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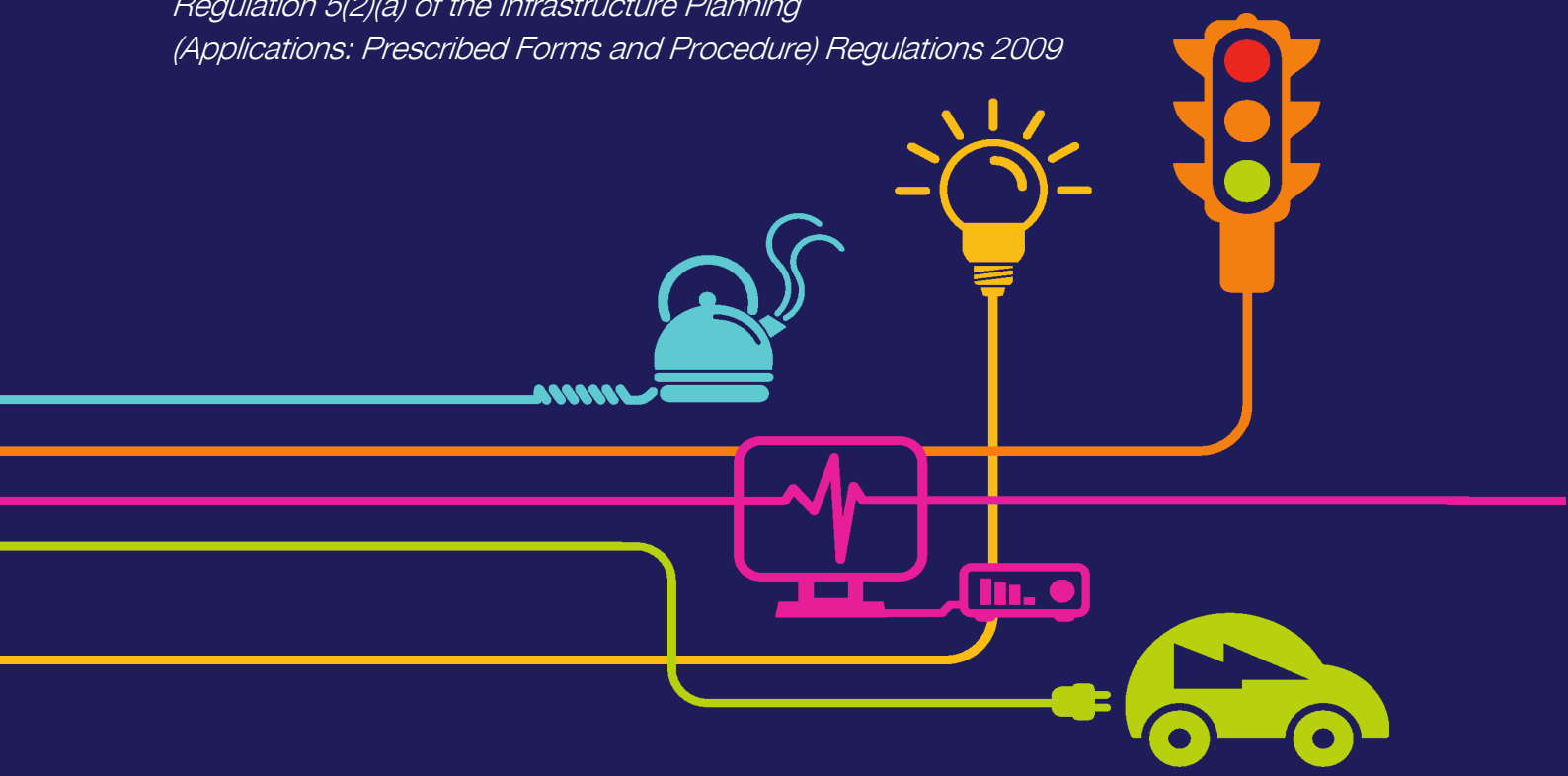
DOCUMENT 7.4

Construction Environmental Management Plan

National Grid (North Wales Connection Project)

Regulation 5(2)(a) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



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North Wales Connection Project

Volume 7

Document 7.4 Construction Environmental Management Plan

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Contents

1 Introduction

1.1 THE PROPOSED DEVELOPMENT

1.1.1 National Grid Electricity Transmission plc (National Grid) owns and operates the high voltage electricity transmission system in England and Wales. National Grid has a statutory duty to promote competition in the supply of electricity and is obliged to offer to connect to the system to anyone who applies for a connection. Horizon Nuclear Power has applied to National Grid to connect a proposed new nuclear power station (Wylfa Newydd Power Station) to the system at Wylfa, Anglesey. The proposed power station would be within a site already identified for this type of development in the UK government's National Policy Statement (NPS) EN-6 'Nuclear Power Generation'. National Grid is developing proposals for a connection that would facilitate this generation by the contracted date of 2026.

1.1.2 The Proposed Development is known as the North Wales Connection Project and consists of the following components:

- Extension to the existing substation at Wylfa;
- Sections of new 400 kV overhead line (OHL) between Wylfa substation and Braint Tunnel Head House (THH) and Cable Sealing End Compound (CSEC) on Anglesey including modifications to parts of the existing 400 kV OHL between Wylfa and Pentir;
- Braint THH and CSEC on Anglesey;
- Tunnel between Braint and Tŷ Fodol THHs;
- Tŷ Fodol THH and CSEC in Gwynedd;
- New section of 400 kV OHL between Tŷ Fodol THH and CSEC and Pentir Substation;
- Extension to the existing substation at Pentir; and
- Temporary construction compounds, access tracks, construction working areas, localised widening of the public highway and third party works that are required to construct the infrastructure listed above.

1.2 PURPOSE OF THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

1.2.1 This Construction Environmental Management Plan (CEMP) presents the approach and application of environmental control and management measures (CMM) for the construction of the Proposed Development. The CEMP covers construction and aims to ensure that adverse effects from the construction phase of the Proposed Development on the environment and the local communities are reduced and managed as far as practicable. It does not describe the mitigation measures relating to the operation of the Proposed Development. Design Mitigation (DM) measures are not specified within the CEMP, these are measures which are inherently built into the design and are secured through the DCO Plans (**Volume 4**).

1.2.2 Any works related to the Proposed Development undertaken under powers afforded by the draft Development Consent Order (DCO) will implement the appropriate and relevant measures set out in this CEMP.

1.2.3 Where reference is made to the Contractor, this refers to the relevant contractor responsible for the particular element of the Proposed Development.

1.3 THE DRAFT DEVELOPMENT CONSENT ORDER (DCO)

1.3.1 All the measures detailed in this CEMP are secured by Requirement 6 of the draft DCO (**Document 2.1**).

1.3.2 National Grid and their contractors will carry out all work in accordance with the CEMP during the construction of the Proposed Development unless otherwise agreed with the relevant Planning Authority.

1.4 APPENDICES

1.4.1 The CEMP is supported by Appendix 1, the Schedule of Environmental Commitments (**Document 7.4.2.1**). This identifies receptors within the Order Limits where a specific commitment has been made. This is secured by Requirement 6 of the draft DCO (**Document 2.1**).

1.5 OTHER CONTROL AND MANAGEMENT PLANS

1.5.1 Control management measures are also set out in a number of other plans and strategies, as listed in Table 7.4.1, which are submitted as part of the DCO application.

Table 7.4.1 Construction Mitigation Plans Submitted with the DCO Application		
Plan/Strategy	Description	Document Number & Requirement
Outline Materials Management Plan (OMMP)	This sets out the strategy for the management of materials (e.g. spoil) which are likely to arise as a result of the construction of the Proposed Development.	Document 7.12 secured by Requirement 6
Outline Waste Management Plan (OWMP)	A strategy and action plan for the management of waste which is likely to arise during the construction phase of the Proposed Development.	Document 7.11 secured by Requirement 6
Biodiversity Mitigation Strategy (BMS)	Describes measures to avoid and reduce likely adverse effects on ecological receptors	Document 7.7 secured by Requirement 6
Archaeological Strategy (AS)	Sets out the steps that need to be taken to mitigate the predicted effects on archaeology, geo-archaeology and historic landscape heritage assets.	Document 7.8 secured by Requirement 6
Outline Construction Traffic Management Plan (OCTMP)	Details the strategy and mitigation measures to be used to limit the impact on existing users of the public highway network.	Document 7.5secured by Requirement 6
Public Rights of Way Management Plan (PRoWMP)	Describes where the Public Rights of Way (PRoW) will be affected and how the PRoW will be managed, to ensure they are safe to use and the disruption to the users of the PRoW is reduced.	Document 7.6 secured by Requirement 6

Table 7.4.1 Construction Mitigation Plans Submitted with the DCO Application		
Plan/Strategy	Description	Document Number & Requirement
Noise and Vibration Management Plan (NVMP)	Details the relevant noise and vibration restrictions and monitoring to be implemented by the Contractor during each stage of the construction works.	Document 7.9 secured by Requirement 6
Outline Soil Management Plan (OSMP)	Sets out the principles and procedures for good practice control and management measures in soil handling and restoration.	Document 7.10 secured by Requirement 6

1.5.2 Table 7.4.2 lists the plans and procedures that will be developed for each stage of the Proposed Development to set out in detail the management systems and approach that will be implemented during construction to comply with the CEMP.

Table 7.4.2 Construction Mitigation Plans to be produced	
Plan/Strategy	Description
Stakeholder Communications Plan (SCP)	This plan will include measures for community engagement before and during work on site.
Safety Health and Environment (SHE) Plan	The plan will detail the relevant safety, health and environmental information relating to construction activities.
Materials Management Plan	This will set out the detail developed from the OMMP to identify site-specific measures for the management of materials arising during construction.
Site Waste Management Plan	This will set out the detail developed from the OWMP to identify site-specific measures for the collection, segregation, treatment and disposal of waste.

Table 7.4.2 Construction Mitigation Plans to be produced	
Plan/Strategy	Description
Travel Plan	This will set out a number of travel planning initiatives for construction workers.
Soil Management Plan (SMP)	This plan will set out the detail developed from the OSMP to protect soils.
Pollution Incident Control Plan (PICP)	This will set out procedures for sediment management, the correct storage and handling of potentially polluting substances, and emergency response measures in the event of accidental spillage or leakage
Drainage Management Plan (DMP)	This will identify all known risks to the water environment and identify appropriate measures to prevent pollution during construction. A phased approach may be taken to the development of the DMP to reflect the phasing of the construction programme.
Invasive Non-Native Species Method Statement (INNSMS)	This plan will set out the measures which will be implemented to avoid the spread of invasive non-native species (INNS) during construction and ensure legal compliance.
Flood Management Plan (FMP)	This plan will cover both construction and operational/maintenance phases as different receptor groups are affected during each phase. As a minimum the FMP will include details on the frequency of weather and stream flow observations, how forecasts, alert and actions will be disseminated, signage, roles and responsibilities, and emergency response procedures including detailed evacuation plan and procedures for making safe plant and equipment.
Tree and Hedgerow Protection Strategy	This plan will include a schedule of all trees and hedgerows to be removed, a schedule of all trees which require pruning coppicing or pollarding, a schedule of all trees and hedgerows to be retained

Table 7.4.2 Construction Mitigation Plans to be produced	
Plan/Strategy	Description
	including specification for temporary physical protection, including root protection areas and details of an auditable system of compliance.
Dust Management Plan (DuMP)	This plan will include measures to control dust during the construction of the Proposed Development

1.6 COMPLIANCE WITH PROJECT ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS)

1.6.1 National Grid and the appointed contractors will seek to maximise resource efficiency through reducing the amount of waste generated, minimising water consumption and making the most efficient use of energy.

1.6.2 The carbon footprint of the Proposed Development will be reduced during construction by avoiding CO_2 emissions where possible through, for example, keeping construction vehicle movements to the minimum necessary.

1.6.3 National Grid maintains an EMS to provide a framework within which to manage and reduce their effects on the environment. The EMS is accredited to ISO14001:2015.

1.6.4 The appointed contractor will prepare their own project EMS in accordance with National Grid's EMS prior to construction commencing. An EMS will be prepared for each element of the Proposed Development. The contractors EMS will address:

- compliance with the CEMP and the other control and management documents set out in Table 7.4.1 and Table 7.4.2;
- compliance with environmental consents and permits;
- overall compliance with environmental legislation, approved codes of practice, British Standards and industry best practice;
- detailed environmental management procedures to deliver the CEMP and other control and management plans including roles and responsibilities;

- monitoring and review arrangements;
- emergency procedures that are defined and adopted; and
- appropriate training and information for personnel.

