



Alan Hodari

Cerrig Sea Defences

Construction Environmental Management Plan

EEL.7612.R03.003

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Document Review

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1 INTRODUCTION

1.1 Scope

The works will involve repairs to reinforce the retaining boundary sea wall between the property known as 'Cerrig' & Menai Straits, Lleiniog, near Llangoed, Anglesey, LL58 8RN.

This Construction Environmental Management Plan (CEMP) has been produced for Alan and Adele Hodari in support of the works. The scope of works will also include re-siting the rock armour and excavation/removal of the existing concrete haunch and apron.

Proposed construction commencement date: TBC

Proposed construction completion date: TBC

This Construction Environmental Management Plan (CEMP) sets out management measures and controls for minimising site-specific environmental aspects which are potentially significant in the context of this development. The Plan also makes provisions for contingency planning to minimise and remediate pollution due to abnormal conditions and accidents and provides a procedure for addressing amenity related complaints. It refers to the associated forms and registers where required.

This document is an CEMP; it is a working document and will be amended to align with the contractual arrangements between the Developer and their Principal Contractor, as necessary. Any future amendments, which are material considerations to this Plan, will be prior agreed with the LPA.

The Plan is based on the design proposals and plans, shown on Thomasons' drawing 9137-003 (**Appendix A**), the method statement OBR/HOD/CERR/WALL-06/19 Rev 0 prepared by OBR Construction (**Appendix B**), and additional clarifications provided by OBR construction (**APPENDIX C**). Drawing EEL.7621.D03.001 shows the detailed plan of the footprint of the proposed works (**Appendix D**).

1.2 Scheme Description

The purpose of the scheme is to carry out maintenance works to the sea defences at Cerrig, Penmon. This will involve removing the existing plinth and haunch and replace with a structure of equivalent size and shape, with the addition of sheet pilings to prevent a reoccurrence of the recently sustained damage.

Demolition and subsequent reconstruction will require access on to the intertidal zone to carry out the following tasks:

- Relocate the existing rock armour
- Break out and remove the existing plinth and haunch
- Insert sheet piling along the length of the section concerned
- Cast in-situ a reinforced concrete plinth
- Replace the rock armour.

1.3 Main Receptors

The receptors within 250m for the proposed works are:

- Residential (12m)
- Menai Straits and Conwy Bay Special Area of Conservation (SAC) (0m)
- Ancient Woodland Sites (150m)

- Local Nature Reserves (46m)
- Regionally Important Geodiversity Sites (0m)
- Scheduled Ancient Monuments (0m)
- Wildlife Sites (46m)
- Site of Special Scientific Interest (0m).



Figure 1 - Map of receptors within 250m

2 MANAGEMENT FRAMEWORK

2.1 Significant Environmental Aspects

The key environmental aspects relevant to a typical construction project are listed below:

- Emissions to air;
- Emissions to water;
- Waste management;
- Use of resources / Materials management;
- Nuisance and environmental health: Noise/vibration, fugitive dust, air pollution, light pollution, vermin and pest control);
- Ecology and biodiversity.

These significant aspects and impacts are covered by this CEMP. Significant aspects and impacts will be reviewed by the project management team as necessary in the course of development works and integrated into subcontractor method statements.

2.2 Regulatory Requirements

General

The Project will comply with all relevant regulations and any necessary consents to ensure legal construction works. Other requirements and regulations from the Local Authority, the Highways Agency or other statutory regulators will be reviewed by the project team and applied, as necessary.

The project management team will be responsible for ensuring that the project complies with all applicable environmental legislation, regulations and other requirements.

Waste Regulations

The Waste (England and Wales) Regulations 2011 (as amended) provides the legislative framework for the collection, transport, recovery and disposal of waste, and a common definition of waste. The outline of the current legal requirements:

It is a legal requirement for waste producers to apply the waste hierarchy approach to assess the most appropriate management option for each waste stream that is anticipated to be generated as part of development and operational works;

Hazardous Waste (England and Wales) Regulations 2005 (as amended) cover management of 'hazardous waste' which is any waste with hazardous properties that may make it harmful to human health and the environment. These regulations apply to producers, carrier, treats and disposes of or oversees the management of such activities in relation to hazardous waste. The regulations cover provisions of Consignment Notes, Duty of Care requirements and application of Waste Hierarchy to management of hazardous waste. Consignment notes are required a need include a declaration that the waste hierarchy has been applied before transferring the waste.

3 ENVIRONMENTAL AND AMENITY MANAGEMENT

Construction of industrial developments and infrastructure works have a potential to cause temporary nuisance and disturbance issues which are primarily related to noise and vibration, air quality (i.e. dust, smoke), artificial light, visual amenity, and traffic movements. Therefore, appropriate management measures need to be implemented to control these issues. Effective construction environmental management is achieved through an implementation of best practice procedures and control measures. These are described below.

3.1 Fugitive Dust

General

There is the potential for fugitive dust emissions to arise as a consequence of relocation of rock armour, ground excavation works, sheet piling and movement of vehicles on the site.

The scale of the potential impacts resulting from the deposition of construction dust is dependent on key factors such as the duration of exposure (i.e. construction duration), separation distance from the source to receptor and adverse weather conditions (dry and windy weather).

Mineral and ground material dusts are largely coarse, and deposit predominantly close to the source. It is a common practice in mineral planning to use a distance of between 100 to 200m from a source as guide to assessing significant air quality impacts from deposition of dust.

The nearest receptors where local residents would be exposed to emissions from the proposed development are The Pines Residential Park to 25m to the north, and Cerrig (the property protected by the sea wall) 25m to the west. If a combination of the above factors leads to any significant quantities of construction dust generated, then deposition rates at these properties could constitute public nuisance and provide a reasonable cause for complaint.

Management Procedures

The Principal Contractor will apply the construction industry best practice to ensure that the potential for fugitive dust emissions is minimised. The following specific mitigation measures are appropriate for the control of fugitive dust emissions in order to prevent dust nuisance during the construction works:

- There should be adequate damping down any unpaved surfaces and when undertaking ground excavation and site clearance and preparations works, during dry weather. Where necessary, water tankers and bowsers with spray bars will be used for damping down the earthworks, access roads and hard standings.
- The on-site speed control will apply limiting the all vehicles and mobile plant crossing un-paved areas, to 10mph; all site traffic should keep to designated haul roads.
- All HGVs carrying dusty materials off site should be covered.
- All vehicles leaving the site should be inspected and cleaned as necessary.
- Site vehicles should have vertically mounted exhausts to avoid re-entrainment of surface dust.

- Storage locations for potentially dusty materials should be located away from the site boundary and outside of the intertidal zone.
- Cutting and grinding on site should be limited to minimise dust. Using cutting equipment equipped with dust extractors or wet cutting tools, and spraying water when cutting should minimise fugitive dust.
- Should any dust prone construction activity cause or be likely to cause visible dust at the beyond the site boundary, the activity should be modified or suspended until the conditions giving rise to the emissions have been resolved.

The construction programme to be provided by the Principal Contractor. The agreed construction programme to form part of contract documents.

Dust Action Plan

This Action Plan will be actioned if significant dust emissions were noticed or in response to a complaint at the Site, the Project Manager will instigate a further investigation, following the key steps as outlined below:

- Determine the nature and location(s) of the site activities over the relevant period and the dust management/suppression measures used at the time;
- Determine the wind pattern and weather conditions at the site over the relevant period;
- Investigate whether there have been any reported dust incidents on site and complaints, and actions taken;

Where the investigation confirmed that a dust nuisance event was caused (likely to have been caused) by the site operations, extra dust suppression measures and management procedures will be put into place.

Any complaints received will be logged as received typically via the Local Council's Environmental Health Department. Details of the dust complaint (location, date and time, the name, address and telephone number of the caller (if available) will be logged.

The Project Manager will be responsible for coordinating of all dust management measures. In addition, visual monitoring of dust emissions will be undertaken on a continual basis by suitably trained site staff.

The residual impact at the nearest residential properties and to the nearby designated nature conservation sites is expected to be negligible.

