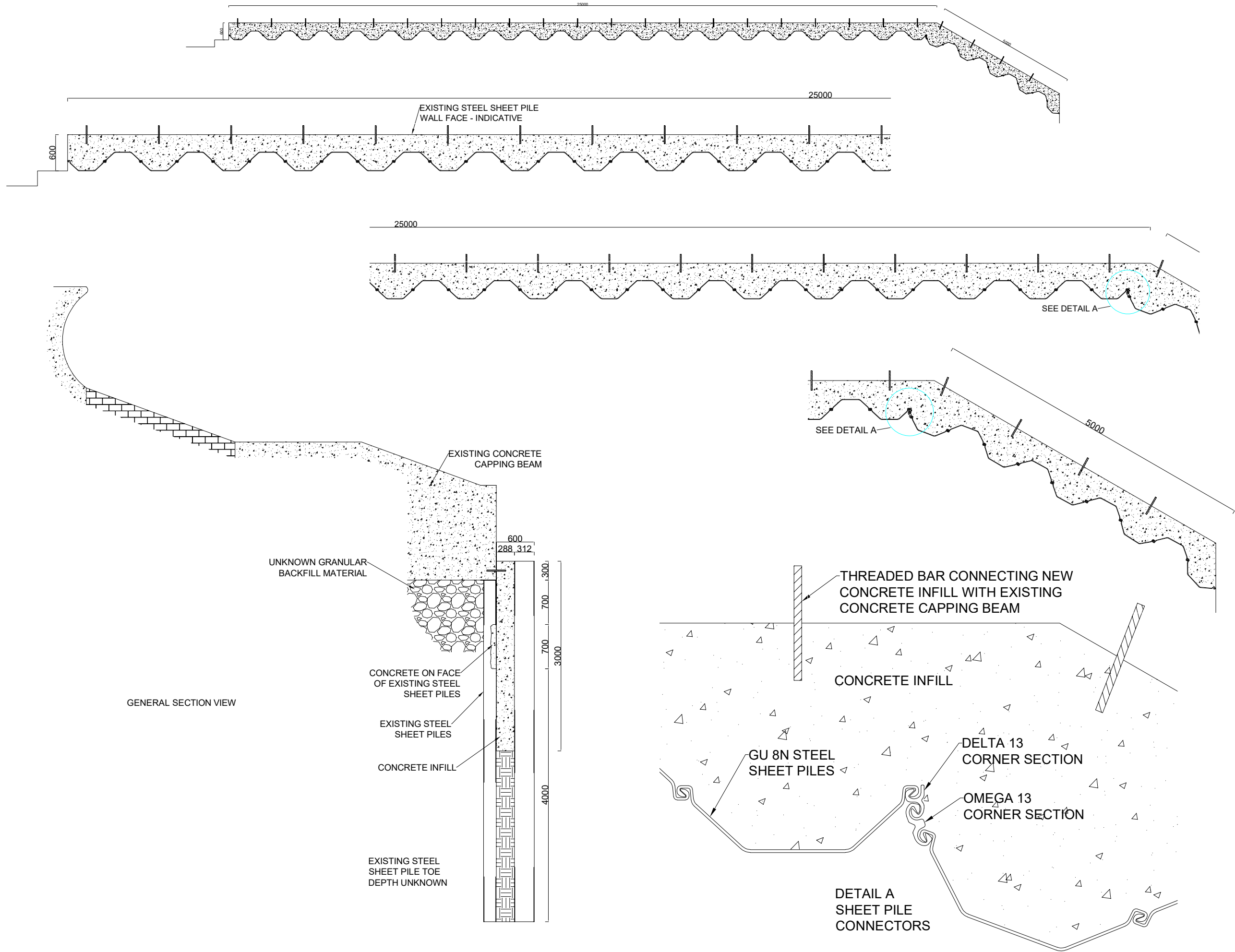




LEGEND:

NOTES:

Rev	Date	By	Rev Description
Drawing Status:			
FOR INFORMATION ONLY			

CLIENT:
GWYNEDD COUNCIL

PROJECT REF:
BARMOUTH NORTH PROMENADE

DRAWING TITLE:
STEEL SHEET PILE PLAN AND SECTION VIEWS

DRAWING NUMBER:
KMD/CH/19/01/21

ISSUE DATE: 19/01/21	SCALE: NTS
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Construction Photo Log

2021

Barmouth North Promenade

Document Control Sheet						
Title			Document No.			
Barmouth North Promenade Photograph Log			PL/JB/070421/1			
Originator			Client			
 Kaymac Marine & Civil Engineering Ltd Osprey Business Park Byng Street Landore Swansea SA1 2NR Tel: 01792 301818			Client:  Cyngor Gwynedd Council Swyddfa'r Cyngor Stryd y Jel Caernarfon Gwynedd LL55 1SH			
Authorisation						
Prepared by:	J.Burgess	Signature <i>Josh Burgess</i>	Date 07/04/2021			
Checked By:	T. Northam	Signature <i>Terry Northam</i>	Date 08/04/2021			
Approved by:	J Lippiett	Signature <i>Jeff Lippiett</i>	Date 08/04/2021			
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Issue Date	Document Description	Status/Revision				
07/04/2021	Photograph Log	Draft	Issue	1	2	3
Copy No.	Issued to					
1		✓				
2	Kaymac Marine Records	✓				
3						
4						
5						
6						



Tile 1 – Existing piles before work started



Tile 2 – Void beneath steps



Tile 3 – Excavation below steps



Tile 4- Installation of first timber shutter below steps and first pile driven to level after excavation of sand



Tile 5 –Excavation of sand to level

Date: Nov 20
Issue: 1
Revision: 0

Date and time printed: 09/04/2021 09:27
This document is valid for 28 days from the time of printing

Reference: PL
Page: 7 of 24



Tile 6 – First phase of piles installed with top fixings and drain pipes



Tile 7 – First concrete pour on the first phase of piles



Tile 8 – Phase two of the piles being installed. Every pile was welded to stop the adjoining pile moving when driving in to the finished level



Tile 9 – Concrete being poured into phase 2 of piles



Tile 10 – Phase 3 of piling excavation.



Tile 11 – Piling complete and concrete poured to finished level.



Tile 12 – Piling complete and concrete poured to finished level.



Tile 13 – Form work removed from step section



Tile 14 – 1 of 5 core holes being drilled.



Tile 15 – Core section



Tile 16 – Photo taken down core hole showing void.



Tile 17 – Void under corner of structure



Tile 18 – Form work installed on void under the corner of the structure

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Issue: 1
Revision: 0

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Reference: PL
Page: 20 of 24



Tile 19 – Finished concrete to northern corner of structure

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Issue: 1
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Page: 21 of 24



Title 20 – Foam concrete being pumped into void



Tile 21 – Timber groynes re-instated



Tile 22 – Stop logs re-instated



METHOD STATEMENT & RISK ASSESSMENT

Repair Works to North Promenade in Barmouth



Document Control Sheet

Title: Repair Works to North Promenade in Barmouth METHOD STATEMENT & RISK ASSESSMENT	Document No. GL/KM/CGWYNEDDC-NPRW-B/FEB21/1					
Additional Documentation: -	Relevant Drawings/Tender Docs – Ref: 74_2007_Barmouth North Promenade Emergency Works Options Assessment 20_11_19 (Draft for Comment); - KMD/CH/19/01/21 - STEEL SHEET PILE PLAN AND SECTION VIEWS.					
Originator:  Kaymac Marine & Civil Engineering Ltd. Osprey Business Park Byng Street Landore Swansea SA1 2NR Tel: 01792 301818	Client:  Cyngor Gwynedd Council Swyddfa'r Cyngor Stryd y Jel Caernarfon Gwynedd LL55 1SH					
Authorisation						
Prepared by:	G. Lippiett	Signature: -	Date: - 25/02/2021			
Checked By:	J. Dean	Signature: -	Date: - 25/02/2021			
Approved by:	R. Colcombe	Signature: -	Date: - 25/02/2021			
Date	Description	Revision				
February 2021	Repair Works to North Promenade in Barmouth METHOD STATEMENT & RISK ASSESSMENT	Issue				
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1	YGC Gwynedd – Rhydian Roberts	✓				
2	Kaymac Marine Records	✓				

!!!THIS IS A LIVE DOCUMENT THAT CAN BE ALTERED BY THE ON SITE MANAGER / SUPERVISOR AT ANY TIME SHOULD THEY FEEL THE WORKING CONDITIONS ON SITE REQUIRE A CHANGE TO THE WORKING PROCEDURES!!!