1.7 COMPLIANCE WITH LEGISLATION, STANDARDS AND GUIDANCE

1.7.1 There is a broad range of legislation covering the different aspects of environmental protection. All relevant legislative requirements will be adhered to during construction, for example those relating to protected species listed under the Wildlife and Countryside Act 1981 (as amended) and invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Relevant legislation is set out in the Legislation Compliance Register (**Document 5.28.2.1**).

1.7.2 These statutory requirements are supported by additional statutory guidance, 'standards' (such as British Standards (BS) or International Standards (ISO)) and other 'best practice' guidance, including industry codes of practice.

1.7.3 Where relevant these will be adhered to during the construction of the Proposed Development and will be kept under review and updated as required as a result of new or amended legislation, standards and guidance by National Grid and their contractors.

1.8 CODING OF CONTROL AND MANAGEMENT MEASURES

1.8.1 The following sections of the CEMP set out the control and management measures for the construction of the Proposed Development, these include general principles along with topic specific controls. Each of the control and management measures set out in the following sections of this document has been given a code which is summarised at the end of each section. These codes have been used in the technical chapters of the Environmental Statement (ES) (**Documents 5.7 to 5.18**), so that it is clear exactly which of the control and management measures have been relied on in determining the residual environmental effects.

2 General Principles

2.1 OBJECTIVE

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

2.2 WORKING HOURS

2.2.1 **GP11** Construction hours are set out in Requirement 8 of the draft DCO (**Document 2.1**).

2.2.2 The core working hours will be between the hours of 0700 to 1900 hrs Monday to Saturday and between 0900 and 1700 on Sundays.

2.2.3 Percussive piling works will be limited to 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturdays.

2.2.4 Tunnelling works may take place outside of the core working hours subject to the following restrictions:

- blasting at the tunnel shaft locations are limited to 10:00 to 16:00 hours Monday to Friday and 10:00 to 13:00 on Saturdays; and
- surface drilling and curtain grouting associated with shaft construction is limited to Monday to Friday 07:00 to 19:00 hours and 07:00 to 13:00 hours on Saturdays.

2.2.5 The following operations may take place outside the core working hours described above:

- the installation and removal of conductors, pilot wires and associated protective netting across highways, railway lines or watercourses;
- the completion of operations commenced during the core working hours which cannot safely be stopped;
- any highway works requested by the highway authority to be undertaken on a Saturday or Sunday or outside the core working hours;
- security monitoring;

- the testing or commissioning of any electrical plant installed as part of the authorised development;
- the completion of works delayed or held up by severe weather conditions which disrupted or interrupted normal construction activities; and
- activity necessary in the instance of an emergency where there is a risk to persons or property.

2.2.6 The core working hours referred to above exclude start up and close down activities up to 1 hour either side of the core working hours.

2.3 COMMUNITY ENGAGEMENT AND PUBLIC INFORMATION

2.3.1 **GP21** A bilingual community relations agency will be appointed to provide dedicated community relations and external communications support. The community relations agency will work with the internal established communications team at National Grid and include Welsh speakers. A 24 hour free telephone hotline will be available, and a project website will be established and managed by the community relations team. The project helpline number and website URL details will be visible on boards placed around the perimeter of the construction site in appropriate locations where they would be visible to the public. The telephone number and project website details will also be provided to the local authorities.

2.3.2 **GP22** The community relations team will ensure the details of any complaints are recorded and all complaints are appropriately managed. Complaints will be investigated and appropriate action will be taken.

2.3.3 **GP23** In addition to the project telephone helpline and project website, complaints from an external party may also be received via a number of other communication routes, for example via written correspondence or incidental contact with construction workers. Any such communications will also be passed to the community relations team.

2.3.4 **GP24** Where a person from a community local to the works makes a complaint, it will be passed initially to the community relations team. The community relations team will liaise with the other members of the project team to investigate the complaint. Appropriate action will be taken by the project construction team and both the complaint, and the action taken in response, will be recorded.

Complaints Procedure

2.3.5 **GP25** Any complaints associated with the construction of the Proposed Development, including non-compliance with the CEMP and other management plans, will be reported, recorded and investigated using a detailed complaints procedure developed by the contractor.

2.3.6 **GP26** The detailed complaints procedure (including but not limited to complaints relating to noise, dust, vibration, pollution and construction traffic) will set out:

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

2.3.7 **GP27** Primarily any minor issues or complaints relating to site incidents will be dealt with by the contractor's site management team. For the escalation of these issues or for more serious issues these will be dealt with by the National Grid project team.

2.4 CODE OF CONDUCT

2.4.1 **GP31** The contractor will be a member of the Considerate Constructors Scheme or an equivalent scheme and will adhere to a Code of Conduct. The Code of Conduct will include sections on respecting the environment, respecting communities and respecting Welsh Language and Welsh Culture.

2.4.2 **GP32** Information will be provided to workers on language awareness, local linguistic and cultural context and how to demonstrate linguistic courtesy and cultural sensitivity.

2.4.3 **GP33** Site inductions and toolbox talks, will include information about Welsh language words and phrases, and information on resources for learning Welsh.

2.4.4 **GP34** The contractor will establish a process to monitor where workers are staying by type of accommodation and location. The results of this monitoring will be provided to National Grid.

2.5 HEALTH AND SAFETY

2.5.1 **GP41** The health and safety of persons working on projects will be maintained in accordance with the Construction (Design and Management) Regulations 2015[1] (CDM) and the principles and philosophy behind them.

2.5.2 **GP42** The contractors will prepare a construction phase SHE Plan prior to construction works commencing. A construction phase SHE Plan will be prepared by the contractors for each element of the Proposed Development, including OHL works, construction of deep shafts, tunnelling, H.V. cable installation and Mechanical and Electrical Fit out and substation works. The Plans will ensure that adequate arrangements and welfare facilities are in place to cover:

- the safety of construction staff;
- the safety of all other people working at or visiting the construction site;
- the protection of the public in the vicinity of the construction site;
- compliance with the Construction (Design and Management) Regulations 2015 and associated Health and Safety Executive (HSE) guidance documents[2];
- emergency procedures being defined and adopted; and
- appropriate training and information being provided to personnel.

2.5.3 **GP43** The contractors' Construction Phase SHE Plan will be reviewed and accepted by National Grid prior to construction commencing.

2.5.4 **GP44** All staff, site visitors and delivery drivers will receive the relevant level of project induction from the Contractor to ensure they are aware of site hazards and health, safety and environmental management requirements. Site staff will be briefed daily by the Contractor prior to work commencing. Site-specific risk assessments will be carried out to ensure the risk strategy of the frequently changing workplace remains relevant. The contractors will be required to carry out audits and inspections in line with section 2.8 of this CEMP.

2.5.5 **GP45** Emergency contact for the public will be through the complaints procedure described in section 2.3.5 of this CEMP.

[1] http://www.legislation.gov.uk/uksi/2015/51/contents/made
[2] http://www.hse.gov.uk/guidance/index.htm

2.5.6 **GP46** The works are located on Anglesey and in Gwynedd and emergency contacts and procedures will be agreed separately with the emergency services relevant to each area.

2.5.7 **GP47** A site visit will be conducted with Wales Fire and Rescue, Welsh Ambulance Service Trust and North Wales Police prior to construction of the relevant stage of the authorised developed to enable the emergency services to understand the site layout and to inform their procedures for dealing with an emergency if one should occur.

2.5.8 **GP48** National Grid will provide contact details to the emergency services for the National Operations Centre as well as a local point of contact for the operational phase of the development. A briefing meeting will be held with the emergency services prior to operation.

2.6 INSPECTIONS

2.6.1 **GP51** The Contractors will undertake inspections, which will include monitoring conformance with the CEMP. Assessment forms will be completed during the checks. Checks on equipment and facilities will be undertaken to reduce the risk of incidents occurring (for example oil leaks, or biosecurity breaches). Inspections will generally be undertaken on a weekly basis unless specified in other plans or licences. As a minimum the following equipment will be inspected:

- fencing;
- waste storage facilities;
- oil separators;
- chemical storage facilities;
- bund integrity;
- foul water storage facilities;
- silt traps;
- drainage ditches and watercourses;
- attenuation ponds;
- storage vessels (including pumps, gauges, pipework and hoses);
- secondary containment (for example, secondary skins for oil tanks);

- spill response materials; and
- equipment with potential to leak oils and other liquids, for example, machinery, compressors and transformers.

2.6.2 **GP52** Regular inspections, most likely weekly, will be undertaken by National Grid and the contractors to ensure the checks are being undertaken correctly. The inspections will also include:

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

2.6.3 **GP53** Environmental performance data will be collected and collated in accordance with the SHE Plan.

2.6.4 **GP54** Immediate action including, if necessary, 'stopping the activity in question, where safe to do so', will be taken should any incidents or non-compliance with the CEMP be found during inspection.

2.6.5 **GP55** Environmental performance data that is recorded will be made available to statutory and non-statutory bodies on request.

2.7 INCIDENT PROCEDURE

2.7.1 **GP61** Contractors will develop and implement a Pollution Incident Control Plan (PICP) which will detail their control measures and response in the event of any incident on site. The PICP will:

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

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

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

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

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

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

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

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

2.8 INCIDENT RESPONSE

2.8.1 **GP71** All incidents associated with the construction of the Proposed Development, including environmental incidents and non-conformance with the CEMP, will be reported and investigated in accordance with the PICP (unless stated differently in other Management Plans).

2.8.2 **GP72** The following procedure will be followed in the event of an incident and will be detailed further in the PICP:

a) works related to the incident will stop when it is safe to do so;

b) the National Grid Project Engineer, Environmental Manager and SHESQ Manager will be contacted;

c) the scale of the incident will be assessed;

i) if the incident is controllable by staff on site, remedial action will be taken immediately in accordance with the PICP;

ii) if the incident cannot be controlled by the staff on site, emergency assistance will be sought;

d) the appropriate enforcing authority will be contacted and informed as appropriate, including:

i) NRW for incidents affecting rivers, groundwater, the marine environment, designated sites and major emissions to atmosphere;

ii) the local sewerage undertaker for incidents affecting sewers;

iii) the Local Authority Environmental Health Department for incidents that could affect the public;

iv) the Food Standards Agency for incidents that have the potential to affect food through deposition on crops or land used for grazing livestock;

e) National Grid's Senior Project Manager and SHESQ Manager will instigate an investigation into the occurrence of the incident;

f) the findings will be sent to the appropriate enforcing authority where necessary; and

g) an action plan will be prepared to determine why the incident occurred and whether any modifications to working practices are required to prevent a recurrence. If necessary, the CEMP, PICP and SHE Plan will be updated (and any other plans as appropriate) and all workers will be notified.

2.8.3 A Traffic Incident and Management Plan (TIMP) will be prepared the details of this are provided in the Outline Construction Traffic Management Plan (**Document 7.5**).

2.9 CONSTRUCTION SITE LAYOUT AND GOOD HOUSEKEEPING

2.9.1 **GP81** The layout and operation of the construction compounds, working areas and, site offices will comply with the commitments in this CEMP.

2.9.2 **GP82** Good housekeeping practice will be applied at all times and all working areas will be inspected as required using a site audit programme and a written report on compliance will be provided to National Grid on a monthly basis.

Fencing and Other Means of Enclosure

2.9.3 **GP83** Following discussion with the landowners working areas will be appropriately fenced off from members of the public and to prevent animals from straying onto a working area in a manner that does not impede the movement or foraging area of protected species. Fencing and gates will be provided at bellmouths where appropriate. Fencing and other means of enclosure (other than ecological mitigation fencing such as great crested newt (GCN)) in areas at risk of flooding will be permeable to floodwater, unless otherwise agreed with NRW, to ensure that the fluvial floodplain and areas liable to other sources of flooding continue to function effectively for storage and conveyance of floodwater.

2.9.4 **GP84** Fencing and other means of enclosure, including those required for mitigating effects on protected species, will be inspected daily initially and then regularly as appropriate, and repaired as necessary. Any temporary

fencing will be removed as soon as reasonably practicable after completion of the works.

Lighting and Visual Intrusion

2.9.5 **GP85** Construction compounds will not be lit at night outside of the working hours identified for the particular activity, except for welfare and site security cabins, which will include low level lighting. Motion sensor lighting will be used in areas of high security risk.

2.9.6 **GP86** Site or welfare cabins, equipment and lighting will be sited so as to minimise visual intrusion insofar as is consistent with the safe and efficient operation of the work site. Site lighting will be positioned and directed to reduce glare and nuisance to residents. Winter working may require task-specific lighting due to the short day lengths when lighting would be required at the beginning and end of the day. Lighting will be used only when required during working hours for particular activities, unless otherwise stated and will comprise lighting of work areas and access and egress with low level directional lighting which is not towards sensitive receptors.

