

Contract Name:	Barmouth Viaduct Gardens	Contract Number:	ORT019
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Client Reference Number:	
Scope of Works:	The scheme is to provide flood alleviation to the area known as Viaduct Gardens in Barmouth. The area has suffered a number of flood events over recent years. The source of flooding is complex and has been a result of the sea over topping the existing sea wall and inundation of the existing surface water network. Flooding has also occurred during events where tidal waters impede the free flow of the surface water network due to tide locking. The primary sea wall has also suffered storm damage in 2020 which caused a partial collapse of the wall.
Design/Construction/Maintenance:	Construction
AGC Document Reference:	CEMP001
Version:	0

	Name	Job Title:	Signature:	Date:
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Reviewed By:				
Authorised By:				

Issue	Date	By	Approval	Changes
01	7/8/24	Iwan Pritchard		Address comments
02	15/8/24	Iwan Pritchard		Address comments
03				

Client Review and Acceptance

Reviewed and accepted by:
Name:
Signature:
on behalf of XXXX , date: ____/____/____

GLOSSARY

TERM	DEFINITION
AIR	Aspects & Impacts Register
BMS	(Griffiths) Business Management System
BPM	Best Practicable Means
BREEAM	Building Research Establishment Environmental Assessment Method
CEMP	Construction Environmental Management Plan
CEEQUAL	Civil Engineering Environmental Quality Assessment & Awards Scheme
EA	Environment Agency
ECow	Environmental/Ecological Clerk of Works
EPP	Environmental Permit to Proceed
EIA	Environmental Impact Assessment
ES	Environmental Statement
EHO	Environmental Health Officer
HRA	Habitat Regulations Assessment
HWCN	Hazardous Waste Consignment Note
FRAP	Flood Risk Activities Permit
GEMS	Griffiths Events Management System
IDB	Internal Drainage Board
INNS	Invasive Non-Native Species
IRP	Incident Response Plan
KPI	Key Performance Indicator
OWC	Ordinary Watercourse Consent
LPA	Local Planning Authority
MMP	Materials Management Plan
NE	Natural England
NRW	Natural Resources Wales
PEA	Preliminary Ecological Appraisal
PROW	Public Right of Way
RAMS	Risk Assessment Mathos Statement
SAC	Special Area of Conservation
SEPA	Scottish Environment Agency
SNCB	Statutory Nature Conservation Body (NE, NRW & SNH)
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SUDs	Sustainable Drainage Systems
SWMP	Site Waste Management Plan
TBT	Toolbox Talk
TPO	Tree Preservation Order
WTN	Waste Transfer Note

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Introduction

This Construction Environmental Management Plan (CEMP) provides a framework for the management of environmental and social issues on the project to ensure legal, contractual, and procedural requirements are met. The Plan will cover the policies, objectives, targets, people, responsibilities, and documentation relevant to the project.

Alun Griffiths Contracting (AGC) is certified to ISO 14001:2015 and understands their legal obligations to the protection of the environment for works carried out on behalf of their clients. In addition, there is a culture of managing the impacts associated with design deliverables, prevention of pollution and continual improvement with all aspects of environmental and social management. A copy of our Environmental & Social Policy is available in **Appendix 1**.

The AGC Environmental Management System consists of mapped processes, operational procedures, risk assessments and method statements, and forms part of the AGC integrated Business Management System (BMS).

Any statutory rules and regulations that are referenced should be read in conjunction with this Environmental Management Plan, and the procedures and standards referenced within this document.

This Construction Environmental Management Plan (CEMP) is the first stage in project risk assessment and planning to identify the significant hazards for which appropriate controls are necessary to reduce risk.

This site-specific CEMP has been developed to avoid, minimise and/or mitigate any construction effects on the environment and the surrounding community with the purpose to minimise waste sent to landfill, minimise disruption to nearby residents and the local community, to aid in achieving zero pollution incidents and to protect, and where possible, enhance biodiversity.

This CEMP contains, or makes reference to, sufficient information to identify how the project will be managed from an environmental perspective.

It defines the project specific environmental risks, monitoring, water management and site waste management to be used to mitigate or remove environmental risks/impacts, control the works, meet contract requirements and record compliance. Not all of these procedures can be established immediately, the plan allows some details to evolve at an appropriate time.

The CEMP is to be reviewed and revised by INSERT FREQUENCY, or before this, if there are substantial changes to the project design or programme.

This CEMP should be considered as a living document. It will evolve via regular reviews, as the project progresses, including changes to best practice, environmental regulation and the site conditions. As a minimum the CEMP will be updated every 6 months.

This plan sets out the management arrangements of this project and provides essential information on environmental issues. It is valid for all works in the design, construction, reinstatement and maintenance phases of the Project.

This document is to be used in conjunction with company and project procedures.

Limitations

The comments given in this plan and the opinions expressed within are based upon the survey conditions encountered by third parties.

It should be noted that there may be conditions pertaining to the site that have not yet been discovered by the current investigations and therefore could/have not been taken into account.

1.0 Project Description

The scheme is to provide flood alleviation to the area known as Viaduct Gardens in Barmouth. The area has suffered a number of flood events over recent years. The source of flooding is complex and has been a result of the sea over topping the existing sea wall and inundation of the existing surface water network. Flooding has also occurred during events where tidal waters impede the free flow of the surface water network due to tide locking. The primary sea wall has also suffered storm damage in 2020 which caused a partial collapse of the wall. The works will be managed by the Principal Contractor (to be appointed) working for Cyngor Gwynedd Council. In brief, the works consist of construction of a new sea wall, new secondary set back wall, new surface water and associated pumping station, install 4No. flood gates and landscaping works. The work comprises the following activities:

- Existing seawall to be rebuilt with precast concrete units, faced with stone masonry cut from stones in existing seawall.
- New raised section of seawall immediately behind rebuilt seawall, with stone block masonry finish.
- Existing 'temporary' rock armour to be redistributed across front of seawall with additional smaller stones incorporated as required.
- New surface water outfall on beach further out than existing viaduct.
- Existing outfall and pipe onto beach to be removed.
- Single and double leaf flood gates.
- Control box for new underground pumping station and new chambers (arrangement tbc).
- New setback wall at rear of garden with stone block masonry finish.
- New gulleys and chambers to increase highway drainage capacity at low point (arrangement tbc).
- Existing paviers replaced with raised pedestrian crossing (blending).
- Existing stub wall and railings removed.
- Paved area incorporated into Viaduct Gardens
- New railings creating new perimeter to viaduct gardens.
- New raised section of seawall tapers down from 5.60 in corner to ground under viaduct.

1.1 The Site

The site is located at The Quay, Barmouth, LL42 1EH

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Ordnance Survey Grid Ref: - Easting's 261584, Northing's 315549

Barmouth (Abermaw) in Gwynedd, Wales, is located on the northern shore on the mouth of the Mawddach Estuary (NGR: SH 61549 15531) (Figure 1). The sea front at Barmouth suffers from flooding due to both overtopping of the sea wall and surface run-off from the bluff behind the town (Dinas Oleu).

The Viaduct Gardens area is located near St David's Church at the south end of the town and consists of a pedestrianised public space which is bounded landward by the A496 (Porkington Terrace) and Church Street. On the seaward side is a slightly raised parapet seawall which runs along the harbour area and is situated adjacent to the railway viaduct. In addition to the railway line and roads, there is other significant infrastructure at this location in the form of a Dŵr Cymru Welsh Water (DCWW) combined pump and combined sewer overflow (CSO), and an electricity substation.

The area will be significantly affected by the works during the construction phase. The designer has and will continue to keep the town informed of what is happening. Landowners directly adjacent to the works will be specifically affected as the works will be within close proximity of their property boundary.

Statutory Undertakers/ asset owners:

-BT Openreach

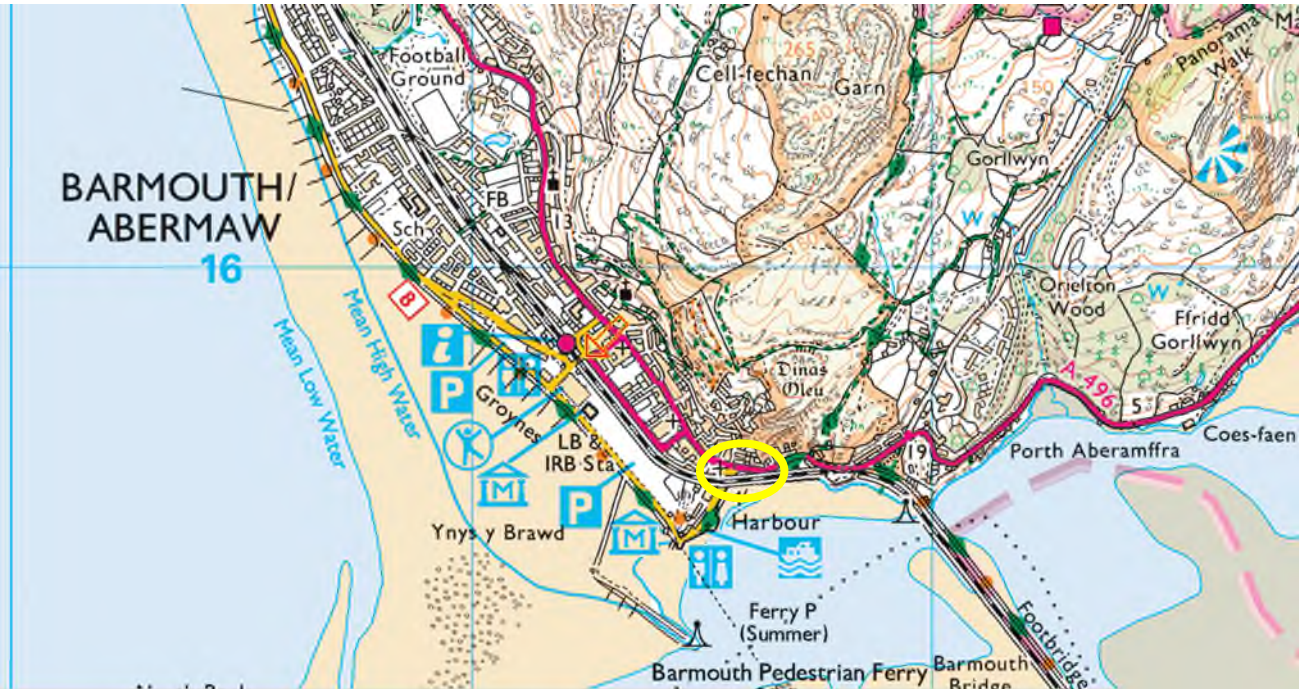
-Dŵr Cymru

-Scottish Power

-Wales and West Utilities

-Network Rail

The above all have assets within the area that will be within close proximity/ within construction area. All have been consulted and the relevant requirements from each company has been included within the Volume 4 Site Information.



Site is located within the yellow circled area in the map above.



1.2 Site set up and compound

The site and compounds shall be conducted in accordance with HSE Manual section 3.1. Full details can be obtained by reference to the HSE Manual which will include the display of:

- Site Specific Environmental Action Plan Summary
- Site Information/Services Plan
- Traffic Management Plan
- Silt Run-off Prevention and Protection Poster.

1.3 Equipment and plant

The Contractor will identify the equipment and plant to be used, including type, size and expected number. Plant used for the development is likely to comprise conventional construction and highways construction plant including mechanical excavators, dumpers and other heavy plant.

1.4 Environmental Risk Assessment Summary

An Aspects and Impacts register has been compiled to identify the potential environmental impacts of the project construction and mitigation measures to be adopted to reduce/eliminate the risks. The Aspects and Impacts Register is presented in Appendix 3 and summarised below in **Table 1.1**.

Table 1.1 Summary of Aspects and Impacts

Risk	Impact
Noise, dust, vibration	Disturbance to local residents/business and statutory nuisance
Night time lighting	Disturbance to local residents/business Ecology
Litter	Disturbance to local residents/business Ecology
Highway and PROW closures	Disturbance to local residents/business and statutory nuisance
Sediment/chemical/fuel run off	Pollution of surface water/groundwater
Ground disturbance	Mobilisation of contamination/pollution
Chemical/fuel spills	Ground contamination
Disturbance of protected plant and animal species	Ecology
Mixing wastes	Increased waste generation/costs
Poor management of construction materials	Increased waste generation/costs
Failure to comply with legislation and Codes of Practice	Regulatory non compliance
Flood Risk	Pollution Damage to plant and materials

Comprehensive details of the environmental risk assessment are presented in section 5.