1.0 Introduction

1.1 Legislation

This document has been prepared to comply with, as far as reasonably practicable, the following current relevant legislation;

- The Health & Safety at Work etc. Act 1974
- Construction Health Safety and Welfare Regulations 1996 (CHSW)
- The Management of Health & Safety at Work Regulations 1999
- The Provision and Use of Workplace Equipment Regulations 1998
- The PPE (Personal Protective Equipment) Regulations 1992
- The Manual Handling Regulations 2002
- The Reporting of Injuries, Diseases & Dangerous Occurrences Regulations (RIDDOR) 1995
- The Work at Height Regulations 2005
- The Lifting Operations and Lifting Equipment Regulations (LOLER) 1998
- Provision and Use of Work Equipment Regulations (PUWER) 1998
- The Construction (Design and Management) Regulations 2015
- The Conservation of Habitats and Species Regulations 2010
- Environmental Protection Act 1990
- Wildlife and Countryside Act (1981)

1.2 Description of the Site & Work

Kaymac Marine & Civil Engineering Ltd. has been commissioned by Cyngor Gwynedd Council to carry out Repair Works to the North Promenade in Barmouth.

Review of the condition of the sea wall has been based on the inspection carried out along with supporting information from previous and contemporary photographic records of conditions. A time series of photographs is available back to March 1990, when conditions were recorded immediately following the storms of February 1990. In addition, there are contemporary photos from 2015 and 2017 as well as those recorded at the time of the damage and during the current site inspection. In addition, there are two videos which show the conditions applying when the damage to the area behind the wall occurred in March 2020.

Key photos that illustrate changes where a time series of views are available or individual records of conditions applying are provided within file *74_2007_Barmouth*

North Promenade Emergency Works Options Assessment 20_11_19 (Copy available within Site File).

The following observations have been made from examination of the historical and contemporary photographic records; cross referenced to specific photos within file *74_2007_Barmouth North Promenade Emergency Works Options Assessment 20_11_19* (Copy available within Site File).:

- Overall, there has been no change in the sea wall structure arrangements over that time period although the concrete slabbing works between the upper sloping section and the vertical toe where in progress at the time of the 1990 inspection (ref Figure 9 & Figure 13). Note these are not shown on Figure 4;
- It is not clear from the observations, whether the concrete and toe piling that is evident on the west facing sections of the wall was continued around the corner and along the end return. Unlike the west facing sections, the north end return conditions show the existing stepped revetment and not the encasement works that were carried out in the 1980s and 1990 (ref Figure 9 & Figure 13);
- There is evidence of wall movement on the north end of return with a noticeable step in the wave wall and a crack through the masonry facing. This was not evident in the 1990 photographs but the 2015 photos show a joint has opened up between the sections of wave wall and the crack can be seen in the masonry facing (see video and Figure 11). This step was measured at about 75-100mm (ref Figure 18) immediately following the March storms;
- Cracks have also opened up in the stepped revetment (ref Figure 16 & Figure 19), there has been damage to the beams that cross the stepped revetment (Figure 15) and there are numerous cracks and spalls in the lower parts of the steps, although these have been evident for the past thirty years (Figure 12);
- Beach levels at the corner at the time of the current inspection were lower than previously recorded (ref Figure 12);
- Photos from 2015, 2017 and 2020 (Figure 10) show the sheet pile toe piling exposed to varying degrees along the section between the last groyne to the slipway, which accords with the volatility of the beach profile identified in the beach monitoring data (ref Figure 6 - Figure 8);
- Closer examination of the toe piles in the final bay between the slipway and the north end return shows corroded holes in the piling and voids existing behind the toe (ref Figure 20). The void behind was measured at a number of locations and was measured at between 1.5 and 2.0 metres;
- The concrete encasement above the piles is showing signs of wear and tear e.g. cracking and spalling (ref Figure 21);
- The concrete slabbing and sloping masonry revetment above is not showing signs of significant damage although the construction joint between the horizontal and concrete slabbing appears to have opened up (Figure 13);
- There is a step in the concrete beam at the corner of the return but this was evident in 1990 (ref Figure 14);

Please see further information and photographs within file *74_2007_Barmouth North Promenade Emergency Works Options Assessment 20_11_19* (Copy available within Site File).

The works will comprise of: -

Mobilisation and set-up Site Compound

- Set up welfare facilities and security fencing in corner of Pen-y-Gogledd Car Park (exact area to be agreed with YGC Gwynedd prior to works commencing);
- Take delivery of sheet piles and store within compound area;
- Undertake core holes to concrete in preparation for placement of concrete in Phase 2 – core holes to be 200mm-300mm for the full depth of concrete and into void to accommodate 100mm concrete hose.

Phase 1

- Undertake concrete repair to scour of steps;
- Once concrete repair to steps has cured, excavate trench for approx. 10m to accommodate sheet piles;
- Install sheet piles within trench;
- Tie into existing concrete with tie rods at top of piles;
- Place concrete at base of piles to secure in place;
- Repeat to above process until all piles are in and the base pour is complete for the full length;
- Place concrete to the top of the piles onto the existing concrete covering the existing piles and defects.

Phase 2

- Complete any core drilling to the concrete, if not already done so;
- Seal up any open jointing on masonry to ensure that mass concrete fill is contained;
- Mobilise concrete pump and concrete to site and place approximately 100m³ concrete into void – void full when concrete is to top of cored holes.
- Clear site and De-mobilisation.

1.3 Location on Site

The works are located at the North Promenade at Barmouth, grid reference SH 60251 17228.

Full Site Address: -

Kaymac Marine & Civil Engineering Ltd.

Pen-y-Gogledd Car Park

Barmouth

LL42 1BX

OS Grid Reference: SH 60251 17228 (E260251, N317228)

what3words: - ///tins.typified.smarter



Fig 1 – Repair Works at North Promenade at Barmouth Location.

