

# GCRE: Construction of Earthworks Phase 1A

Construction Environmental Management Plan  
Global Centre of Rail Excellence (GCRE)

March 2023

GCRE001-AWJV-XX-XX-DO-YV-00006

# Notice

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## Client signoff

|                       |                                           |
|-----------------------|-------------------------------------------|
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| Project               | GCRE: Construction of Earthworks Phase 1A |
| Job number            | 5209796                                   |
| Client signature/date |                                           |

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# Abbreviations

| Abbreviation | Term                                                  |
|--------------|-------------------------------------------------------|
| ACoW         | Archaeological Clerk of Works                         |
| BPM          | Best Practice Means                                   |
| CEMP         | Construction Environmental Management Plan            |
| CLO          | Community Liaison Officer                             |
| CIfA         | Chartered Institute for Archaeologists                |
| CPAT         | Clwyd Powys Archaeological Trust                      |
| COSHH        | Control of Substances. Hazardous to Health            |
| CTMP         | Construction Traffic Management Plan                  |
| DEFRA        | Department for Environment, Food and Rural Affairs    |
| DMPWO        | Development Management. Procedure) (Wales) Order 2012 |
| ECoW         | Ecological Clerk of Works                             |
| EMMP         | Ecological Management and Monitoring Plan             |
| EMP          | Ecological Management Plan                            |
| EMS          | Environmental Management System                       |
| EPP          | Ecological Protection Plan                            |
| ES           | Environmental Statement                               |
| GGAT         | Glamorgan Gwent Archaeological Trust                  |
| GCRE         | Global Centre of Rail Excellence                      |
| GPP          | Guidance for Pollution Prevention                     |
| INNS         | Invasive Non-Native Species                           |
| KPI          | Key Performance Index                                 |
| LPA          | Local Planning Authority                              |
| NVC          | National Vegetation Classification                    |
| NRW          | Natural Resources Wales                               |
| NMMAP        | Noise Management and Monitoring Action Plan           |
| NPTCC        | Neath Port Talbot County Council                      |
| PAWS         | Planted Ancient Woodland                              |
| PCC          | Powys County Council                                  |
| PPE          | Personal Protective Equipment                         |
| PPG          | Pollution Prevention Guidance                         |
| PPW          | Planning Policy Wales                                 |
| PRoW         | Public Rights of Way                                  |
| RAMS         | Risk Assessment Method Statement                      |
| REAC         | Register of Environmental Actions and Commitments     |
| RPA          | Root Protection Area                                  |
| SINC         | Sites of Importance for Nature Conservation           |
| SSSI         | Site of Special Scientific Interest                   |
| SAC          | Special Area of Conservation                          |
| SQE          | Suitably Qualified Ecologist                          |

|     |                                 |
|-----|---------------------------------|
| WFD | Water Framework Directive       |
| WSI | Written Scheme of Investigation |

# 1. Introduction

## 1.1. Purpose and Scope

- 1.1.1. An outline planning application submitted by Arup & Partners Ltd (Arup) (on behalf of the Welsh Ministers (Department for the Economy and Transport)) to Neath Port Talbot Council (planning reference P2021/0327) and Powys County Council (21/0559/OUT) was granted conditional approval in September 2021 for:

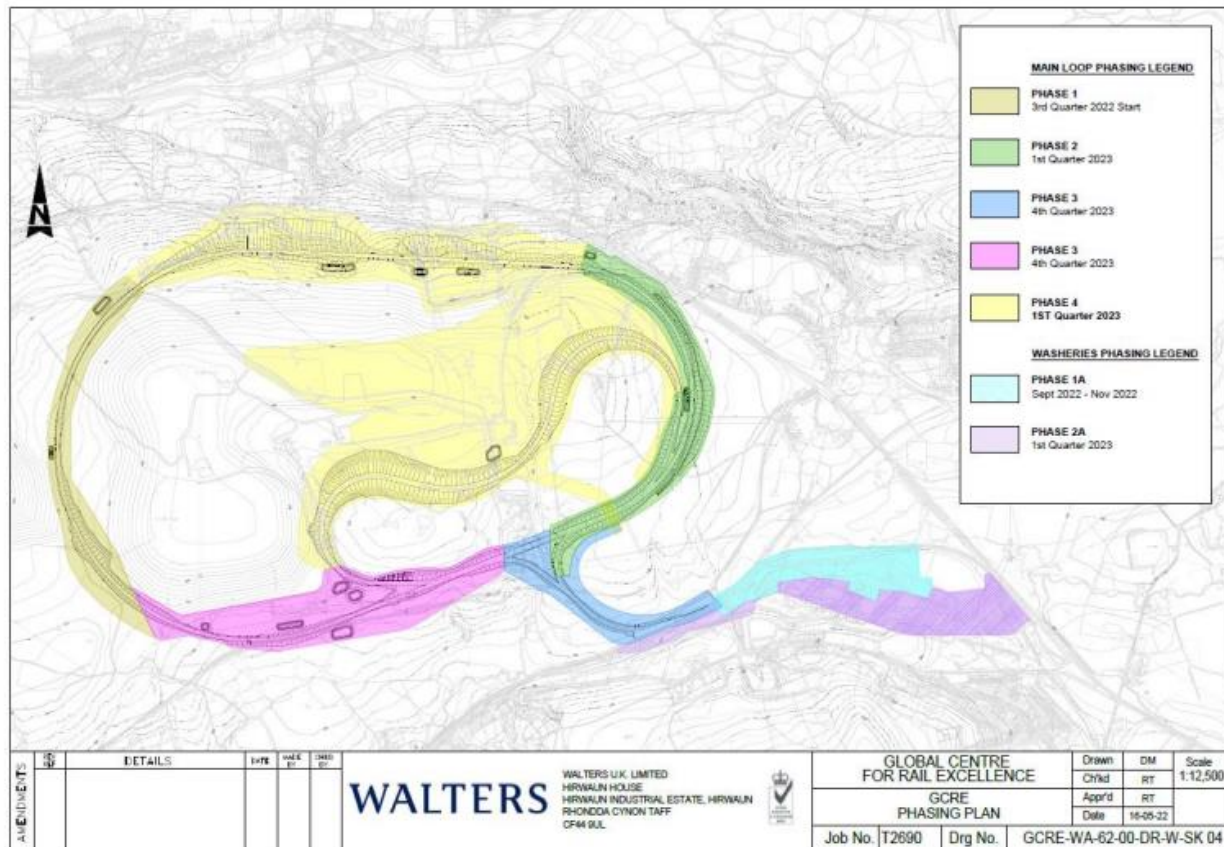
*“Development of a Global Centre of Rail Excellence, comprising of two test tracks of loop configuration including an electrified high speed rolling stock test track of 6.9 km in length and an electrified low speed infrastructure test track of 4.5 km, with overhead line equipment (OLE) and dual platform station test environment; together with operations and control offices (including staff accommodation and welfare), shunter cabins (2 no.), research and development, education and training, rolling stock storage sidings and maintenance/cleaning/decommissioning facilities; associated drainage, internal vehicular accesses, branch line rail connection, staff and visitor car parking, lighting, electrical infrastructure, (including substations and lineside shore supplies and transformers), fencing (perimeter security, acoustic and stock proof), land reformation and hard and soft landscaping, together with demolition of existing building/structures.”*

- 1.1.2. On behalf of GCRE, Walters Group has commissioned Atkins part of SNC-Lavalin group to complete a Construction Environmental Management Plan (CEMP) for Phase 1A of the GCRE development, as specified by Planning Conditions n.11 of both 21/0559/OUT (Powys County Council) and P2021/0327 (Neath Port Talbot Council).
- 1.1.3. The purpose of the CEMP is to set out all the requirements, controls and mitigation measures required to ensure the environmental effects associated with the construction of the project are minimised and that the works are completed in compliance with applicable environmental management requirements.
- 1.1.4. This CEMP is a live document and will be continually developed. It is to be regularly reviewed and updated as necessary, to take account of updated legislation/guidance and any changes to the scope of works or required mitigation.
- 1.1.5. The CEMP shall be implemented and adhered to throughout construction, with the document made available to all persons involved in the construction of the development and the key requirements and mitigation measures of the CEMP communicated to all personnel as part of the site induction.

## 1.2. Project Overview

- 1.2.1. The Global Centre of Rail Excellence (GCRE) is a rail testing centre project that will be delivered by GCRE Ltd on behalf of the Welsh Government..
- 1.2.2. GCRE is located within the counties of Powys and Neath Port Talbot.
- 1.2.3. The first phase of the development, “Phase 1A”, is contained within the northern extent of the Onllwyn Coal Washery and will involve the construction of rolling stock storage sidings, along with supporting 25kV overhead line infrastructure. The extent of the Phase 1A Site is illustrated in Phasing Plan - Figure 1-1.

**Figure 1-1: GCRE Phasing Plan**



### 1.3. Construction Programme and Phasing

- 1.3.1. The construction phase of Phase 1A is planned to commence in Quarter 2 2023, with the Earthworks element of the Project due to be completed in Quarter 1 2024.
- 1.3.2. A high-level programme for the delivery of Phase 1A is illustrated in Table 1-1.

**Table 1-1 Construction Programme**

| Activity                                                                                     | Programme                 |
|----------------------------------------------------------------------------------------------|---------------------------|
| Ecological mitigation                                                                        | April 23                  |
| Site clearance (vegetation and soil stripping)                                               | June 23                   |
| Installation of temporary drainage                                                           | June 23                   |
| Earthworks and permanent drainage                                                            | June 23 – November 23     |
| Landscaping                                                                                  | November 23 – February 24 |
| <b>Future Works</b>                                                                          |                           |
| <b>CEMP will be updated to reflect all further works once designs and methods confirmed.</b> |                           |
| Track Sidings Construction                                                                   | TBA                       |
| Substation Building                                                                          | TBA                       |
| Onllyn Bridge Demolition and Reconstruction                                                  | TBA                       |

## 1.4. Working Hours

- 1.4.1. Construction works will take place mainly during the daytime. Construction works outside of normal construction hours of 06:00 to 19:00 weekdays and 07:00 to 13:00 Saturdays shall be minimised as far as possible.
- 1.4.2. Exceptions to these hours will include, but are not limited to:
- Water pumping;
  - Environmental monitoring;
  - Maintenance and testing of plant;
  - The provision of services at compounds, including security and vehicle recovery;
  - Works associated with the diversion of existing utilities;
  - Cases of emergency; and
  - Other activities as otherwise agreed by the local authorities.

## 1.5. Guidance and Other Documents

- 1.5.1. The CEMP is intended to satisfy the principles of the International Environmental Management System (EMS) Standard ISO 14001 and has been developed in accordance with relevant best construction practice guidance including:
- Guidance for Pollution Prevention (GPP) 1 - 29. In particular:
    - GPP 2 Above Ground oil storage tanks;
    - GPP 5 Works and maintenance in or near water;
    - GPP 6 Working at construction and demolitions sites;
    - GPP 21 Pollution incident response planning;
    - GPP 22 Dealing with Spills; and
    - GPP 26 Safe storage- drums and intermediate bulk containers
  - CIRIA Environmental handbook for building and civil engineering projects.
- 1.5.2. A number of key documents that contain detailed environmental management information and mitigation measures for the Project are to be read in conjunction with this plan and are detailed in Table 1-2 below.