2.0 Project Management Plan Administration

2.1 Distribution

Once approved and verified this CEMP is distributed by the **Project Manager (PM)**. Copies of this plan are distributed to the contacts in **Table 2.1** below:

Table 2.1 List of Distribution Contacts

Copy	To	Controlled/ Uncontrolled	Date of issue	Signature of recipient
01	Site file	Controlled		
02	Client representative: YGC Cyngor Gwynedd Council Offices Caernarfon Gwynedd LL55 1SH Contact: Petra Irvine Telephone: 01286 679182	Controlled		
03	Principal Designer As above	Controlled		

Recipients of controlled copies *sign and return a copy of this sheet* in confirmation that they have received the plan and have removed/clearly marked previous issues as superseded.

A fully verified and authorised copy of this front sheet is sent by the Project Manager to the Systems Manager at head office.

2.2 Revisions

Revisions to this plan are made and approved in the same way as the originals including the obtaining of client approval and authorisation where required by the conditions of contract.

3.0 General

3.1 The Project Works

Where the CEMP is only sufficient for the initial stages of the project, (*e.g., site establishment and clearance*), this is defined in **Table 3.1** and an appropriate review date is entered on the front sheet.

The plan is developed and revised for the following stages of the project prior to this date.

Table 3.1 – The Project

Description of the project	Described in section 1.0 above.
Client	Gwynedd Council
Client Representative	YGC
Principal contractor	Griffiths
Principal Designer	YGC
Other consultant	Arup
Project works covered by this plan	Whole project
Significant works to be subcontracted	Sheet piling and CFA piling

3.2 Hours of Work

Site construction hours will be:

The normal working hours will be 08:00-18:00 Mon-Fri; 09:00-13:00 Sat, no site activities on Sundays or Bank Holidays. Exceptional, consent for work outside these hours may be given after any necessary consultation. 3 days' notice is required from the Contractor when seeking such consent.

3.3 Existing Records, Drawings & Information

Table 3.2 – Information Records

Records	Date Received	Provided by
Pre-tender Information	January 2024	YGC
Asbestos Register/Information	Not Received	

Drawings	January 2024	YGC
Environmental Information	January 2024	YGC
Drainage Information	January 2024	YGC

3.4 Project Programme

Whilst the anticipated completion date stated is updated as necessary in revisions to the CEMP, it is indicative only and has no contractual significance.

Table 3.3 – The Project Programme

Contract award date	03/06/24
Issue of Pre-Construction Information Pack (PCIP) to Principal Contractor	Tender
Time allocated by Client/CDM Coordinator for the planning and preparation of the construction work	12 weeks
Ecological & Environmental Surveys available – PEA etc.	Yes
Site Possession	21/10/24
Construction Phase Start Date	21/10/24
Planned construction completion date	30/01/26

3.5 Project Objectives

AGC seeks to meet its overall objective of satisfying all stakeholders on the project.

The specific objectives concerning production and service provision are as set out in the specification and other contract documents.

The Project Manager monitors performance and records data for input into the project KPI database from which the performance of the project can be benchmarked and the overall performance of the company can be measured against its targets.

Table 3.4 – Project Specific Objectives & Targets

Table 3.5 – AGC Objectives and Targets

Objective	Target	Performance Indicator
90% reduction in excavation waste to landfill	90%	KPI/SWMP
Zero significant environmental Incidents	Zero	KPI/GEMS

3.6 Planning

Planning - Planning permission is required for this contract

Planning permission has been granted.

The planning requirements are detailed in application [C23/0806/00/LL](#) see appendix.

Add any pertinent details and reference a plan showing the red line boundary.

3.7 Environmental Consents, Licences and Permits/Exemptions

Guidance on when a consent, licence or permission is needed and how it is obtained is provided in environment form **EN.F.03 Project Permits & Consents Register**. Copies of these are presented in **Appendix 6**.

The consents detailed below in **Table 3.7** are required for this contract

Table 3.7 Environmental Consents Licences and Permits

Consent/Permit Reference	Requirement	Start Date	End date
Marine Licence	Yes	Oct 2024	Jan 2026
Ordinary Water Consent	No		
Flood Risk Activity Permit	No		
Environmental Permit	Yes	Oct 2024	Jan 2026

Marine Licence Conditions

Notification and Inspection

3.1 Notification of Commencement

3.1.1 The Licence Holder must notify the Licensing Authority no less than 10 days before the commencement of the Licensed Activities, or an individual phase of the Licensed Activities, is expected to

commence. 3.1.2 The Licence Holder must notify Welsh Government Marine & Fisheries Division (Control & Enforcement Branch) no less than 10 days before the commencement of the Licensed Activities, or an individual phase of the Licensed Activities, is expected to commence.

3.1.3 The Licence Holder must ensure that local mariners and fishermen's organisations are made fully aware of the Licensed Activities through local notices to mariners 10 days prior to the commencement of the Licensed Activities.

3.2 Notification of Vessels and/or Vehicles

The Licence Holder must ensure that the details of the vessels and/or vehicles utilised to undertake the Licensed Activities are submitted to the Licensing Authority and Welsh Government Marine & Fisheries Division (Control & Enforcement Branch) at least 24 hours prior to the commencement of the Licensed Activities.

3.3 Notification of Agents/Contractors/Sub-contractors

The Licence Holder must ensure that details of any agent(s), contractor(s) or subcontractor(s) utilised to undertake the Licensed Activities are submitted to the Licensing Authority at least 24 hours prior to the commencement of Licensed Activities.

3.4 Notification of HM Coastguard

The Licence Holder must ensure that HM Coastguard is made aware of the Licensed Activities at least 24 hours prior to commencement by contacting The National Maritime Operations Centre at zone30@hmcg.gov.uk.

3.5 Inspection of Licensed Activities

The Licence Holder must allow Marine Enforcement Officers or any other person authorised by the Licensing Authority to inspect the Works at any reasonable time.

3.6 Notification of Completion

3.6.1 The Licence Holder must notify the Licensing Authority within 10 days of completion of the Licensed Activities.

3.6.2 The Licence Holder must notify Welsh Government Marine & Fisheries Division (Control & Enforcement Branch) within 10 days of completion of the Licensed Activities. Licence Number: CML2332 Page 8 of 13

3.7 Accident or Emergency

3.7.1 If, by reason of force majeure any substances or articles are deposited otherwise than as permitted as part of the Licensed Activities or in the Licensed Area full details of the circumstances shall be notified to the Licensing Authority within 48 hours of the incident occurring.

3.7.2 If it is necessary for the Licence Holder to recover or remove any equipment, plant or machinery used to undertake the Licensed Activities that have been dropped as a result of an accident or emergency, the Licence Holder is permitted to do so provided that the methodology for such recovery or removal has been approved by the Licensing Authority.

3.8 Distribution of Copies of this Licence

The Licence Holder is required to ensure that a copy of this Licence is given to: • All agent(s), contractor(s) and sub-contractor(s) whose names have been provided to the Licensing Authority under condition 3.3 and • The

Masters of any vessels and transport managers responsible for the vehicles employed in accordance with this Licence whose details have been submitted to the Licensing Authority under condition 3.2.

3.9 Inspection of Documents

Copies of this Licence shall be made available at the following locations:

- *at the address of the Licence Holder specified in section 1.2;*
- *at any site office, located at or adjacent to the Licensed Area, used by the Licence Holder or its agent(s), contractor(s) or sub-contractor(s) responsible for the loading transportation or deposit of any substances or articles permitted as part of the Licensed Activities;*
- *on board each vessel or vehicle carrying out Licensed Activities.*

The documents referred to in this Condition shall be available at all reasonable times for inspection by officers appropriately authorised by the Licensing Authority and authorised Marine Enforcement Officers at the locations stated in that paragraph.

Vessels, Plant and Equipment

3.10 Notified Contractors, Vessels and/or Vehicles only to Carry out Licensed Activities

Only those agent(s), contractor(s), sub-contractor(s), vessels and/or vehicles whose details have been notified to the Licensing Authority may operate under the terms of this Licence. Any changes must be notified to and be approved by the Licensing Authority in writing prior to any such agent, contractor, subcontractors or vehicles carrying out any Licensed Activities pursuant to or otherwise operating under this Licence. Licence Number: CML2332 Page 9 of 13

3.11 Refuelling of Plant and Equipment

The Licence Holder must ensure that plant, vehicles and machinery are not refuelled on the foreshore or in the sea.

3.12 Equipment, Structures and Access

The Licence Holder must ensure that all equipment, temporary structures, access tracks, waste and/or debris associated with the Licensed Activities are removed on completion of the Licensed activities.

Safety

3.13 Removal of Deposited Material

If the Licensing Authority considers it necessary or advisable for the safety of navigation, the Licence Holder must remove any deposit specified by the Licensing Authority or Marine Enforcement Officers within one month of notice being given by the Licensing Authority, and shall not replace such material until the Licensing Authority has given its written approval.

Pollution control

3.14 Pollution Prevention

The Licence Holder must ensure that pollution prevention best practice is adhered to at all times. Any incidents must be reported to the Licensing Authority as soon as possible using the hotline number 0300 065 3000.

3.15 Spillage of Pollutants

The Licence Holder must employ bunding, storage facilities and spill kits to contain and prevent the release of fuel, oils and chemicals associated with the plant, refuelling and construction equipment into the marine environment. Secondary containment must be used with a capacity of no less than 110% of the container's storage capacity

3.16 Prevention of Disposal of Man-made Debris

The Licence Holder must ensure that all reasonable precautions are taken to prevent the disposal of man-made debris to the marine environment. Such material must be removed immediately and be disposed of appropriately. If it is not possible to prevent manmade debris from entering the marine environment during the Licensed Activities, the Licensed Activities must cease immediately.

3.17 Cleanliness of Equipment

The Licence Holder must ensure that equipment, machinery and PPE are washed with freshwater and/or thoroughly airdried before deployment and before moving between locations.

Activity-specific Conditions

3.18 Use of Render and Concrete

The Licence Holder must ensure that no waste concrete slurry or wash water from the use of concrete or cement are discharged into the marine environment. Concrete and cement mixing and washing areas should be contained and sited at least 10 metres from any watercourse or surface water drain to minimise the risk of runoff entering a watercourse.

3.19 Concrete Cure Time

The Licence Holder must ensure materials used are suitable for use in the marine environment and works should be timed to ensure maximum concrete cure time.

3.20 Construction, Alteration or Improvement – Returning to Original Profile The Licence Holder must ensure the area is returned to the original profile, or as close as reasonably practicable, following the completion of works.

3.21 Construction Environmental Management Plan (CEMP)

3.21.1 The Licence Holder must submit a construction environment management plan to the Licensing Authority for written approval at least 6 weeks prior to commencement of the Licensed Activities. No Works may be undertaken prior to written approval from the Licensing Authority.

3.21.2 The Licence Holder must ensure that any actions outlined in the documents detailed in condition(s)

3.21.1 are implemented as approved in writing by the Licensing Authority. Any proposed changes to the actions outlined in the documents must be submitted to, and approved in writing by, the Licensing Authority prior to any changes being enacted.

4.0 Management

4.1 Organisation and Responsibilities/Appointments

The Project Manager is responsible for the implementation of this plan to ensure that:

- the requirements of this plan are communicated to the project team and subcontractors required to work in accordance with it
- all activities are planned, implemented and controlled
- the activities of those working to this plan are coordinated and interface problems resolved
- progress of implementation is monitored
- corrective and preventive actions are controlled
- audit findings are reviewed and actioned as appropriate
- this plan is reviewed with project changes and revised as required.

The organisation chart of **Appendix 2** describes the project team and their relationships. This team is constantly reviewed against changes in the scope of the work.

The site Project Manager gives written notice to individual personnel of responsibility for the designated roles listed in **Appendix 2**.

The organisation chart and signatory powers are amended as the project team members or their specific responsibilities change. Records of changes are retained in the project records so that responsibility at each stage of the work can be identified.

Personnel at every level are required to actively help to eliminate potential adverse effects on the environment, health and safety, quality and the business by personal example, the application of their knowledge, experience and management skills or by bringing matters to the attention of their supervisors. Personnel are empowered to stop their work where this is essential to prevent adverse effects on environment, health, safety, or quality and are required to notify their supervisor immediately. Personnel appointed to this project are detailed in **Table 4.1** below.