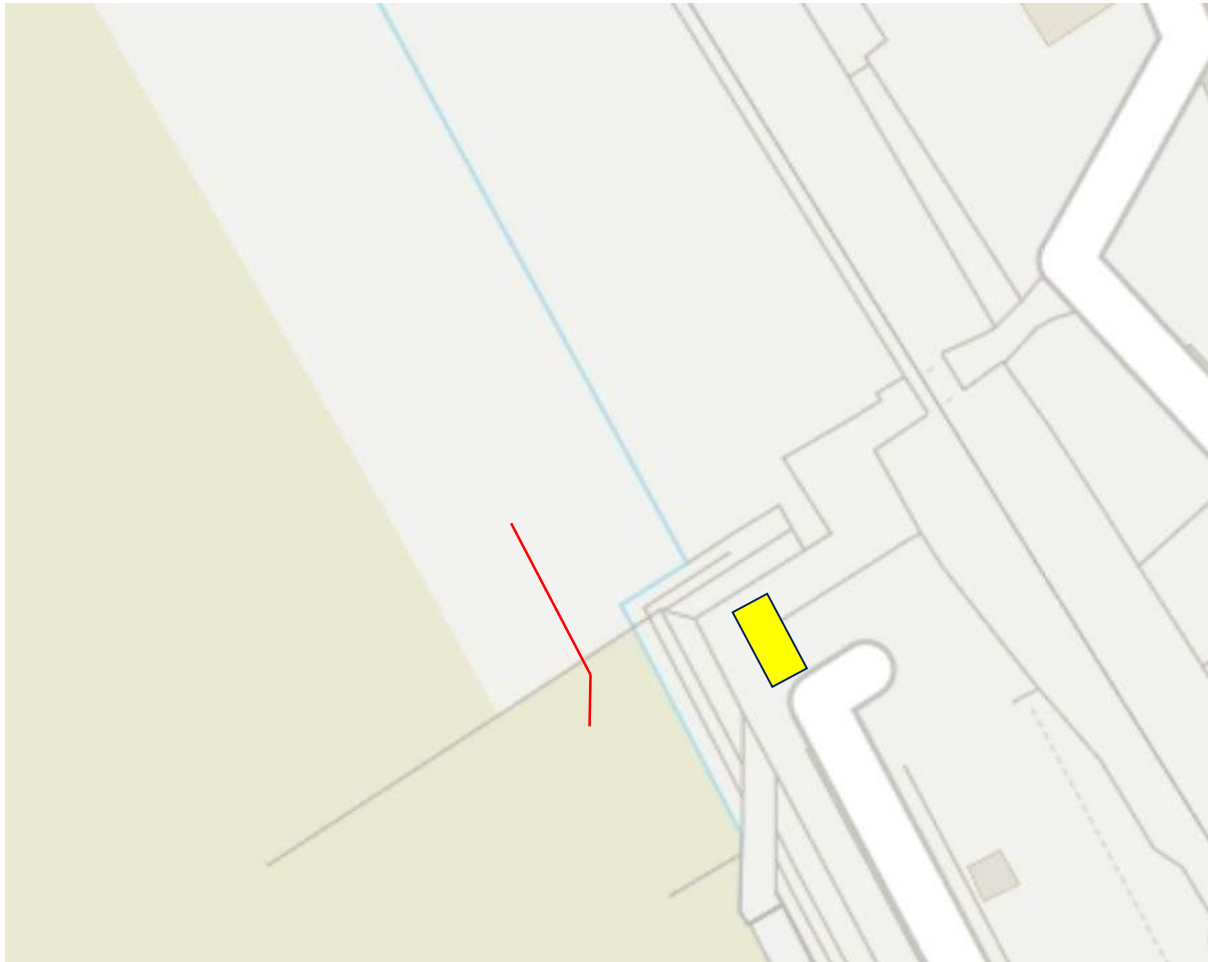


Fig 2 – Approximate Line of Sheet Piles and Welfare Location.

1.4 Interface with others

There is a high possibility of an interface with the general public who will be using the footpaths and car park adjacent to the works, this is popular for local dog walkers and visitors. Appropriate signage will be placed to warn the general public of the works and security fencing will be erected to ensure no unauthorised access to the compound area. The footpaths and car park will remain open for the duration of the works.

1.5 Named Supervisor

Josh Burgess – 07810 868205.

1.6 Number of Personnel/Job Titles

1. Jonathan Colcombe – Project Manager;
2. Josh Burgess – Site Supervisor;
3. Jason Mort – Excavator Operator;
4. Jan Evans – Slinger/Signaller;

5. Caspar Farquhur – General Operative;

1.7 Authorised Persons (permits etc.)

Person In Charge of Works – Rhydian Roberts (YGC) – 07795 012730.

1.8 Specific Job Training (SMSTS, CSCS, CPCS, Confined Spaces etc.)

1. **Jonathan Colcombe** – SMSTS, CSCS Gold Card, CPCS (A58C: Excavator 360 – below 10 tonnes Lifting Operations, A59C: Excavator 360 – above 10 tonnes Lifting Operations, A61: Appointed Person – Lifting Operations), First Aid at Work.
2. **Josh Burgess** – SSSTS, CSCS, CPCS (Excavator 360 below 10 tonnes – Tracked, Excavator 360 above 10 tonnes – Tracked, Crane Supervisor – Lifting Operations), CAT & Genny, Slinger/Signaller (Construction), First Aid at Work.
3. **Jason Mort** – CSCS – Labourer, CPCS (Forward Tipping Dumper – Wheeled, Dump Truck – Rigid Chassis – Up to 15 tonnes, Excavator 360 below 10 tonnes – Tracked, Excavator 360 above 10 tonnes – Tracked), Confined Space.
4. **Jan Evans** – SSSTS, CSCS – Labourer, CPCS (Crawler Crane over 10 tonnes, Slinger/Signaller – All Types – All Duties, Compact Crane – 360 – Pick and Carry).
5. **Caspar Farquhur** – CSCS, Confined Space.

All certificates will be provided to Cyngor Gwynedd Council prior to commencement of the works.

1.9 Asbestos/Hazardous Substances

N/A.

1.10 First Aid Requirements

See 4.0 *Emergency Procedures* below.

1.11 Plant/Tools/Equipment/Materials

- 20' EcoHybrid Welfare Unit ;
- Heras Fencing;
- Signage;
- 15T Excavator;
- 8T Excavator;
- ICE 328B Excavator Mounted Hydraulic vibrator;
- GU8N Sheet Piles – 4m Long – 50 No. to undertake 30m of pile wall;
- Marine Plywood Shuttering boards and Misc. timbers;

- Ready-mix Concrete with Sika UCS (or similar) underwater additive;
 - Proposed Concrete Mix – P400 – similar mix design below: -

Mix Specifications

<i>Mix</i>	<i>Description</i>	<i>Agg Size</i>	<i>Cement</i>
1	P400 UNDERWATER + SPLAS	20MM	CE
2	P400+U/WATER +SPLAS	20MM	CE

Mix Design

<i>Materials</i>			<i>Dry Weights kg/m</i>		
<i>Type</i>	<i>Primary Source</i>	<i>Secondary Source</i>	<i>1</i>	<i>2</i>	
CEM I	Cemex - Rugby		400	400	
0/4 Dust	Cemex - Cardiff		500	490	
0/2	Cemex - Cardiff		500	490	
4/20	Cemex - Wenvoe		850	800	
Admix 1 (ml)	Cemex Superplasticiser - CSP340		2000	3000	
Admix 2 (ml)	Sika UCS		1.4	1.4	

Fig 3 – Example P400 Mix Design.

- 110V Generators;
- CAT 4+ and Genny;
- Tower Lighting;
- Survey Equipment: -
 - Dumpy Level;
 - GPS;
 - Staff.
- Drip Trays / Plant Nappies;
- Spill kits;
- 1000Ltr Fuel Bowser;
- Red Diesel – fuel for plant;
- Petrol – fuel for generators;
- Masterseal 590;
- Parex Marine Pointing Mortar;
- Misc. Hand Tools, shovels etc.

Certificates and specification sheets will be provided and checked prior to commencement of works.

1.12 PPE Requirements

The minimum PPE requirement for the site will be: -

- High Visibility Jacket/Waistcoat to EN471:2003;
- Safety Boots (or Wellington Boots) to BS EN ISO 20345;
- Safety Glasses to EN166;
- Gloves to BS EN 14328;
- Safety Helmet to BS EN 397:2012;
- Hearing Protection to EN 352-1:1993.

1.13 Pre-Start Operation/Arrangements

Prior to starting any works on site:-

- Site Induction of all Kaymac Operatives by Kaymac Site Manager / Site Supervisor;
- Walk Round Induction of the Site by Cyngor Gwynedd Council representative;
- Sign In to the Site Attendance Register Daily;
- Receive Brief on planned works for that day from Kaymac Supervisor.

1.14 Lone Working

There will be no requirements for Lone Working on site.

1.15 Work at Height requirements

Working at Height is anticipated during Phase 2 works while undertaking core drilling operations on top of the existing sea wall and concrete works.

Operatives are to ensure that appropriate footwear is worn at all times and if required, eye bolts will be fixed to the wave wall with a running safety line and tested for operatives to wear a lanyard & harness and attach onto while undertaking these works; TBC on site by the Kaymac H&S representative / Supervisor.

A Dynamic Risk Assessment will be carried out on site and all Working At Height will be eliminated where possible.

1.16 COSHH Assessments

- Ready-mix concrete;
- Chemical Anchor – Fischer Vinylester Injection Resin FIS VL 300T or similar;
- Red Diesel;
- Petrol;
- Masterseal 590;
- Parex Marine Pointing Mortar.

COSHH Assessments & MSDS to be found within Kaymac Site Folder.

1.17 Welfare

Welfare to be provided and maintained by Kaymac, these will consist of a 20-foot EcoHybrid Welfare Unit.



Fig 4 –20' EcoHybrid Welfare Unit.

It is proposed that the Welfare Facilities will be situated within Pen-y-Gogledd Car Park, welfare address: -

Kaymac Marine & Civil Engineering Ltd.

