

# Glyn Rhonwy Pumped Storage Development Consent Order

## Deadline 6 – Schedule of Mitigation

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<b>Author</b>	AECOM	
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# SUMMARY

## **1.1 Introduction**

1.1.1 This document provides a schedule of mitigation for all mitigation measures which have been identified in the Environmental Statement for the Development, and are incorporated within the overarching Code of Construction Practice (CoCP) and all other topic-specific Management Plans.

1.1.2 The Schedule was originally included as Chapter 18 Summary of Mitigation within the ES and was subsequently revised at the request of the ExA at Deadline 2 for the First Written Questions (Question 2.26). This Schedule also now includes the hierarchy of mitigation as also requested at Deadline 2 (under Question 2.28 of the Ex A First Written Questions) to provide a comprehensive record of the mitigation measures required in each environmental discipline, their respective Management Plan or Requirement, the method in which they are secured and the responsibility for implementation and compliance.

1.1.3 Where a detailed technical information is provided as part of the mitigation measure, this has been summarised and the relevant paragraph or section reference provided.

## **1.2 Mitigation Hierarchy**

1.2.1 Figure 1 provides an illustrative diagram of the various Management Plans, their status and the inter-relationships between each document.

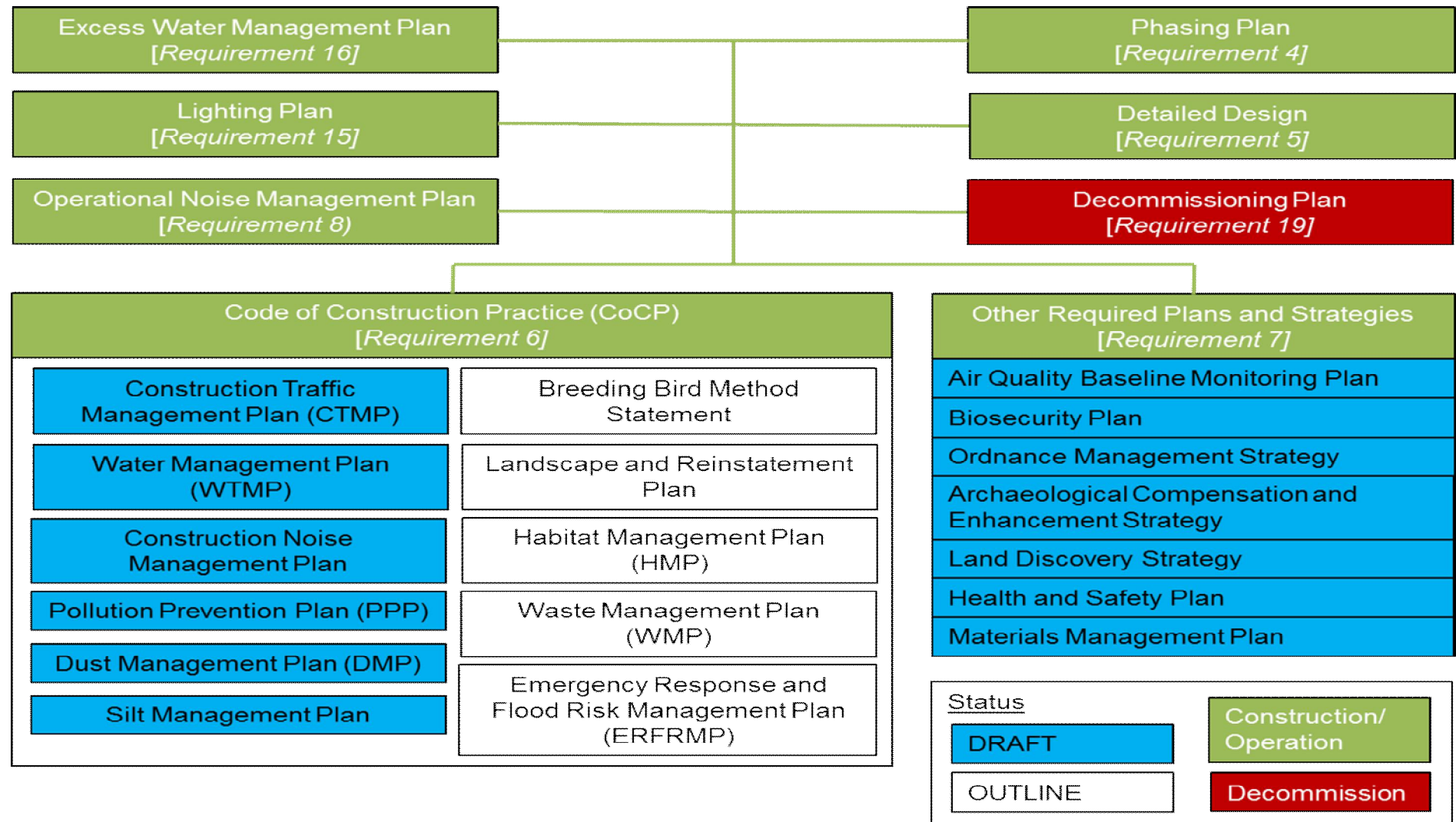
1.2.2 Table 1 details each of the plans outlining their status, content and responsible parties.

## **1.3 Mitigation Schedule**

1.3.1 Tables 2-4 collate the mitigation measures outlined in the ES and have been separated into construction, operation and decommissioning phases. These tables show the corresponding reference to the ES, the relevant

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Management Plan(s) and the ir document reference, how they are to be secured and also cross-referencing the responsibility from Table 1 for completeness.



**Figure 1 – Mitigation Hierarchy**

Table 1 – Status and Responsibility of Mitigation						
Management Plan Title	Document Reference	Details	Status	Responsibility		
				Preparation	Approval	Delivery
CoCP	SPH_GREX_DC0D2_03 (Rev.3)	<p>A Draft CoCP was submitted with the DCO application. The draft CoCP sets out the various roles and responsibilities on site, training requirements and broadly how the construction works would be managed to deal with discharges to surface water and groundwater bodies, the management of suspended sediment, pollution prevention and emergency response, the storage and use of fuel, lubricants and any other potentially polluting substance on site, and the overall approach to monitoring.</p> <p>The final CoCP is secured in Requirement 6 consistent with the principles established in the Outline CoCP, the final CoCP will include the following plans:</p> <ul style="list-style-type: none"> <li>(a) water management plan;</li> <li>(b) pollution prevention plan;</li> <li>(c) a construction traffic management plan;</li> <li>(d) dust management plan;</li> <li>(e) landscape and reinstatement plan;</li> <li>(f) noise management plan;</li> <li>(g) emergency response and flood risk management plan;</li> <li>(h) waste management plan;</li> <li>(i) habitat management plan;</li> <li>(j) breeding bird method statement; and</li> <li>(k) silt management plan.</li> </ul>	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor
Water Management Plan( WTMP)	SPH_GREX_DC0D3_02 (Rev.2)	A Draft WTMP has been drafted and included within the CoCP. This plan details of the surface and foul water drainage system, including means of pollution control.	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor
Pollution Prevention Plan (PPP)	SPH_GREX_DC0D2_03 (Rev.3)	A Draft PPP has been submitted as part of the CoCP. This will include agreed emergency procedures in the event of a pollution incident.	Outline in CoCP – Section 4.2	The Applicant	Gwynedd Council and NRW	Principal Contractor
Construction Traffic Management Plan (CTMP)	SPH_GREX_DC0D3_07 (Rev.2)	A Draft CTMP has been submitted as appended to the CoCP and includes written details of the preferred route to be used by construction traffic, any traffic management required and any restrictions to be imposed.	Draft	The Applicant	Highway Authority, Gwynedd Council and NRW	Principal Contractor
Emergency Response and Flood Risk Management Plan (ERFRMP)	SPH_GREX_DC0D2_03 (Rev.3)	The Emergency Response and Flood Risk Management Plan will include details of the emergency response to ensure adequate safety and response procedures are in place.	Outline in CoCP – Section 4.4	The Applicant	Gwynedd Council and NRW	Principal Contractor
Construction Noise	SPH_GREX_DC0D5_04	The Construction Noise Management Plan (CNMP), required by	Draft	The Applicant	Gwynedd Council and	Principal



