

Glyn Rhonwy Pumped Storage Development Consent Order

Deadline 7 – Code of Construction Practice



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Abbreviations & Glossary

$\mu\text{g}/\text{m}^3$	The concentration of an air pollutant (eg. ozone) is given in micrograms (one-millionth of a gram) per cubic meter air
Applicant	Snowdonia Pumped Hydro
AURN	Automated Urban Rural Network
BPM	Best Practical Means
BRE	Building Research Establishment
BS	British Standard
CCW	Countryside Council for Wales
CDM	Construction Design and Management
CoCP	Code of Construction Practice
CoPA	Control of Pollution Act 1974
COSHH	Control of Substances Harmful to Health
COMAH	Control of Major Accident Hazard (Regulations)
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DCAQMP	Dust Control and Air Quality Management Plan
EA	Environment Agency
EAW	Environment Agency Wales
EMS	Environmental Management System
EPA	Environmental Protection Act
ERFMP	Emergency Response and Flood Management Plan
ES	Environmental Statement
HASP	Health and Safety Plan
HDV	Heavy Duty Vehicle
HGV	Heavy Goods Vehicle
HMP	Habitat Management Plan
HSG	Health & Safety Guidance
IAQM	Institute of Air Quality Management
m^3	metres cubed
MAPP	Major Accident Prevention Policy
MOD	Ministry of Defence
MPH	Miles per hour
MWC	Main Works Contractor

MWe	Mega Watts Electrical – measure of energy, one million watts
NMP	Noise Management Plan
NRW	Natural Resources Wales (formally EAW and CCW)
NSIP	Nationally Significant Infrastructure Project
NSR	Noise Sensitive Receptors
Order Limits	The site boundary denoted by a red line
PC	Principal Contractor
PPG	Pollution Prevention Guidelines
PM ₁₀	Extremely small particulates or particulate matter (in the order of ~10 micrometres or less)
PPP	Pollution Prevention Plan
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
TPO	Tree Preservation Order
UXO	Unexploded Ordnance
WTMP	Water Management Plan
WMP	Waste Management Plan
WWII	World War II

Revision	Date	Amends	Revised By:	Approved By:
0	October 2015	Original – DCO Submission	CA	NP
1	April 2016	FWQ Appendix 2.24 and 2.25	DM	CA
2	June 2016	Full revision in line with updated management plans for Deadline 5	DM	CA
3	July 2016	Revision to Section 2.9 for Deadline 6 submission	DM	CA
4	August 2016	Revision in line with Rule 17 request	DM	CA

1 INTRODUCTION

- 1.1.1 As part of the planning permission for the previously consented 49.9MW pumped storage development (Planning Reference: C12/1451/15/LL) a number of conditions were set by Gwynedd Council.
- 1.1.2 A Construction Environmental Management Plan (CEMP) was prepared for the approved scheme. This has been developed into the Code of Construction Practice (CoCP) which accompanied the DCO application and has subsequently been revised through the Examination process.
- 1.1.3 A detailed CEMP and various other environmental management principles were required by the planning permission for the approved scheme. Table 1.1 below documents where the TCPA conditions have been considered in the development of this CoCP. A full copy of the conditions was provided in Volume 3 Appendix 1.1 of the Environmental Statement.
- 1.1.4 The CoCP has been written in regard to these conditions and has incorporated relevant construction methods and other requirements where applicable.

Table 1.1 Conditions of Decision Notice

Condition Reference	Where covered in the CoCP
1	Commencement of development - not required to be addressed by the CoCP.
2	Approved plans - not required to be addressed by the CoCP.
3	Submission of programme reviews - not required to be addressed by the CoCP.
4	Written notice of certain activities - not addressed by the CoCP, to be completed post consent
5	Lighting - addressed in Section 2.13 in this CoCP
6	White noise – to be addressed in the Operational Noise Management Plan (ONMP)

7	Landscaping scheme – to be addressed in the Landscape & Reinstatement Plan, see section 4.3 of this CoCP
8	Seeding and planting scheme – to be addressed in the Landscape & Reinstatement Plan, see section 4.3 of this CoCP
9	Contaminated land - to be addressed by the Land Discovery Strategy (LDS) and Ordnance Management Strategy (OMS).
10	Storage - addressed in the Pollution Prevention Plan (PPP)
11	Verification Report - to be addressed by the Land Discovery Strategy (LDS) and Ordnance Management Strategy (OMS).
12	Unexpected contaminated - to be addressed by the Land Discovery Strategy (LDS) and Ordnance Management Strategy (OMS).
13	Production of a Construction Environmental Management Plan - addressed as the CoCP
14	Drainage - addressed in Water Management Plan (WTMP) and Requirement 11
15	Production of a Breeding Bird Method Statement - addressed in section 4.7 of this CoCP
16	Production of a reptile method statement - will be addressed in the Habitats Management Plan (HMP), see section 4.7
17	Production of a Construction Environmental Management Plan (CEMP) - addressed as the CoCP
18	Will be addressed in the HMP Section 4.7 of this CoCP
19	Production of a bio-security risk assessment – secured through Requirement 7
20	Archaeology compensation and enhancement – secured through Requirement 7
21	Traffic Management Plan - addressed in the Construction Traffic Management Plan (CTMP)
22	Diversion of existing rights of way – to be secured through the CoCP section 2.9
23	Tree Protection - will be addressed in the HMP via Requirement 6
24	Production of CEMP and other management plans - addressed by this CoCP and associated management plans
25	Working Hours and Operations – to be secured through DCO Requirement 13
26	Air Pollution Control Management Plan - secured through Requirements 6 & 7
27	Compliance with Air Pollution Control Management Plan - secured through Requirements 6 and 7
28	Limits for air quality - will be addressed in the Dust Control and Air

	Quality Management Plan (DCAQMP)
29	Limits for air quality - will be addressed in the DCAQMP
30	Limits for air quality - will be addressed in the DCAQMP
31	Construction Traffic - addressed in the Construction Traffic Management Plan (CTMP)
32	Construction Traffic Records - addressed in the Construction Traffic Management Plan (CTMP)
33	Construction Noise - will be addressed in the Construction Noise Management Plan (CNMP)
34	Application of the best available techniques not entailing excessive cost (BATNEEC) - will be addressed in the ONMP and Requirement 5 Detailed Design
35	Ground Vibration - will be addressed in the CNMP
36	Monitoring of blasting - will be addressed in the DCAQMP and CNMP
37	Vibration from Tunnelling - will be addressed in the CNMP
38	Vibration from Tunnelling - will be addressed in the CNMP
39	Vibration from Blasting - will be addressed in the CNMP
40	Noise from Tunnelling - will be addressed in the CNMP
41	Working Hours for Tunnelling - to be secured via Requirement 13
42	Air Quality from Blasting – secured through Requirements 6 and 7
43	Construction Noise - will be addressed in the CNMP
44	Construction Noise from Tunnelling - will be addressed in the CNMP
45	Noise Control Plan - will be addressed by the CNMP
46	Excessive Noise - will be addressed by the CNMP
47	Construction Noise - will be addressed in the CNMP
48	External Finishes - to be secured through DCO Requirement 5
49	Finishes and Layouts - to be secured through DCO Requirement 5
50	Caravans on site - to be secured through DCO Requirement 14
51	Temporary Buildings - to be secured through DCO Requirement 14
52	Excess Slate Mound - to be secured through DCO Requirement 5
53	Excess Slate Mound Materials - will be addressed in the Materials Management Plan (MMP) and Waste Management Plan (MWP) in section 4
54	Storage of Fuels and Lubricants - addressed in the Water Management Plan (WTMP)
55	Topsoil and Subsoil Reuse - will be addressed in the Reinstatement and Landscape Plan section 4.3 of the CoCP

