

## **Appendix 3A**

### **Outline CEMP**

Welsh Government

**Global Centre of Rail Excellence  
(GCRE)**

**Outline Construction Environment  
Management Plan (CEMP)**

CEMP

Issue P02 | 24 February 2021

This report takes into account the particular instructions and requirements of our client.

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Job number 264904-00

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# Document verification

<b>Job title</b>		Global Centre of Rail Excellence (GCRE)		<b>Job number</b>	
				264904-00	
<b>Document title</b>		Outline Construction Environment Management Plan (CEMP)		<b>File reference</b>	
<b>Document ref</b>		CEMP			
<b>Revision</b>	<b>Date</b>	<b>Filename</b>	Report2.docx		
Draft 1	28 Aug 2020	<b>Description</b>	First draft		
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Issue	9 Sept 2020	<b>Filename</b>	Appendix 3A Outline CEMP		
		<b>Description</b>			
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Issue P02	24 Feb 2021	<b>Filename</b>	Appendix 3A Outline CEMP		
		<b>Description</b>	Update post PAC		
			Prepared by	Checked by	Approved by
		Name			
		Signature			
		<b>Filename</b>			
		<b>Description</b>			
			Prepared by	Checked by	Approved by
		Name			
		Signature			

Issue Document verification with document



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# 1 Introduction

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## 1.1 Purpose of the Outline CEMP and CEMP

- 1.1.1 This document is the outline Construction Environmental Management Plan (CEMP) to accompany the planning application for the Global Centre of Rail Excellence (GCRE).
- 1.1.2 The outline CEMP contains control measures, and the standards to be implemented throughout the construction of the works in order to avoid and reduce impacts during construction.
- 1.1.3 The Contractor(s) will be responsible for producing the final CEMP in accordance with the requirements set out in this document. The CEMP will therefore evolve and is subject to refinement, amendment and expansion as necessary.

## 1.2 Guidance and other documents

- 1.2.1 The CEMP is intended to satisfy the principles of the International Environmental Management System (EMS) Standard ISO 14001. The appointed Contractor(s) will ensure that the CEMP for the Proposed Development complies with the Contractor(s)'s own EMS.
- 1.2.2 The CEMP will be 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;
    - GPP 26 Safe storage – drums and intermediate bulk containers
  - CIRIA Environmental handbook for building and civil engineering projects.

## 1.3 Assumptions of the Outline CEMP

- 1.3.1 This Outline CEMP is based on the information available at the time of writing. It is assumed that the Outline CEMP will be developed into the CEMP by the appointed Contractor(s).
- 1.3.2 Any planning conditions and commitments made following submission of the planning application (if required) will be incorporated into the CEMP by the appointed Contractor(s).
- 1.3.3 It is assumed that the CEMP will be updated regularly by the Contractor(s) during construction.

1.3.4 It is assumed that a number of Contractors (including specialist contractors and sub-contractors) may be appointed during construction. All site construction staff, including sub-contractors, will be required to comply with the CEMP throughout the entire construction stage of the Proposed Development.

1.3.5 It is assumed that any failings in environmental management will be corrected through regular site monitoring and site audits, undertaken by the Contractor's Environmental Manager.

#### Document and Records

1.3.6 There shall be two electronic copies of the CEMP, one to be held on site by the Environmental Manager and the other off site by GIL. Both copies are to be kept up to date by the Contractor's Environmental Manager.

## 1.4 Incident Response Planning

1.4.1 The Contractor(s) will develop a Pollution Incident Response Plan which identifies the procedures for the event of a pollution incident during construction. The procedures will be in accordance with the guidance set out in GPP 21 Incident Response Planning.

1.4.2 All environmental incidents and accidents will be recorded and reported to the Contractor(s)'s Site Foreman and the Project Manager. Following a review of the incident, the Contractor's Environmental Manager will instigate an appropriate change in procedures where necessary.

1.4.3 The appropriate equipment required to implement these procedures shall be made available by the Contractor(s) and stored within the Contractor(s)' compound.

## 2 Roles and responsibilities

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- 2.1.1 This section of the Outline CEMP identifies the roles and responsibilities of those involved in environmental management during construction.

### 2.2 Employer

- 2.2.1 Welsh Government are the employer and will appoint project managers on their behalf to oversee the works.
- 2.2.2 Welsh Government will appoint a board level Director to oversee the project and appointment of staff and contractors.
- 2.2.3 Welsh Government is accredited to ISO 14001 (2015).

### 2.3 Project Manager

- 2.3.1 The Project Manager will act on behalf of the Employer, with responsibility for managing the works of the Proposed Development within the agreed environmental constraints in conjunction with all other necessary management processes.

### 2.4 Contractor

- 2.4.1 It is assumed that a number of Contractor(s) (including specialist contractors and sub-contractors) will be appointed during construction of GCRE. There may be separate contractors for the Enabling Works and the Main Construction Contract.

### 2.5 Environmental Manager

- 2.5.1 An Environmental Manager and the Project Manager will oversee the implementation of CEMP including environmental control measures, mitigation and procedures. The Environmental Manager will be appointed by the Contractor prior to the enabling works and will implement the control measures during the Enabling works and main construction.
- 2.5.2 The Environmental Manager shall monitor, measure and review the environmental performance of the construction activities.
- 2.5.3 The Environmental Manager will host regular internal and external meetings, and undertake audits to review the operation and effectiveness of the CEMP. The results shall be reported by the Environmental Manager at monthly construction progress meetings and used to update the CEMP.
- 2.5.4 The Environmental Manager will be responsible for the implementation of other environmental management plans.

## 2.6 Community Liaison

- 2.6.1 The Employer and the Contractor will prepare a procedure for local community liaison with regards to construction activities. Regular community forum meetings will be held to keep the community informed of project progress including anticipated issues which may be of interest.
- 2.6.2 The Employer will provide to the community general enquiry and emergency contacts for them to use, such that any issues may be raised directly with them, in the event that feel it appropriate to do so.
- 2.6.3 The contractor will provide a site-based Community Liaison Officer (CLO) and will ensure all site generated enquiries and/or complaints are effectively logged, communicated and actioned in agreement with The Employer. The CLO will align with and assist the delivery of the overarching Communication and Engagement plan.
- 2.6.4 The CLO will represent the contractor at any required internal and external partnership/stakeholder meetings. These meetings will relate specifically to community initiatives or communications tasks for the Proposed Development.
- 2.6.5 The CLO will be the primary point of contact for the Community Development Manager relating to matters on the ground. Themes the CLO will regularly communicate are; progress of construction, barriers to progress, reported issues, resolution of those issues and report impact on overall objectives.
- The CLO will build and maintain 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;
  - Ensuring positive awareness of the project brand to all internal and external stakeholders;
  - Work closely with the communications team and particularly the Community Development Manager to plan and deliver community liaison tasks to ensure the delivery of the KPI's of the communication and engagement plan; and
  - Communicate and administer all enquiries and/or complaints in an effective and timely manner, reporting up when required.
- 2.6.6 The contractor and the site will be registered with the Considerate Construction Scheme (CCS) and will be monitored and measured against the code of Considerate Practice.