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Management Plan Title	Document Reference	Details	Status	Responsibility		
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Management Plan		Requirement 6, will include: (a) the methodology to establish the baseline position; (b) construction times; (c) construction noise and vibration limits; (d) a piling construction statement; (e) a construction traffic assessment; (f) mitigation including community liaison; and (g) details of the mechanisms by which failures of noise controls will be investigated and appropriate mitigation or remedial works will be implemented.			NRW	Contractor
Operational Noise Management Plan	SPH_GREX_DC0D5_05	The operational noise management plan will include: (a) the methodology to establish the baseline position; (b) an operational noise assessment including low frequency noise and groundborne noise and vibration; (c) the agreed operational noise limits; (d) mitigation measures; and (e) details of the mechanisms by which failures of noise controls / complaints will be investigated and appropriate mitigation or remedial works will be implemented.	Draft	Operator	Gwynedd Council and NRW	Operator
Landscape and Reinstatement Plan	SPH_GREX_DC0D2_03 (Rev.3)	A Landscape and Reinstatement Plan will be prepared for Requirement 6 and prior to commencement of works which will outline all of the landscaping mitigation measures.	Outline in CoCP – Section 4.3	The Applicant	Gwynedd Council and NRW	Principal Contractor / Operator
Habitat Management Plan (HMP)	SPH_GREX_DC0D2_03 (Rev.3)	Requirement 6 requires a HMP to be submitted to and approved by Gwynedd Council and NRW in writing as part of the CoCP prior to the commencement of construction.	Outline in CoCP – Section 4.6	The Applicant	Gwynedd Council and NRW	Principal Contractor
Silt Management Plan	SPH_GREX_DC0D3_03 (Rev.1)	A Silt Management Plan will be produced under Requirement 6 and included within the CoCP to detail the control of silt and how water pollution will be minimised.	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor
Breeding Birds Method Statement	SPH_GREX_DC0D2_03 (Rev.3)	A Breeding Birds Method Statement will be produced under Requirement 6. The statement will include works which may have an impact on breeding birds.	Outline in CoCP – Section 4.7	The Applicant	Gwynedd Council and NRW	Principal Contractor
Waste Management Plan (WMP)	SPH_GREX_DC0D2_03 (Rev.3)	A Waste Management Plan will be produced under Requirement 6. This will set out how resources will be managed and waste controlled at all stages during the project.	Outline in CoCP – Section 4.5	The Applicant	Gwynedd Council and NRW	Principal Contractor
Materials Management Plan	SPH_GREX_DC0D5_07	A Materials Management Plan will be produced under Requirement 7. This will detail how all materials (material resources and waste) will be managed, will be developed and implemented by the Principal Contractor.	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor

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Dust and Air Quality Management Plan (DMP)	SPH_GREX_DC0D5_03	A DMP, required under Requirement 6, will include details of the means by which failures of dust controls will be investigated and appropriate mitigation or remedial works will be implemented.	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor
Air Quality Baseline Monitoring Plan	SPH_GREX_DC0D5_02	The air quality baseline monitoring plan will be prepared as required by Requirement 7 contain details of an air quality monitoring scheme including (a) The locations at which monitoring will take place; (b) The monitoring equipment and methods to be used; (c) The frequency and duration of monitoring; (d) The procedure for reporting the result of the monitoring; and (e) An environmental complaints procedure.	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor
Archaeological compensation and enhancement strategy	SPH_GREX_DC0D5_09	The Archaeological Compensation and Enhancement Strategy will be prepared as required by Requirement 7 and shall include an outline written scheme for the investigation of areas of archaeological interest.	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor
Health and Safety Plan	SPH_GREX_DC0D5_10	A Health and Safety Plan (HASP) will be required by Requirement 7 and will include details of good practice methods of reducing dust emissions and wheel washing facilities.	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor
Land discovery strategy	SPH_GREX_DC0D5_08	A Land Discovery Strategy Plan will be submitted to with the contamination of any land, including groundwater, which is likely to cause harm to persons, the environment or pollution of controlled waters; and the land discovery plan will include an investigation and risk assessment report.	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor
Ordnance Management Strategy	SPH-GREX_DC0D4_01 (Rev.1)	The UXO facility location, disposal methodology and any associated noise effects will be finalised as part of the DCO agreements and will be managed in line procedures to be documented in the Ordnance Management Strategy.	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor
Biosecurity Plan	SPH_GREX_DC0D3_05 (Rev.1)	A Bio Security Plan will be produced under Requirement 7. This will include the presence of Nuttall's pondweed within Llyn Padarn. The information will be included in the toolbox talk prior to works commencing within Llyn Padarn to make contractor aware of its' location to help prevent disturbance and/or spread of the species.	Draft	The Applicant	Gwynedd Council and NRW	Principal Contractor / Operator
Excess Water Management Plan	SPH_GREX_DC0D3_04 (Rev.2)	Requirement 16 requires that prior to the operation of the authorised development for the generation of electricity the excess water management strategy shall be submitted to and approved in writing by the relevant planning authority.	Draft	The Applicant	Gwynedd Council and NRW	Operator
Lighting Plan	TBC	Draft DCO Requirement 15 stipulates that a lighting plan should be produced to give written details of all external lighting to be	TBC	The Applicant	Gwynedd Council and	Principal Contractor/



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		installed and must include details of the direction and levels of lighting.			NRW	Operator
Phasing Plan	TBC	Requirement 4 requires the phasing plan shall include timescales for the reinstatement or restoration of temporary construction compounds in line with the provisions of the landscape plan.	TBC	The Applicant	Gwynedd Council	Principal Contractor
Detailed Design	TBC	Requirement 5 requires the detailed design will include scaled drawings of the Development. This will include the final layout, design, external appearance, dimensions and floor levels of all permanent buildings and above ground and below ground structures; as well as information on the colour, materials and surface finishes of all permanent buildings and above ground structures. A detailed description and assessment of the noise attenuation and mitigation measures relating to the turbine hall to be constructed and the turbines to be installed will also be included.	TBC	The Applicant	Gwynedd Council and NRW	Principal Contractor
Decommissioning Plan	TBC	Draft DCO Requirement 19 stipulates that, at the end of commercial operations of the onshore works, a scheme for the demolition and removal of works must be submitted to the relevant planning authority for approval.	TBC	The Applicant	Gwynedd Council and NRW	Operator

Table 2 Construction Schedule of Mitigation				
Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
<b>General Environmental Management Principles and Responsibility</b>				
1	An Environmental Manager/ Ecological Clerk of Works (EcoW) will be appointed to the Development to assist the Project Manager and the role may be filled by more than one person. The Environmental Manager / ECoW will be responsible for regular reporting of all management plans and mitigation measures in order to demonstrate compliance with the DCO Requirements as discharged; they 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.	16.3	Requirement 6	CoCP (section 3)
2	An Environmental Liaison Officer (ELO) will be appointed to act as the main point of contact between the PC, the Applicant, regulators and 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. The ELO will be responsible for chairing the Environmental Liaison Group. The ELO will determine which residents, businesses and community groups are to be consulted with regarding works, PRoW closures and specific construction events such as blasting; and devise a consultation strategy to adequately notify these bodies about the works programme to enable disruption to be minimised.	n/a	Requirement 6	CoCP (section 3)
3	A range of training and awareness initiatives will be employed to promote and administer a strong environmental culture in employees and support staff	16.4.10	Requirement 6	CoCP (section 4)
4	The PC will undertake a programme of weekly environmental inspections and monthly environmental audits to record performance and identify any corrective actions required. Formal monthly 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. 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.	16.4.5	Requirement 6	CoCP (section 5)
5	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. Peak times of use, such as summer school holidays, will be avoided.		Requirements 4 (Phasing Plan) and 6 (CoCP)	Phasing Plan CoCP
6	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 Questionnaire 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.		Requirement 6	CoCP
<b>Pollution Prevention</b>				
7	All works associated with the construction of the Development will be undertaken with due regard to the guidance contained within CIRIA Document C650 "Environmental Good Practice on Site" and the following NRW Pollution Prevention Guidelines (PPGs): <ul style="list-style-type: none"> <li>• PPG01: Understanding Your Environmental Responsibilities;</li> <li>• PPG02 - Above Ground Oil Storage Tanks;</li> <li>• PPG03 - Choosing and using oil separators: prevent pollution ;</li> <li>• PPG05 - Works in, near or over watercourses; prevent pollution;</li> <li>• PPG06 – Construction and demolition sites: prevent pollution ;</li> <li>• PPG07 - Safe Operation of Refuelling Facilities;</li> <li>• PPG08 - Safe Storage and Disposal of Used Oils; and,</li> </ul>	9.8.2	Requirement 6	WTMP PPP