56	Topsoil Stripping – to be addressed in section 2.5 of the CoCP
57	Storage of Dry Stone Wall Materials - will be addressed in the Reinstatement and Landscape Plan, section 4.3 of the CoCP
58	Surface Water Drainage and Treatment – to be addressed in the WTMP and Requirement 11

2 CODE OF CONSTRUCTION PRACTICE

2.1 INTRODUCTION

- 2.1.1 Snowdonia Pumped Hydro (“the Applicant”) submitted an application for a Development Consent Order (“DCO”) for a pumped storage facility known as Glyn Rhonwy Pumped Storage. The generating capacity of the Development exceeds 50 megawatts (MWe) and it is therefore designated as a Nationally Significant Infrastructure Project (“NSIP”) under the Planning Act 2008.
- 2.1.2 This document has been prepared for the Development to comply with the requirements of Regulation 5(2)(q) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 and in accordance with the Department for Communities and Local Government guidance ‘Planning Act 2008: Application Form Guidance’ and the Planning Inspectorate Advice Note 6 on Preparation and Submission of Application Documents.
- 2.1.3 The CoCP was originally submitted as Appendix 16.1 of the Environmental Statement (ES) (doc ref 6.02). Subsequently, this CoCP has been advanced and further informed throughout the DCO process and will be a standalone certified document.
- 2.1.4 All mitigation measures which have been outlined in the ES and additional measures agreed in other Management Plans through the DCO process have been outlined in the Schedule of Mitigation.
- 2.1.5 This document sets out the minimum standards to be adopted when constructing the Development. It also provides information about the associated management plans which should be read in conjunction with the CoCP.

- 2.1.6 The objective of this CoCP is to provide initial information on how potential construction stage environmental impacts are to be minimised. The document provides minimum requirements and measures to be implemented rather than construction detail, as the Principal Contractor (PC) has not yet been appointed. Once a PC is in place the CoCP will be finalised and submitted to Gwynedd Council and Natural Resources Wales (NRW) for their approval. The need for this approval is secured under Requirement 6 of Part 2 in Schedule 1 of the DCO.
- 2.1.7 The CoCP is designed to ensure compliance with environmental legislation, the DCO Requirements, committed construction stage mitigation reported in the ES, mitigation developed and agreed through the Examination process within the specific management plans and the PC's own Environmental Policies.
- 2.1.8 Whilst the CoCP will be finalised and approved through a DCO Requirement 6, the CoCP will remain a live document throughout the construction phase and will be regularly reviewed to take into account additional environmental information encountered during the construction phases; however at all times the minimum standards identified in the CoCP will be complied with.
- 2.1.9 All personnel and sub-contractors working on the Development will perform their duties in accordance with the requirements of the CoCP. The Environmental Manager will report regularly to the Project Manager on the status and effectiveness of its implementation.
- 2.1.10 The CoCP includes the following topic-specific environmental management plans:

Table 2.1 Table of Topic-Specific Management Plans		
Management Plan	Status	Reference at Deadline 5
Water Management Plan (WTMP)	Draft	SPH_GREX_DCOD3_02 (Rev. 3)
Pollution Prevention Plan (PPP)	Outline in CoCP	Section 4.2 of the CoCP
Construction Traffic	Draft	SPH_GREX_DCOD3_07

Table 2.1 Table of Topic-Specific Management Plans		
Management Plan	Status	Reference at Deadline 5
Management Plan (CTMP)		(Rev. 3)
Dust Control and Air Quality Management Plan (DCAQMP)	Draft	SPH_GREX_DCOD5_03 (Rev.1)
Waste Management Plan (WMP)	Outline in CoCP	Section 4.5 of the CoCP
Landscape & Reinstatement Plan	Outline in CoCP	Section 4.3 of the CoCP
Construction Noise Management Plan (CNMP)	Draft	SPH_GREX_DCOD5_04 (Rev.1)
Emergency Response and Flood Management Plan (ERFMP)	Outline in CoCP	Section 4.4 of the CoCP
Habitat Management Plan (HMP)	Outline in CoCP	Section 4.6 of the CoCP
Silt Management Plan (SMP)	Draft	SPH_GREX_DCOD3_03 (Rev.2)
Breeding Bird Method Statement	Outline in CoCP	Section 4.7 of the CoCP

- 2.1.11 All the Management Plans which are labelled as Draft are provided separately to the CoCP. All Management Plans which are “Outline in CoCP” have their minimum contents outlined in Section 4.
- 2.1.12 These plans will be finalised by the PC and agreed with Gwynedd Council and NRW through the submission of the final CoCP for approval, as per Requirement 6.
- 2.1.13 Other required plans and strategies required to outline other and additional mitigation measures are secured through Requirement 7 and not referred to in this CoCP. Further detail on the contents of these management plans can be found in the Schedule of Other Required Plans and Strategies (Doc ref: SPH_GREX_DCOD2_04 (Rev. 2)).

2.2 SAFETY

- 2.2.1 Site specific risk assessments and method statements will be undertaken in accordance with the applicable legislation prior to the commencement of activities within the Order Limits; to identify any potential risks, assess their likelihood and significance, and to identify mitigation measures to be implemented to ensure the safety of workers and the general public.
- 2.2.2 Site security during the construction phase will be strict. Access to the site will be prevented by the use of temporary fencing to prevent unauthorised access. A compound for the temporary storage of equipment or materials will be provided. This will be locked with restricted access. Security staff will be utilised as appropriate.
- 2.2.3 The Applicant will ensure that adequate arrangements are in place for the discharge of all duties under the Construction (Design and Management) Regulations 2015 (CDM).
- 2.2.4 A Health and Safety Plan (HASP) will be prepared by the contractor which will set out how all health and safety matters on site and within the Order Limits are to be managed and how risks are to be identified and managed in accordance with current good practice and legal requirements. This is secured by Requirement 7.

2.3 SECURITY

- 2.3.1 A Permit to Work system will be introduced during construction to ensure that only authorised construction personnel are allowed within the construction area and that an accurate record of site-based personnel is available in case of emergency.
- 2.3.2 The PC will ensure that the construction sites at Q1 and Q6 are secure and staffed with security on a 24-hour basis. Access to the Development will be limited to specified entry points only and all personnel entries and exits will be recorded and monitored for both security and health and safety purposes. For works at Llyn Padarn, when there is an open excavation, a small security presence will be required to ensure public safety.

2.3.3 Visitors to the Development site during construction will be required to report to the construction reception office and will only be permitted to access the construction area under escort by appropriately authorised staff or following successful completion of specific safety induction / training.

2.3.4 All working areas will be appropriately fenced off from members of the public and to prevent animals from straying onto working areas. A compound for the temporary storage of equipment or materials would be provided. This will be locked with restricted access. Security staff will be utilised as appropriate.

2.4 CONSTRUCTION SITE HOUSEKEEPING

2.4.1 Good construction site housekeeping practice will be applied at all times. As far as reasonably practicable the layout of the site will be designed using the following principles:

- All work areas will be secured;
- Any fuels or liquid materials will be stored and banded in compliance with the relevant regulation;
- Signage and boundary fences, where required, will be regularly inspected, repaired and replaced as necessary;
- All working areas will be kept in a clean and tidy condition;
- Wheel washing and dust suppression facilities will be provided when and where required;
- All practicable measures will be taken to minimise the risk of fire and the Contractor will comply with the requirements of the local fire authority;
- Waste will be removed at frequent intervals; and
- Construction waste susceptible to spreading by wind or liable to cause litter will be stored in secure containers.