**Table 1-2 Key Environmental Documents to be Read in Conjunction with the CEMP**

|                                             |                                          |
|---------------------------------------------|------------------------------------------|
| • Ecological Protection Plan                | • Materials Handling Strategy            |
| • Ecological Management and Monitoring Plan | • Remediation Strategies                 |
| • Surface Water Drainage Scheme             | • Landscape Strategy                     |
| • Contaminated Land Investigation Report    | • Register of Sustainable Considerations |
| • Register of Environmental Actions         | • Construction Management Plan           |
| • Written Scheme of Investigation           |                                          |



## 2. Roles and Responsibilities

### 2.1. Environmental Management Responsibilities

- 2.1.1. All are responsible for adhering to and complying with the Project's environmental policies, relevant environmental legislation, bylaws, and regulations. It is a requirement that all site personnel will be made aware of their duty of care to the environment and will be provided with adequate training, supervision, or instruction in the form of toolbox talks, site induction modules and specific method statements as necessary.
- 2.1.2. GCRE operates an EMS that meets the requirements of BS EN ISO 14001:2015. A copy of the ISO14001 certificate is included in Appendix A to this plan.
- 2.1.3. The contractor is responsible for operating in compliance with the EMS.
- 2.1.4. Responsibilities for site environmental management will be delegated to key personnel by the contractor. These personnel will be responsible for implementation, reporting and monitoring of environmental mitigation and compliance during construction. Where required, environmental specialists will be consulted to provide advice on specific issues or site activities.

### 2.2. Site Roles and Responsibilities

- 2.2.1. It is recognised that all participating in the delivery of the Project have a role to play in the minimisation and mitigation of environmental impacts. However, certain members of the construction team will play more active roles in ensuring environmental requirements, controls and mitigation measures are implemented. The key environmental management roles and responsibilities are detailed in Table 2-1.
- 2.2.2. Table 2.1 will be updated as the works progress to reflect the growing activities and construction team.

**Table 2-1: Roles and Responsibilities**

| Role                     | Responsibility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Contact Details                                                                                                                                |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Client                   | <ul style="list-style-type: none"> <li>Make suitable arrangements for managing the project, including making sure: <ul style="list-style-type: none"> <li>other dutyholders are appointed as appropriate.</li> <li>sufficient time and resources are allocated.</li> </ul> </li> <li>Make sure: <ul style="list-style-type: none"> <li>relevant information is prepared and provided to other dutyholders</li> <li>the principal designer and principal contractor carry out their duties</li> <li>welfare facilities are provided</li> </ul> </li> </ul> | <p>GCRE</p> <p>Rob Thompson<br/>Director of Implementation</p> <p>GCRE Limited<br/>Floor 5<br/>One Central Square<br/>Cardiff<br/>CF10 1FS</p> |
| Project Manager – Client | <ul style="list-style-type: none"> <li>To act on behalf of the Employer, with responsibility for managing the Earthworks of the Project within the agreed environmental constraints in conjunction with all other necessary management processes.</li> </ul>                                                                                                                                                                                                                                                                                              | <p>GCRE</p> <p>Mike Edmonds<br/>Earthworks Project Manager</p> <p>GCRE Limited</p>                                                             |

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                          |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        | <ul style="list-style-type: none"> <li>• Ensuring delivery of project sustainability and environmental targets.</li> <li>• Reviewing results of environmental inspections/audits at monthly progress meetings.</li> <li>• Ensuring satisfactory close out of any complaints and any rectification measures are implemented.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Floor 5<br/>One Central Square<br/>Cardiff<br/>CF10 1FS</p>                                                                                                                           |
| Project Manager – Principal Contractor | <ul style="list-style-type: none"> <li>• Ensuring all relevant persons in a position of responsibility are suitably trained and competent in environmental matters to implement the requirements of the Client and the contractor.</li> <li>• Implementation of the CEMP, management systems and relevant procedures, management plans, requirements and method statements.</li> <li>• Ensuring adequate environmental instruction is given to those employees and contractors under their control.</li> <li>• Requesting advice and support from environment team/specialists.</li> <li>• Communicating environmental performance to the Client.</li> <li>• Examining results of environmental inspections/audits at weekly progress meetings.</li> <li>• Examining the outcomes of any complaints and ensure rectification measures have been put in place.</li> <li>• Approving methods of work and supporting any measures to mitigate environmental impacts as far as reasonably practicable.</li> </ul> | <p>Walters UK</p> <p>Andrew Pope<br/>Snr Project Manager</p> <p>Hirwaun House<br/>Hirwaun Industrial Estate<br/>Aberdare<br/>Rhondda Cynon Taf<br/>CF44 9UL</p> <p>Tel; 01685 815100</p> |
| Site Agent                             | <ul style="list-style-type: none"> <li>• Implementation of site-specific controls and mitigation.</li> <li>• Ensuring works under their control do not cause pollution, and that they comply with the environmental requirements specified in the REAC, as well as the other site controls required for waste and materials, ecology, landscape, archaeology, water, air and noise.</li> <li>• Communication of environmental site briefings, toolbox talks and other environmental / community requirements to operatives, subcontractors and delivery</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>Walters UK</p> <p>Rhys Hutchings<br/>Site Agent</p> <p>Hirwaun House<br/>Hirwaun Industrial Estate<br/>Aberdare<br/>Rhondda Cynon Taf<br/>CF44 9UL</p> <p>Tel; 01685 815100</p>       |

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                              |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        | <p>drivers.</p> <ul style="list-style-type: none"> <li>• Raising environmental observations or concerns to the environmental team or directly to the Project Manager.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| General Foremen                        | <ul style="list-style-type: none"> <li>• Communication of environmental site briefings, toolbox talks and other environmental / community requirements to operatives, subcontractors and delivery drivers.</li> <li>• Ensuring all works are carried out in accordance with approved Method Statements and environmental requirements.</li> <li>• Raising environmental observations or concerns to the environmental team or directly to the- Works Manager.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Walters UK</p> <p>Neil Jones<br/>General Foreman</p> <p>Hirwaun House<br/>Hirwaun Industrial Estate<br/>Aberdare<br/>Rhondda Cynon Taf<br/>CF44 9UL</p> <p>Tel; 01685 815100</p>          |
| Health, Safety & Environmental Manager | <ul style="list-style-type: none"> <li>• Ensuring the Project Manager is aware of environmental constraints.</li> <li>• Providing environmental and sustainability support to the project team and delivering environmental training.</li> <li>• Liaising with the client and regulators on environmental management issues.</li> <li>• Attending environmental stakeholder meetings as required.</li> <li>• Writing, issuing and updating environmental documentation.</li> <li>• Providing support and advice on environmental issues to operations and managing specialist environmental subcontractors and service providers.</li> <li>• Liaising with the client, regulators and operations with regards to environmental issues.</li> <li>• Implementing a programme of and performing environmental inspections, investigating incidents, issuing corrective actions and monitoring their close out.</li> <li>• Ensuring works are in compliance with the CEMP and other environmental requirements.</li> <li>• Ensuring the implementation of environmental mitigation as required.</li> </ul> | <p>Walters UK</p> <p>Robert Crellin<br/>Group Safety Officer</p> <p>Hirwaun House<br/>Hirwaun Industrial Estate<br/>Aberdare<br/>Rhondda Cynon Taf<br/>CF44 9UL</p> <p>Tel; 01685 815100</p> |
| Community Liaison Officer              | <ul style="list-style-type: none"> <li>• Preparing and implementing a</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Walters UK                                                                                                                                                                                   |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                             |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | <p>procedure for local community liaison.</p> <ul style="list-style-type: none"> <li>• Charing regular community forum meetings to keep the community informed.</li> <li>• Ensuring all site generated enquiries and/or complaints are effectively logged, communicated and actioned.</li> <li>• Assisting in the delivery of the overarching Communication and Engagement plan.</li> <li>• Representing the contractor at partnership/stakeholder meetings relating to community initiatives or communications.</li> <li>• Being the primary point of contact for the Community Development Manager relating to matters on the ground.</li> <li>• Building and maintaining positive relationships with stakeholders facilitating a dynamic and effective communication procedure with established communications team and generating an acceptance of a common vision with all partners/ stakeholders.</li> <li>• Ensuring positive awareness of the project brand to all internal and external stakeholders;</li> <li>• Working closely with the communications team and particularly the Community Development Manager to plan and deliver community liaison tasks to ensure the delivery of KPIs of the communication and engagement plan.</li> <li>• Delivering, monitoring and communicating on the 'Buy Social' clauses and subsequent targets of the project;</li> <li>• Registering the contractor and site with the Considerate Construction Scheme (CCS) and leading the monitoring and measuring against the Code of Considerate Practice.</li> </ul> | <p>Owen Jones<br/>Community Liaison Officer</p> <p>Hirwaun House<br/>Hirwaun Industrial Estate<br/>Aberdare<br/>Rhondda Cynon Taf<br/>CF44 9UL</p> <p>Tel; 01685 815100</p> |
| Ecological Clerk of Works | <ul style="list-style-type: none"> <li>• Providing watching briefs as required to monitor the implementation of ecological mitigation in line with method statements, the EPP and ecological licences.</li> <li>• Providing personnel with relevant</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Sylvian Ecology</p> <p>David Pryce<br/>Ecological Clerk of Works</p> <p>2 Bronant Church Road</p>                                                                        |

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                      |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | <p>ecological toolbox talks.</p> <ul style="list-style-type: none"> <li>• Overseeing the installation of ecological buffer/exclusion zones.</li> <li>• Identifying the requirements for ecological mitigation prior to the commencement of works.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                | <p>Cardiff<br/>CF15 9QG<br/>Tel; 029 2128 3344</p>                                                                                                                                   |
| Archaeological Clerk of Works | <ul style="list-style-type: none"> <li>• Ensuring archaeological recording, analysis, dissemination and archiving is undertaken by a suitably qualified and demonstrably experienced organisation.</li> <li>• Providing supervision as required to monitor the implementation of relevant Standards and Guidance of the Chartered Institute for Archaeologists and guidance from GGAT and CPAT.</li> <li>• Monitoring compliance with cultural heritage mitigation and supervising works with the potential to impact cultural heritage interests.</li> <li>• Consulting CADW, GGAT and CPAT as appropriate throughout the programme of cultural heritage works.</li> </ul> | <p>Wessex Archaeology</p> <p>Dr Daniel Young<br/>Geoarchaeology Manager</p> <p>Portway House<br/>Old Sarum Park<br/>Salisbury<br/>Wiltshire<br/>SP4 6EB</p> <p>Tel; 01722 326867</p> |

# 3. Awareness, Training and Competence

## 3.1. General Awareness and Site Induction

- 3.1.1. On commencement of construction, the Contractor will be responsible for the organisation of training and site inductions of all personnel on the site whether visitors, full time staff or subcontractors.
- 3.1.2. All individuals working or visiting the site will be required to attend a site induction.
- 3.1.3. Site inductions for the construction team, where required, will be tailored to construction activities and relevant environmental risks and mitigation. Site inductions for visitors will be tailored to those areas of the site they are visiting. Further activity and site-specific details will be provided through risk assessment method statements (RAMS) briefings prior to the commencement of a specific activity. Those participating in or near to specific activities that have an environmental impact may be required to attend additional training or toolbox talks.
- 3.1.4. Topics that are to be included with the site induction for the construction team are detailed within **Error! Reference source not found..**

**Table 3-1 – Environmental Topics for Inclusion within Induction**

### Environmental Topics

|                                            |                                           |                                   |
|--------------------------------------------|-------------------------------------------|-----------------------------------|
| • Environmental Policy                     | • Regulatory requirements                 | • Environmental constraints       |
| • Site-specific environmental requirements | • Site environmental plans                | • Pollution prevention procedures |
| • Emergency response                       | • Environmental incidents and reporting   | • Sustainability                  |
| • Traffic management requirements          | • Waste and materials                     | • Ecology/biodiversity            |
| • Archaeology/cultural heritage            | • Noise and vibration                     | • Dust and air emissions          |
| • Contaminated land                        | • Working near water and water management | • Soil management                 |

- 3.1.5. All personnel on site will be made aware of the Environmental Policy, applicable regulatory requirements, the REAC, and an overview of the sites environmental risks/constraints.
- 3.1.6. An environmental training matrix, including a record of all site inductions and training will be maintained. The requirement for any additional training would be identified from the regular site environmental awareness and compliance environmental check reports, or site feedback on any noted non-compliances.