2.9.7 **GP87** Implementation will comply with the Institute of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light (2011) in so far as it is reasonably practicable and applicable to construction works. When lighting is necessary, appropriate lighting and luminaires will be used to reduce the impact of lighting on ecological resources, including nocturnal species. Lighting will be designed to minimise spillage into surrounding habitats, such as sensitive watercourses, hedgerows and woodland edges to avoid disturbance to wildlife. Guidance for the reduction of obtrusive light issued by the Institute of Lighting Professionals (ILP, 2014) and guidance to help minimise the impact of artificial lighting on bats (Bat Conservation Trust, 2014) will be followed in so far as it is reasonably practicable and applicable to do so in relation to construction works.

Security

2.9.8 **GP88** Construction compounds including offices will be adequately secured to protect the public and prevent unauthorised entry to or exit from the site. Access to the construction compounds will be limited to specified entry points only and personnel entries/exits will be recorded and monitored for both security and health and safety purposes.

2.9.9 **GP89** Site-specific assessments of the security and trespass risk will be undertaken at each site and appropriate control measures implemented.

2.9.10 **GP810** Security units will patrol the construction works where appropriate.

Welfare

2.9.11 **GP811** No living accommodation will be permitted on any of the construction sites. Onsite welfare facilities will be provided for all site workers and visitors. Welfare facilities will be kept clean and tidy.

2.9.12 **GP812** Workers' Safety Information Sheets covering work practices and Control of Substances Hazardous to Health (COSHH) safety data sheets will be prominently displayed in welfare cabins.

2.9.13 **GP813** Where portable generators are used to provide electricity for welfare units, industry best practice will be followed to minimise noise and pollution from such generators.

Waste Management

2.9.14 **GP814** An Outline Waste Management Plan (**Document 7.11**) has been produced. The OWMP sets the framework for the management of wastes generated during the construction of the Proposed Development. It documents the decisions taken during the planning and design stages to minimise construction waste and sets objectives and targets for the main waste types. The contractors will prepare and submit a Site Waste Management Plan (SWMP) which will be in accordance with the following, as set out in the OWMP:

- responsibilities within the construction team for waste management;
- the types of waste (including invasive plant material) and the quantities likely to be generated;
- measures to be adopted during construction to reduce waste generated;
- opportunities for recycling and/or reuse;
- proposed treatment and disposal sites together with details of their Environmental Permit; and
- provisions for staff training and use of the SWMP.

2.9.15 **GP815** The SWMP will also record each movement of waste (including the reuse or recycling of materials on site) in accordance with the Waste (England and Wales) Regulations 2011 (and its amendments) and the arrangements for auditing the actions of other parties in the waste handling chain. Waste will only be transported by appropriately licensed carriers.

2.9.16 **GP816** The SWMP will clearly identify wastes that are likely to be produced during the construction phase, the quantities likely to be generated and proposed treatment or disposal routes.

2.9.17 **GP817** The aim of the SWMP will be to minimise the volume of waste generated and maximise resource efficiency by applying the waste hierarchy (reduce – reuse – recycle – energy recovery - responsible disposal).

2.9.18 **GP818** Provision will be made for the recycling of wastes including scrap metal, timber, paper, cardboard, plastics, toner cartridges and batteries, in addition to waste oils from equipment and machinery where local schemes are available.

2.9.19 **GP819** Wastes of different types will be segregated on site through the use of labelled skips, containers or bays indicating the types of waste each may accept and also the European Waste Code. Waste containers shall be in good condition and covered to prevent leachate spillage, waste escaping or ingress of rain water as appropriate.

2.9.20 **GP820** Waste disposal will be carried out in accordance with the Waste (England and Wales) Regulations 2011 and Waste Management: The Duty of Care – A Code of Practice (1996) or subsequent amendments, as appropriate to current legislation.

2.9.21 **GP821** Section 14 of the Wildlife and Countryside Act 1981 (as amended) is intended to prevent the release into the wild of certain plants (and animals) which may cause ecological, environmental, or socio-economic harm. Relevant plant species to which this applies are listed on Part II of Schedule 9. Schedule 9 plants, or any part of such a plant that may facilitate establishment in the wild and cause environmental harm, including whole plants, seeds, rhizomes, bulbs, corms and cuttings, or any materials such as soil that is contaminated with such plant or part of such plant, are likely to be classified as controlled waste if it is discarded, or is intended to be discarded. Section 33 of the Environmental Protection Act 1990 states it is an offence to deposit, treat, keep or dispose of controlled waste unless carried out under an environmental permit. Section 34 imposes a duty of care on persons who produce, import, dispose of, or treat controlled wastes. The Wildlife and Countryside Act 1981 (as amended) and Environmental Permitting Regulations 2016 will be complied with.

2.9.22 **GP822** Provision will be made for the correct storage and disposal of Hazardous Wastes as defined by and in accordance with the Hazardous Waste (England and Wales) Regulations 2005 and amendments. The site will be registered as a producer of hazardous waste prior to any transfer of hazardous waste from site and a Hazardous Waste Consignment Note will

accompany every transfer. In accordance with the Waste Acceptance Criteria (WAC) hazardous waste may need to be treated, and then tested, before disposal.

2.9.23 **GP823** Appropriate site investigation and materials testing will be undertaken by specialist consultants to identify any 'hazardous waste' as defined in The Hazardous Waste (England and Wales) Regulations 2005 as amended, and The List of Waste Regulations 2005 as amended, so that it can be appropriately managed and disposed of.

2.9.24 **GP824** In addition to the measures above an Outline Materials Management Plan (OMMP) (**Document 7.12**) has been produced. The contractor will produce a Materials Management Plan in accordance with the OMMP, which will ensure that spoil removed from the launch site and shafts and associated with the excavation of the tunnel is removed from site appropriately. The OMMP documents the assessment and classification procedures to ensure spoil will be taken to the most appropriate site, along with the requirements of monitoring and validation of the removal of the spoil from the site.

Pest Control

2.9.25 **GP825** The risk of infestation by pests or vermin will be reduced by implementing appropriate storage and regular collection of putrescible waste. If infestation is found, removal and prevention measures will be implemented promptly in a manner that does not harm local wildlife. Any pest infestation of the construction site will be notified to the local authority as soon as is practicable.

Site Traffic Management

2.9.26 **GP826** Traffic will managed on site to prevent construction site vehicle incidents. On-site traffic management will be based on the following principles:

- Keeping pedestrians and vehicles apart;
- Minimising vehicle movements;
- Avoiding the need for turning vehicles wherever possible;
- Appropriate use of signage and instructions to all site staff and visitors; and
- Ensuring all vehicle operatives are qualified and competent.

2.10 SUMMARY OF GENERAL PRINCIPLES CONTROL AND MANAGEMENT CODES

Working Hours

GP11

Community Engagement and Public Information

GP21, GP22, GP23, GP24, GP25, GP26, GP27

Code of Conduct

GP31, GP32, GP32, GP34

Health and Safety

GP41, GP42, GP43, GP44, GP45, GP46, GP47, GP48

Inspections

GP51, GP52, GP53, GP54, GP55

Incident Procedure

GP61

Incident Response

GP71, GP72

Construction Site Layout and Good Housekeeping

GP81, GP82, GP83, GP84, GP85, GP86, GP87, GP88, GP89, GP810, GP811, GP812, GP813, GP814, GP815, GP816, GP817, GP818, GP819, GP820, GP821, GP822, GP823, GP824, GP825, GP826

3 Air Emissions

3.1 OBJECTIVE

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

3.2 DUST AND PM_{10} EMISSIONS

3.2.1 **AE11** A certain amount of dust may be produced during dry weather conditions but every effort will be made to keep this to a minimum. This will be achieved by visual assessment of dust emissions and application of control measures as appropriate. Precautions will also be taken to minimise the deposit of mud and dust on the public roads as a result of vehicles arriving and leaving site (referred to as 'track out'). When this cannot be avoided, appropriate control measures will be applied.

3.2.2 **AE12** A Dust Management Plan (DuMP) will be prepared and will include measures to control dust during the construction of the Proposed Development.

General Measures

3.2.3 **AE13** The DuMP will contain the following general measures as necessary:

- where there is visible dust generation from working areas and stockpiles, during prolonged periods of dry weather, local spraying with water will be considered, using bowsers or temporary static sprays, as necessary, to suppress dust generation, where this is not likely to lead to other effects as a result of sediment laden runoff;
- erect solid barriers to enclose dusty activities, or screen off (to at least as high as any stockpiles on site) near to sensitive receptors. Keep barriers and screens clean using wet methods;
- appropriate speed limit will be enforced on site to minimise dust generation (5-20 mph);
- the use of mechanical road sweepers on public roads at road crossings, construction compounds and bellmouths to clean roads (of dust and mud deposits) at appropriate intervals;

- ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) where reasonably practicable at construction compounds. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits;
- inspect on-site access tracks for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. Record all inspections of access tracks and any subsequent action in a site log book;
- with the exception of stockpiles with a lifetime of less than 3 months, all stockpiles would be seeded with an appropriate seed mix to the existing habitat; and
- no burning of waste materials to be permitted on site.

Site Layout

3.2.4 **AE14** The DuMP will contain the following measures in relation to site layout:

- the site layout will be planned so that machinery and dust-generating activities, such as soil screening, are located as far away from sensitive receptors as practicable. Where practical materials that have a potential to produce dust will be removed from site as soon as possible, unless being re-used on site; and
- hard surfacing will be provided at all bellmouths.

Storage and Handling of Materials

3.2.5 **AE15** The DuMP will contain the following measures in relation to storage and handling of materials:

- handling and transfer of soil and dusty materials will be controlled to reduce dust generation. During material handling operations the number of handling operations will be kept to a minimum to ensure that dusty material is not moved or handled unnecessarily;
- sand and other aggregates will be covered, bulk cement and other fine powder materials will be delivered in enclosed tankers and stored with suitable emission control systems to prevent escape of material;

- for smaller supplies of fine powder materials bags will be sealed after use and stored appropriately to prevent dust;
- minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate;
- when loading vehicles in the vicinity of receptors and under dry windy conditions conducive to dust dispersal, material handling methods will be used that minimise the generation of airborne dust. Drop heights will be kept to a minimum. Where there are visible dust issues and under prolonged dry conditions sources will be dampened down;
- soils will be managed in line with measure **SM12**; and
- avoid scabbling (roughening of concrete surfaces), if possible.

3.3 ROAD TRAFFIC AND ENERGY PLANT EMISSIONS

3.3.1 **AE21** The Outline Construction Traffic Management Plan (OCTMP) (**Document 7.5**) implements the control and management of vehicles to and from site including the delivery and removal of goods and materials. In addition to the OCTMP the following measures will be implemented:

- using low emission vehicles and plant fitted with catalysts, diesel particulate filters or similar devices where practicable;
- ensuring that plant is well maintained, with routine servicing of plant and vehicles to be carried out in accordance with manufacturer's recommendations;
- ensuring that all vehicles hold current certification and that they comply with the exhaust emission regulations for their class;
- ensuring all vehicles switch off engines when not in use (no idling vehicles);
- reduce the use of diesel or petrol powered generators and using mains electricity or battery powered equipment where practicable; and
- producing a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

3.4 COMMUNICATIONS AND RECORDS

3.4.1 **AE31** As set out in section 2.3 a Stakeholder Communication Plan will be implemented that will include engagement with the community before and during work on site. The Stakeholder Communication Plan will:

- display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary and also display the head or regional office contact information;
- record any dust and air quality complaints, identified causes and appropriate measures taken to reduce emissions. The contractor will make the complaints log available to the respective 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.

3.5 MONITORING

3.5.1 **AE41** As set out in section 2.6 the contractor will undertake inspections, which will include monitoring compliance with the CEMP. Inspections and monitoring will include:

- Agree a representative dust monitoring scheme that is representative of the dust risk at relevant worksites. This could include dust deposition, dust flux, or real-time PM_{10} continuous monitoring, which will be agreed with the Local Authority. Where possible commence baseline monitoring at least three months or as soon as practicable thereafter before work commences on site.
- Monitoring of dust, record inspection results, and make the log available to the relevant 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.

