Octagon, Millom

Construction Environmental Management Plan (CEMP)

As if By Magic Ltd

Project Number: 60567903

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Quality information

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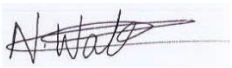		
Nicole Walsh	Nigel Pilkington	Nigel Pilkington

Revision History

Revision	Revision date	Details	Authorized	Name	Position

Distribution List

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Prepared for:
Mr Gavin Towers
As If By Magic (AIBM) Ltd
Millway
Devonshire Road
Millom
Cumbria
LA18 4JP

Prepared by:

Nicole Walsh
Tel: 0161 927 8296
E: nicole.walsh@aecom.com

AECOM Infrastructure & Environment UK Limited
Tanyard Suite, Fleswick Court
Westlakes Science & Technology Park
Moor Row CA24 3HX
United Kingdom

aecom.com

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1. Introduction

1.1 The Scheme

Cestria Partnership (on behalf of As if By Magic Ltd) has received planning permission for a sanctuary/retreat development at the former Ironworks site on Devonshire Road in Millom. The sanctuary/retreat will comprise residential cabins; communal toilet facilities; a building for communal assembly with a restaurant and a place of residence for the proprietor. The scheme includes associated landscaping and a car parking facility, located to the east of the application site.

The site is located adjacent to the Ironworks Local Nature Reserve (LNR) and falls within the Duddon Estuary Site of Special Scientific Interest (SSSI). In addition, a small area of the site falls within the Duddon Estuary Special Protection Area (SPA) And Ramsar Site designated for its international bird populations. Given the site's location and sensitive designation, design measures have been a key tool in reducing the potential for environmental effects as a result of the proposed scheme. For example, 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 Construction Environmental Management Plan (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 proposed 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 a number of other plans and strategies, as listed in Table 7.4.1, 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 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)	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 (EMS)

As if By Magic, Cestria Partnership 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 CO_2 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 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 1.1;
- 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, Cestria Partnership 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 Cestria Partnership 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) 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 licences. 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.

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

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 proposed 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 Manager or 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, the marine 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;
- Cestria Partnership 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 Cestria Partnership 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 6.4 of the Habitat Management Plan (WYG, 2016 and Appendix B) 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 through the use of 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 rain water 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 as a result of 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;
- with the exception of 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 SPA are not likely to be impacted by the works;

- Procedures detailed in the Habitat 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, subcontractors 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 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 in order 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.

A phase 1 geo-environmental desk study and a site investigation of the site has been conducted and concluded that as no significant foundations are being dug there would be limited disturbance of any contaminated material (Earth Environmental & Geotechnical Ltd, 2017a&b). Although 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) and restaurant. 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 Cestria Partnership and As if By Magic, in agreement with their contamination specialists (Earth Environmental Ltd) 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 & Geotechnical Ltd, 2017a&b) would be sufficient in addressing this condition. Apart from the need to import 300mm of clean topsoil within areas of soil landscaping, no remediation plan is required. The CEMP therefore does not consider contamination issues further.

However, since the granting of planning permission, changes to the works may include the need to dig deeper foundations for the Octagon building including the potential for underground heating platform. There may also be the potential to use a deep pile system for the heating system and the need to bury a water tank system. If this is proposed, a reassessment of impacts on contaminated material will be required and it is likely that a remediation plan or verification report would need to be produced.

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 Proposed site, one culvert and two secondary rivers have been identified, as illustrated in drawing 6E on EE Appendix 1A.

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 in order 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 to a 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. 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, in particular, 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 in order to establish soil characteristics for the design of suitable SuDS features. Reduced run-off rates from the site may be effected 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 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 the qualifying features of Morecambe Bay SAC;

- 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, there are cotoneaster species and Japanese rose *Rosa rugosa* on site and Japanese knotweed *Fallopia japonica* is known local to but not on the site.

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 will be required to detect new occurrences and spread of known areas within the Order Limits;
- INNS within the development footprint, and 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 2 m to 7 m. 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 must be set up within the exclusion zone, the specifics of which will be species specific and set out within a site specific Biosecurity 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.

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 Habitat Management Plan (White Young Green, 2016). 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 carefully removed from the ground by hand, taking care to remove any loose berries which may be shed during removal, cut down/chipped on site and disposed to landfill to prevent the risk of spread.

7.3.3 Japanese Rose (Rosa Rugosa)

Japanese rose has been identified on site. Treatment can be undertaken by cutting, herbicide application or excavation of the plants and root rhizome system. 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 (Fallopia Japonica)

Japanese knotweed is known to be local to, but not on the site and therefore site operatives should be aware of this species and the issues surrounding it. If Japanese knotweed is identified on site, a suitably experienced invasive species contractor would be engaged to advise on options for eradicating it from the site. Measures to prevent the spread of Japanese knotweed within and off-site would be put in place while control options were considered.

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

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. In addition, a breeding bird report 2013, a reptile survey 2013 and a natterjack toad survey 2013 have provided background information to the site. These reports 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 Management Plan (WYG 2016 and Appendix B) was 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 (see Appendix B).

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 (see Appendix B).

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 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 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. A suitable species dependant 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 take into account 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 Management Plan (WYG, 2016 and Appendix B) all of the mitigation measures identified in Assessment of Likely Significant Effects" (Gibson 2017) 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).

It should be noted that works should be compliant with the Revised Assessment of Likely Significant Effects" (Gibson 2018), which were requested by AECOM, but they were not available for review for the completion of the CEMP; if these become available for review then the CEMP will updated as appropriate.

8.4.1 Tool Box 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 Management Plan and it will be highlighted that no waste, including waste water, is to be deposited either on site or in the surrounding area.

The induction will include advice on best practice with regard to 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 insure 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 draft Natterjack Toad Mitigation Plan (AECOM 2018), please see Appendix C, 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

To ensure the protection of reptiles, site clearance and initial groundworks would be undertaken to a method statement. Cutting of coarse grassland should take place from November to February. 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.

The following describes the procedures for reptile mitigation prior to construction on site, but is should be noted that the trapping and translocation of reptiles (and any amphibians) was carried out during September 2018 (prior to the CEMP being finished). This work is complete and common lizards, common toads, frogs and smooth newts were removed from site and placed in the Local Nature Reserve adjacent to the site. The following procedures were followed.

In addition, the exclusion fencing remains in place at the moment and supervised vegetation clearance to make the site unsuitable for reptiles has been carried out post the trapping work.

8.4.5.1 Translocation

Reptile survey and translocation will be required around the main building areas. Mitigation for reptiles must be considered in conjunction with natterjack toad mitigation plans as both may involve permanent and temporary one-way exclusion fencing around the construction areas.

8.4.5.2 Fence Installation

Temporary reptile/amphibian- proof fencing will be installed where necessary surrounding suitable reptile habitat to be affected by the development. The fencing will either be specifically made reptile fencing or posts with plastic fencing, as detailed below:

- Fence constructed from polythene or similar impermeable material.
- Supported by wooden posts dug at least 300 mm into the ground and standing at least 600mm above ground.

- The plastic sheet will be dug 150 mm into the ground with a 100 mm horizontal 'lap' turning back away from the working area.
- The plastic will be buried with compacted backfill so that no gaps remain.
- The plastic will be nailed to the fence posts and folded over at the top, away from the working area, and stapled to form an overhang.
- The plastic must contain no holes and, at the meeting of two sheets, the join must be secured with 100mm waterproof tape. At either end of the site the fence will then turn back for a length of 5 m to discourage reptiles from travelling around the ends of the fence, deflecting them back to the enclosed site.
- Installation of temporary reptile/amphibian fencing will be erected a minimum of 6 weeks prior to works on site.
- The areas where fencing is to be installed will be hand searched for reptiles by an ecologist prior to installation of the fence to ensure that no reptiles are harmed during this operation.

8.4.5.3 Capture and Translocation

- Artificial reptile refugia, consisting of pieces of roofing felt measuring approximately 100cm x 50cm, will be placed on the enclosed habitats.
- Reptile capture will commence at least six weeks in advance of the commencement of works, in order to accommodate twenty days of trapping in suitable weather conditions.
- Reptile capture should occur between mid-April and June or through September to early October (see above – capture programmes was implemented during September 2018).
- Reptile capture will be attempted during mid-morning, when temperatures are between 9 and 18°c and reptiles are most likely to be basking on, or sheltering underneath refugia. Periods of extended rain or cold weather will be avoided.
- Reptiles will be caught by hand and then released immediately into suitable habitat on the adjacent LNR, transported in secure plastic containers.
- After fifteen days of capture, the capture and translocation scheme may cease once five consecutive days with no captures or sightings have occurred (i.e. a minimum of twenty days in total).

8.4.5.4 Release Areas

- Any reptiles caught will be released into the adjacent LNR. The habitats will be enhanced through the provision of artificial refugia, and hibernacula on areas of low ecological value following discussions with Natural England. Once the construction phase has been completed the temporary fence will be removed to allow reptiles back onto the site again.
- Any common amphibians caught during the reptile capture and translocation will be released into the adjacent LNR. Any natterjack toads found will initiate the above procedures involving contacting Natural England or a suitably qualified ecologist

holding a natterjack toad licence for further advice before continuing with any work on site.

8.4.6 Other species (mitigation)

As discussed in the Habitat 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 Management Plan (WYG, 2016 and Appendix B).

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 6.4 of the Habitat Management Plan (WYG, 2016 and Appendix B) should be a consideration when developing the lighting scheme and the CEMP will be updated as required once this becomes available.

9. References

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10. Appendices

Appendix A

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 or hand 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. No trapped grey squirrels should be transported from Gwynedd to Anglesey.

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 wevil 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.

In order 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 a number of 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.