3.2 Air Pollution

Emissions to air of fumes and smoke may arise from exhaust emissions from plant, machinery and road vehicles, particularly HGVs. Pollution to air will be managed by adopting the following conditions:

- Route works HGVs away from sensitive receptors to reduce the effects of their exhaust emissions.
- Vehicles and plant will be switched off when not in use.
- Ensure vehicles and plant are not over loaded.
- Modern, well-maintained plant and equipment should be used. Electric tools and equipment should be used in preference to diesel powered options. A programme of maintenance checks should be developed for plant on site and adhered to.

- Mains electricity supply will be used in preference to generators where practicable.
- All fuels, oils and other Volatile Organic Compounds will be stored in secure, sealed, labelled containers.
- No fires permitted on site. Fire control measures are listed in Section 3.12.

Due to the nature of the construction works, no odour prone activities and materials will be used; thus, no odour management will be required.

The residual impact at the nearest residential properties and to the nearby designated nature conservation sites is expected to be negligible.

3.3 Noise and Vibration

Construction works include inherently noisy activities; therefore, noise and vibration should be managed throughout the construction period and all locations on site. Construction noise and vibration, if excessive could result in complaints, cause health impacts to local residents and construction workers, potential structural damage and wildlife disturbance. Both issues are controlled by Local Authorities which could make statutory enforcement of noise abatement actions, if necessary. Any such non-compliance would make a knock-on effect on project programme and cost.

The main identified sources of noise/vibration on site will be:

- Sheet piling;
- Metal cutting, concrete breaking and cutting;
- Construction machinery such as pneumatic tools and plant esp. those using high pitched reversing alarms;
- Vehicle movements;
- Loading and unloading of construction materials.

Mitigation measures as defined in BS 5528: Parts 1 and 2: 2009 Noise and Vibration Control on Construction and Open Sites shall be used to minimise noise disturbance from construction works.

The emphasis of the control measures will be on controlling noise at source by selecting low noise methods, plant and tools, followed by implementation of other noise mitigation measures, as follows:

- Control of working hours.
- Operating plant in the mode of operation that minimises noise emissions and ensuring that all plant is maintained regularly.
- Ensuring that plant is shut down when not in use and turning off idling engines.
- Using noise-control equipment such as jackets, shrouds, hoods, and doors, where possible.
- Rotary drills and bursters actuated by hydraulic or electrical power should be used for excavating hard material.
- Avoiding percussive piling, except where there is an overriding justification.
- Designing all audible warning systems and alarms to minimise noise. Non-audible warning systems can be used in preference, i.e. cab-mounted CCTV or the use of banksmen. If required, ensure that audible warning systems are switched to the minimum setting required by the HSE, and where practicable use 'white noise' reversing alarms in place of the usual 'siren' reversing alarm.

- Designing the construction site layout to ensure that noise prone works and plant are located as far as reasonably possible, from local receptors.
- Provision of acoustic screening for noise prone activities, especially if these are situated close to the site boundary and/or a prolonged activity.
- Handling all materials, particularly steelwork, in a manner that minimises noise. Storing materials as far as possible away from sensitive receptors and using resilient mats around steel handling areas.
- Constructing haul roads of materials that minimise noise and vibration and keep haul roads well maintained.
- Route works HGVs away from sensitive receptors to take account of the need to reduce noise and vibration. Minimising construction vehicles waiting or queuing on the public highway.

During construction, regular inspections should be undertaken by the Project Manager to ensure that the noise and vibration control methods are adopted on site and are working effectively. Construction workers will be trained to assess and report excessive noise and vibration at their workplace.

Construction Project Manager will liaise with the Local Authority's EHO regularly throughout the construction period, to discuss noise and vibration management and agree on any necessary amendments (if necessary).

The liaison will also highlight any issues of compliance with noise planning condition and noise complaints (if any), and when necessary, to give a prior warning of particularly noisy works. Specifically, to deviation of operational hours, if required a prior request for such deviation will be submitted to the EHO in writing. Noisy activities and operations will be carried out during less sensitive periods of the day.

All works and ancillary operations which are audible at the site boundary, or at such other place as may be agreed with the Local Planning Authority, shall be carried out only between the following hours: 08 00 Hours and 18 00 Hours on Mondays to Fridays and 08 00 and 13 00 Hours on Saturdays and; at no time on Sundays and Bank Holidays.

Construction deliveries to and removal of plant, equipment, machinery and waste from the site must only take place within the permitted hours detailed above.

3.4 Mud on Road

The above-mentioned measures to control fugitive dust will assist with controlling mud on roads. For affected HGVs, wheel cleaning will be applied prior to leaving the site. On-site access haul road(s) will be maintained regularly. Daily visual monitoring of mud on public highway will be undertaken.

The Project Manager will monitor conditions outside the site regularly during periods of material movement. If mud on road is noticed or in response to a complaint, the Project Manager will make provisions to sweep public roads in the proximity of the site.

3.5 Vermin and Pest Control

Welfare facilities (canteen, locker rooms, toilets, showers etc) will be provided for the construction works. Training and posters will advise staff, including subcontractors, on a responsible use of these facilities. Anyone found to be abusing welfare facilities will be dismissed from the site.

Consumption of food outside of welfare facilities encourages the spread of vermin causing further potential occupational health risks, e.g. leptospirosis (Weil's disease). All food and drink consumption on site will be therefore limited to the canteen.

All food waste and packaging will be segregated and disposed of in a lidded container and emptied on a weekly basis. A need to introduce rodent control measures will be monitored by the overall Project Site Manager throughout the construction period.

3.6 Waste and Materials Management

The Developer will work towards reducing waste and using materials efficiently, in the construction of this Project. The Principal Contractor will be required to work in accordance with the stated approach for waste and material management. The Contractor will be also expected to employ staff who are fully trained on procedures for waste reduction, reuse and recovery etc.

The Project Contract will incorporate clauses regarding waste and materials management; and outline the Contractor's responsibilities towards waste and resource management, measurement and reporting if agreed targets are specified by the Developer.

Waste material can be generated at all stages of the construction process, including mobilisation and site preparation works, demolition, excavation and structure development, as well as the waste produced in material procurement. The typical construction waste arisings comprise the following:

- Excavated ground material
- Construction and Demolition Waste (concrete, hard core etc.)
- Timber /wood
- Vegetation
- Metals
- Plastic materials
- Paper & cardboard
- Fuel and oil drums
- Waste oils and diesel products
- Aerosol and paint cans
- General (welfare) waste.

All waste streams will be managed according to the most suitable waste management options in line with the waste hierarchy.

The main waste management options are outlined below.

Excavated ground material

The best construction practice for the reuse of soil is Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009). This guidance sets procedures aimed to protect soils for plant growth, water attenuation and biodiversity, during and after construction. In order to be excluded from the waste management requirements, the material must be:

- uncontaminated;
- excavated during the construction activities;
- used in its natural state for construction purposes on the same site.

In the unlikely event excavated ground materials are located which don't meet the above exemption criteria due to presence of contamination, these will need to be managed in

line with principles of The Definition of Waste: Development Industry Code of Practice (2008). The Code is available to developers in England and Wales and provides the industry current approach for the reuse of excavated waste materials on development sites. Such materials will be classified as waste which may still be suitable for use in construction (and other beneficial use either on site or off site) after the pre-treatment. This would maximise recycling and recovery opportunities.

The Code enables the direct transfer and reuse of clean naturally occurring soil materials between sites.

Construction and Demolition waste

Construction & Demolition (C&D) waste will be limited to approximately 25m³ of old concrete removed from the existing haunch. Waste management options for these waste streams in the order of preference according to the waste hierarchy, are:

- Recycled waste as aggregates / construction material:
 - WRAP's Quality Protocol;
 - CL:AIRE Code of Practice (CoP);
- Waste Exemption or Waste Permitting;
- Waste recovery for other beneficial use;
- Waste disposal on landfill.

On site uses for C&D waste materials are unlikely and, as such all C&D waste generated will be removed off site for recovery/disposal, by a licenced waste carrier.

Timber & Wood

Waste timber is likely to comprise of construction off-cuts of solid wood, broken pallets and demolition waste. As a waste product, untreated wood is a non-hazardous waste while any preservative treated wood fencing and trackwork.