Table 4.1 – Project Appointments

Position	Person Appointed
Project Manager	Iwan Pritchard
Site Agent	Llion Davies
Site Engineer	TBC
Quality Manager	Iwan Pritchard
Health & Safety Advisor	Peter Roberts
Environmental Coordinator	TBC
Ecologist	RML
Public Liaison Officer	Rich Foxall

4.2 Internal Communication

Environmental risks, opportunities, documentation and processes will be communicated across the project team and to the AGC Leadership team. As a minimum the Environmental Policy Statement and the Sustainability policy will be visible on all project notice boards, communicated at site induction. Incidents and opportunities will be communicated at weekly SHEQ meetings, AGC newsletters and team stand-downs.

The requirements of this CEMP and task specific environmental risks will be communicated to the Construction teams in the RAMS and the EPP applicable to each activity.

4.3 Client and Other Stakeholder Communication

The Project Manager determines and implements effective arrangements for formal communication with the client or his representative in relation to information, enquiries, amendments, approvals and feedback including complaints utilising the Stakeholder Engagement Plan which is presented in Appendix 5.

On this project, such communication is achieved at review meetings and as indicated in **Table 4.2**.

Table 4.2 – Client communication

Organisation	Position	Contact Details
Gwynedd	Client	See above
YGC	Clients Agent	See above
Arup	Client designer	See above

In addition, the Project Manager establishes communication links with other stakeholders such as the Designer, Principal designer, local authority, regulators, community representatives etc. Details of these are provided in Table 4.3.

Table 4.3 – Stakeholder Communication

Name and Company	Contact Details
Gwynedd Council	See above
Highways Authority	Gwynedd Council
NRW	
BT Openreach	
Dŵr Cymru	
Scottish Power	
Wales and West Utilities	
Network Rail	

4.4 Change Control

All changes to contract requirements, together with changes to arrangements, resources and subcontracts are recorded in accordance with any relevant contract requirements.

Superseded documents are promptly withdrawn from use and are clearly marked as superseded.

All changes to construction requirements are reviewed for possible effects on existing risk assessments and subsequent control arrangements.

Changes to AGC's procedures and guidance documents within the BMS are notified to Project Managers via controlled email and to all personnel via bulletins. Changes to legislation are monitored by via bulletins and/or the issue of revised documents.

4.5 Project Management Documentation

The following documents are to be used in the management of the project:

- Mandatory AGC procedures and standards
- AGC guidance documents (including standard checklists and forms)
- Project health, safety and environmental risk assessments
- Project procedures, method statements and risk assessments/aspects & impacts
- Project resourced programmes
- Drawings register
- Change management register (CMR) including register of early warnings and compensation events (or equivalent dependent on contract)
- Requests for information
- Register of nonconformities and complaints
- Inspection and Test Plans (ITP)
- Register of submissions and approvals
- Records

The Project Manager is responsible for ensuring that the relevant documents are available to personnel required to use them, and personnel carrying out the work are responsible for ensuring that the current documentation is used.

4.6 Project Review

Reviews of contract requirements are undertaken by the Project Manager to ensure that requirements are adequately defined and documented and that queries are resolved.

Reviews are held at the start of each project by establishing the requirements specified by the client, (including programme), requirements not specified but necessary (information required), statutory and regulatory requirements and any additional requirements.

Further reviews are undertaken throughout the duration of the project at internal meetings of the project team and at meetings with the client's representative to verify that planned arrangements remain suitable and are effective in controlling the work. These meetings also review the results of audits, nonconformities and problems and establish actions to prevent recurrence and improve the system.

The anticipated frequency, attendance for meetings are set out in **Table 4.4**.

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Table 4.4 –Review meetings

Meeting	Frequency	Attendance
Progress	Monthly	Project Manager, Environment Advisor/ECOW, Site Manager etc.
Risk Workshops & Risk Reduction Meetings	2 Weekly	Insert details
Environmental Review	Monthly	Project Manager Environment Advisor/ECOW, Site Manager etc
Change Control & Change Management Meetings	Monthly	Project Managers, QA etc.
Design management/ review meeting	Monthly	Project Manager, Design coordinator, Designer's representatives etc

The project management team, assisted by their contractors, will review the plan at regular intervals.

4.7 Project Records

Project records are maintained throughout the duration of a project as evidence of the compliance, conduct, progress and certification of the project works, and to provide assurance that relevant requirements have been met.

These records include all correspondence, instructions, minutes of meetings, as-built programmes, resource schedules, registers, test certificates, inspection checklists, training records etc. Project records are maintained and archived in accordance with the project document control system defined within this project management plan and designed in accordance with **BMS.P.04 Document Control**.

All relevant Risk assessments, method statements and subcontractor documents are filed within the project filing system.

Arrangements for the collection and storage of this information are agreed with the Principal Designer and notified to all relevant contractors during the start-up meeting.

Environmental records are retained in files within the project filing system in accordance with **EN.F.01 Environmental Checklist** and **EN.F.06 Environmental Permit to Proceed**.

Waste Transfer Notes (WTNs) are retained for a minimum of two years and Hazardous Waste Consignment Notes (HWCNs) for a minimum of three years.

Sustainable Waste Materials Request Process

4.8 Project Document Management

The Project Manager establishes a formal project document management system in accordance with the following requirements as detailed in **BMS.P.04 Document Control**.

All documents received or issued by the project are controlled and maintained in accordance with **BMS.P.04**.

The relevant parts are communicated to all project personnel required to work with documents. **BMS.P.04 Document Control** defines how this is achieved.

4.9 Project Audit

Audits are programmed to match current demands and problems, and system coverage is monitored by the SHEQ Department who advise the directors as to the continuing sufficiency of the programme. The purpose of audits is to:

- verify compliance with AGC’s arrangements for quality, health and safety and environmental management at the location and in particular to check compliance with this project management plan (operational requirements)
- assess management against ISO 9001, ISO 45001 and ISO 14001 to highlight potential improvements in the system and to verify against an objective standard that good management practice is in operation (system requirements)
- confirm that the system gives satisfactory effect to statutory requirements and AGCs policy (regulatory requirements)
- Audits are undertaken in accordance with the Procedure **BMS.P.10 Audit & Inspection** by trained internal auditors who are selected by the SHEQ Department, The Project Manager/Site Agent are to ensure prompt close out of actions arising from audits.

The Project Manager makes arrangements to accommodate internal audits, together with any external audits requested by the client or his representative, or arranged by the SHEQ for the registration bodies.

4.10 Incident Response Plan (IRP) and Emergency Arrangements

All incidents will be managed in accordance with the **Environmental Incident Management Standard (EN.S.09)** in conjunction with the **Incident Reporting Standard (EN.S.40)** and the **Emergency Preparedness Plan (EN.F.16)**.

Site-specific emergency procedures are prepared to ensure limitation of injury and damage should an incident occur. All incidents and recovery operations must be recorded on GEMS and be reported to the Environment Advisor. These procedures are communicated to the workforce at induction and toolbox talks and are displayed on notice boards.

Emergency procedures are drilled at an appropriate frequency to ensure continued suitability. These are detailed in **Table 4.5** below.

Table 4.5 – Incident and emergency arrangements

Site Emergency arrangements	Are arrangements to be drilled?	Frequency of drill
Fire retardants/residue/firewater	Yes	Monthly
Oil and chemical spill	Yes	Monthly
Watercourse pollution	Yes	Monthly
Flood Procedure	Yes	Monthly

Following an incident, communication with the media and public is managed and controlled. The incident coordinator nominated in **Appendix 2** is responsible for such communications.

4.11 The Local Community

The Project Public Liaison Officer (PLO) investigates the local area around the site and identifies residents, businesses, facilities such as hospitals and schools, associations and other community organisations that may be adversely affected by the project works. In consultation with the client's representative, and subject to any contract restrictions, the PLO communicates with those potentially affected and explains the nature of the works. Notice boards describing project progress may be installed.

Particular attention is given to site neighbours, who are continually informed of matters affecting their property and activity.

Opportunities are also sought for positive action in the local community such as support to local businesses, charities, community groups, school visits and assistance with community improvement projects.

4.12 Training and Competencies

All staff commencing employment on the site, including sub-contractors, will attend a site induction prior to starting works.

- The site induction will include information on areas of environmental sensitivity, how the site activities may affect them, methods necessary to protect them. These are to include activities to be avoided, recognition of ecological constraints, including invasive and protected species and procedures, Incident response procedures, risk assessment and method statement briefings and relevant environmental legislation for the project.

- Site staff shall provide proof of competency to perform any tasks that have the potential to cause a significant environmental impact. Should it be required, project/site specific training will be provided.
- Records of all personnel competencies and all attendees on induction courses shall be kept on site.
- Supplementary toolbox talks will be provided if deemed necessary,
- All managers and supervisors will be briefed on the CEMP.
- Site -specific Method Statements will be prepared prior to the works commencing and will include environmental protection, mitigation measures and emergency preparedness appropriate to all activities undertaken. The Project Manager or Environment Advisor will review key Method Statements prior to their issue.

4.13 Complaints, Control of Records and Management Review

All complaints or information requests will be made notified to the Project Manager and will be logged promptly within the site records and the project delivery team.

Careful monitoring of complaints received, including recording details of the location of the affected party, time of the disturbance and nature of the complaint received can assist with managing the works to reduce the likelihood of further complaint.

Environmental monitoring will be undertaken in order to provide information to be taken into account during construction and to feed back into the CEMP and method statements, and to evaluate the environmental effects of the construction process.

The project Environment Advisor is responsible for establishing a programme of environmental monitoring. This will include monitoring against any consent & contractual requirements, objectives and targets.

Environmental records, including waste management records, will be maintained in accordance with the respective company procedure and legal requirements. The records are to be maintained, in either hard copy or electronic format as required by the individual procedure that the records relate to, in such a way that they are readily identifiable, retrievable and protected against damage, deterioration or loss. The procedure that the records relate to also specifies the retention time for the records and who has the authority to dispose of them.

Review of the CEMP will be carried out at each project phase and where changes are made that impact the scope of the works to ensure its continuing relevance and accuracy.

Noise restrictions:

Mitigation measures must be implemented (as outlined in section 7 of the Noise and Vibration Impact Assessment by Bureau Veritas dated August 2023. Before the development work commences a Noise Management Plan should be submitted to and approved in writing by the Local Planning Authority. The development shall be undertaken in accordance with the approved plan.

Noise barriers will be imposed along the northern boundary of the site for construction work near NSR1 shown to experience a detrimental impact from construction noise to achieve a reduction in construction noise up to 10 dB.

Noise

Schedule		Total Noise Levels at Control Stations		
Period	Hours	Ambient Noise Level, Leq Measured at Control Station: dB(A)	Period of Hours over which Leq is applicable.	Maximum Sound Level measured at Control Station: dB(A)
Mondays to Fridays	0800-1800	67	10	82
Mondays to Fridays	0700-0800 1800-1900	60	2	75
Saturdays and Sundays	0900-1600	67	9	82
All unattended plant outside normal working hours		45		55

Vibration restriction:

a. Criteria:

1mm per sec ppv residential properties

3mm per sec ppv commercial properties

b. Damage Criteria (DIN 4150):

3mm per sec ppv residential properties

5mm per sec ppv commercial properties

5.0 Environment

5.1 Summary and Action Plan of Key Environmental Aspects and Impacts

Details of the Environmental Aspects and Impacts of the project will be sought from the Client's Representative through the Design Environmental Risk assessment (DERA), enquiry documentation, other data sources and surveys. An **Environmental Permit to Proceed (EPP)** is to be approved by the Environment Advisor/ECoW prior to all works taking place.

The following tables show the highest scoring environmental and social impacts taken from the site-specific Aspects & Impacts Register for the Project. See **Appendix 3**.