Pen-y-Gogledd Car Park

Barmouth

LL42 1BX

1.18 Project Directory

CYNGOR GWYNEDD COUNCIL		
Cyngor Gwynedd Council – General Enquiries	01766 771000	General Enquiries Online
Rhydian Roberts - Cyngor Gwynedd Council	07795 012730	rhydianroberts@gwynedd.llyw.cymru
KAYMAC		
Kaymac Head Office – Swansea	01792 301818	enquiries@kaymac ltd.co.uk
Jeff Lippiett – Kaymac Operations Manager	07971 880029	Jeff.Lippiett@kaymac ltd.co.uk
Josh Burgess – Kaymac Site Manager	07810 868205	Josh.Burgess@kaymac ltd.co.uk
Jon Dean – Project Co-ordinator	07976 122883	Jon.Dean@kaymac ltd.co.uk
Jonathan Colcombe – Project Manager	07771 803693	Jon.Colcombe@kaymac ltd.co.uk
Gareth Lippiett – Kaymac Estimator / Agent	07772 749833	Gareth.Lippiett@kaymac ltd.co.uk
Gareth Crees, Kaymac Health & Safety Manager	01792 301818	Gareth.Crees@kaymac ltd.co.uk
Rhys Colcombe – Kaymac Senior Project Manager	07950 501774	Rhys.Colcombe@kaymac ltd.co.uk

1.19 Access

Access to the working area will be through the stop logs located North of the structure and down the beach to the working area. The stop logs will be removed by the on-site excavator and placed to one side until works are complete. If required, the timbers will be re-installed using the excavator, this will depend on tide levels (TBC on site).



Fig 5 –Access to beach North of structure.

1.20 Special Requirements

- All Kaymac staff are to be inducted into the site by the Kaymac Site Manager / Site Supervisor;
- All Kaymac staff are to sign in and out on the Site Attendance Record on a daily basis;
- All Kaymac staff are to be inducted/briefed by Kaymac Supervisor prior to works commencing on site;
- A weekly safety audit/report is to be compiled by the Kaymac site supervisor;
- Kaymac are to complete daily health & safety briefings each morning with regard to the specific works being carried out;
- A weekly toolbox talk will be delivered to the Kaymac at the beginning of the works;
- Kaymac operate a 'Close Call' card system and any issues raised will be relayed to the Cyngor Gwynedd Council representative;
- Any land owner consents/issues are to be dealt with by Cyngor Gwynedd Council prior to the commencement of works.

1.21 Environmental Considerations

Specific Environmental advice will be provided by the Client on award of the contract.

Kaymac plan to carry out the works utilizing practical pollution prevention control methods and best practices in accordance with SEPA Document Ref “Engineering in the Water Environment, Good Practice Guide: Temporary Construction Methods” and Guidance for Pollution Prevention: Works and maintenance in or near water: GPP 5 (gpp-5-works-and-maintenance-in-or-near-water.pdf (netregs.org.uk)).

Throughout all aspects of the works, Kaymac will actively aim to conduct activities in a manner that will cause minimum detrimental effects to the local ecology and wildlife and as a result, will carry out the works with the following Environmental Actions:

- No plant leaking fuel, lubricating oil or hydraulic fluid will be allowed on site;
- Bio-degradable hydraulic fluid will be used on all plant on site;
- Rubber Tracks on all plant possible to avoid high ground pressures and minimise impact to the habitats;
- All plant will be steam cleaned prior to delivery to site;
- Fluid and oil will be stored fully bunded to 110% of the volume stored. Delivery and vent pipes will be terminated within the bund;
- Plant will be removed from the works area prior to refuelling or servicing;
- Any spilt fuel, hydraulic fluid or lubricating oil will be immediately contained and removed from site;
- Plant will be effectively silenced and will comply with the requirements of the Local Authority;
- Any small items of plant (generators, small pumps, etc) will be placed within plant nappies/drip trays and no re-fuelling is to take place within 10m of the watercourse;
- Spill Kit's will be immediately available for all plant and equipment;
- All operatives entering the watercourse in dry suits will be washed down with Virkon 'S' on site to prevent cross contamination;
- Sedi-mats to be placed immediately downstream of the structure to catch any fines / debris created during the works.

1.22 Permits to Work

A Permit to Dig will be issued each day by the Kaymac Site Manager.

A Permit to Break Ground will be issued by the Kaymac Site Manger prior to Piling Works commencing.

It is not envisaged, but if required, a Hot Works Permit will be issued by the Kaymac Site Manager.

1.23 Contract Commencement and Duration

Start Date: - Wednesday 17th March 2021 – 2-3 Working Weeks.

1.24 Working Hours

Normal working hours will be defined as: -

Monday to Friday – between 0800 and 1800 hours;

Saturday – between 0800 and 1200 hours.

It is anticipated that we will get a working window of between 4-6 hours (2-3 hours either side of low water), this will be managed and monitored on site.

1.25 Emergency Response Procedure

Prevention

Kaymac Site Manager will be signed up to the Natural Resources Wales Flood Watch and will receive automated phone calls regarding Flood Events and/or SSA for the area.

Kaymac Site Manager will monitor the tide times on a regular basis to check for any particular high tides; tides to be monitored using the tide table for Barmouth: -

- https://tides4fishing.com/uk/wales/barmouth#_tide_table

Banksmen on the beach will prevent the general public from coming too close to our working operations, if they require to walk around our operations, they will be escorted by Kaymac operative at all times. Plant and equipment to be recovered to the car park at the end of each shift and secured, no plant or equipment to be left on the beach following a shift.

Works will be put on hold under extreme temperatures (hot – threshold temperature to be decided on site) or any biological, accidental hazard.

Following a Flood Warning

- Mitigation section under construction will be made safe;
- Following enquiries / assessment the site will be evacuated or stood down;
- If evacuation is required, leave site via approved route;
- Kaymac Site Manager will liaise with the consultant after employing the emergency response procedure;

- Demobilise from site;
- The works will then be on hold until further notice;
- When the warning is removed, check damage and bank stability before commencing works again.

Fire

Suitable fire extinguishers will be positioned within the compound and at the works location to deal with a fire.

If a fire occurs, the muster point will be at the top of the access point to the beach, please see below: -



Fig 6 – Muster Point.

The Fire Marshal for the site is Josh Burgess.

Falls into the sea

It is not envisaged that there will be any falls into the sea as all works will be undertaken during low water, tides to be monitored on site by the site manager and plenty of time to be allowed to ensure that all plant, operatives and equipment is removed from the beach before the tide returns.

Recovery of an Incapacitated Person(s) from the Structure through Ill Health or Injury

In the event of one of team becoming incapacitated through ill health or injury, but NOT as a result of an unsuitable atmosphere, the following procedures will be applied;

- The other team members will raise the alarm with operatives on the embankment, or if all operatives are seen to be incapacitated, the river bank operative will raise the alarm with other external team members;
- If it is deemed safe to do so, the first aid kit will be mobilised to the casualty by one or more of the other team members;
- The First Aid trained rescuers will then give emergency first aid where required;
- The casualty will then be removed from the structure via stretcher;
- Once recovered to the road, further first aid can be administered and the emergency services contacted if required;
- The operatives will then return to the structure with the stretcher to retrieve the second casualty (if required);
- Once recovered to the river bank, further first aid can be administered and the emergency services contacted if required.

1.26 Environmental and Flood Risk Management

Environmental

Spill kits will be immediately available, located in each item of plant in readiness to contain any spills that may occur.

All re-fuelling will take place greater than 10m away from any watercourse or drainage inlet.

Bio-degradable hydraulic fluid will be used on all plant on site.

Underwater additive such as Sika UCS will be added to the concrete mix to ensure that no washout of the fines occurs – to be added at the batching plant.

Flood Risk

The only flood risk is that if the tides are not monitored closely on site, then the tide could breach our works whilst we are still on the beach. This is not anticipated as our team are experienced and familiar with tidal working and very conscious to ensure all plant, equipment and operatives are well clear of the working areas by the time the tide returns.

1.27 Drugs and Alcohol

Alcohol and drugs are forbidden on site. Anyone suspected of being under the influence will be reported to their employer and may be tested accordingly.

1.28 Sub-contractors

Kaymac will undertake the works without any subcontractors on site, but will be hiring in equipment: -

- the piling equipment (ICE 328B) will be on hire from Watson & Hillhouse;
- the Excavators will be on hire from Flannery Plant Hire;
- the Welfare Facilities, Heras Fencing, CAT 4+ etc. will be on hire from GAP.