## 3.2. Environmental Training and Competencies

- 3.2.1. The contractor will ensure all personnel conducting environmental tasks are suitably qualified or experienced for the roles and responsibilities that they are employed to undertake.
- 3.2.2. The contractor will ensure that all personnel have attended the relevant environmental induction and training, including additional, new, or updated training, prior to undertaking any activities on site.
- 3.2.3. The Contractor will conduct toolbox as required. Each team will be provided with a minimum of one environmental toolbox a month. Toolbox talks will be linked/tailored to construction activities and environmental risks/constraints.

- 3.2.4. Toolbox talks will be delivered to construction teams by sufficiently competent personnel and are to be posted in welfare units and office reception areas. Records of toolbox talks, including attendance.
- 3.2.5. Selected members of the Site Management Team including the Work Manager, General Foreman and the HSE Manager will be given practical training in the use of the spill kits, appropriate Personal Protective Equipment (PPE), clean-up procedures and the appropriate disposal and recycling requirements.
- 3.2.6. The contractor will ensure that all relevant persons in a position of responsibility are suitably trained and competent in environmental matters to implement requirements.

## 4. Environmental Inspection, Monitoring and Reporting

### 4.1. Environmental Monitoring Requirements

- 4.1.1. Through daily checks, site inspections and audits the contractor will ensure compliance with the requirements of the ES, REAC, and CEMP, in addition to environmental management procedures, method statements and regulations.
- 4.1.2. The REAC sets out a number of requirements for environmental monitoring to ensure that the required mitigation measures and actions can be tracked and closed out when completed. Further monitoring requirements are specified within supporting environmental documents listed in Table 1-2.
- 4.1.3. The contractor will make key personnel aware of their environmental monitoring responsibilities.

### 4.2. Inspection, Auditing, Recording and Non-Compliance

#### Daily Checks and Site Inspection

- 4.2.1. Daily recorded environmental checks are to be undertaken by the construction teams. Daily checks are to cover:
  - Weather checks;
  - Visual dust monitoring;
  - Inspections of vehicle, plant and equipment;
  - Inspection of environmental exclusion/protection fencing;
  - Visual checks of watercourses and outfalls;
  - Inspections of pollution prevention/control equipment/materials;
  - Water discharges and abstractions;
  - Storage of potentially polluting substance/materials; and
  - Waste facilities.
- 4.2.2. Regular environmental site inspections are also to be undertaken by the HSE Manager, and/or other relevant environmental clerks of work (Ecology, Archaeology) and specialists, in addition to the Site Agent and Works Manager.
- 4.2.3. Records of daily checks and site environmental, demonstrating compliance will be maintained by the contractor. These will be available for inspection by representatives of any audit team and relevant regulatory bodies.

#### EMS Audit and Management Review

- 4.2.4. Periodic EMS audits and management reviews will be undertaken, recording compliance with legislation and the Project's environmental requirements, in addition to conformance with the requirements of ISO14001 (2015), the effectiveness of the EMS and overall environmental performance.
- 4.2.5. Periodic management review will consider the following:

- Results of internal audits and evaluations of compliance with legal and other requirements;
- Communication(s) from external interested parties, including complaints;
- Effectiveness of the EMS;
- Record/document control management;
- Overall environmental performance and progress towards the achievement of objectives and targets;
- Environmental non-conformances/incidents and status of corrective actions;
- Follow-up actions from previous management reviews;
- Changing circumstances, including developments in legal and other requirements related to the environmental aspects; and
- Recommendations for improvement.

### Environmental Non-Compliance

- 4.2.6. All non-compliances raised during site inspections, audits and management reviews will be logged in an environmental action tracker, along with appropriate corrective actions, timeframes for the implementation of corrective actions and confirmation that the identified non-conformance has been effectively addressed.
- 4.2.7. The action tracker will be allocated to a specific individual, will be emailed directly to them, and all will have access to the compliance tracker. All actions to be closed out by close out date detailed within tracker. A review is to be undertaken, initially on a monthly basis, of the compliance tracker to ensure all non-compliances are being effectively actioned and to ascertain any root causes and associated remedial actions associated with reoccurring themes of non-compliance.

## 5. Communications

### 5.1. Internal Communications

- 5.1.1. The contractor will establish and maintain procedures for internal communications between the various levels and functions of the team during construction. Internal communications include, but not limited to:
- Advising of non-conformances to relevant managers;
  - Communicating environmental commitments to the construction team;
  - Communicating the environmental policy to the construction team;
  - Raising awareness of environmental issues to the construction team; and
  - Reporting incidents to relevant managers.
- 5.1.2. Environment and sustainability are to be a standing items on the agenda for the Project's monthly progress meetings.
- 5.1.3. Environmental communications/information including notices, plans, toolbox talks, performance updates, bulletins and posters will be displayed on the Project's Environmental & Sustainability Noticeboard, which will be sited in a prominent position within the site offices. Communication/information displayed on the noticeboard will be updated on a regular basis.
- 5.1.4. Changes and updates to environmental policy, procedure, best practice guidance and legislation is to be communicated to the Project teams by the HSE Manager.

### 5.2. External Communication

- 5.2.1. External communication will include but not be limited to:
- Consultation with the statutory bodies (LPAs, NRW, Cadw);
  - Consultations and presentations to local residents' representatives and any other interested parties; and
  - Advance notification to those affected by particular phases/elements of construction.
- 5.2.2. Possible consultees include, but are not limited to:
- LPA;
  - Cadw;
  - GGAT;
  - CPAT;
  - NRW;
  - Statutory Utilities – Gas, Electric, Water, Telecoms;
  - Third party Landowners; and
  - Local residents.

- 5.2.3. A CLO is to be appointed to manage communications with third parties, ensuring that they are aware and kept up to date with the construction works as they progress, in addition to addressing any concerns/complaints third parties may have in relation to the works. The CLO is also to prepare a procedure for Local Community Liaison and is to hold regular Community Forum Meetings.
- 5.2.4. An Environmental Liaison Group is to be established with statutory environmental bodies. The contractor will facilitate monthly ELG meetings in order to provide an update on environmental mitigation, progress and performance.
- 5.2.5. A record of all external communicates relating to environmental matters will be maintained.

## 5.3. Complaint Management

- 5.3.1. Complaints are made via the CLO whose details will be included on all communication.
- 5.3.2. All complaints will be logged, and the CLO will respond initially within 48 hours to let the complainant know that they are being dealt with. The complaint will be investigated, and a response formulated and issued; this will usually be done within 7 working days.
- 5.3.3. If the response does not satisfy the complainant, then a site visit is arranged so that the complaint can be discussed in more detail with the CLO and Project Manager.
- 5.3.4. The procedure for managing complaints is as follows:
- Complaint received.
  - Complaint passed to CLO who will log the complaint within the Complaints Register.
  - The CLO will inform the Project Manager and contact the complainant, advising the complaint is being handled.
  - The complaint will be investigated by the Project Manager and response issued by the CLO. Any management action taken to prevent repetition will be noted within the Complaints Register and detailed within the response issued to the complainant.
  - All complaints will be discussed within monthly Project progress meetings.
  - Any changes to procedures, mitigation measures or methods of works as a result of a complaint are to be communicated to the Project team.

## 6. Environmental Legislative Requirements

### 6.1. Policies

- 6.1.1. The project will adhere GCRE's and the contractor's environmental and sustainability policies.
- 6.1.2. The contractor will ensure that the policies and their requirements are communicate to all relevant personnel.
- 6.1.3. Policies will be maintained in compliance with the Project's document control system and are to be displayed on the Environmental Notice Board.

### 6.2. Legislation, Regulation and Other Requirements

- 6.2.1. The Client and contractor are responsible for managing the site in accordance with all applicable environmental legislation, regulations and other requirements, including the conditions of the Project's planning permission.
- 6.2.2. A Register of Health, Safety and Environmental Legislation is maintained. The Register will be updated following any changes to applicable legislation. Any changes will be evaluated and communicated to the relevant project personnel.
- 6.2.3. All Project personnel will be kept informed of the legal requirements relevant to their individual roles and activities. This will be achieved through the training and briefing procedures outlined in Section 3 of this CEMP.

## 7. Consents and Other Permissions

- 7.1.1. An Environmental Consents Register relating to environmental mitigation and construction activities will be maintained and updated by the contractor.
- 7.1.2. Prior to the commencement of any works, including environmental mitigation, the contractor is to ensure all necessary consents, permissions and licences are to be sought and obtained.
- 7.1.3. Consents and other permissions required by the Project are listed in Table 7-1, with a live Environmental Consents Register documented in Appendix B.
- 7.1.4. Any conditions related to any consent, permission or agreement will be added to the REAC and relevant method statements.

**Table 7-1 Environmental Consents and Other Permissions**

| Requirement                                                                     | Consent/Permit/<br>Licence/Permission                                             | Issuing Authority | Location/Activity                                                   | Consent/Permit/Licence/<br>Permission Ref and Key Conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Storage, treatment and/or reuse of waste                                        | Bespoke Permit or Mining Waste Directive                                          | NRW               |                                                                     | Requirements be confirmed - Works to be undertaken under a Mining Waste Directive or DoWCoP MMP.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Material management – Reuse of materials defined as non-waste or end-of-waste   | Materials Management Plan (MMP)                                                   | Qualified Person  |                                                                     | Requirements be confirmed - Works to be undertaken under a Mining Waste Directive or DoWCoP MMP.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Waste Carrier                                                                   | Waste Carriers Licence                                                            | NRW               |                                                                     | CBU018753                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Production of hazardous waste                                                   | Hazardous Waste Producer                                                          | NRW               |                                                                     | CAG400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Discharges to surface water, groundwater or ground<br>Dewatering of excavations | Discharge or Groundwater Activity Environmental Permit: standard rules or bespoke | NRW               | Discharges of water to Nant Camant (SN 853 105) via Outlet D and B. | Discharge activity to be undertaken in compliance with permit BB 4027001.<br>Outlet D discharges to be of treated surface water run-off with a pH not less than 6 or more 9, with suspended solids below 100mg/l and oil below 10mg/l. The rate of discharge shall not exceed 90l/sec.<br>Outlet B discharges to be of untreated surface water run-off. Outlet B is only to be used within flow to treatment lagoons are greater than 90l/sec.<br>Recorded sampling of discharges from both outlets is required. |

|                                  |                                            |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                         |
|----------------------------------|--------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Impacts to Ordinary Watercourses | Land Drainage/Ordinary Watercourse Consent | Lead Local Flood Authority | <p>The construction of the Phase 1A washery works requires the installation of new drainage and modifications to the existing watercourse system. These include the construction of new ponds and ditch realignment which will require works within existing watercourses at the following three locations:</p> <ul style="list-style-type: none"> <li>• The outfall for the permanent drainage system in the Afon Dulais</li> <li>• The realignment of the existing watercourse and construction of a new attenuation pond and environmental pond to the North of the proposed works.</li> <li>• The realignment of the existing ditch to the west of the proposed development.</li> </ul> | All works to be undertaken in compliance with design and methods submitted with the application and with the conditions of the consent. |
|----------------------------------|--------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|

## 8. Register of Environmental Commitments and Actions

- 8.1.1. A Register of Environmental Actions and Commitments (REAC) has been prepared to consolidate environmental mitigation commitments associated with the earthworks and as defined within the Environmental Statements for both the Nant Halen Complimentary Earthworks and the GCRE development, in addition to those realised through consultation with relevant stakeholders and pre-construction surveys.
- 8.1.2. Environmental commitments detailed within the REAC are to be implemented during the design, construction and operational phases of the scheme and have been incorporated into the Construction Environmental Management Plan.
- 8.1.3. The REAC is document within Appendix C of this CEMP.