All timber and wood collected in this project, will be segregated from other wastes and stored for further recycling on site before removing off site for onward recycling and recovery depending on its condition. The condition of any timber waste will be assessed when storing the segregated timber waste on site. Clean and treated waste timber will be stored separately in containers/skips or stored in an allocated area in the construction compound.

Vegetation

Any vegetation removed from the site clearance works and food waste from welfare facilities will be sent for recovery at a biological treatment facility e.g. composting or anaerobic digestion, depending on availability of the local waste management facilities. When stored on site the food waste will be stored in designated containers and vegetation stored in an allocated area.

Metals

Metal waste will comprise off-cut construction materials, scrap metal from demolition works, used metal parts as well as aerosol cans and storage containers. Metal wastes and metal containing construction materials will be assessed for reuse/recycled in the construction works and if not reusable, removed off site for recycling at a metal recycling facility.

As waste, metals are classified as non-hazardous waste unless they contain oils, coal tar etc. hazardous substances. Non-hazardous metal waste for recycling should be collected

in containers/skips or stored in an allocated area. Local waste management facilities should be given preference for recycling of metal wastes.

Scrap metal which is contaminated with oils, such as waste oil filters, spent battery casings, metal containers with hazardous contents or mercury in fluorescent tubes, are classified as hazardous waste. These materials require designated storage on site in preparation for offsite transfer, treatment, recycling or disposal, in compliance with controls specified in Hazardous Waste Regulations.

Lead batteries have established methods for recycling. They will be stored separately from other wastes. Battery distributors or manufacturers provide guidance on how to best recycle batteries.

Plastic materials

Plastic waste is a hot topic of waste hierarchy and requires collection and recycling to reduce the amount of plastic waste disposed in landfill.

All plastic wastes (PVC, HDPE, LDPE etc plastic packaging) generated by this project will be managed as follows:

- identify different types of plastic and the relevant handling provision;
- on site all plastic waste will be segregated and collected in preparation for management off site;
- minimise generation of plastic waste in construction, procurement and design;
- provide appropriate training of the construction and project management personnel.

The Waste and Resources Action Programme (WRAP) provides a resource of information for management of commercial and industrial plastic waste.

Paper & cardboard

All paper and cardboard waste produced in the course of construction works will be segregated and stored in designated containers within the site compound in preparation for transfer offsite for recycling. Also, to aid reducing the amount of this waste, packaging will be returned intact to suppliers whenever possible.

Fuel & oil drums

Empty fuel or oil drums will be retained for reuse on site for storing waste oil, where possible, before disposal. These waste items will be segregated from other wastes and stored in a designated skip. The ultimate disposal of waste oil drums will be in compliance with hazardous waste regulations.

Waste oil and diesel contaminated products / materials

Oil contaminated products such as oily rags, are classified as hazardous waste and need to be managed in compliance with the Hazardous Waste Regulations. Oily rags can be treated using industrial washing facilities to remove oily residues, allowing the cleaned rags to be reused. The liquid can be collected and treated to recover the oil fraction.

All waste oils and diesel products will be segregated from other wastes and stored in a designated areas / skip where they are protected from the elements.

Aerosols & paint cans

Empty metal cans will be segregated from other wastes and stored in a designated skip. Once pierced aerosol and paint cans can be recycled as scrap metal.

General waste

The project welfare facility will be equipped with segregated skips and containers for disposal of dry recycling waste such as plastic, glass, timber/wood, metals, general waste and hazardous waste materials such as waste oils, solvents and paints. Care needs to be taken to ensure the skips are not filled to capacity.

All recyclable wastes will be removed from the Site as required.

Disposal

Disposal to landfill is the lowest option of the waste hierarchy and could be only justified for those waste streams which cannot be reused, recycled or otherwise recovered.

Under the current legislation, the waste producer has a Duty of Care (DoC) to ensure that waste is disposed of in accordance with the Waste Regulations. This means that the developer is a 'waste producer' and therefore bound to the requirements of waste DoC in terms of its appropriate storage and disposal.

Only relevant registered contractors will be used for waste transport, off-site recycling, recovery and disposal. Those suitably registered waste contractors which are local to the project site, will be contracted to manage the waste streams from this project.

3.7 Materials Procurement and Storage

Responsible sourcing and management of procured materials are key considerations to ensure resource efficiency and reduce wastage due to damage, spills and vandalism. Throughout the pre-construction and construction phases, sustainable procurement measures will include the following measures:

Research and consider procuring recycled alternatives of virgin construction materials;

- Substitute hazardous materials with non-hazardous alternatives;
- Ordering only the correct amount of materials required;
- Order materials cut to size to reduce off-cuts;
- Source out materials/products from local suppliers where possible, to reduce transportation costs and emissions;
- Arranging 'just in time' deliveries to reduce their potential damage on site;
- Procure sustainably sourced materials and where feasible, from companies with certified environmental standards.
- Recycle the volume of packaging used for materials delivered to the site; packaging should be returned intact to suppliers, whenever possible.
- Reject deliveries if materials/goods are damaged.

Any procured recycled aggregates should be checked to ensure their quality/composition meet the required specification, in advance of receipt; and on receipt, inspected to determine suitability and to ensure the material is not waste.

All procured materials, goods and products should be stored correctly as per manufacturer's recommendations / labels, and according to their environmental risks. All potentially polluting materials should be stored in designated areas with restricted access,

on an impermeable base, in a secured bunded compound (for tanks) to avoid a risk of fire, vandalism, vehicle collision etc potential risks.

All designated materials storage and waste storage areas should be clearly marked and guarded against breakage, vandalism and theft.

All materials will be stored on dry land and no loose debris will be left on the beach. All waste materials will be removed from the beach immediately.

3.8 Surface Water Management

The construction works will take place in the intertidal zone.

Water management of land use activities is a legal responsibility of the site developer/operator and their contractors. Controlled waters (rivers, streams, drainage ditches, lakes groundwater and coastal waters) have legal protection from harm and pollution. Water pollution includes polluting matter which enter water body and/or waste materials discharge into controlled waters. Also, activities such as engineering works, which cause harm to the hydrology regime and/or riverine habitats, would result in financial penalties to the polluter. Any works in or around watercourses to obtain consent from Natural Resources Wales.

All development and operational sites which have a potential to pollute controlled waters, should adopt a proactive water pollution prevention approach.

General water management measures which are relevant to the construction works such as earthworks, chemicals storage etc., are listed below with emphasis on pollution prevention controls:

- Prevention and management of surface water run off should be incorporated into the construction works design and the programme. The following aspects should be given a consideration:
 - The site clearance and other groundworks should be staged to avoid most of the ground disturbance outside the wet period of the year;
 - Peripheral and other undisturbed areas should be used as sediment buffer zones during construction;
 - The works should be sequenced to make best use of existing buffer zones for silty water run off;
 - Identify a need for a surface water discharge consent from NRW and put measures in place to fulfil the requirements of the consent.
- Silt fences and other physical barrier should be used to catch the water runoff or pumped out silty water, to remove sediment and to facilitate its natural attenuation.
- Water run off drains in the proximity of higher risk areas such as chemical store, concrete batching plant, waste storage areas etc., should be fitted with oil interceptors.
- All hard-standing areas and surface roads are kept clean from mud and oil build-up.
- Wastewater from construction works should be collected in a sealed tank for removal off site by a licenced waste disposal contractor.
- Provisions should be made to managing concrete washout. The preferred option is to clean the ready-mix concrete lorries or concrete mixing plant, in a concrete

washout area to ensure the washout cannot enter the surface water drains and water courses.

- Cleaning products used on site should be non-hazardous and non-solvent based.
- Facilities should be provided for site staff to wash their boots to remove mud.
- Regularly inspect surface water courses near the site, for signs of discoloration. Consider undertaking regular monitoring of water courses for turbidity and suspended solids.
- Regularly inspect water drains, cut-off channels, collection tanks, silt fences etc. protection measures to ensure their effectiveness.