2.5 ENABLING WORKS & CONSTRUCTION COMPOUNDS

2.5.1 Prior to any enabling works, no topsoil or subsoil stripping should be undertaken without the written permission of Gwynedd Council. This should

include details of any storage of materials and locations of construction access tracks.

2.5.2 No access tracks should be located on unstripped vegetation or ground.

2.5.3 The Construction compounds will meet standard good management practices which include but are not limited to:

- Compound design and layout will align with standards for distances from watercourses (7m);
- Acoustic bunds will be utilised as outlined in the Construction Noise Management Plan;
- No crushers or noisy activities to be undertaken within the compounds will be located near residential dwellings or sensitive receptors;
- Bunds will be used where required to meet the requirements of Environment Agency pollution prevention guidelines and oil storage regulations;
- Adequate parking will be provided to ensure that the safety and efficient operation of the public highway is not reduced;
- Welfare facilities will be provided to minimise the need for offsite trips by staff during the working day;
- Compound design and layout will ensure that dust emission sources are located away from sensitive receptors; and
- If compound lighting is required it will be designed to minimise light pollution to the surrounding area, and be compliant with the scheme approved under DCO Requirement 16.

2.6 WELFARE FACILITIES

2.6.1 Welfare cabins, toilets and drying facilities will be provided within the construction areas for the use of construction workers.

2.6.2 Workers' Safety Information Sheets and COSHH safety data sheets will be kept on site.

2.6.3 Where portable generators are used, industry good practice will be followed to minimise noise and pollution from such generators in addition to any measures outlined in the Construction Noise Management Plan.

2.6.4 No living accommodation will be provided within any construction working area.

2.6.5 The risk of infestation by pests or vermin will be minimised by the appropriate collection, storage and regular collection of waste, the prompt treatment of any pest infestation and effective preventative pest control measures.

2.7 CRANE ARCS

2.7.1 Crane arcs will be confined within the construction areas and cranes will be operated in accordance with the requirements of BS 7121, Code of Practice for Safe Use of Cranes.

2.8 MOVEMENT OF MATERIAL

2.8.1 Approximately 650,000m³ of excess material will be generated by the Development. The Applicant is committed to the transportation of this excess material from Q6 to Q1 via conveyor in the underground penstock.

2.9 PERMISSIVE ROUTES & SOCIO-ECONOMICS

2.9.1 The PC will ensure minimal impact upon the local community, and users of localised recreational or permissive routes/facilities and cycle paths during construction through various mitigation measures. Opportunities will also be explored for any beneficial effects that can be delivered for the local community during construction.

2.9.2 Any temporary diversions will have due regard to use not only by walkers but also by equestrians. The recommendations from the following will be considered in consultation with Gwynedd Council PRoW Officer and other parties:

- British Horse Society Advice on “Specification and Standards recommended for equestrians routes in England and Wales” (ref 2014/7); and

- British Standard 5709:2006 “Gaps, Gates and Stiles”.

2.9.3 Mitigation measures that may be implemented include, but are not limited to:

- All work will be undertaken in accordance with the mitigation measures reported in chapter 15 of the ES, as summarised by Chapter 18 Summary of Mitigation;
- The Applicant, the appointed PC and ELO will work with local communities and businesses within the villages of Waunfawr, Croesywaun, Brynrefail, Cym-y-Glo, Fachwen, Dinorwig, Llanberis and Groeslon to ensure the phasing of the construction works is designed to minimise effects on the local community wherever reasonably practicable.
- Any permanent diversion to an existing Public Right of Way will be as authorised through the DCO and diversions be made available for use before the existing route is closed. The Applicant and PC will liaise with users of permissive routes such as the British Horse Society, Ramblers Association and Gwynedd Council to ensure that the type and standard of diversion is acceptable prior to implementation.
- Wherever reasonably practicable the workforce will be recruited from the local area. SPH or the PC will engage with local contractors at the Pre-Qualification stage of the tender process, with the intention of providing local employment and investment in the area through the appointed PC. These could include supply chain workshops and events; and
- Wherever reasonably practicable materials will be sourced from local suppliers.

2.10 TIMING OF WORKS

2.10.1 Works will be phased to minimise effects on the surrounding environment and local communities by:

- Avoiding summer school holidays to minimise impacts on the local residents and tourists visiting the area for any works in Llyn Padarn;
- Avoiding any weekend events using permissive routes (and their diversions where relevant) and using Llyn Padarn;

- Avoiding any noisy critical path activities such as blasting during the breeding bird season to minimise ecological effects;
- Scheduling construction activities to minimise the area and period of time that soil will be exposed, particularly during wetter periods; and
- Timing soil handling and overburden stripping to suit weather conditions.

2.11 ACCESS AT LLYN PADARN

2.11.1 For any works undertaken by the Applicant and its appointed PC, the following shall be implemented to ensure access to the Llyn Padarn car parks and footpaths is available at all times to users of Llyn Padarn:

- The construction of the pumping station and spillway infrastructure shall be in a sequential manner – as one onshore section is completed, the next section will then be excavated. This is ensure that access within the car park area and to the access road from the A4086 is not impeded.
- Larger construction equipment will be removed from the working area (Work Area 4E and 4F) at the end of each working day and taken to the main construction compound at Q6.
- The onshore excavation must be fenced off for health and safety reasons and security must be present overnight.
- Access must always be maintained for users of Llyn Padarn whilst allowing sufficient working width to maintain a safe working environmental for deep excavations.
- Appropriate signage will be placed around the working area notifying any users of Llyn Padarn of access restrictions, both onshore and also offshore when works enter Llyn Padarn.
- The ELO will liaise with interested parties to notify them of the timings of these works and also any piling which may be undertaken either within Llyn Padarn and/or the car park/toilet blocd area.

2.12 WORKING HOURS

2.12.1 Other than underground excavation works, construction activities will be limited to 07.00 – 19.00 Monday to Friday and 07.00 – 13.00 on Saturday,

although this may be extended to 19.00 at critical path construction phases, and at no time on Sundays and Bank Holidays.

2.12.2 This is secured via Requirement 13.

2.13 LIGHTING

2.13.1 At night and during periods of darkness, directional security lighting will be used. Lighting will be selected and sited so as to minimise visual intrusion to local communities, whilst maintaining the safe and efficient operation of the Development.

2.13.2 Site lighting will be positioned and directed to minimise nuisance to residents, walkers and vehicle drivers. Implementation will conform to requirements and meet the Obtrusive Light Limitations for Exterior Lighting Installations for each respective Environmental Zone in the area – contained within Table 1 of the Institute of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light (2005).

2.13.3 Where lighting is necessary, appropriate low glare lighting will be used to minimise the impact of lighting on ecological receptors, including nocturnal species. Lighting will be designed to minimise spillage into surrounding habitats to avoid disturbance to wildlife. This will be secured through Requirement 16.

3 ENVIRONMENTAL POLICIES, ROLES & COMMUNICATION

3.1 ENVIRONMENTAL POLICY AND MANAGEMENT SYSTEMS

3.1.1 The Applicant and Principal Contractor will ensure that a copy of their environmental policy are clearly displayed on site notice boards during the construction period. All employees are expected to comply with the requirements of the Environmental Policy and the requirements of the Environmental Management System (EMS) under a suitable accreditation such as ISO14001.

