



Lucror Consulting Ltd
Construction Commercial Services
and Project Management

HIRael FAS

Construction Methodology Statement

11 November 2022

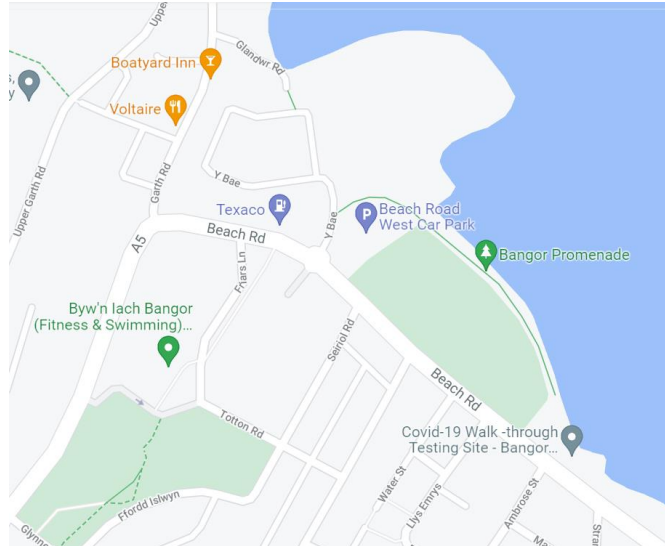
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Scheme: Hirael Flood Alleviation Scheme

Client: Cyngor Gwynedd Council

1.1 Site Location

The scheme is along Bangor Promenade, Hirael, Bangor, Gwynedd.



1.2 Reference Documents

- AECOM 60664880-ACM-XX-XX-DR-C-0209 – Promenade design profiles and sections for planning.
- YGC Preliminary Ecological Appraisal version 0.04 dated 17 April 2020.
- YGC Initial Environmental version 0.02 dated 27 April 2020.

1.3 Description

The Works consist of installing a Steel Sheet Pile Wall, with concrete capping beam and clad on landward side and associated permanent and temporary works.

The works will involve the following:

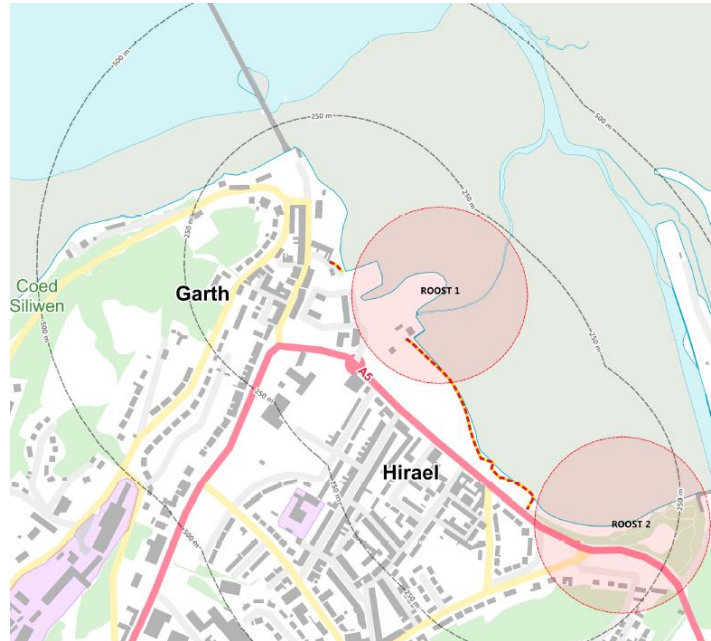
- Set up Temporary Site Compound
- Temporary works including provision of temporary piling platform and access along existing promenade, encroaching onto the football pitch.
- Removal of existing gabion toe to allow installation of Sheet Pile Wall
- Installation of steel sheet piles
- Placing of rock armour
- Cast in-situ reinforced concrete capping beam
- Cast in-situ reinforced concrete cladding to landward side
- Reinstatement/Landscaping Works
- Removal of Temporary Site Compound.

1.4 Environmental Constraints

Two high tide roost sites have been identified in Bangor Harbour.

Construction work which has the potential to impact these roosts (specifically Roost 1) would be subject to the following constraints.

- No significant construction work to be undertaken within 150m of the Roosts 1.5 hours either side of high water; or
- Significant construction work within 150m of the Roosts to be undertaken during June and July.