## 3 Control of Construction Processes

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### 3.1 Training, awareness and competence

- 3.1.1 The Contractor(s) will set out a programme of training to enable all site personnel to be aware of the potential risk to the environment during the construction progress.
- 3.1.2 The Environmental Manager will set out a series of induction courses for all site personnel including sub-contractors. The induction courses shall ensure all site personnel (including any new personnel) are aware of the environmental risks which have the potential to happen during construction. The inductions will inform the construction team on how to identify relevant environmental risks on site, record actions taken to protect the environmental and implement best practice to minimise pollution.
- 3.1.3 Environmental Awareness Toolbox Talks will be delivered by the Environmental Manager on a regular basis. These will provide an update to the site team on any relevant environmental issues as the construction progresses.
- 3.1.4 Selected members of the site management team including the Construction Site Foreman and Environmental Manager will be given practical training in the use of the spill kits, appropriate PPE, clean-up procedures and the appropriate disposal and recycling plans.

### 3.2 Environmental inspection, monitoring and reporting

- 3.2.1 The Environmental Manager will prepare a monthly environmental report to be tabled at the monthly site progress meetings. This report will monitor the implementation of the CEMP and review the ongoing site monitoring and inspections.
- 3.2.2 The monthly reports will be circulated to the Employer and the Contractor(s) for consultation and review.

### 3.3 Internal communications

- 3.3.1 All staff and Contractor(s) will be informed of the content and location of the CEMP and associated management plans and method statements. Method Statements will be used to communicate specific environmental requirements as appropriate.
- 3.3.2 The Environmental Manager will have responsibility for communicating any changes and updates in policy, procedure, best practice guidance and legislation.
- 3.3.3 The Contractor(s) will have responsibility for maintaining internal communication, including changes to material on display.

## 3.4 Communications with the statutory bodies and the public

- 3.4.1 The Contractor(s) will organise and facilitate regular meetings with statutory environmental bodies to provide an update on risk mitigation, progress against targets and a review of site monitoring and inspections. This will provide a mechanism for updating and adapting the CEMP as the project progresses.
- 3.4.2 The contractor(s) will maintain a record of all meetings held with statutory bodies during construction stage.
- 3.4.3 A notice board shall be identified on site where environmental information on the Project shall be displayed.

## 4 Environmental Control Measures

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- 4.1.1 Control measures have been designed as part of the EIA and are integral to the Proposed Development.
- 4.1.2 This section of the Outline CEMP identifies the control (i.e. mitigation) measures as per each environmental topic assessed within the ES.

### 4.2 General Measures

- 4.2.1 Excavation plant machinery will be fitted with fuel spill kits.
- 4.2.2 Lighting will only be used as necessary.
- 4.2.3 Welfare facilities will be provided on site and maintained by the Contractor(s).
- 4.2.4 Vehicle/equipment washing facilities will be positioned away from watercourses and constructed with a drainage system which will capture run-off and effluent which will then be contained for proper treatment as per the Surface Water Management Plan.
- 4.2.5 To minimise noise, vibrational and air quality impacts from vehicles and plant/equipment, the Contractor(s) will instigate behavioural policies for all site staff. This will include:
- Minimising traffic to site by 'sharing' vehicles or by the use of a site bus (this will be detailed in the Construction Traffic Management Plan (CTMP));
  - Avoidance of part load deliveries (this will be detailed in the CTMP);
  - Utilisation of a pre-booked delivery policy to minimise holding vehicles prior to loading or unloading (this will be outlined in the CTMP); and
  - Ensuing that all construction plant, vehicles and equipment are turned off rather than left idling while awaiting usage (this will be detailed in the CTMP). Where feasible use of hybrid generators which help reduce noise and fuel consumption.
- 4.2.6 Areas will be clearly marked and managed to prevent them becoming overfilled and ensure that the areas are suitable for the materials stored.
- 4.2.7 Hazardous materials such as fuel will be stored within secure compound areas to prevent spillage, theft or malicious damage. A single Control of Substances Hazardous to Health (COSHH) area will be established to ensure the correct level of protection against fire spills and other chemical hazards. This will prevent sub-contractors and others creating individual stores, which are then not recorded or controlled.

## 4.3 Biodiversity

- 4.3.1 Appropriate measures will be adopted to protect the ecology of the site with special attention to specified ecological resources, as identified within the Ecology Chapter of the ES.
- 4.3.2 The Employer will require its contractors to manage impacts from construction (including site clearance) including to the following ecological receptors:
- Statutory designated sites including the Nant Llech and Gors Llwyn SSSI; in hydrological connectivity to the Site.
  - Non-Statutory sites including ancient woodland (ancient woodland and Planted Ancient Woodland (PAWS)); within and adjacent to the Site.
  - Other notable habitats including mire/fen, flushes, wet heathland, marshy grassland, acid grassland/dry heathland, ditches, ponds and streams; within and adjacent to the Site.
  - Notable species (e.g. including vascular plants, fungi, invertebrates amphibians, reptiles, breeding birds, wintering birds, otters, roosting/foraging bats, mammals and badgers); within and adjacent to the Site.
  - Invasive Non-Native Species; within and adjacent to the Site.

### General Provisions

- 4.3.3 A Suitably Qualified Ecologist (SQE) will provide a tool box talk to all contractors prior to any works commencing, and be available for advice for the duration of the construction programme.
- 4.3.4 The INNS Management Plan will be implemented during construction.
- 4.3.5 Any retained habitats (such as marshy grassland, waterbodies, trees and woodland) will be securely fenced off with appropriate temporary fencing (e.g. chestnut paling on scaffold supports or 'Heras' fencing) at the start of construction work to prevent access and incidental damage by site vehicles, equipment and personnel.
- 4.3.6 All retained trees should be treated in accordance with British Standard BS5837 (2012) Guidance for the Treatment of Trees in Relation to Construction. Damage to mature trees, as well as tree and scrub understorey and ground flora within mature woodland, should be avoided.
- 4.3.7 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.
- 4.3.8 Where protected/notable species are found during pre-construction checks in habitats within, and or adjacent to, the Site, and cannot be disturbed for example nesting birds, resting/breeding otter, badger setts, an appropriate buffer (based on

best practice guidance for relevant species where available) will be demarcated and no construction works will take place within this area, until the SQE has confirmed otherwise.