3.1.2 The Applicant and its Principal Contractor expects its employees and support staff (contractors, sub-contractors, suppliers etc.) to actively promote and administer a strong environmental culture. To achieve this, a number of initiatives will be in operation during the life of the project. This will include the use of environmental inductions, poster campaigns to raise awareness of topical subjects and toolbox talks involving all members of the project team and site workforce.

3.2 LEGISLATION

3.2.1 As part of the EMS for the site, a Project Environmental File (PEF) will be maintained. Within this PEF, a legislation register will be stored which will be reviewed periodically and updated as necessary. Any changes to relevant environmental legislation will be disseminated to project management immediately, after which the method statements of any affected operations will be changed as necessary.

Consents and Licences

3.2.2 A register of required consents and licences will be held in the PEF, including the relevant reference numbers. The Applicant and the PC will identify and obtain all necessary consents and licenses prior to the commencement of any works requiring the consents or licenses. These will

be recorded within a register of compliance for any conditions of consents and DCO Requirements, and progress recorded at regular intervals prior to commencement of works and during the construction phase.

Mitigation / Commitments Register

3.2.3 A register of all mitigation measures or commitments to be complied with will be kept by the Applicant and their PC. This register will detail the mitigation measure or commitment, its securing mechanism and relevant management plan (if appropriate), method and timing of implementation and responsibility. This will be maintained throughout the construction, commissioning and operational phases.

3.3 ROLES AND RESPONSIBILITIES

Project Manager

3.3.1 The Project Manager will be appointed as part of the Applicant's or PC team and shall have overall responsibility for the management of the construction phase. They will be responsible for:

- Appointing the Project Environmental Manager / Environmental Clerk of Works (ECoW);
- Appointing the Environmental Liaison Officer (ELO); and
- Appointing any other environmental support staff such as clerk of works for specific ecological watching briefs or ordnance removal

3.3.2 The Project Manager will also programme any required pre-construction surveys into the construction schedule. These will then be the responsibility of the Environmental Manager / ECoW.

3.3.3 The Project Manager will also progress any discharge of Requirements, especially those that require landowner agreements to be in place to allow for baseline sampling or surveying to be undertaken. This includes noise, air quality / dust and private water supplies.

3.3.4 The Applicant and PC will ensure that a suitable, independent person with appropriate knowledge and experience of similar scale or type of projects will be employed. This is a crucial role and the Applicant and their PC will

liaise with Gwynedd Council and NRW to seek their views on their requirements, which will be incorporated as far as reasonably possible.

Environmental Manager / Environmental Clerk of Works

3.3.5 The Environmental Manager / ECoW will be specifically appointed for this Development to assist the Project Manager and the role may be shared between more than one person. The Environmental Manager / ECoW will be responsible for the following:

- Ensuring all required consents are in place before work starts and compliance with consents;
- Ensuring that all mitigation measures and commitments are implemented properly and effectively ;
- Undertake and / or organise any required pre-construction surveys, baseline surveys or samples as required, and continue with any monitoring to be undertaken during construction as required by the plans approved under Requirement 6;
- Ensuring compliance with the topic-specific Management Plans by undertaking spot checks such as audits on the timing of HGV deliveries, taking speed checks on Ffordd Cefn Du and also observation of any works in Llyn Padarn;
- Provide observational monitoring during dewatering of the quarries;
- Maintaining the consents register and also the mitigation / commitments register with the ELO (see below);
- Undertake weekly audits and site checks and persons to supervise refuelling of tanks and bowsers;
- Ensuring environmental and waste requirements are included on requisitions and in subcontracts and orders;
- Ensuring oil, including diesel, is stored in properly bunded tanks / drip trays;
- Reporting incidents and non-conformances to the PC;

- Including environmental performance, review of contract objectives and targets (including environmental), review of Incidents and non-conformances at the contract review meetings;
- Ensuring employees and subcontractors implement the controls outlined in the finalised and approved CoCP and any other appropriate plans, mitigation measures or commitments;
- Ensuring employees and subcontractors receive induction training (including project environmental issues) and tool box talks, as appropriate;
- Ensuring personnel needed for audits are available when required;
- Verifying actions resulting from corrective action requests and Observations raised during audits are completed by the deadlines;
- Liaising and working with the ELO to ensure that construction programme is effectively communicated; and
- Ensuring environmental training is provided.

Environmental Liaison Officer (ELO)

3.3.6 The primary objective of the ELO will be to act as the main point of contact between the PC, the Applicant, regulators and also the public. They will be the focal point for any community liaison committees, project meetings, reporting and also communication on critical activities of the Development. This will include communicating when enabling works are likely to commence and then keeping the local communities aware of the continuing activities which will occur during the construction phase including regular updates on progress.

3.3.7 The ELO will specifically communicate the following construction activities to local communities (please note this list is not exhaustive):

- Works which involve the loss or temporary replacement of access (for example the PRowS and permissive routes at Q1);
- Works adjacent or within Llyn Padarn;
- Blasting and any temporary closures of PRowS, permissive routes and roads such as Clegir Road;

- Delivery of plant or abnormal roads on both the A4086 and A4085;
- Progress / compliance with mitigation measures and reporting;
- Progress of any ordnance management;
- Notification of monitoring at relevant locations, including requests for permission to access third party land or property where there is a monitoring or sampling point;
- Changes in working hours.

3.3.8 Once the PC is appointed and the construction programme confirmed, the ELO will communicate this programme to the community and facilitate meetings as required. The ELO will chair the Environmental Liaison Group, which is outlined more in Section 3.4.

3.3.9 The ELO will ensure that records of communication (including verbal communication) are kept, and that regular reporting is provided to Gwynedd Council, NRW and also to the local communities.

3.3.10 It is expected that the Environmental Manager / ECoW will work very closely with the ELO.

3.3.11 Working with the Environmental Manager / Clerk of Works, the ELO will also be responsible for identifying private water supplies, both for existing and additional properties, and investigating any which may not have responded to previous communication. The ELO will liaise with the landowner and communicate in advance when sampling will be required at that property for the six months prior to construction, monthly during construction and six months post-construction.

Clerk of Works

3.3.12 These may be required for very specific mitigation measures such as watching briefs or observation for a particular reason during a construction phase activity, for example should any vegetation require removal during the breeding bird season, this will require an ecological clerk of works.

All Staff

3.3.13 All site staff have a responsibility to the environment, responsibilities include but are not limited to:

- In the case of an incident, stopping work, implementing control procedures and reporting it to the Project Manager;
- Contacting the Environmental Manager / ECoW when waste needs collecting;
- Passing any queries or correspondence on environmental issues to the site manager;
- Working in accordance with the finalised and approved CoCP and associated management plans; and
- Compliance with consents.

3.4 COMMUNICATION

Internal Meetings & Communication

3.4.1 Weekly internal construction meetings shall be held during the construction phase. These meetings shall include Health, Safety and Environmental matters and shall be attended by the Environmental Manager / ECoW. Any issues resulting from daily or weekly audits shall be discussed with appropriate corrective actions agreed. A 'weekly look ahead' shall be provided at the construction meeting where any environmental constraints or special requirements can be discussed and agreed in advance.

3.4.2 The Environmental Manager / ECoW shall attend daily construction briefings alongside the Project Manager as required to ensure personnel are advised of any specific environmental requirements and constraints. The ELO will also attend for any critical path or construction activities which have the potential to affect the local community and need to be communicated.

3.4.3 Environmental performance meetings will be arranged as necessary. These meetings will be attended as appropriate by the Environmental Manager / ECoW, Project Manager and representatives of the workforce. Notes of the

meetings will be distributed and shall assist in the environmental management of the Development.