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Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
	<ul style="list-style-type: none"> <li>PPG21 - Incident Response Planning</li> </ul>			
8	<p>Prevention of the potential pollution to the surrounding environment and the health of construction staff and the public due to spillage of potential contaminants will be minimised by training. Emergency procedures to be implemented in the event of a spillage or leakage of any polluting material such as fuel, oil or silt-laden drainage, will be in place on-site and incorporated into the PPP, WTMP, SMP and CoCP. Oil spill kits and “emergency grab packs” will be provided on site and oil or similar material will be cleaned away immediately using appropriate absorbent material to prevent it entering any local watercourse.</p> <p>On-site toilet facilities will be provided for construction staff. Where necessary any foul drainage generated will be collected in a septic tank and appropriately disposed of off-site.</p> <p>Prevention or potential pollution of materials leaking from static plant will be minimised by being placed on drip trays wherever practicable. All plant and machinery prior to entry onto site shall be thoroughly inspected for leaks of fuel, hydraulic fluid and engine oil. Any item of plant deemed to be a possible pollution threat shall not be granted access onto site.</p> <p>All mobile plant shall be checked, maintained and operated such that all potential leaks and spills of fuel / lubricants shall be absolutely minimised. All plant operators shall be charged with carrying out a daily maintenance check on their allocated item of plant.</p> <p>Plant maintenance shall only be carried out with a drip tray under the work area and with spill kit equipment to hand.</p> <p>The Emergency Procedure for Spills will be outlined in the PPP and an emergency contact list and spill response flowchart will be displayed on notice boards and on fuel bowsers. Suitably qualified emergency response staff will be employed by the PC in conjunction with other safety or environmental-related incidents as required.</p> <p>To avoid potential pollution effects to soils, vegetation and watercourses from machinery during construction and operation, all refuelling and servicing of vehicles will be carried out within a designated area with an impermeable base, away from any vegetated or aquatic habitats or habitats that are supported by groundwater that have the potential to be damaged or destroyed by fuel spills. No refuelling shall be carried out within 20 m of waterbodies with the exception of refuelling static items of plant absolutely necessary under controlled circumstances. To prevent spillages, refuelling will be carried out by pumping through a trigger delivery nozzle.</p> <p>If concrete is batched on site, appropriate containment, clean-up measures and procedures will be put in place following specific method statements.</p> <p>Facilities for washing plant and equipment contaminated with concrete or other chemicals will be provided away from sensitive receptors such as watercourses or land drains. These wash-out areas will have an impermeable base formed of a suitable geotextile membrane. If on-site batching facilities are required they will be operated under the conditions of the appropriate authorisation.</p> <p>To avoid contamination of the surrounding environment, chemicals, fuels and oils will be stored in secure and designated storage areas. Storage areas will be located on hardstanding areas so as to prevent the possible infiltration of contaminants into the soil. Fuel, oil, drilling fluid and other potential contaminants will be stored within bunded tanks to 110% of the volume stored, drip trays installed and only the minimum quantity required will be stored on site. The designated area will be maintained in a secure and clean manner. Any waste or used drilling fluid will be stored and tanked away off-site as appropriate.</p> <p>Stockpiles of dry materials will be stored in locations that prevent contamination of surface waters and materials will not be stockpiled without appropriate safety and mitigation systems in place. These pollution prevention measures in line with current NRW guidelines are implemented through the PPP, WTMP, SMP and DMP.</p>	9.8.5 - 9.8.10	Requirement 6	PPP WTMP SMP (section 3.5)
9	<p>Land disturbance will be kept to a minimum and disturbed areas will be stabilised as soon as possible after construction. The following additional mitigation measures in accordance with BS6031:1981 “Code of Practice for Earth Works” will be implemented:</p> <ul style="list-style-type: none"> <li>scheduling construction activities to minimise the area and period of time that soil will be exposed, particularly during wetter periods;</li> <li>construction areas will be demarcated from the rest of the site so as to minimise the disturbance of land not required for development;</li> </ul>	9.8.12	Requirement 6	PPP SMP (section 3.5)

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	<ul style="list-style-type: none"> <li>minimising the stockpiling of materials and locating essential stockpiles as far away as possible from watercourses;</li> <li>movement of construction vehicles and plant will be strictly controlled to minimise the potential for soil compaction and erosion;</li> <li>haul roads and local access roads shall be kept free of mud by the use of a road sweeper, and if deemed required by the Principal Contractor, a vehicle wheel wash facility.</li> </ul>			
10	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.		Requirement 6	PPP
Air Quality and Dust Management				
11	<p>The following mitigation measures will be implemented to minimise dust emissions resulting from construction activities:</p> <ul style="list-style-type: none"> <li>Dust-generating activities should, where possible, be located as far away as possible from sensitive receptors and the site boundary and where maximum protection can be obtained from topography, woodland or other sheltering features.</li> <li>Earthworks, excavation and digging activities should be kept damp and, if possible, be avoided during exceptionally dry weather periods. Surfaces should be stabilised and/or re-vegetated as soon as possible to prevent wind-blown dust.</li> <li>Short-term or temporary controls may include water sprays, or surface binding agents, although sheeting, grass seeding or high fences may be more suitable depending on the proposed use of the material. The use of surface binding agents must be approved by the Environment Agency / NRW due to the potential water run-off. The shape of the stockpiles should also be considered, whereby several smaller piles should reduce wind-blown material compared to few, larger piles.</li> <li>During site preparatory works, vegetation and cover should be removed in discrete sections and not all at once.</li> <li>Mobile plant for crushing, screening and grading of materials may require authorisation by the appropriate Local Authority in whose area the operating company's registered office is situated.</li> <li>Blasting should be avoided and other methods used wherever possible. Where blasting is used, it will only be undertaken following communication with stakeholders, such as working within defined working times.</li> <li>Chutes and skips will be enclosed and dropping materials from height will be minimised.</li> <li>Waste material will be removed from site as soon as practically possible.</li> <li>Conveyor belts will be used for semi-permanent haul routes within the site boundary in preference to haulage vehicles. Conveyors should provide screening for the materials being transported and should be well maintained and cleaned to avoid becoming a source of dust. Enclosed or vehicles should be used if vehicles are necessary.</li> <li>The number of handling operations will be kept to a minimum.</li> <li>Bulk cement, bentonite and similar materials will be stored in silos with ventilators fitted with particle filters.</li> <li>Methods and equipment will be in place for immediate clean-up of spillages of dusty or potentially dusty materials.</li> <li>Permanent surfaces will be installed on roads where possible, with regular inspection and maintenance to minimise dust generation from construction traffic.</li> <li>Construction routes should also be located away from residents and other sensitive receptors near the site boundary. Public roads will be cleaned regularly subject to approval from the relevant authorities.</li> <li>Vehicle and wheel washing facilities will be provided at site exits. If necessary, all vehicles should be washed down before leaving the site.</li> <li>Static and mobile plant emissions will be kept to a minimum through regular maintenance, keeping operating time to a minimum,</li> </ul>	14.8.5-14.8.7	Requirement 6	DMP



Table 2 Construction Schedule of Mitigation				
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	<p>appropriate exhaust direction and height as well as location of the plant/equipment.</p> <ul style="list-style-type: none"> <li>Exhaust emissions should not breach statutory emission limits set for the vehicle/equipment type and mode of operation.</li> <li>Measures will also be adopted to minimise the production of black smoke particles from tarmac laying, bitumen surfacing and coating.</li> <li>Where possible, dust generating activities such as cutting will be conducted off-site.</li> <li>Any concrete batching that occurs on site should be done in accordance with Process Guidance Note 3/1 (04) and is regulated under the Environmental Permitting Regulations 2010. Concrete batching will be in accordance with the appropriate permitting regime.</li> </ul> <p>Construction monitoring will be undertaken at the same locations as during the baseline monitoring to assess the effectiveness of the mitigation measures in place.</p>			
12	<p>A specification for baseline air quality monitoring is prepared in the Air Quality Baseline Monitoring Plan.</p> <p>Baseline air quality monitoring will be undertaken for a minimum of 6 months prior to work going ahead in order to capture a range of environmental and weather conditions in the area. A summary report issued at the end of the baseline monitoring will recommend lower and upper action trigger levels that should be adopted by the DMP for use during all future monitoring of air quality, subject to the agreement of technical officers at Gwynedd Council.</p> <p>The upper action trigger levels will be used to assess the efficacy of mitigation measures implemented to avoid significant air quality effects whilst the lower trigger level provides a desirable target for site managers.</p>	14.8.8	Requirement 7	Air Quality Baseline Monitoring Plan
<b>Water Management</b>				
13	<p>To ensure the protection of water resources, temporary measures will ensure controlled management of runoff draining from the construction site. These are outlined in Section 2.2 of the WTMP but can also include:</p> <ul style="list-style-type: none"> <li>The arrangements of such drainage infrastructure will be set out in the detailed design and as appropriate agreed with NRW prior to construction.</li> <li>To minimise the effect on the water quality in the Nant y Betws and the Afon Gwyrfai, measures will be put into place to intercept runoff from the construction site above the watercourses.</li> <li>Where slopes are disturbed by the construction works, temporary drainage measures will be designed to prevent the direct discharge of runoff to watercourses such as buffer strips, earth bunds, silt fences, etc. Temporary drainage grips will also be constructed to convey runoff to lagoons for settlement prior to discharge to surface watercourses. The drainage from the settlement lagoons will be subject to consent / license issued by NRW.</li> <li>Appropriate drainage and discharge licences will be sought from NRW for both temporary and permanent discharges.</li> <li>During the initial site preparation earth works, runoff water will be filtered and attenuated using a combination of sediment traps, settlement ponds, temporary storage areas, silt busters or sediment barriers.</li> <li>Any areas required for the crushing of slate will be located at least 20m away from any watercourse, bunded and any drainage will be linked to settlement lagoons. It is advised that crushing should be operated in accordance with Secretary of State’s Process Guidance Note 3/1 (04) and is regulated under the Environmental Permitting Regulations 2010. Water arising from the tunnelling operations, slate crushing areas, fuel storage and storage of cement/grout and the batching of concrete will have dedicated treatment systems.</li> <li>The edges of haul roads where these cross the Nant-y-Betws either on existing or temporary crossing points shall be protected by straw bales or other suitable measure to direct construction runoff away from the channel.</li> <li>Drainage will be provided at the base of spoil mounds (eg. sediment sumps or catch pits) to help trap any fine particulates that are washed out.</li> <li>Works in and around Llyn Padarn will comply with PPG5 and the CoCP and its associated plans.</li> </ul>	<p>9.8.4 (WTMP)</p> <p>9.8.11 (Temporary measures)</p> <p>9.8.13 (NyB and AG)</p> <p>9.8.14 (Slopes and lagoons)</p> <p>9.8.15 (Tunnelling)</p>	<p>Requirement 5</p> <p>Requirement 6</p> <p>Article 17</p> <p>Discharge of Water of Part 2 of the DCO also provides for this.</p>	<p>WTMP</p> <p>SMP (sections 3.1,3.3, 3.5 and Appendix A)</p>