1.29 Health & Safety

Kaymac will employ our '*Target Zero*' approach to Health & Safety for this project, our aim is: -

- No injury, ill health or incident caused by our work activities;
- To ensure safe access and egress to and from the site;
- To protect pedestrians and adjacent occupiers from any risks associated with the site;
- To ensure all persons visiting the site have been given necessary safety information on any hazards related to the current phase of work;
- Visitors are to be escorted while on-site at all times;
- Ensure operatives act safely and wear personal protective equipment appropriate to the task in hand;
- To investigate any accidents or incidents on-site and take note of any recommendations coming from accident and incident investigations;
- To use (where required) professional support for assisting in the safety of the site;
- To provide regular toolbox talks throughout the project.

These safety goals are monitored and discussed during site meetings and actions given to the appropriate personnel.

The works will be monitored by our Site Supervisor, Josh Burgess. All reporting will be in accordance with the Kaymac Organisational and Report Chart in *Appendix G*.

If required, Kaymac Site Supervisor will amend RAMS on site if any elements of the works are to alter from what has been planned from the information provided.

1.30 Deliveries

All deliveries to site to access from Marine Parade; the delivery driver is to contact site approximately 20 minutes before arriving so they can be escorted to the working / compound area by a Kaymac representative.

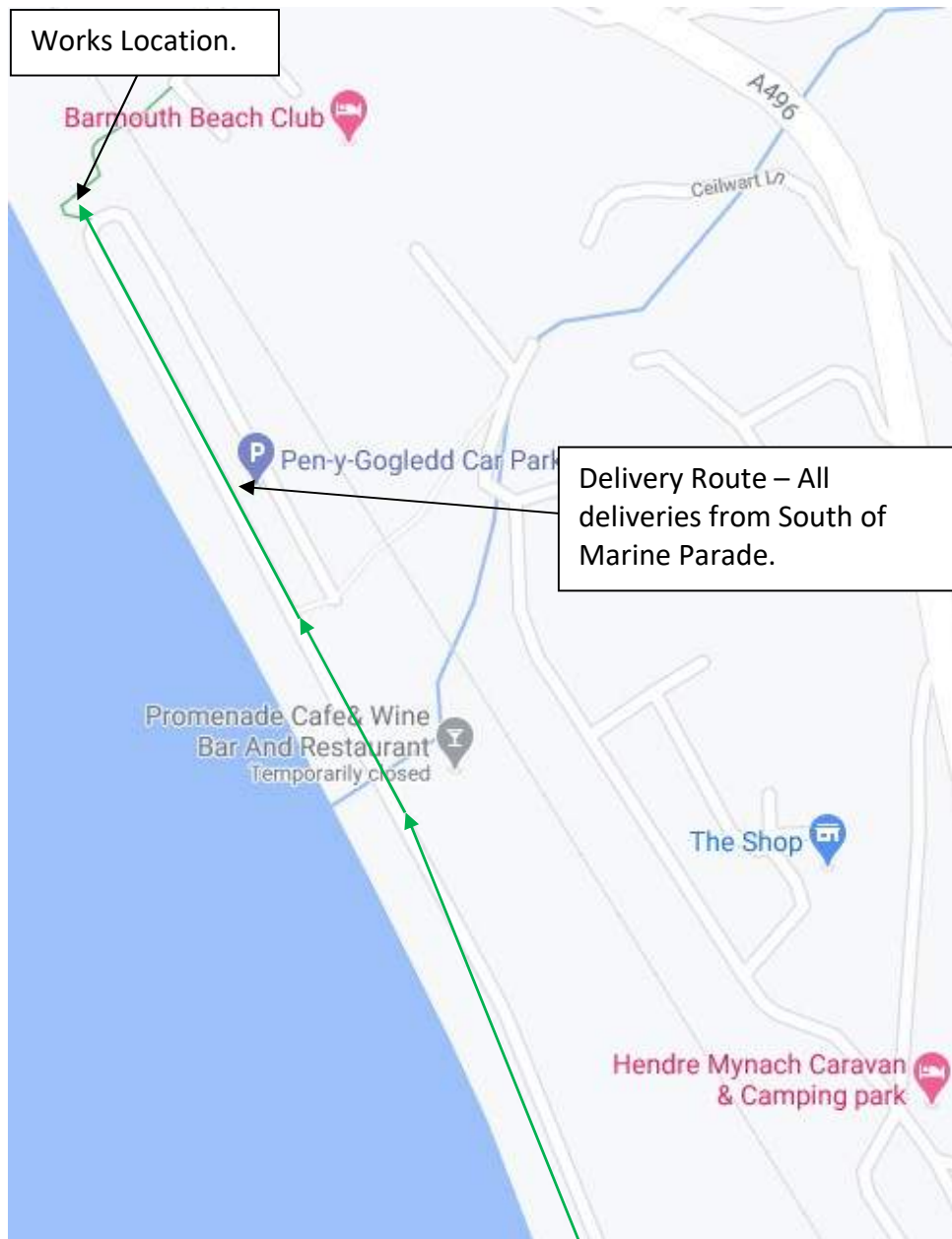


Fig 6 – Delivery Route.

1.31 Lifting Equipment

- All craneage, chains, slings, shackles and shoes will have valid certification for inspection at all times. Present colour of all in test lifting equipment is Red.
- Daily checks to be made on chain clamp / lock-nut pitching chain and component connectors together with the standard daily rig check carried out by the operator.

1.32 Lighting

Safety and Task lighting will be provided as necessary by Kaymac. Site lighting to allow safe movement around the site if needed is also to be provided by Kaymac.

1.33 Housekeeping

All vehicles and plant will be kept in a clean condition.

The working area will be kept clean and clear of trip hazards. Any spillages will be reported to Kaymac and cleared immediately. All waste will be deposited into skips provided by Kaymac for disposal.

All plant will carry a comprehensive spill kit.

2.0 Methodology

General Description

Sheet Pile Installation for approximately 30m at the Northern End of the seaward facing sea wall, Barmouth Promenade to encase existing toe-piles and fill with concrete between the line of new piles and existing toe-piles.

The scope of works is as follows: -

- Set up site compound, fencing and welfare;
- Take delivery of piles;
- Core drilling of existing sea wall to accommodate concrete hose;
- Installation 30 lin/m of sheet piles comprising of the below: -

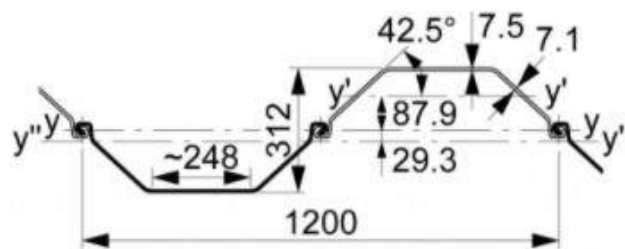
Section Plan Length (m)	Sheet Pile Type	Top of Pile (m OD)	Pile Toe (m OD)	Sheet Pile Width (mm)	No. of Sheet Piles	Pile Length (m)	Total Pile Area (m ²)
30	GU 8N	3.000	-1.000	7.5	50	4.000	120

- Placement of concrete between the line of the new piles and existing toe piles;
- Sealing of existing sea wall to prevent any seepage from the concrete fill;
- Mass concrete fill into existing sea wall to fill void.

Sheet Piles

The sheet piles to be used are GU 8N piles: -

- Steel Grade: - S390 GP;
- Length – 7.0m;
- Section Thickness – 7.5mm;
- Elastic Section Modulus – $1875\text{cm}^3/\text{m}$;
- Individual pile weight – $48.5\text{kg}/\text{m} = \mathbf{339.5\text{kg}}$;



GU 8N

	A	G	I_y	$W_{el,y}$	
	cm^2	kg/m	cm^4	cm^3	
Per S	61.8	48.5	2 420	225	
Per D	123.7	97.1	14 420	925	
Per T	185.5	145.6	20 030	1 080	
Per m of wall	103.1	80.9	12 010	770	

A	Sectional area
G	Mass per meter
I_y	Moment of inertia about the main neutral axis y-y
$W_{el,y}$	Elastic section modulus
r_n	Radius of gyration about the v-v axis

Fig 7 – GU 8N Sheet Pile Specification.

Sheet Piling Tolerances

Piles to be driven to toe level of -1.000mOD or below, with the top of sheet piles at 3.000mOD.

Except where deflected by obstructions or ground conditions, we shall endeavour to drive the piles to within: -

- 75mm of the plan position at the commencing level;
- 50mm of the level specified;
- 1 in 75 vertical position measured over the top 1m of the pile.