- 3.4.4 Site Environmental Notice Boards will display the Environmental Policy of the Applicant and the PC, Emergency Contacts List, relevant statutory and non-statutory advice and guidance; and any other relevant information. These Environmental Notice Boards will be situated in prominent positions in the main reception area of the Development construction office.

External Meetings

- 3.4.5 The ELO will arrange and attend meetings with relevant statutory bodies as necessary together with the Environmental Manager / ECoW.

Environmental Liaison Group

- 3.4.6 The ELO will be responsible for chairing an Environmental Liaison Group (ELG) and communicating information on the programme of construction activities. The Group will likely include representatives from the following parties:

- NRW;
- Gwynedd Council;
- Snowdonia National Park Authority;
- Cadw;
- Representative from Waunfawr and Groeslon local communities and surrounding communities; and
- Representative from Llanberis local community and surrounding communities.

- 3.4.7 All parties will be invited although it is likely that Gwynedd Council, NRW and local communities will likely form the core group participants, with other stakeholders attending when relevant

- 3.4.8 The ELG will meet on a regular basis but at least once a month during critical path activities such as start of enabling works, commencement of construction, blasting and works in Llyn Padarn.

3.5 ENVIRONMENTAL TRAINING AND AWARENESS

Inductions

3.5.1 All project personnel and sub-contractors will receive an Environmental Induction. No personnel, including sub-contractors, will be permitted to undertake any work on site without undertaking a site induction. The site induction will evolve to reflect changes in the CoCP as the project develops. Environmental topics covered in the induction shall include, but will not be limited to:

- Water Resources;
- Pollution Prevention;
- Emergency Response Procedures;
- Waste Management and Housekeeping;
- Management Structure;
- Duties and Responsibilities;
- Relevant Procedures;
- Ecologically Sensitive Areas and Times;
- Incident and non-conformance Reporting;
- Consents and Licenses and compliance;
- Legislation; and
- Environmental Good Practice.

Toolbox Talks

3.5.2 Tool-box talks (TBT) on specialised topics shall supplement the induction course. Toolbox talks shall be used to highlight issues of concern and to disseminate any new information or responsibilities. They will also be used as a means of providing basic environmental training to crews on a specialised topic, e.g. water management. The TBT also offer site personnel the opportunity to provide feedback.

3.5.3 TBTs would be provided routinely, but also when:

- There is a change to existing legislation, which requires an operational change;
- Site inspections or audits have identified corrective actions which require rolling out;
- Work is being undertaken in particularly sensitive areas; and
- There are significant changes in Environmental conditions, e.g. heavy rainfall.

3.5.4 Records of all TBTs undertaken, including attendance, will be kept in the PEF.

Specialist Training

3.5.5 Specialist training for specific members of the construction crews will be provided as required. This may include, but will not be limited to:

- Emergency Environmental Crews;
- Confined spaces;
- Working at height;
- Water management;
- Waste Representatives;
- Unexploded ordnance; and
- Fuel Tanker Drivers and Refuellers.

4 TOPIC SPECIFIC MANAGEMENT PLANS

4.1 INTRODUCTION

- 4.1.1 The following sections provide further information on the Outline topic specific Management Plans to be secured through the CoCP and Requirement 6, as outlined in Table 2.2.
- 4.1.2 The Schedule of Mitigation provides a schedule of mitigation for all phases of the Development including all mitigation reported in the ES and those developed through the Examination process as the specific Management Plans have evolved. It also outlines the hierarchy of the Management Plans and the responsibility for their completion, approval and compliance.
- 4.1.3 The Applicant and the PC will adhere to these mitigation measures during construction of the Development.

4.2 POLLUTION PREVENTION

- 4.2.1 A Pollution Prevention Plan (PPP) will be prepared by the PC and agreed with Gwynedd Council and NRW through DCO Requirement 6. This will include agreed emergency procedures in the event of a pollution incident.
- 4.2.2 A suitably trained emergency environmental crew will be provided by the PC to deal with pollution incidents in conjunction with other safety-related incidents as required.
- 4.2.3 An emergency contact list and spill response flowchart shall be displayed on notice boards and on fuel bowsers.
- 4.2.4 All plant and machinery shall be checked for leaks of fuel and lubricants before being allowed to commence works and maintenance and servicing records checked.
- 4.2.5 A suitable quantity of pollution control equipment, e.g. spill kits containing absorbent pads, absorbent granules, absorbent booms etc. will be kept on

site in the event of an emergency. The Environmental Manager will check pollution control equipment on a weekly basis to ensure that it is adequately maintained (for example ensuring equipment is within date) within the construction areas,

- 4.2.6 “Emergency Grab Packs” or spill kits to be carried in site vehicles and mobile plant and larger kits with fuel bowzers and emergency vehicles.
- 4.2.7 Static plant such as pumps and generators will be placed on drip trays wherever practicable to prevent leaking materials, from contaminating the ground or surface waters.
- 4.2.8 Facilities for washing plant and equipment contaminated with concrete or other chemicals will be provided. Wash water from the facilities will be managed so as to prevent pollution of surface water and groundwater. If on-site batching facilities are required they will be operated under the conditions of the appropriate authorisation.
- 4.2.9 Chemicals, fuels and oils will be stored in secure and designated storage areas and in accordance with the appropriate regulatory requirements, including COSHH Regulations 1994. Storage areas will be located on hardstanding areas so as to prevent the possible infiltration of contaminants into the soil and will also be located 20m from surface water bodies. Stockpiles of dry materials will be stored in locations that prevent contamination of surface waters through dust generation or runoff and materials will not be stockpiled without appropriate safety and mitigation systems in place.
- 4.2.10 Further details of arrangements for dealing with spills, leaks and unplanned emissions, unplanned damage to the environment and other environmental incidents will be provided in the Pollution Prevention Plan.

Storage and Handling of Fuel and Lubricants

- 4.2.11 All fuels shall be stored in integral bunded fuel bowzers, designed to hold 110% of the contents of the tank. All connections shall be situated within the bund. Fuel shall be stored at least 20 metres away from any watercourse, where reasonably practicable. Refuelling within the

construction areas shall be undertaken at least 20 metres from any watercourses. An impermeable bunded area for the storage of drums shall be constructed in accordance with NRW guidelines.

4.2.12 Oils and lubricants used within the construction areas will also be stored in temporary impermeable bunded areas or sealed bunded tanks designed to hold 110% of the container volumes. No oil or fuel shall be stored within 20 metres of a watercourse.

4.2.13 Further details will be provided in the Pollution Prevention Plan.

Herbicides

4.2.14 Only trained sub-contractors shall apply herbicides, and only where their use is essential. Certificates of competence shall be inspected before application is allowed and a record of application made in accordance with the Control of Pesticides Regulations 1986. Where herbicide use is essential a glyphosate herbicide, suitable for use in or near watercourses and approved by NRW, shall be used.

Control of Substances Hazardous to Health (COSHH)

4.2.15 A COSHH store will be set up in the site compound. COSHH assessments and Material Safety Data Sheets shall be held with the COSHH materials. A COSHH register shall be created and maintained on site.

4.2.16 All site personnel and subcontractors will be made aware of the COSHH requirements through site inductions and specific tool box talks. Daily site inspections will be used to review and monitor the storage and issue of materials.

4.3 LANDSCAPE & REINSTATEMENT PLAN

4.3.1 This section outlines the minimum contents of the Landscape and Reinstatement Plan as a draft has not yet been prepared.

4.3.2 Construction work will be carried out in such a way to ensure that, as far as reasonably practicable, disturbance to visual receptors is minimised.

