toad Mitigation Plan (AIBM-E 2021) will be submitted and agreed, in writing, by the Local Planning Authority, to ensure provisions are made to safeguard and the natterjack toad population and enhance habitat during construction works, which are not repeated here. Mitigation for natterjack toads would need to be considered in conjunction with reptile mitigation plans as both will involve permanent and temporary one-way exclusion fencing around the construction areas.

### 8.4.5 Reptiles

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 with temporary amphibian/reptile fencing, 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 and subsequent management.

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. To ensure the protection of reptiles, site clearance and initial groundworks would be undertaken to a method statement. Winter cutting or mowing should avoid creating large areas of very short sward vegetation around hibernation sites, where reptiles need some cover on emergence in the spring.

### 8.4.6 Other species (mitigation)

As discussed in the Habitat and Recreation Management Plan, provision is made for putting up bat and bird boxes on completion of the development. This will be carried out as per the detail in the Habitat and Recreation Management Plan (AIBM-E, 2021).

### 8.4.7 Lighting and Ecology

A wildlife sensitive lighting scheme is recommended to reduce potential impacts on bats and other nocturnal wildlife. A lighting scheme will be produced prior to construction starting as part of the Planning Conditions. However, it is anticipated that there will be minimal requirements to light this development, but the recommendations included in Section 6.5 of the Habitat and Recreation Management Plan (AIBM-E, 2021) should be a consideration when developing the lighting scheme and the CEMP will be updated as required once this becomes available.

# 9. References

AECOM (2019). Ecology Progress Report for 2018. As If By Magic Ltd.

AECOM (2020). Ecology Progress Report for 2020. As If By Magic Ltd.

AIBM-E (2021). Natterjack Toad Mitigation Plan, Devonshire Road, Millom. As if By Magic Ltd.

AIBM-E (2021). Habitat and Recreation Management Plan, Devonshire Road, Millom. As If By Magic Ltd.

Bat Conservation Trust (2014). Artificial Lighting. Available at: http://www.bats.org.uk/pages/bats_and_lighting.html [Last Accessed: 12/10/2018].

Earth Environmental & Geotechnical Ltd (2017a). Phase 1 GeoEnvironmental Investigation, Old Iron Works, Devonshire Road, Millom. Cestria Partnership.

Earth Environmental & Geotechnical Ltd (2017b). Phase 2 GeoEnvironmental Investigation, Old Iron Works, Devonshire Road, Millom. Cestria Partnership.

Gibson, L. Consulting (2017) Duddon Estuary SPA, Morecambe Bay and Duddon Estuary pSPA and Morecambe Bay SAC Assessment of Likely Significant Effect (ALSE) (Regulation 61) for The Old Iron Works, Devonshire Road, Millom.

Gibson, L. Consulting (2020) Duddon Estuary SPA, Morecambe Bay and Duddon Estuary pSPA and Morecambe Bay SAC Assessment of Likely Significant Effect (ALSE) (Regulation 61) for The Old Iron Works, Devonshire Road, Millom.

Institute of Lighting Professionals (2011). Guidance Notes for the Reduction of Obtrusive Light. Available at: http://www.planapps.torfaen.gov.uk/Llanfrechfa/Documents/Part1web/EIAV2/Appendix%20 1 4.pdf [Last Accessed: 12/10/2018].

White Young Green (2016). Habitat Management Plan. Devonshire Road, Millom. Sally Field.

White Young Green (2015). Extended Phase 1 Habitat Report, Devonshire Road, Millom. Sally Field.

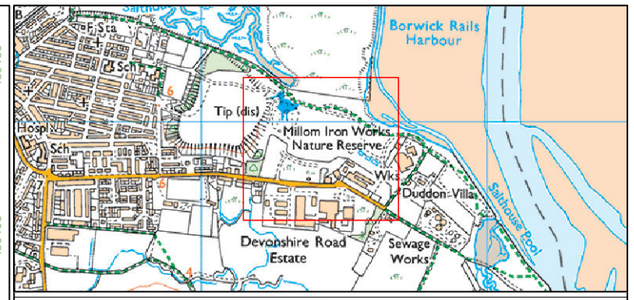
White Young Green (2013). Breeding Bird Report, Devonshire Road, Millom. Homes and Community Agency

White Young Green (2013). Reptile Survey Report, Devonshire Road, Millom. Homes and Community Agency

White Young Green (2013). Natterjack Toad Survey Report, Devonshire Road, Millom. Homes and Community Agency

# 10. Appendices

## Appendix A Figures


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 1: 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

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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.