Appendix B

Sally Woods

Devonshire Road, Millom

Habitat Management Plan

June 2016

WYG, Lakeland Business Park, Lamplugh Road,Cockermouth, Cumbria CA13 0QT

Tel: 01900 898600

Email: ecology@wyg.com

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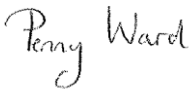
Issue 1	June 2016	DRAFT
Prepared by:		Kirstin Aldous ACIEEM **Senior Ecologist**
Checked By:		Penny Ward MCIEEM **Principal Ecologist**
Verified By:		Tamsin Clark MCIEEM **Associate Ecologist**

Contents

1.0 Introduction

1.1 Background

WYG was commissioned by Sally Woods in April 2016 to produce a Habitat Management Plan (HMP) for a proposed development at Devonshire Road, Millom, hereafter referred to as 'the site'.

The purpose of this plan is to provide a practical guide to facilitate appropriate long term management and protection of ecologically valuable features and habitats on site.

This report has been written by WYG Project Ecologist Kirstin Aldous ACIEEM[1] and should be read with reference to the report conditions which can be found in Appendix A.

1.2 Site Description

The site is located to the north of Devonshire Road in Millom at Ordinance Survey National Grid Reference SD 186 798. The land comprises a brownfield site which was once occupied by reservoirs serving the local ironworks. These have been infilled with slag and the land left derelict. Former planning consent resulted in a road being constructed to serve a proposed employment park but the business park itself was never constructed. The access road and street lights are still in situ. The exposed areas of slag support a sparse cover of plant species tolerant of the basic nature of the substrate. The site boundary with Devonshire Road has been planted with a range of natural and ornamental trees and shrubs. Bramble scrub has invaded the eastern end of the site and along part of the boundary fence.

The land lies adjacent to Ironworks Local Nature Reserve (LNR) which supports a breeding population of natterjack toads *Epidalea calamita*. The development site falls within Duddon Estuary Site of Special Scientific Interest (SSSI), and a small area falls within the Duddon Estuary SPA and Ramsar Site designated for its international bird populations. In addition, the development site lies less than 200 metres from Morecambe Bay Special Area of Conservation (SAC).

1.3 Development Proposals

The proposed development is a retreat, making use of gypsy caravans, wagons and roundhouses with limited permanent buildings. Existing habitats will be retained and enhanced by the owner.

[1] Associate Member of the Chartered Institute of Ecology and Environmental Management

2.0 Management Plan Objectives

The HMP for the site is intended to cover the construction phase of the development and the first five years post-construction. The HMP makes reference to the requirements of the *National Planning Policy Framework* and *Biodiversity & Geological Conservation (Office of the Deputy Prime Minister - ODPM, 2005)*, especially with regards to those species and/or habitats given protection under UK or European wildlife legislation (Appendix C).

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

- WYG (2015) Devonshire Road, Millom. Extended Phase 1 Habitat Survey Report. Update report October 2015.
- WYG (2013a) Devonshire Road, Millom. Extended Phase 1 Habitat Survey Report.
- WYG (2013b) Devonshire Road, Millom. Breeding Bird Report.
- WYG (2013c) Devonshire Road, Millom. Reptile Survey Report.
- WYG (2013d) Devonshire Road, Millom. Natterjack Toad Survey Report.

The key objectives of this HMP are:

- To retain/enhance areas of LBAP habitat and/or features of ecological value on site;
- To enhance habitats for target species including reptiles and natterjack toads;
- To enhance habitats within the site using areas of native planting;
- To allow compliance with relevant wildlife legislation; and
- To enhance the ecological value of the site, including non-target species, in perpetuity.

3.0 Roles and Responsibilities

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

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

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

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

3.1 Ecological Clerk of Works (ECoW)

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

3.2 Biodiversity Champion

Post construction, it is recommended that the site owner nominates a Biodiversity Champion for the operational phases of the development.

The Biodiversity Champion's role is to ensure that the actions detailed within this five year conservation and habitat management plan are implemented against the management schedule in Section 9.0 of this document. A Biodiversity Champion's role is also to influence site activities over the next five years in line with the recommendations of this report. The champion does not need to be an ecologist, but should be familiar with this report and have sufficient authority and presence on site to influence activities. The Biodiversity Champion would be responsible for ensuring that all relevant management and monitoring take place. The Biodiversity Champion should be responsible for

contacting an ECoW in the event of uncertainties about ecological issues surrounding the development.

General responsibilities of the Biodiversity Champion will include:

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

4.0 Identification of Key Ecological Features and Habitats

This section summarises the ecological conditions recorded on site prior to development. The site has been subject to a suite of ecology surveys between 2013 and 2015 and the results are presented in the following reports and are summarised below:

- WYG (2015) Devonshire Road, Millom. Extended Phase 1 Habitat Survey Report. Update report October 2015.
- WYG (2013a) Devonshire Road, Millom. Extended Phase 1 Habitat Survey Report.
- WYG (2013b) Devonshire Road, Millom. Breeding Bird Report.
- WYG (2013c) Devonshire Road, Millom. Reptile Survey Report.
- WYG (2013d) Devonshire Road, Millom. Natterjack Toad Survey Report.

4.1 Designated Sites

4.1.1 Statutory designated sites

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

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

4.1.2 Non-statutory Sites

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

4.2 Habitats

The following habitats were recorded during the extended Phase 1 habitat survey (WYG, 2015). The majority of these habitats will be retained within the development masterplan. An Extended Phase 1 habitat map is provided in Appendix B.

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

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

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

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

- **Neutral Grassland** - Neutral grassland is found towards the eastern end of the site where there appears to be more soil development overlying the slag. This supports a mix of coarse and fine grasses including false oat-grass, cock's-foot *Dactylis glomerata,* tufted hair grass *Deschampsia cespitosa,* Yorkshire fog *Holcus lanatus,* fescues and bents together with herbs such as yarrow *Achillea millefolium,* common knapweed *Centaurea nigra,* ox-eye daisy

Leucanthemum vulgare, common bird's-foot trefoil *Lotus corniculatus,* ribwort plantain *Plantago lanceolata,* self-heal *Prunella vulgaris* and meadow vetchling *Lathyrus pratensis.* This sward provides moderately rich habitat for a range of invertebrate species although the more nutrient rich and disturbed ground alongside the road is dominated by coarser grasses and is of lower ecological value.

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

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

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

4.3 Protected and Notable Species

The site has potential to support the following protected or notable species, and these are considered in more detail below:

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

- **Natterjack toads** – surveys were completed in 2013 to establish the distribution of natterjack toad breeding pools in the vicinity of the proposed development and to determine the likely extent of natterjack toad terrestrial habitat. No evidence was found to suggest that the site is being used by natterjack toads. There is some suitable habitat for natterjack toads within the site, but the permanent natterjack toad fence around the LNR and the fact that the breeding pool is surrounded by good natterjack terrestrial habitat mean it is unlikely that they would be using the site. It was recommended that additional habitat creation should be provided. This could be in the form of new breeding pools linking those already present, and/or improving the habitat surrounding the newly created breeding areas to enable more successful breeding in this location following future detailed discussions with Natural England.

- **Reptiles** – surveys were undertaken in 2013 to establish the presence/likely absence of reptiles. A low 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 will be required to prevent death or injury to this population and compensation provided for any loss of reptile habitat following site development.

- **Breeding birds** – surveys were undertaken in 2013 and a total of 39 bird species were recorded within the red line boundary and the immediate surrounding area. It is recommended that the vegetation along Devonshire Road is retained within the final design for the development as this provides the nesting habitats required for the majority of the species recorded during the surveys. It is also recommended that all site clearance works are undertaken during the winter period i.e. October through to February so as to avoid the bird breeding season. Should this not be possible then the site will be checked by a suitably qualified ecologist for nesting birds immediately prior to any site clearance.

5.0 Construction Management Plan

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

It is recommended that all construction workers are 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 will detail the important ecological features on site, identifying their locations and explain the purpose of the HMP. It is anticipated that this would be incorporated into the general Health and Safety briefing which is given to all workers when they first visit the site.

5.1 Retained Habitats

The proposals for development of a retreat making use of gypsy caravans, wagons and roundhouses will enable the majority of the site to be left as existing habitat. The construction impacts will be limited to the digging of foundations and erection on site of the main building, roundhouses and toilet blocks. The remainder of the units will be mobile. The main foundations are largely concentrated on the area of unvegetated bare slag and concrete presently used for parking.

No significant loss of existing habitat is anticipated during the construction phase of the development. No tree clearance is required as units will be inserted between existing vegetation.

At present, the illegal use of motorcars and motorcycles within the site is making ruts in the surface and destroying vegetation. Excrement from dogs walked regularly over the site, fly-tipping, and dumping of garden and building refuse is further reducing the habitat quality. The proposed main building on the western site is sited so as to prevent any further access by motor vehicles onto the site. This will allow the vegetation to recover on eroded areas and for the diverse range of both common and notable plants to colonise further.

5.1.1 General mitigation

The following general mitigation will be implemented to protect sensitive habitats within the site and in the wider area:

- Site compounds and any access tracks will be of the minimum size required for safe working. These will be fenced where necessary to prevent encroachment of machinery and materials onto adjacent vegetation;

- A safe system for the correct storage of materials/chemicals on site will be implemented to ensure that materials are stored in a suitable manner as to avoid potential impacts on vegetation. This is particularly important with liquids/chemicals which will not be stored near vegetated areas and will be stored on an impermeable base surrounded by a bund capable of containing any spillages or leakages;
- A safe system to remove construction waste at the earliest opportunity will be implemented to avoid contamination of ground and possible disturbance to wildlife and degradation of soil quality. Contractors should also avoid leaving construction waste on site which might be colonised by protected species such as common lizard or natterjack toad;
- The designated storage area will be maintained in a secure and clean manner. An adequate quantity of oil absorbant material will be stored on site and spillages cleared up immediately. All construction equipment will be maintained in good working order and checked regularly for spills/leaks;
- Appropriate cleaning/maintenance of machinery/tools on site will be undertaken at a sufficient distance from vegetated areas. Failure to do so may result in contaminated water entering the soil and reducing / increasing soil pH and increasing contaminant levels;
- Standard industry best practice guidance will be adopted to avoid pollution and dust;
- All construction workers will be made aware of the sensitivity of the surrounding habitats and it will be highlighted that no waste, including waste water, is to be deposited either on site or in the surrounding area.