The development site is situated entirely within Flood Risk Zone 3 and thus a flood from the sea has a 0.5% (1 in 200) chance or greater of happening in any given year, according to the NRW Flood Map:

https://maps.cyfoethnaturiolcymru.gov.uk/Html5Viewer/Index.html?configBase=https://maps.cyfoethnaturiolcymru.gov.uk/Geocortex/Essentials/REST/sites/Flood_Risk/viewers/Flood_Risk/virtualdirectory/Resources/Config/Default&layerTheme=2

3.9 Spillages

Spillages should be avoided by using appropriate a secure containment of hazardous materials, using drip trays for mobile plant, locating refuelling areas on an impermeable base and away from drains, providing relevant training on identification and management of spills, to site-based staff.

Spill kits should be available at the site and located next to bowzers and drums where polluting substances are stored.

Should a spill occur the following response procedures will be implemented:

- The project manager will be informed of the spill;
- Work will be stopped immediately;
- The source will be identified and sealed as practical;
- All possible ignition sources of spilt flammable material will be extinguished;
- The spill will be contained using spill kits on land and booms on the stream;
- Granules / pads will be used to mop up as much spill as possible;
- If the spill enters a drain or a watercourse then Natural Resources Wales will be contacted;
- A local spill management contractor will be contacted if the need arises or the spill enters a drain/watercourse. A 24-hour spill response service will be readily available to the project manager;
- The granular material and pads and any containment items will be treated as hazardous waste and disposed of accordingly.
- The project manager will carry out a full investigation prepare an incident report.

3.10 Liquid storage

All oils and fuels will be stored in compliance with the Control of Pollution (Oil Storage) Regulations 2001 and employing the following procedures:

- Fuel will be stored in dedicated bunded, impervious storage areas, away from drains and watercourses.
- Drums over 200 litres will be stored on drip trays capable of holding 25% of the drum's maximum capacity.

- Fuel tanks will be stored within a bund capable of holding 110% of their capacity. All pipes and gauges shall be within the wall of the bund.
- Bowsers will be double skinned and shall be stored in a bund capable of holding 110% of the volume of the bower.
- Small mobile plant will be placed on drip trays.
- Spill kits will be available at various points around the site and located next to bowsers and drums.

3.11 Fire Control

Project construction works will be carried out in compliance with the Regulatory Reform (Fire Safety) Order 2005. A Site Fire Safety Plan will be produced stating appropriate measures to minimise the risk to life and property from fire. The Plan will be based on provisions of the Code of Practice on Fire Prevention on Construction Sites. There will be no open fires on the construction site, except for specialist cutting equipment (i.e. Oxy/Acetylene Burning gear) which will be of very limited use and will be closely monitored.

The Plan will identify a responsible person, define responsibilities and establish procedures on fire prevention. A 'responsible person' / Fire Safety Coordinator will be appointed by the Main Contractor to oversee implementation of the Site Fire Safety Plan, in particular the following issues:

- General housekeeping;
- Fire extinguishers, fire detection and alarms;
- Hot Works Permit;
- Fire escapes;
- Means of giving warning, communications (evacuation plans and procedures for calling the fire brigade), fire drills and training;
- Fire brigade access, facilities and coordination;
- Means of fighting fire;
- Security measures to minimise the risk of arson.

An initial fire risk assessment of each area will be undertaken and updated as the risks change. In addition, weekly inspections of all areas will be carried out and the findings recorded on a weekly inspection report.

3.12 Construction Traffic

Site haul road(s) will be established as required for access to the compound.

Site traffic and pedestrian route segregation will be established and clearly marked. Lorry access to the site will be via the site compound and dedicated stores and loading / off loading facilities will be provided for example to allow safe work at height on lorry beds. The access and compound will be sufficient to allow all anticipated vehicles to enter site without causing congestion.

The excavator and dumper will have low ground pressure tracks to minimise disturbance to the sand and shingle substrate. All intertidal vehicle movements will be restricted to the strip of barren shingle and sand at the top of the beach. Vehicles will avoid turning wherever possible to minimise disturbance.

3.13 Biosecurity

All vehicles will be cleaned prior to arrival on site to prevent the introduction of Invasive Non-Native Species to the Glannau Penmon-Biwmares SSSI and the Menai Strait and Conwy Bay SAC.

All contractors and staff will be briefed to ensure they are aware of potential non-native species and issues associated with them through toolbox talks and site inductions.

If non-native species are subsequently identified to maintain good site hygiene when dealing with any non-native species:

- A fence that can be clearly seen will mark out the area of issue. Signs will be erected to warn people working there that the area is infested / contaminated.
- Where contaminated soil, materials or water are located, signage will be erected to indicate them.
- Personnel working on or between sites will ensure their clothing and footwear are cleaned where appropriate to prevent spread
- Tracked vehicles will not be used within the area of infestation.
- All vehicles leaving the infested area and / or transporting infested soil/materials must be thoroughly pressure-washed in a designated area before being used for other work.
- Where cross-contamination is possible (i.e. from one site to another), vehicles or machinery will be designated to specific sites to prevent spread.
- Material / water left after vehicles have been pressure-washed will be contained, collected and disposed of appropriately.
- All chemicals used for the control of non-native species will be stored and used in a responsible manner.
- All wash facilities including wastewater from washing vehicles, equipment or personnel will be managed in a responsible way so as not to not cause harm to the environment.

4 DEALING WITH COMPLAINTS

As an environmental objective the project aims to maintain good public relations and will put procedures in place for management of complaints on the public amenity issues covered by this Plan.

Public amenity related complaints are generally logged in by the Local Council's Environmental Health Department. Alternatively, the public will have an opportunity to contact the development site directly. The site entrance will display a poster/banner, giving contact details of both the registered company and the Project Management Team.

When a complaint is received by the Council, the Project Manager will be informed about what the complaint is about and given the name and contact details of the complainant. Advice might also be offered as to how they might deal with the complaint.

The Project manager will log the complaint and carry out further investigation and coordinate response procedures, as described in the sections above. The Manager will provide a feedback to the Local Council or the complainant (if necessary) on the measures taken to control the matter and to prevent it (if possible) from recurring.

5 EMERGENCY PREPAREDNESS AND RESPONSE

The Developer and their Principal Contractor recognise the importance of adopting formal procedures for preventing accidents, breakdowns and enforced shutdowns due to extreme weather or power cuts. They have developed a system to identify, assess and minimise the environmental risks and hazards of accidents and other occurrences.

The Site will adopt formal emergency response procedures/plan for dealing with the following hazards:

- Fire breakout;
- Leaks and/or Spillages
- Failure or damage to site infrastructure;
- Loss of power;
- Security issues /fire/ vandalism;
- Extreme weather.

The site-based staff will be fully trained to implement emergency response procedures, and how to use spill kits etc equipment. The project will identify and appoint a spill response contractor to deal with any major incidents.

Emergency preparedness in relation to protection of human health from flooding, chemical spills, fire etc emergency events on site, is covered by The Management of Health and Safety at Work Regulations 1999. The Regulations set up a need to establish emergency response procedures on operational sites, including construction sites.

6 RESPONSIBILITIES

The Project Manager will have an overall responsibility for implementation of this CEMP as the principal document demonstrating planned and systematic approach to implementing environmental management procedures stated in the Plan.

The Project Manager will be tasked in ensuring the Plan complies with regulatory and contractual requirements, any that all project personnel are aware of the contents of this CEMP and understand their role in fulfilling the project's obligations.

6.1 Technical Competence and Training

All project personnel will be fully trained in operational procedures, reporting non-operational conditions in relation to environmental and amenity issues and in emergency preparedness and response (e.g. spill drill training). All site-based staff will be inducted prior to commencing duties on the construction site.

The Principal Contractor will appoint the Project Manager (PM) who will have the overall responsibility delivering effective environmental management of this project. The PM and his team will coordinate site-based staff, subcontractors, supplier's environmental clerks of work (if appointed). The team will be familiar with the environmental aspects of this project and the relevant legal and other obligations for environmental protection. They will regularly liaise with Natural Resources Wales when required to agree pollution management measures, response to complaints, when reporting an incident (as required).