- 4.3.9 Pollution control measures will be implemented in accordance with industry standards and the Pollution Prevention Guidelines published by the Environment Agency<sup>1</sup>.
- 4.3.10 In particular, measures to control and contain sediment and material arising from excavations and or piling operations at areas in proximity to waterbodies, will be included within the working method statements that will be developed as part of the agreed CEMP.
- 4.3.11 All tools, food, litter and construction materials and packaging that may constitute a hazard to otters and other Section 7 mammals, as well as roosting birds and reptiles, will be removed daily from the site.
- 4.3.12 Any traffic plans produced will ensure that vehicle traffic is restricted to agreed low limits.
- 4.3.13 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.

### Species – specific provisions

- 4.3.14 To compensate for the potential loss of one breeding barn owl pair, at least one barn owl nest box will need to be installed in suitable habitat further than 3 km from the Site in accordance with guidance<sup>2</sup>.
- 4.3.15 A lighting design and associated plan will be produced in accordance with Bat Conservation Trust's (BCT) 'Bats and Lighting' publication<sup>3</sup>, and will avoid light disturbance to bats, and other nocturnal or crepuscular species such as otter and badger. The plan will aim to avoid lighting of key wildlife corridors such as tree lines, waterbodies, rivers and streams, used by these species. Any lighting will be directional with minimal upwards or backwards light spill and minimising light spill onto adjacent, retained habitat features. Lighting onto any associated landscaping which is designed to direct species through culverts, will also need to be considered within this lighting plan.
- 4.3.16 Pre-construction surveys including breeding birds (if works are planned between March and August inclusive), bats (in trees), otter and badger will be undertaken to determine the presence of these species within an appropriate distance from the construction works. Larger buffers will be required for more sensitive species (including some breeding birds such as lapwing and curlew) or where more significant impacts are likely to occur such as vibrations (for example a 60 m

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<sup>1</sup> It is noted that these Guidelines have been withdrawn by the Environment Agency, however they are considered to still be relevant and applicable until such time as new guidance is available.

<sup>2</sup> <https://www.barnowltrust.org.uk/barn-owl-nestbox/>

<sup>3</sup> [http://www.bats.org.uk/data/files/bats and lighting in the uk final version version 3 may 09.pdf](http://www.bats.org.uk/data/files/bats%20and%20lighting%20in%20the%20uk%20final%20version%203%20may%2009.pdf)

buffer would be required for bats, if roosts are found). Details of buffer distances will be agreed with LPAs in advance.

- 4.3.17 A reptile trapping and relocation programme will be implemented, in accordance with a reptile method statement will be undertaken by a Suitably Qualified Ecologist (SQE). A suitable receptor site for reptile translocations will need to be identified prior to any reptile mitigation taking place, and be agreed by the LPA ecologists and the sites landowner. It is anticipated that adjacent / connecting habitats within Nant Helen site will be suitable, and which would also be subject to further enhancements for reptiles.
- 4.3.18 Badger setts located within the test tracks will be closed temporarily during the site clearance and construction, until construction is complete and suitable underpasses for badger have been constructed along with suitable connecting landscaping. This will need to be undertaken under a protected species licence from NRW, which will be obtained prior to construction commencing.
- 4.3.19 Licences will be sought from NRW as required for any other European and Nationally protected species, where these are found during pre-construction checks or where the final design confirms likely impacts on these species. Mitigation will be implemented accordingly as detailed in accompanying Method Statements.

### **Ecological Protection Plan (EPP) and Ecological Management Plan (EMP)**

- 4.3.20 A detailed Ecological Protection Plan (EPP) and Ecological Management Plan (EMP) drawn up prior to any clearance or construction activities commencing on Site, and be submitted for approval by the LPA and NRW, and will include the following.
- 4.3.21 An EPP will be prepared prior to any site clearance/construction works commencing on Site, and be submitted to the LPA and NRW for approval. The EPP will include details of mitigation measures, which are required during site clearance/construction to ensure the protection of adjacent protected sites and notable habitats (including the immediately adjacent marshy grassland, species rich grassland, waterbodies, river corridor and heathland in the Washery and retained and newly created habitats within Nant Helen) for example measures such as fencing, buffer zones and pollution control measures. It will also include details of any species translocations.
- 4.3.22 An EMP will include the following:
- Details of the ecological baseline, including existing and additional ecological survey results. It will also detail information of existing landownership and management, as well as geology/ground conditions, hydrology and topography – which will be essential to inform habitat establishment proposals.

- Details of the newly established habitats including existing habitat translocations, where possible, and the creation of new habitats. It will include details of how these habitats, will provide suitable habitat for notable species.
- Details of habitat enhancements, which will be provided in addition to the 'like for like' replacement of lost habitats within the site.
- Details of total areas of habitat lost (during construction), along with new habitat to be gained (post construction/operation). This will also include details of net gains. It will need to be clear where habitat replacement/enhancement is for the existing ecological baseline and the future baseline (i.e. the restored site).
- The locations of newly established habitats.
- Suitable prescriptions for the management of newly established habitats, which enhances their value for biodiversity post development. This will include specific management measures for notable habitats and species within the site including notable plants/fungi, invertebrates, amphibians, reptiles, breeding birds, wintering birds, roosting and foraging/commuting bats, otter and notable mammals.
- A programme detailing the duration of each survey/habitat creation/management activity, what time of year it will need to be undertaken, and how frequently.
- The EMP period will be agreed with the LPAs/NRW but is anticipated to be for a minimum of five years. A programme detailing all management prescriptions for the first 5 years post-construction, which will be subject to review and extension. Responsibilities for each task will need to be detailed.
- Full details for the monitoring of the site post development, to provide information on changes in habitat condition and additional mitigation/management measures that may be required.

4.3.23 The Contractor will need to provide information on construction methods and temporary works prior to Site clearance, and for inclusion within the EPP and EMP.