5.2 Protected and Notable Species

5.2.1 Nesting Birds

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

No vegetation clearance is anticipated, but should small areas of scrub need to be removed or managed, it is recommended that works are avoided during the bird nesting season (which is from

March to September, weather dependent). If this is not possible, each area of habitat to be cleared will be checked for nesting birds, prior to clearance by a suitably qualified ecologist.

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

5.2.2 Reptiles

All native species of reptile are protected against intentionally killing and injury under the Wildlife and Countryside Act 1981 (as amended). A low 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.

Fence Installation

Reptile translocation will be required around the main building area. Mitigation for reptiles must be considered in conjunction with natterjack toad mitigation plans as both may involve permanent and temporary one-way exclusion fencing around the construction areas. Temporary reptile/amphibian-proof fencing will be installed where necessary surrounding suitable reptile habitat to be affected by the development. The fencing will either be specifically made reptile fencing or posts with plastic fencing, as detailed below:

- Fence constructed from polythene or similar impermeable material.
- Supported by wooden posts dug at least 300mm into the ground and standing at least 600mm above ground.
- The plastic sheet will be dug 150mm into the ground with a 100mm horizontal 'lap' turning back away from the working area.
- The plastic will be buried with compacted backfill so that no gaps remain.
- The plastic will be nailed to the fence posts and folded over at the top, away from the working area, and stapled to form an overhang.
- The plastic must contain no holes and, at the meeting of two sheets, the join must be secured with 100mm waterproof tape.

At either end of the site the fence will then turn back for a length of 5 metres to discourage reptiles from travelling around the ends of the fence, and deflect them back to the enclosed site. The areas where fencing is to be installed will be hand searched for reptiles by an ecologist prior to installation of the fence to ensure that no reptiles are harmed during this operation.

Capture and Translocation

Artificial reptile refugia, consisting of pieces of roofing felt measuring approximately 100cm x 50cm, will be placed on the enclosed habitats.

Reptile capture will commence at least six weeks in advance of the commencement of works, in order to accommodate twenty days of trapping in suitable weather conditions. Reptile capture will be attempted during mid morning, when temperatures are between 9 and 18°c and reptiles are most likely to be basking on, or sheltering underneath refugia. Periods of extended rain or cold weather will be avoided.

Reptiles will be caught by hand and then released immediately into suitable habitat on the adjacent LNR, transported in secure plastic containers.

After fifteen days of capture, the scheme may cease once five consecutive days with no captures or sightings have occurred (*i.e.* a minimum of twenty days in total).

Release Areas

Any reptiles caught will be released into the adjacent LNR. The habitats will be enhanced through the provision of artificial refugia, and hibernacula on areas of low ecological value following discussions with Natural England. Once the construction phase has been completed the temporary fence will be removed to allow reptiles back onto the site again.

5.2.3 Natterjack toads

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

There is existing permanent natterjack toad fencing around the LNR to prevent natterjack toads accessing the Devonshire Road site. Therefore it is unlikely that natterjack toads make use of the site at the present time and past detailed surveys have not found evidence of any use made of the construction area. Therefore a precautionary approach will be undertaken involving a toolbox talk provided to contractors and any other person making use of the site during construction. In the unlikely event of a natterjack toad being discovered on the site, a natterjack toad licenced ecologist

or representative from Natural England should be contacted immediately for advice and all further work halted until further action has been taken to protect this species. Construction on the site is in any case low key with little excavation or site disturbance due to the nature of buildings being installed.

Should natterjack toads be found within the construction area, mitigation for natterjacks will involve evacuation of natterjacks from the land under licence from Natural England and this will obviously delay the construction phase. 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. **A European Protected Species licence will be required from Natural England prior to any further works on site should natterjack toad be found present within the site boundary.**

Permanent natterjack toad fencing adjacent to the LNR will be removed following site development to allow reptiles and amphibians to access the Devonshire Road site and provide connectivity between the newly constructed natterjack toad pond on the site and the LNR breeding pools.

Release Areas

Any common amphibians caught during the reptile capture and translocation will be released into the adjacent LNR. Any natterjack toads found will initiate the above procedures involving contacting Natural England or a suitably qualified ecologist holding a natterjack toad licence for further advice before continuing with any work on site.

6.0 Habitat Creation

Newly created habitats are shown on the landscaping proposals by Barnes Walker (DWG No M2685.04).

The following soft landscaping is proposed to be created on site:

- Unmanaged hedgerow;
- Pond.

6.1 Hedgerow planting

The current proposals include the creation of unmanaged hedgerows within the site (Barnes Walker - DWG No M2685.04). Species will include hawthorn *Crataegus monogyna*, dog rose *Rosa canina*, elder *Sambucus nigra* and bramble *Rubus fruticosus*. If these are required for screening and landscaping then they should ideally be limited to areas with nutrient rich soil such as beside the access roads, as any additional introduction of nutrient–rich soil should be discouraged. The existing vegetation is dependent on the low nutrient status of the existing substrate and this would be adversely affected by any importation of topsoil or plant food.

The ground should be prepared thoroughly to allow new plants to establish more easily. Hedgerows are to be planted where required for screening purposes in a double staggered row along lines of existing nutrient rich soil at a density of 7/m^2. Double staggered rows tend to be better for wildlife than single rows as they are wider and provide more shelter and habitat. As a guide, it is recommended that at least 40cm is left between each row and that 7 plants are planted per metre. Any plants that die in the first few years may need to be replaced to prevent gaps developing. It is intended that no further management will be undertaken on these hedgerows but it may be necessary to protect newly planted hedgerows to promote growth and survival rates. Tree tubes are very useful in providing protection, for example from foraging deer or rabbits, and they also provide additional support throughout the early stages of growth. No agrochemicals for weed control will be used on the site.

6.2 Pond

A pond will be created to enhance the site for natterjack toads, providing additional breeding habitat. Pond creation will be supervised by the licensed ecologist. The pond will be unshaded, approximately

10m in diameter, shallow (50 – 80m deep) with gradually shelving margins. The pond will be left to fill naturally with rainwater and the pH should be below 9.5, and preferably below 9.0 to be acceptable. The pond should be kept free of vegetation and silt, but growth of locally growing species of sedge and rush, and moss, around the pond will be encouraged to provide some limited cover for emerging toadlets (English Nature, 1996).

6.3 Hibernacula

6.3.1 Brash and Log Piles

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

6.3.2 Hibernacula

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

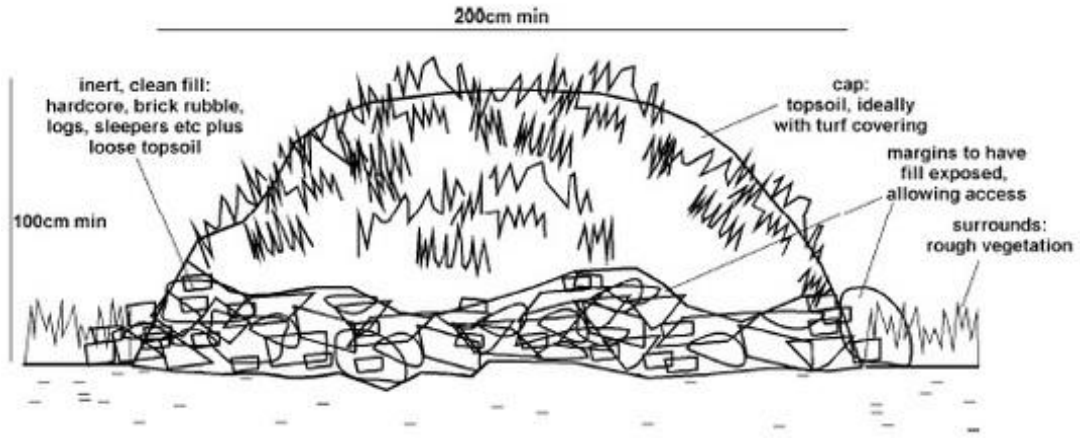
The hibernacula should be:

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

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

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

Figure 1: Example of a hibernaculum.



6.4 Lighting

A wildlife sensitive lighting scheme is recommended to reduce potential impacts on bats and other nocturnal wildlife. It is anticipated that there will be minimal requirements to light this development but the recommendations are included below as guidance.

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

- Avoid excessive lighting. Use only the minimum amount of light needed for the task.
- Do not illuminate bat roosts or important areas for nesting birds.
- Avoid installing lighting in ecologically sensitive areas such as: near ponds, lakes, rivers, areas of high conservation value; sites supporting particularly light-sensitive species of conservation significance (e.g. glow worms, rare moths, slow-flying bats) and habitat used by protected species.
- Consider employing a competent lighting designer who will apply the principals of providing the right light, in the right place, at the right time and controlled by the right system.

- Minimise the spread of light to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required.

- Consider the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can result in greater light spill or require more columns. Column height should be carefully considered to balance task and mitigation measures.

- Consider no lighting solutions where possible such as white lining, good signage and LED cats eyes. These options can also be effective. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times.

- Limit the times that lights are on to provide some dark periods. The task being lit often varies, for example roads are less used after 23.00hrs and car parks are empty. A lighting designer can vary the lighting levels as the use of the area changes reducing lighting levels or perhaps even switching installations off after certain times. This use of adaptive lighting can tailor the installation to suit human health and safety as well as wildlife needs.

For further information on bats and lighting refer to
http://www.bats.org.uk/pages/bats_and_lighting.html

7.0 Ecological Enhancement

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

7.1 Bat Boxes

To increase the value of the site for bats it is recommended that bat boxes or tubes or tubes are installed along the tree belt adjacent to Devonshire Road. Bats are a UK priority species and are also priority species' within the Cumbria BAP.