The PM will be responsible for defining the environmental responsibilities of all site-based staff and ensuring that all the staff are fully trained and competent in fulfilling these duties.

The PM team will coordinate and undertake the necessary inspection of the environmental management infrastructure on site, collect monitoring data and report on environmental compliance to the

7 RECORDS

The project management team will maintain on site all records indicated in this CEMP. These include:

- Contractual and regulatory consents, and compliance records;
- Construction Environmental Management Plan (this document);
- Emergency response procedures/Plan;
- Surface Water Management Plan;
- The Site Diary;
- Design drawings, topographical surveys, drawings etc.;
- Complaints records and a log of investigations and action taken;
- All monitoring and audit records;
- Staff competence and training records, qualifications etc.

8 APPENDICES

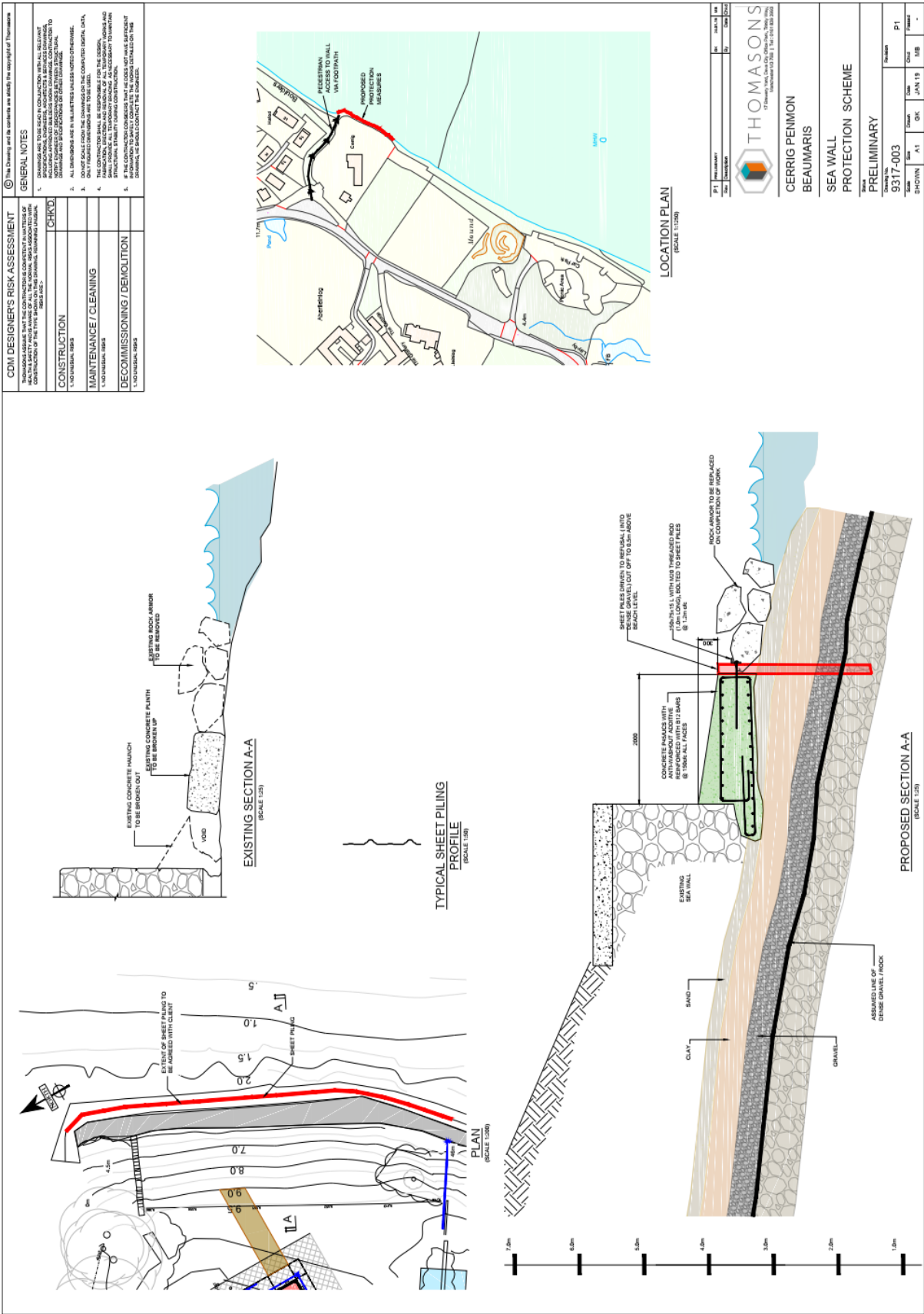
APPENDIX A – Sea wall protection scheme plan

APPENDIX B – OBR Construction Method Statement

APPENDIX C – Additional clarifications provided by OBR Construction

APPENDIX D – Detailed plan showing footprint of permanent works in relation to SAC boundary

APPENDIX A – Sea wall protection scheme plan



APPENDIX B – OBR Construction Method Statement



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OUTLINE METHOD STATEMENT FOR

**WORKS TO CARRY OUT REPAIRS TO REINFORCE THE RETAINING
BOUNDARY SEA WALL BETWEEN THE PROPERTY KNOWN AS
'CERRIG' & MENAI STRAITS, LLEINIOG, Nr LLANGOED, ANGLESEY,
NORTH WALES LL58 8RN.**

Document Ref :
OBR/HOD/CERR/WALL-06/19 Rev 0

Client :
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This document has been produced upon the request of our Clients, Mr and Mrs. Hodari who are the owners of the property known as, "Cerrig". Cerrig was originally a 1920-30's property which was in a poor state of dilapidation and therefore demolished to be replaced with a new modern modular composite steel and block construction property which was constructed and completed in early 2018.

The property is easily accessible from the public highway and sits at road level which is approximately 7.5 – 8.0 metres higher than mean high water level of the Menai Straits. The property boundary to the East currently consists of a retaining random rubble stone wall structure apparently constructed on a concrete foundation or plinth which has been undermined by various storms over the years but in particular during the last storm of November 2017.

The location plan below illustrates the section of sea wall under consideration. It is sited with a designated Special Area of Conservation (SAC) which encompasses an area of just over 26,500 hectares and includes the Straits and out East to the Bay of Conwy. Immediately to the South East of the property is Lafan Sands. The intertidal **mudflats and sandflats** of the Menai Strait and Conwy Bay on this north Wales coast include Traeth Lafan, the shores of the Menai Strait, and the Foryd estuary. Traeth Lafan is an example of an almost fully marine extensive mud and sandflat that experiences a broad range of wave exposure, providing a range of sediment types with typical associated communities. For example, the shrimps *Haustorius arenarius* and *Bathyporeia sarsi* are found in mobile clean sand, whilst bivalves such as the cockle *Cerastoderma edule*, the gaper *Mya arenaria* and Baltic tellin *Macoma balthica* are common in more sheltered fine and muddy sand. The sand-mason worm *Corophium insidiosum* is found in more tide-swept areas. The mixed sediment shores between Beaumaris and Lleihiog are highly productive shores that are rich in animal and plant species. These shores include a nationally important biotope that is rare in the UK. The nationally scarce dwarf eelgrass *Zostera noltii* is also found at this site.