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	<ul style="list-style-type: none"> <li>Flocculants may also be used but only after consultation with NRW and Gwynedd Council.</li> <li>Undertaken crush and leachate tests prior to the start of construction</li> <li>Earthworks to be undertaken in accordance with BS6031:1980 Code of Practice for Earthworks</li> </ul>			
14	A series of crush tests will be undertaken on slate waste prior to construction starting to determine the likely sediment distribution. Leachet tests will then be performed on this material to determine the total leachable aluminium and 'reactive' aluminium. Depending on the results of the crush and leachate tests, chemical dosing to precipitate aluminium from site runoff from higher risk areas (e.g. areas of slate crushing and potentially spoil heaps during construction) may be required. Should this be required the PC would consult with NRW to determine the need for any new or changes to existing temporary Environmental Permits.		Requirement 6	SMP (Section 3.5)
15	<p>To monitor any variation in the water quality and the potential impact of this operation on Llyn Padarn, Nant y Betws, Afon Gwyrfai and relevant Private Water Supplies (PWSs), a water quality monitoring programme will be established in conjunction with NRW. Monitoring will likely consist of visual monitoring and water quality sampling and analysis.</p> <p>Pre-construction surveys are proposed for Llyn Padarn, Q1 and Q6, Afon Gwyrfai, Nant y Betws and PWSs.</p> <p>The final WTMP will include an Action Plan agreed in advance with NRW that will set out the appropriate actions in the event that monitoring identifies unusual or anomalous results.</p>	9.8.17	Requirement 6	CoCP WTMP SMP (Sections 3.4 and 3.6)
16	<p>Shoreline works will be required to install the pumping station and the spillway pipework which will rest on the bed of Llyn Padarn. The spillway infrastructure will be constructed using an open cut method but within a dry working area within a coffer dam and an outer silt curtain.</p> <p>The silt curtain will be installed so that it completely surrounds the proposed working area and is in place prior to any other construction works commencing in Llyn Padarn.</p> <p>The silt curtain will remain in place after completion of the works until there has been substantial re-deposition of any fine sediment mobilised into the water column.</p> <p>Discharges to watercourses and Llyn Padarn will be at a controlled rate agreed with NRW and with appropriate measures to spread the discharge so as to avoid erosion of the bed and banks for the receiving water body (e.g. the use of baffles).</p>	9.8.16	Requirement 6	WTMP SMP (section 3.5)
17	<p>Appropriate emergency procedures to be implemented in the event of a flood occurring outside of the flood plain to ensure no increase in flood risk elsewhere. Any requirement for storage of materials within the flood plain will need to be agreed with NRW.</p> <p>The installation of an appropriate temporary drainage system which utilises Sustainable Urban Drainage System components where practicable will minimise the risk of surface water flooding and flooding from overland flow.</p>	10.9.2 10.9.4	Requirement 5 Requirement 6 Requirement 10	ERFRMP
18	Mitigation measures relating to the location of concrete batching plants should consider the Process Guidance Note 3/011(12). The batching plant shall be located in a suitable area and a geotextile or bund shall be provided		Requirement 6	WTMP
19	Protection of private water supplies shall be ensured through a pre-construction baseline sampling programme, during construction and post construction. Further details are provided in the WTMP which includes how the other PWS will be identified and contacted.		Requirement 6	WTMP
20	A baseline water monitoring programme shall be implemented including a programme during construction and post construction. Further details are outlined in Section 4 of the WTMP		Requirement 6	WTMP
21	<p>De-watering of excavations may be required to mitigate potential inundation with groundwater. De-watering should be undertaken in a manner which cannot cause an increase in flood risk by its disposal.</p> <p>Water quality will be monitored during the de-watering of Q6 including daily observations, in-situ testing and additional water sampling. If the bottom waters are sufficiently contaminated with suspended fine sediment, they will be treated before being discharged to Llyn Padarn.</p>	10.9.6	Requirement 6 Permit conditions	SMP WTMP ERFRMP



Table 2 Construction Schedule of Mitigation				
Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
	All pumping activities will be subject to a Permit to Pump system and will be monitored regularly.			
<b>Construction Traffic Management</b>				
22	<p>The following mitigation measures presented in the CTMP will be implemented to minimise impacts from traffic during construction:</p> <ul style="list-style-type: none"> <li>• HGV and large load deliveries will be restricted to the hours of 8.30am to 4.30pm during the week, and 9.00am to 1.00pm on Saturdays, with no working on Sundays and Public Bank Holidays. This applies to A4085 and A4086</li> <li>• All construction vehicles will be subject to a reduced speed limit of 20mph on the Ffordd Cefn Du and will comply with the appropriate national speed limit on all other roads;</li> <li>• All construction vehicles will also be instructed to obey all traffic signs;</li> <li>• Banksmen will be used along Ffordd Cefn Du for abnormal loads;</li> <li>• All construction vehicles on Ffordd Cefn Du will give way to other users such as a group of walkers, horse riders, cyclists or another car;</li> <li>• Deliveries will be planned throughout the day to minimise disturbance;</li> <li>• The road is also being widened and passing places have been incorporated in the design to allow an HGV to pass a walker or horse in a safe manner;</li> <li>• No driveways on Ffordd Cefn Du will be blocked by construction phase traffic including large or abnormal loads;</li> <li>• For abnormal or large deliveries, it is intended that a temporary car park will be provided for local residents;</li> <li>• The Environmental Liaison Officer (ELO) will communicate any potential inconvenient or disruptive construction traffic activities such as delivery of large plant and equipment as soon as reasonably possible after the construction programme has been confirmed. All changes to access will be made clear to members of the public, via notice boards at key locations (e.g. main entrances to common land at Cefn Du etc.). Signposting of new routes, temporary routes and temporary and permanent car parks;</li> <li>• The ELO will invite information from all competitions and event users of the Ffordd Cefn Du in order for them to be notified of any potentially disruptive activities and also for any construction deliveries or traffic to be stopped or rearranged for another working day;</li> <li>• Any deliveries containing explosives will be subject to the required security escort and compliance with the appropriate certification and legislation;</li> <li>• Wheel washing facilities will be used to minimise deposits of mud and dirt on the highway. The road will be checked and cleared if required after each vehicle has visited the site;</li> <li>• Parking will be provided for construction vehicles at Q1 and Q6;</li> <li>• All loading and unloading will take place off the public highway. Sufficient area within the site will be provided within the parking area to enable HGVs to load and unload off the public highway;</li> <li>• Pedestrian and vehicle routes will be clearly set out within the Development site;</li> <li>• During periods of inclement weather, it is in the interests of the Contractor to ensure that Ffordd Cefn Du remains open and safe to use and they would work with the Council to ensure work continues safety;</li> <li>• The Applicant will be responsible for any damage to Ffordd Cefn Du and will implement a maintenance and repair system as agreed with the Highways Authority. This will be governed by the Section 278 Agreement;</li> <li>• Points of access and egress for the site will be identified and marked with warning signs in accordance with the requirements of the works and the local Highways Authority;</li> <li>• During the construction phase, drivers will be briefed regularly, and compliance with the plan will be checked regularly.</li> <li>• A smooth road surface will be maintained on access routes to Q1 and Q6. Road irregularities will not exceed a 20mm change in the</li> </ul>	12.9.2-12.9.3	Requirement 6	CTMP