4.3.3 The following measures will be adopted as appropriate within the Landscape & Reinstatement Plan:

- All work will be in accordance with the mitigation measures reported in Chapter 6 Landscape Character & Visual Amenity of the ES (Doc. ref: 6.02) and summarised in the Schedule of Mitigation (Doc ref: SPH_GREX_DCOD5_01);
- Good housekeeping measures identified in section 3 will minimise unsightly waste and secure storage will be provided for materials at risk from displacement by wind;
- Temporary stockpiles will be located in defined storage areas, away from sensitive visual receptors;
- No advertisements or fly posting will be permitted on any fence and all graffiti etc. will be removed and made good as soon as reasonably practicable;
- All boundary fences will be maintained in a neat and tidy condition;
- Any temporary fencing will be removed as soon as reasonably practicable after completion of the works; and
- Temporary lighting will be selected and sited so as to minimise visual intrusion to Waunfawr, whilst maintaining the safe and efficient operation of the work site. At night and during periods of darkness, directional security lighting will be used.

4.3.4 Further to liaison with NRW during the Examination period, it has been agreed that due to the scale of the Development, an Outline Landscape & Reinstatement Plan will be submitted for the whole site, followed by a Detailed Landscape & Reinstatement Plans for different areas of the site or phases as construction progresses.

4.3.5 The Outline Landscape & Reinstatement Plan will be prepared and submitted to Gwynedd Council, CADW and NRW for approval prior to construction commencing, when work is appointed with the selected PC. This will include, but not be limited to, the following:

- A schedule of landscape reinstatement performance objectives;
- Associated landscape works;

- Planting, reinstatement and maintenance requirements;
- Phasing of any construction operations, indicating the landscape reinstatement work associated with each phase and timescale for implementation;
- An outline management plan for the lifetime of the development;
- Areas of advance landscape works which can be implemented to bring about the integration of the development at the earliest possible stage;
- The employment of a landscape architect to advise and monitor the implementation of the landscape works and remedy any failures to the agreed reinstatement works.

4.3.6 The following should also be considered:

- Before any development commences a landscaping and tree planting scheme shall be submitted for approval to Gwynedd Council. This is to include indications of all existing trees and hedgerows on the land and details of any to be retained alongside measures for the protection throughout the course of the Development.
- Planting, seeding or turfing included in the approved details of the landscape plan shall be carried out in the first planting and seeding seasons following the occupation of the buildings or the completion of the development, whichever occurs sooner.
- Any trees or plants which, within a period of 5 years from the completion of the development die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species, unless Gwynedd Council gives written consent to any variation.
- Newly landscaped dam surfaces and new slate tip areas will be formed in accordance with best practice guidance to help create a diversity of landforms to favour the colonisation and establishment of a diverse range of plants and animals.
- Opportunities for enhancement will be identified.

4.3.7 Where the site development is proposed to be phased, a Detailed Landscape Reinstatement Plan for that area and timescale for implementation is to be submitted to the relevant Planning Authority for its approval in advance of work commencing. This plan is to include detailed proposals and specifications and any variations to the outline plan, in response to site factors such as ground conditions and knowledge gained.

4.4 EMERGENCY RESPONSE & FLOOD RISK MANAGEMENT PLAN

4.4.1 An Emergency Response and Flood Management Plan (ERFRMP) will be prepared by the appointed PC for approval of the relevant planning authority in consultation with NRW under Requirement 6 of the DCO.

4.4.2 The ERFRMP will detail the actions to be taken to prevent and manage a flood incident, and will follow guidance published by NRW. Its objectives will likely be as follows:

- Raise awareness of the risks of flooding associated with the proposed development.
- Detail the flood warning and estimated lead times where possible.
- Detail how the Plan is triggered, by who and when.
- Define any areas of responsibility for those participating in the Plan.
- Describe what actions are required by any personnel present at the proposed development.
- Establish a safe route to a safe location, and outline the evacuation procedure.
- Establish procedures for implementing the Plan and the way it will be monitored.

4.4.3 In the incidence of a flood event, the ERFRMP will be implemented in conjunction with the Water Management Plan's incident and emergency response procedures.

4.4.4 All construction works will be undertaken in accordance with the Control of Major Accident Hazard Regulations (COMAH Regs).

4.4.5 All construction areas and associated accommodation and welfare facilities will have in place appropriate plans and management controls to prevent fires. The site fire plans will be prepared, regularly reviewed, and updated as necessary, and will have due regard to the following documents:

- Fire Prevention on Construction Sites (Joint Code of Practice on the Protection from Fire of Construction Sites & Buildings Undergoing Renovation); and
- Fire Safety in Construction Work (HSG 168).

4.4.6 A project emergency plan will be developed by the PC, providing telephone contact details for the emergency services, local authorities, and maps showing the location of local hospitals. The project emergency plan will be displayed within the construction areas and will form part of the site induction.

4.5 WASTE MANAGEMENT PLAN

4.5.1 The WMP will be finalised and approved prior to construction commencing as per the DCO Requirement 6. All work will be in accordance with the mitigation measures reported in the ES (Doc Ref: 6.02).

4.5.2 Waste will be generated during the construction phase and this is likely to include:

- Topsoil and subsoil;
- Excess concrete, mortar and grout;
- Wood off cuts and used wood (crates and concrete formwork);
- Bricks, pavers and concrete block off cuts;
- Roofing materials;
- Metal including steel reinforcement off cuts;
- Plastic wrapping and packaging;
- Paper;
- Delivered material bags, wrappings and coverings; and
- Miscellaneous materials.

4.5.3 The PC will undertake material resource management to minimise waste creation. All waste will be managed according to the Waste Hierarchy:

- Reduce;
- Reuse;
- Recycle;
- Recover; and
- Dispose.

4.5.4 General waste will be collected, segregated and stored temporarily in covered skips and disposed of offsite.

4.5.5 The WMP will set the framework for the management of wastes generated during the construction process. It will document the commitments made during the planning and design stages to minimise waste and set objectives and targets for the main waste types. It will also identify the following:

- Responsibilities of individuals within the construction team for waste management;
- Identification of Waste Representatives to manage waste streams;
- The types of waste, their classification and the quantities likely to be generated;
- Measures to be adopted during construction to minimise waste generation;
- Opportunities for recycling and/or reuse;
- Monitoring systems to be implemented for wastes removed from the site for reuse or disposal;
- Proposed Waste Carriers together with copies and verifications of their Waste Carrier Licences (Upper Tier);
- Proposed treatment and disposal sites, together with copies and verifications of their Environmental Permits;
- Methods proposed for recording Waste Transfer Notes and maintaining the Waste Log; and

- Identification of any Hazardous Waste streams to be disposed of separately and the method for recording Hazardous Waste Consignment Notes.
- 4.5.6 The Applicant and the PC shall ensure that all wastes are stored and managed in accordance with the duty of care under the Environmental Protection Act 1990 and in accordance with the 'Waste Management – A Duty of Care – A Code of Practice'. In particular, care shall be taken to identify and segregate Hazardous Wastes.
- 4.5.7 Some of the equipment delivered to the site will be packaged. The PC will be responsible for the removal and disposal of all packaging and other waste materials that arise during construction and commissioning.
- 4.5.8 Waste collected from the Order Limits shall be stored prior to disposal. The Applicant and the PC shall ensure that all wastes are stored in accordance with the duty of care. In particular, care shall be taken to identify and segregate waste.
- 4.5.9 Good programming of the construction process will help to ensure that all raw materials likely to be used on site are considered in advance of ordering and delivery to the site. This will minimise waste from weather-spoiling or perishable goods.
- 4.5.10 Subject to geotechnical testing, all excavated materials will be re-used on site wherever possible and any contaminated material requiring remediation will be treated onsite as a preference. Slate waste will be reused wherever possible in dam construction, and excess spoil mounds will be landscaped to encourage natural colonisation of vegetation. However, if it is not possible to reuse materials on site, an appropriately licensed waste disposal facility will be used and waste will be disposed of in accordance with the WMP.
- 4.5.11 Where it is not possible to dispose of waste onsite, a licensed off-site waste disposal facility will be used and waste will be disposed of at a licensed facility and in accordance with the WMP, which may also include the following:

- The waste carrier registration certificates of all contractors and sub-contractors used to carry waste shall be checked with NRW;
- The waste management licenses of the receiving site shall also be checked with NRW; and
- A periodic check to see that waste is disposed of at the site listed on the Controlled Waste Transfer Notes shall be made.