## Enhancements

4.3.24 Full details of habitat enhancements will be provided in an EMP, which will be implemented through management of habitats. Specific actions to be undertaken during construction are detailed below:

- An artificial otter holt will be provided along the Afon Dulais, at least 100 m west of the development, or an alternative site to be identified by the Ecological Clerk of Works (ECoW) in consultation with NRW, to provide a suitable breeding site for otters due to the presence of foraging/commuting otter in this area.
- A range of bat boxes and / or bat bricks in buildings and bridges (no less than 20) will be provided on mature trees, and where possible buildings and bridge structures, within the Site, and or adjacent habitats (subject to landowner



agreement). The number and location will be selected by the ECoW and would be informed by the number of appropriate trees, buildings and bridge structures within/adjacent to the Site. These should be of woodcrete construction, such as Schwegler models, which are more durable and require minimal maintenance.

- A range of bird boxes (no less than 30) will be provided on mature trees, and where possible buildings and bridge structures, within the Site, and or adjacent habitats (subject to landowner agreement). The number and location will be selected by the ECoW and will be informed by the number of appropriate trees and buildings within/adjacent to the Site. Swift (*Apus apus*) boxes and house sparrow boxes should be prioritised for buildings, and grey wagtail / dipper (*Cinclus cinclus*) boxes for bridges. Similar to bat boxes, these should be of woodcrete construction, such as Schwegler models, which are more durable and require minimal maintenance.
- At least 15 artificial reptile refugia, which provide shelter to hibernating and active reptiles, will be created using materials available post site clearance / construction such as timber logs, brush, grubbed up tree roots, inert hardcore, bricks or building rubble. The number and location will be selected by the ECoW and would be informed by available suitable habitat.

## Monitoring

- 4.3.25 Condition monitoring of newly established/enhanced habitats will be carried out on an annual basis for a period of 5 years. The specific attributes of each habitat for monitoring, will be detailed in the EMP to include: extent, vegetation composition, vegetation structure and physical structure. Targets for each attribute will also be detailed. Where habitats aim to support notable species, attributes and targets will also account for this. Methods of monitoring will be determined once the attributes / targets have been set, but will follow published methods<sup>4,5,6</sup>.
- 4.3.26 Monitoring of notable species, of County value, including: vascular plants, fungi, invertebrates, breeding birds and bat activity (with surveys following relevant best practice, and based on previous surveys undertaken to establish the baseline). It is proposed that these monitoring surveys will be in year 1, 3 and 5 post construction. Species, attributes, targets and monitoring methods will be agreed, in consultation with the LPA and NRW.
- 4.3.27 Monitoring results will be reported through a Steering Group, led by the site owner in partnership with NPTCBC and PCBC, NRW, and invited interested parties such as users/managers, advisory consultants/independent experts and local interested parties (e.g. Commoners representative) as appropriate. The site owner and the local authorities shall agree where additional remedial measures are required to ensure the objectives of the EMMP are implemented.

<sup>4</sup> JNCC, 2010. Handbook for Phase 1 habitat survey – a technique for environmental audit (2010) 2016.

<sup>5</sup> Jerram, R. & Drewitt, A. (1998). Assessing vegetation condition in the English uplands. Peterborough: English Nature Research Reports, No. 264.

<sup>6</sup> JNCC (2009). Common Standards Monitoring Guidance for Upland habitats, Version July 2009.



## 4.4 Landscape and Visual Impact

### General Provisions

4.4.1 The following measures will be implemented to help mitigate the impact of the development on the landscape and visual resource:

- where possible retain existing trees across the site: Any retained habitats (such as waterbodies, trees and woodland) will be securely fenced off with appropriate temporary fencing (e.g. chestnut paling on scaffold supports or 'Heras' fencing) at the start of construction work to prevent access and incidental damage by site vehicles, equipment and personnel;
- all retained trees should be treated in accordance with British Standard BS5837 (2012) Guidance for the Treatment of Trees in Relation to Construction. Damage to mature trees, as well as tree and scrub understorey and ground flora within mature woodland, should be avoided;
- replace/plant trees with suitably sized trees to the approval of the Local Authority Tree Officer, and in accordance with the approved programme for undertaking planting works at the first available planting season;
- use of well-maintained fencing and hoardings to prevent unwanted access to the earthworks site, to provide screening, and site security where required;
- use of appropriate types of fencing and hoarding to minimise visual intrusion, painting the side of hoardings facing away from the site, and keeping them free of graffiti or posters;
- in addition to the points in Paragraph 4.3.11, temporary lighting should avoid unnecessary intrusion onto the wider landscape and/or visual receptors; and
- Maintain a clean and tidy site, using road sweepers and other appropriate methods.

### Protection of Vegetation

4.4.2 Vegetation clearance would be undertaken during the appropriate season/time of year, with great care to remove the minimum necessary and to protect and retain adjacent vegetation (Refer to Paragraphs 4.3.7 and 4.3.8).

4.4.3 To prevent the spread of non-native invasive plant species, the appointed contractor must follow the latest guidance as set out by NRW.

4.4.4 Sourcing of trees, plants and seed will be in accordance with current Defra/NRW and industry guidance to prevent the spread of pests and diseases and non-native invasive species. The Contractor is to refer to UK Plant Health Information Portal and NRW's latest publications on this topic.

## Measures to Reduce Potential Impacts on Landscape and Visual Resource

- 4.4.5 Planting and other landscape measures will be implemented during the earliest planting season and when it is reasonably practicable. If 'off-site' planting is proposed this should be planted in advance of construction works, if reasonably practicable.
- 4.4.6 A record of how the implementation of the works meets control measures, relevant to protection of the landscape and key landscape features, will be maintained and regularly reviewed.
- 4.4.7 The Employer, the Local Planning Authorities, NRW and other bodies (where they have an interest), and adjacent landowners will be consulted, as appropriate, regarding the landscape and planting proposals.

## Monitoring

- 4.4.8 Appropriate inspection, monitoring and maintenance of seeding works provided as part of the Project, will be undertaken by the Contractors throughout the construction.
- 4.4.9 The Employer will supply its Contractors with information prior to the construction to verify the landscape planting and seeding design as set out in the ES, on drawings and in the specification. This will allow the contractors to fully understand the required mitigation measures.
- 4.4.10 The Employer will require its contractors to undertake appropriate maintenance of seeding works and implementation of management measures, through the construction period as landscape works are completed. The contractors will monitor the progress of new landscape works through the construction period. Any failures of planting and seeding will be replaced in accordance with the approved specification and works requirements. This will ensure reseeded works are undertaken (as required) to achieve successful establishment of the landscape mitigation proposals at completion of the construction works. The Employer will require its contractor to maintain seeding throughout the defects liability period.