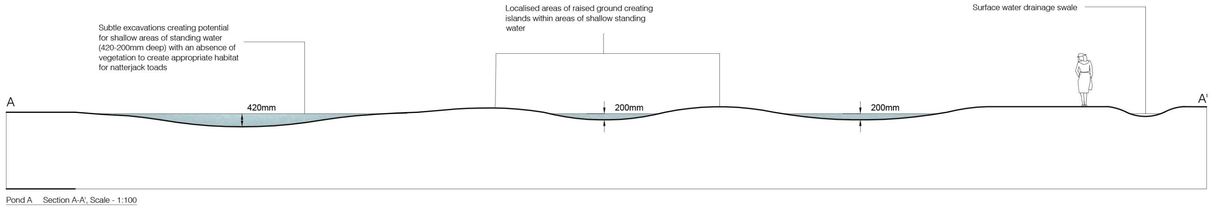
Pond Earthworks:
Rubbish, concrete, metal, glass and decayed vegetation are to be removed and disposed of off-site.
Re-graded areas are to be feathered into the existing levels using subsoil within the upper 300mm (min).
Adjacent areas which may have been disturbed should be reinstated in accordance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

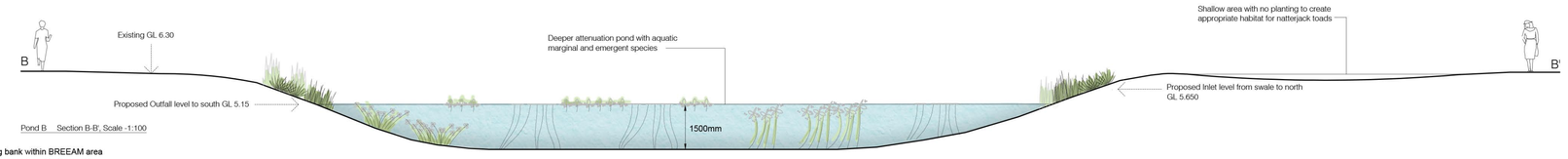
Ornamental Hedging & Trees
Hedging - Griselinia plants for hedgerow to eastern car park should be consistent in species, cultivar and clone to ensure a uniform hedge. Hedgerow to be planted on a triple staggered row. Plants and rows to be 50cm apart with trenches wide enough to accommodate the full spread 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



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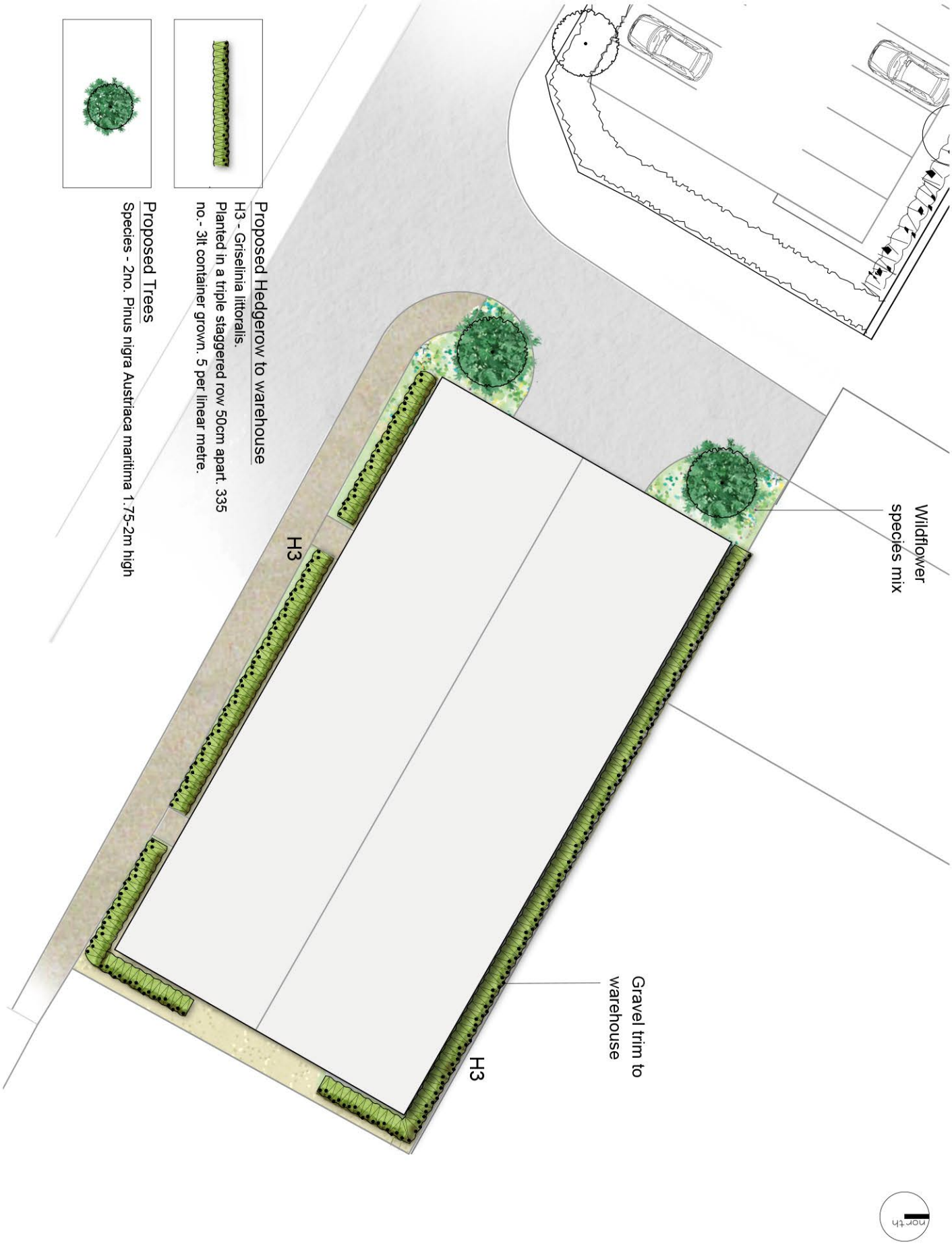
BARNES WALKER