Table 5.1-Highest Scoring Environmental Risk

Activity	Risk	Description	Control Measures	Responsibility
Compaction, disc cutting/piling/demolition/	Statutory noise nuisance	Noise impacts to local residents/schools/business	Plant engines to be directed away from sensitive receptors. Install noise barriers Use quiet plant/equipment Section 61 agreement may be required Noise monitoring	Site Agent
Site traffic, construction activities, waste storage and stockpiles	Dust impacts to local properties, roads and ecology	Dust created by construction activities, particularly when windy.	Seal all soil and aggregate stockpiles Cover skips Use road sweeper Damp down site haul roads and demolition/screening activities Adhere to site speed limits	Site Agent
Construction activities/ piling	Property damage	Cracks to façade, structural instability	Building survey and vibration monitoring may be required	Site Agent
Dewatering excavations and site run off	Pollution Prosecution	Water run off to drains/ditches/water courses. Run off from haul roads and stockpiles. Dewatering excavations	Seal stockpiles Use road sweeper Use filter sock / sediment tank/ silt buster to remove fines from water prior to discharge Environmental Permit may be required.	Site Agent
Fuel/chemical storage	Pollution Prosecution	Run off into drains/ditches and water courses and onto land	Store all fuel/chemicals securely in double bunded containers. Store away from drains etc. Maintain adequate supply of spill kits	Site Agent
Excavation	Contaminated land – soils and	Exposure to site workers and off-site	Cease work and test for contamination. Consider	Site Agent

Activity	Risk	Description	Control Measures	Responsibility
	water and pollution	receptors. Waste generation Disturbance could cause contamination to spread	remedial measures and re-use options	
Waste Storage	Prosecution	Mixing non-hazardous and hazardous waste. Re-using site won soils without MMP	Segregate different waste types and label accordingly. Seek advice from Environment Advisor.	Site Agent
Non-native Invasive plant species	Contravention of the Wildlife and Countryside Act	Spreading off site	Cease works when identified and seek advice from Environment Advisor. Refer to Biosecurity Plan.	Site Agent
De-vegetation/ tree removal	Ecology	Disturbance to ecological receptors	Must be checked by an ecologist no more than 48hrs before removal. Check for TPO.	Site Agent

Table 5.2 – Highest Scoring Social Risks

Activity	Risk	Description	Control Measures	Responsibility
Construction	Noise	Disturbance to community	Avoidance where practicable Daytime works where practicable Mitigation – acoustic barriers, mains or hybrid generators etc.	Site Agent
Traffic	Congestion	Disturbance to community	Avoid 'rush hour/school run' hours for deliveries/major traffic movements	Site Agent
Compaction, disc cutting/piling/demolition/	Statutory noise nuisance Ecological disturbance	Noise impacts to local residents/schools/business / Disturbance to two identified wintering bird roosts Disturbance to wintering birds Disturbance to marine mammals	Plant engines to be directed away from sensitive receptors. Install noise barriers Use quiet plant/equipment Section 61 agreement may be required Noise monitoring Disturbance buffer 150m around roosts No piling Sept –	Site Agent

Activity	Risk	Description	Control Measures	Responsibility
			March No piling in high tide Piling in summer months to reduce duration of work when more daylight hours	
Construction activities/ piling	Vibration damage to structures Ecological disturbance	Cracks to façade, structural instability Disturbance to marine mammals	Vibration monitoring No piling Sept – March No piling in high tide Piling in summer months to reduce duration of work when more daylight hours	Site Agent
Construction activities/ excavation	Damage to archaeology	Masonry retaining wall Tank traps Beach Rd East car park parapet wall	Written scheme of investigation and archaeological watching brief	Site Agent
Site traffic, construction activities, waste storage and stockpiles	Dust impacts to local properties, roads and ecology	Dust created by construction activities, particularly when windy.	Seal all soil and aggregate stockpiles Cover skips Use road sweeper Damp down site haul roads and demolition/screening activities Adhere to site speed limits	Site Agent
Dewatering excavations and site run off	Pollution	Water run off to drains/ditches/watercourses. Run off from haul roads and stockpiles. Dewatering excavations	Seal stockpiles Use road sweeper Use filter sock / sediment tank/ silt buster to remove fines from water prior to discharge Environmental Permit may be required.	Site Agent/ Environment Advisor
Fuel/chemical/ concrete storage and use	Pollution	Run off into drains/ditches and water courses and onto land	Store all fuel/chemicals securely in double bunded containers. Store away from drains.	Site Agent

Activity	Risk	Description	Control Measures	Responsibility
			Use biodiesel and biodegradable oils/lubricants Maintain adequate supply of spill kits. Concrete wash out 10m away from marine environment and carefully controlled	
Excavation	Contaminated land – soils and water and pollution	Exposure to site workers and off-site receptors. Waste generation Disturbance could cause contamination to spread	Cease work and test for contamination. Consider remedial measures and re-use options	Site Agent/ Environment Advisor
Waste Storage	Contravention of Environmental Protection Act	Mixing non-hazardous and hazardous waste. Re-using site won soils without MMP	Segregate different waste types and label accordingly. Seek advice from Environment Advisor.	Site Agent/ Environment Advisor
Litter/man made debris	Contravention of Marine Licence	Disturbance to ecology	No litter to be left on the foreshore. Marine licence to be briefed to operatives	Site Agent/Environment Advisor
Invasive non-native plant species	Contravention of the Wildlife and Countryside Act	Spreading off site	Identify location and cordon off. Cease works when identified and seek advice from Environment Advisor Keep plant and machinery clean Install boot wash	Site Agent/ Environment Advisor
De-vegetation/ tree removal	Ecology	Disturbance to ecological receptors	Must be checked by an ecologist no more than 48hrs before removal. Check for TPO.	Site Agent/ Environment Advisor/ECOW

In order for all site operatives and sub-contractors to be aware of project specific environmental risks the following toolbox talks (TBT) are proposed.

- Working in a tidal environment
- Specific permit/consent controls

- Pollution Prevention
- Flood Risk
- Protected Species
- Invasive non native species
- Noise
- Litter
- Waste Management

Tidal and beach working procedures:

When working on a tidal beach with excavators and large dump trucks, it's crucial to implement several mitigation measures to ensure safety, environmental protection, and operational efficiency. Here's a breakdown of what we will have in place as mitigation measures:

- **Emergency Rescue Plan:** Procedures for dealing with people or equipment getting stuck or stranded by the tide, including quick evacuation routes and safe zones.
- **Rescue Equipment:** Equip the site with life-saving equipment like life vests, ropes, flotation devices, and potentially towing equipment if the risk of water exposure is significant.
- **First Aid Kits:** Ensure that well-stocked first aid kits are readily available, along with personnel trained in first aid.
- **Communication:** Establish a communication system (radios, mobile phones) with backups to maintain contact with all operators and crew, especially those working near the waterline.
- **Tidal Charts:** Display up-to-date tidal charts prominently, and ensure all workers are aware of tidal schedules.
- **Tide Monitors:** Assign personnel to monitor tide changes and weather conditions, with authority to halt operations if the tide becomes hazardous.
- **Training:** Provide specific training to all operators on the risks associated with tides, quicksand, and the potential for rapid water level changes.
- **Inspection:** Regularly inspect vehicles and machinery for proper functioning, especially brakes and emergency systems.
- **Movement Plans:** Develop a movement plan that outlines safe operating zones for vehicles, avoiding areas prone to flooding or unstable ground.
- **Anchoring:** In areas prone to soft sand or mud, have a plan to secure machinery against sinking or tipping over.
- **Minimize Disturbance:** Limit the footprint of the work area and avoid disturbing natural vegetation as much as possible.
- **Vehicle Wash-Down:** Implement wash-down facilities for vehicles leaving the site to prevent the spread of invasive species and minimize offsite sediment transport.
- **Spill Kits:** Place spill response kits near all working areas to handle any oil, fuel, or hydraulic fluid spills quickly.
- **Containment:** Use drip trays or containment areas under stationary machinery to catch leaks.
- **Waste Management:** Implement a waste management plan that includes proper disposal of all debris and potential pollutants.

- **Wildlife Monitoring:** Have environmental monitors assess and document any local wildlife, especially sensitive species.
- **Buffer Zones:** Establish buffer zones around any sensitive habitats identified.
- **Work During Low Tide:** Schedule heavy machinery operations during low tide periods to minimize the risk of flooding and provide a stable work surface.
- **Weather Considerations:** Continuously monitor weather forecasts for storms or high waves that could affect the safety and stability of the working area.
- **Access Routes:** Design and mark safe access routes for vehicles and personnel, ensuring they are above the high-tide line and avoid environmentally sensitive areas.

5.2 Verification of Environmental Control Measures

Site operations are monitored to ensure:

- Legislative requirements are met
- Client and contractual requirements are met
- AGC's policy requirements and the requirements of ISO 14001 are met

AGC place prime responsibility for minimising the potential detrimental environmental impact of its activities upon line management. This is accomplished by the monitoring of site operations and activities by all managers and supervisors. The Project Manager undertakes formal site environmental inspections weekly and periodic environment tours are also undertaken by directors and senior managers.

The SHEQ Department ensures that for every AGC site an Environment Advisor or ECoW is appointed, whose duties include regular environmental inspections and reports.

The frequency of inspection is based on risk with an increased frequency for sites of a particularly hazardous or complex nature. Environmental reports are made of every visit and logged on the GEMS system and appropriate actions issued as required.

The inspection and audit schedule, as a minimum, is detailed in **Table 5.3** below.

Table 5.3 Audit/Inspection Schedule

Audit/Inspection Ref.	Audit/Inspection Scope	Frequency
EN.F.01	Environmental Checklist	Monthly
EN.F.07	Water Monitoring Form	Dependent on works

Where a potential non-conformance or opportunity for improvement is identified, a Close Call shall be raised on the GEMS system and the record used to document actions taken. Where a confirmed non-conformance is

identified it will be managed in accordance with the **BMS.P.13 Non Conformance and Corrective Action Procedure**.

5.3 Cultural Heritage - Archaeology and Listed Structures

In the event of an unexpected discovery of archaeological remains on site, AGC will inform the Client's Representative immediately and protect the remains until agreement is reached with the Client's Representative, and appropriate Statutory Bodies, on the methods for continuance of the works.

Arrangements for dealing with known archaeological areas or listed structures are defined in in **Table 5.4** accordance with **EN.S.06 Management of built heritage and archaeology**.

5.4 Agriculture and Land Use

n/a

5.5 Biosecurity

Appropriate construction, handling, treatment and disposal procedures will be implemented in relation to these and any other species listed in Schedule 9, Part I or Part II of Section 62 of the Wildlife and Countryside Act 1981 (as amended) or the Weeds Act 1959 to prevent the spread of such species.

Measures will be implemented to promote bio-security and minimise the risk that invasive non-native species and diseases are spread as a consequence of the project. Removal of any invasive species will take account of ecological best practice guidance and appropriate measures will be taken to identify and protect other features of environmental importance (e.g., heritage assets).

A total of six floral INNS were recorded within 2.0km of the Site, they are listed below:

- Rhododendron (Rhododendron ponticum);
- Himalayan balsam (Impatiens glandulifera);
- Himalayan cotoneaster (Cotoneaster simonsii);
- Japanese knotweed (Reynoutria japonica);
- Japanese rose (Rosa rugosa); and
- Montbretia (Crocasmia pottsii x aurea = C. x crocosmiiflora).

No INNS were recorded within 50m of the Site during the Extended Phase 1 Habitat survey, although the survey was undertaken outside of the optimal survey period. An INNS survey will be undertaken by a suitably qualified ecologist during the optimal survey period.

The closest records include Japanese rose approximately 0.1km west of the Site, in addition to Japanese knotweed and montbretia approximately 0.1km south-east of the Site.

A Biosecurity Risk Assessment is to be submitted to and approved by Gwynedd Council prior to development. It will detail measures to control, remove or long term management of invasive non native species during construction and operation by AGC.

5.6 Ecology

Ecology and biodiversity are managed in accordance with AGC standard **EN.S.02 Ecology and Biodiversity**. There are several guidance notes for protected species available on the BMS.

The project The project is located within an area of high environmentally sensitivity. The European designated sites that could be impacted by the construction works, without mitigation, are detailed below.