Slate Waste

4.5.12 Slate excavated from Q1 and Q6 will be used in dam construction and tracks and excess spoil mounds will be landscaped to encourage natural re-colonisation of vegetation.

Organic Waste

4.5.13 The waste wood and foliage material resulting from the removal of trees will be managed in-line with the Waste Hierarchy as detailed within the Waste Framework Directive, thus helping to minimise potential environmental issues pertaining to this process.

4.5.14 Wherever feasible, the generation of tree and foliage waste will be prevented and these features will be retained in-situ, especially as the Development site has blanket and individual Tree Preservation Orders (TPOs).

4.5.15 However, the retention of trees and foliage will not always be possible; therefore the reuse of material on site will be explored wherever practicable, with wood material either reused in construction, or within landscaping aspects such as the use of wood chippings, or as mulch to enhance soil quality to aid the re-planting of trees.

4.5.16 Should this not prove to be a viable option for all generated material, then excess wood waste will be stored under cover, such as tarpaulin, to protect wood from the weather so that it may be re-used wherever possible off-site e.g. as carpentry material or offered to the local community for fire wood and biomass.

4.5.17 Attention will also be paid to the proximity principle, with local uses for waste materials considered where this represents the best practicable

environmental option. For all material that cannot be re-used on or off site, or recycled, then elements of the wood and foliage material can be converted into wood-chip. By following this process, it will be possible to limit the volume of tree and foliage waste sent for disposal as far as practicably possible.

- 4.5.18 Any topsoil or subsoil generated will remain onsite to be reused for any landscaping.

Site Waste Management Plan

- 4.5.19 Site Waste Management Plans are currently not compulsory but are considered to be best practice to ensure that waste is appropriately dealt with. Responses received during scoping consultation from the Secretary of State also request that the CoCP include a Waste Management Plan (WMP). Therefore a WMP will be developed and the principles of the waste hierarchy will be followed on site, to reduce the amount of waste generated, recycle/reuse as much material as possible and recover all suitable material/energy. The design of the Development and specification of materials will aim to avoid the generation of waste. Waste for disposal will, however, be generated on site and the final disposal option for this waste will be decided following the best practicable environmental option.

4.6 HABITAT MANAGEMENT PLAN

- 4.6.1 Construction works will be carried out in such a way as to ensure that disturbance to any nearby ecologically sensitive areas is minimised and that appropriate measures are adopted to avoid impacts on protected species in accordance with relevant good practice and statutory requirements.
- 4.6.2 During construction, the potential impacts identified include the risk of siltation, pollution incidents, the potential for disturbance of protected species and the potential to damage lake bed habitats. This is covered in the WTMP.
- 4.6.3 Where topsoil is removed, it will be stored on site in preparation for habitat restoration in accordance with practical guidance set out in Section 2 of

Restoring Habitats of High Conservation Value after Quarrying (Williamson et al).

Trees & Vegetation

- 4.6.4 The Habitat Management Plan (HMP) will require a Tree Survey and Protection Plan to be undertaken. This will include details of where the Development will potentially affect existing trees and vegetation. This may include the installation of the spillway infrastructure at Llyn Padarn or the establishment of temporary construction compounds or acoustic bunds.
- 4.6.5 A Tree Survey will determine the type, condition and value of the trees and vegetation to be affected and will quantify the potential tree loss within the working areas of the Development.
- 4.6.6 The Tree Survey will also identify any interim mitigation which may be required. This may be fencing to avoid trees and vegetation, pruning and trimming of branches or removal of the trees and vegetation. This will be undertaken by a suitably qualified Arboriculturist who will also monitor any works during the period of development if not already observed by a Clerk of Works.
- 4.6.7 Other measures include the protection of trees / avoidance of damage to trees which are subject of Tree Prevention Order Number 3/TPO/A30.
- 4.6.8 Subsequent replacement planting of any trees and vegetation removed will be part of the Landscape & Reinstatement Plan, which will be informed by the Tree Survey to ensure that replacement trees and vegetation are of an equal value to those lost, or whether management of existing trees and vegetation can also provide benefits.
- 4.6.9 Any opportunities for enhancement will be identified.
- 4.6.10 The results of the Tree Survey will be agreed with Gwynedd Council in consultation with NRW.

Bat Mitigation

- 4.6.11 To protect the known bat roosting locations a bat mitigation strategy has been submitted and approved by NRW. The mitigation will be completed prior to construction. This will likely include, but is not limited to:

- Fencing around adits to limit human disturbance;
- Grilling, using an approved horizontal bar bat grille to protect the site;
- The interface between tunnels T13 and T14 between Q6 and Q7 is a potential risk area as the former munitions store and Q7 area have good levels of bat activity. The tunnels T13 and T14 appear to be separated by a collapse although the true extent of this separation is not known. Measures will be taken to ensure that tunnel T13 is sealed to protect water ingress into tunnel T14 from the new reservoir at Q6 to create a long term durable barrier.

4.6.12 A number of the tunnels/adits where low levels of bat use was recorded will also be made more suitable for bats. Measures likely to include:

- Building low bunds to increase water levels close to the entrances (which increase internal humidity and stabilises temperature); and
- Building block walls to slow down air flow and to create a wider range of temperature pockets for bats to utilise.

4.6.13 To prevent any inhibition of bat movements through the site, illumination during the hours of darkness will be avoided.

Lichens

4.6.14 Slabs of slate or fence posts inhabited by rare or notable lichen will be translocated to areas with similar conditions.

Reptiles

4.6.15 Reptile surveys undertaken for the Development identified a small number of common lizard and slow worms. As per the T&CPA conditions, a Reptile Method Statement will be prepared to contain the following as a minimum:

- Details of areas which have the potential to support reptiles;
- Identification of areas suitable for supporting reptiles that will require construction works access or removal, and areas suitable for supporting reptiles to be retained;
- Details on managing risk in these areas : e.g. inclusion of fencing to prevent incursion by vehicles and people, and/or the requirement for

vegetation management if habitat removal or construction works access are required;

- Details of vegetation management methodology, e.g. staged cuts, timings, ecological supervision, removal of refugia, safely moving reptiles from areas of habitat to be removed to areas to be retained on site; and,
- Protocols for site staff if reptiles are encountered, e.g. stop works, contact a named ecologist or contact the on-site Ecological Clerk of Works.