3.6 SUMMARY OF AIR EMISSIONS CONTROL AND MANAGEMENT CODES

Dust and PM_{10} Emissions
AE11, AE12, AE13, AE14, AE15
Road Traffic and Energy Plant Emissions
AE21
Communications and Records
AE31
Monitoring
AE41

4 Noise and Vibration

4.1 OBJECTIVE

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

4.2 NOISE AND VIBRATION CONTROL

4.2.1 **NV11** A Noise and Vibration Management Plan (NVMP) (**Document 7.9**) has been produced which sets out the noise and vibration control measures that will be employed by the contractor to minimise adverse noise and vibration effects.

4.2.2 **NV12** Noise and vibration monitoring will be carried out as appropriate at or around residential properties or any other identified sensitive structures during the construction phase to check compliance with the construction noise and vibration limits and thresholds as set out in the NVMP (**Document 7.9**).

4.2.3 **NV13** The proposed hours of work during the construction phase are set out in section 2.2 and Requirement 8 (**Document 2.1**). If necessary, consent will be sought by the contractor under Section 61 of the Control of Pollution Act 1974 (CoPA) as described in the NVMP (**Document 7.9**).

4.2.4 **NV14** Standard best practice construction working methods will be adopted which include:

- all vehicles, plant and equipment associated with the construction works will be properly maintained in good efficient working order, fitted with effective exhaust silencers and operated in such a manner to avoid causing excessive noise emissions;
- low noise generators and quieter plant and equipment will be used, as far as reasonably practicable;
- as far as reasonably practicable, all major compressors will be 'sound-reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all

ancillary pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers;

- static plant (such as pumps, compressors and generators) and equipment liable to create noise and/or vibration whilst in operation will, as far as reasonably practicable, be positioned so as to cause minimum noise disturbance, i.e. located away from sensitive receptors;
- audible warning systems, such as vehicle reversing sirens, will normally be set to as low a setting as is compatible with safety requirements; white noise reversing alarms will be used where it is considered safe to do so;
- loading and unloading activities will be located as far a reasonably practicable away from sensitive receptors;
- construction traffic movements will be undertaken in accordance with the Outline Construction Traffic Management Plan (**Document 7.5**);
- access tracks will be well maintained during construction works and any potholes will be filled in and any uneven surfaces smoothed out as soon as reasonably practicable;
- plant and equipment will be shut down when not in use;
- drop heights of materials will be minimised;
- employees, subcontractors and persons employed on site will not cause unnecessary noise from engine revving etc; and
- temporary hoardings or noise barriers around worksites or noisy activities will be provided where necessary to ensure the construction noise limits/thresholds specified in the NVMP (**Document 7.9**) are met.

4.3 OVERHEAD LINE CONSTRUCTION

4.3.1 **NV21** Damage to or contamination of overhead line (OHL) conductors during handling and stringing can lead to a potential increase in operational noise once the OHL is energised. To reduce the likelihood of damage or contamination of conductors the following will be implemented:

- quality assurance through manufacturing and transportation to avoid damage to OHL conductors; and
- ensuring that conductors are kept clean and free of surface contaminants during stringing/installation.

4.3.2 **NV22** For whatever ground conditions and commensurate foundation construction is required for each pylon, the contractor will employ the quietest plant and methods of construction where practicable appropriate to the foundation type required for the ground conditions.

4.4 TUNNEL CONSTRUCTION

4.4.1 **NV31** Surface drilling and curtain grouting associated with shaft construction is limited to Monday to Friday 07:00 to 19:00 hours and 07:00 to 13:00 hours on Saturdays.

4.4.2 **NV32** During the drill and blast activities, the following measures will be implemented to limit noise and vibration:

- During shaft construction a specially designed blast mat will be placed on the base of the shaft prior to each blast as required to reduce the generated noise among other purposes.
- Blasting of the shafts will only take place between 10:00 hrs and 16:00 hrs Monday to Friday and between 10:00 hrs and 13:00 hrs on Saturdays as set in in GP11.
- Local residents and businesses will be given advanced warning of when periods of blasting would take place.
- Vibration and air overpressure from blasting will be assessed and controlled by the appropriate contractor.
- Air overpressure and vibration monitoring will be carried out to determine levels relative to any required noise or vibration limits as required.
- Blast design measures or other mitigation measures will be implemented to prevent exceedance of limits/thresholds as set out in the NVMP (**Document 7.9**).
- Blast design measures will include refraining from simultaneous blasting (i.e. blasting from both ends of the tunnel at the same time), whilst beneath the Menai Strait.
- The maximum total blast weight per round for drill and blast of the tunnel will not exceed 300 kg under the Menai Strait.
- The maximum number of blasts for drill and blast of the tunnel per 24 hours will not exceed six.

4.4.3 **NV33** Ground vibration as a result of blasting, would be controlled such that it would not exceed a peak particle velocity (PPV) of 6 mm.s-1 in 95% of all blasts measured over any six month period at the nearest sensitive receptor. Additionally, no individual blast would exceed a PPV of 10 mm.s-1 at the nearest sensitive receptor. Limits will also be placed on blasting activity to ensure effects on marine mammals and fish are no greater than those reported in ES Chapter 9 (**Document 5.9**).

4.4.4 **NV34** A power supply will be provided to the Braint and Ty Fodol construction compounds to power tunnelling activities. Generators will only be used as back up or in the case of an emergency.

4.4.5 **NV35** Tunnelling related works within the construction compounds at Braint and Tŷ Fodol where 24-hour working will be required, will be subject to full noise predictions and if necessary Section 61 applications which will demonstrate the applied Best Practicable Means (BPM).

4.4.6 **NV36** Surface vibration from underground works, excluding TBM and drill and blast, but including the temporary construction railway, would be controlled such that it would not exceed noise and vibration a levels/thresholds at nearest sensitive receptors as set out in the NVMP (**Document 7.9**).

4.4.7 **NV37** The following measure will be applied to the temporary construction railway (TCR) within the tunnel where identified as being necessary:

- Smooth rails (reconditioned or new rails without corrugations or discrete irregularities) will be installed at the start of the works with joints which won't exceed a variation in rail height difference of than 2 mm;
- adequate elasticity in the track support system will be provided in order to reduce the transmission of vibration and groundborne noise from the passage of rail vehicles, for example the use of resilient rail pads in the fastening system between the rails and the sleepers;
- the locomotive speed will be appropriately restricted;
- a maintenance programme will be instigated that ensures the condition of the track does not deteriorate over time thereby causing excess noise or vibration levels; and
- appropriate noise and vibration monitoring will be carried prior to and during tunnelling and during the initial use of the TCR.

4.4.8 **NV38** Residents within 100 m of the tunnel alignment will be provided with written notification in advance of the tunnelling activities.

4.5 SUMMARY OF NOISE AND VIBRATION CONTROL AND MANAGEMENT CODES

Noise and Vibration Control
NV11, NV12, NV13, NV14
OHL Construction
NV21, NV22
Tunnel Construction
NV31, NV32, NV33, NV34, NV35, NV36, NV37, NV38

5 Soil

5.1 OBJECTIVE

5.1.1 To ensure that disturbance to soil and agricultural operations is controlled and that appropriate measures are adopted to protect the soils and agricultural land.

5.2 SOIL MANAGEMENT PLAN

5.2.1 **SM11** Prior to construction, more site/soil specific measures to protect soils will be set out in a detailed Soil Management Plan (SMP), based upon the Outline Soil Management Plan (**Document 7.10**) and supplemented, by additional survey data, where required.

5.2.2 **SM12** An Outline Soil Management Plan (**Document 7.10**) has been produced and includes the following measures, in accordance with Defra guidance[3]:

- construction traffic will be restricted to operating on designated working areas and not on unprotected soils;
- topsoil stripping will be restricted to the width of the permanent and temporary elements of the Proposed Development, thereby minimising disturbance to the integrity of the soil and its structure;
- soil removed will be stored near to its original location within the working area so that it can be reinstated in a similar location within the same plot;
- appropriate geotextile membranes, wooden matting or aluminium/plastic trackways would be used over particularly sensitive soils/areas or where stone access tracks are not be required;
- in peaty and soft saturated clay soils, where the use of geotextile membranes is not appropriate, wheeled vehicles will be fitted with low

[3] Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. pp64. Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69308/pb13298-code-of-practice-090910.pdf

ground pressure bearing pneumatic tyres to allow a greater distribution of weight;

- soil loosening techniques such as deep-tine cultivation will be used where required to break up any compaction which has occurred;
- subsoil and different superficial deposits will be stored separately to prevent mixing and would be reinstated in reverse order of excavation;
- topsoil storage bunds will be restricted to a maximum height of 4 m to minimise risk of compaction and development of adverse conditions within the topsoil heap that may affect structure and fertility;
- topsoil and subsoil movements will only be undertaken in suitable conditions, for example, when not waterlogged, and using appropriate techniques to avoid long-term damage to the soil structure from compaction;
- no soil will be moved from one land holding to another;
- soil stabilising methods will be undertaken in accordance with the SMP to reduce the risk of erosion, the creation of leachate and potential water quality issues;
- early re-seeding of the reinstated ground with an appropriate seed mix to the existing habitat will be undertaken to help re- establish and stabilise the structure of the topsoil;
- Where soils are stockpiled for the short term (i.e. less than three months), they will be covered to reduce the risk of wind and water erosion. Soil stockpiles that are in place for longer periods will generally be seeded to stabilise the surface and reduce the risk of wind and water erosion. Appropriate measures, for example silt fences, will be placed around the stockpiles to prevent sediment-laden runoff reaching surface water features until the vegetation is established. Stockpiles will managed to avoid the establishment of weeds either through removal or treatment; and
- excavated soils will be replaced in situ and not moved from one plot to another where appropriate.

5.3 SUMMARY OF SOIL MANAGEMENT CONTROL AND MANAGEMENT CODES

Soil Management Plan
SM11, SM12

6 Contamination

6.1 OBJECTIVE

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

6.2 GROUND INVESTIGATION

6.2.1 **CL11** Where required, an appropriate intrusive ground investigation will be undertaken in accordance with all relevant guidance and legislation including BS 10175:2011, Environment Agency/Defra CLR series of reports. The ground investigation will be undertaken to achieve the following objectives:

- determine the ground conditions to allow design of foundations and structures;
- determine the presence, if any, of shallow mine workings; a Coal Mining Risk Assessment Report will be completed once the ground investigation has taken place;
- determine the groundwater regime and assess the need for dewatering;
- assess the nature, extent and magnitude of any soil and groundwater contamination present;
- assess the risks (if any) from potential contaminants to human health and Controlled Waters; and,
- assess the ground gas regime.

6.3 WATCHING BRIEF & RISK ASSESSMENTS

Contaminated Land

6.3.1 **CL21** Where required a watching brief will be maintained during construction works to confirm the absence of potential sources of contamination such as Made Ground, visual or olfactory evidence of hydrocarbons. These areas of potentially contaminated ground and/or water will be sampled and undergo appropriate sampling and laboratory analysis.

6.3.2 **CL22** Subsequently a risk assessment will be undertaken in accordance with the EA report 'Model Procedures for the Management of Land Contamination (CLR 11) to identify if these areas of potential contaminants pose a risk to construction workers or site operators and Controlled Waters. If areas of the site are shown to pose a risk, any remedial measures required will be implemented. A remediation strategy will be devised and discussed with the regulatory authorities prior to any remedial works. The determination of the risks through ground investigation and risk assessment, and the potential remediation of areas of the site may result in the reduction of the significance, or even removal, of some of the potential effects identified. Should any contaminated material that is considered to pose a risk be identified it will be treated and/or disposed of appropriately.

Private Water Supplies

6.3.3 **CL23**. A risk assessment will be conducted to assess whether private water supplies could be affected by construction activities. Selected private water supplies will then be monitored for water quality and water levels before, during and after construction works. The risk assessment and monitoring strategy will be discussed with the relevant Local Authority before commencement.

Foundations

6.3.4 **CL24** Piled foundations will be designed in accordance with the EA guidance document 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention'.

6.3.5 **CL25** Use of corrosion resistant concrete formulas for pylon foundations; all concrete pours would be contained within shuttering or dry excavations and pre-cast concrete would be used where possible.

Material

6.3.6 **CL26** Any material imported to site, such as stone for access tracks/foundations, will comply with the Environmental Permitting Regulations 2016, will be natural quarried stone or, if recycled, the material will undergo chemical testing. The suite of contaminants and site use criteria will be agreed with regulatory authorities, in order to demonstrate that the material is suitable for use on site and does not pose a risk to construction workers or the environment.

6.4 SUMMARY OF CONTAMINATED LAND CONTROL AND MANAGEMENT CODES

Ground Investigation
CL11
Watching Briefs and Risk Assessments
CL21, CL22, CL23, CL24, CL25, CL26

7 Archaeology

7.1 OBJECTIVE

7.1.1 To avoid unnecessary impacts upon cultural-heritage assets within and adjacent to all working areas, and to ensure the recording assets where an impact cannot be avoided.