## 9. Environmental Risks Register

- 9.1.1. An Environmental Risk Register is maintained and is documented in Appendix F of this CEMP.
- 9.1.2. The Register is a live document and is to be reviewed and updated in line with the CEMP to manage environmental risks throughout the Project.
- 9.1.3. For each of the aspects the potential impact is scored for the situation where no mitigation measures are employed and again where mitigation measures are employed.
- 9.1.4. This register will be used to inform the environmental procedures and mitigation and is to act as a tool for the construction teams when preparing construction method statements.

# 10. Environmental Management and Construction Principles

## 10.1. General Environmental Management Measures

- 10.1.1. Environmental management controls and mitigation measures identified in the ES and deemed necessary to ensure the Project's environmental impacts are kept to a minimum and the environment is protected from harm during the execution of the Project are to be followed at all times.

### Site Management

- 10.1.2. The layout of Project site, including the location of site offices, compounds, COSHH stores, welfare facilities, waste storage facilities, spill kits, firefighting equipment and drainage systems are detailed in Appendix E. A satellite office will be established within the existing ex-washery office facilities as detailed within the Site Plan within Appendix E. Construction traffic will be controlled as outlined within the Construction Traffic and Management Plan.
- 10.1.3. All working areas will be kept in a clean and tidy condition.
- 10.1.4. The contractor will establish designated COSHH storage areas. Fuel and COSHH storage outside of these areas will not be permitted.
- 10.1.5. Welfare facilities will be provided on site and maintained.
- 10.1.6. The Contractor is to instigate behavioural policies for all the site personnel with regards to traffic/vehicle management in aim of minimising impacts to air quality. Behavioural policies are to cover:
- Minimisation of traffic to site by 'sharing' vehicles or by the use of a site bus;
  - Avoidance of part load deliveries;
  - Utilisation of pre-booked delivery policy to minimise holding vehicles prior to loading or unloading;
  - Ensuring that all construction plant, vehicles and equipment are turned off rather when not in use, avoiding idling; and
  - Where feasible, considering the use of hybrid generators.
- 10.1.7. Site speed limits of 20mph will be applied.
- 10.1.8. The contractor and the site will be registered with the CSS.

### Pollution Prevention

- 10.1.9. The project team will be made aware potential pollution risks and appropriate mitigation measure to minimise the risks through the induction process, toolbox talks, site briefings and further training.
- 10.1.10. The following historical Environment Agency Pollution Prevention Guidance will be utilised on-site as best practice to prevent pollution in addition to the measures outlined below:
- Guidance for storing and handling materials and products:
    - PPG2: Above ground oil storage tanks;

- PPG 6: Working at construction and demolition sites;
- PPG 7: Refuelling facilities; and
- PPG 26: Drums and intermediate bulk containers;
- Guidance for site drainage, dealing with sewage and trade effluents:
  - PPG 3: Use and design of oil separators in surface water drainage systems;
  - PPG 4: Disposal of sewage where no mains drainage is available; and
  - PPG 13: Vehicle washing and cleaning.
- Guidance on general good environmental practice:
  - PPG 1: General guide to the prevention of pollution;
  - PPG 5: Works in, near or liable to affect watercourses; and
  - PPG 21: Pollution incident response planning

10.1.11. Generic pollution prevention measures to be implemented during the construction of the earthworks are detailed below, with specific measures relating to the water environment, contaminated land, landscape, noise and vibration, and air emissions detailed within the following sections of this CEMP:

- Potentially polluting substances, products and materials used and available on-site will be kept to a minimum and will be stored in accordance with COSHH and applicable pollution control regulations.
- Storage tanks intended for potentially polluting substances will be sited within areas of hardstanding and will be contained within suitably sized bunds with sealed drainage systems. All pipework, valves, filters, sight gauges, vent pipes and other ancillary equipment are to be above ground, also located within the bund and protected from accidental damage.
- Storage bowsters or containers for the storage of potentially polluting substances will be doubled skinned and banded. Bunds will have sufficient volume to contain 100% of the contents of the largest container or is to be over 25% of the total storage capacity of all containers – whichever is greater.
- When in use, containers of potentially pollution substances will be kept on drip trays/bunds away from traffic.
- COSHH storage areas, storage tanks and fuel stores will be inspected regularly, with inspection records maintained.
- The storage of potentially polluting substances and refuelling will not be permitted within:
  - 50 m of a spring, well or borehole;
  - 10 m of a watercourse;
  - 10 m of open drains; or
  - Any areas at risk from flooding.

- At the end of each day, plant and equipment will be moved a minimum of 10 m from any watercourse or drain.
- Settlement tanks and oil interceptors will be utilised as required.
- Vehicle/equipment washing facilities to be positioned a minimum of 10 m from any watercourse and are to have a drainage system that will capture run-off/effluent, allowing it to be treated as required.
- Spill response kits of an adequate size will be made available at all points of work and personnel are to be trained in their use. Excavation plant will also be fitted with fuel spill kits.
- Wheel cleaning systems (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable) will be installed at site access and exits.

## Energy Management

- 10.1.12. Energy will be managed by the project team and undergo regular audits throughout the project. Good practice methods will be put into methodologies for construction works in order to reduce energy construction, and where possible, innovative and sustainable technologies will be used to reduce the carbon footprint of the project. Carbon footprint calculations will be deployed where expected carbon usage will be calculated prior to works commencing and compared with final carbon usage values.

Examples of practices put in place to conserve energy will include.

### Earthworks Operations

- Detailed planning of earthworks to reduce haulage distances, with haul roads to be constructed from site won materials to reduce imported materials.
- The most efficient use of site-won earthworks materials within the permanent works to reduce import requirements and reduce material haulage.
- Modern fuel-efficient plant to be deployed, with all engines to be switched off when not in use.

### Offices and Welfare

- The use of double insulated office and welfare accommodation to reduce energy consumption. Offices to have automated light switch off when not in use. Toilet facilities to have efficient low water capacity flushing and taps to have automated switch off when not in use.
- Automate energy technologies to be used to control and divert power within the offices and reduce generator size.
- Offices to have posters displayed to remind personnel of their responsibilities to reduce energy consumption and to turn off lights and heaters when not in use.
- Solar panel signage to be used where possible, eg advance mobile ADS signs
- Where possible car and van sharing will be used to reduce vehicle movements.

## Exclusion Zones and Protective Fencing

### Ecology

- 10.1.13. Where required, exclusion zones will be established, and protective fencing installed to prevent incidental disturbance/damage to retained habitats. Details of habitat and species-specific exclusion zones and the location of protective have been detailed within the EPP.

#### Tree Protection Fencing

- 10.1.14. Tree Protection Fencing will be erected to create exclusion zones in aim of preventing disturbance/damage to the RPAs of retained trees.
- 10.1.15. The tree protection fencing will consist of Heras fencing as per BS5837:2012 Trees in relation to design, demolition and construction.

#### Public Rights of Way

- 10.1.16. All PRowWs will be segregated from the construction works using Heras type fencing.
- 10.1.17. Signage will be provided to aid PRowW users, highlighting any closures and diversions.

#### Archaeology

- 10.1.18. Where required, exclusion zones will be established, and protective fencing installed to prevent incidental disturbance/damage to archaeological assets.
- 10.1.19. Appropriate signage will be provided to communicate the presence of archaeological assets and the purpose of the exclusion zones.

#### Silt Fencing

- 10.1.20. Where necessary, silt fencing may be used as a precautionary measure to prevent silt migrating into watercourses. The fencing is to be constructed of a permeable filter fabric attached to wooden stakes.

#### Land Quality

- 10.1.21. Where necessary, fencing and/or signage may be used to demarcate and control access to areas of site soils that present a risk to human health, controlled waters and property. Examples include any areas where risks from asbestos likely or acute risks from other contaminants are present. Heras fencing or similar would be utilised along with appropriate signage that communicates the risks.