Pre- Construction Ecology Surveys

4.6.16 The following pre-construction surveys will be undertaken prior to the commencement of the pumping station and spillway infrastructure:

- Otter – a survey will be undertaken along the shoreline of Llyn Padarn 100m either side of the point of entry in to Llyn Padarn. If shelters or laying up points are identified, mitigation measures and / or an European Protected Species Licence may be required;
- Water vole – a walkover survey of the shoreline of Llyn Padarn will be undertaken within 100m of the point of entry into Llyn Padarn by the spillway infrastructure for any newly established burrows
- Arctic Char - should the Arctic Char spawning period be at the same time as the construction of the spillway infrastructure, surveys will be undertaken to ascertain if any spawning areas are present;
- Red squirrels – any trees which are to be removed near Llyn Padarn are to surveyed for dreys;

4.6.17 Fish surveys have also been undertaken in both quarries to determine the presence of any species – no fish were recorded in Q1 and a very small population of sticklebacks and a single eel were recorded in Q6. Therefore, it is not proposed to undertake further fish surveys, but fish rescue will be undertaken as the water level is drawn down as part of the dewatering process.

4.6.18 A badger survey will be undertaken within 100m of the Order Limits. Due to the mobile nature of the species and a record of an active sett within the

Order Limits, a walkover survey shall be conducted to identify any new setts.

4.6.19 Other specific measures to be employed throughout construction include:

- All work will be undertaken in accordance with the mitigation measures reported in the ES and summarised in the Schedule of Mitigation (Doc. Ref: SPH_GREX_DCOD5_01);
- All reasonably practicable measures will be employed to minimise harm to, and disturbance of, wildlife caused by noise and vibration, dust, surface water runoff, waste and pollution. This may include avoidance of certain activities during sensitive times of the year such as breeding and nesting bird season;
- Regular environmental inspections, incorporating biodiversity, will be undertaken to check that detrimental impacts on ecological features are being minimised; and

4.6.20 A HMP will be finalised as per the DCO Requirement 6 by the appointed PC.

4.7 BREEDING BIRD METHOD STATEMENT

4.7.1 A Method Statement will be prepared as part of the CoCP detailing that all works will be controlled and monitored during the bird breeding period to avoid disturbing bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). This Method Statement will be agreed with Gwynedd Council in consultation with NRW prior to commencement of any works in line with Requirement 6.

5 MONITORING AND AUDITING

5.1 INTRODUCTION

5.1.1 Monitoring of the environmental effects and inspections during construction enable the effectiveness of environmental mitigation to be evaluated and also allow unforeseen environmental problems to be identified and responded to at an early stage. Monitoring and inspections/audits may also help the Applicant and the PC to identify and implement environmental enhancement and improvements, which may contribute to the overall environmental performance of the project.

5.2 INSPECTIONS AND AUDITS

5.2.1 The PC will undertake a programme of weekly environmental inspections and monthly environmental audits to record performance and identify any corrective actions required.

5.2.2 Provision will be made to carry out appropriate environmental inspections and monitoring of the PC's environmental performance in the form of monthly audits. Formal audits will be against an audit checklist which will provide a mechanism to monitor and assess compliance against DCO requirements, legislative standards, licence conditions and any other provisions agreed with statutory undertakers.

5.2.3 Where problems are identified, corrective actions will be identified by the Project Environmental Manager and PC and will be implemented by the PC within a defined time frame.

5.2.4 The Environmental Manager / ECoW will inform the Project Manager of any work that they feel should be stopped in order to avoid an unacceptable impact on the environment, in particular a breach of environmental legislation.

5.3 ENVIRONMENTAL MONITORING

5.3.1 Monitoring of specific environmental parameters will be carried out as necessary and requirements for environmental monitoring will be reviewed as further consents and licences are received and consultations completed.

5.3.2 Table 5.1 presents the key parameters that may require environmental monitoring.

Table 5.1: Environmental monitoring and the relevant securing mechanism in the Draft DCO.		
Topic	Environmental Monitoring	Securing Mechanism
Water	<p>To monitor any variation in the water quality and quantity of abstractions from and discharges to Llyn Padarn and the potential impact of these operations on Llyn Padarn, a water quality monitoring programme will be established in conjunction with NRW. The programme will monitor water quality in Llyn Padarn and the reservoirs during abstraction in order to prevent uptake of nutrient-rich waters.</p> <p>Water temperature will also be monitored in the pumping station to ensure that it is within local natural tolerances.</p>	<p>As secured by the WTMP required under requirements 6 of the Draft DCO.</p> <p>Controlled by the Discharge consent issued by NRW if appropriate.</p>
Waste	<p>As part of the Waste Management Plan, waste generated within the construction areas shall be monitored as part of its classification to ensure the appropriate treatment, handling, management and disposal measures are applied. Records will be kept of quantities and types of waste handled, in accordance with company and client procedures</p>	<p>As secured by the WMP required under requirement 6 of the Draft DCO.</p>
Noise	<p>Before construction starts, noise-sensitive locations shall be identified and pre-construction monitoring undertaken to re-assess the baseline noise environment. This will allow for appropriate mitigation measures put in place. Monitoring will then be undertaken during construction to ensure compliance with the stated noise limits identified in Chapter 13 of the ES.</p> <p>A blast monitoring scheme for air overpressure and vibration is recommended to be implemented.</p> <p>All blasts at the site should be monitored and records maintained so that the historical peak particle velocity from blasts can be produced as required.</p>	<p>As secured by the CNMP required under requirement 6 of the Draft DCO.</p>
Traffic	<p>Regular monitoring shall ensure the CTMP is being followed and shall enable possible refinements or alterations to be made as appropriate</p>	<p>As secured by the CTMP required under requirement 6 of the Draft</p>

Table 5.1: Environmental monitoring and the relevant securing mechanism in the Draft DCO.

Topic	Environmental Monitoring	Securing Mechanism
		DCO.
Dust	An adequate and appropriate monitoring programme, including periodic checks and continuous monitoring shall ensure the DMP is being followed and shall enable possible refinements or alterations to be made as appropriate.	As secured by the DCAQMP required under requirement 6 of the Draft DCO.
Air Quality	A specification for baseline air quality monitoring will be prepared	As secured by the Air Quality Baseline Monitoring Plan required under requirement 7 of the Draft DCO.
Ecology	Any confirmed protected species presence will be monitored by an Ecological Clerk of Works to mitigate the likelihood and extent of disturbance.	As secured by the HMP required under requirement 6 of the Draft DCO.

5.4 ENVIRONMENTAL INCIDENT AND CORRECTIVE ACTION REPORTING

5.4.1 All environmental incidents and near misses shall be reported and investigated by the PC, reporting to the Applicant. Incidents will be recorded and those that, in the judgement of the Environmental Project Manager, are deemed significant, will be reported to the Project Manger as soon as possible who shall inform the Applicant. Where relevant, the appropriate statutory authority (e.g. NRW or Gwynedd Council Public Protection) shall be informed immediately. Copies of incident investigation reports shall be supplied by the PC to the Applicant and action taken to prevent recurrence.

5.4.2 All corrective action, incident and near miss report forms shall be held in a register maintained at the construction site office base.

5.4.3 Any incident that may result in an environmental impact, will be reported immediately to the following incident numbers, together with details of date, time, location, type, potential impact and person calling:

- NRW - 24 hour hotline 0800 80 70 60
- Gwynedd Council – Public Protection 01766 771000

5.5 NUISANCE MANAGEMENT

5.5.1 As outlined in the Statement in Respect of Statutory Nuisance (Document 5.02) it is considered that nuisance as a result of dust, noise or vibration is unlikely to arise due to the implementation of the DCAQMP, CNMP and overall CoCP. The Statement does however, outline the procedure to be followed should a nuisance complaint be made or an event occur.