7.2 INTRODUCTION

7.2.1 A number of areas of likely archaeological interest have been identified within the Order Limits as a result of the desk study, geophysical survey and trial trenching which have been completed. There is also potential for further, previously unrecorded archaeological remains to be encountered during construction and the appropriate measures will be applied.

7.2.2 **AC11** In order to appropriately preserve, either in situ or by formal record, any remains of archaeological interest within the Order Limits the following control measures will be adopted:

- physical protection where possible in order to avoid disturbance; and
- provision for archaeological recording through:
  - a targeted programme of 'Strip, Map and Sample' recording of identified areas of archaeological interest, and
  - Watching Brief in areas of lesser archaeological interest.

7.3 PHYSICAL PROTECTION

7.3.1 **AC21** Measures to ensure the physical protection of archaeological remains where this can be achieved will be:

- any areas of archaeological interest which are identified in the Schedule of Environmental Commitments (**Document 7.4.2.1**) sensitivity that are beyond the construction areas but are within the Order Limits will be clearly marked on site plans, and are to be avoided by any ground disturbance and construction plant movements;
- where there is a perceived risk of accidental disturbance to known archaeological deposits then these areas will be cordoned off with

appropriate fencing that is passable to local wildlife where this is appropriate and signage used to highlight the area of archaeological interest. This fencing and signage will remain in place in that area for the duration of the construction programme; and

- should, for whatever reason, access be required into the cordoned off areas which would result in potential disturbance, consent will first be obtained from National Grid and appropriate archaeological monitoring and recording, in line with the Archaeological Strategy (**Document 7.8**), will be agreed before access is granted.

7.4 ARCHAEOLOGICAL RECORDING

7.4.1 **AC31** Where construction will involve the disturbance to areas of known or potential archaeological interest then provision will be made for archaeological recording before or during construction. The detailed scope of and approach to this work is set out in the Archaeological Strategy (AS) (**Document 7.8**), which sets out in detail the methodology to be adopted for the Strip, Map and Sample and the Watching Brief.

7.5 STRIP, MAP AND SAMPLE

7.5.1 **AC41** The 'Strip, Map and Sample' will involve:

- targeted 'Strip, Map and Sample' in advance of construction within identified areas of known archaeological significance or high potential to be undertaken by suitably qualified and appointed archaeological contractor, ensuring compliance with other receptors such as protected species mitigation, as set out in the Biodiversity Mitigation Strategy (**Document 7.7**);

- within the strip map sample areas topsoil will be stripped by mechanical excavator using a toothless ditching bucket under strict archaeological supervision to the natural strata, or where archaeological deposits are exposed, except where it can be demonstrated that there is a sufficient depth of material to preserve any underlying archaeology;

- exposed surfaces will be cleaned and excavation of features continued by hand following a sampling strategy detailed in the Archaeological Strategy; and

- a detailed timetable of works will be provided to ensure adequate time and resources are applied in order that the archaeological works,

including delays caused by weather, or unexpectedly complex remains, do not impact the proposed construction programme.

7.6 WATCHING BRIEF

7.6.1 **AC51** The Watching Brief will involve a programme of archaeological monitoring (Watching Brief) by a suitably qualified and appointed archaeological contractor of soil stripping during groundworks not included in the 'Strip, Map and Sample' areas. This will be aimed at securing a suitable record of any archaeological remains encountered.

7.7 REPORTING

7.7.1 **AC61** Post-excavation tasks will include:

- following a programme of post excavation assessment, all the archaeological fieldwork shall be written up in a formal report for submission in to the local historic environment record and provision will be made for publication and dissemination in an appropriate journal or standalone monograph; and
- the physical and documentary archive will be deposited with the relevant and Archaeological Data Services.

7.8 SUMMARY OF ARCHAEOLOGICAL CONTROL AND MANAGEMENT CODES

General
AC11
Physical Protection
AC21
Archaeological Recording
AC31
Strip, Map and Sample
AC41
Watching Brief
AC51
Reporting
AC61

8 Water Environment

8.1 OBJECTIVE

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

8.2 INTRODUCTION

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

8.2.2 **WE11** The following three general principles will be adhered to:

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

8.3 POLLUTION CONTROL

8.3.1 **WE21** Pollution prevention measures will be adopted in accordance with the existing Pollution Prevention Guidelines (PPGs) where still relevant and the new GPPs including:

- PPG1: General Guide to the Prevention of Pollution (2013);
- GPP2: Above Ground Oil Storage Tanks (2017);
- PPG3: Use and design of oil separators in surface water drainage systems (2006);

- PPG4: Treatment and disposal of sewage where no foul sewer is available (2006);
- GPP5: Works and Maintenance in or near water (2017);
- PPG6: Working at Demolition and Construction Sites (2012);
- PPG7: Safe Storage – The safe operation of Refuelling Facilities (2011);
- GPP13: Vehicle washing and cleaning (2017); and
- Getting Your Site Right: Industrial and Commercial Pollution Prevention.

8.3.2 **WE22** In addition to complying with the general committed measures reported in this CEMP, as set out in section 2.7 a specific Pollution Incident Control Plan (PICP) will be prepared and implemented. It will include, or cross-refer to, Environmental Emergency and Contingency Procedures. The PICP will be in place prior to the commencement of works, setting out procedures for pollution control and emergency response measures in the event of accidental spillage or leakage.

8.3.3 **WE23** Generic mitigation measures within the Pollution Incident Control Plan will include (as necessary):

- fuels and oils at the construction compounds, on site and at work areas to be managed in accordance with the Control of Pollution (Oil Storage) (Wales) Regulations 2016 and in accordance with the GPP2 Above Ground Oil Storage Tanks;
- fuel to be stored within secure bunded fuel tanks with an impermeable bund capacity of 110% of the tank volume;
- chemicals to be stored in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations i.e. in a secure COSHH Store including an impermeable storage area with secondary containment for spill management;
- suitable quantities of pollution control equipment such as sorbent pads, sorbent granules, booms or similar material to be readily available at the temporary construction compounds, on site and at work areas at all times and to be regularly checked;

- spillage kits will be positioned across the site and at vulnerable locations as required and staff will be trained in their use. The kits will be checked regularly and replaced after an event;
- "Emergency Grab Packs" or spill kits to be carried in site vehicles and mobile plant and larger kits with fuel bowsers and emergency vehicles;
- emergency communications (mobile phones or radios) to be carried with relevant personnel;
- all plant and equipment to be inspected before use on site and maintenance and servicing records checked;
- all static plant, such as pumps and generators, to have integral driptrays (be self bunded) where possible or as a second preference external drip trays that are to be checked daily;
- mobile plant are to be maintained in good working order. Larger items of plant such as excavators to undergo daily recorded inspections by a competent person (usually the operator) for any defects such as leaking hoses. Where defects are evident the item of plant shall be removed from site immediately and serviced or replaced as soon as possible;
- no refuelling of mobile plant shall be undertaken within 10 m of a watercourse or waterbody, 50 m of a known abstraction borehole or within Flood Zone C2 without the prior agreement of the NRW;
- fuel and chemical storage to be located a minimum of 10 m away from a watercourse or waterbody, 50 m from an abstraction borehole and within Flood Zone A;
- where vehicle wash facilities are provided, no chemicals or grit will be used and silt traps/oil interceptors will be installed in accordance with PPG6 Working at Construction and Demolition Sites and GPP13 Vehicle Washing and Cleaning;
- water from wheel washing facilities and concrete wash down areas will be contained and not allowed to soak into surrounding ground. Used water will be channelled to a containment tank for disposal off site or to the foul sewer (once treated where required).
- appropriate method statements will be in place prior to undertaking maintenance of vehicles at designated areas in the temporary construction compounds only;

- for operations using concrete, grout and other cement-based products, mixing of concrete and designated contained concrete washout areas will be provided in accordance with good practice guidance at least 10 m from any watercourse or waterbody or surface water drain to minimise the risk from pollution and located within Flood Zone A. ;

- use of corrosion resistant concrete formulas for pylon foundations will aid management of effects associated with changes to water quality through contamination. All concrete pours would be contained within shuttering or dry excavations (with geotextile) and pre-cast concrete will be used where possible;

- machinery which remains on site overnight will be kept more than 10 m from drains/watercourses or waterbodies, and outside Flood Zone C2, to reduce any risk of contamination;

- construction waste/debris will be prevented from entering any waterbody or sensitive habitats through observing the appropriate stand-off distances between works and watercourses specified in para. 8.4.1 (**WE31**); and

- works in or immediately adjacent to watercourses will be minimised as far as possible, and where not possible, periods of dry weather will be preferred for working. The scope and timing of all in channel works will be agreed with NRW and or LLFA.

8.4 STAND-OFF DISTANCES FROM WATERCOURSES OR WATERBODIES

8.4.1 **WE31** Where possible, works within 8 m of watercourse bank tops or waterbodies will be avoided. As a minimum, no works will be undertaken within 3 m of any watercourse or waterbody (other than for watercourse crossings and drainage mitigation works). Greater stand-off distances may be required for the protection of protected species; where relevant these are specified in the Biodiversity Mitigation Plan (**Document 7.7**).Groundwater and Dewatering Discharges

Overhead Line and Substations

8.4.2 **WE41** Groundwater dewatered from excavations (e.g. pylon foundation excavations (assumed to be of approximately three weeks' duration for four pad and column) and substation foundation excavations) would be in accordance with the Environmental Permitting Regulations 2016, discharged to adjacent grassed/vegetated agricultural land, away from watercourses as far as possible and in line with Biodiversity Mitigation Strategy (**Document 7.7**). The discharge rate for groundwater dewatered

from excavations must match the rate of infiltration in to the soil (which will vary with the soil type, amount of vegetation cover and the gradient). If infiltration is not possible, or where there otherwise remains the potential for this water to runoff into nearby surface water features or direct discharge to surface watercourses is the only option, additional control measures will be put in place. These may include surrounding the discharge area (grassed/vegetated agricultural land) with sediment fencing, check dams, SuDS features, storage ponds or passing the silt-laden water through a silt trapping system.

Tunnel

8.4.3 **WE42** As part of the tunnel construction, dewatering will be required to remove excess water from the tunnel and tunnel shafts.

- The dewatering arising will be treated as appropriate and an Environmental Permit will be required for the controlled discharge of water to an acceptable standard and agreed rate into an adjacent watercourse.

- If discharges are at rates that could cause erosion to bed or banks appropriate erosion control measures will be incorporated. Discharge to the controlled water will cease if a Flood Alert or Flood Warning has been issued by NRW for an area downstream. The receipt of the Flood Alert/Warning and actions to be taken will be detailed in the Flood Management Plan (**FM11**).

- Drainage from Braint Construction Compound will discharge to the unnamed watercourse to the south of the site as illustrated on Plan DCO_DE/PS/12_02 Sheet 2 of 3 (**Document 4.13**) and drainage from Tŷ Fodol Construction Compound will discharge to the unnamed watercourse to the west of the site as illustrated on Plan DCO_DE/PS/12_03 Sheet 3 of 3 (**Document 4.13**).

- Drainage from the construction sites will be treated, if required, prior to discharge to watercourses. Where settlement or filtering is not practicable or effective and hence discharge to watercourse is not possible, alternative disposal options will be used.

Environmental Permits

8.4.4 **WE43** Where discharges to a watercourse are required, a water discharge activity Environmental Permit will be obtained from NRW as required, dependent on the duration of the discharge activity and in consultation with NRW. In general, a permit is not required for groundwater dewatering

activities of less than three months duration. However, in areas where discharges are located within, or less than 500 m upstream from a protected site there will be a requirement for a water discharge activity Environmental Permit regardless of the duration of the discharge activity.

8.5 DRAINAGE MANAGEMENT

8.5.1 **WE51** A Drainage Management Plan (DMP) will be prepared prior to the commencement of works. The DMP will specify measures to minimise the impact of the construction on existing drainage systems. This will be developed following detailed drainage investigations and hydrological assessments, which will determine potential location specific risks in relation to the water and natural environment, and identify appropriate control measures to reduce the risks. A phased approach may be taken to the development of the DMP to reflect the phasing of the construction programme and the different elements of the Proposed Development.

Drainage Design

8.5.2 **WE52** The Drainage Management Plan (DMP) will specify appropriate design and control measures. These measures will be designed to ensure no increase from the existing runoff rates. A range of measures can be used: these will be site specific following detailed drainage investigations and hydrological assessments, and will follow relevant industry standards. The following points detail the potential design and control measures which will be implemented as appropriate.