Kaymac have not included for driving piles beyond practical refusal when working in accordance with the method and plant stated in our tender.

It is not envisaged that we will reach practical refusal due to the relatively short piles and ground conditions expected from the ground investigation works, but if we do, practical refusal for pile driving installation shall be defined as when the head of the pile starts to deform or when the rate of driving exceeds the following limits for a continuous period of 5 minutes: -

- Less than 250mm of pile penetration per 5 minutes.

If the piles are encountering hard ground or an obstruction the following actions will be taken to ensure that all piles are driven to the specified toe level: -

1. Local excavation with the on-site 8T Excavator to remove obstruction if near the surface;
2. If the obstruction is deeper, the larger pre-driving pile will be driven to attempt to remove the obstruction before re-installing the GU 8N pile;
3. Pre-augering – will be carried out in advance of sheet pile installation where difficult ground has been encountered, this will reduce the driving resistance. By undertaking the pre-augering, the piles will be installed with greater speed and accuracy and a reduction in ground borne vibration is possible.
4. If the obstruction cannot be moved, the line of the piles will be altered slightly towards the sea to manoeuvre around the obstruction and back to the original line.

Mobilisation

A 5-man team will attend site on the start date agreed with the Client and per the project programme and report to the main site compound and Client representative.

The Kaymac Site Manager will liaise with the Cyngor Gwynedd Council responsible person on site.

All Kaymac personnel and any other personnel involved in the project will be site inducted by Kaymac Site Supervisor to ensure they are aware of the site layout, of the

hazards and risks involved in carrying out the works, and the emergency arrangements in the event of an incident, including location of the nearest hospital.

All Kaymac and sub-contact personnel will be required to sign in on the site attendance register prior to starting work each day, and to sign out at the end of each shift.

Following completion of the initial site Health & Safety procedures, works will commence.

Site Induction

All Kaymac Personnel will report to site compound on the start date agreed with the Cyngor Gwynedd Council and per the project programme.

The Kaymac Site Manager will liaise with the Cyngor Gwynedd Council responsible person on site.

All Kaymac personnel and any sub-contract personnel involved in the project will be site inducted by the Kaymac Site Manager/Supervisor to ensure they are aware of the site layout, any other works being carried out, of the hazards and risks involved in carrying out the works, and the emergency arrangements in the event of an incident, including location of the nearest hospital.

All Kaymac and sub-contact Personnel will be required to sign in on the site attendance register prior to starting work each day, and to sign out at the end of each shift.

The Kaymac Site Manager/Supervisor will be responsible for briefing the site-specific Method Statement and Risk Assessments appertaining to the project tasks to the site team.

Site Establishment

Cyngor Gwynedd Council will agree access to the worksite prior to Kaymac mobilising personnel, plant, equipment and materials. Kaymac will establish a site compound, welfare facilities, and areas for laydown of materials etc. The site compound will be secured using Heras fencing to ensure that all items are protected when there is no presence on site.

All surrounding footpaths, car park and road will remain open for the duration of the works; Kaymac banksmen will co-ordinate traffic/plant where required.

Kaymac Site Manager will be signed up to the Natural Resources Wales Flood Watch and will receive automated phone calls regarding Flood Events and/or SSA for the area.

Site Preparation

Prior to starting and during the works, to ensure the safe installation of sheet piles: -

- Excavation to be CAT scanned at regular intervals by trained and competent operative;
- All excavations around cables to be carried out by hand using insulated tools.

There is a scour beneath the existing steps that needs to be repaired prior to commencement of piling works;

- a trench will be dug next to the steps using the 8T Excavator and all loose material will be removed from the void by hand;
- timber shuttering will be fabricated on site to suit the void, this will be placed into the void and fixed to the existing steps with dwyidag bars. The trench will be backfilled to the shutter;
- a 'letterbox' will be placed at the steps end for a filling point;
- ready-mix concrete will be called to site and placed into the prepared void using a concrete pump;
- place concrete into letterbox to fill void beneath steps;
- all works to be undertaken in 1 shift at low water;
- following sufficient curing period (1 day) remove timber shutters.



Fig 8 – Example 'Letterbox' arrangement.

Phase 1

Excavation Works

Once the site investigation works have taken place and the line of the sheet piles clearly marked out, excavation works can commence. Excavation works will be undertaken using an 8T excavator, the excavator will excavate approximately 7.5m-10m each shift to ensure enough time is allowed to install the piles and place concrete before the tide returns.

The excavation will be backfilled at the completion of each shift.

If hard ground is encountered during the piling operations, the 8T Excavator will excavate to remove the obstruction if at a high level to allow for installation of the sheet pile.

Installation of Sheet Piles

The sheet piles will be installed using an ICE 328B Excavator Mounted Hydraulic Vibrator mounted on a 15T Excavator.

The used GU 8N sheet piles will be transported to the working area using the onsite 8T Excavator.

A string-line or laser will be used to mark the longitudinal centreline of the steel piles, ensuring that the piles are at least 250mm away from the concrete at all times to allow access for the ICE 328B hammer.

Prior to installation of the piles, the line will be agreed on site with the Cyngor Gwynedd Council responsible person.

Delivery of sheet piles to works area

Piles will be transported from the laydown area in the site compound to the works area through the car park and down the slipway to the works location. This method will utilise the on-site 8T Excavator.

Once the 8T Excavator reaches the works area, the piles will be stored within reach of the 15T Excavator for the works that day. Kaymac will mark the minimum safe working area and all plant movements to be controlled by competent banksman.

ICE 328B Excavator Mounted Hydraulic Vibrator Operations

Clamping a Pile

Position the vibratory hammer first over and then on the sheet pile. Turn the switch to **close**. Don't start vibrating until the hydraulic clamp has reached maximum clamping pressure to permit vibration to begin.

The **clamp light** on the power pack (if applicable) will light up when the hydraulic clamp has achieved adequate clamping pressure. The light will normally light up in a few seconds.

Always use a safety chain or sling between the sheet pile and the piling rig.

Starting/Stopping Vibration

Turn the vibration switch to **start/forward** or press the **start** button to start vibrating.

Turn the vibration switch to **stop/reverse** or press the **stop** button to cease vibrating.

Off Clamping from a pile

Turn the clamp switch to open to release the hydraulic clamp so that the vibrator can be removed from the pile. Never open the clamp before the vibratory hammer has come to a complete stand still. Make sure, the pile cannot drop from the clamp when the clamp is opened.

Pitching and driving sheet piles using ICE 328B Excavator Mounted Hydraulic Vibrator mounted on a 15T Excavator

- The Piling Foreman will liaise with Cyngor Gwynedd Council representative and agree the setting out locations of the piles and associated levels.
- The sheet piles will be transported to the piling area by the 8T Excavator and stored within reach of the 15T Excavator for the works location that shift.
- The piling vibrator will be lifted by the excavator, and clamped to the top of the first GU 8N pile to be inserted in accordance with the manufacturer's recommendations.
- The safety chain will be attached through the hole in the top of the pile.
- The pile will be manoeuvred into position along the transverse string-line, until correctly positioned with the longitudinal string-line or laser.
- The pile will be lowered into the prepared trench and the vertical alignment will be adjusted by an operator with a level.
- When correctly positioned in all planes, the operator will turn on the vibrator, and drive the pile into the ground, stopped occasionally to check the vertical alignment.
- Once the first pile has been driven to the required level, the safety chain and clamp will be released, and a second pile will be attached to the piling vibrator.
- The pile will be lifted into position, and the clutch of the pile will be engaged with the clutch of the previously driven pile.
- Once in position and the alignment is checked, the second pile will be driven into the embankment to the required level, stopped occasionally to check the vertical alignment.
- The piles will continue to be installed using the methods above, until all the piles for each section are installed.

- Kaymac shall ensure that vibration limits are not exceeded during sheet pile extraction by using the vibration method.
- Pile installation records will be kept on a daily basis together with daily record sheets and kept within the site folder at the end of each shift for verification.
- If sheet pile refuses due to obstructions, the 'what if' table will be reviewed for a possible solution. The Project Manager (Cyngor Gwynedd Council) will be informed by Kaymac.



Fig 9 – Approximate Pile Line.