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

All British bat species are fully protected through their inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and in Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended) as European protected species. Under the legislation, it is an offence to intentionally kill, injure or take a bat as well as intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat or disturb an animal while it is occupying a structure or place which it uses for that purpose. **Therefore bat boxes cannot be disturbed by anyone without a licence after they have been installed.**

7.2 Bird Boxes

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

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

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

8.0 Operational Management Plan

This section provides details of the proposed management of the retained, enhanced and created habitats and features for five years following the completion of the construction programme. The management proposals below assume that created habitats have established successfully; if created habitats and vegetation (or parts thereof) have failed, then remedial action should be taken to re-establish them in the next annual cycle under the guidance of a suitably experienced ecologist. A checklist of actions is provided in section 9.0.

8.1 Hedgerow Management

It is intended that the planted hedgerows will not be managed in the future. However in order to help them establish the following practices may be adopted. Light, regular, trimming of the hedgerows is generally required in years 1 and 2 to encourage dense, bushy growth, which is favourable to wildlife.

Some weed control may be needed, in the first two to three years, especially if thorough ground preparation before planting was difficult. Any plant which competes with the hedgerow plants for nutrients, moisture and light, including brambles, nettles and grasses is likely to reduce growth rates.

The most common ways of controlling weeds are mulches, herbicides and cutting. Herbicides will not be used on this site. A mulch is a layer of material laid over the surface of the ground to suppress weed growth and retain moisture. Mulches include straw, composted bark, and woodchips, applied immediately after planting. Black polythene and other sheet mulches are also available and can be laid either before or after planting, but care should be taken that these are removed before adversely affecting the environment. Should any future managment become necessary, hedgerows should be cut in January or February as cutting in winter means that wildlife will have the time to take advantage of the nuts and berries produced by hedge plants in the autumn. Additionally the bird breeding season, March - September, should always be avoided.

8.2 Pond

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

8.3 Sparse vegetation on slag

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

8.4 Invasive species

Cotoneaster is spreading over the open slag areas on the site adversely affecting rare and unusual plant species colonising the alkaline substrate. This species is a non-native invasive species under the Wildlife and Countryside Act 1981 (as amended)– Schedule 9 lists plant species covered by this legislation. It is recommended that the plants are removed as soon as possible to prevent further spread as the root system can extend horizontally over wide areas. Best practice methodology will be followed when removing plants; shrubs will be carefully removed from the ground by hand, taking care to remove any loose berries which may be shed during removal, cut down/chipped on site and disposed to landfill to prevent the risk of spread.

8.5 Retained amenity grassland

Where necessary to control excessive growth of coarse grassland, it is important to implement a cutting regime that does not harm reptiles or amphibians. It is essential to avoid simultaneous removal of all vegetation cover across the site, or substantial areas of it. Cutting should be undertaken when reptiles and amphibians are least likely to be killed or injured, ideally during the winter period of inactivity. In general, cutting should take place from November to February. 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.

8.6 Reptiles

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

8.7 Natterjack Toads

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

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

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

8.8 Bat boxes

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

8.9 Bird boxes

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

Old nests should be removed in the autumn, from August onwards, once the birds have stopped using the box. Use boiling water to kill any remaining parasites, and let the box dry out thoroughly before replacing the lid. Insecticides and flea powders must not be used. If there are unhatched eggs in the box, these may be removed legally only between September and January, and must be disposed of. A small handful of clean hay or wood shavings (not straw) placed in the box after cleaning may provide an ideal hibernation site for small mammals or a roost for some birds. It is normal for a few eggs to fail to hatch, or for some young to die; blue tits and great tits lay up to 14

eggs to allow for such losses. Cold weather and food shortage may lead to nest desertion, or to only the strongest young surviving. The death of one parent or interference from animals or humans may also cause desertion.

Nest boxes in use should not be inspected.

9.0 Checklist of Actions

A checklist of actions is provided in Table 1 below.

In the post construction phase it will be the client's responsibility to ensure monitoring is conducted to determine the effectiveness of those actions put in place to achieve the management plan objectives (refer to Section 2 above).

Where additional issues are identified that are not currently covered in this management plan, or where it is considered that revised maintenance regimes are needed to maximise the ecological value of the site, recommendations for changes to management prescriptions will be made as appropriate.

Table 1: Checklist of Actions

Task	Recommended Month / Season	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Construction						
Toolbox talk – to be given to all contractors to ensure they are aware of the ecological issues that relate to the site.	Any					
Install temporary reptile/amphibian fencing	Minimum 6 weeks prior to works on site					
20 days trapping out reptiles.	Between Mid April and June.					
Creation of hedgerows	Autumn					
Creation of pond	Autumn					
Creation of brash piles/hibernacula	Autumn					
Removal of temporary reptile/amphibian fencing once construction is complete.	After all site work is complete. March-Oct					
Operation						
Replacement of any failed trees and shrubs	Spring					
Removal of grass and weeds 1m	Spring / Late Summer					

diameter around newly planted shrubs / trees	as necessary					
Watering, feeding and pruning trees	All year round					
Mowing of amenity grassland	November to February					
Monitoring of scrub/invasive species	All year round					
Monitoring of pond vegetation	All year round					
Light trimming of hedgerows	Jan - Feb					
Monitoring reptile populations	April, May and September.					
Monitoring natterjack populations	Between April and September.					
Maintaining and cleaning bird boxes	Nov - Jan					
Monitoring bat boxes for disrepair	Dec - Jan					

10.0 References

Bat Conservation Trust (2014) Artificial lighting and wildlife. Interim guidance: recommendations to help minimise the impact of artificial lighting.

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

Chartered Institute for Ecology and Environmental Management (2013). Guidelines for Preliminary Ecological Appraisal.

Edgar, P., Foster, J. And Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.

English Nature (1996) Natterjack Toad Conservation Handbook.

Gent, A.H., & Gibson, S.D., eds. (1998) Herpetofauna worker;s manual. Peterborough, Joint Nature Conservation Committee.

Joint Nature Conservation Committee (2010). Handbook for Phase 1 Habitat Survey: A technique for environmental audit. JNCC, Peterborough.

Natural England (2007) Natterjack toad: European protected species. Natural England Species Information Note SIN009.

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

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

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

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

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

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

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

APPENDIX A – Report Conditions

Report Conditions

Devonshire Road, Millom – Habitat Management Plan

This report is produced solely for the benefit of Sally Woods and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to WYG Environment. In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of WYG using due skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.

Reliance has been placed on the documents and information supplied to WYG Environment by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties. The performance of environmental protection measures, e.g. of buildings and other structures in relation to acoustics, vibration, noise mitigation, and

other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.

June 2016

WYG Group

APPENDIX B – Extended Phase 1 Habitat Map


N
IRONWORKS LNR
IRONWORKS LNR
DEVONSHIRE ROAD, MILLOM
PHASE 1 HABITAT MAP
DEVONSHIRE ROAD
KEY
SITE BOUNDARY
BASIC GRASSLAND
NEUTRAL GRASSLAND
MIXED PLANTATION WOODLAND
BARE GROUND/SLAG
EPHEMERAL/PIONEER SPECIES
NATTERJACK TOAD FENCE
BRAMBLE (RUBUS FRUTICOSUS agg.) Rf
GORSE (ULEX EUROPAEUS) Ue
WILLOW (SALIX sp.) Sx
POPLAR (POPULUS ALBA) Pa
COTONEASTER Cot
AMENITY GRASSLAND
SCRUB
TALL RUDERAL
TARGET NOTES
SCATTERED SCRUB/SAPLINGS
DAMP, OCCASIONALLY INUNDATED
B UPDATED AS PER OCTOBER 2015 MW PW PW 21/10/15
REV DESCRIPTION BY CHK APP DATE
LAKELAND BUSINESS PARK
LAMPLUGH ROAD
COCKERMOUTH
CA13 9QT
TEL: +44 (0)1900 898 600
FAX: +44 (0)1900 826 324
e-mail: cumbria@wyg.com
Project: A081069
DEVONSHIRE ROAD
MILLOM
Drawing Title:
PHASE 1 HABITAT MAP
Scale @ A1 NTS
Drawn A.J. Date 15/6/09
Checked P.W. Date 15/6/09
Approved Date
Project No. A094800
Office 22
Type 01
Drawing No. 001
Revision A
© WYG Group Ltd.

APPENDIX C – Detailed Planting Proposals (Barnes Walker)