## 4.5 Historic Environment

### Cultural Heritage Management – general provisions

- 4.5.1 The Employer and its principal contractors will manage the impact of construction on the cultural heritage assets present in proximity to the site, including:
- The Scheduled Monument within the site;
  - Non-designated assets as identified in Chapter 8 of the Environmental Statement and previously unrecorded archaeological remains potentially present in areas not subjected to open cast mining.
- 4.5.2 Any works to the Scheduled Monument will require Scheduled Monument Consent, obtained from Cadw. Carrying out works without gaining consent is an illegal act.
- 4.5.3 All works will be managed in accordance with relevant Standards and Guidance of the Chartered Institute for Archaeologists and guidance from Glamorgan Gwent Archaeological Trust (GGAT) and Clwyd Powys Archaeological Trust (CPAT) taking account of the relevant sections of the Written Scheme of Investigation, developed by The Employer and its contractors and approved by CPAT and GGAT.
- 4.5.4 General cultural heritage management measures will include:
- An archaeological contractor will be appointed by The Employer. They will be a CIfA Registered Organisation.
  - Provision to the contractors of locations and descriptions of all known cultural heritage assets within and adjacent to, construction works, including restrictions to construction methods to protect cultural heritage assets, where these have been identified in the ES;
  - A programme detailing the implementation of cultural heritage survey works prior to and during construction, addressing the measures set out in the ES;
  - The Employer will ensure that the cultural heritage mitigation works measures (as set out in the ES) are properly programmed by its contractors;
- 4.5.5 The Employer will require its contractors to monitor compliance using appropriately qualified environmental management staff with specific responsibility for supervising works with the potential to affect cultural heritage interests;
- 4.5.6 During all stages, The Employer will require its contractors to facilitate archaeological specialists undertaking the works as specified as an appropriate mitigation measure (including purposive investigation and/or watching brief works);

4.5.7 All archaeological intervention, recording, analysis, dissemination and archiving will be undertaken by a suitably qualified and demonstrably experienced organisation; and

4.5.8 Cadw and GGAT/CPAT (Development Control) will be consulted as appropriate through all stages of the implementation of the programme of cultural heritage works.

### Human Remains

4.5.9 Should human remains be located during earthworks The Employer and its contractors will comply with all relevant legislative and project specific requirements.

### Written Scheme of Investigation

4.5.10 A Written Scheme of Investigation will be prepared by a suitably qualified archaeological contractor and agreed with CPAT/GGAT (Development Control) prior to the start of work.

### Measures in the Event of Unexpected Discoveries of Significance

4.5.11 Should cultural heritage assets of potential national significance be unexpectedly revealed during construction the procedure, as previously agreed with The Employer, and where appropriate CPAT/GGAT, will be implemented in the event of any such discoveries being made. Mitigation may include the following, as appropriate:

- Investigation and assessment of discoveries to determine their significance if this cannot be determined from the asset as found;
- Assessment of potential project impacts to inform design of appropriate mitigation measures;
- Preparation of a written scheme of investigation for any stage of archaeological work required;
- Excavation, recording and reporting on any discoveries; and
- Recording and implementing measures to preserve any discoveries in situ, if required or if appropriate.
- 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, including unknown sites discovered during construction.

### Monitoring

4.5.12 Arrangements will be made to allow CPAT/GGAT Development Control and Cadw to monitor the works at their discretion.

## 4.6 Water Environment

### General Site Activities

- 4.6.1 Site compounds will be located away from all surface water features and watercourses and outside of the flood plain.
- 4.6.2 Wherever practicable, grey water systems will be used at site compounds to reduce run-off from site, improve water efficiency and reduce the potential for polluting discharges to surface watercourses.
- 4.6.3 A site drainage plan will be prepared in advance of construction works, identifying the location of all watercourses and drains/drainage paths and showing mitigation measures to protect the receiving water environment from pollutants from the scheme's construction.
- 4.6.4 All drainage on site will be identified and mapped, with colour coding used to distinguish between surface water, foul sewer and combined drainage. This will ensure that all those working on site are aware of the type of drain in the event of a pollution incident. Pollution control measures such as the use of oil interceptors, the placement of bunds or sediment traps will be used to prevent sediment run-off entering drains.
- 4.6.5 All personnel will attend a site induction before commencing work on site. The briefing will emphasise the sensitivity of the watercourses, surrounding habitat and methods and working practices employed to protect the water environment.

### Surface Water Management

- 4.6.6 Temporary surface water management systems will be installed early in the construction sequencing and carefully managed to prevent localized flooding or pollution of surface and groundwater from sediment and other contaminants.
- 4.6.7 Silt fencing, cut-off ditches and soil bunds will be constructed downslope of excavations, to retain and convey water to adequately sized treatment areas to prevent the ingress of sediment contaminated water.
- 4.6.8 Areas of exposed sediment deemed at risk of erosion during heavy rainfall or flood inundation should 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.
- 4.6.9 Temporary surface water drainage measures should be planned and designed appropriately prior to installation and recorded on drawings. This should include details on:
- 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.

- 4.6.10 Use of cut-off drains or ditches to convey water around the site and/or prevent sediment laden water entering excavations and watercourses.
- 4.6.11 Sediment laden water will be treated to allow suspended solids to settle out before disposal.
- 4.6.12 Settlement ponds should be constructed to promote the removal of sediment from site runoff. Ponds should be large enough to ensure sufficient residence time for particulates to settle out, prior to discharge of the water.

### Groundwater Management

- 4.6.13 All water pumped from excavations would be pumped via a pipe and gravel sump in order to prevent sediment being agitated from the base of the excavation and to provide rudimentary filtration to the water prior to abstraction.
- 4.6.14 For low volume pumping, water would either be pumped into a vegetated area remote from surface water drainage or into a small attenuation lagoon prior to being directed into the drainage system. For high volume pumping (100mm or above) water could be passed through an attenuation tank. The outlet from the tank could be placed directly into site drainage, provided the water is free from sediment contamination.
- 4.6.15 Sediment laden water will be treated to allow suspended solids to settle out before disposal.
- 4.6.16 Settlement ponds should be constructed to promote the removal of sediment from site runoff. Ponds should be large enough to ensure sufficient residence time for particulates to settle out, prior to discharge of the water.