Table 2 Construction Schedule of Mitigation				
Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
	road profile.			
23	Should a property be damaged by a construction vehicle such as a wall, the incident management process outlined in the CTMP will be followed (Section 2.8)		Requirement 6	CTMP
<b>Noise and Vibration</b>				
NOTE – both the Construction Noise Management Plan and Operational Noise Management Plan have been advanced past the mitigation measures outlined in the ES and so these measures are the general mitigation measures regarding management of noise and vibration during construction and operation.				
24	The CNMP will be prepared and put in place to ensure Best Practicable Means are adopted with regards to each phase of the proposals. This will help to ensure that the noise effects relating to construction activities are minimised	13.9.22 (BPM)	Requirement 6	CNMP
25	<p>To limit the impact of noise, the following mitigation strategies will be implemented:</p> <ul style="list-style-type: none"> <li>Construction hours will be 07:00-19:00 Monday to Friday and 07:00-13:00 Saturday. Consent from Gwynedd Council will be sought for any requirement for works outside normal hours and the ELO will communicate this to local communities and residents.</li> <li>Careful consideration will be given to selecting the most appropriate piling methods to minimise the adverse impact on Noise Sensitive Receptors (NSRs); this will be outlined in the Piling Construction Statement.</li> <li>All access roads will be kept in good condition to minimise vibration effects resulting from irregularities of road surfaces.</li> <li>Speed limit and planning of deliveries throughout the day</li> <li>Noisy construction activities will be planned for the beginning of the week where possible.</li> <li>Ensure all processes are in place to minimise noise before works begin; ensure that modern plant is used, complying with the latest EC noise emission requirements.</li> <li>Inherently quiet plant will be used where appropriate.</li> <li>Equipment will be maintained and fitted with silencers or barriers to minimise noise and turned off when not in use.</li> <li>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 alarms will be used where possible.</li> <li>All major compressors should be 'sound-reduced' models fitted with properly lined and sealed acoustic covers.</li> <li>All ancillary plant such as generators, compressors and pumps would be positioned so as to cause minimum noise disturbance. Where a generator is required for prolonged periods of time, the use of a silent generator will be considered.</li> <li>Loading/unloading sites should be located away from residential properties and shielded from those properties where practicable</li> <li>The site operations and vehicle routes will be arranged to minimise the need for reversing movements.</li> <li>No employees, subcontractors and persons employed on the site will cause unnecessary noise from their activities.</li> <li>Materials will be lowered whenever practicable and not dropped. Any chutes and skips will be lined with sound attenuating material to reduce effect noise.</li> <li>Care should be taken when loading / unloading vehicles and dismantling scaffold.</li> <li>Plant that is not required to be mobile (such as a crusher unit or batching plant) will be located and oriented with a localised barrier to provide attenuation to NSRs.</li> <li>Where particular plant items have been modelled at terrain heights lower than typical surface heights (i.e. within quarries), screening will be used to provide considerable attenuation to NSRs.</li> <li>Blasting will be carried out using BPM where available. A set time will be allocated for blasting and will be communicated to local</li> </ul>	13.9.9 (Screening at lower terrain heights) 13.9.13 (Static plant) 13.9.15 (Noisy activities) 13.9.17 (Mitigation measures to achieve BPM) 13.9.34 (Speed limit and planning deliveries)	Requirement 6	CNMP CoCP (Section 3)

Table 2 Construction Schedule of Mitigation				
Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
	<p>communities in advance. The specification of any screening will be determined once the final method and locations of blasting has been confirmed. Any screening will consist of a solid structure with no gaps and have a mass of at least 12 kg/m<sup>3</sup>.</p> <ul style="list-style-type: none"> <li>Schedule of Condition surveys will be undertaken of properties who are concerned about vibration from construction traffic. This will be recorded and managed through the Environmental Liaison Officer (ELO) and any appropriate complaints dealt with accordingly.</li> <li>Training will be provided for all personnel, subcontractors and consultants via toolbox talks to raise awareness about noise and vibration.</li> </ul>			
26	The design of noise control to meet appropriate operational noise limits will be finalised during detailed design and this ONMP will be updated accordingly. These control techniques will likely include measures such as orientation away from NSRs, vent attenuators, acoustic lining within the vent shaft, and acoustic louvres at intake and extract terminals.		Article 36 of the DCO	ONMP
<b>Ordnance Management</b>				
27	<p>Potential risks to the surrounding environment and health of construction staff from unexploded munitions will be minimised by the preparation and implementation of an Ordnance Management Strategy, which outlines how UXO hazards will be identified, mapped, cleared and disposed of, and compliance with the recommendations of the Zetica report within ES Appendix 8.5 and 8.6.</p> <p>In the event where UXO is discovered which cannot be safely dealt with within the usual working of the Ordnance Management Strategy then the MOD will be contacted accordingly.</p> <p>Consultation with the MOD will be ongoing throughout the pre-construction period and then formally through the application to discharge Requirement 7 for the Ordnance Management Strategy.</p> <p>All contractors working on the development will be made aware of the potential UXO hazard on the site and the appropriate steps to take in the event that a suspect item is found. Any works in the areas with an identified UXO hazard will be undertaken under the supervision of a competent Explosive Ordnance Clearance (EOC) Engineer who will ensure appropriate action is taken. Where appropriate, some detection, investigation and removal of potential UXO targets will be undertaken in advance of some bulk material movement.</p> <p>Live UXO will be rendered safe in a purpose-built Explosive Ordnance Disposal (EOD) facility located within the site by trained and experienced staff. No hazardous UXO items will be removed from the site. All inert ordnance scrap will be removed and disposed of off-site, with a clear chain of custody for all ordnance or ordnance-related items.</p> <p>A range of protective measures which may be implemented include:</p> <ul style="list-style-type: none"> <li>active detection during material movement;</li> <li>enforced man limits;</li> <li>protective materials for plants; and</li> <li>PPE for staff.</li> </ul> <p>The Applicant has already committed to the appropriate remediation of UXO in Q6. Ordnance scrap issued with a Free from Explosives (FFE) certificate will be disposed of by a local smelting company or alike.</p> <p>Any smoke floats that might remain within the quarry pits will be removed as part of the Ordnance Management Strategy, consequently further reducing any potential hazard for toxic discharge into Llyn Padarn.</p> <p>The Applicant has considered including appropriate facilities within the DCO to deal with such ordnance onsite should this be required.</p> <p>In the unlikely event where suspected chemical-filled munitions are found, the suspect item will be segregated, a safety cordon will be put in place and the Defence CBRN Centre at Winterbourne Gunner will be contacted to arrange for its disposal, as per standard UK protocols. Slate waste will also be screened for UXO.</p>	8.10.5	Requirement 7	Ordnance Management Strategy

Table 2 Construction Schedule of Mitigation				
Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
	Whilst the specialist contractor and ELO's approach will mean that UXO operations offer no significant impact on the local community, routine liaison with the community and/or with the local authority is expected.			
<b>Ecology and Habitat Management</b>				
28	A Habitat Management Plan is outlined in section 4.6 of the CoCP. The HMP will be prepared and finalised to include details of: <ul style="list-style-type: none"> <li>• Pre-construction surveys</li> <li>• Species specific mitigation measures</li> <li>• Tree survey</li> <li>• Reptile method statement</li> </ul>		Requirement 6	HMP
29	Pollution prevention measures in line with current NRW guidelines will be implemented by a suitably trained environmental crew in order to reduce the likelihood of pollution incidents and subsequent damage to Afon Gwyrfai a Llyn Cwellyn SAC and any other designated sites, any harm to species, or any damage to designated features.	7.9.10	Requirement 6	PPP
30	A Bio-Security Plan outlines the general and species specific mitigation measures which will be implemented during construction including: <ul style="list-style-type: none"> <li>• A pre-construction survey for invasive and non-native species (INNS) will be undertaken within the working area of the spillway infrastructure and prior to abstraction starting.</li> <li>• Pre-construction survey to identify any terrestrial INNS.</li> <li>• Toolbox talk prior to works commencing within Llyn Padarn to make contractor aware of its' location to help prevent disturbance and/or spread of the species.</li> </ul> <p>To prevent fish being drawn into the abstraction pipe, intake screens must meet statutory requirements under the Salmon and Freshwater Fisheries Act.</p> <p>The Principal Contractor will work closely with NRW to agree the most appropriate course of action and monitoring method should INNS be identified.</p>	7.9.124	Requirement 5 Requirement 6 Requirement 7	Biosecurity Plan (Section 3.2-3.6 and Appendix B)
31	Completion of a tree survey to determine the type, condition and value of any trees or vegetation to be removed or trimmed as part of the Development.		Requirement 6	HMP
32	The Development should seek to use tracks and other areas of hardstanding that are already present within the Order Limits to avoid removing vegetation where possible. 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).	7.9.28	Requirement 6	HMP
33	Construction of spillway disturbing lake bed sediment has the potential to cause smothering of spawning gravels, macrophytes, macro-invertebrates, reducing oxygen levels, & increased turbidity within the Llyn Padarn SSSI. As such, pollution prevention measures in line with current NRW guidelines will be adhered to.	7.9.18 7.9.10	Requirement 6	PPP SMP
34	Pre-construction surveys as outlined in the ES Chapter and CoCP / HMP	7.9.96-7.9.102 (Badgers) 7.9.108-7.9.112 (Otters)	Requirement 6	HMP