Key - Landscape Layout
The essence of this scheme is to retain and enhance the existing features and to maintain and improve the high ecological and biodiversity value of the site through the proposals. A traditional landscape design solution isn't deemed necessary, due to the sensitivities of the site and surrounding landscape. Therefore, the design has been ecology led and focuses on retaining existing features by avoiding where practicable the more sensitive parts of the site. The lodges have been positioned (as far as possible) within the less sensitive areas of the site on an EcoBase that is breathable and allows for the vegetation underneath to grow through. Unmanaged hedgerows will provide shelter and further increase the ecological value of the site. They will provide structure to the space, while dividing different areas and uses within the site. A new wetland habitat has also been proposed in one of the areas of lower ecological value, this location also responds to the topographical profile of the site.
Rotunda Lodge
Total: 20no. on EcoBase
See Cestria Partnership Architects drawings for details
Communal Toilets and Landscape Maintenance Store
Total: 3no. on EcoBase
See Cestria Partnership Architects drawings for details
Romany Caravan
Total: 4no. on EcoBase
See Cestria Partnership Architects drawings for details
Classic Airstream
Total: 5no. on EcoBase
See Cestria Partnership Architects drawings for details
Existing Road and Footpath
To be retained
Existing Neutral Grassland
Species mix - a mix of course and finer grasses. To be retained, where the Rotunda Lodges are positioned within these areas an EcoBase will be used to minimise any effects upon the grassland.
See future management plan for details.
Existing Basic Grassland
Good species mix - better than the neutral grassland - pioneer calcareous grassland. To be retained, where the lodges/units are positioned within these areas an EcoBase will be used to minimise any effects upon the grassland.
See future management plan for details.
Existing Areas of Brambles
Brambles to be cleared to facilitate the development, ie. around the Proprietor's Residence, to the south of the Romany Caravans and near the Rotunda Lodges. In other locations the brambles can be managed and retained as wildlife habitat.
See future management plan for details.
Existing Bare Ground with Ephemeral / Pioneer Species
Areas of bare ground with a variety of rare species, especially within the area to the east of the spine road. Area to be retained and disturbed as little as possible. Lodge arrangement designed to minimise the effect upon these areas The area to the west of the spine road is less sensitive.
See future management plan for details.
Existing Amenity Grassland
Managed 'shorter' grass. To be managed less frequently than the current regime.
See future management plan for details.
Existing Trees and Shrubs
To be retained. Belt of trees to be managed where necessary, felled and cleared of litter.
See future management plan for details.
Existing Recently Planted Tree Bund
To be retained. Set within neutral grassland.
See future management plan for details.
Proposed Unmanaged Hedgerow
Species to include:
75% Crataegus monogyna (Hawthorn), planted at 900-1200mm high, BR
10% Rosa canina (Dog Rose), planted at 600-900mm high, BR
10% Sambucus nigra (Elder), planted at 600-900mm high, BR
5% Rubus fruticosus (Brambles), planted at 450-600mm high, BR
All plants to be planted at 7 plants per linear metre on a double staggered row.
See future management plan for details.
Proposed Paths
To lodges/accommodation. A permeable surfacing constructed from granular slag.
Proposed Pond
Pond to have shallow edges extending 0.5m into the center of the pond. To ecologists detail. Pond to have bare based sides free from planting.
See future management plan for details.
Existing Fence
Post and Rail fence to be retained.
Restaurant
Communal Space
Existing footpath to top of bank
Existing Sub Station
Cotoneaster to be removed
Proprietors Residence
Existing Gas Installation
0m 10m 20m 30m 40m 50m
DWG TITLE: Landscape Layout
PROJECT TITLE: Millom Ironworks, Millom, Cumbria
DATE: April 2016
DRAWN BY: EC
CHECKED BY: NF
DWG NO: M2065.04
CLIENT: Mr Phillip Kay
SCALE: 1:500@A1
WORK STAGE: Planning
Unit 6, Longley Lane, Northwich, Manchester M22 4WT
T: 0161 945 6806
E: design@barneswalker.co.uk
W: www.barneswalker.co.uk
BARNES WALKER

APPENDIX D – Bat Boxes and Tubes

Introduction

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

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

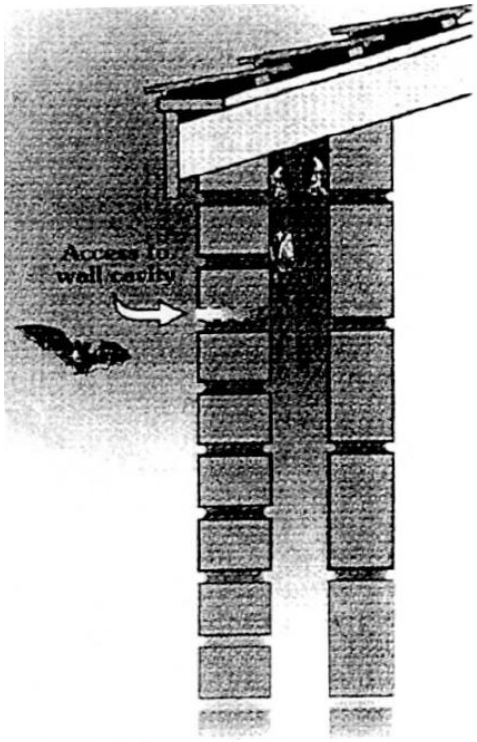
- Any roosting or resting places lost as a result of the work will be replaced;
- The ecological value of the site will be enhanced;
- Priority species within the UK and local Biodiversity Action Plans (BAPs) will be encouraged.

Bats

For Buildings

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

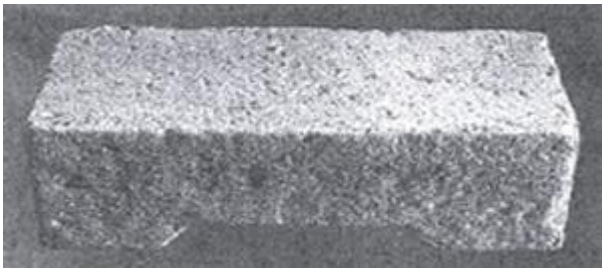
Bat Access and Roost Bricks



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

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

before dispersing in autumn.'



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

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

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

Bat Tube

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

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

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

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

Bat Box

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

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

For Trees

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

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

Bird Boxes

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

Open Fronted Boxes

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

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

Boxes with Entrance Holes

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

Insect Boxes

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

Wooden Insect House

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

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

APPENDIX E – Planning Policy and Legislation

Sally Woods

June 2016

A094800-1

National Planning Policy

National Planning Policy Framework (2012)

Following the publication of the National Planning Policy Framework (NPPF) in March 2012, *Planning Policy Statement 9* (PPS9)*: Biodiversity and Geological Conservation* (2005) has been withdrawn. However, *ODPM 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System* the guidance document that accompanied PPS9 is still valid, and where more detailed guidance is required than is given within the NPPF, local planning authorities will continue to rely on ODPM 06/2005.

This guidance requires local planning authorities to take account of the conservation of protected species when determining planning applications and makes the presence of a protected species a material consideration when assessing a development proposal that, if carried out, would be likely to result in harm to the species or its habitat.

In the case of European Protected Species such as bats, planning policy emphasises that strict statutory provisions apply (including the *Conservation of Habitats and Species Regulations 2010 (as amended)*), to which a planning authority must have due regard.

Where developments requiring planning permission are likely to impact upon protected species it is necessary that protected species surveys are undertaken and submitted to meet the requirements of paragraph 98 of ODPM Circular 06/2005 which states that:

'*The presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat*.'

General guidance of relevance within the body of the NPPF includes the following statements:

"The planning system should contribute to and enhance the natural and local environment by:

- *protecting and enhancing valued landscapes, geological conservation interests and soils;*
- *recognising the wider benefits of ecosystem services;*
- *minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures"*

"Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged."

"When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

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

Habitats and Species of Principal Importance in England

Section 41 (S41) of the *Natural Environment and Rural Communities (NERC) Act 2006* requires the Secretary of State to publish a list (in consultation with Natural England) of habitats and species which are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, in implementing their Duty under Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 habitats of principal importance and 1,150 species of principal importance.

Legislation

The UK has ratified a number of Conventions and implemented legislation pertaining to the protection of biodiversity and habtiats, either independently or as member state of the European Union. These are defined and summarised below.

Lists of theatened, endangered and extinct species are also provided, together with a summary explanation of each.

Bern Convention (1982)

The *Convention on the Conservation of European Wildlife and Natural Habitats* (the *Bern Convention*) was adopted in Bern, Switzerland in 1979, and was ratified in 1982. Its aims are to protect wild plants and animals and their habitats listed in Appendices 1 and 2 of the of the Convention, and regulate the exploitation of speices listed in Appendix 3. The regulation imposes legal obligations on participating countires to protect over 500 plant species and more than 1000 animals.

To meet its obligations imposed by the Convention, the European Community adopted the *EC Birds Directiv*e (1979) and the *EC Habitats Directive* (1992 – see below). Since the Lisbon Treaty, in force since 1st December 2009, European legislation has been adopted by the European Union.

Biodiversity Action Plan (BAP)

The UK *Biodiversity Action Plan* (UKBAP – UK Steering Group, 1995; UK Biodiversity Group, 1998 - 2000) lists and prioritises habitats and species and sets national targets to be achieved. The intent of the UKBAP, however, is much broader than the protection and enhancement of less common species, and is meant to embrace the wider countryside as a whole.

The UKBAP has undergone a review (Biodiversity Reporting and Information Group, June 2007) resulting in the identification of 391 'Priority' Species Action Plans (SAPs), 45 'Priority' Habitat Action Plans and 162 Local Biodiversity Action Plans. Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

The UK Post-2010 Biodiversity Framework was published on 17 July 2012. It was produced by JNCC and Defra, on behalf of the Four Countries' Biodiversity Group (4CBG), through which the environment departments of all four governments in the UK work together. This covers the period 2011 to 2020. The framework shows how the work of the four UK countries joins up with work at a UK level to achieve the 'Aichi Biodiversity Targets' and the aims of the EU biodiversity strategy. The

development of the Framework reflects a revised direction for nature conservation, towards an approach which aims to consider the management of the environment as a whole, and to acknowledge and take into account the value of nature in decision-making.

Birds Directive (BD)

The *EC Directive on the Conservation of Wild Birds* (791409/EEC) or '*Birds Directive*' was introduced to achieve favourable conservation status of all wild bird species across their distribution range. In this context, the most important provision is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex 1 of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.

Birds of Conservation Concern (BoCC)

This is a review of the status of all birds occuring regularly in the United Kingdom. It is regularly updated (every five years) and is prepared by leading bird conservation organisations, including the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

The latest report was produced in 2009 (Eaton *et al,* 2009) and identified 52 red list species, 126 amber species, and 68 green species. The criteria are complex, but generally:

- Red list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years.
- Amber list species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localasied in 10 sites or fewer and those whose 20% of the European population is found in the UK.
- Green list species are all regularly occurring species that do not qualify under any of the red or amber criteria are green listed

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals or '*Bonn Convention*' was adopted in Bonn, Germany in 1979 and came into force in 1985. Participating states agree to work together to preserve migratory species and their habitats by providing strict protection to species listed in Appendix I of the Convention. It also establishes agreements for the conservation and management of migratory species listed in Appendix II.

In the UK, the requirements of the convention are implemented via the *Wildlfie & Countryside Act 1981* (as amended), *Widlife (Northern Ireland) Order 1985*, *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985* and the *Countryside and Rights of Way Act 2000* (CRoW).

Global IUCN Red List

The International Union for Conservation of Nature (IUCN) Threatended Species was devised to provide a list of those species that are most at risk of becoming extinct globally. It provides taxonomic, conservation status and distribution information about threatened taxa around the globe.

The system catalogues threatened species into groups of varying levels of threat, which are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CE), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Conern (LC), Data Deficient (DD), Not Evaluated (NE). Criteria for designation into each of the catgories is complex, and consider several principles.