### Environmental Monitoring

- 4.6.17 Water monitoring of parameters capturing the potential pollution sources will be conducted across the scheme at appropriate locations to detect any changes in the water environment from the construction phase, and to determine locations for additional new mitigation or maintenance of existing mitigation measures. Also refer to Section 4.7.
- 4.6.18 A detailed response plan, linked to regular monitoring of identified watercourses/aquifers will be compiled and adhered to.

### Severe Weather and Flooding

- 4.6.19 The contractor should consider the potential impacts of extreme weather events during construction. To ensure resilience of the scheme to such extreme weather events, the contractor should use a short to medium-range weather forecasting service from the Met Office or other approved weather forecast provider to

manage climate-related risks and inform programme management and impact mitigation measures.

- 4.6.20 The contractor's Environmental Management System (EMS) should consider all measures deemed necessary and appropriate to manage extreme weather events and should specifically cover training of personnel and prevention and monitoring arrangements.

### Vehicle and Plant Movements

- 4.6.21 Haul routes will be regularly inspected and maintained to minimise sediment laden run-off.
- 4.6.22 During the project's mass haul operation, damping down of the haul roads to minimise dust being generated by plant movements would be required. This would minimise dust pollution causing nuisance to neighbouring properties and businesses along the route of the scheme.
- 4.6.23 All vehicles, plant and equipment will be regularly inspected and maintained in accordance with manufacturers' recommendations. Records of inspections will be maintained on site.
- 4.6.24 Areas of hard standing will be provided at site access and egress points, where practicable. The areas will be regularly inspected and cleaned.
- 4.6.25 Site wheel washing facilities will be established at access and egress points and located away from watercourses and the floodplain. Cleaning will be carried out in a bunded area and wastewater will either be recycled or discharged to foul sewer (with consent from the sewerage undertaker). If unable to be discharged, waste will be removed from site by a licensed waste carrier for disposal to an appropriately licensed facility.
- 4.6.26 Guidance from GPP13 will be used to put in place good practice for vehicle washing and cleaning.

### In-channel working

- 4.6.27 Any instream works or works close to watercourses will follow GPP5.
- 4.6.28 Any temporary works to divert watercourses during construction, either by gravity flumes or over pumping will include suitable provisions to pass high flows.
- 4.6.29 The use of construction materials on site will be free from contaminated material so as to avoid potential contamination of the watercourse.

### Storage of Fuels, Oils and Other Chemicals

- 4.6.30 Spill kits to be available near all points of work and personnel trained in their use.
- 4.6.31 COSHH store to be bunded and locked when not in use.
- 4.6.32 In areas of limited footprint, settlement tanks and oil separators will be used to treat contaminated water from the work areas.



- 4.6.33 Physical barriers to be used to stop material overspill.
- 4.6.34 No fuels, oils or other chemicals will be stored in high- risk locations such as:
- Within 50 metres of a spring, well or borehole;
  - Within 10 metres of a watercourse; or
  - Places where spills could enter open drains or soak into groundwater.
- 4.6.35 Storage tanks for oils, fuels or chemicals will be sited on an impermeable base, surrounded by an impermeable bund, and inspected regularly for leaks. Any valve, filter, sight gauge, vent pipe or ether ancillary equipment must be kept within the bund when not in use. The drainage system of bunded areas shall be sealed with no outlet to any watercourse, pond or underground strata.
- 4.6.36 Bunded areas will be located on stable and on level ground and located away from watercourses, ditches and drains.
- 4.6.37 Associated pipework should be situated above ground and protected from accidental damage.
- 4.6.38 All bulk fuels storage must be contained within a double skinned bowser/container or have a bund. Double skinned tanks or bowsers must also be bunded unless the outer skin would provide secondary containment. The bund must have sufficient volume to contain 110% of the contents of the largest fuel/pipe container or 25% of the total storage capacity of all the containers, whichever is the greater.
- 4.6.39 All fuel containers, including those containing waste fuels, must be stored on a drip tray/bunded area away from vehicle traffic within a designated storage area, where possible, to avoid damage.
- 4.6.40 Plant will be regularly inspected, serviced and maintained to minimise the risk of leaks/spills. At the end of each working day, driveable plant will be moved away from watercourses.
- 4.6.41 Refuelling will be carried out in accordance with PPG7.

### Topsoil Stripping and Storage

- 4.6.42 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. Topsoil will be stored outside of the floodplain on level areas.
- 4.6.43 In advance of vegetation clearance and soil stripping operations commencing within 10m of a watercourse, appropriate control measures would be implemented to prevent contamination.
- 4.6.44 Topsoil stockpiles would be created and managed in accordance with best practice guidance. The sides of stockpiles would be graded to prevent ponding and to help shed rainwater. Exposed stockpiles that are to remain for long periods would be seeded with a standard Rye Grass seed mix immediately upon completion and in



suitable weather conditions. This would minimise soil erosion during the soil storage period and to help reduce colonisation of nuisance weeds.

- 4.6.45 Silt fencing would be installed around the margins of topsoil mounds to minimise the risk of sediment-laden runoff reaching watercourses.
- 4.6.46 Cleared land would be reseeded as soon as practicable, to minimise exposed soil and subsequent sediment runoff.

## Consents

- 4.6.47 Depending on the nature of the construction activities, an abstraction licence may be required for de-watering operations. The consenting authority would be Natural Resources Wales. A separate licence may be required for each location or activity.
- 4.6.48 An Ordinary Watercourse Consent is required for all works carried out over, under or near an ordinary watercourse. Ordinary watercourses include non-main rivers and all ditches, drains, cuts, culverts, dikes, sewers (other than public sewers) and passages through which water flows.

## 4.7 Soils, Geology and Hydrogeology

### General Provisions

- 4.7.1 It is envisaged that many of the risks identified in relation to the earthworks will be covered by the use of the following measures:
- Dust control measures during the works, wheel washers for any offsite movements, construction of appropriate temporary transport networks within the construction area, covering of loads during on site transport;
  - Health and safety training, guidance notes and signs and suitable welfare facilities. Promotion of good hygiene practices implemented for the duration of the works with no smoking, eating, or drinking in the locale of excavations in potentially contaminated areas;
  - The use of protective clothing and equipment; appropriate Personal Protective Equipment (PPE) provided to all construction workers. The assessment of risks to construction workers and the provision of appropriate PPE would be the responsibility of the contractor involved in the works;
  - Health and safety risk assessments will consider available chemical testing results for soils, groundwater and surface water and will inform identification of adequate mitigation measures;
  - An Action Plan for safely dealing with unexpected contamination should be developed. This will include provisions to appoint a suitably qualified and experienced contaminated land practitioner to provide a watching brief and supervisory role should unexpected contamination be encountered. This role shall include assessment of the risks to the construction works and workers. In addition, the Action Plan shall set out procedures for dealing with unexpected

contamination to allow for assessment of identified contamination, review of health and safety provisions, review of remediation/disposal options, identification of measures limiting environmental impact of these materials. This should include sampling and testing of the encountered materials in situ or upon excavation, assessment of risk to the environment, storing contaminated materials in a designated and suitably controlled location i.e. lined and banded, and appropriate waste disposal procedures;

- Environmental monitoring to ensure environmentally sound working practises are being adopted and adhered to, and allowing for early warning system preventing detrimental impact on the water environment surrounding the scheme. A monitoring plan shall be prepared by the Contractor and agreed with regulators. It should include baseline monitoring, monitoring during and post construction of controlled water receptors identified by a suitable risk assessment.