All plant working within the tidal area (beach) to have bio-degradable oils.

Fuel bowsers, oils, and lubricants to be stored at site compound in lockable and secure storage as far away from the Harbour as practicably possible.

Concrete wash out facilities to be located within the site compound in the form of a lined waste skip.

2.0 Sequence of Works

2.1 Set up Site Compound

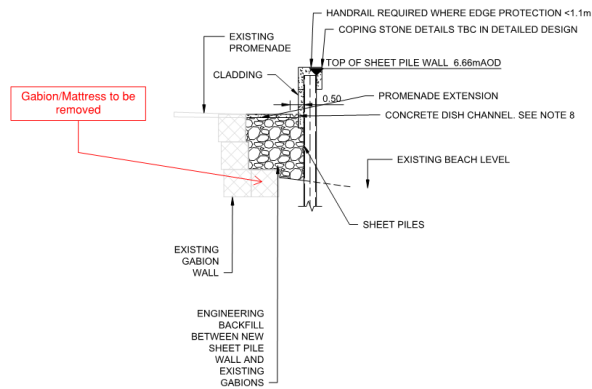
- a. Proposed site compound would be located within existing car park
- b. Set up temporary site compound consisting of adequate Welfare and Storage facilities.
- c. Set up traffic and pedestrian management.



2.2 Site Clearance

- a. General site clearance to be carried out in advance of the work to accommodate the proposed permanent and temporary works.
- b. To allow the installation of the sheet pile wall as close to the existing sea wall as possible and minimise the encroachment into the beach, lower-level gabions and large stones would be removed using a midi (5-9t) hydraulic excavator accessing the beach area as shown below. Arisings to be stored on site for re-use to reinstate the beach area on completion of the works. Excess material and gabion material to be disposed off site to licenced tip.





2.3 Fill voids

- a. Large voids in the existing gabions that are to be retained will be filled with a semi dry lean mix concrete. The use of a semi-dry lean mix concrete will eliminate the risk of grout loss and seepage onto the beach area.
- b. A temporary shutter will be erected on the face of the existing gabion using plywood formwork or sandbags.
- c. This work will be timed to provide as much curing time as possible before the next high tide.

2.4 Temporary Piling Platform

- a. Piling plant will be situated 2-3 meters away from the front face of the existing sea wall to reduce loadings.
- b. Further site investigation will be required to determine the extent of the piling platform on the landward side, but as a minimum, an access road will be required within the existing football field consisting of a topsoil strip and 200-300mm imported fill.



2.5 Sheet Pile Installation

- a. Sheet pile installation will be subject to the Environmental constraints stated within this document.
- b. The sheet pile installation method will be decided by the Contractor; however, the piles will be installed from the landward side with the piling plant being sited a minimum of 2-3 meters away from the from face existing sea wall.
- c. The piles will be installed as close to the existing gabions as practicably possible minimising the encroachment into the beach area.

2.6 Backfill void between sheet piles and existing promenade

- a. Void between proposed sheet pile wall and existing promenade to be filled using engineering backfill as work proceeds.

2.7 Placing of rock armour

- a. Rock armour will be placed by transporting onto the beach using wheeled dumpers and placing with tracked excavator fitted with rock grab.

2.8 In-situ reinforced concrete capping beam and cladding

- a. To accommodate the installation of temporary formwork, access will be required from the seaward side. This will be achieved using a temporary platform on the beach area, removed at high tide or a man basket from a crane located on the landward side.
- b. The capping beam and landward side cladding will be poured in one pour of sections approximately 10m long.
- c. Fixings will be welded onto the sheet piles to support the soffit shutter on the seaward side and temporary formwork installed.
- d. The proprietary formwork system will incorporate an access platform on the seaward side
- e. Formwork to be inspected by a trained and competent person prior to loading with reinforcement to ensure correct installation in accordance with the temporary works design.
- f. Install steel reinforcement.
- g. Pour concrete using a hydraulic mounted skip or concrete pump.
- h. Strike formwork once concrete is cured.
- i. Repeat process until the entire pile cap and cladding wall is installed.

2.9 Remove temporary works and reinstate

- a. Remove piling platform and temporary access road
- b. Reinstate beach area
- c. Reinstate football field area
- d. Complete permanent landscaping works

2.10 Remove site compound area