Table 2 Construction Schedule of Mitigation				
Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
		7.9.103-7.9.107 (Water voles) 7.9.66-7.9.70 (Arctic Charr) 7.9.113-7.9.115 (Red squirrel)		
35	Light spill during construction onto the woodland edge or shore line of Llyn Padarn has the potential to impact on species utilising those areas of the SSSI such as bats, otter and water vole. Lighting will require to be designed to minimise spillage into surrounding habitats to avoid disturbance to wildlife. Construction and maintenance activities should avoid working at least 1 hour before dusk until 1 hour after dawn, when wildlife is most active.	7.9.122 and 7.9.150 (Bats) 7.9.138-7.9.139 (General light spill and lighting plan)	Requirement 12 Requirement 15	Lighting Plan
36	Good site working practices will be adhered to. Adjacent habitats to be retained will be fenced off to ensure damage to dry/heath/acid grassland and habitats suitable for invertebrates, amphibians and reptiles is kept to a minimum. To help protect retained habitats that have the potential to support amphibians, good site working practices will be adhered to; adjacent habitats to be retained will be fenced off; and, pollution prevention measures in line with current NRW guidelines will be adhered to.	7.9.64 (Invertebrates) 7.9.71 (Amphibians) 7.9.73 (Reptiles)	Requirement 6	CoCP HMP
37	The construction of the spillway into the Nant-y-Betws and slate mounds have the potential to impact the aquatic environment through pollution of surface water runoff from vehicle fuel, oil, chemicals, silt, dust or aluminium content in any runoff from crushed slate during construction, which could result in discharge of contaminated water. As such pollution prevention measures in line with current NRW guidelines presented within the WTMP, PPP and SMP will be adhered to.	7.9.40-7.9.44	Requirement 5 Requirement 6	WTMP PPP SMP
38	Three lichen species will be removed due to the construction of the Q1 dam. Translocation of slate slabs colonised by notable lichens to areas with similar environmental conditions will be undertaken. Mitigation will help to prevent loss of notable lichens.	7.9.55-7.9.58	Requirement 6	HMP
39	To prevent pollution and dust during construction smothering vegetation and affecting the ability of invertebrates to use the plants. Pollution prevention measures in line with current NRW guidelines will be adhered to. Similarly the same mitigation will be undertaken to prevent the water bodies and soils within and adjacent to the Development from becoming polluted which could cause long term damage to productivity and diversity of the aquatic and terrestrial habitat, adversely affecting invertebrates.	7.9.8 (Dust Management Plan) 7.9.14 (WTMP and PPP)	Requirement 6	DMP WTMP PPP
40	To prevent injury or killing of reptiles crushed by machinery or foot, habitat management will be undertaken to discourage reptiles from the area before soil stripping. Retained vegetation will be fenced off to prevent injury or killing.	7.9.72-7.9.74	Requirement 6	HMP
41	To avoid disturbance to breeding Schedule 1 birds and other breeding bird species, it is recommended that a Breeding Bird Method Statement is produced detailing the programme for the construction phase. It may also include details of when an Ecological Clerk of Works is present within the Order Limits to observe any disturbance to Schedule 1 species during nesting season (March – July inclusive).	7.9.75-7.9.79 (Schedule 1 Breeding)	Requirement 6	Breeding Bird Method Statement

Table 2 Construction Schedule of Mitigation				
Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
	<p>Access to the known nesting area will be prohibited during nesting season for Schedule 1 species.</p> <p>To avoid disturbance of BOCC Red and Amber List Species nesting birds during construction and operational maintenance, it is recommended that removal of vegetation with the potential to support nesting birds (woodland, trees, bracken and scrub) is to be undertaken outside of breeding bird season (clearance October – February inclusive).</p> <p>If vegetation clearance is undertaken during breeding bird season (from March to September inclusive) the area will first be inspected by an ecologist a maximum of 48 hours before work begins in an area. If any nests are found, work will have to be halted and the nest left undisturbed with a buffer zone until the chicks have fledged. This could take up to six weeks.</p> <p>Any retained vegetation will be fenced off during construction to prevent vehicles, machinery and site staff tracking onto and over it.</p> <p>The Applicant will avoid blasting during sensitive periods such as the breeding bird season for Schedule 1 birds unless otherwise agreed with Gwynedd Council and NRW.</p>	<p>Birds)</p> <p>7.9.80-7.986 (BOCC Red and Amber List Breeding Bird Species)</p> <p>7.9.87- 7.9.91 (Other Breeding Birds)</p>		
42	<p>To reduce collisions with Pole Cats, reduced speed limits will be introduced within the Order Limits. Site inductions and tool box talks will raise awareness of protected species collisions.</p> <p>Any sightings or collisions will be recorded and submitted to the Local Record Centre to aid local knowledge of the species.</p> <p>To help prevent loss of retained suitable habitat with the potential to support polecat, pollution prevention measures in line with current guidelines will be adhered to.</p>	7.9.92-7.9.95	Requirement 6	HMP
43	To avoid badger becoming trapped in excavations during construction, trenches and excavations will be closed at night to prevent badgers from entering or be fitted with a ramp to allow mammals to escape.	7.9.101-7.9.102	Requirement 6	HMP
44	<p>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:</p> <ul style="list-style-type: none"> <li>Fencing around adits to limit human disturbance;</li> <li>Grilling, using an approved horizontal bar bat grille to protect the site;</li> <li>Measures will be taken to ensure that T13 is sealed to protect water ingress into T14 from the new reservoir at Q6 to create a long term durable barrier.</li> <li>To prevent any inhibition of bat movements through the site, illumination during the hours of darkness will be avoided.</li> </ul> <p>A number of the tunnels/adits where low levels of bats use was recorded will also be made more suitable for bats. Measures likely to include:</p> <ul style="list-style-type: none"> <li>Building low bunds to increase water levels close to the entrances (which increase internal humidity and stabilises temperature); and</li> <li>Building block walls to slow down air flow and to create a wider range of temperature pockets for bats to utilise.</li> </ul> <p>Where there is potential roost loss in the tunnels, bats will be excluded to avoid injury and killing. Enhancement of retained tunnels to retain a roosting resource within the Development will include the installation of at least 10 wooden batons on ceilings and walls into each of Tunnels 2, 3, 7, 8, 9, 14 and 15 and the bomb store (as outlined in Volume 3, Appendix 7.15 Bat Mitigation Strategy and Appendix 7.18 Bat License).</p>	7.9.118	<p>A Bat License has been approved by NRW for the implementation of these mitigation measures (Volume 3, Appendix 7.18)</p> <p>Requirement 6</p>	HMP
<b>Landscape and Visual and Reinstatement</b>				
45	<p>The Outline Landscape and Reinstatement Plan will be prepared and submitted to Gwynedd Council, CADW and NRW. This will contain the following but not be limited to:</p> <ul style="list-style-type: none"> <li>A schedule of landscape reinstatement performance objectives;</li> <li>Associated landscape works;</li> </ul>		Requirement 7	Landscape & Reinstatement Plan



**Table 2 Construction Schedule of Mitigation**

Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
	<ul style="list-style-type: none"> <li>Planting, reinstatement and maintenance requirements;</li> <li>Phasing of any construction operations, indicating the landscape reinstatement work associated with each phase and timescale for implementation;</li> <li>An outline management plan for the lifetime of the development;</li> <li>Areas of advance landscape works which can be implemented to bring about the integration of the development at the earliest possible stage;</li> <li>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.</li> </ul> <p>The following should also be considered:</p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul>			
46	<p>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.</p> <p>Trees to be retained are to be protected in accordance with BS 5837:2012.</p> <p>Existing vegetation which has naturally re-colonised the site will be retained where practicable. Where existing trees are removed to make way for the spillway infrastructure and pumping station, they will be replaced on a like for like basis. Micro-siting, root avoidance and enhancement measures may also be implemented.</p> <p>A Tree/Root Protection Plan will include details of development locations and their effect upon protected trees, a works programme and site monitoring arrangements with a suitably qualified Arboriculturist during the period of development. This will also include measures to protect/avoid damage to trees which are subject of Tree Prevention Order Number 3/TPO/A30 which are trees of great value to the area.</p> <p>Site compounds and stock piles will be kept within designated areas away from the woodland.</p> <p>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.</p> <p>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.</p>	6.9.2- 6.9.3	Requirement 6	HMP Landscape & Reinstatement Plan
47	<p>Mitigation of landscape and visual effects during construction will be in accordance with Chapter 6 Landscape Character &amp; Visual Amenity (Doc Ref 6.02) and include:</p> <ul style="list-style-type: none"> <li>Good housekeeping measures will minimise unsightly waste and secure storage will be provided for materials at risk of displacement by wind;</li> <li>Temporary stockpiles will be located in defined storage areas, away from sensitive visual receptors;</li> </ul>		Requirement 6	Landscape and Reinstatement Plan