## 10.2. Public Rights of Way and Common Land

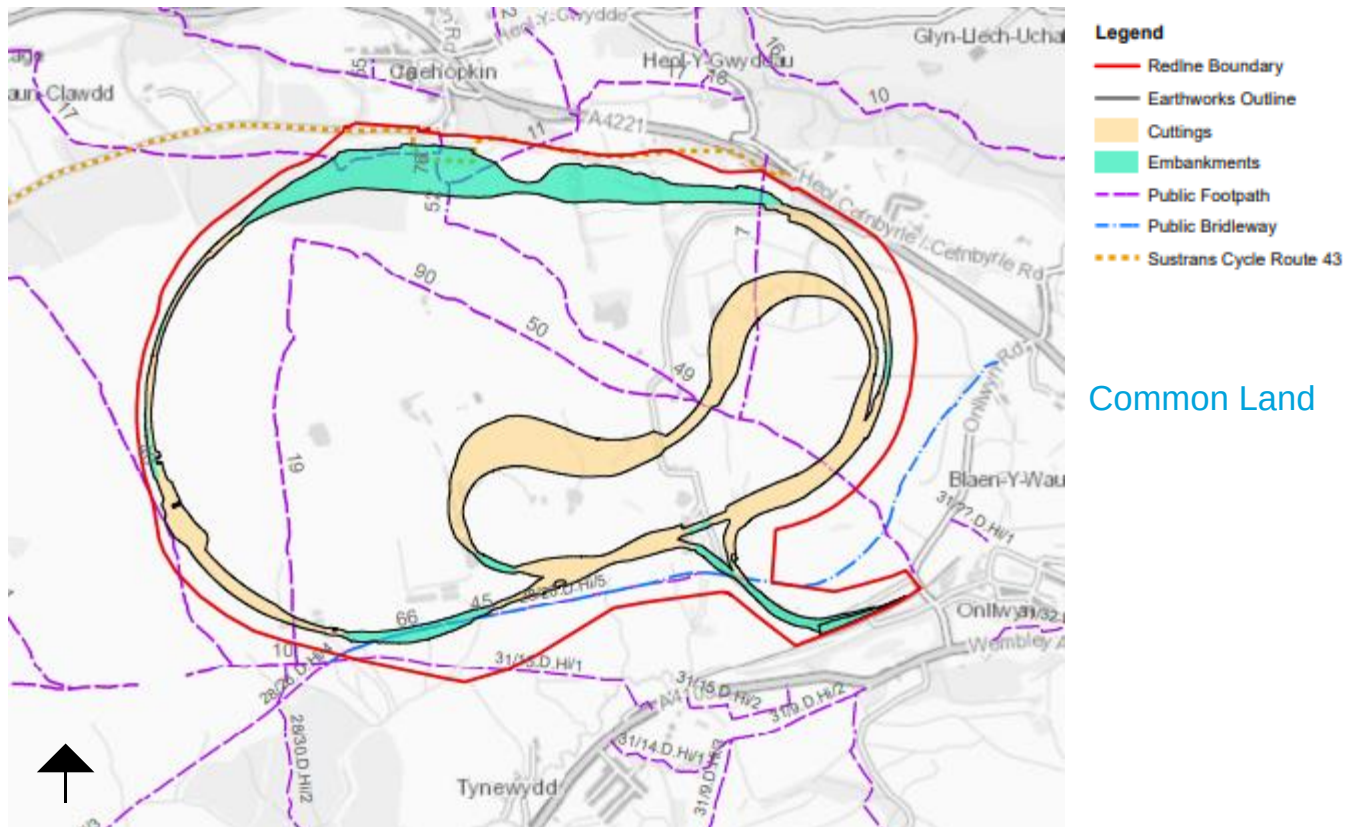
### Public Rights of Way

- 10.2.1. To facilitate the development, the contractor will be required to close and divert a number of PRowW.
- 10.2.2. All PRowWs are to be managed in compliance with the PRowW Management Plan/Notice, which is being prepared by LPAs in conjunction with GCRE. The Plan/Notice will include:
- Details of all PRowWs to be affected;
  - Reasons for any changes to the existing PRowW network;
  - Details of signage;
  - Safety measures to segregated PRowW users form the construction works;
  - How the PRowWs are to be inspected during construction; and

- How the PRowS are to be reinstated on completion of the earthworks.

10.2.3. On completion of the earthworks, all PRowS to be reinstated as close to the definitive map (Figure 10-1) as possible, in agreement with the LPAs. However, it is to be noted that due to the new terrain introduced by earthworks, the steepness of the PRowS that cross the embankments may have to be modified to avoid excessive inclines. This will not alter the overall routing but is likely to make some of the paths longer as they are modified to zig-zag up and down the embankments to reduce steepness.

Figure 10-1 PRow Map



10.2.4. During the earthworks the Common Land rights will continue to be suspended under the same legal agreements that are in place for the mining works.

10.2.5. Works with the potential to impact common land will be undertaken in compliance with the Common Land Strategy being developed by PCC and NPTCBC. The Strategy is to set out the approach for managing any impacts that may arise as a result of changed access to the common as a result of the earthworks.

## 10.3. Water Environment

10.3.1. The following surface water features have been identified to be potentially affected by the Project:

| Surface Water Feature | Distance from Project Site |
|-----------------------|----------------------------|
| • River Nant Llech    | 1.2km                      |
| • River Dulias        | Within site boundaries     |
| • River Camant        | 270 m                      |

|                                                                                       |                        |
|---------------------------------------------------------------------------------------|------------------------|
| <ul style="list-style-type: none"> <li>• 16 ponds (natural and artificial)</li> </ul> | Within site boundaries |
| <ul style="list-style-type: none"> <li>• Unnamed drainage ditches</li> </ul>          | Within site boundaries |

10.3.2. From flood risk perspective, the site is classified as a being in Zone A, meaning that the site is considered to be at little or no risk of fluvial or tidal flooding, and with regards to groundwater, the underlying bedrock geology has been classified as a Secondary A Aquifer.

10.3.3. It is to be noted that the groundwater regime is thought to be fundamentally controlled by remnants of historical mining activities such as shafts or adits, with the historical mine workings potentially acting as pathways for groundwater into the local surface water network. It is also to be noted that to facilitate mining works, the site has been subject to dewatering, therefore when mining operations and associated dewatering cease, it is anticipated that the groundwater regime is likely to restore to pre-dewatering state. This could potentially result in increased groundwater levels to those currently present.

10.3.4. General construction and pollution principles to protect both physical water environment, water habitats and morphology, and to avoid unacceptable adverse effects including changes to flows, water levels and water quality due to construction are detailed in Section 10.1 of the CEMP, with further mitigation measures specific to the water environment set out below.

## Surface Water Management

10.3.5. When working near, in, or under a watercourse detailed risk assessments will be completed to ensure that appropriate control measures are in place to eliminate or mitigate the environmental impact of the activity. The risk assessment should ensure that the works do not:

- Cause pollution;
- Have a negative impact on water quality;
- Have a negative impact on wildlife; and
- Increase flood risk

10.3.6. Temporary surface water management systems will be installed early in the construction sequencing and carefully managed to prevent localised flooding or pollution of surface and groundwater from sediment and other contaminants.

10.3.7. Adequate treatment for dealing with silty water will be identified and implemented by the contractor. These techniques will be dependent on local geographic features such as ground conditions, gradients, locality of watercourses, sensitivity of the local environment and prevailing weather conditions.

10.3.8. The most suitable measures for the proposed activity will be selected from the following but would not be exclusive to:

- Aggregate Filter Media controls at the point of surface water entering the controlled waters, drainage system;
- Settlement lagoons or tank;
- Cut-off ditches;
- Pumping to grassed/vegetated areas;
- Check dams and sumps;

- Baffled systems;
- Coir matting
- Silt filters;
- Silt fence; and
- Water treatment systems.

10.3.9. No silty water will be pumped directly into any watercourse and any temporary surface water drainage measures will be planned and designed appropriately prior to installation and recorded on drawings. Recorded details will include:

- Soil/sediment settlement rate;
- Drainage system capacity;
- Details of systems installed to intercept and treat contaminated water run-off; and
- Details of steps to prevent bypassing of the drainage system.

### Dewatering and Groundwater Activities

10.3.10. The dewatering of excavations will be to ground, attenuation ponds or surface water. All dewatering activities will be performed under an appropriate RPS or environmental permit, if required, and will be subject to suitable treatment prior to being discharged back into the environment.

10.3.11. Dewatering activities and the receiving water environments are to be monitored to ensue no adverse impacts as a result of the dewatering activities.

10.3.12. Vegetation will be introduced into landscape, as soon as reasonably practicable, to mitigate the leachate of contaminants into underlying groundwater.

### Working in Watercourses

10.3.13. To facilitate the earthworks, there will be a requirement to temporally stop up watercourse and drainage ditches for the installation of culverts and to create diversions.

10.3.14. All in-stream works to be undertaken in compliance with GPP5.

10.3.15. Prior to the commencement of any in-channel works, the Contractor will ensure all relevant permits and permissions are in place for the specific watercourse/ditch. On the commencement of construction, if any deviation from the agreed consents is required, the regulator will be consulted, and the changes agreed prior to commencement of works.

10.3.16. Where required, the ECoW will inspect the area for any protected or invasive species. Any precautions required by the presence of protected species, fish and invertebrates will be implemented as advised by the ECoW.

10.3.17. The ECoW will supervise the dewatering and initial scrape of the watercourse, as required

10.3.18. The ACoW will supervise any ground breaking activities that may impact the formation of the watercourse identified for archaeological mitigation.

10.3.19. If water is present within the watercourse/ditch, temporary dams at either side of the works will be installed and an over pumping system set up. The pumping system shall include any necessary sediment filtration.

## Culvert Design

10.3.20. The design of any new or extended culverts will ensure that:

- The base of the culvert is set >150 mm below the existing bed of the watercourse. This will help to retain habitat connectivity either side of the culvert and promote continued sediment transport downstream;
- Culvert gradients are such that flow velocities within the culvert are minimised to aid fish passage; and
- Any scour protection at the inlet or outlet uses bioengineering methods wherever practicable to maximise habitat potential.

## Exposed Soil and Stockpile Management

10.3.21. Wherever possible, topsoil will be left in place to minimise the amount of unprotected ground exposed to runoff. Where topsoil removal is required, it would take place as late as possible prior to other works in the area.

10.3.22. In advance of vegetation clearance and soil stripping operations commencing within 10m of a watercourse, appropriate control measures would be implemented to prevent pollution.

10.3.23. Areas of exposed soil deemed at risk of erosion during heavy rainfall or flood inundation will be protected using either temporary measures (e.g., sheeting) or semi-permanent measures (for example coir matting) until vegetation is able to establish on these surfaces.

10.3.24. Topsoil stockpiles would be created and managed in accordance with best practice guidance.

10.3.25. Stockpiles will be located and configured in such a way that will avoid the risk of polluting watercourses and drainage ditches. Stockpiles will be located on level ground if possible and where practicable sited at least 10 m away from any watercourses.

10.3.26. The sides of stockpiles will be graded to prevent ponding and to help shed rainwater, with silt fencing installed around the margins of topsoil mounds to minimise the risk of sediment-laden runoff reaching watercourses.

10.3.27. Exposed stockpiles that are to remain for long periods will be seeded with a standard Rye Grass seed mix immediately upon completion and in suitable weather conditions. Cleared land will also be reseeded as soon as practicable, to minimise exposed soil and subsequent sediment runoff.

## Water Use and Abstraction

10.3.28. Potable water to supply the offices and welfare will be drawn off the existing water main which used to supply the washery site.

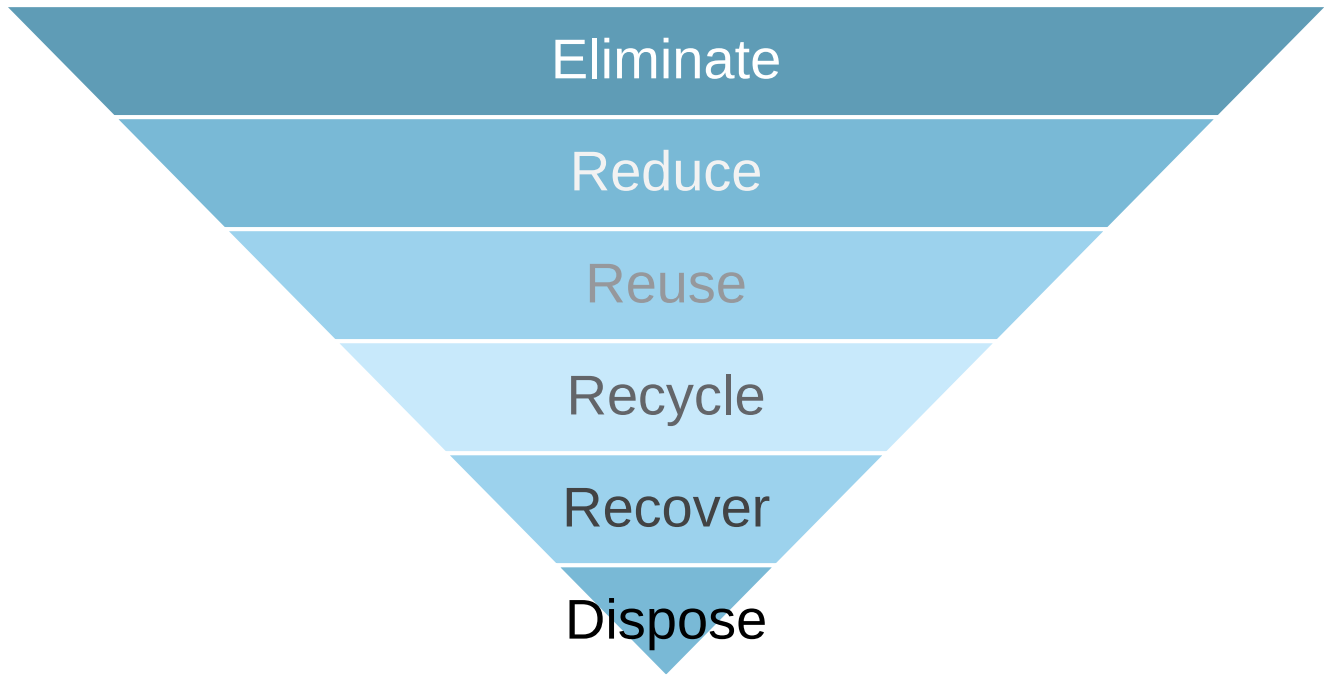
Water will be required to dampen down haul roads and earthworks fill areas to prevent the migration of dust. This water will be drawn from the existing settlement lagoons within the washery site.