Table 5.5 Designated Sites

Designated site	Detail
Lleyn Peninsula and the Sarnau SAC	See page 12,13,14 of Ecological Impact Assessment
Meirionnydd Oakwoods and Bat Sites SAC	See page 12,13,14 of Ecological Impact Assessment
Northern Cardigan Bay SPA	See page 12,13,14 of Ecological Impact Assessment
Cadair Idris SAC	See page 12,13,14 of Ecological Impact Assessment
Mawddach Estuary SSSI	See page 12,13,14 of Ecological Impact Assessment
Barmouth Hillside SSSI	See page 12,13,14 of Ecological Impact Assessment
Dinas Oleu SINC	See page 12,13,14 of Ecological Impact Assessment
Garn SINC	See page 12,13,14 of Ecological Impact Assessment
Orielton Wood SINC	See page 12,13,14 of Ecological Impact Assessment
Wern Mynach SINC	See page 12,13,14 of Ecological Impact Assessment
Fegla Fawr Saltings SINC	See page 12,13,14 of Ecological Impact Assessment
Ffridd y Graig & south to Garn SINC	See page 12,13,14 of Ecological Impact Assessment
Coed Glan y Mawddach SINC	See page 12,13,14 of Ecological Impact Assessment

Fegla Fawr Hill SINC	See page 12,13,14 of Ecological Impact Assessment
Ceilwart-ganol SINC	See page 12,13,14 of Ecological Impact Assessment
Llwyn-on SINC	See page 12,13,14 of Ecological Impact Assessment
Barmouth Junction Railway SINC	See page 12,13,14 of Ecological Impact Assessment
Ancient Woodland 25273	See page 12,13,14 of Ecological Impact Assessment
Ancient Woodland 24006	See page 12,13,14 of Ecological Impact Assessment

Mitigation and/compensation is required to minimise impacts to the environment. Restrictions on noise, working hours and lighting will be implemented. Ecological constraints will be managed in accordance with the Environmental Risk Management Process which requires the relevant ecologist to undertake a site-specific risk assessment, review of planned works, identification of adequate controls measures and briefing the construction team.

Protected species licences are recorded in accordance with the Consents Register. Ecological constraints will be managed in accordance with the Environmental Risk Management Process which requires the relevant ecologist to undertake a site-specific risk assessment, review of the planned works and identification of adequate controls measures. Species Licences relevant to the project are detailed in **Table 5.6** below. Copies of these licences are provided in **Appendix 6**.

Table 5.6 Species Licences

Licences will be issued by NRW and will include details of the measures, techniques and strategies to be adopted. NRW yet to confirm if licences are required, not specified within the Preliminary Ecological Appraisal

Species Licence Reference	Requirement	Start Date	End date

Where an Ecological Clerk of Works (ECoW) has been appointed for the project the ECoW will be responsible for providing technical advice and site assurance of adherence to the Licence and Precautionary Method of Working (PMW) requirements.

All construction works will be subject to a site-specific risk assessment to identify sensitive ecological receptors by the ECoW. All relevant controls and permits will then be recorded and briefed through the RAMS. This may include supervision by the ECoW during the construction works.

The works programme has been developed to take account of seasonal ecological requirements. The following constraints have been considered:

- Site clearance works bird nesting season (March to August inclusive) and hibernation season, for example, badgers great crested newt, dormice, reptiles and bats
- Works within watercourses between October and May to minimise the impact on migratory fish and amphibians. This may be a requirement of a Flood Risk Activity Permit (FRAP) within a 'main river'.

A Wildlife Survey Planner is available on the BMS as **EN.G.07**.

All habitats lost as part of the temporary construction works footprint shall be restored to their previous land-use and in some cases enhanced in accordance with contractual requirements. Refer to **EN.G.06 Hedge Translocation Guidance**.

To maximise the potential of re-establishment of natural habitats post construction any topsoil that is stripped will be stored and reused in its original location to ensure local soil and seed bank provenance is maintained.

5.6.1 Protected Species

General measures

Lighting - If any task lighting is required outside daylight hours (typically 30 minutes after sunrise and up to 30 minutes before sunset), directional lighting (towards the ground) with minimal upward spill will be implemented to ensure no light spill over 0.5 Lux on to any vegetation, trees or watercourses which may disturb nocturnal species.

Excavations: Any open excavations during construction should be covered at night or a means for escape such as ramps provided to reduce the risk of trapping or injuring otter or badger (as well as any other animals that may enter the Site).

Vegetation clearance: vegetation clearance is currently undetermined to facilitate the works, habitat losses are to be confined to amenity grassland, the trees, the planters and intertidal habitats (0.0084ha permanent loss for the outfall). Should small-scale temporary clearance be required, this should be conducted under a

Precautionary Method of Working (PMW), such as a phased and directional approach overseen by a ECoW. Any permanent loss of habitats, including trees, will be enhanced and replaced on a 2:1 basis.

Access: Access to the working areas will be via designated tracks only, and storage of materials will be at pre-agreed locations. Materials or plant will not be left overnight in an area that may prohibit access to commuting mammals (such as otter or badger)

Bats

YGC ecologist has reviewed this comment from the ARUP report, and we confirm that there are no bat licencing issues on site and no approval from a licenced ecologist is needed.

Otter

Resting/breeding, foraging and commuting otter may be subject to increased levels of disturbance by noise, vibration and lighting during construction. Foraging and commuting otter may also be subject to increased risk of mortality/injury due to collisions with construction vehicles or entrapment within excavations. Otter surveys have been recommended in the PEA (Appendix C). Surveys have been previously undertaken by YGC.

Mitigation Measures

- Pre-construction surveys will be conducted for otter to establish whether there are any new resting/breeding sites, which may result in the need for an EPS development licence for otter. Night-time works could disturb resting, foraging or commuting otters within approximately 100m of the proposed development, and all day and night works could disturb resting and breeding otter. Details on work timings to reduce disturbance to otter will depend on the pre-construction results and any associated development licence requirements;
- A buffer zone should be maintained around waterbodies at night to avoid unnecessary adverse impacts to otter.
- Any open excavations during construction should be covered at night or a means for escape such as ramps provided to reduce the risk of trapping or injuring otter (as well as any other animals that may enter the Site).
- If any task lighting is required outside daylight hours (typically 30 minutes after sunrise and up to 30 minutes before sunset), directional lighting (towards the ground) with minimal upward spill will be implemented to ensure no light spill over 0.5 Lux on to any vegetation, trees or watercourses which may disturb nocturnal species. This will be secured through the planning application.

- Access to the working areas will be via designated tracks only, and storage of materials will be at pre-agreed locations.
- Materials or plant will not be left overnight in an area that may prohibit access to commuting mammals such as otter

Significance of Residual Effects

Due to the relatively low-level of disturbance required during construction to accommodate the works and following implementation of the CEMP and other measures described above, no significant negative residual effects are anticipated for otter.

Marine mammals

Bottlenose dolphin and grey seal may be at risk of injury from potential pollution and sedimentation, as well as disturbance from construction noise, vibration and water pollution during construction.

Mitigation Measures

- Pilling and other related construction works shall occur in dry conditions only.
- Pilling will cease and standing time will be implemented during high tide. This will ensure that neither species would be likely to be close enough to the site to be impacted by noise or vibration effects.

Significance of Residual Effects

Following implementation of the pollution and sedimentation prevention measures outlined in the CEMP, no significant negative residual effects are anticipated on any marine mammals.

Other notable mammals – terrestrial

Notable mammals such as hedgehog or polecat could be subject to disturbance from terrestrial works. Foraging animals may be subject to increased levels of disturbance by noise, vibration and lighting during construction and may also be subject to increased risk of mortality/injury due to collisions with construction vehicles or entrapment within excavations.

Mitigation Measures

- Any open excavations during construction should be covered at night or a means for escape such as ramps provided to reduce the risk of trapping or injuring mammals. I
- Task lighting is required outside daylight hours (typically 30 minutes after sunrise and up to 30 minutes before sunset), directional lighting (towards the ground) with minimal upward spill will be implemented

to ensure no light spill over 0.5 Lux on to any vegetation, trees or watercourses which may disturb nocturnal species. This will be secured through the planning application.

- Access to the working areas will be via designated tracks only, and storage of materials will be at pre-agreed locations. Materials or plant will not be left overnight in an area that may prohibit access to commuting or foraging mammals such as hedgehog and polecat.

Significance of Residual Effects

No significant negative residual effects are anticipated for other notable mammals (terrestrial).

Breeding birds

Any vegetation clearance, once determined by detailed design of terrestrial habitats, anticipated to facilitate the works, include young trees that may require translocation.

Mitigation

If any small-scale, temporary clearance or translocation of vegetation is required, this should be conducted under a PMW and avoid the breeding bird season (March-August inclusive) to prevent damage or destruction of occupied nests or harm to breeding birds. If this cannot be achieved, works within the core bird nesting season will require an inspection for breeding birds and their occupied nests by the ECoW no more than 24 hours prior to any works commencing. If nesting birds are found during the pre-construction checks, a buffer around the nest will be implemented of at least 5 metres (species conservation status dependent) as agreed with the ecologist and further work within the immediate and surrounding area will be delayed until young have fledged and left the nest, and the nest is no longer in use. Netting of any buildings, vegetation or trees to prevent nesting is not acceptable and will not be employed. If any more extensive vegetation clearance is required, this would be subject to a new impact assessment. Taking into account the above measures, construction and operational effects are considered to be of insignificance at a less than local level.

Significance of Residual Effects Further

assessment of vegetation clearance required will be determined upon completion of the detailed design for terrestrial habitats. Following implementation of the CEMP and other measures described above, no significant negative residual effects are anticipated for birds.

Reptiles

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The site contains very marginal reptile habitat and is largely unsuitable, due to its location, scale and lack of connectivity. Therefore, the requirement for fingertip searches and seasonal constraints not considered necessary and can be removed

Terrestrial invertebrates and marine invertebrates

Vegetation clearance has yet to be determined; however, the terrestrial habitats on site to be affected are of relatively low value for invertebrates, and although intertidal sand, shingle and cobbles are of greater value for invertebrates, the loss (permanent loss of 0.0084ha for the outfall) is negligible given the availability of similar habitat in the wider area. Invertebrates may be at risk of mortality from potential pollution and sedimentation within suitable intertidal habitats.

Mitigation Measures

The permanent loss of intertidal habitat is considered to be minimal compared to the availability of similar habitat in the wider area, though any loss of valuable habitat should be adequately mitigated through offsetting in order to comply with national and local planning policy, preferably reinstated on a like-for-like basis.

Significance of Residual Effects

No significant negative residual effects are anticipated on any invertebrate populations on site.

Fish

Fish may be at risk of localised mortality or injury from potential pollution and sedimentation, as well as disturbance from construction lighting.

Mitigation Measures

- If any task lighting is required outside daylight hours (typically 30 minutes after sunrise and up to 30 minutes before sunset), directional lighting (towards the ground) with minimal spill will be implemented to ensure no light spill over 0.5 Lux on to any watercourses.
- Works will only be taken at low tide, so that there is never any working within the water column.
- Follow dust and pollution management plans attached to this document

Significance of Residual Effects

Following implementation of the pollution and sedimentation prevention measures and lighting specifications no significant negative residual effects are anticipated on any fish populations on site.

Schedule 1 Bird Species

Records of 611 birds were returned within 2.0km of the Site, comprising 104 species. The following WCA Schedule 1 species were included³⁴:

- Peregrine (Falco peregrinus);
- Red kite (Milvus milvus);
- Whimbrel (Numenius phaeopus);
- Chough;
- Barn owl;
- Great northern diver (Gavia immer);
- Osprey (Pandion haliaetus);
- Whooper swan* (Cygnus cgnus);
- Brambling* (Fringilla monitifringilla);
- Black redstart (Phoenicurus ochruros);
- Redwing* (Turdus iliacus);
- Common scoter (Melanitta nigra);
- Mediterranean gull (Ichthyiaetus melanocephalus);
- Cetti's warbler (Cettia cetti).

The closest record was that of chough, where their presence has been recorded at Barmouth Hillside SSSI adjacent to the Site. Records of 324 birds listed within Birds of Conservation Concern (BoCC)^{35,36} are present within 2.0km of the site comprising 25 species of Red (R) and 35 species of Amber (A) status. Species of particular concern within this list include wading bird species bar-tailed godwit (Limosa lapponica) (R), curlew (Numenius arquata) (R), lapwing (R), ringed plover (Charadrius hiaticula) (R) and overwintering wading species whimbrel (A) and common redshank (Tringa totanus) (R). Llyn Peninsula and the Sarnau SAC and Mawddach Estuary SSSI provide suitable habitat for these birds. Additionally, Barmouth Hillside SSSI supports chough (A) throughout the year and has visitors throughout the year including pied flycatcher (Ficedula hypoleuca) (R), black redstart (Phoenicurus ochruros) (A) and wood warbler (Phylloscopus sibilatrix) (R). Ordnance Survey mapping shows that mean high water extends all the way up to the existing sea wall at the site location, making it unsuitable for ground nesting birds.