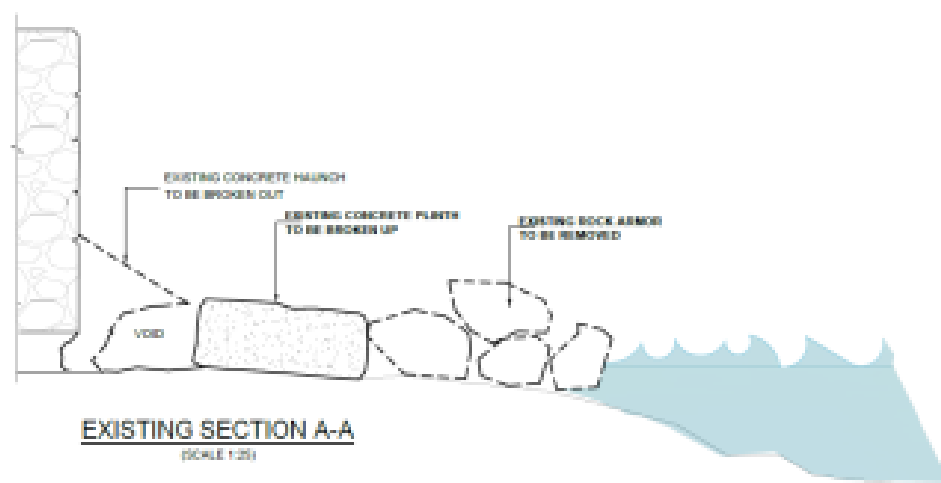


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The Section highlighted in RED measures approximately 46 linear metres and although some sections of the structure have deteriorated at a worse rate than others, it is the consensus and recommendation of Thomasons Consulting Engineers to address the entire length and perhaps continue the section in a Southerly direction to cover the Client's entire frontage which extends down to the boundary of the next parcel of green land to the South of property, if any repair and reinforcing works are to be undertaken.

As the works are therefore to be undertaken on the shores of the Menai Straits within this SAC a Marine License Permit / License is required in accordance to The Marine and Coastal Access Act 2009. This Outline Method Statement details the Contractor's initial proposals of approaching the required works and describes the likely resources in terms of plant and machinery to be deployed to construct the permanent works both from beach level and from the upper ground level.

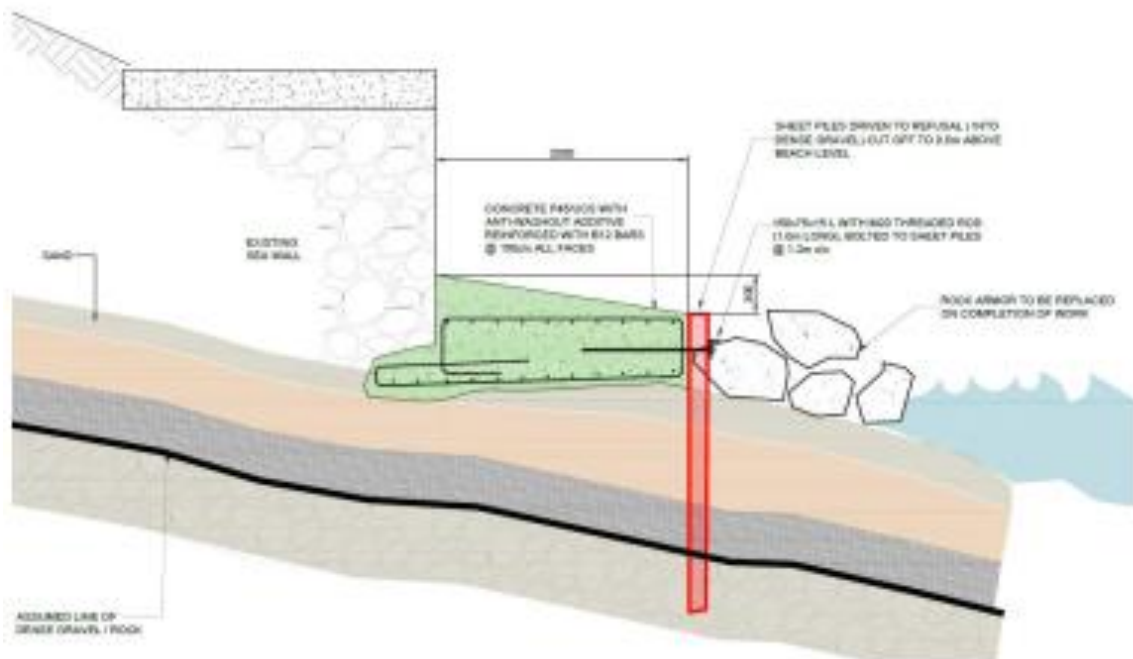
The cross-sectional diagram below illustrates the current situation and damage which has occurred over the years but in particular during the violent storms of Nov 2017. As is evident from the diagram, the structural foundation plinth or toe has been undermined and displaced from the wall above rendering the retaining structure without adequate support and stability in particular against lateral thrust from the retaining ground. What little rock armoring to the front of the toe provides little protection as the void left at the base of the wall allows penetration by wave action and progressive deterioration to the foundation which will result in eventual collapse.



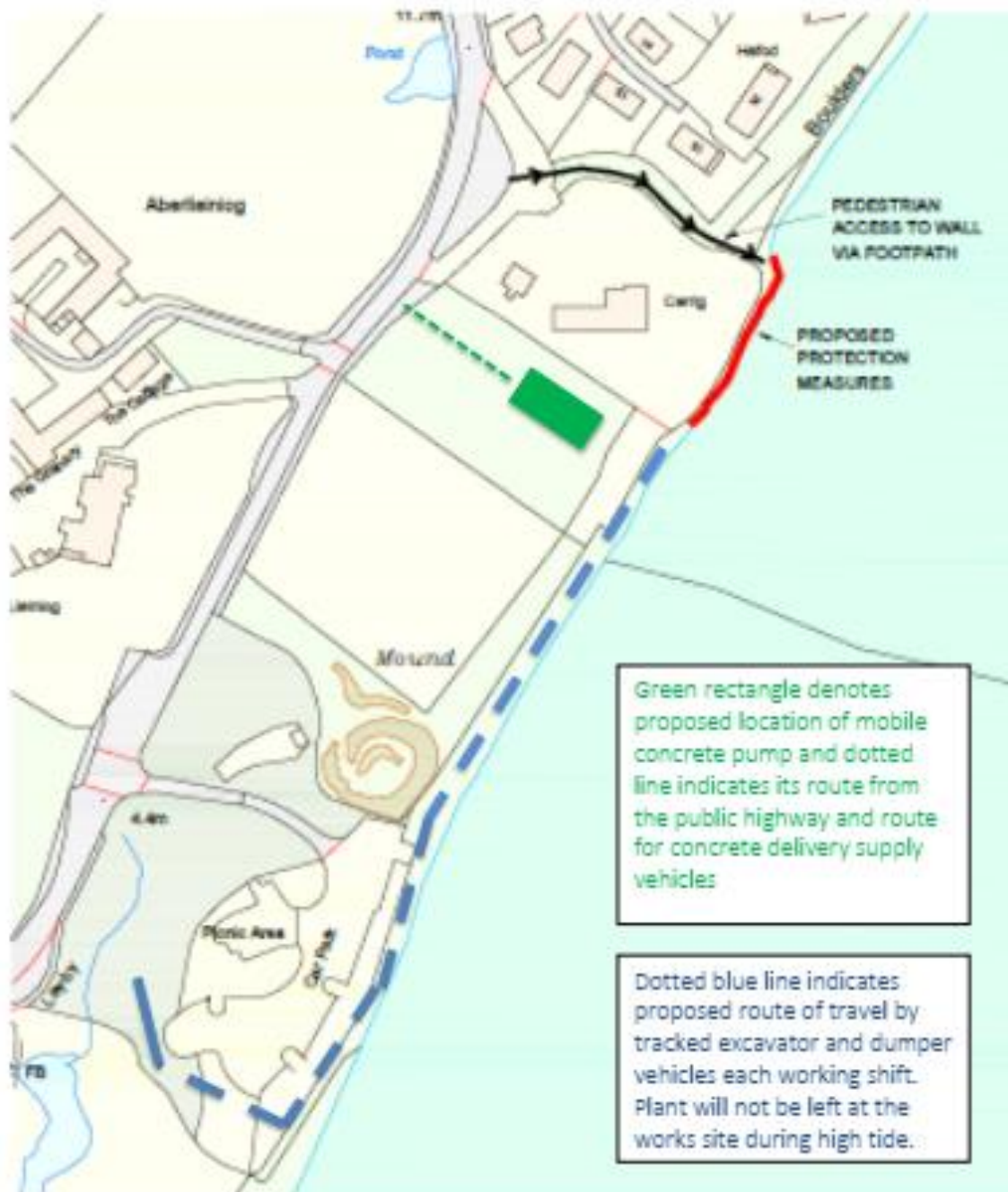


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It is therefore the intention to stabilize and reinforce the structure by infilling the void with imported concrete but reinforcing this mass concrete with steel reinforcement mesh and retaining the concrete using sacrificial sheet piles mechanically driven into refusal and retaining approx. 500mm above ground thus forming a new reinforced concrete support plinth. The diagram below illustrates the required cross-sectional detail to be constructed



It is OBR Construction's intention to approach the works from both beach level and upper levels. The works obviously have to be scheduled to coincide with available tidal windows and dependent on the commencement date for the works will involve approximately 8-9hr shift patterns commencing 1.5 hours following high tide and terminating some 2hrs before the next high tide. The plant and machinery to be used on the beach will be a 21 or 23 tonne tracked excavator and a 9 tonne swivel skip tracked dumper that will access the beach at low tide and be removed back off the beach, above mean high water following each daily working shift. This equipment has been chosen as being adequate to carry out the sheet pile installation, to remove, import and place the rock armor and to carry materials such as the reinforcing cages etc. The only means of access to the works area would be via the local authority owned car park at Aberlleiniog, a short distance to the South West of the proposed work site as indicated on the following plan.