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 Summary of INNS General Mitigation Measures

The following INNS have not been found on site during phase 1 Habitat Surveys. However, if the below are found on site, the control and management measures described within this section should be adhered to.

**Indian Balsam (*Impatiens glandulifera*)**
Where timing permits Indian balsam will be controlled by herbicide treatment orhand pulled if the area is small enough prior to flowering and seeding to avoid further spread, this can be done between the start of the growing season (usually May) and July, prior to when seed pods have formed. This may be required to be repeated as necessary each year during construction where the plant reappears from seeds within the soil. Longer would be required should the plant reappear from contamination from an outside seed source.

Where removal is required, Indian balsam excavation works will be supervised by the ECoW – the top 200 mm or deeper where appropriate, from the surface will be excavated to remove all plant material and seed bank.

**Giant Rhubarb (*Gunnera manicata*)**
Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience – all material containing giant rhubarb must be handled and disposed of in a way which does not result in the potential for further spread including seed bank, and fragments of the rhizomes.

**American Mink (*Neovison vison*)**
Operations should be carried out in a way to avoid the capture/trapping of mink. All efforts should be made to prevent them being accidentally trapped on site. Any mink accidentally caught/trapped should be notified immediately to the ECoW or the stated contact for removal. Works should cease in the immediate vicinity if the mink appears distressed until it can be removed. Alternatively, if mink do become trapped, they must be taken to a vet for humane disposal in accordance with the INNSMS. An animal cage will be kept at a site office for this purpose

**New Zealand Pigmyweed (*Crassula helmsii*)**
All operations involving New Zealand pigmyweed will be controlled as recommended by the Environment Agency guide – Managing Invasive Non-native Species (2010).

Where removal is required, New Zealand pigmyweed control works will be supervised by the ECoW – all material containing New Zealand pigmyweed must be handled and disposed of in a way which does not result in the potential for further spread.

**Grey Squirrel (*Sciurus carolinensis*)**
Operations should be carried out in a way to avoid the capture/trapping of grey squirrels and spread of Squirrel parapoxvirus. All efforts should be made to prevent them being accidentally trapped on site. Any grey squirrels accidentally caught/trapped should be notified immediately to the ECoW or the stated contact for removal. Works should cease in the immediate vicinity if the squirrel appears distressed until it can be removed. Alternatively, if grey squirrels do become trapped, they must be taken to a vet for humane disposal in accordance with the INNSMS following consultation the ECoW. An animal cage will be kept at a site office for this purpose.

Active grey squirrel dreys should also be notified to the ECoW/stated contact and should not be removed by contractors.

**Water Fern (*Azolla filiculoides*)**
*Azolla filiculoides* is probably the only species of floating fern found in Britain. It reproduces both vegetatively and by producing spores. Biological control using the azolla weevil can be the most effective form of control; however, Glyphosate can be used to treat Azolla. Such treatments are best carried out when a gentle wind or currents have collected floating fronds together at suitable points.

To prevent spread machinery used in and around watercourses known to contain *Azolla* be thoroughly inspected and sprayed down with water before moving to another area. Where removal is required, *Azolla* control works will be supervised by the ECoW, and taking into consideration the presence of species such as GCN – all material containing *Azolla* must be handled and disposed of in a way which does not result in the potential for further spread.

**Rhododendron (*Rhododendron ponticum*)**
Treatment can be by physical clearance or chemical control. Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience. All material containing rhododendron must be handled and disposed of in a way which does not result in the potential for further spread. Eradication can take several years to be achieved depending on the size of the seed bank and root system.

**Montbretia (*Crocosmia* X *crocosmiiflora*)**
Montbretia spreads by rhizomes/corms and rarely by seed. Plants can be dug out but it is essential that all the plant material and corms are removed, which occur in the top 20 cm. It is essential that all rhizome/corms are removed as a new plant can grow from a single corm. Excavated material should be removed from site to licensed landfill or dealt with on site in waste management areas or buried at a depth no less than 1 m. Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience. The most effective time for the removal of Montbretia is just before full flowering occurs around spring and summer and digging out corms when the soil is wet.