No water abstraction will be required from existing watercourses.

## 10.4. Waste and Materials

10.4.1. The contractor will seek to maximise resource efficiency and reduce the amount of waste generated, through application of the waste hierarchy (Figure 10-2).

**Figure 10-2 Waste Management Hierarchy**



- 10.4.2. In the design of the earthworks, consideration has been given to the elimination of waste through the implementation of a MMP, allowing suitable site won material from the creation of cuttings to be utilised in the construction of the embankments and in the wider landscaping to the site. Additionally mining spoil will be reused in compliance with the Mining Waste Directive.
- 10.4.3. The excavation and reuse of suitable site won material will be completed in compliance with the Environmental Permitting (England and Wales) Regulation 2016, and in accordance with the CL:AIRE DoWCoP, or if applicable the Mining Waste Directive.
- 10.4.4. Consideration has also been given to reducing waste in the programming of the works and through implementing methods of work that promote efficient and lean operations. Where waste cannot be avoided, the contractor will seek to reuse through the registration of appropriate waste exemptions.
- 10.4.5. The contractor has developed a SWMP for the Project that identifies and classifies waste and materials to be produced in the construction of the earthworks, in addition to predicted quantities, waste management options/routes and details of waste contractors. The SWMP for the Project is documented in Appendix F.
- 10.4.6. The SWMP will be a live document and updated as required to reflect actual quantities produced and to include any previously unidentified waste type. The SWMP will also be used to monitor compliance with waste regulation.
- 10.4.7. Prior to the commencement of construction, the contractor will identify appropriately licenced waste contractors for the handling of identified waste streams. Recorded checks will also be undertaken of the waste contractors' waste carrier licences and waste management facilities permits/licences, with copies of the permits/licences retained.
- 10.4.8. All movements of waste are to be covered by a waste transfer note or consignment note. Waste transfer notes and consignment notes will be retained for the duration of the Project.
- 10.4.9. All waste generated will be stored in secure areas or containers, which prevent escape of the waste/material to the wider environment and are signed posted with the waste/material type and the appropriate EWC Codes.

- 10.4.10. There will be no mixing of inert, non-hazardous and hazardous waste/materials.
- 10.4.11. The site will be registered as a Producer of Hazardous Waste with NRW.
- 10.4.12. Any hazardous waste produced will be stored in a manner that prevents its escape to the wider environment whilst awaiting collection.
- 10.4.13. Soils unsuitable for reuse on site under an MMP, will be classified as waste and will be subject to waste characterisation and WAC testing prior to disposal.

## 10.5. Ground Environment and Soils

### Contaminated Land

- 10.5.1. A preliminary investigation and assessment of the nature and extent of contamination affecting Phase 1a undertaken to further the understand of the nature and extent to contamination across the site; and to determine requirement for remediation.
- 10.5.2. Site investigations included chemical testing of made ground to inform the identification of adequate health and safety mitigation measures and the suitability of material/soil for reuse.
- 10.5.3. All required remediation works will be undertaken and verified by a suitably qualified and experienced contaminated land practitioner, with materials/soils constituting on-going sources of contamination removed/remediated as during construction in line with current legislation.
- 10.5.4. Following the completion of any works/measures undertaken to remediate contaminated land, a verification report that demonstrates the effectiveness of the remediation will be produced, in addition to a long-term monitoring and maintenance scheme to assess the effectiveness the remediation.
- 10.5.5. Upon discovery of potentially contaminated soil that has not been identified by the site investigations the below is to be followed:
  - A. Stop works in the affected area until assessment and mitigation is in place;
  - B. Establish exclusion with appropriate signage around potentially contaminated soils;
  - C. Inform HSE Manager and Site Manager;
  - D. LPA notified; and
  - E. Specialist advice shall be sought, and sampling/further investigation undertaken in agreement with the LPA and NRW,
- 10.5.6. Only when further investigation by a suitably qualified and experienced contaminated land practitioner has occurred, any required mitigation been put in place, and approval by the regulator been received is the exclusion to be removed and works permitted to continue.
- 10.5.7. If the further investigation confirms contamination risks to be unacceptable, the exclusion zone is to remain in place and additional measures for the remediation of the soils in agreement with the LPAs and NRW will be implemented. Only when the agreed remediation works are complete, and a verification report is submitted and approved by the LPA and NRW will the exclusion zone be removed, and the construction works permitted to continue.
- 10.5.8. Potentially contaminated soils are to be covered whilst awaiting assessment, where possible, and surface water drainage to and from the exclusion area controlled to prevent mobilisation of contaminants.

## Soils

- 10.5.9. The contractor recognises that soil is a vulnerable and non-renewable resource, care must be taken throughout all handling, transporting and stockpiling activities to ensure that the soil resources are protected and conserved.
- 10.5.10. To protect and conserve soils throughout the construction phase of the Project, the following measures are to be followed:
- Areas of soil to be protected from construction activities will be clearly marked out and excluded through the use of appropriately signed fencing.
  - Prior to the stripping of topsoil, surface vegetation is to be removed.
  - If sustained heavy rainfall occurs during soil stripping operations, work will be suspended and not restarted until the ground has had at least a full dry day or agreed moisture criteria (such as a specified soil moisture content) can be met.
  - Topsoil and subsoils will be stockpiled separately and demarcated to prevent any mixing.
  - Stockpiling of soils will not be permitted within close proximity to sensitive receptors, including RPAs, surface water feature and undisturbed habitats.
  - Soil will not be stored for so long as to cause significant deterioration in soil fertility.
  - Stockpiles will be sealed with a bucket of an excavator to limit wind borne pollution, surface water run-off and to reduce the risk of overland migration of silt and sediment to surface waters.
  - Soil stockpiles will be checked by the contractor to identify the need for re-compaction to mitigate wind-borne pollution.
  - During drought and prolonged periods of dry weather, where required, stockpiles, as well as soil in transit, will be sprayed with water to dampen down and prevent airborne particles.
- 10.5.11. A Materials Handling Strategy that sets out specific controls and mitigation measures in relation to the management of soils is being produced and is to be implemented by the contractor during construction. The Materials Handling Strategy will include a Soil Resource Plan that includes:
- Maps showing topsoil and subsoil types, and the areas to be stripped and left in-situ.
  - Methods for stripping, stockpiling, respreading and ameliorating the soils.
  - Location of soil stockpiles and content.
  - Expected after-use for each soil.

## Mine Workings

- 10.5.12. Collieries have been identified to have worked the seams beneath study area through various drift and seam entries.
- 10.5.13. The geotechnical design of the earthworks takes ground hazards associated with the historical mineworking and subsidence into consideration and has been developed following an assessment of the mining and hydrogeological impact of the Project.
- 10.5.14. The contractor will be aware of any previous disturbances to each phase of the Project and all construction workers will be briefed via toolbox talks on the site history; the potential for the

presence of below ground mining features; and to remain vigilant for any sudden or unexpected changes in ground conditions.

- 10.5.15. Investigation and assessment of the risks presented by shallow mine workings is planned prior to construction occurring and if required treatment of shallow mine workings is planned at the site.
- 10.5.16. If any unexpected shallow mine workings are encountered after investigation works have been completed, works will stop and geotechnical specialists consulted to advise on required treatments, if necessary, prior to works continuing.

## 10.6. Ecology

### General

- 10.6.1. The following documents have been produced to ensure the protection and enhancement of ecology within Phase 1a:
  - **Strategic Biodiversity Plan:** Provides the overarching approach to mitigation and enhancement in each phase of the development and how both are to be delivered:
  - **Ecological Protection Plan:** Sets out species-specific mitigation measures, including methods for the treatment of notable plant species/habitats and reptile trapping and translocation, and methods for ensuring habitats outside the footprint of the works are protected.
  - **Ecological Management and Monitoring Plan:** Details enhancement measures and details an indicative 25 year programme for the management and monitoring of newly created and retained habitats.
  - **Reptile Mitigation Strategy:** Provides a detailed mitigation strategy for reptiles within Phase 1A of the site, including information on receptor sites, enhancements< methods for the translocation of reptiles and post construction monitoring.
  - **Barn Owl Conservation Scheme.**
- 10.6.2. All construction works will be undertaken in compliance with the mitigation measures and methods of work detailed within the documents listed above.
- 10.6.3. Prior to the commencement of any site/vegetation clearance or construction activities the Project ECoW is to provide an ecological toolbox talk, highlighting the locations and descriptions of all ecological constraints, in addition mitigation measures to ensure minimal disturbance/impact.
- 10.6.4. All retained habitats (such as waterbodies, trees and woodland) will be securely fenced off with appropriate temporary fencing prior to the commencement of construction to prevent access and incidental damage by site vehicles, equipment and personnel.
- 10.6.5. Where possible vegetation clearance takes place outside of the bird breeding season (generally March to August inclusive); if this is not possible, pre-construction checks for nesting birds will be undertaken by an ecologist to ensure active nests are not disturbed.
- 10.6.6. Excavations are to be covered at night-time or a means of escape provided (such as a plank of wood) for otter, badger or other animals.