Habitats Directive

The *Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Fora*, or the '*Habitats Directive*', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes.

In the UK, the *Habitats Directive* is transposed into national law via the *Conservation of Habitats and Species Regulations 2010 (as amended)* in England, Scotland and Wales, and via the *Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended)* in Northern Ireland.

Protection of Badgers Act 1992 (PBA 1992)

The main legislation protecting badgers in England and Wales is the *Protection of Badgers Act 1992* (the 1992 Act). Under the 1992 Act it is an offence to: wilfully kill, injure, take or attempt to kill, injure or take a badger; dig for a badger; interfere with a badger sett by, damaging a sett or any part

thereof, destroying a sett, obstructing access to a sett, causing a dog to enter a sett or disturbing a badger while occupying a sett.

The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger"

The Conservation of Habitats and Species Regulations 2010 (as amended)

Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by the European Commission, are then designated as Special Protection Areas (SPAs) within six years. The 2012 amendments include that public bodies help preserve, maintain and re-establish habitats for wild birds.

The Regulations also make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5 (see Table 1). The *Conservation of Habitats and Species (Amendment) Regulations 2012* came into force on 16th August 2012 and amend the *Conservation of Habitats and Species Regulations 2010* to ensure the various provisions of Directive 92/43/EC ('the Habitats Directive') are transposed in a clear manner.

Table 1: Schedules of the Conservation of Habitats and Species Regulations 2010 (as amended)

Schedule 2 – European Protected Species of Animals		**Schedule 5 – European Protected Species of Plant**	
Common name	**Scientific name**	**Common name**	**Scientific name**
Horseshoe bats	Rhinolophidae - all species	Dock, Shore	*Rumex rupestris*
Common bats	Vespertilionidae - all species	Killarney Fern	*Trichomanes speciosum*
Wild Cat	*Felis silvestris*	Early Gentian	*Gentianella anglica*
Dolphins, porpoises and whales	Cetacea – all species	Lady's-slipper	*Cypripedium calceolus*
Dormouse	*Muscardinus avellanarius*	Creeping Marshwort	*Apium repens*
Pool Frog	*Rana lessonae*	Slender Naiad	*Najas flexilis*
Sand Lizard	*Lacerta agilis*	Fen Orchid	*Liparis loeselii*
Fisher's Estuarine Moth	*Gortyna borelii lunata*	Plantain, Floating-leaved water	*Luronium natans*
Newt, Great Crested	*Triturus cristatus*	Yellow Marsh Saxifrage	*Saxifraga hirculus*
Otter	*Lutra lutra*		
Lesser Whirlpool Ram's-horn Snail	*Anisus vorticulus*		
Smooth Snake	*Coronella austriaca*		

Schedule 2 – European Protected Species of Animals		Schedule 5 – European Protected Species of Plant	
Common name	**Scientific name**	**Common name**	**Scientific name**
Sturgeon	*Acipenser sturio*		
Natterjack Toad	*Bufo calamita*		
Marine Turtles	*Caretta caretta*, *Chelonia mydas*, *Lepidochelys kempii*, *Eretmochelys imbricata*, *Dermochelys coriacea*		

The Hedgerow Regulations 1997

The *Hedgerow Regulations 1997* were made under Section 97 of the *Environment Act 1995* and came into force in 1997. They introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

Wildlife and Countryside Act 1981 (as amended)

This is the principal mechanism for the legislative protection of wildlife in the UK. This legislation is the chief means by which the '*Bern Convention*' and the *'Birds Directive'* are implemented in the UK. Since it was first introduced, the Act has been amended several times.

- The Act makes it an offence to (with exception to species listed in Schedule 2) intentionally:
- kill, injure, or take any wild bird,
- take, damage or destroy the nest of any wild bird while that nest is in use, or
- take or destroy an egg of any wild bird.

In addition, the Act makes it an offence (subject to exceptions) to:

- intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5,
- interfere with places used for shelter or protection, or intentionally disturbing animals occupying such places.
- The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Finally, the Act also makes it an offence (subject to exceptions) to:

- intentionally pick, uproot or destroy any wild plant listed in Schedule 8, or any seed or spore attached to any such wild plant;

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

Following all amendments to the Act, Schedule 5 'Animals which are Protected' contains a total of 154 species of animal, including several mammals, reptiles, amphibians, fish and invertebrates. Schedule 8 'Plants which are Protected' of the Act, contains 185 species, including higher plants, bryophytes and fungi and lichens. A comprehensive and up-to-date list of these species can be obtained from the JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise case to grow in the wild any plant which is listed in Part II of Schedule 9.

Table 2 provides a comprehensive list of plant species listed in this schedule. It is recommended that plant material of these species is disposed of as bio-hazardous waste, and these plants should not be used in planting schemes.

Table 2 Invasive plant species listed in Schedule 9 of the *Wildlife & Countryside Act 1981* (as amended)

Common name	Scientific name
Perfoliate alexanders	*Smyrnium perfoliatum*
Red algae	*Grateloupia luxurians*
Variagated yellow archangel	*Lamiastrum galeobdolon* subsp. *argentatum*
Yellow azalea	*Rhododendron luteum*
Himalayan balsam	*Impatiens glandulifera*
Wall cotoneaster	*Cotoneaster horizontalis*
Entire-leaved cotoneaster	*Cotoneaster integrifolius*
Himalayan cotoneaster	*Cotoneaster simonsii*
Hollyberry cotoneaster	*Cotoneaster bullatus*
Small-leaved cotoneaster	*Cotoneaster microphyllus*
False Virginia creeper	*Parthenocissus inserta*
Virginia creeper	*Parthenocissus quinquefolia*
Purple dewplant	*Disphyma crassifolium*
Fanwort or Carolina water-shield	*Cabomba caroliniana*
Water fern	*Azolla filiculoides*
Hottentot fig	*Carpobrotus edulis*
Three-cornered garlic	*Allium triquetrum*
Giant hogweed	*Heracleum mantegazzianum*
Water hyacinth	*Eichhornia crassipes*
Giant kelp	*Macrocystis* spp.
Giant knotweed	*Fallopia sachalinensis*
Hybrid knotweed	*Fallopia japonica* × *Fallopia sachalinensis*
Japanese knotweed	*Fallopia japonica*
Few-flowered garlic	*Allium paradoxum*
Water lettuce	*Pistia stratiotes*
Parrot's-feather	*Myriophyllum aquaticum*

Common name	Scientific name
Floating pennywort	*Hydrocotyle ranunculoides*
Duck potato	*Sagittaria latifolia*
Floating water primrose	*Ludwigia peploides*
Water primrose	*Ludwigia grandiflora*
Water primrose	*Ludwigia uruguayensis*
Rhododendron	*Rhododendron ponticum*
Rhododendron hybrid	*Rhododendron ponticum* × *Rhododendron maximum*
Giant rhubarb	*Gunnera tinctoria*
Japanese rose	*Rosa rugosa*
Giant salvinia	*Salvinia molesta*
Green seafingers	*Codium fragile*
Californian red seaweed	*Pikea californica*
Hooked asparagus seaweed	*Asparagopsis armata*
Japanese seaweed	*Sargassum muticum*
Laver seaweeds (except native species)	*Porphyra* spp
Australian swamp stonecrop or New Zealand pygmyweed	*Crassula helmsii*
Wakame	*Undaria pinnatifida*
Curly waterweed	*Lagarosiphon major*
Waterweeds	*Elodea* spp.

Appendix C

Natterjack Toad Mitigation Plan

Old Ironworks Site, Devonshire Road, Millom

September 2018

Quality information

Prepared by	Checked by	Approved by
DJN CEcol MCIEEM Principal Ecologist	Mark Hampton Principal Ecologist	Paul Benyon Associate

Revision History

Revision	Revision date	Details	Authorized	Name	Position

Prepared for:

Gavin Towers
As if By Magic
Millway
Devonshire Road
Millom
Cumbria
LA18 4JP

Prepared by:

AECOM Limited
3rd Floor, Portwall Place
Portwall Lane
Bristol BS1 6NA
United Kingdom

T: +44 117 901 7000
aecom.com

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Figures

1. Introduction

1.1 Background and Scope

In 2016, Cestria Partnership Limited was awarded permission to redevelop the site of a former ironworks facility in Millom, Cumbria (reference 4/16/2340/0F1). Copeland Borough Council attached 22 conditions to this permission, of which Condition 5 related specifically to the presence of the natterjack toad (*Bufo* (*Epidalea*) *calamita*); see below:

"***Planning Condition 5***

Before development commences a Natterjack Toad Mitigation Plan and a Natterjack Toad Method Statement shall be submitted to and approved in writing by the Local Planning Authority. The plan shall include details of mitigation required during construction including the off-site car park and link footpath and shall be implemented as approved.

Reason

To ensure provisions are made to safeguard and enhance habitat for this protected species before, during and after development of the site."

AECOM Infrastructure & Environment UK Ltd (AECOM) was engaged by 'As if By Magic' to prepare a Natterjack Toad Mitigation Plan in accordance with the requirements of Condition 5. The remainder of this document presents the Mitigation Plan; a Method Statement (also required by Condition 5) is presented as Section 2.

1.2 Site Location

The development site is located adjacent to Devonshire Road in Millom on the site of the former ironworks (Ordnance Survey reference SD 1854, 7980). The location of the site is presented below in Figure 1.

The development is situated on the north shore of the River Duddon estuary, approximately 10.5 km north of Barrow-in-Furness. Comprising of three parcels of land, the main site measures approximately 2.2 ha in size and the car park area is around 0.1ha. The wider landscape includes land used for commercial, industrial, residential and recreational uses.

The development is situated within the Duddon Estuary Site of Special Scientific Interest (SSSI), which is designated for its important assemblage of overwintering birds. It is also adjacent to the Millom Ironworks Local Nature Reserve (LNR), which is designated for its importance as a wildlife habitat and community resource. A small part of the site (c. 0.1 ha) also falls within the Duddon Estuary Special Protection Area (SPA) and Ramsar site, again designated for important wintering bird assemblages. An early report, prepared by WYG Environment (2015), concluded that subject to appropriate mitigation the proposed development would not adversely affect any of the designated sites; this conclusion was subsequently accepted by both Natural England and the Local Planning Authority.