Backdriving Sequence

- If the piles refuse during driving with the ICE 328B unit, a larger pre-driving pile will be driven using the same method to create a 'pilot' for the GU 8N pile to be driven to final level to meet the project requirements;
- If the piles continue to refuse, pre-augering will be undertaken as outlined above – not envisaged.

Controls & Monitoring

- Kaymac will be responsible for clearly marking the line and level of all pile wall sections and confirming the levels prior to the rig moving to the next pile;
- Each pile will be checked for verticality as work proceeds by the Piling Foreman using a spirit level;
- The Piling Foreman will ensure that the piles are installed in accordance with the pile schedule and relevant drawings;
- Records will be kept of any piles which fail to achieve the required drive depth.

If piles are required to be cut, this will be carried out using oxy-propane cutting equipment. Prior to cutting, a hot-works permit will be issued by the Kaymac Site Manger or obtained from the Cyngor Gwynedd Council responsible person (TBC).

Any flame cutting will be carried out by a competent person wearing the appropriate PPE. A suitable fire extinguisher will be available for immediate use at the work area during this process.

Backfilling

The excavation will be backfilled with the previously excavated sand at the end of each shift using the 8T excavator.

Concreting Works between new pile wall and existing toe-piles

Once each section (7.5m-10m) of piles have been installed, the piles will be tied to existing concrete using threaded bar that will be resin fixed, see image below: -

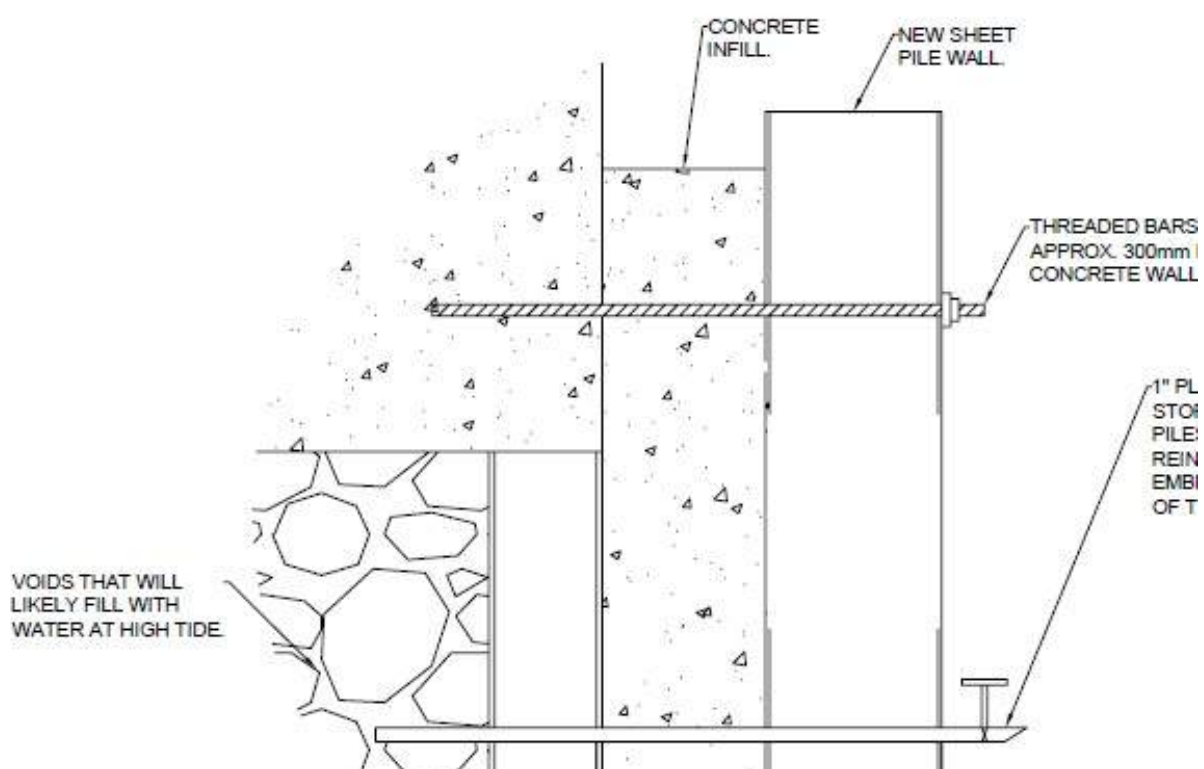


Fig 10 – Sheet Pile Cross section.

1" plastic alkathene pipes with stop tap on the beach side of the piles will also be inserted through the piles and into the void behind the existing toe piles, this will be installed so that any water that may get trapped behind the piles during the tides can escape the void prior to placement of concrete.

A 'stop end' will be required at the end of each section of piling to prevent concrete spill, this will be fabricated on site out of shuttering ply and timber.

Once the piles have been installed, tied to the existing sea wall, pipes installed and stop end created, a concrete pump and ready-mix wagon will be called to site and concrete placed at the toe of the piles to secure in place.

The above sequence will be undertaken until the full length of 30m pile have been installed.

Once all the piles have been installed and the base pour carried out at all sections, the final pour will take place to bring concrete up to the top of the piles; formwork will be fixed to the steps to prevent any spill and a stop end installed for the full length of the pile at the southern end of the pile wall.

A concrete pump will be set up within the car park and concrete wagons will then be called to site, concrete will be pumped into the formwork until the entire section between the existing toe-piles and new pile wall is full to 3.000mAOD.

The concrete will not be compacted as it contains an underwater additive which eliminates the requirement.

At the end of each concrete pour, the concrete wagon and pump will wash out into the 'wash-out' skip located within car park above works.

Phase 2

Eye bolts will be drilled and fixed into the existing wave wall and tested to ensure safe for use as fall protection. Once confirmed, a running line will be fed through the eyes and a lanyard attached for the operatives to clip onto this with their harness while undertaking works on top of the existing sea wall.

200mm-300mm diameter holes will be cored out of the existing concrete on the existing sea wall, *see approximate locations below*, these holes will expose the existing void and be large enough to accommodate the 4" concrete delivery hose.

The core drill unit will be drilled and fixed to the existing concrete and the drilling will be undertaken dust suppression with water. The core will slowly be turned through the concrete by the operative at the wheel until through the concrete, if required, extension bars will be fitted to the core unit as and when required. There is no time limit on the use of the drill as there is no risk HAVS in this method.