- grips – These will be installed to prevent clean runoff from upslope areas from entering works areas. Grips will also be constructed to intercept dirty water flowing from construction areas such as access tracks, topsoil mounds, crane pads and compounds. The grips should be installed on the low downslope side of construction areas, but on flat ground construction areas will be installed with a camber to direct runoff into the grips;

- below ground perforated plastic pipes – These will be installed with a covering of permeable gravel fill which will intercept surface and subsurface flows prior to discharge into the pipe;

- silt fences – These would be installed at regular intervals within grips to act as sediment traps, they comprise a geotextile fabric and filter out sediment;

- straw bales – These would be installed at regular intervals and to filter out sediment;

- gravel check dams – These are gavel dams within a grip/swale comprising of, for example, rock or gravel bags. These would reduce the velocity of flowing water allowing sediment to settle;

- siltation sumps – These would be used where there is the potential for silty runoff from working areas including the construction compounds. Surface water runoff would be directed to a specifically designed sump where gravel material within the sump would filter out sediments;

- settlement ponds –. Surface runoff would be pumped or conveyed to a pond or lagoon to allow suspended solids to settle out prior to discharge;

- siltbuster or silt tanks – These are portable machines which remove suspended solids; and

- oil separators – These treat surface water runoff to remove hydrocarbons. These would be installed for those parts of the construction compounds where fuel storage, and plant maintenance and refuelling activities take place.

8.5.3 **WE53** The following measures will be implemented at construction compounds and for access tracks:

- utilisation of Sustainable Drainage Systems (SuDS) principles for any areas requiring new systems;

- no water will drain to the existing highway drainage system;

- temporary access tracks and the surfaces of working areas and construction compounds would be constructed from compacted crushed rock (aggregate). The inclusion of geotextile geogrids to provide additional stability would need to be considered where ground conditions are poor. Whilst the aggregate surfaces may support some infiltration, this is likely to be limited. Furthermore, a fully impermeable asphalt surface may be used for the tunnel access tracks. Consequently, there is likely to be a requirement to manage locally displaced runoff. This would be accomplished by a combination of SuDS infiltration and attenuation measures, including soakaways, swales or attenuation storage, as appropriate to local conditions;

- areas of construction compounds that are used for fuel storage, and plant maintenance and refuelling would be surfaced with fully impermeable materials to prevent any infiltration of contaminated runoff. As noted above, runoff from these areas would pass through

an oil separator before being discharged to the wider drainage system for the compound; and

- the top surface of temporary access tracks will generally be as close to ground level as possible. Should existing surface water runoff pathways be altered by the proposed access track routes, cross drains will be provided so that the existing surface water flow pathways are not altered.

Inspections

8.5.4 **WE54** An inspection programme will be developed and implemented prior to installing any drainage systems and routine cleaning will be carried out throughout construction. If on inspection any blockages are identified these will be removed.

Silt Management

8.5.5 **WE55** To prevent sediment laden run-off entering watercourses/standing water bodies the following measures will be implemented, where necessary:

- soils will not be stockpiled within 8 m of surface water features, will not block surface runoff pathways, and would preferably be located in Flood Zone A and in areas that do not coincide with mapped areas of surface water flood risk. Stockpiling on slopes will be avoided where possible;
- with the exception of stockpiles with a lifetime of less than 3 months, all stockpiles would be seeded to reduce runoff, those in place for shorter durations would be covered to reduce the risk of silty runoff;
- further runoff control measures will be provided (e.g. buffer strips, earth bunds, silt fences, grips, settlement ponds and straw bales, or other proprietary treatment etc.) as required on a site specific basis;
- where works are adjacent to watercourses/water bodies subject to **WE31**, appropriate barriers will be installed temporarily along their edge to prevent plant tracking down slopes and damaging riparian vegetation or to prevent silt laden runoff flowing untreated into the watercourse/water body;
- mud will be controlled at site entry and exit points using wheel cleaning areas and road sweepers as appropriate;
- tools and plant will be washed out and cleaned in designated areas within the construction compounds where runoff is isolated for

treatment before discharge to watercourse/ground or sewer under consent from NRW and in accordance with the Environmental Permitting Regulations 2016;

- construction SuDS (such as settlement lagoons or other temporary attenuation) will be used if necessary and where appropriate to do so;
- over- pumping around culvert working areas will be carefully managed through the application of silt management measures to prevent suspension of sediment or contamination; and
- discharges to watercourses would be permitted by NRW, where required, in accordance with the requirement of the Environmental Permitting Regulations.

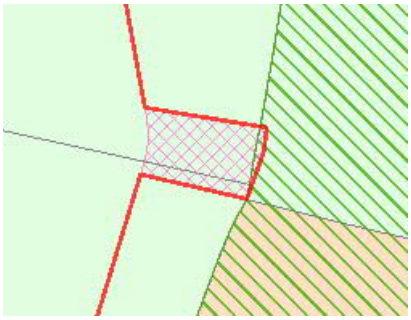
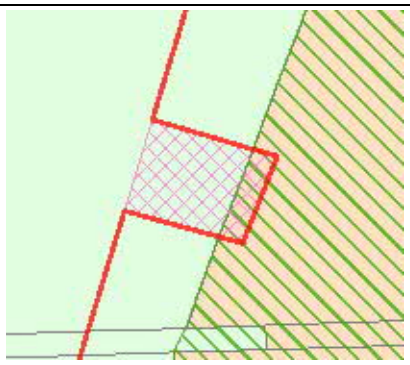
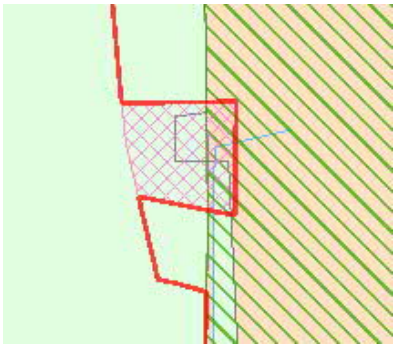
Land Drainage

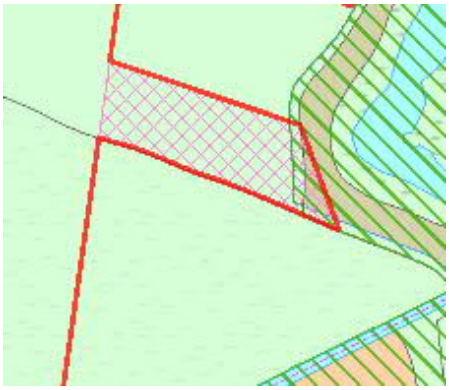
8.5.6 **WE56** The following measures will be undertaken as appropriate:

- the replacement of shallow drains as appropriate which cross a working area with sealed twin wall uPVC pipes where required;
- the installation of perforated uPVC land drains will be installed in wet areas where required;
- any known land drains that will be severed by a pylon leg foundation will be diverted;
- potential drains along field headlands will be investigated and diverted as required;
- the clearing of existing ditches and culverts through environmentally sensitive means to alleviate drainage blockages or restrictions and in accordance with the Biodiversity Mitigation Strategy (**Document 7.7**);
- the identification of existing drainage outfalls within watercourses and any work required to improve existing outfalls;
- the identification of springs, wells. water supplies, water treatment systems and the identification of the appropriate protection; and
- the installation of interceptor or cut off pipes in areas within the Order Limits that are known to have frequent shallow drains crossing them.

Cors Erddreiniog Drainage Management

8.5.7 **WE57** Additional consideration has been given to the drainage areas which extend into Anglesey Fens SAC. There are seven areas within Section C where the Order Limits either extend into or border this designation for drainage mitigation. The seven areas have been numbered and illustrated below.

	Area 1
	Area 2
	Area 3
	Area 4

	Area 5
	Area 6
	Area 7

8.5.8 Existing flows in this section flow west to east towards the Cors Erddreiniog protected sites. Existing field drains within this section flow into a larger ditch along the perimeter of the designated sites which is separated from areas supporting qualifying interest features by an existing surfaced track.

8.5.9 Where possible runoff will be discharged to existing field drains and ditches outside of the protected sites, minimising the discharge points to the perimeter drain. However at low spots where it is not possible to convey flows to an existing field drain or ditch it may be necessary to convey flows to the perimeter drain. As such temporary outfalls may be required into the perimeter drain, which would comprise a temporary drainage ditch or pipe

and glass reinforced concrete headwall inserted into the bank which would be removed on completion of construction unless agreed otherwise with NRW. Pollution prevention and anti-siltation measures will apply to all discharges.

8.5.10 **WE58** A site specific drainage management plan and the detailed drainage design for any temporary outfalls into the perimeter drain will be agreed with NRW prior to the commencement of construction. The site specific drainage management plan will be based on a sound understanding of the existing drainage pathways and include the following measures:

- cross drains will be provided under the access track and stockpiles at regular intervals and low features. These will allow natural flows to continue to flow towards the designated sites;
- surface water and siltation mitigation methods, for example use of vegetated swales will be implemented to prevent either increased flows or silt laden run off from entering the designed sites; and
- a requirement for liaison with NRW over the water management measures in relation to the Cors Erddreiniog SAC.

Tunnel Construction

8.5.11 **WE59** A specific drainage management plan will be prepared by the contractor for tunnel construction activities, building on the existing outline drainage strategy. This will specify control and management measures specific to tunnel construction and will be presented for the management of runoff from working areas, including those designated for handling and storing the tunnel spoil. The tunnel drainage management will include the following sections.

Saline Water

8.5.12 **WE510** Water pumped from the tunnel and shafts could be partially saline. If this proves to be the case the following options will be developed in the tunnel specific drainage management plan:

- The provision of a separate designated pond with a control valve could be used to store the potentially saline tunnel water in a controlled manner separate from surface runoff. Sodium chloride levels would be tested prior to discharge to assess if it is acceptable for discharge into adjacent watercourses;

- water will be discharged to the receiving watercourse when acceptable to do so within the limits stipulated as part of the Environmental Permit; and

- if the tested sodium chloride levels are not acceptable, tanker facilities would be provided for the water to be transported off site for use/disposal/discharge elsewhere.

Control of Blowout

8.5.13 **WE511** The rock through which the tunnel would be created is generally competent and of low porosity. Should construction be by means of a Tunnel Boring Machine (TBM) drilling fluids would be used to balance the forces at the front of the TBM as it moves through the rock. In the unlikely situation that the drilling fluids enter the surrounding rock, it is highly unlikely to pass upwards to ground level. To ensure that this does not occur the drilling fluids will be closely monitored and constantly measured. The TBM will be operated by the construction contractor in accordance with industry best practice, including appropriate monitoring and management of TBM operations. This would reduce, as far as possible, the occurrence of pressure imbalances and, therefore, the risk of a blowout that could lead to a pathway for pollutants to enter the surface water, groundwater or marine environment.

8.6 SUMMARY OF PROTECTION OF THE WATER ENVIRONMENT CONTROL AND MANAGEMENT CODES

General
WE11
Pollution Control Measures
WE21, WE22, WE23
Stand-off Distances from Watercourses
WE31
Groundwater and Dewatering Discharges
WE41, WE42, WE43
Drainage Management
WE51, WE52, WE53, WE54, WE55, WE56, WE57, WE58, WE59, WE510, WE511

9 Flood Risk

9.1 OBJECTIVE

9.1.1 To implement working methods to manage flood risk. This section is predominantly concerned with fluvial flood risk, with surface water and groundwater management being covered in section 8.

9.2 FLOOD MANAGEMENT

Flood Management Plan

9.2.1 **FM11** A detailed Flood Management Plan (FMP) will be prepared and submitted to NRW and LLFAs for approval. The following measures will be implemented:

- FMPs would apply equally to all sources of flooding, including main river and ordinary watercourses, surface water (external) and groundwater, together with internal sources of flood risk as appropriate.
- The FMP would cover both construction and operational/maintenance phases as different receptor groups would be affected for each phase.
- The FMP would, as a minimum include details as to how frequently weather and stream flow observations would be made, how forecasts, alerts and actions would be disseminated, signage, roles and responsibilities, emergency response procedures, including detailed evacuation plan and procedures for making safe plant and equipment.
- Procedures would be presented to facilitate the periodic assessment of any potential floodplain and surface water flow obstructions, ensuring that activities do not coincide with those areas of mapped fluvial and surface water flood risk.