1.3 Permitted Development

The development will comprise a new visitor attraction for Millom; specifically, the construction of a non-religious retreat. The red line boundary is presented on Figure 2.

Approved plans include a main building, an ancillary building, accommodation for the proprietor, 20 residential cabins, a number of caravans and car parking. The car park will be located away from the main site to the east of the application. The development layout is presented in Figure 3.

A detailed landscaping scheme has not been developed, but the aim will be to reflect the local area, allow natural regeneration but encourage the site to be attractive habitat for natterjack toads including an enhanced wetland area (see Figure 3). As it stands, a wooden exclusion fence separates the development from the adjacent coastal and natterjack toad habitat.

1.4 Basic Natterjack Toad Ecology

The natterjack toad is at the north-western edge of its global range in the UK where it occupies approximately 60 known sites (ARC Trust); the coast of Cumbria is a stronghold for the species. Natterjack toad distribution is highly restricted due to its specific habitat requirements. The species typically occupies early successional stage habitats. Most of these are coastal (dune and upper salt marsh); together with heathland, all are lowland (Baker et al., 2010). The natterjack forages in areas of open ground or very short vegetation (Beebee & Griffiths, 2000). Natterjack toads can survive in hot, dry habitats by burrowing; it readily excavates burrows in suitable substrate (typically sand) to avoid the extremes of temperature and dryness.

Natterjack toads breed in shallow (5 – 10 cm deep), ephemeral pools that warm quickly. The species tends to breed later in the year than other anurans (frogs and toads). Spawning begins in April or May depending on weather conditions; however, spawn may be laid as late as the first week of August depending upon rainfall and the availability of ephemeral pools. Newly metamorphosed toadlets leave the water from mid-May to July, peaking in June at most sites. Natterjack toad tadpoles are readily outcompeted by those of the common toad and/or frog. This lack of competitiveness is the likely evolutionary driver behind the species ability to develop rapidly in ephemeral pools; however, it also restricted the species ability to colonise new areas. Over the past century, the range of natterjack toads has contracted by over 75%.

Natterjack toads forage in open habitat where they actively pursue invertebrate prey. This approach to hunting is dependent on open habitats; indeed, individuals that have been kept in vivaria with rank vegetation rapidly lose weight and display signs of distress (Denton & Beebee, 1996).

1.5 Summary of Natterjack Toad Data

A known natterjack toad breeding pond is situated within the Ironworks LNR. The pond is within 50 m of the proposed development, beyond the line of the exclusion fence. Further toad ponds have been excavated approximately 100 m to the north-east of the site.

A natterjack toad survey was undertaken by WYG between April and October 2013. The survey comprised:

- Weekly spawn string counts of all pools within 500 m of the site (five pools in total);
- Tadpole and toadlet counts were undertaken at all pools in which spawn was recorded;
- Calling male surveys;
- A search of both natural and artificial (0.5 x 0.5 m felts) refuges within the footprint of the development; and
- Night searching of the development and parts of the adjacent LNR.

The pond situated 50 m from the development did contain natterjack toad tadpoles; however, due to persistent dry weather the pond dried up completely prior to metamorphosis. A rescue operation, led by Amphibian and Reptile Conservation Trust, relocated a large number of the tadpoles to the newly created scrapes to the north-east.

The terrestrial surveys (refuge and night searching) did not record any natterjack toads within the footprint of the development. Given the presence of suitable foraging habitat on

site, the author ascribed the likely absence of toads to the presence of the wooden exclusion fence.

1.6 Summary of Legislation

The natterjack toad is listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017. This legislation, when taken together, results in a level of protection that prohibits the intentional, deliberate or reckless:

- Killing, injuring, taking or disturbance of natterjack toads;
- Damaging, destroying or obstructing any place used by natterjack toads for the purposes of breeding or sheltering / protection; and
- Selling and/or advertising for sale a natterjack toad or any part thereof.

The natterjack toad is listed as a Species of Principal Importance for Conservation in England under the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the same Act requires that local and regional authorities have regard to the conservation of biodiversity in England, when carrying out their normal functions.

1.7 Potential Risks to Natterjack Toads

The multi-faceted survey (WYG, 2013) did not detect any natterjack toads within the footprint of the development; furthermore, the surveyor noted the presence of a wooden exclusion fence that separated the development from known natterjack toad populations. A recent visit to the development site (September 2018) confirmed that the exclusion fence remains in place. Adjacent vegetation has encroached upon the base of the fence, completely engulfing it in places (Plate 1). In addition, there are also two gaps in the fence where gravelled footpaths pass through located in the north and north-east (see Figure 2 for locations).

Plate 1: Wooden Exclusion Fence

A: The wooden exclusion fence has been encroached by vegetation in several locations; B: there are two gravelled footpaths that pass through the fence

The encroachment of vegetation is unlikely to compromise the integrity of the fence. Natterjack toads preferentially select sparse habitats with little or no vegetation and actively avoid rank vegetation (Beebee & Griffiths, 2000). In contrast, however, the two gravelled tracks could enable natterjack toads to access the development site. Although the development site does contain suitable foraging habitat, the ground conditions are too compacted for the construction of burrows. Natterjack toads are compulsive burrowers throughout the summer and often exhibit a high level of fidelity to said burrows (Beebee and Griffiths, 2000).

It is possible that a small number of individuals enter the development area to undertake exploratory forays before returning to the LNR. However, on balance, the abundance of suitable terrestrial habitat in the adjacent LNR coupled with the restricted access to the development area means that the risk of encountering individual natterjack toads is minimal.

This point was agreed with Natural England who, during consultation (as detailed in Gibson, 2017), raised no concerns regarding natterjack toads, which are unlikely to be present within the development, although it was suggested that a European Protected Species (EPS) Licence may be required, but this was not a condition of the development. Despite this, given the permeability of the exclusion fence coupled with the presence of suitable habitat, the presence of natterjack toads, albeit in small numbers, cannot be fully discounted.

A reptile and amphibian clearance survey will be carried out on the development site prior to commencement and if any natterjack toads are found an EPS Licence will be applied for, approved and implemented before any construction works start on site.

1.7.1 Construction Effects

Construction-related impacts include:

- the clearance of vegetation;
- the excavation of foundations;
- the storage of materials;
- the presence and movement of heavy plant; and
- the erection of the new buildings.

In the absence of mitigation, the aforementioned tasks could harm individual natterjack toads or lead them to becoming trapped within excavations. As the required foundations are, for the most part, situated on areas of hard standing, the risk of harm associated with this specific task is minimal.

During the construction phase, there will be an increased human presence that could result in the disturbance of natterjack toads. However, as natterjack toads are unlikely to be present in the development area during daylight hours, this risk is minimal. No works are expected beyond the footprint of the development and certainly not beyond the exclusion fence.

The change in ground conditions arising from the development will be minimal. The buildings requiring foundations are, for the most part, situated on existing hard standing. The remaining buildings either have a small footprint or are mobile (caravans). It is highly unlikely that the development would affect the hydrology of the nearby breeding pool.

Natterjack toads, like all amphibians are sensitive to pollutants (Beebee, 2013). The storage of materials or unplanned pollution events could adversely affect natterjack toads, particularly if they occur near to breeding pools. Standard pollution prevention measures, as will be detailed in the Construction Environment Management Plan (CEMP) for the project, will minimise the potential to harm natterjack toads arising from pollution.

The proposed car park, located to the east of the main development, wasn't surveyed by WYG in 2015. The area has been subsequently surveyed in 2018 and is predominantly semi-improved neutral grassland that is becoming rank and a strip of dense bramble scrub along the northern boundary. The car park site is bounded to the north by a brick wall is open to the east (field continues) and by wire fencing to the south and west. Ostensibly, the habitat appears to be unsuitable for foraging natterjack toads; in addition, it is situated beyond the exclusion fence, the development area and an industrial complex. As such, the risk of encountering natterjack toads is considered to be negligible.

1.7.2 Operational Impacts

Operational impacts will include an increased human presence through occupation of the site; however, the nature of the development as a tranquil ‘retreat’ means that excessive noise and disturbance is not expected and so any impacts will be minimal. Indeed, the presence of the retreat could dissuade others from fly-tipping on the site, which has historically been a problem (WYG, 2015).

2. Mitigation Strategy

2.1 Reasonable Avoidance Method Statement

Based on Section 1, there is a low risk of encountering natterjack toads within the development area. As such, it has been assessed that works can proceed under the guidance of a Reasonable Avoidance Method Statement (RAMS). Section 2 of this document presents the RAMS and a copy should be available on site at all times.

Natterjack toads are legally protected from harm through their inclusion on multiple legislative Acts. Such a breach in legislation could attract a fine of up to £5,000 and a custodial sentence per offence. As such, it is imperative that the guidance provided within this document is strictly adhered to. If any part of the guidance is unclear, the Site Ecologist should be contacted (details in Section 2.6).

2.2 Identification

Natterjack toads can be readily identified from other amphibian species. The presence of a yellow dorsal stripe is characteristic of the species (Plate 2). Their irises are green as opposed to the brown and red of the common frog and toad respectively. Rather than hop, natterjack toad tend to 'run' across the ground. During the day, natterjack toads occupy burrows in soft or loose substrate to prevent them from drying out.

Plate 2: Natterjack Toad Identification

A: a natterjack toad showing its characteristic dorsal stripe and green irises; B: a comparison of a natterjack toad (foreground) and common toad (background). Note the absence of a dorsal stripe and red irises in the common toad.

2.3 Specific Guidance

A Site Ecologist will be identified and engaged prior to and for the duration of the works. The Site Ecologist should be an experienced natterjack toad ecologist. Whilst the Site Ecologist does not need to maintain a presence at all times, they will be present for works in sensitive areas (see below) and on call to respond to any queries.