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There are no known hazel dormice located within the Project Area.

The main dormouse breeding season is considered to be the start of June until the end of August.

- Clearance of hazel dormice habitat during the main breeding season is **not permitted**
- Clearance of hazel dormouse habitat during the active season is **only permitted** in the months April, May and September to October 31st.
- Site clearance of suitable dormouse habitat will be undertaken in accordance with the single stage approach detailed within the Dormouse Conservation Handbook (2006).

5.6.2 Invasive Non-Native Species (INNS)

Locations of any known invasive non-native invasive species have been identified in various locations and will be included in any site-specific risk assessments undertaken.

A total of six floral INNS were recorded within 2.0km of the Site, they are listed below:

- Rhododendron (Rhododendron ponticum);
- Himalayan balsam (Impatiens glandulifera);
- Himalayan cotoneaster (Cotoneaster simonsii);
- Japanese knotweed (Reynoutria japonica);
- Japanese rose (Rosa rugosa); and
- Montbretia (Crocasmia pottsii x aurea = C. x crocosmiiflora).

The closest records include Japanese rose approximately 0.1km west of the Site, in addition to Japanese knotweed and montbretia approximately 0.1km south-east of the Site

Appropriate construction, handling, treatment and disposal procedures will be implemented in relation to these and any other species listed in Schedule 9, Part I or Part II of Section 62 of the Wildlife and Countryside Act 1981 (as amended) or the Weeds Act 1959 to prevent the spread of such species.

Measures will be implemented to promote bio-security and minimise the risk that invasive non-native species and diseases are spread as a consequence of the project. These are described in **section 5.5**.

Removal of any invasive species will take account of ecological best practice guidance and appropriate measures will be taken to identify and protect other features of environmental importance (e.g., heritage assets).

5.6.3 Arboriculture

N/A

5.6.4 TPOs, Woodland, Hedgerows and Species-rich Grassland

Areas of retained woodland, hedgerows and species-rich grassland are to be protected throughout site works via the construction of protective fencing in accordance with **BS5837:2012** and **EN.G.06 Hedge Translocation Guidance**. The fencing will remain in place for the duration of the construction period. No works including tracking of vehicles, storage of material etc. will be undertaken in any areas of retained habitat or their protection zones.

Protective fencing will be installed around all retained ecological features on or adjacent to that plot, particularly any standard trees identified by the arboriculture surveys (in accordance with **BS5837:2012**), ponds and retained grassland. This will ensure that retained, adjacent or enhancement features are not incidentally impacted by the construction works through direct encroachment. Fencing or other protective measures should include a buffer of at least 5m, unless otherwise agreed with an ecologist.

Inside the exclusion area of the fencing, the following shall apply:

- No mechanical excavation under any circumstances
- No excavation by any other means without arboricultural site supervision
- No hand digging without a written method statement having first been approved by the project arboriculturist.
- No lowering of levels for any purpose (except removal of grass sward using hand tools)
- No storage of plant or materials
- No storage or handling of any chemical including cement washings
- No vehicular access
- No fire lighting

Temporary work to be conducted within the exclusion zone shall be completed under the supervision of a suitably qualified arboriculturist.

For works to be undertaken over an extended period and provided that the arboriculturist is satisfied, and after an initial 'tool-box talk', the supervision may be reduced to telephone contact between the site foreman/contractor and arboriculturist.

Only trees and tree groups identified for removal on the Tree Protection Plan shall be removed. All work will be carried out in accordance with **BS39982** industry best practice and in line with any works already agreed with the council.

All landscaping and associated ground preparation within exclusion zones will be carried out sensitively to ensure root damage is mitigated as much as is practicable. At no time is any heavy plant to be used within any protected area. Removal of existing vegetation will be carried out by hand, turf may be removed using a mechanical turf stripper or by hand.

5.7 Contaminated Land

An assessment of potential contamination risks to on and off-site human receptors, controlled waters (groundwater and surface water) and the environment has been undertaken. The following controls will be implemented with respect to contaminated land.

5.7.1 General

The following measures will be incorporated into the pre-construction detailed design process:

- Efforts will be made to re-use site won soils on site and source local materials, where possible.
- Efforts will be made to reduce the transportation of materials on and off site, and the storage of materials on site for significant time.
- Consideration will be given in the design to maximise off-site construction which will reduce both materials used, and waste generated on site.
- Where possible, recycled and secondary aggregates will be specified in the design and used where practicable.
- The design will seek to reduce actively the use of materials of a hazardous nature where viable.

5.7.2 Ground Investigation

A programme of ground investigation to characterise ground conditions has been undertaken and used to inform Contaminated Land Risk Assessment Report. This has been approved by the local Authority and NRW. The report details mechanisms to assess and manage any unexpected contamination that has not already been accounted for. Appropriate best practice techniques and guidance will be adhered to in order to minimise and prevent pollution being introduced or mobilised as a result of the construction works.

Should unexpected ground contamination be encountered works will cease and advice on how to proceed sought from the Environment Advisor.

5.8 Emissions to Air and Nuisance

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Construction activity has the potential to cause nuisance within the site, to site personnel, to local residents, site neighbours and the general public in the form of noise, dust, mud, vibration smoke light and odour.

Activities likely to cause nuisance are identified in accordance with AGC's standard **EN.S.05 Control of Site Nuisance**.

The project will, as far as reasonably practicable, control and limit emissions to the atmosphere in terms of gaseous and particulate pollutants from vehicles and plant used on site, and dust from demolition, earthworks and construction activities (including the use of public highways). If following activity risk assessment, the extent of that nuisance is significant, the Project Manager selects appropriate control measures to avoid the nuisance or mitigate the effects if avoidance is impracticable.

5.8.1 Measures to Reduce Potential Impacts on Air Quality

As a general principle, Best Practicable Means (BPM) will be employed to minimise risk of soiling of property and effects on human health and ecology from dust emissions. The key construction dust risks relate to earthworks; the removal of existing buildings; construction of new or replaced structures and bridges; and the track out of dust by vehicles leaving site. Ensuring that activities that may give rise to dust are minimised and/or suitably mitigated is crucial where there are sensitive receptors close by (such as residential dwellings and designated ecological sites).

Specifically controlled activities include mobile plant, which will be designed, operated and permitted in accordance with the most recent version of DEFRA's Process Guidance Note 3/16 for Mobile Crushing and Screening. It will be regulated under the Environmental Permitting (England and Wales) Regulations 2016 (as amended) via an environmental permit.

If on-site concrete batching is employed, such operations will be undertaken using enclosed plant and in accordance with DEFRA's Process Guidance Note 3/1 and permitted under the Environmental Permitting (England and Wales) Regulations 2016 (as amended). These will be placed as far from sensitive receptors as possible.

Good practice management measures are proposed to limit the impact of emissions from mobile plant and road going vehicles. As significant impacts are not expected, there are no enhanced requirements for the selection of plant based on their emissions performance or adoption of second stage exhaust clean up as might be required within major urban areas with significant existing air pollution issues. Change if significant impacts expected.

5.8.2 Noise

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The project will control and limit noise levels, so far as is reasonably practicable using BPM, so that residential properties and all other sensitive receptors are protected from excessive noise and vibration levels arising from the construction activities.

Best Practicable Means (BPM) will be implemented throughout all work associated with the project. BPM are defined in **Section 72 of the Control of Pollution Act 1974** and **Section 79 of the Environment Protection Act 1990**. as those measures which are '*reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications*'.

The potential noise and vibration effects of the construction works will be minimised by the use of control measures, as suggested by **BS5228-1:2009+A1:2014**.

The following noise reduction methods have been identified and shall be undertaken by the Contractor:

- All vehicles and mechanical plant used for the purpose of the Works shall be fitted with effective exhaust silencers and shall be maintained in good and effective working order;
- All compressors shall be 'sound reduced' models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use and all ancillary pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers;
- Machines, plant and/or vehicles in intermittent use shall be shut down in intervening periods of non or where this is impracticable, shall be throttled down to a minimum;
- Unattended plant outside normal working hours (see paragraph 2 above) should, if possible, be powered by mains electricity otherwise acoustic enclosures will be necessary to minimise sound levels; and
- The Contractor shall do his utmost and employ the best means to minimise noise and vibration produced by his operations and shall pay full regard to the recommendations given in the current British Standard B.S. 5228: 'Noise Control on Construction and Demolition Sites'.
- Without prejudice to the foregoing and to the requirements of Clause 45 and 46 of the Conditions of Contract, the Contractor shall not be permitted to carry out work as stated below, except where such work is required under the terms of the Contract or is absolutely necessary for the saving of life or property or for the safety of the Works:
- Piling, including sheet piling, by percussive methods on Saturdays or Sundays or outside the hours of 08:00 to 19:00 on Mondays to Fridays, inclusive.
- Loading or unloading of materials or plant or the use of power tools within 60 metres of residential property between the hours of 20:00 and 08:00.

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Where it is not possible to reduce noise levels to within the pre-construction ambient noise (LAq, Period) Plus 5dB, despite extensive mitigation, consent to undertake noisy works will be made to the local authority in consultation with neighbouring noise sensitive premises.

5.8.3 Section 61 Control of Pollution Act 1974 (COPA)

The project will manage potential noise impacts from construction works under Section 61 Prior Consent agreements with the LA

The Section 61 application will contain the following information:

- Background noise assessments maybe required by the LA as part of the Section 61 Prior Consent application submission
- Location and nature of short-term activities which will involve construction noise likely to exceed the thresholds and the measures which will be taken to reduce the related noise and its duration
- Any potential noise generating activities which may be required outside of the stated normal working hours for construction and the measures and procedures to be adopted to limit potential nuisance
- Monitoring as appropriate where construction works with higher noise-generating potential proceed in proximity to identified sensitive locations

The Section 61 Prior Consent will set out the monitoring regime to be adopted during the works as the mechanism to validate the predictions made in assessing the noise and vibration generated by the construction activity. Monitoring will utilise either attended or unattended methods dependent on the activity taking place, risk and duration of work and will be agreed in advance with the relevant Las. The monitoring regime will ensure that compliance with BPM and any consented noise levels are adhered to and in collaboration with the Local Authority.

Working hours will be:

The normal working hours will be 08:00-18:00 Mon-Fri; 09:00-13:00 Sat, no site activities on Sundays or Bank Holidays . Exceptional, consent for work outside these hours may be given after any necessary consultation. 3 days' notice is required from the Contractor when seeking such consent.

In the case of work required in response to an emergency or which, if not completed, would be unsafe or harmful to the permanent works or the general public or the environment, the Las will be informed, as soon as

reasonably practicable, of the reasons for, and likely duration of the works. Examples of the type of work envisaged would include where pouring concrete takes longer than planned due to equipment failure, or weather, or where unexpected poor ground conditions, encountered whilst excavating, require immediate stabilisation.

Where works have been rescheduled due to unforeseen circumstances and may extend beyond normal working hours or otherwise change the assessment previously conducted for the Section 61 agreement, the project will apply for a variation to that Section 61 Prior Consent. The timescales for consideration of such changes will be agreed with the Local Authority as part of the Section 61 conditions.

There may be occasions where the project will request road closures to deliver an abnormal load and such requirements will be discussed as appropriate with the Local Authority.

5.8.4 Construction Vibration

The following criteria are intended as a guide; however compliance with these criteria will not absolve the Contractor from a duty of care and wider responsibilities under the Contract.

- a. Criteria: 1mm per sec ppv residential properties 3mm per sec ppv commercial properties
- b. Damage Criteria (DIN 4150): 3mm per sec ppv residential properties 5mm per sec ppv commercial properties

Additional safeguards or tighter controls shall be necessary near sensitive locations e.g. care homes, hospitals, educational establishments, houses, etc

5.8.5 Light Management

Artificial lighting has the potential to adversely impact neighbours and wildlife during construction activities. Works have been planned to avoid night time working where possible.

Compound lighting schemes have been developed and designed to minimise light spill and keep lux levels to a minimum. Timers may be used to limit night time lighting to levels that are required for the safe operation of the site during periods of night time working or to ensure the safety of security personnel patrolling the sites at night.