## Site specific measures

4.7.2 Site specific measures will be proposed as the design develops.

## 4.8 PRow

- 4.8.1 A Public Rights of Way Management Plan is to be prepared by PCC and NPTCBC. This is to include details of how PRow are to be affected, i.e. diversions or closures and whether these would be temporary or permanent. Reasons for any changes to the existing PRow network are to be provided. Further details to be included are:
- Details of any signage that will be used to identify temporary diversions or closures. This is to include where these signs will be located.
  - Safety measures such as fencing will be identified to keep users of PRow safe;
  - Details of how proposed PRow diversions, closures and will be reinstated; and
  - Details of how PRow will be inspected.
- 4.8.2 The CEMP will be updated as more details become available.

## 4.9 Common land

- 4.9.1 A Common Land strategy is being developed by PCC/NPTCBC which will set out the approach to how the common land would either be exchanged for other suitable land or deregistered with Commoners suitably compensated. The approach has not yet been confirmed and is currently in development. An application under the Common Land Act would be required and is a separate process apart from planning. The CEMP will be updated as more details become available.

## 4.10 Noise and Vibration

- 4.10.1 The purpose of this Noise and Vibration section is to set out measures for the Contractor to control and manage noise and vibration from machinery and construction works.
- 4.10.2 The effects of noise and vibration from the construction site will be controlled by introducing management and monitoring processes to ensure that best practicable means (BPM) are planned and employed during construction.
- 4.10.3 As part of the contractors' detailed CEMP, a noise and vibration management plan will be prepared and will set out these processes. The plan will include management and monitoring processes to ensure, as a minimum:

- Integration of noise control into the preparation of method statements;
- Ensuring proactive links between noise management activities and community relations activities;
- Preparing details of site hoardings, screens or bunds that will be put in place to provide acoustic screening during construction, together with an inspection and maintenance schedule for such features;
- Developing procedures for the installation of noise insulation or provision of temporary re-housing and to ensure such measures are, where required, in place as early as reasonably practicable;
- Preparing risk assessments to inform structural surveys of buildings and structures which may be affected by vibration from construction;
- Developing a noise and vibration monitoring protocol including a schedule of noise and vibration monitoring locations and stages during construction of the scheme when monitoring will be undertaken;
- Preparing and submitting Section 61 consent applications;
- Undertaking and publishing all monitoring required to ensure compliance with all acoustic commitments and consents; and
- Implementing management processes to ensure ongoing compliance, improvement and rapid corrective actions to avoid any potential non-compliance.

## Measures to reduce potential noise and vibration impacts – Best Practicable Means (BPM)

- 4.10.4 The Control of Pollution Act 1974 and the Noise and Statutory Nuisance Act 1993 contain powers to control noise emission and to require the employment of the best practicable means for preventing or counteracting the effect of noise.
- 4.10.5 Well defined noise control procedures will be implemented for all construction plant equipment and all site activities. The contractor will comply with BS 5228: Noise control on construction sites and open sites. Noise control measures will include:
- Noisy equipment will be located at furthest practicable distance from properties with provision of temporary screening where possible to reduce construction noise impacts at properties. The contractor will identify optimum positions for noisy equipment and screening to minimize disruption.
  - In order to reduce construction vibration impacts at properties, vibratory rollers will not be used within 90m of properties during operation (125m for start-up/run down) unless further

risk assessment and monitoring can demonstrate no likely adverse effect due to vibration. The contractor will undertake further risk assessment prior to works and/or vibration monitoring at the start of works within the stipulated distances to confirm no adverse effects due to vibration.

- All plant and machinery will have effective silencers fitted and kept in good condition.
- Areas of traffic movement will be designed to minimise reversing alarm use principally by the use of one-way systems. However where reversing is required the use of broadband reversing alarms is recommended.
- Natural features and buildings will be used to minimise noise from construction works where practical.
- Noise levels can be predicted from knowledge of the type and number of plant to be used for various activities.
- Noise from standard construction plant is of short duration therefore impact is minimised.
- Construction activity will typically be confined to 08.00-18.00 hours, Monday to Friday and 08.00-13.00 hours on Saturdays.
- Where working is required outside of the above hours for safety or engineering practicability reasons, the works to be carried out during these extended hours will be discussed and agreed with the local Environmental Health Officer in advance of the works commencing.
- During the construction phase, haul roads will be maintained and kept as smooth as possible and maintain them to reduce vibration impacts caused by heavy plant movement.

**4.10.6** If situations arise where despite the implementation of BPM, the noise exposure levels exceed the criteria defined in **Table 1**, the contractor may offer:

- Noise insulation; or ultimately
- Temporary re-housing.

## Section 61 consents

**4.10.7** The contractor will seek to obtain consents from the relevant local authority under Section 61 of the Control of Pollution Act 1974 for the proposed construction works, excluding non-intrusive surveys. Applications will be made to the relevant local authority for a Section 61 consent at least 28 days before the relevant work is due to start or earlier if reasonably practicable.

**4.10.8** Details of construction activities, prediction methods, location of sensitive receivers and noise and vibration levels will be discussed with the relevant local authority, or authorities, both prior to construction work and throughout the construction period. Prediction, evaluation and assessment of noise and vibration as well as discussion between the employer's representative and its

contractor and the relevant local authority will continue throughout the construction period.