On day 1, ahead of any construction activities (including the importation of plant or materials), the Site Ecologist will undertake a detailed walkover of the development area. Sensitive areas (i.e. those that could be considered as suitable habitat for natterjack toads) will be identified and clearly marked. Any works inside of these areas will be supervised by the site ecologist.

Given the age of the data, an updated terrestrial survey of the development area is recommended. This will comprise six night search visits between April and June using a high-powered torch and also listening for calling males. The survey will only be required if the works will be undertaken during the toad's active season i.e. March - October; if the works are to be timed for the winter, no survey will be required. If the survey identifies

natterjack toads entering the development area via the gaps in the fence, these will be blocked at dusk using a scaffold board and opened up the following morning. Again, if works are to be undertaken during the winter, this will not be required.

2.4 General Guidance

During site inductions, all contractors will receive a toolbox talk, delivered by the Site Ecologist. The talk will provide basic details about natterjack toad identification, legal protection, sensitive areas and appropriate working practices. Each contractor will sign a form to confirm that they have both received and understood the content of the talk and what is expected of them. Any contractors that have not signed will be prohibited from working on the development.

Each morning prior to the commencement of work, the gravelled path will be cleared of obstructions and the development site will be inspected by the Site Ecologist or a competent person. The inspection will include all open excavations and the tracks / wheels of any plant present. In the event that a natterjack toad is encountered, work will stop and the Site Ecologist contacted.

All open excavations will be fitted with a means of egress (such as a scaffolding board) during the night.

All materials and plant will, whenever possible, be stored in the car park area to the south of the development. This is particularly important for the storage of toxic chemicals, which should be stored within a bund capable of holding 110% of the contents of the tanks or containers. The refuelling of plant will also be undertaken in the southern car park area.

The use of vehicles will be restricted to the existing roads and areas of hard standing. This will protect retained habitat and minimise the risk of encountering natterjack toads. Whilst off-road driving is permissible, ecological supervision will be present when accessing sensitive areas.

The landscape management plan will indicate that habitats will be restored and enhanced after completion of the works. The most likely and recommended approach to this would be to allow the existing habitats to regenerate naturally. Where addition vegetation is required, this will wherever possible be sourced locally and should be representative of the existing local habitats.

2.5 Pond Construction

Following the approved landscape plan, the existing wetland area in the west of the development will be enhanced (see Figure 3 for location). The pond will be excavated as required using machinery and be designed to resemble natural slacks i.e. shallow (0.5 m at its deepest) with gradually shelving margins (Beebee & Denton, 1996). The margins will not be planted. The excavated spoil will be distributed near the pond (or even at the margins). Water levels will be monitored following the enhancement of the pond, as it should desiccate in mid-summer during a year of average rainfall.

Subsequent visits to the pond with machinery might be required if further materials need to be excavated. If the water table is too low, a butyl liner might be required. Once the construction and landscaping activities are complete and all plant and storage materials removed, the exclusion fence will be removed along the western edge. This is to give the natterjack toads' access to both aquatic and terrestrial habitat.

2.6 Site Ecologist Contact Details

Dr Mark Hampton; Telephone: 07745 737606; Email: mark.hampton@aecom.com

Paul Benyon; Telephone: 0115 907 7065; Email: paul.benyon@aecom.com

Figure 1: Location Plan

Project Title/Drawing Title

MILLOM OCTAGON
SITE LOCATION PLAN

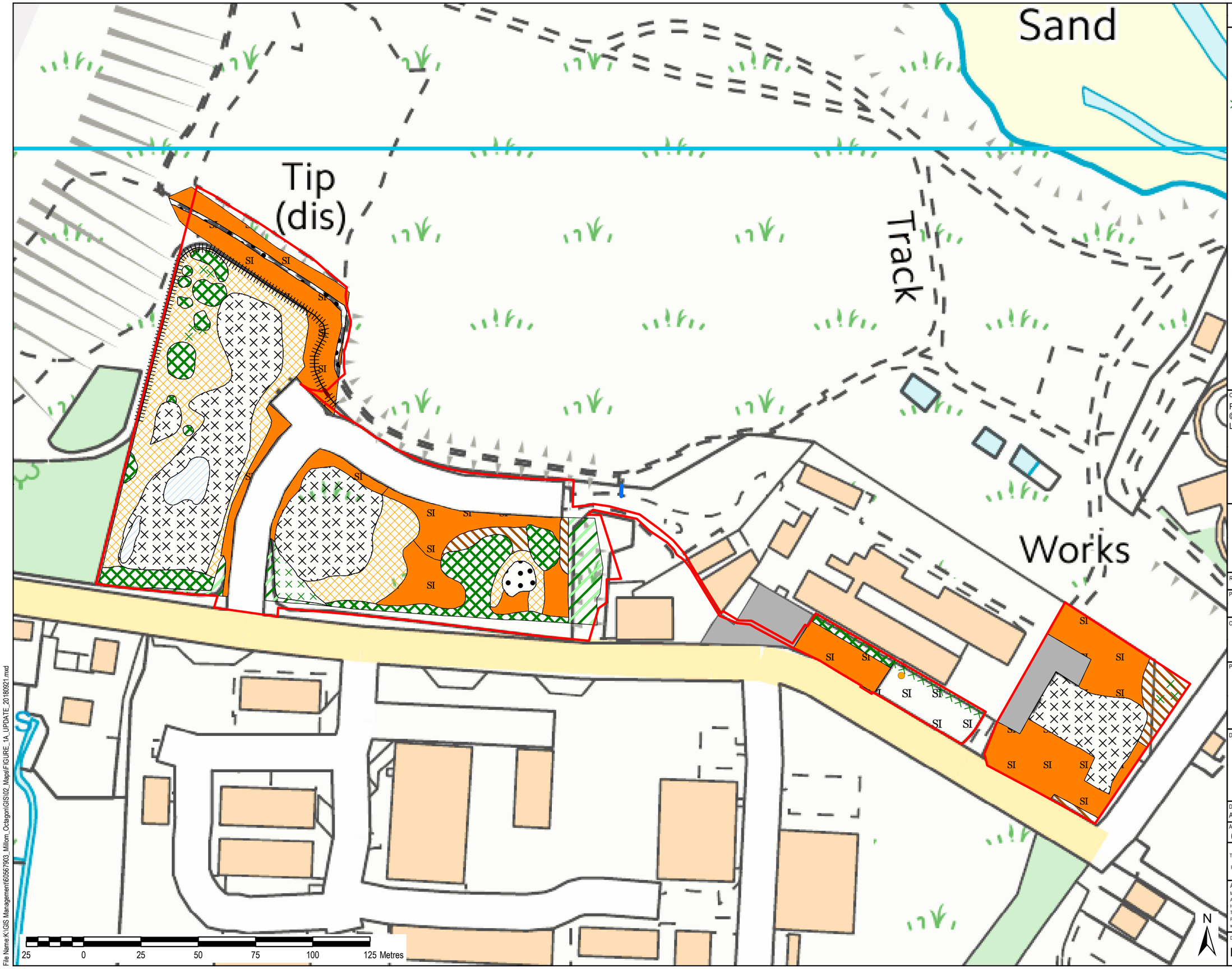
Client: AS IF BY MAGIC LTD

Drawn	Checked	Approved
BB	MH	MP
Date	Scale @ A4	Purpose of Issue
30/07/2018	1:15,000	DRAFT
Drawing Number		Rev
FIGURE 1		0

AECOM
Midpoint
Alençon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

File Name:C:\60567903_Millom_Octagon\GIS\02_Maps\Figure 1 Site Location Plan.mxd

Figure 2: Red Line Boundary with Phase 1 Habitat Map of the development site



THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Site Boundary
- Japanese Knotweed
- Old Gate
- Gate
- Scrub - scattered
- Fence
- Mixed woodland - plantation
- Scrub - dense/continuous
- Scrub - scattered
- SI Neutral grassland - semi-improved
- SI Semi-improved grassland
- Other tall herb and fern - ruderal
- Inundation Vegetation
- Cultivated/disturbed land - ephemeral/short perennial
- Bare Ground
- Basic Grassland
- Hard Standing

Revision Details	By / Check	Check Date	Suffix

Purpose of Issue: FINAL

Client: AS IF BY MAGIC LTD

Project Title: MILLOM IRON WORKS

Drawing Title: PHASE 1 SURVEY

Drawn	Checked	Approved	Date
AG	BB	MH	21/09/2018

AECOM Internal Project No.	Scale @ A3
60585249	1:1,500

AECOM
Midpoint
Alençon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

Drawing Number: **FIGURE** 2

Rev: 1

File Name:K:\GIS Management\60567903_Millom_Octagon\GIS\02_Maps\FIGURE_1A_UPDATE_20180921.mxd

Figure 3: Proposed Development Layout

REV :	DATE :	REVISION NOTE :
H	09-04-18	Add Blue Line ownership definitions
G	03-10-17	Add revised car park location & pedestrian link
F	17-05-17	Amend Red Line site definition
E	08-05-17	Amend Red Line site definition
D	24-04-17	Add disabled car parking, relocate House & amend site boundary
C	08-12-16	Revise boundary to LPA advice
B	26-09-16	Add dimensions for Caravans
A	21-04-16	Amend Rotunda & Caravan distribution

PROJECT NAME :
MILLOM IRONWORKS PROJECT

DRAWING TITLE :
PROPOSED SITE PLAN

DRAWING NUMBER :

TASK	JOB	TYPE	DWG	REV
A15	007	P	001	H

DRAWING ORIGIN :

TASK	JOB	TYPE	DWG	REV

CLIENT :
Ms. Sally Woods

DATE : **13 -11 - 2015**
SCALE : **1:500 @ A1**
DRAWN BY : **T.R.**
CHECKED BY :

THE CESTRIA PARTNERSHIP,
CHARTERED ARCHITECTS ,
5 SPATH LANE,
HANDFORTH,
WILMSLOW,
CHESHIRE, SK9 3QN.
T / F: 01625 529594
E: cestriarch@gmail.com

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