<b>Table 2 Construction Schedule of Mitigation</b>				
<b>Ref No</b>	<b>Mitigation Measure</b>	<b>ES C chapter Reference</b>	<b>Securing Mechanism</b>	<b>Relevant Management Plan</b>
	<ul style="list-style-type: none"> <li>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;</li> <li>All boundary fences will be maintained in a neat and tidy condition and any temporary fencing will be removed as soon as reasonably practicable after completion of the works;</li> <li>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;</li> <li>All boundary fences will be maintained in a neat and tidy condition;</li> <li>Any temporary fencing will be removed as soon as reasonably practicable after completion of the works; and</li> <li>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.</li> </ul>			
<b>Land Discovery and Contaminated Land Management</b>				
48	A Land Discovery Strategy will be prepared to appropriately deal with areas of unexpected contaminated ground found.	8.10.7	Requirement 7	Land Discovery Strategy
<b>Archaeology and Cultural Heritage Compensation and Enhancement</b>				
49	<p>Where reasonably practicable, surviving remains associated with the former industrial use of the area will be avoided and left in situ. A program of archaeological work will be prepared including a detailed and targeted mitigation plan, written scheme of investigation, archaeological and building recording and a landscape survey prior to construction.</p> <p>Micro-siting will be used as mitigation as much as possible to minimise impacts on the historic environment. Where micro-siting is not possible, the recording of heritage assets will be considered the minimum level of mitigation.</p> <p>In some instances archaeological mitigation may include excavation as well as landscape survey and building recording.</p> <p>There will also be archaeological monitoring of topsoil and subsoil stripping for other areas, including associated infrastructure and access tracks, to identify previously unrecorded heritage assets. This monitoring work will be undertaken until the upper topsoil and subsoil levels are brought down to the natural deposits.</p> <p>An archaeological walkover survey of Q5 will form part of the initial archaeological mitigation if the scheme is approved and if this is required. This quarry was the only area not covered by the walkover survey because it could not be accessed due to health and safety reasons.</p> <p>All works, including ground disturbance or site clearance, will take place in accordance with the Written Scheme of Investigation as agreed with Gwynedd Council.</p>	11.8.1-11.8.3	Requirement 7	Archaeological Compensation and Enhancement Strategy
<b>Lighting Management</b>				
50	<p>During night-time and periods of darkness directional security lighting will be used.</p> <p>To minimise impacts on Environmental Zones in the area, the Development will conform to the requirements of the Obtrusive Light Limitations for Exterior Lighting Installations as stated in the T&amp;CPA decision.</p>		Requirement 15	Lighting Plan
<b>Materials Management</b>				
51	<p>Wherever reasonably practicable materials will be sourced from local suppliers.</p> <p>A conveyor will be located in the underground penstock will facilitate this movement of material between the quarries and is not anticipated to have any additional effects.</p> <p>Where possible, earthwork material from the existing site will be retained for re-use as soft landscape areas and acoustic bunding,</p>	12.9.6	Requirement 7	Materials Management Plan

Table 2 Construction Schedule of Mitigation				
Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
	<p>therefore minimising the need to import material onto site. Slate waste will also be re-used on site wherever reasonably practicable to create access tracks</p> <p>All excavated material will be graded with only suitable material utilised in the construction of the dam, with less suitable material used for landscaping purposes or incorporated into the existing spoil mounds. The spoil mounds located to the south west of Q1 will be designed to minimise any visual impact and encourage natural re-colonisation of vegetation.</p>			
<b>Waste Management</b>				
52	<p>The Principal Contractor will be responsible for the removal and disposal of all packaging and other waste materials that arise during construction and commissioning.</p> <p>All waste will be managed according to the Waste Hierarchy:</p> <ul style="list-style-type: none"> <li>• Reduce;</li> <li>• Reuse;</li> <li>• Recycle;</li> <li>• Recover; and</li> <li>• Dispose.</li> </ul> <p>General waste will be collected, segregated and stored temporarily in covered skips and disposed of offsite. Waste collected from the Order Limits shall be stored prior to disposal.</p> <p>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.</p> <p>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.</p> <p>Slate waste will be re-used on site wherever possible in dam construction and tracks and excess spoil mounds will be landscaped to encourage natural re-colonisation of vegetation.</p> <p>The waste wood and foliage material resulting from the removal of trees will be managed in-line with the Waste Hierarchy. Where the retention of trees and foliage is not possible, 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. Any excess wood waste will be stored and used wherever possible off-site.</p> <p>Organic materials generated from the Development will either be reused or offered to the local community as biomass.</p> <p>Any contaminated material requiring remediation will be treated onsite as a preference.</p> <p>Where it is not possible to dispose of waste onsite, a licensed off-site waste disposal facility will be used.</p>	16.8.3 (Slate waste)	Requirement 6 Requirement 7	WMP MMP
<b>Health, Safety &amp; Security</b>				
53	<p>A HASP will be prepared to regulate on-site activities and achieve a high level of safety and continuous improvement. Regular training and safety inspections will also be carried out. Site specific risk assessments and method statements will be prepared.</p> <p>A Permit to Work system will be used during construction to ensure that only authorised construction personnel are on site and that an accurate record of site based personnel is available in case of emergency. Inductions will be undertaken for all staff and workers onsite.</p> <p>Site security during the construction phase will be strict. Temporary fencing will be used to prevent unauthorised access. A locked compound with restricted access will be provided for the temporary storage of equipment or materials . Security staff will be utilised as appropriate.</p>	15.8.4 12.9.5	Requirement 7	HASP

Table 2 Construction Schedule of Mitigation				
Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
	<p>To ensure safety to recreational users during the construction and decommissioning phases, temporary closures and diversions of PROWs, permissive routes and CROW land will be implemented.</p> <p>Advance notice will be given to the local community and users of Ffordd Clegir regarding temporary closures of the road including during blasting, via the Highways Authority, Environmental Liaison Officer and the Liaison Group. Alternative diversion routes will be made available to help reduce the level of inconvenience.</p> <p>Any permanent diversion to an existing Public Right of Way will be agreed through the DCO regime prior to the commencement of any development.</p> <p>The HASP will include details of good practice methods. The HASP is a CDM requirement and separate to any specific Contractor agreements to minimise the effect of construction traffic.</p>			
54	<p>All construction works will be undertaken in accordance with the Control of Major Accident Hazard Regulations (COMAH Regs).</p> <p>All construction areas and associated accommodation and welfare facilities will have in place appropriate plans and management controls to prevent fires which will be regularly reviewed and updated where necessary.</p> <p>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.</p>		Requirement 6	ERFRMP
55	<p>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. 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.</p>		Requirement 6	PPP
<b>Land Use</b>				
56	<p>To mitigate the impact on the CROW land affected by the scheme, replacement common land and new open access land will be provided. Further temporary replacement land will also be provided for the temporary impact on common land during the construction phase. This will be secured as part of Section 16 and Section 38 common land applications made to the Welsh Government.</p> <p>Land has been identified to replace the common open access land used for the Fford Cefn Du highway improvement works. To mitigate the fact that the replacement common land is already open access land, the Applicant plans to designate the parcel of woodland at Donen Las as access land. This results in a net permanent increase in accessible and grazeable area of common land at Cefn Du, a net increase in access land, as well as forming a greater contiguous network of access land between Cefn Du and Moel Eilio.</p>	15.8.9 - 15.9.10	This will be secured under section 16 and Section 38 of the common land applications made to the Welsh Government	
57	<p>Public Rights of Way which have been diverted or closed during construction will be reinstated, with the exception of those around Q1 which will be permanently diverted.</p>	6.9.2	Requirement 6	CoCP Section 2.9)
<b>Flood Risk &amp; Emergency Response</b>				
58	<p>The ERFRMP will contain the following:</p> <ul style="list-style-type: none"> <li>• Raise awareness of the risks of flooding associated with the Development.</li> <li>• Detail the flood warning and estimated lead times where possible.</li> <li>• Detail how the Plan is triggered, by who and when.</li> <li>• Define any areas of responsibility for those participating in the Plan.</li> <li>• Describe what actions are required by any personnel present at the Development.</li> </ul>		Requirement 7	ERFRMP

Table 2 Construction Schedule of Mitigation				
Ref No	Mitigation Measure	ES C chapter Reference	Securing Mechanism	Relevant Management Plan
	<ul style="list-style-type: none"> <li>Establish a safe route to a safe location, and outline the evacuation procedure.</li> <li>Establish procedures for implementing the Plan and the way it will be monitored.</li> <li>Contact details for emergency services, local authorities, and maps showing location of local hospitals.</li> </ul>			
59	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.		Requirement 7	ERFRMP
60	<p>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:</p> <ul style="list-style-type: none"> <li>Fire Prevention on Construction Sites (Joint Code of Practice on the Protection from Fire of Construction Sites &amp; Buildings Undergoing Renovation); and</li> <li>Fire Safety in Construction Work (HSG 168).</li> </ul>		Requirement 7	ERFRMP