## Statutory and Non-Statutory Sites

10.6.7. The Biodiversity Information Service for Powys and Brecon Beacons National Park<sup>1</sup> (BIS) were contacted to request details of non-statutory designated sites:

| Data Type                                                            | Search area – distance from the Site Boundary                                                                |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Statutory designated sites                                           | 5 km (extended to 30 km for any Special Areas of Conservation (SAC) for which bats are a qualifying feature) |
| Non-statutory designated sites                                       | 1 km                                                                                                         |
| Ancient woodland                                                     | 1 km                                                                                                         |
| Priority habitats (including veteran trees) and species <sup>2</sup> | 1 km (extended to 2 km for bats)                                                                             |

10.6.8. The statutory and non-statutory designated sites identified through the desk study were:

| Site name            | Designation                                 | Approximate distance from the Site <sup>3</sup> | Features of interest <sup>4</sup>                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------|---------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Coedydd Nedd a Mellt | Special Area of Conservation (SAC)          | 4.5 km south east.                              | Annex I habitats that are a primary reason for selection of this site: <ul style="list-style-type: none"> <li>Old sessile oak woods with Ilex and Blechnum in the British Isles.</li> </ul> Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: <ul style="list-style-type: none"> <li>Tilio-Acerion forests of slopes, screes and ravines.</li> </ul> |
| Nant Llech           | Sites of Special Scientific Interest (SSSI) | 1km m north east.                               | The site contains a wide variety of woodland and cliff plant communities.                                                                                                                                                                                                                                                                                                                                 |
| Gorsllwyn, Onllwyn   | SSSI                                        | 160 m east.                                     | The site contains a range of peat-depositing vegetation communities.                                                                                                                                                                                                                                                                                                                                      |
| Caeau Ton-y-fildre   | SSSI                                        | 1.9 km east.                                    | Two unimproved herb-rich pastures that support a wide range of species characteristic of damp, flushed peaty pasture.                                                                                                                                                                                                                                                                                     |
| Waun Ton-y-spyddaden | SSSI                                        | 2.1 km east.                                    | A series of small, unimproved, herb-rich hay meadows. The site demonstrates the effects of traditional management on moorland vegetation in this area of Wales.                                                                                                                                                                                                                                           |
| Rhos Hen-Glyn-Isaf   | SSSI                                        | 2.3 km north west.                              | The site is a varied area of damp/ wet heathy pasture noted for its wide variety of plant species.                                                                                                                                                                                                                                                                                                        |
| Mynydd Du            | SSSI                                        | 2.9 km north.                                   | This is an important upland site for its                                                                                                                                                                                                                                                                                                                                                                  |

<sup>1</sup> <https://www.bis.org.uk/>

<sup>2</sup> Except bats, for which the search area was increased to 2 km

<sup>3</sup> Where designated sites are situated outside of the Site Boundary, the distance and direction are given to the closest point that the designated site is from the Site.

<sup>4</sup> including qualifying features of internationally designated sites and reasons for designation for SSSIs.

| Site name                                 | Designation                                       | Approximate distance from the Site <sup>3</sup> | Features of interest <sup>4</sup>                                                                                                                                                                                                                                          |
|-------------------------------------------|---------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                           |                                                   |                                                 | vegetation, open water and bird species.                                                                                                                                                                                                                                   |
| Ogof Ffynnon Ddu-Pant Mawr                | SSSI                                              | 3.1 km north east.                              | The site contains rich plant species. The site includes part of the Ogof Ffynnon Ddu National Nature Reserve.                                                                                                                                                              |
| Nant y Rhos                               | SSSI                                              | 3.4 km south west.                              | The site is of special interest for its species-rich fen meadow vegetation.                                                                                                                                                                                                |
| Craig y Rhiwarth                          | SSSI                                              | 3.7 km north east.                              | A limestone cliff covered partially by ash woodland. The ledges of the cliff provide refuge for nationally rare species of plant.                                                                                                                                          |
| Dyffrynoedd Nedd a Mellte a Moel Penderyn | SSSI                                              | 4.5 km south east.                              | The site is of special interest for its extensive and diverse semi-natural woodland, important populations of flowering plants and supporting outstanding assemblages of mosses, liverworts and lichens.                                                                   |
| Dan-yr-ogof                               | National Nature Reserve (NNR)                     | 3.8 km north east.                              | Caves associated with the Ogof ffynnon ddu nature reserve.                                                                                                                                                                                                                 |
| Ogof ffynnon ddu                          | NNR                                               | 3.1 km north east.                              | Moorland located within the Brecon Beacons National Park.                                                                                                                                                                                                                  |
| NPT Watercourse                           | Site of Importance for Nature Conservation (SINC) | Located within the Site Boundary to the south.  | No public domain information available for this site. LPA to be consulted for further details.                                                                                                                                                                             |
| Kharoum Tip                               | SINC                                              | 50 m south.                                     | Qualifying features include: <ul style="list-style-type: none"> <li>• Lowland meadows;</li> <li>• Calcareous grassland.</li> </ul>                                                                                                                                         |
| Gorsllwyn meadows                         | SINC                                              | Within boundary                                 | Qualifying features include: <ul style="list-style-type: none"> <li>• Purple moor-grass and rush pastures.</li> </ul>                                                                                                                                                      |
| Aberhenwaun uchaf                         | SINC                                              | 610 m south.                                    | Qualifying features include: <ul style="list-style-type: none"> <li>• Lowland meadows;</li> <li>• Lowland dry acid grassland;</li> <li>• Purple moor-grass and rush pastures.</li> </ul>                                                                                   |
| Onllwyn coal washery                      | SINC                                              | 720 m east.                                     | Qualifying features include: <ul style="list-style-type: none"> <li>• Open Mosaic Habitats on Previously Developed Land.</li> </ul>                                                                                                                                        |
| Land Behind Marigold Place                | SINC                                              | 840 m south.                                    | Qualifying features include: <ul style="list-style-type: none"> <li>• Purple moor-grass and rush pastures;</li> <li>• Lowland meadows and lowland dry acid grassland;</li> <li>• Invertebrates - Dingy skipper, Marsh fritillary, Narrow-bordered bee hawkmoth.</li> </ul> |
| Dyffryn cellwen                           | SINC                                              | 880 m south east.                               | Qualifying features include: <ul style="list-style-type: none"> <li>• Purple moor-grass and rush pastures.</li> </ul>                                                                                                                                                      |

- 10.6.9. A number of the designated sites are hydrologically connected to GCRE. As such there is the potential for SSSI habitats to be adversely affected by pollution events and or surface run-off. These impacts are to be mitigated through the implementation of pollution prevention measures detailed within this CEMP.

### Invasive Non-Native Species

- 10.6.10. Invasive Non-Native Species have been recorded within and adjacent to the Project site.
- 10.6.11. INNS present within the Project boundary include Japanese knotweed, rhododendron, Spanish bluebell, snowberry, wall cotoneaster, buddleia, yellow archangel, montbretia and Wilson's honeysuckle, all of which are anticipated to be disturbed during construction. To ensure all INNS are appropriately managed in way that prevents their spread and protects the wider environment an INNS Management Plan has been produced.
- 10.6.12. The INNS Management Plan is documented in Appendix G of this CEMP.

### Trees

- 10.6.13. The Contractor will adopt a common-sense ambition to limit tree loss, retaining trees where possible.
- 10.6.14. All tree works will be undertaken by a suitably qualified contractor, and in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*', and retained trees treated in accordance with British Standard BS 5837:2012 '*Guidance for the Treatment of Trees in Relation to Construction*'.
- 10.6.15. RPAs will be established around retained trees, with the areas segregated from construction activities through the installation of tree protection fencing. No construction works or the storage of materials/plant/equipment will be permitted within the RPA of any tree.
- 10.6.16. All trees impacted by the works have been surveyed for bat potential, with those identified to have medium or high potential subject to further surveys. Should any trees containing bat roosts require felling, a licence will be obtained from NRW, and all works shall be completed in compliance with the conditions of the licence under the watching brief of a suitably qualified ecologist.

## 10.7. Archaeology and Cultural Heritage

- 10.7.1. All work within the boundary of the Tramroad at Ystradgynlais Scheduled Monument (GM399) is subject to Scheduled Monument Consent (SMC). Only works that have received SMC are permitted within the boundary of the Scheduled Monument. Noted that the SMC does not fall within the red line boundary for Phase 1A.
- 10.7.2. All construction works outside of the boundary of the Scheduled Monument are to be undertaken in compliance with the Written Scheme of Investigation, which has been approved by the LPAs, CPAT and GGAT, in addition to associated method statements to mitigate the impact of the Project on known and unknown archaeological features and cultural heritage.
- 10.7.3. Prior to the commencement of any works which have the potential to impact known and unknown archaeological features, the contractor will appoint an archaeological contractor who is registered with ClfA for archaeological supervision and intervention, recording, analysis, dissemination and archiving. An ACoW is also to be appointed to supervise works with the potential to impact cultural heritage interests and to monitor compliance with cultural heritage mitigation.
- 10.7.4. Arrangements will be made to allow Cadw, CPAT and GGAT to monitor the works at their discretions.

## General Measures

- 10.7.5. General archaeology and cultural heritage management and mitigation measures implemented by the contractor will include:
- The locations and descriptions of all known cultural heritage assets across the Project are to be illustrated on a plan, in addition to required mitigation measures and communicated to the construction team prior to the commencement of works.
  - Restrictions and required mitigation measures to protect cultural heritage assets are to be incorporated within methods of work.
  - A programme will be prepared detailing the implementation of archaeological survey, monitoring and investigation mitigation works prior to and during construction. The archaeological mitigation programme will be incorporated into the overall construction programme.
  - Appropriate fencing and hoarding will be provided as necessary to protect sites of archaeological or cultural heritage interest within or adjacent to the construction site, particularly that of the Scheduled Monument, including unknown sites discovered during construction

## Archaeological Remains and Cultural Heritage Assets

- 10.7.6. Through the submission and approval of WSIs, suitable mitigations measures, procedures and methods of works will be agreed with the LPAs, Cadw, CPAT and GGAT, including the below as appropriate:
- Further field assessment of known and unknown heritage assets and areas of high archaeological potential;
  - Archaeological strip, map and sample of known areas of heritage assets;
  - Archaeological watching brief to ensure that any as yet undiscovered archaeological remains are appropriately identified and adequately recorded; and
- 10.7.7. Monitoring, investigation and recording will be undertaken of archaeological remains where preservation in situ is not warranted or achievable. Recording will be undertaken at all intrusive ground investigation locations outside of the open cast mines where archaeological potential has been identified and even where archaeological features have not been identified. The investigation and recording will be undertaken by whatever means is deemed appropriate and reasonably practicable by the archaeological subcontractor to sufficiently identify and characterise the archaeological remains, in agreement with the relevant stakeholders. The works will be undertaken in accordance with the method statements as well as relevant national, regional, local and industry policy and guidelines. The works will also take account of the relevant local research aims and will be proportionate to the nature and level of the asset's significance and the extent of the loss of significance. The necessary time will be given to the archaeological subcontractor to undertake all of the above.
- 10.7.8. If significant finds are encountered, the works will cease and agreement on how to proceed will be made with the Client, Consultants, Contractor, and LPAs.
- 10.7.9. All archaeological work will be subject to an appropriate programme of post excavation assessment, analysis and review.

## Human Remains

- 10.7.10. Requirements of the Burial Act 1857, local environmental health regulations and the Disused Burial grounds (Amendment) Act 1981 will be followed should human remains be located during construction, either during archaeological works or as part of construction activity. Any discovered

human remains should be treated with due decency and respect. All excavation of human remains and associated post-excavation processes will be undertaken in accordance with the *Updated Guidelines to the Standards for Recording Human Remains* (ClfA 2017).

## 10.8. Landscape and Visual

- 10.8.1. The contractor will implement construction mitigation measures to minimise any adverse effects on the landscape and visual amenity.

### General

- 10.8.2. During the construction phase of the Project, the measures outlined below are to be applied:

- The contractor will take a common-sense ambition to limit tree loss to that which is strictly required to facilitate the works and where possible retain trees.
- Retained trees will be, in accordance with BS 5837: Trees in relation to design, demolition and construction<sup>1</sup> (2012).
- To prevent the spread of non-native invasive plant species, the contractor will follow the latest guidance as set out by NRW.
- The following will not be permitted within the RPA of retained trees:
  - Excavation works;
  - Storage of plant, equipment or materials, including excavated topsoil, subsoil or spoil;
  - Vehicular and plant access;
  - Handling of any fuels or chemical substances; and
  - Action likely to cause localised water logging.
- If construction works are required within an RPA, an Arboricultural Method Statement will be produced setting out the terms and scope of the operations, along with any particular design requirements and additional protection measures
- Reasonable care will be taken to avoid unnecessary damage to flora and fauna.
- Hoarding and fencing will be maintained in good condition, providing screening and security.
- External facing hoarding will be painted and kept free from graffiti and posters.
- The site will be maintained in a clean and tidy condition and road sweepers and other appropriate methods will be used as necessary.