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Prior to being delivered and deployed for the first time on site the equipment shall be fully serviced and inspected and recorded as such. All plant deployed to work on the beach shall then be inspected daily, at the commencement and end of each shift with particular note to look for fluid leaks. Each item of plant will carry with them emergency oil absorbent mats so that in the unlikely event of a small leak occurring, it can be contained by using these mats / pads. If used, the pads will be contained within a yellow hazardous waste bag, sealed and disposed of in the appropriate manner via the OBR Construction Waste Protocols.

Small items of plant such as petrol driven generators (example opposite), if used shall be sited on a containment bund or plant nappy as they are commonly referred to and again these shall not be left on site during non- working periods.



Wherever possible, small power tools such as drills shall be battery powered but for the works which are anticipated it may be a requirement to utilize a generator such as shown to provide increased and consistent power levels to facilitate the required task.

Therefore in summary, the works which would be undertaken from beach level assisted by the excavator and dumper would include

- a) Removal / setting aside existing rock armor to provide sufficient working space for the construction plant
- b) Excavator with a rock breaker attachment to break up the displaced concrete plinth / toe
- c) Dumper to transport sheet piles from the Lleiniog car park to the works area
- d) Excavator with a pile driving attachment to drive the sheet piles into the ground to the point where 500mm of the pile remains above ground. Steel piles are sacrificial and shall remain in situ as part of the permanent works
- e) Dumper to transport the steel reinforcement cage to the works site
- f) Steel pile vertical joints and corners to be sealed to prevent seepage from concrete when placed and vibrated
- g) When the concrete plinth is cast, the excavator shall replace the rock armor back against the sheet piles to offer protection in the form of wave displacement



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To place and compact / vibrate the mass concrete infill behind the installed sheet piles, to minimize or mitigate this material having to be transported over the seashore, our approach would be to deploy a concrete pump and site this pump within the parcel of land adjacent just South West of "Cerrig". With an M52 mobile concrete pump or similar, capable of a 45m horizontal radial reach, this pump would enable us to place and backfill the entire run of piles from higher ground with the concrete delivery vehicles feeding the pump almost straight off the small side road as indicated on page 5 by a green rectangle and dotted line. The Contractor would need to carry out an element of accommodation works to facilitate this setup which would include,

- Formation of a temporary access within the boundary stone wall between the public highway and the parcel of land South West of "Cerrig" to facilitate access into the plot for the mobile concrete pump
- Importing to site and the installation of a temporary load bearing trackway (Ground-Guards or similar) from the temporary access through the parcel of land to the front as indicated by the green rectangle on page 5.
- Bring the mobile pump onto, and site the pump in the approximate position as shown by the green rectangle, allowing for the mobile pump's outrigger spread which will be some 10.5 metres

The specified pumped concrete mix is P45/UCS with an anti washout additive which has been specified specifically by the Designers to mitigate accidental seepage and if some seepage occurs through the steel sheet piles then the anti-washout additive should prevent further spread and aid swift containment.



Above photograph for illustrative purposes only, showing an M52 Mobile Concrete Pump

Whilst the concrete is being pumped through to its required location, the contractor would have two or three operatives receiving and guiding the outlet nozzle ensuring correct and accurate placement whilst colleagues would be closely on watch for any accidental seepage and to form



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the required surface finish to the concrete which will form a new 2 metre wide filleted reinforced plinth

Upon completion of the concrete placement and finishes, the excavator would return to the shore and finalize the replacement of the existing and newly imported rock armor units to ensure maximum wave displacement and protection to the newly constructed work.

As a small addition to the main body of works, it may well also become a requirement to carry out repairs to the hand pointing of the stone wall structure as a last measure to prevent water ingress into and behind the stone retaining wall. This will be done by hand using hand mixed mortar which shall be mixed within the parcel of land adjacent to "Cerrig" and will not be mixed on the shore. This mixed mortar will be mixed, handled and applied in small quantities of no more than 10kg, mainly for handling purposes but also for a reduced risk of accidental spillage perspective.

An extensive photographic record of the current shore and structure condition shall be undertaken prior to any physical works commencing and then following completion, the same exercise shall be repeated.

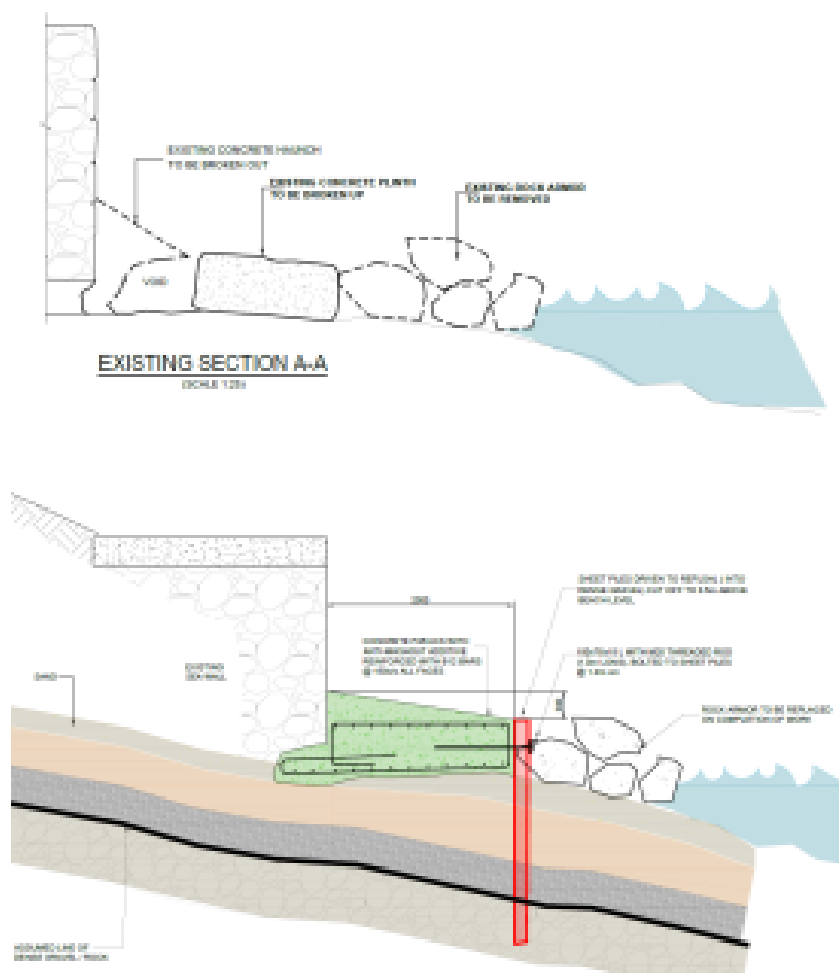
The Contractor is fully committed to reducing or putting measures in place to mitigate any unnecessary damage to the natural habitat of our coastline, any archaeological features which might be affected and shall co-operate fully with any advice, guidelines or stipulations forwarded by Statutory Bodies which may arise from a review of this document which outlines the Contractor's initial approach to construct the works.