Table 3 Operation Schedule of Mitigation				
Reference Number	Mitigation Measure	ES Paragraphs	Securing Mechanism	Relevant Management Plan
1	In order to maintain the security of the Development, appropriate and continuous security fencing will be provided onsite.	4.11.5	Requirement 17 To be secured through the conditions of the operational Environmental Permits under the Environmental Permitting Regulations 2010.	N/A
2	<p>The following design measures will be implemented to mitigate for the adverse effects from the Development upon landscape features, landscape character and views:</p> <ul style="list-style-type: none"> <li>• The penstock will be tunnelled, thus avoiding effects on visual amenity during operation of the Development associated with an above ground excavation method such as open cut or trenched solution;</li> <li>• The power house is to be sited on an existing development platform adjacent to Q6, a location which benefits from natural screening from surrounding woodland, in particular from views in Llanberis, and within an area designated for future development;</li> <li>• The power house and pumping station will be clad using local materials (i.e. slate) or rendered in colours appropriate to the local area to help integrate them with the wider landscape context;</li> <li>• The dams have been designed to reflect, and tie into, the existing gradients and contours of the surrounding slate mounds and hillside landscape. This approach will help integrate the new structures into the industrial and slate landscape and reduce potential for an over engineered or artificial appearance;</li> <li>• Any excavated slate geotechnically unsuitable for use within the dam or reservoir will be used in the external finishing of the dams and excess slate mounds to help integrate new structures into the post-industrial landscape in terms of texture, form and colour;</li> <li>• It is not proposed to install any fencing around the pumping station or lighting, and the majority of the pumping station will be underground;</li> <li>• Where practicable, access and maintenance tracks will be surfaced in visually recessive materials and designed to fit in with existing contours and vegetation within the Order Limits;</li> <li>• Any stone walls that will be affected will either be fenced off or if this is not possible, temporarily removed to be replaced like for like to maintain character</li> </ul>	6.9.3	Requirement 5 To be secured through the conditions of the operational Environmental Permits under the Environmental Permitting Regulations 2010.	N/A
4	Operational phase mitigation includes precautionary water quality monitoring that will monitor the Development for any changes in water quality in accordance with Environmental Permits to be agreed with NRW. Samples will be taken on a regular basis to monitor quality and trends. The frequency of sampling will be greater during the initial commissioning phase so that information on water quality and any trends can be quickly established.	7.9.126	To be secured through the conditions of the operational Environmental Permits under the Environmental Permitting Regulations 2010.	
5	To reduce the likelihood of the Development causing temperature change of the Afon Gwyrfai a low-friction system will be used.	7.9.128	Requirement 5 To be secured through the conditions of the operational Environmental Permits under the Environmental Permitting Regulations 2010.	N/A
6	Once operational, the operator of the proposed development will liaise directly with NRW on a regular basis to	7.9.131	Requirement 7	Biosecurity



Table 3 Operation Schedule of Mitigation				
Reference Number	Mitigation Measure	ES Paragraphs	Securing Mechanism	Relevant Management Plan
	maintain communication about the presence of any new invasive species. Should any new species be identified in Llyn Padarn, the operator will work with NRW to facilitate a treatment programme of the waters contained with the reservoirs as necessary and as appropriate and to stop any planned discharges from Q1 to the Nant-y-Betws. This will prevent cross contamination between catchments.		To be secured through the conditions of the operational Environmental Permits under the Environmental Permitting Regulations 2010.	Plan
7	<p>To avoid the potential of flood risk downstream, excess water entering the system through natural inflows or inflows from drainage will need to be released to Llyn Padarn to maintain the levels at or below the normal operating level. An Excess Water Management Strategy will be implemented for any operational discharges. There is sufficient capacity to accommodate extreme rainfall events with release of excess water to be done in a controlled manner after the rainfall and flood event has passed.</p> <p>The maximum allowable rate and volume of water release is to be addressed together with the discharge consent and any other conditions to be agreed with NRW; this will have due regard for safety.</p> <p>The Development includes three safety features for the incidental release of water: a relief valve from Q1 to Nant y, a spillway from Q1 to the Nant y Betws and a relief valve from Q6 to Llyn Padarn. The water abstraction pipe will be fitted with a screen to avoid anything being pulled into the pipe at times of abstraction.</p>	10.9.10	Requirement 5 To be secured through the conditions of the operational Environmental Permits under the Environmental Permitting Regulations 2010.	Excess Water Management Strategy
9	<p>Noise from the turbines, generators and associated equipment will be contained below ground level by significant structural components (concrete slabs, air lock doors, etc.). It is expected that airborne noise flanking between this equipment (at depth) and ground level will be suitably mitigated by design to achieve appropriate operational noise limits at NSRs. The actual design of noise control to meet appropriate operational noise limits will need to be finalised during detailed design. Mitigation measures will likely include:</p> <ul style="list-style-type: none"> <li>• Orientation away from NSRs;</li> <li>• Careful selection of equipment;</li> <li>• Vibration isolation;</li> <li>• Mufflers/attenuators;</li> <li>• Vent attenuators;</li> <li>• Acoustic lining within the vent shaft; and</li> <li>• Acoustic louvres at intake and extract terminals.</li> </ul> <p>Noise levels emitted by the switchgear and workshop can be easily mitigated by the building fabric and mechanical ventilation design, and distance attenuation to NSRs.</p> <p>The rating levels of the noise emissions will be determined following guidance from BS 4142, and will include consideration for any acoustic features such as tonality, impulsivity and intermittency.</p> <p>During the detailed design stage, a detailed noise and vibration assessment will be undertaken to predict the potential operational noise and vibration noise levels and ensure appropriate mitigation measures are in place.</p> <p>Noise and vibration will be monitored during the operational phase in order to evaluate the effectiveness of environmental mitigation and also to identify and respond to unforeseen problems at an early stage.</p>	<p>13.9.39 (Turbines and generators)</p> <p>13.9.43-13.9.45 (Switchgear and workshop)</p>	Requirement 5	ONMP

Table 3 Operation Schedule of Mitigation

Reference Number	Mitigation Measure	ES Paragraphs	Securing Mechanism	Relevant Management Plan
10	The plant will have in place a health, safety and environmental integrated management system assured under ISO 18001, ISO 9001 and ISO 14001 or equivalent international standards. The Environmental Management System (EMS) will incorporate environmental control procedures, which will be regularly independently audited and certified.	16.6.1	To be secured through the conditions of the operational Environmental Permits under the Environmental Permitting Regulations 2010. Through the operator's environmental management system.	
11	The section 278 agreement with Gwynedd Council will ensure that agreed traffic calming measures, such as road markings or speed bumps for example, are installed at the end of the construction works for the operational phase.		To be secured through the section 278 agreement approved by Gwynedd Council.	
12	Risks of potential effects from electro-magnetic fields from power lines and power generation equipment will be mitigated through engineering and safety design in conjunction with good administrative controls such as audible and visual warning signs and personal protective clothing.		Requirement 5 To be secured through the conditions of the operational Environmental Permits under the Environmental Permitting Regulations 2010.	
13	Independent panel engineer inspections, regular safety checks and monitoring will be implemented during the lifetime of the Development. The inspection regime will involve leak detection and estimation together with targeted physical inspection. The dams and reservoirs will be designed and constructed accordingly in relation to the risks (including seismicity) together with guidance and established practice such as set out by recognised bodies such as the British Dam Society, International Commission on Large Dams (ICOLD) and in accordance with the Reservoirs Act 1975 legislation and its associated guidance and implementing regime. The geomembrane lining will be protected from UV by a covering designed to resist movement associated with the regular water movements in the reservoir. The reservoirs lining and materials is subject to detailed design.		Requirement 5 To be secured through the conditions of the operational Environmental Permits under the Environmental Permitting Regulations 2010. Requirements of the Reservoirs Act	
14	Should any maintenance be required, the Operator shall notify Gwynedd Council on an annual basis of any potential mitigation measures which will have to be implemented pursuant to the maintenance works required		Requirement 18	

**Table 4 Decommissioning Schedule of Mitigation**

Reference Number	Mitigation Measure	ES Paragraphs	Securing Mechanism	Relevant Management Plan
1	Mitigation will be undertaken as per the conditions of the Decommissioning Plan. The rate of discharge and any monitoring regime will be agreed at the appropriate time with NRW.	9.8.29	Requirement 19	Decommissioning Plan
2	Mitigation includes temporary closures and diversions of PRoWs, permissive routes and CROW land within the development site to ensure safety to recreational users during the construction and decommissioning phases	15.8.5-15.8.6	Requirement 19	Decommissioning Plan
3	Waste generated during the decommissioning phase will be subject to the Decommissioning Plan and, as stated, the principles of the waste hierarchy will be followed.	16. 7.2	Requirement 19	Decommissioning Plan