### Landscape Design and Planting

- 10.8.3. The landscape design will be implemented in compliance with the Landscape Plan and Strategy.
- 10.8.4. Planting and other landscape measures will be implemented during the earliest planting season and when it is reasonably practicable.
- 10.8.5. Any 'off-site' replacement/compensatory planting is to be undertaken in advance of construction works, if practicable.
- 10.8.6. Sourcing of plants and seeds will be in accordance with current Department for Environment, Food and Rural Affairs (DEFRA)/NRW and industry guidance to prevent the spread of pests and

diseases and INNS. The contractor will also refer to UK Plant Health Information Portal and NRW's latest guidance.

- 10.8.7. The contractor will undertake appropriate inspection, monitoring and maintenance of seeding and landscape works through the construction period. Any failures of planting and seeding will be replaced in accordance with the approved specification, ensuring reseeding works are successful.

## 10.9. Noise and Vibration

### Noise Management

- 10.9.1. A Noise Management and Monitoring Action Plan that sets out specific controls and mitigation measures in relation to noise to ensure that the construction of the Project is carried out in compliance with the applicable noise requirements has been produced and is to be implemented by the contractor during construction.
- 10.9.2. As a requirement of the NMMAP, BPMs will be applied during the construction phase of the Project to minimise the impact of noise on nearby noise sensitive receptors. This will require the implementation of measures to control noise at the source and across site.
- 10.9.3. Noise control measures at the source is to focus on reducing the noise of equipment used on site and will be as follows:
  - All plant and equipment will comply with the noise limit and noise marking requirements prescribed by the "Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001".
  - All plant, equipment and noise control measures applied to plant and equipment will be maintained in good and efficient working order and operated such that noise emissions are minimised as far as reasonably practicable. As far as reasonably practicable, any plant, equipment or items fitted with noise control equipment found to be defective will not be operated until repaired.
  - Noise from reversing alarms from vehicles will be controlled and limited as far as possible through the following means: designing the site layout to limit the need for reversing vehicles; the use of banksmen for traffic management at site entrance gates and within site footprint; reversing alarms incorporating directional sounders, broadband signals self-adjusting output sounders or flashing warning lights and setting reversing alarms to the minimum output noise level required for health and safety compliance.
  - Vehicles and mechanical plant employed for any activity associated with the construction works will, where reasonably practicable, be fitted with effective exhaust silencers and shall be maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable.
  - Whenever used, all percussion tools shall be fitted with appropriate mufflers or dampers of the type recommended by the manufacturers.
  - Unnecessary revving of engines will be avoided, and equipment switched off when not in use.
  - Static noise emitting equipment operating continuously (generators, compressors etc) will be screened or housed within suitable acoustic enclosure, where appropriate.
  - All generators shall be super-silenced units. Where reasonably practicable, other fixed items of construction plant should be electrically powered in preference to diesel or petrol driven.
  - Internal haul routes will be kept well maintained and avoid steep gradients.

- Materials will be lowered whenever practicable and will not be dropped.

10.9.4. Control measures to minimise the spread of noise from site will be as follows:

- Strict adherence to the site-specific construction working hours set out in Section 1.4;
- All personnel on site will undergo site specific inductions and briefings, to include noise control measures.
- Noisy plant or equipment shall be sited as far away as possible from noise sensitive receptors. Wherever practicable, the use of barriers in the form of acoustic enclosures or barriers will be employed.
- Where practicable, loading and unloading will be carried out away from noise-sensitive receptors.
- A programme of site inspections and noise monitoring will be carried out to assess whether BPM are being employed in the control of noise, to investigate any noise complaints or incidents.
- A programme of community liaison will be carried out, including notification of works and details of the complaints process as detailed in Section 5.3 and the NMMAP.

## Vibration

- 10.9.5. Due to the distance of construction works from receptors, impacts from vibration are deemed to be minimal.
- 10.9.6. To ensure construction vibration impacts at receptors are kept to a minimum, vibratory rollers will not be used within 90 m of receptors during operation (125 m for start-up/run down) unless further risk assessments and monitoring is undertaken to demonstrate no likely adverse effects due to vibration.
- 10.9.7. In the event that a complaint of excessive vibration levels is received, a vibration monitoring exercise will be undertaken at impacted receptors. If the levels of vibration recorded are determined to have an adverse effect on the receptor(s), an investigation into the cause will be undertaken and the responsible will be stopped until appropriate mitigation measures have been applied to prevent further adverse effects.

## 10.10. Dust and Emissions

- 10.10.1. A Dust Management Plan that sets out specific controls and mitigation measures in relation to dust to minimise the creation and dust and particulate matter emission during the construction phase of the Project has been produced and is to be implemented by the contractor during construction.
- 10.10.2. All dust and air quality complaints will be recorded. An investigation into the cause will be undertaken and appropriate remedial measures implemented to avoid recurrence. A record of any implemented remedial measures will be available on-site.
- 10.10.3. Control/mitigation measures to minimise will be as follows:
- Haul routes are to be regularly inspected and maintained to minimise sediment laden run off.
  - Haul roads to be dampened down to minimise dust generation by plant movements.
  - Regular clearing, grading and maintenance of haul routes;

- Areas of hard standing to be provided at site access and egress points, where practicable.
  - Site wheel washing facilities will be established at access and egress points and located a minimum of 10 m from any watercourse and outside of the flood plain.
  - Good practice guidance for vehicle washing and cleaning from GPP13 to be implemented.
  - Machinery, equipment and dust generating activities to be undertaken a minimum of 100 m from sensitive receptors, where practical.
  - Where possible, exposed soil to be minimised through scheduling vegetation and topsoil stripping immediately prior to commencement of construction activities.
  - A separate paved parking area with no access to construction areas to be provided for non-construction vehicles.
  - No burning of material on-site.
  - An adequate water supply will be provided on the site for effective dust suppression/mitigation, using non-potable water where possible and appropriate. Suppression techniques will be used more frequently during periods of dry weather.
  - Standard good practices are to be followed for site haulage:
    - Abrupt changes in direction to be avoided;
    - Vehicles to be evenly loaded to avoid spillages;
    - If within 100 m of site boundary, soil moving vehicle to be covered. Loaded vehicles carrying dust generating materials will also be covered when leaving site.
    - Where required, road sweepers to be mobilised.
    - Where possible, particularly dusty activities will be avoided during extended periods of dry and windy conditions.
- 10.10.4. On and off-site visual inspections to be included within daily operational checks. Any evidence of abnormal dust levels in air or accumulation on surfaces will be logged and remedial action taken as required.
- 10.10.5. The frequency of off-site inspections will be adjusted based on the dust risk (higher frequency in dry and windy conditions). Further details on dust monitoring are provided within the DMP.

## 10.11. Sensitive Lighting Plan

- 10.11.1. There are no permanent lighting elements as part of the construction works, only temporary construction lighting. The general design principles that will be used to minimise the impact of temporary lighting on key environmentally sensitive receptors are in accordance with the Institute for Lighting Professionals, Guidance Notes for the Reduction of Obtrusive Light (GN01:2011) and the Bat Conservation Trust's Guidance Note 08/18 Bats and Artificial Lighting in the UK (2018).
- 10.11.2. The general design principles for lighting are as follows:
- Lighting will provide optimal light levels which provide enough illumination to safely undertake tasks whilst minimising the impact on sensitive receptors.
  - Lighting will be located, as far as practical, significant sources of lighting away from sensitive receptors and directed downwards and away from sensitive receptors. If necessary, shields, baffles and cowls will be used.

- Lighting columns will be of minimum height and when lighting large areas, preference will be given to several lower units rather than tall wide.
- Controls will be implemented to avoid unnecessary illumination.
- Lighting will utilise design features that limit obtrusive light.
- Any task lighting or security lighting is to be designed in consultation with an ecologist with the objective of preventing disturbance to habitats which are likely to support crepuscular or nocturnal species such as otter or bat.
- Where practicable, daytime working hours will be adopted for construction works, with the works commencing no sooner than one hour after sunrise and finishing no later than one hour before dusk.
- Lighting of culverts to be avoided and landscaping to be designed to encourage species through culverts from the adjacent habitats.

# 11. Environmental Incidents and Emergency Response

## Reporting

- 11.1.1. All environmental incidents will be reported to the HSE Manager, Works Manager and Project Manager.
- 11.1.2. All incidents will be recorded, and subsequent investigations undertaken to determine the nature, scale and extent of the incident, together with emergency response actions and mitigation measures undertaken and recommended corrective actions to prevent any recurrence.
- 11.1.3. A copy of the investigation report will be provided to the client.
- 11.1.4. The Project Manager will inform the relevant regulators of all reportable environmental incidents.
- 11.1.5. For complaints from third parties, direct the complainant to follow the complaints process.

## Spillage Response

- 11.1.6. For minor spills/leaks:
  - A. **STOP** the source of the spill or leak
  - B. **CONTAIN** the spill using spill kits
  - C. **DIVERT** the spill away from drains, watercourses and sensitive receptors
  - D. **CLEAN** up the spill. Put all used spill kit materials and contaminated soil in a waste bag and dispose of as hazardous waste
  - E. **REPORT** the spill to General Foreman
- 11.1.7. For larger spills, the contractor's specialist spill response specialists are to be contacted.
  - A. Immediately **STOP** work
  - B. **ISOLATE** the site and prevent entry
  - C. If safe to do so, **CONTAIN** using available spill kit material
  - D. **NOTIFY** the General Foreman, who will in turn notify the HSE Manager and Project Manager
  - E. If required, **MOBALISE** specialist response teams.
  - F. **REMEDiate**

## Unauthorised Discharges to Watercourses

- 11.1.8. For all unauthorised discharges to any watercourse, ditch or drain, including discharges of sediment loaded water:
  - A. Immediately **STOP** work
  - B. **IDENTIFY** the source of the discharge, and **STOP** if possible

- C. **REMOVE** the pathway to the watercourse
- D. **NOTIFY** the General Foreman, who will in turn notify the HSE Manager and Project Manager
- E. If required, **MOBALISE** specialist response teams
- F. **REPORT** to discharge to NRW
- G. **MONITOR** any residual effects on the watercourse and local receptors

## Other Environmental Incidents

11.1.9. For all other environmental incidents, works are to STOP and the General Foreman, who will escalate to the HSE Manager and Project Manager, is to be notified.

11.1.10. Other environmental incident may include:

- Complaints from third parties e.g., noise and dust;
- Discovery of potentially contaminated land;
- Disturbance to protected species and habitats;
- Disturbance of archaeological features;
- Non-compliance with
- Impacts to trees and hedgerows;

# Appendices

## Appendix A. ISO14001:2015 Certification

## Appendix B. Consents Register

## Appendix C. REAC

## Appendix D. Environmental Risk Register

## Appendix E. Site Plan

## Appendix F. Site Waste Management Plan

# Appendix G. Construction Method Statement

## Appendix H. INNS Management Plan