OBR/HOD/CERR/WALL-06/19 Rev 0
June 2019

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APPENDIX C – Additional clarifications provided by OBR Construction

Clarification on the construction method including the need for excavation or dredging of material underneath the existing concrete plinth;



Both above typical cross sectional details respectively illustrate the existing and proposed scope of construction and our access arrangements and methodology are as detailed within our previously issued document ref. OBR/HOD/CERR/WALL-06/19 Rev 0 issued June 2019. However, with particular requirement to clarify the need for excavation or dredging of material underneath the existing concrete plinth, we confirm that this will be minimal. Our proposed methodology states that the excavation and construction works would be carried out in short sections and this is imposed for two specific reasons – firstly in order to complete full sections of works within the allowable tidal windows but secondly and perhaps more importantly to ensure that no accidental / unplanned collapse of the wall occurs. As the Thomasons proposed construction cross sectional detail (above) illustrates, there will be a requirement to excavate out some 500mm below the toe of the existing plinth in order to install the steel reinforcement cage. This portion of the excavation scope is likely to be carried out by mechanical excavator, carefully banked by a banksman who will also carry out some hand excavation. The excavation for the reinforced concrete plinth (coloured green) would be carried out following the installation of the sheet piles. Therefore the requirement for excavating beneath the existing structure is minimal but necessitated by the designed proposed construction detail.

Clarification on the scope of phase 2 and confirmation with respect to the worst-case extent of sheet piling proposed

Firstly in addressing the worse case extent of proposed sheet piling, longitudinally the proposal would be to install a continual line of sheet piles spanning the total length of the first phase being some 48 linear metres thus providing a support structure of integrity, durability and resistance to wave action at this North end section which endures the worst of the power of the waves.

In terms of extent of pile penetration depths, this is not easy to answer as no current GI details are available to assess bedrock or dense gravel strata etc and therefore in accordance to Thomasons' drawing ref 9317-003 where they state the piles are to be installed to 'refusal' we have made an educated assessment and opted for 4000mm overall length sheet piles and as they'll be driven to achieve a 500mm above ground protrusion, the anticipated driven depth will be 3500mm or as specified, to refusal and if the protruded portion of the sheet piles exceed 500mm then this pile will be cut to the required height above beach level.

The extent of Phase II of the works is a continuation in a south westerly direction across the frontage of the adjoining paddock, as far as the end of the existing stone boundary wall at the short 90 degree wall return as indicated by the BLUE line on the plan below.



However, Phase II only involves the importing and strategic placement of rock armor stone across the frontage of the existing sea wall along a line approximately 3.00 - 3.50 metres out from the base of the existing wall to offer some protection to what is considered currently the best preserved section of sea wall. No sheet piling installation has been specified for the second phase. The profile of the rock armor would be as per the proposed cross sectional detail drawing, above. Phase II is approximated as being an additional 45 metres. The proposed access arrangements for material importation and placement for both phases is identical and as described within our Method Statement

Clarification on the need to re-site scattered rock, and confirmation of its suitability

To put this query into context, the scattered rock which we consider is referred to is rock armor, -
- units of large rocks, some 1-1.5 tonnes in weight, currently evident at the site, mostly placed along the most Northerly 20 metre length of sea wall. This has been placed to dissipate the force of the waves from the North and North East. This existing rock armor would need to be pulled back away from the existing sea wall structure by the aid of mechanical tracked excavator to provide a 6 metre (approx) wide working strip to install the sheet piles, excavate and general working area. When works are completed (piles and reinforced concrete constructed), this rock armour is to be repositioned in front of the pile line to offer protection in the form of wave force dissipation. The volume of armour currently at the site is not considered sufficient for the initial 46 metre Phase I length and there is provision to import a further 150 tonnes which would be imported from same local source as those of the existing units and transported to the placement site from the Lleiniog Car Park, along the beach within a wheeled 9 tonne dumper vehicle. (Refer to our previously produced document ref OBR/HOD/CERR/WALL-06/19 Rev 0 issued June 2019. Suitability of the existing / proposed rock armor material (granite / limestone) to perhaps be assessed and confirmed by the Designers prior to procurement.

APPENDIX D – Detailed plan showing footprint of permanent works in relation to SAC boundary

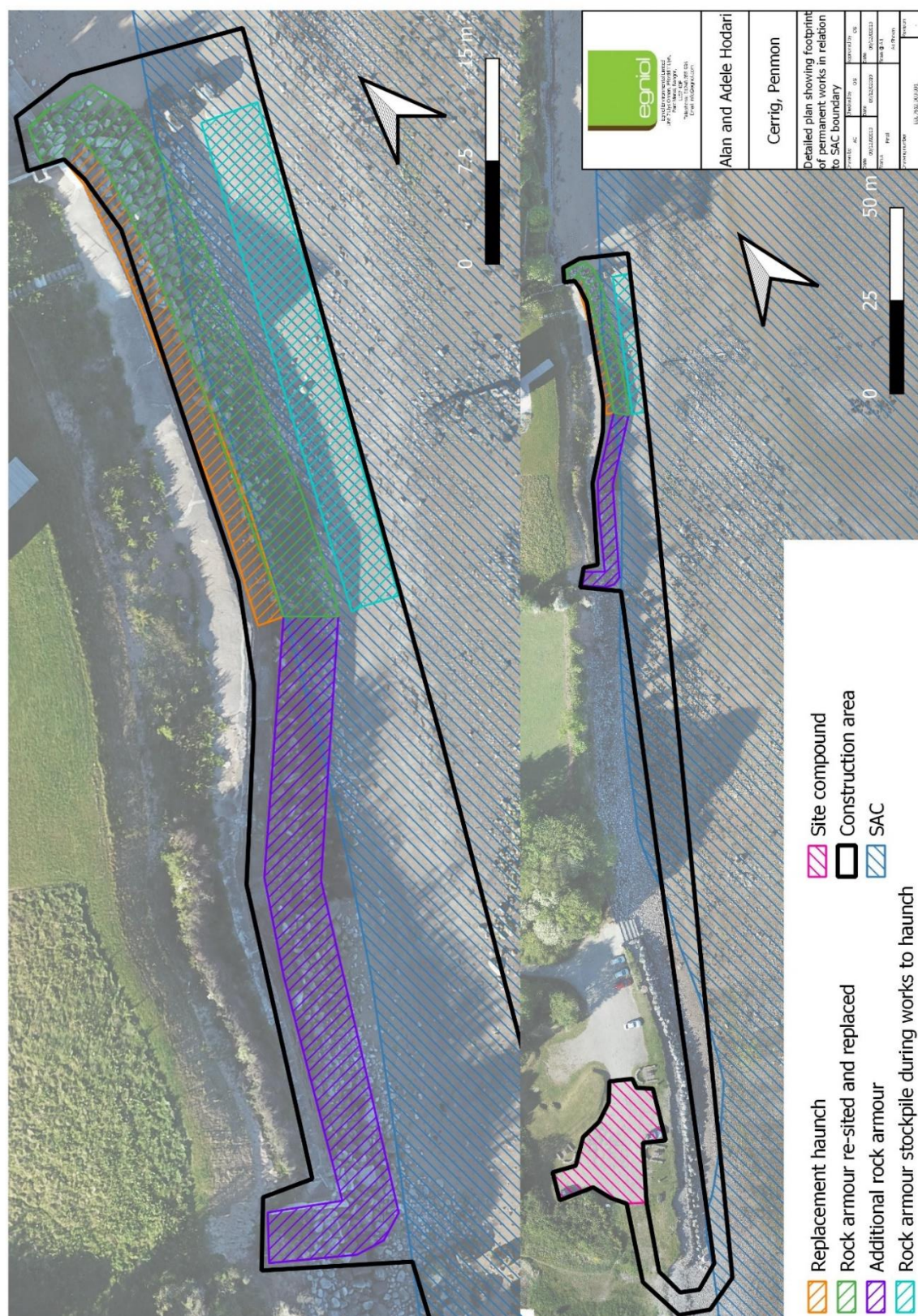


Figure 3 - Detailed plan