If any task lighting is required outside daylight hours (typically 30 minutes after sunrise and up to 30 minutes before sunset), directional lighting (towards the ground) with minimal spill will be implemented to ensure no light spill over 0.5 Lux on to any watercourses.

5.8.6 Dust and Fume Management

Dust generation will be monitored and recorded in the Daily Site Diary. In accordance with BPM the following mitigation measures will be considered:

- Employ dust suppression equipment (road sweeper, wheel wash, sprays)
- All soil and waste vehicles to be covered when leaving site
- Minimise drop heights when moving stone and soils
- Maintain site speed limits
- No burning on site
- Consider alternative demolition measures to reduce dust emission
- Seal or cover soil stockpiles
- Stone deliveries as and when needed
- Encourage no vehicle idling

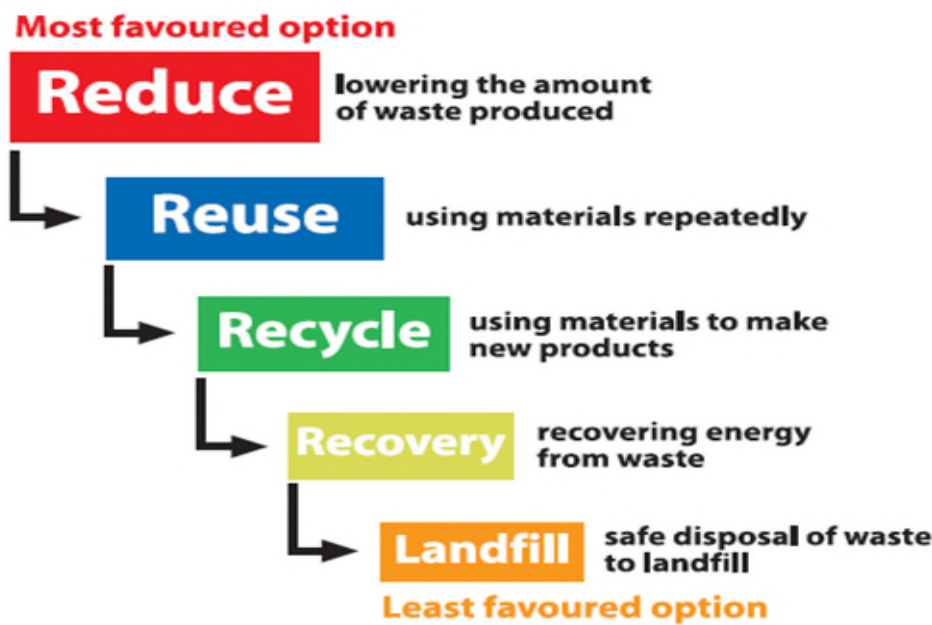
5.9 Materials and Waste Management

5.9.1 Waste Management

The disposal of waste presents a significant hazard to the business in view of the regulatory requirements and the necessity of exercising appropriate Duty of Care. Disposing of waste, particularly hazardous waste, is also very expensive. By reducing waste generated and managing waste materials effectively, impact on the environment is minimised and the cost of waste disposal reduced.

Compliance with AGC **Waste Management Standard EN.S.03** ensures:

- compliance with relevant waste management legislation
- application of industry best practice
- identification of opportunities in waste minimisation - apply the **Waste Hierarchy**



Waste streams should be segregated as required and always have a lid.

All hazardous waste containers should be lockable and remain locked when not in use.

The fundamental principles of the waste hierarchy, eliminate, reduce, re-use, recycle, recovery, disposal will be applied to enable best practice on site and to improve the overall sustainability of the project.

This procedure applies to the storage, disposal and minimisation of all waste generated during the construction phase. It is also concerned with the establishment of procedures for complying with statutory and good practice requirements for waste management. The site manager is responsible for ensuring that the relevant documentation is completed and held on site.

All staff are responsible for adhering to the requirements of the standard **EN.S.03**. AGC shall, in order to reduce the need for waste disposal, minimise the generation of wastes and their potential environmental impacts, which may arise during the works and will maximise any opportunities for the re-use, recycling and recovery of wastes.

AGC will include proposals for the identification, segregation, handling and storage, with necessary protection to prevent cross contamination of surrounding stockpiles and the underlying ground, of the different types of wastes identified as arising from the works, where applicable.

All materials should be recycled, where applicable. Where possible, materials to be recycled will be sorted on-site and stockpiled accordingly, prior to collection.

Hazardous waste will be removed by a licensed waste contractor and appropriate measures made for their disposal in accordance with all applicable legislation. Where suspected contaminated ground or hazardous material is encountered that had not previously been identified by the prior site investigations, AGC is responsible for commissioning testing on samples to classify the extent and nature of these substances. This shall be undertaken by an UKAS accredited testing facility. Advice on testing to be undertaken can be obtained from the appointed Environment Advisor.

Stockpiling of potentially contaminated material should be avoided at times. If stockpiling is unavoidable, then material must be located, as a minimum, on hardstanding and covered with impermeable sheeting/membrane to prevent run off. Samples of excavated material will also be tested by AGC/the client, or an appointed consultant, to enable classification of the waste for disposal purposes.

All waste should be stored in appropriate containers to prevent escape of material. Necessary applications to the Local Authority and/or NRW/EA, under the terms of the Environmental Permitting Regulations 2016, and the Town and Country Planning Act (1990) for the storage, treatment or disposal of wastes will be undertaken.

The storage, handling, use, and disposal of any potentially hazardous materials shall be in accordance with the relevant statutory provisions and Health and Safety Executive (HSE) Codes of Practice and Guidance notes

In accordance with the Waste Standard **EN.S.03**, the Site Waste Management Plan (SWMP) **EN.F.09 SWMP** identifies the waste streams generated with forecast quantities, defines the selected waste management measures of reduction, reuse, recycling and recovery and, at the end of the project, allows a comparison to be made between forecast and actual waste quantities.

Quantities of waste, categorised as inert waste, non-hazardous waste and hazardous waste are input to the SWMP. **Appendix 4** provides a template of the SWMP.

5.9.2 Materials Management

The environmental credentials of all raw materials imported will be taken into account. Locally sourced materials will be used wherever practical and economically possible along with the use of recycled materials and sustainably sourced timber according to the specification and performance requirements and whenever practicable and economically viable.

All raw and salvage materials will be appropriately stored on-site to minimise damage by vehicles, weather, contamination by other substances, or theft/vandalism. Secure storage will be provided for items of high value, materials which are hazardous, or which are easily damaged. Packaging will be retained on goods until the materials are required. Once removed, packaging materials will be stored and disposed of appropriately. Goods will be delivered on an “as needed/just in time” basis, this is in order to reduce stockpiling on-site, potential damage from vehicles and weather.

Stockpiles of all materials will be segregated and labelled accordingly to ensure to prevent the misuse of materials.

The location of soil stockpiles will be dependent upon the space available, the build programme and direction and therefore their precise location cannot be determined at the current stage. However, soils will be stockpiled at a distance from sensitive receptors such as existing residential areas or surface waters. Stockpiling will be undertaken in accordance with DEFRA guidance “Construction code of practice for the sustainable use of soils on construction sites, 2009”.

5.9.3 Unexpected Contamination

Should previously unidentified visual and/or olfactory evidence of potential contamination be encountered during the development, the Site Manager and/or Environment Advisor should be contacted immediately. Work should be stopped in the immediate area of the discovery and the area cordoned off until further notice.

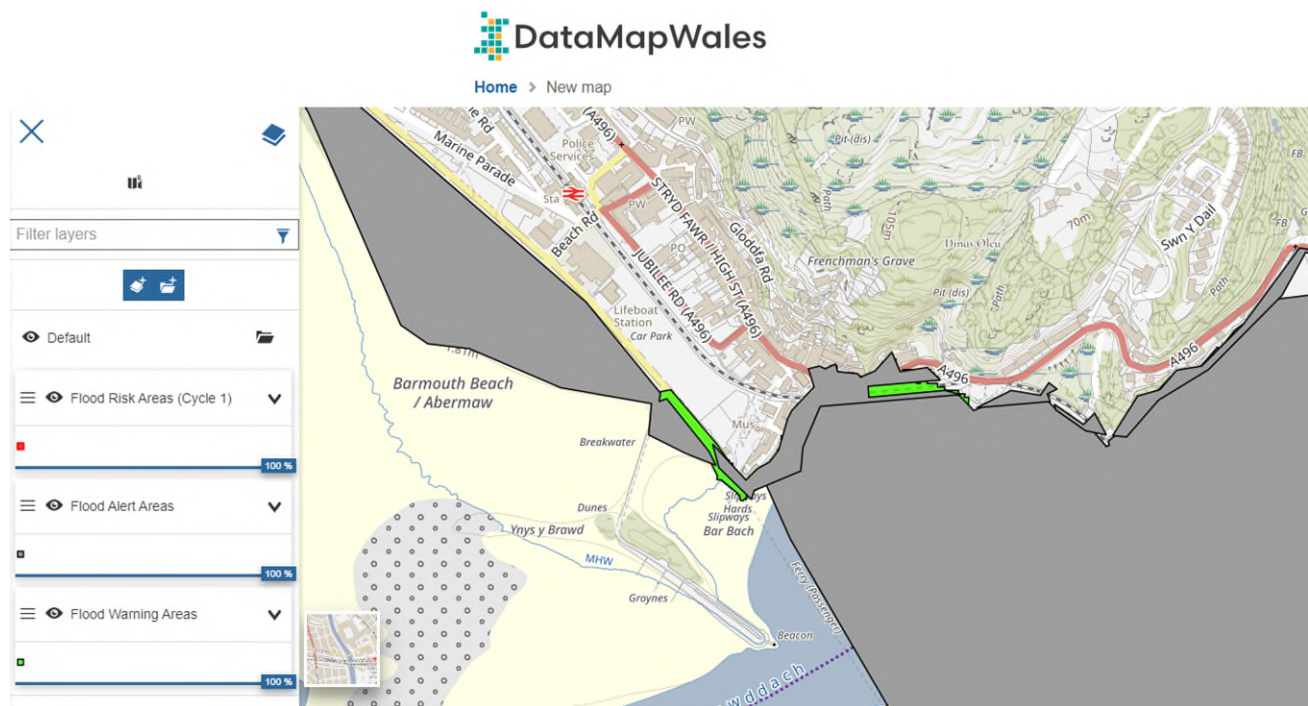
The discovery should be inspected, investigated and sampled with analysis (soil or groundwater) undertaken by a suitably qualified engineer/scientist to assess the potential risk. Human health and/or controlled water risk assessment may be required to define the risk to end users and the environment. Depending upon the findings, additional investigation, risk assessment or remediation may be required. A specialist contractor may be required.

Any unforeseen contamination will be investigated and reported to the Local Planning Authority (LPA), as set by relevant planning conditions, to agree remedial requirements. Verification that works have been completed would be undertaken and a validation report submitted to the Local Authority for approval.

5.10 Water Management and Pollution (work activities)

5.10.1 Flood Risk

Plant and materials must not be stored within the flood zone. It may be possible to create a bund or platform within the flood zone to be used for storage. It is the responsibility of the project manager to monitor weather and tidal conditions and to act accordingly.



5.10.2 Pollution of Land and Water

As a minimum the following control measures detailed in **Table 5.8** will be implemented to prevent pollution.

Table 5.8 Pollution Control Measures

Activity	Control Measures
Operation of plant and equipment	Above ground oil storage tanks: GPP 2 Working at construction and demolition sites: PPG 6. Generators/tower lights/ pumps should be stood on plant nappies
Storage of fuel and chemicals	Oil and fuel to be stored in accordance with the Oil Storage Regulations Storage containers to be in good condition with proper fitted lids and secured against vandalism Spill kits to be readily accessible in the event of a spillage Storage areas to be at least 10m away from controlled waters
Highway works	Drains to be protected, where required and practicable
Working in/near water	Use biofuels in all plant. Follow works & maintenance in or near water: GPP5

A comprehensive assessment of the potential risks of water pollution as a result of work activities is made by the Project Manager, with the support of the Environment Advisor, before each activity is carried out. This is part of the activity risk assessment undertaken in accordance with AGC's Procedure **BMS.P.02 Risk**

Management. All works in sensitive locations will require an Environmental Permit to Proceed (EPP) to be approved by the Environment Advisor.