Permits and Consent

9.2.2 **FM12** To manage flood risk according to the requirements of NRW and the LLFAs the following measures will be applied where necessary:

- no works to be undertaken within 3 m of any watercourse (other than for watercourse crossings and drainage mitigation);

- all works within 8 m of non-tidal Main River and 16 m of tidal Main River (measured from the bank top or toe of any flood defence) will be subject to a Flood Risk Activity Permit (FRAP) from NRW (please note that some works in the floodplain may be subject to a FRAP and conversely some works in main rivers can be exempt); and

- any works within 8 m of an Ordinary Watercourse will be subject to an Ordinary Watercourse Consent (OWC) from the relevant Lead Local Flood Authority (LLFA) (either Isle of Anglesey County Council (IoACC) or Gwynedd Council (GC), respectively).

Structures in the floodplain

9.2.3 **FM13** Raised structures will be avoided in the floodplain (Flood Zone C2) in order to avoid obstructing flood flows. This will include the following measures: As far as possible, no raised structures (such as access tracks, working areas and associated topsoil stockpiles) will be located within the floodplain (Flood Zone C2).

- Approaches to bridges and culverts in Flood Zone C2 will minimise ramping up to the bridge deck so as not to impede flood flow conveyance.

- Access tracks that are shown to intersect areas of surface water flooding (exc. those coincident with watercourse crossings) should not provide a topographic barrier to the flow path.

- Temporary trackway (i.e. interlocking panels) at existing ground surface levels will be used (including anchor pins) in areas of Flood Zone C2 wherever practicable.

- Stockpiles will be present for the shortest practicable timeframe, with stockpiled material being reinstated as the construction works are completed.

- Soil stockpiles will be located in Flood Zone A where possible to avoid reductions in floodplain storage/conveyance, and

- in areas that do not coincide with mapped areas of surface water flood risk.

- Sufficient gaps will be left in stockpiles so as to not impede flood flow pathways. Stockpile gaps will be located at topographic low points to preserve existing flow paths. Where stockpiles are placed on either side of access tracks, the gaps should coincide.

Design and Installation of Watercourse Crossings

9.2.4 **FM14** The following considerations will be taken in to account in watercourse crossing design:

- All temporary watercourse crossings will be designed to safely convey the 1% AEP event plus a 15% allowance for climate change, in accordance with NRW guidance (see FCA Volume 1, section 2.4 (**Document 5.12.2.1**) for climate change discussion and allowances.
- culverts will be designed with a pipe/opening of an appropriate size for the watercourse in addition to the minimum size requirement based in the design flow criteria taking into account consideration of siltation when assessing culvert capacities;
- culverts will be installed with the invert set below the natural bed level in order for a semi natural bed to establish within the culvert;
- culverts will be kept to the minimum size required, and access for wildlife will be maintained in order to prevent fragmentation of habitats;
- culverts will be installed in a dry channel isolated from upstream and downstream channel flow. These activities would need to take place during periods of normal to low flow conditions to avoid conveyance-related flood risk effects;
- flow will be diverted around the culvert working area by overpumping. Pumped water high in suspended solids will be pumped out into a sediment trap, before being discharged back into the watercourse downstream of the working area;
- Operations and maintenance (O&M) plans will be prepared covering, as a minimum, details as to how blockages will be prevented/minimised/detected/removed, periodic inspection schedules, roles and responsibilities, and details of associated FRAP or OWC requirements;
- sufficient information will be provided to NRW and LLFAs to enable appropriate screening and permitting decisions to be made for FRAP and OWC purposes; and
- following construction, temporary watercourse crossings will be removed and bed and bank material will be reinstated in the same general profile as the pre-installation state. Bed and bank profiles will be recreated with appropriate measures to ensure stability that do not

involve hard engineering (unless such stability measures were in place before the watercourse crossing works are carried out).

9.3 SUMMMARY OF FLOOD MANAGEMENT CONTROL AND MANAGEMENT CODES

Flood Management
FM11, FM12, FM13, FM14

10 Biosecurity

10.1 OBJECTIVE

10.1.1 To avoid the spread of invasive non-native species (INNS), pests and pathogens during construction.

10.2 INVASIVE NON-NATIVE SPECIES METHOD STATEMENT

10.2.1 **BS11** An Invasive Non-Native Species Method Statement (INNSMS) will be produced in line with the Outline INNSMS (which includes a Biosecurity Risk Assessment (BRA)) as set out in the Biodiversity Mitigation Strategy (**Document 7.7**). The following general techniques will be employed to avoid the spread of invasive non-native species (INNS), pests and pathogens during construction and ensure legal compliance and are summarised below. following:

- pre-construction surveys of INNS will be required to detect new occurrences and spread of known areas within the Order Limits;
- INNS within the development footprint, and in areas which will potentially be disturbed by construction activity, will be demarcated and fenced off where practical. Demarcation may include an exclusion buffer a set distance from visible above ground portions of the INNS. The distance will be established by the ECoW and will be species specific – stand-off distances typically range from 2 m to 7 m. The exclusion area will be declared a contaminated area and will be 'out of bounds'. Signage will show relevant information to ensure that all workers are aware that it is a restricted area;
- if work is required within affected areas (including the buffer zone), including works to manage INNS present in such areas, then biosecurity measures must be set up within the exclusion zone, the specifics of which will be species specific and set out within a site specific Biosecurity Management Plan. These measures may include boot, clothing and tool wash facility for all operatives to clean boots and tools before leaving the exclusion zone. A jet wash facility or tough brushes will be required to clean the wheels and other parts of plant and machinery which may have come into contact with any part of the INNS in question. Operatives will be trained in the correct use of the cleaning facilities;

- rubber wheeled or rubber tracked vehicles must be used during operations in contaminated areas to minimise any possible contamination from INNS seeds or fragments and propagules being trapped in metal tracks of machines;

- all plant to be used in watercourses/bodies will be jet washed with an aquatic disinfectant (or certified as clean by the plant provider), before commencing work on the site, and after working in INNS contaminated areas. Records must be made/retained of such inspections and wash down activities. Plant must be allowed to dry thoroughly prior to working within separate watercourses. Where possible, machinery will be designated to a specific watercourse/body to avoid causing the spread of aquatic INNS between watercourses/bodies;

- if herbicides are used to treat INNS in or on water, or adjacent to a waterbody within a protected site or near water abstraction, Natural Resources Wales will be contacted and written approval sought;

- check lists will be used by contractors to ensure compliance of the measures;

- repeated (at least monthly), monitoring of affected areas will be required throughout the construction period to identify any areas of re-grow or new areas of INNS that may require further eradication works or isolating. Monitoring will also determine if the exclusion buffer areas remain effective;

- monitoring will also be required following construction and for a period of no less than two years, potentially more depending on the species, following the completion of control action;

- where INNS are being retained on site, implementation of eradication measures will be considered to provide a net conservation gain;

- Disposal of disinfectant used during the Proposed Development would be undertaken in accordance with standard procedures;

- All washing-down of vehicles;

- Disposal of disinfectant used during the Proposed Development would be undertaken in accordance with standard procedures; and

- All washing-down of vehicles (including wheel washing) and equipment will take place in designated areas and wash water will be prevented from passing untreated into watercourses and groundwater in accordance with the Environment Agency's GPP 13.

10.3 JAPANESE KNOTWEED (*FALLOPIA JAPONICA*)

10.3.1 **BS21** All operations involving Japanese knotweed will be controlled as recommended by the Environment Agency guide – Managing Japanese Knotweed on Development Sites: The Knotweed Code of Practice (version 3, amended 2013) and the Welsh Government guide - Control of Japanese Knotweed in Construction and Landscape Contracts Model specification (2011).

10.3.2 **BS22** Where removal is required, Japanese knotweed excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience. Where possible, Japanese knotweed should be treated with herbicide prior to such works to reduce rhizome viability and the probability of accidental spread. All material containing Japanese knotweed will be removed where appropriate until clean material is established. Contaminated material will be disposed of following the appropriate duty of care, as required by law.

10.4 INDIAN BALSAM (*IMPATIENS GLANDULIFERA*)

10.4.1 **BS31** Where timing permits Indian balsam will be controlled by herbicide treatment or hand pulled if the area is small enough prior to flowering and seeding to avoid further spread, this can be done between the start of the growing season (usually May) and July, prior to when seed pods have formed. This may be required to be repeated as necessary each year during construction where the plant reappears from seeds within the soil. Longer would be required should the plant reappear from contamination from an outside seed source.

10.4.2 **BS32** Where removal is required, Indian balsam excavation works will be supervised by the ECoW – the top 200 mm or deeper where appropriate, from the surface will be excavated to remove all plant material and seed bank.

10.5 GIANT RHUBARB (*GUNNERA MANICATA*)

10.5.1 **BS41** Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience – all material containing giant rhubarb must be handled and disposed of in a way which does not result in the potential for further spread including seed bank, and fragments of the rhizomes.

10.6 AMERICAN MINK (*NEOVISON VISON*)

10.6.1 **BS51** Operations should be carried out in a way to avoid the capture/trapping of mink. All efforts should be made to prevent them being

accidentally trapped on site. Any mink accidentally caught/trapped should be notified immediately to the ECoW or the stated contact for removal. Works should cease in the immediate vicinity if the mink appears distressed until it can be removed. Alternatively, if mink do become trapped they must be taken to a vet for humane disposal in accordance with the INNSMS. An animal cage will be kept at a site office for this purpose

10.7 NEW ZEALAND PIGMYWEED (*CRASSULA HELMSII*)

10.7.1 **BS61** All operations involving New Zealand pigmyweed will be controlled as recommended by the Environment Agency guide – Managing Invasive Non-native Species (2010).

10.7.2 **BS62** Where removal is required, New Zealand pigmyweed control works will be supervised by the ECoW – all material containing New Zealand pigmyweed must be handled and disposed of in a way which does not result in the potential for further spread.

10.8 GREY SQUIRREL (*SCIURUS CAROLINENSIS*)

10.8.1 **BS71** Operations should be carried out in a way to avoid the capture/trapping of grey squirrels and spread of Squirrel parapoxvirus. All efforts should be made to prevent them being accidentally trapped on site. Any grey squirrels accidentally caught/trapped should be notified immediately to the ECoW or the stated contact for removal. Works should cease in the immediate vicinity if the squirrel appears distressed until it can be removed. Alternatively, if grey squirrels do become trapped they must be taken to a vet for humane disposal in accordance with the INNSMS following consultation the ECoW. An animal cage will be kept at a site office for this purpose. No trapped grey squirrels should be transported from Gwynedd to Anglesey.

10.8.2 **BS72** Active grey squirrel dreys should also be notified to the ECoW/stated contact and should not be removed by contractors.

10.9 WATER FERN (*AZOLLA FILICULOIDES*)

10.9.1 **BS81** Azolla filiculoides is probably the only species of floating fern found in Britain. It reproduces both vegetatively and by producing spores. Biological control using the azolla wevil can be the most effective form of control; however Glyphosate can be used to treat Azolla. Such treatments are best carried out when a gentle wind or currents have collected floating fronds together at suitable points.

10.9.2 **BS82** In order to prevent spread machinery used in and around watercourses known to contain *Azolla* be thoroughly inspected and sprayed down with water before moving to another area.

10.9.3 **BS83** Where removal is required, *Azolla* control works will be supervised by the ECoW, and taking into consideration the presence of species such as GCN – all material containing *Azolla* must be handled and disposed of in a way which does not result in the potential for further spread.

10.10 RHODODENDRON (*RHODODENDRON PONTICUM*)

10.10.1 **BS91** Treatment can be by physical clearance or chemical control. Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience.

10.10.2 **BS92** All material containing rhododendron must be handled and disposed of in a way which does not result in the potential for further spread. Eradication can take a number of years to be achieved depending on the size of the seed bank and root system.

10.11 MONTBRETIA (*CROCOSMIA X CROCOSMIIFLORA*)

10.11.1 **BS101** Montbretia spreads by rhizomes/corms and rarely by seed. Plants can be dug out but it is essential that all the plant material and corms are removed, which occur in the top 20 cm. It is essential that all rhizome/corms are removed as a new plant can grow from a single corm. Excavated material should be removed from site to licensed landfill or dealt with on site in waste management areas or buried at a depth no less than 1 m.

10.11.2 **BS102** Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience. The most effective time for the removal of Montbretia is just before full flowering occurs around spring and summer and digging out corms when the soil is wet.

10.12 JAPANESE ROSE (*ROSA RUGOSA*)

10.12.1 **BS201** Treatment can be undertaken by cutting, herbicide application or excavation of the plants and root rhizome system. The seedbank must also be considered. Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the EcoW if they have suitable experience.

10.12.2 **BS202** All material containing Japanese rose must be handled and disposed of in a way which does not result in the potential for further spread.