- 4.10.9 Unless otherwise agreed with the relevant local authority, noise levels will be predicted in accordance with the methods set out in BS 5228 – 1.
- 4.10.10 All construction noise levels will be predicted or measured at a distance of 1m from any affected eligible facade, which must have windows to bedrooms or living rooms.
- 4.10.11 Annex A of BS 5228-1 provides a flow diagram demonstrating the process of a Section 61 application.
- 4.10.12 The contractor will seek to agree with local authorities a common format and model consent conditions for Section 61 applications or any dispensations and variations to an existing consent.
- 4.10.13 The contractor will use BPM to minimise the extent to which noise insulation work or temporary re-housing of occupiers of dwellings adjacent to the works needs to be considered.
- 4.10.14 Notwithstanding the measures set out here and any Section 61 consents, noise insulation or temporary re-housing will be offered to qualifying parties when:
  - noise levels are predicted or measured by the contractor to exceed the relevant trigger level defined in Table 1 below at that property for at least ten days out of any period of fifteen consecutive days or alternatively 40 days in any six-month period;
  - the property complies with all other requirements of the Noise Insulation (Amendment) Regulations 1988;
  - the property is lawfully occupied as a permanent dwelling; and
  - in respect of insulation, noise insulation does not already exist that is of an equivalent standard to that which would be allowed for under the Noise Insulation (Amendment) Regulations 1988.

**Table 1 Noise thresholds for noise insulation/temporary re-housing**

Day	Time (hrs)	Average period, T	Noise insulation trigger level $L_{pAeq, T}$ (dB) */**	Temporary re-housing trigger level $L_{pAeq, T}$ (dB) */**
Monday-Friday	07:00-08:00	1 hr	70	80
	08:00-18:00	10 hrs	75	85
	18:00-19:00	1 hr	70	80

	19:00-22:00	1 hr	65	75
Saturday	07:00-08:00	1 hr	70	80
	08:00-13:00	5 hrs	75	85
	13:00-14:00	1 hr	70	80
	14:00-22:00	1 hr	65	75
Sunday and public holidays	07:00-22:00	1 hr	65	75
Any day	22:00-07:00	1 hr	55	65

\*Proposed Scheme construction sound only. Trigger levels are defined as 1m in front of the closest façade of a habitable room.

\*\*Where the current ambient noise level is greater than the noise insulation trigger level:

- the ambient noise level shall be used as the noise insulation trigger level, and
- the ambient noise level +10 dB shall be used as the temporary rehousing trigger level.

**4.10.15** The contractor will consider at its discretion applications supported by evidence for noise insulation or temporary rehousing from occupiers who may have special circumstances. Special circumstances could include night workers, those working in home occupations, local businesses or buildings that provide community facilities requiring a particularly quiet environment and those with a medical condition which will be seriously aggravated by construction noise, and provide noise insulation or temporary rehousing where it is demonstrated that this is necessary.

## 4.11 Traffic Provisions

### General Provisions

- 4.11.1 A CTMP will be prepared that outlines a range of measures to minimise potential traffic impacts arising from the construction of the GCRE development proposals. It is anticipated that the CTMP will be secured via a planning condition.

### Site Specific Measures

- 4.11.2 The CTMP will be reviewed and updated in line with the construction programme and is anticipated to include details of the following:
- The CTMP will seek to enable safe walking within and surrounding the development: All PROWs will be protected from all construction activity. Alternative walking routes will be provided with appropriate signage and crossings where necessary to ensure safe accessibility.
  - The provision of facilities for pedestrians regarding the level crossings along the existing railway should also be specified within the CTMP and aim to minimise disruption during construction of the GCRE and ensure safe passing for pedestrians.
  - The CTMP should encourage active travel accessibility to/from the development: this is to lessen the number of vehicles to and from site. Temporary cycle storage facilities should be provided for construction workers who live within cycling distance.
  - The potential provision of bus services for construction workers should be specified within the CTMP. GCRE should collaborate with existing bus operators and NPTCBC to provide a service that benefits construction workers in key neighbouring towns if existing services do not satisfy demand to encourage use of public transport and lessen the number of vehicles to and from site. If possible, GCRE will co-ordinate with the existing bus service timetable to minimise disruption during construction and the existing bus operations.
  - Through correct traffic management, the CTMP should ensure correct signage and wayfinding. This will aim to minimise highway disruptions during construction of the GCRE.
  - Parking measures detailed in the CTMP to minimise any disruption this may cause. During construction of the development, a temporary car park will be made available on site and of suitable size as deemed necessary within the CTMP to support the operation of construction.



- Given the above, it is proposed that a CTMP is prepared to ensure that all reasonable steps are taken to minimise and mitigate any possible adverse effects of the construction process.
- Monitoring of the traffic associated with the proposed development during the construction period will also be undertaken as part of the CTMP. It is anticipated that monitoring of traffic in the operational phase will be undertaken as part of the implementation of the full Travel Plans.

## 4.12 Climate Change

### General Provisions

- 4.12.1 Due to the short temporal phase of construction, it is assumed that the mitigation measures put in place by this CEMP would take into account current weather events and the impacts of climate change already being experienced in the UK.

## 4.13 Air Quality

### General Provisions

- 4.13.1 The air quality assessment carried out for the proposed development, as presented in the ES, has identified “medium” for dust soiling, “negligible risk” for human health and “low risk” for ecological impact during construction. As a result, the appropriate mitigation measures relevant to the risks of the site have been identified in the ES. These mitigation measures are in line with the recommendations from the Institute of Air Quality Management (IAQM) guidance and are set out below.

### Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Display the name and contact details of person(s) accountable for air quality and dust issues on the proposed development boundary. This may be the environment manager/engineer or the site manager;
- Display the head or regional office contact information; and
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in

this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real-time PM<sub>10</sub> continuous monitoring and/or visual inspections.

### Site management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints log available to the local authority when asked; and
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log-book.

### Monitoring

- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of site boundary, with cleaning to be provided if necessary;
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked; and
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

### Preparing and maintaining site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;

- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; and
- Cover, seed or fence stockpiles to prevent wind whipping.

### Operating vehicle/machinery and sustainable travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles;
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable;
- Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate);
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials; and
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

### Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;
- Use enclosed chutes and conveyors and covered skips;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

### Waste management

- Avoid bonfires and burning of waste materials.

## 4.14 Activity specific mitigation measures

### Demolition

- Ensure effective water suppression is used during demolition operations;
- Avoid explosive blasting using appropriate manual or mechanical alternatives; and
- Bag and remove any biological debris or damp down such material before demolition.

### Construction

- Avoid scabbling (roughening of concrete surfaces) if possible; and
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

### Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use;
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Record all inspections of haul routes and any subsequent action in a site log book; and
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).