Control measures are selected in accordance with AGCs Procedures **EN.S.04 Water Management** and **EN.S.08 Oil, Fuel and Chemical Management** and associated guidance.

Particular attention is given to the following matters:

- work within water courses
- work over water courses
- run-off from earthworks
- work to existing drainage
- sub-surface grouting
- concreting
- dewatering
- excavation of contaminated ground
- activity related refuelling
- run-off from de-vegetated ground
- discharge from new drainage

5.10.3 Silt and Surface Water Runoff Mitigation Measures

The construction process has the potential to temporarily change site drainage conditions which will affect the storage capacity and surface water flows across site. This may result in the accidental discharge of silty water to surface water features. The programming and arrangement of works will therefore be carefully considered, with input from the Environment Advisor, to minimise the risk and will be subject to the following controls.

The Environmental Permitting (England and Wales) Regulations, 2016 (as amended) require all water discharges (groundwater, excavation water and rainfall) to surface waters be discharged under an Environmental Permit. However, there is a Regulatory Position Statement that allows the discharge of clean water from excavations for 3 months. All discharges will be controlled by an Environmental Permit to Proceed and monitored by the Environment Advisor.

Watercourses and land will be protected from harm during construction by the use of appropriate mitigation measures such as silt fencing.

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Discharge of construction water to a public sewer requires a Trade Effluent Consent from the local water company. The information required is similar to that required for an Environmental Permit.

Regular monitoring and reporting of all water discharges will be undertaken by the Environment Advisor.

The minimum pollution prevention requirements for construction surface water management practices/mitigation that will be applied during the development are detailed below. These practices/mitigations typically apply to the majority of construction sites and form general good practice.

- A Traffic Management Plan (TMP) may be implemented that will provide designated routes that will be used by heavy plant and for vehicle movements, particularly during topsoil stripping and excavation of soils. Where possible, designated routes will be gravelled and suitably compacted to form a clean running surface. Depending upon the build programme, the internal access roads will be finished to hardstanding subbase as soon as practicably possible to provide clean running surfaces. This will prevent construction plant from disturbing soft ground and mobilising sediment or create significant adverse impact to the construction surface water run-off quality onto roadways and into the drainage network and subsequently into the stream network.
- Soil stripping should be undertaken in dry weather and using a phased approach to minimise the amount of exposed soil across site.
- Areas subject to soil stripping and not forming part of the active construction zone will be demarcated as off limits to vehicle tracking. This will prevent unnecessary disturbance of soils.
- Wheeled plant such as telehandlers and dumper trucks should have their wheels cleaned and excess sediment removed from around the wheel housing prior to moving onto the wider public highway realm.
- It is advisable that a wheel washing facility is set up at the construction zone entrance/exit point should sediment adhere to vehicles. All vehicles leaving the construction zone should have their tracks/wheels washed via the use of a pressure-washer bowser, the resulting runoff will have to be controlled so as to not run onto roadways, into gullies or cause localised flooding of the entrance/exit.
- The Environment Agency (England only) has issued a low-risk waste position (LRWP) which applies if a project screens and dewater, from the internal site roads only, no more than 30 tonnes of road sweeping waste over any 7-day period and stores no more than 12 tonnes of road sweeping waste at any one time
- Any pollution incidents (fuel or oil spills) will be cleaned up immediately following the incident. Any wastes will be removed from site for off-site disposal to prevent contamination from becoming entrained within the surface water infiltration system under the necessary permits and procedures.
- Contact where spill/incident/clean-up is beyond normal project capability: OHES Environmental 0333 600 2424
- No fuel storage will be allowed close to surface water attenuation ponds, stilling basins, trenches and weirs or directly close to surface waters and surface drainage

- Adhere to the Control of Pollution (Oil Storage) (England) Regulations 2001 and the Water Resources (Control of Pollution) (Oil Storage) (Wales) Regulations 2016
- Storage areas will not be located within 30m of surface water drains or highway gullies.
- Drums will be stored in bunded areas with a minimum capacity of 25% of the total volume contained within the bund, or 110% of the largest container, whichever is greater. Drums will be maintained in good condition, fitted with lids and labelled to indicate the contents.
- Trained operatives only will carry out refuelling of plant and equipment.
- Static combustion engine plant (e.g., compressors, lighting sets) will be integrally bunded or placed on drip trays.
- Vehicles are to be parked in a dedicated site car park. On street parking is to be prevented to allow a road brush access to clean the full width of the road and prevent surface waters from flowing past operational gullies.
- General good housekeeping shall be maintained across site, including the appropriate stockpiling of soils at a suitable distance from construction zone boundaries, surface water features, gullies and manhole covers to prevent debris from blocking up drainage infrastructure.
- The placement of gully guards in gullies maybe be installed during development for the duration of the construction project. These are to be inspected regularly and importantly replaced or cleaned as necessary, with a record kept. If found to be damaged, gully bags should be replaced immediately.
- The placement of a terram layer within all other non-operational manholes during construction, such as storm drain covers. These are to be inspected and replaced, when necessary, with a record kept.
- Pumps will be regularly checked for leaks and will be maintained in accordance with the manufacturer's specification.
- Spill kits will be provided within close proximity to fuel and oil storage areas and operatives will be trained in their use.
- Fire extinguishers will be placed at re-fuelling points and will be ready to hand.
- Should a significant fuel spill occur, such as during a fuel bowser delivery, the appointed Environment Advisor will be contacted to obtain further advice. Spill kits would be deployed in the interim and a readily available stock will be kept on site in case of emergency
- Re-fuelling areas should be bunded, with spill kits located in close proximity to contain releases. Plant nappies will be utilised when refuelling is being undertaken.
- All delivery vehicles including HGVs should have their wheels washed prior to leaving the construction zone in order to prevent silt from being mobilised onto the public highway.

- Any excess sediment or silt slurries on roadways, particularly close to the construction zone entrance/exit points should be regularly scraped. This may be required multiple times each day, depending upon the prevailing weather conditions and traffic volume. Furthermore, it may need to be carried out more frequently during the day as opposed to just the start and end of the working day. Sediment and silt slurries should not be passed into surface water drainage systems and gullies.
- Sediment and silt slurries should be stored within the site boundary or an agreed storage area, away from gullies, drains and surface water receptors. It may be necessary to construct a temporary bunded area to contain this material, allowing it to dry out. Regular maintenance and cleaning of this bunded area should be undertaken to ensure continued capacity during wetter conditions.
- To clean excessive silt slurries at construction zones the use of road sweepers should be avoided. Road sweepers are not designed for this activity and further spread sediment on roadways if overwhelmed; or move sediment into the surface water drainage system. Agricultural brushes/road brushes are a good alternative system to move heavy sediment from roads.
- It is particularly important to note that road sweepers should not be used to clean up any hydrocarbon spillages in conjunction with undertaking general silt sweeping. This would result in the contamination of the silt that would subsequently require special treatment and/or costly off-site disposal as hazardous waste.
- Excavation water will not be discharged direct to surface water drains without prior treatment to remove silt.
- As a minimum, daily inspection of the roadways and surface water features should be undertaken.

5.10.4 Site Personnel and Documentation

The following measures are to be implemented by AGC and any subcontractors on the development to increase awareness of ground workers and site operatives:

- Undertake additional detailed site-specific awareness training (Toolbox Talk) on surface water, silt management and surface water/drainage protection for all ground workers.
- Include a detailed section relating to surface water drainage system protection within site induction folder.
- Undertake regular site inspections and obtain support from Environmental Consultant (if required).

5.10.5 Monitoring Procedures

The following monitoring procedures will be carried out regularly by the site management team to enable continuous review of the measures listed above. A comprehensive record of the effectiveness of the system will then be maintained to enable further review by any parties, such as the Local Planning Authority or NRW/EA attending site:

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- Inspection of all surface water mitigation measures, silt fencing, gullies, drains, gully bags and manholes to monitor surface water/sediment migration onto roadways. Maintenance, cleaning and replacement of silt mitigation measures, terram, gully bags and hay, as required.
- Monitoring of the surface water protection measures on a daily basis and more regularly during periods of heavy rainfall. To include photographs and any measurements recorded.
- This document will be reviewed and updated when required to reflect changes to site conditions and operations.

All records will be reviewed regularly, but advice can be obtained by the site team at any time from the appointed Environment Advisor.

The water management and pollution risk assessment for site setup is contained within the RAMS for each relevant activity

5.10.6 Concrete Washout

A designated concrete washout area will be provided for washing out concrete delivery lorries, concrete pumps and grout lines. The final location will be determined based on the build programme and direction. Washout water is typically uplifted by vacuum tanker for off-site disposal or may be treated to remove alkalinity and re-used for dust suppression.

The direct ingress of mortar to the drainage system is not considered to be a significant risk as long as the recommendations above are adhered to.

5.10.7 Construction Aggregates

Typical aggregates used on construction sites include pea gravel and sand, which in themselves are considered to be unlikely to cause issues to surface waters owing to the large particulate size. Fine aggregates are typically not used on construction sites.

All construction aggregates will be stored in designated areas. These areas will be located away from the stream along the site boundaries, and drainage infrastructure, particularly road gullies. If appropriate, the aggregates will be bunded to prevent surface waters washing/remobilising the materials.

5.10.8 Energy Management

AGC seeks to reduce the emissions of greenhouse gases from the construction process on its projects and consequently looks for ways in which to reduce energy use. Sources of greenhouse gases contributing to the AGC 'carbon footprint' include:

- Electricity and gas supply for heating, lighting and services to site accommodation
- Gas oil used in site plant and site generators

- Petrol and diesel used for commuting and business travel
- Diesel used for transport of plant and materials
- Water supply and wastewater treatment
- Waste generation

Every effort is made to obtain grid supplied electricity to reduce dependence on diesel generators. Where this is not possible, an optimum size of generator is used with consideration given to a dual-generator system.

5.10.9 Environmental Non-Conformity NCR

Nonconformity in respect of environmental matters is recorded as an environmental incident, near miss or inspection finding. Reported via **GEM System**.

The responsibility for recording and reporting and investigating environmental incidents rests with line management, assisted as necessary by environment advisors trained in accident investigation techniques.

Incidents are reported in accordance with AGC's Procedure **HS.S.40 Incident Reporting Standard**, and inspection findings are recorded on the environment department database in accordance with departmental procedures.

Investigation concentrates on identification of root causes in order that appropriate action can be taken to avoid recurrence. Periodic reviews of incidents are made and analysed to ensure that all necessary action has been taken. Recurrent problems or those relevant to other projects are referred to business unit system review meetings for the initiation of suitable longer-term actions.

6.0 Incident Management, Emergency Response and Notification

At all times the approach to a pollution incident to be adopted is: **STOP IT – CONTAIN IT – REPORT IT**

In the case of spillages, for example, this process involves:

STOP
Stop all works pertaining to the incident, for example, to prevent further spillage turning of the valves/taps, righting the drum, stopping/restrict the flow at the source etc
CONTAIN
all sites are provided with spill kits, however further measures such as using sand or earth, absorbent pads, booms or skimmers or digging trenches etc. Use a spill kit to mop up the spillage. Contaminated material must be disposed of as hazardous waste.
REPORT
all pollution incidents to the Site Manager who will take the appropriate administrative action, in line with the AGC Accident/Incident/Near Miss Reporting Procedure.

In the event of a discharge of suspended solids or hydrocarbons into a surface water drain, the immediate stopping of all activities causing any form of pollution will be implemented to prevent further contamination.

In the event of a discharge of hydrocarbons, clean-up specialists may be used to facilitate a rapid response, where additional pollution control equipment may be required.

Environmental incidents will be reported to the project manager and/or appointed Environment Advisor, providing details of where and when the incident is taking place, what is happening, and who is responsible for the incident. Contact details for key site and emergency response personnel with responsibilities relating to the protection of the environment will be kept and publicised in key locations on site. Key contacts will include, Project Manager, Environment Advisor and the Client Project Manager.

Appendix 1– Environmental and Social Policy

Form Reference		Rev No:	0	Name:		Dated:	
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Appendix 2 – Organogram

Appendix 3 - Aspects & Impacts Register

Insert Template here

Appendix 4 – Site Waste Management Plan

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Appendix 5 - Stakeholder Engagement Plan

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Appendix 6 - Permits, Licenses and Consents Register

Insert copies here

Appendix 7 - Biodiversity Metric 3.0

Insert Template here