Soils containing Japanese rose would be disposed of following the appropriate duty of care, as required by law.

10.13 CARPET SEASQUIRT (*DIDEMNUM VEXILLUM*)

10.13.1 **BS301** Marine mammal surveillance operations during tunnel construction under the Menai Strait will, where possible be carried out with observers based on land. Where vessels or equipment (such as Acoustic Deterrent Devices (ADDs) are needed these will be uncontaminated (e.g. those that that have been thoroughly cleaned immediately prior to deployment in the Menai Strait), particularly if they have originated from outside of the waterway. Abiosecurity risk assessment, which will outline how the risk will be mitigated (if any) of the transfer of Didemnum vexillum and other organisms that may be transported via vessel hulls or equipment will be produced as part of the INNMS.

10.14 SURVEYS AND MONITORING

10.14.1 **BS401** INNS will only be treated and/or eradicated within the working areas unless under agreement with the landowner. Watercourses will be subject to risk of invasive species growth due to viable seed being transported by the watercourse or via the wind. Site checks will be made throughout the construction period to identify any regrowth or new areas of INNS that may require further eradication works or isolating.

10.14.2 **BS402** Regular checks of appropriate information sources would be undertaken to identify occurrences and imposed restrictions with regards to diseases such as avian flu. All restrictions must be adhered to and may include restricted movements within prevention zones.

10.14.3 **BS403** Contractors will produce Biosecurity Risk Assessments and means of reviewing for compliance. These are to include methods for prevention and monitoring of spread of INNS and diseases, for example ash dieback, which is caused by caused by a fungus (*Hymenoscyphus fraxineus*) and Chytridiomycosis (Chytrid fungus) within aquatic environments.

10.15 SUMMARY OF BIOSECURITY CONTROL AND MANAGEMENT CODES

Invasive Non-native Species Method Statement
BS11
Japanese Knotweed
BS21, BS22
Indian Balsam
BS31, BS32
Giant Rhubarb
BS41
American Mink
BS51
New Zealand Pigmyweed
BS61, BS62
Grey Squirrel
BS71 BS72
Water Fern
BS81, BS82, BS83
Rhododendron
BS91, BS92
Montbretia
BS101, BS102
Japanese Rose
BS201, BS202
Carpet Seasquirt
BS301
Surveys and Monitoring
BS401, BS402, BS403

11 Biodiversity and Nature Conservation

11.1 OBJECTIVE

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

11.2 BIODIVERSITY MITIGATION STRATEGY

11.2.1 **BNC11** The Biodiversity Mitigation Strategy (BMS) (**Document 7.7**) describes the measures that will be implemented during the construction of the Proposed Development to protect biodiversity. Any changes to the BMS must be in agreement with the Ecological Clerk of Works (ECoW).

11.2.2 **BNC12** A suitably experienced and trained ECoW will be appointed by each contractor who will be responsible for ensuring the BMS (**Document 7.7**) is implemented by all relevant personnel and that an auditing procedure is in place and conducted accordingly. As necessary they will be supported by other suitably qualified ecologists. They will also ensure that appropriate tool box talks are implemented.

11.2.3 **BNC13** The BMS (**Document 7.7**) sets out the following:

- ecological mitigation measures as identified in the Chapter 9, Ecology and Nature Conservation of the ES (**Document 5.9**);
- measures for ecological supervision during the delivery of construction and mitigation activities; and
- provision for and details of specific ecological mitigation plans and method statements or other management documents.

11.3 SUMMARY OF GENERAL BIODIVERSITY AND NATURE CONSERVATION CONTROL MEASURES

11.3.1 **BNC21** Method Statements would be in place during construction to ensure compliance with biodiversity commitments and requirements. These are detailed within the BMS (**Document 7.7**).

Protection of Habitats

11.3.2 **BNC22** Minimising working areas and vegetation clearance within designated sites and areas of protected habitat to only that essential for works. No storage of materials on or within 30 m to designated sites and areas of protected habitat without prior agreement with the ECoW. The exception being soil stockpiles which will be appropriately mitigated in order to prevent silt laden run over as set out in this CEMP.

11.3.3 **BNC23** Maintain appropriate buffers to protect non-working areas where not essential within the Order Limits:

- maintain 20 m buffer 30 m where possible, from designated sites and areas of protected habitat, including woodland, where not required to work within the site/habitat or within the buffer. Areas closer than 30 m must be approved by the ECoW;
- maintain at least 5 m distance from hedgerows where possible to protect both hedgerow and ground flora. This would be reduced where the required working area must lie within 5 m however the root protection zones of hedgerow and hedgerow trees not required to be removed will be protected as per section 12 of this CEMP; ;
- maintain 8 m buffers around ponds where possible to protect both the ponds and the immediately surrounding habitat. This may be larger for known Great Crested Newt (GCN) ponds. No non-essential works will be undertaken within 3 m of any pond; and
- maintain 8 m buffers from watercourses where possible. No works within 3 m of watercourses with the exception of crossing points. This would be larger for sections of watercourse identified as being used by otter or water vole details of which are provided within the BMS (**Document 7.7**).

11.3.4 **BNC24** Demarcation of non-working areas within designated sites and areas of protected habitat and close to sensitive species to protect habitat.

11.3.5 **BNC25** Use appropriate material for access tracks to ensure no lasting change in soil type.

Protection of Species

11.3.6 **BNC26** Tree clearance works would be supervised and/or monitored by the ECoW or bat licence appointed person where appropriate.

11.3.7 **BNC27** A watching brief by an ECoW would be undertaken during working in watercourses. This would also include when dismantling the culverts/bridges.

11.3.8 **BNC28** Mitigation measures will include as required the utilisation of Marine Mammal Observers (MMOs) and Passive Acoustic Monitors (PAMs) as well as Acoustic Deterrent Devices (ADDs) at all times during blasting of the tunnel beneath the Menai Strait waterway. In the event of a buoy needing to be deployed within the Menai Strait for the purposes of marine mammal or fish mitigation, this would be deployed within the central part of the Strait, away from rocky reef or other sensitive habitats to reduce the risk of any scour impacts occurring.

11.3.9 **BNC29** Obvious mammal trails would be kept clear of obstructions where possible

11.3.10 **BNC210** Excavations will be secured or provided with an escape route to prevent harm to or trap animals within them. Larger excavations such as the tunnel shafts will already be appropriately fenced and would include 24 hours working at times which would deter species including badger from this area.

11.3.11 **BNC211** Programme of works would include for the following:

- where possible, phase work so that vegetation clearance, establishment of working areas and habitat restoration within 500 m of inland water bodies at Wylfa, Bryn Dyfrydog and Cors Erddreiniog are completed outside of the breeding bird season (March-September for most bird species). This will ensure compliance with the Wildlife and Countryside Act 1981 (as amended). Further information is provided in the BMS (**Document 7.7**);

- ground clearance in suitable reptile habitat will be undertaken in accordance with the BMS (**Document 7.7**) which includes restrictions during winter months, in particular of dismantling potential hibernacula, such as cloddiau. This would be to protect ground level working from affecting hibernating reptiles. Above ground level vegetation clearance could be undertaken where suitable methods are available and under the supervision of an ECoW;

- no ground clearance in GCN mitigation areas commencing during winter months, in particular of dismantling potential hibernacula, such as cloddiau. GCN fence installation and trapping period cannot take place between October and February (this is weather dependent so can continue if weather conditions meet recognised criteria and a data

logger is used). Details are provided in the BMS (**Document 7.7**) and GCN EPS licence). This would be to protect ground level working from affecting hibernating GCN. Above ground level vegetation clearance could be undertaken where suitable methods are available and under the supervision of an ECoW in accordance with the mitigation outlined in the BMS (**Document 7.7**) and GCN EPS licence;

- no working in watercourses during sensitive months such as spawning season as appropriate for each fish species in each watercourse;
- pre-construction surveys will be required to reassess presence of species such as GCN, red squirrel, reptiles, badger, otter and water vole in accordance with timings given in the BMS (**Document 7.7**);
- pre-construction surveys will be required to reassess the trees to be removed should this not have commenced by 2 years after the surveys were conducted; and
- any trees which are to be removed that have been identified as having low, moderate or high bat roost potential (but are not confirmed roosts) within the Order Limits will be removed using the methods within the BMS (**Document 7.7**) including soft felled. Those confirmed as bat roosts must also be soft felled but under a bat licence.

11.4 SUMMARY OF BIODIVERSITY AND NATURE CONSERVATION CONTROL AND MANAGEMENT CODES

Biodiversity Mitigation Strategy
BNC11, BNC12, BNC13
General Biodiversity and Nature Conservation Control Measures
BNC21, BNC22, BNC23, BNC24, BNC25, BNC26, BNC27, BNC28, BNC29, BNC210, BNC211

12 Trees, Hedgerows & Boundary Features

12.1 OBJECTIVE

12.1.1 To reduce loss of trees, hedgerows and boundary features as far as practicable and to ensure appropriate protection all retained trees, hedgerows and boundary features within the working areas.

12.2 TREES AND HEDGEROWS

12.2.1 **TH11** A Tree and Hedgerow Protection Strategy will be produced; this will be in accordance with the Trees and Hedgerows Potentially Affected Plans (**Document 4.11**).

12.2.2 **TH12** An Arboricultural Clerk of Works will be appointed as required and will be responsible for overseeing and monitoring all arboricultural measures. All trees and hedgerows to be retained are shown on the Trees and Hedgerows Potentially Affected Plans (**Document 4.11**). These plans will be refined prior to construction by the Arboricultural Clerk of Works to identify trees and hedgerows for removal. All retained trees and hedgerows will be protected in accordance with the Tree and Hedgerow Protection Strategy.

12.2.3 **TH13** Retained hedgerows and trees will be protected by clearly defined root protection areas to prevent damage/compaction of roots by plant and other machinery.

12.2.4 **TH14** The Tree and Hedgerow Protection Strategy will include:

- a schedule of all trees and hedgerows to be removed;
- a schedule of all trees which require pruning coppicing or pollarding;
- a schedule of all trees and hedgerows to be retained including specification for temporary physical protection including clearly defined root protection areas to prevent damage/compaction of roots by other machinery;
- reinstatement measures in accordance with Figure 1 (**Document 7.4.1.1**); and

- details of an auditable system of compliance.

12.3 BOUNDARY FEATURES

12.3.1 **TH21** A Boundary Features Protection Strategy will be produced; this will include:

- identification of all Cloddiau and crawiau within the Order Limits to be removed and retained;
- a schedule of all boundaries to be removed;
- a photographic record of all boundaries to be removed so that they can be reinstated accordingly;
- a schedule of all boundaries to be retained including specification for temporary physical protection;
- reinstatement measures for all boundaries which will include the Technical Specification for Welsh Cloddiau[4] ; and
- details of an auditable system of compliance.

12.4 SUMMARY OF TREES, HEDGEROWS AND BOUNDARY FEATURES CONTROL AND MANAGEMENT CODES

Trees and Hedgerows
TH11, TH12, TH13, TH14
Boundary Features
TH21

[4] http://www.dswales.org.uk/files/PrintClawdd%20Spec%20English.pdf

13 Reinstatement

13.1.1 **R1** All temporary working areas and accesses will be removed when construction of that stage of the works has been completed. Plant, temporary cabins and vehicles will be removed from the site. Save for the actual Proposed Development and works forming part thereof, and also anything associated e.g. ground strengthening, all temporary land, including highways and public rights of way crossed by the works or other land temporarily occupied will be made good in consultation with landowners and/or the relevant highways authority.

13.1.2 **R2** To facilitate the reinstatement of land, soil and watercourses, pre-condition surveys will be discussed with landowners and where agreed, carried out of land within working areas. Where required this will include a photographic record, written description and topographical survey, which will be used to ensure appropriate reinstatement of land.

13.1.3 **R3** Reinstatement will be in accordance with the relevant parts of the BMS (**Document 7.7**) include making good of any damage or disturbance to any soil structure, native or other planting, grass, fencing, hard landscaping or structures, where in-situ reinstatement is possible.

13.1.4 **R4** Trees, hedgerows and boundary features will be reinstated in accordance with section 12.

13.1.5 **R5** Any temporary bridge or culvert required will be removed within 12 months of completion of construction of that stage, abiding by all working within watercourses and biosecurity practices stated.

13.1.6 **R6** All affected watercourses or waterbodies will be reinstated on completion of works.

13.2 SUMMARY OF REINSTATEMENT CONTROL AND MANAGEMENT MEASURES

Reinstatement
R1, R2, R3. R4, R5, R6