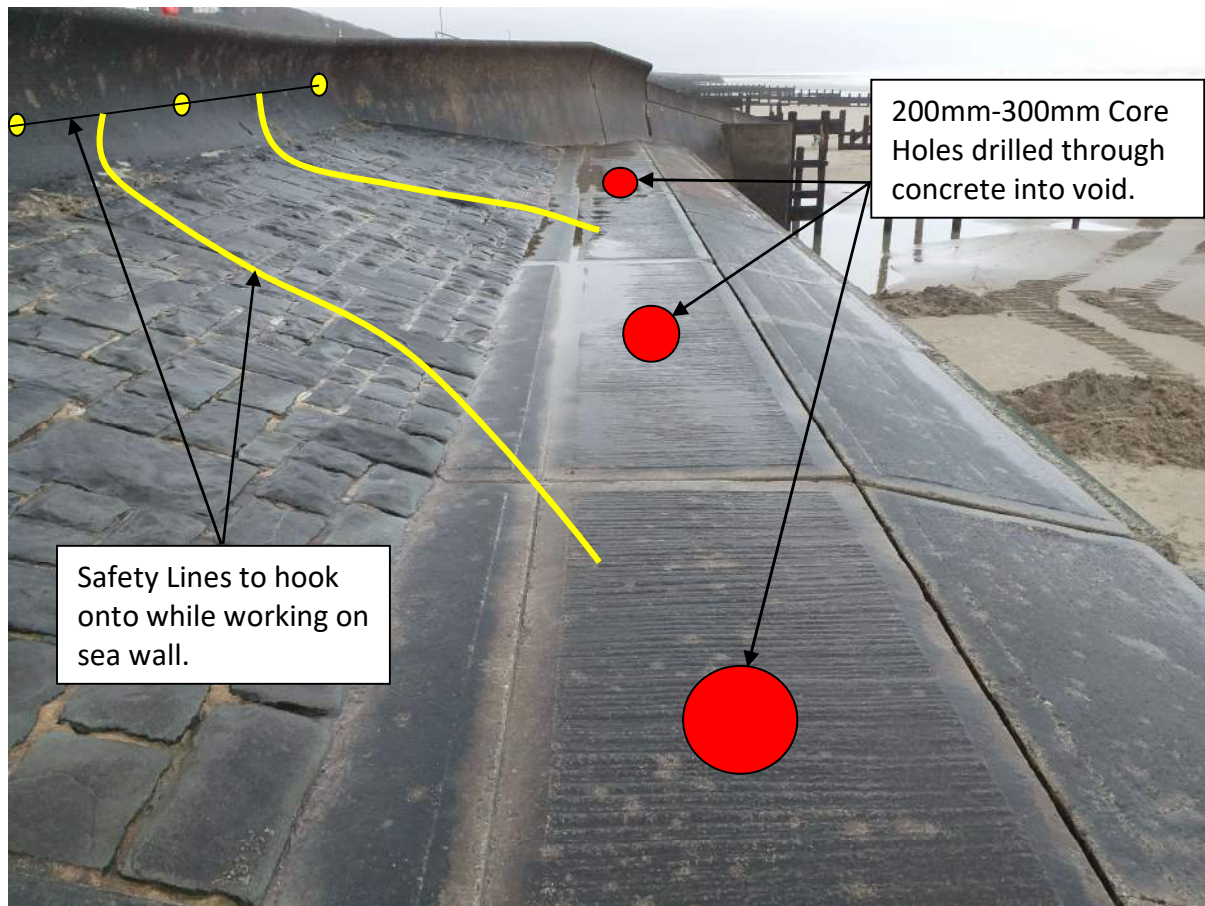


Fig 11 – Approximate Core Holes & Safety Points.

Whilst the core holes are being drilled, 2 Kaymac Operatives will be undertaking sealing up of any voids within the existing sea wall that concrete may seep out of while undertaking mass concrete fill works. All repairs to be undertaken using either Masterseal 590 or Parex Marine Mortar, this will depend on the size of the void.



Fig 12 – Example of void to be filled prior to undertaking mass concrete fill works in Phase 2.

Once all holes have been cored and all voids sealed, a concrete boom pump will be ordered to site and set up within the car park above the works. Once set, the ready-mix concrete will be ordered and concrete placement operations can commence, estimated 100m³. Concrete Wagons will be on turn around and all concrete to be placed in 1 day.

The Concrete Boom Pump will manoeuvre his hose to the previously cored holes where a Kaymac operative will control the end of the hose while informing the Concrete Pump Operator when to go and when to pour/stop. The hose will be inserted into each cored hole and each will be filled until all holes are full and the void below is full. All possible seepage areas will be monitored through the concrete placement operation to ensure that if any concrete were to seep out it can be contained immediately and the void sealed with Masterseal 590.

Upon completion of the concrete works, each core hole will be floated off and safety lines removed from the wave wall.

The concrete wagon and pump will wash out into the 'wash-out' skip within the car park prior to leaving site.

All concrete tickets will be retained and issued to Cyngor Gwynedd Council upon completion.

Upon completion of the works, the equipment, material and labour will be demobilised from site

Once all the works have been completed and approved by the client, all plant and equipment will be demobilised from site.

The temporary works will be removed from the watercourse and the silt curtain will be removed 24 hours after completion of the in-river works.

Carry out any site reinstatements required.

A final site walkover will be conducted by Kaymac personnel to ensure the site is free of any rubbish or debris arising from the works. All personnel will then mobilise back to the main compound to sign out prior to demobilising from site.

3.0 On site Risks / Hazards

- Interface with traffic/pedestrians;
- Flood risk;
- Debris removal;
- Noise, dust debris;
- Working within or above water;
- Working at Height;
- Exceptional weather;
- Difficult site access;
- Environmental constraints;
- Manual handling;
- Pollution of sea;
- Leptospirosis (Weil's disease).

4.0 Emergency Procedures

The nearest hospital to the site with a 24-hour Accident and Emergency Unit has been identified as: -

Bronglais General Hospital

Caradoc Road
Aberystwyth
SY23 1ER

Tel: 01970 623131

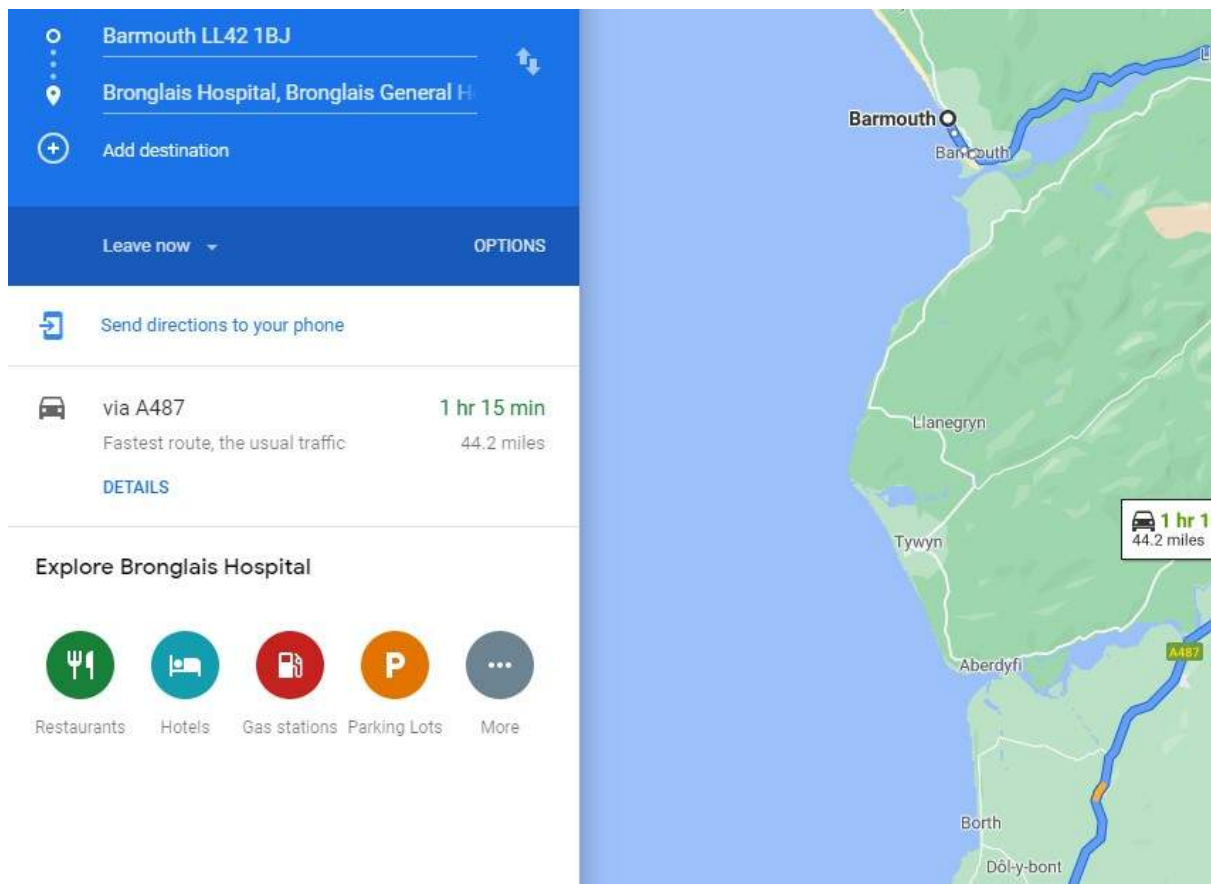


Fig 13 – Vehicle Route to Bronglais General Hospital (Courtesy of Google Maps).

Transfer time from site; approximately **1 hour 15 minutes (Distance – 44.2 miles)**. Full details can be found in the emergency procedures section of this document.

4.1 Minor & Major Injuries

Depending on the injury, a Kaymac First Aider, Jon Colcombe, will administer First Aid on Site as appropriate before contacting the nearest hospital, if required: -

Bleeding – It is important to stop the flow of blood as quickly as possible.

Small Cuts – Small cuts in the vein stop bleeding and clot within a few minutes. The area should then be washed, and a plaster placed gently on top.

Deeper Cuts – Deeper cuts in the veins produce dark blood that seeps out slowly and steadily. It can be stopped by gentle pressure on the wound with a sterile or clean cloth, followed by the application of a clean or sterile bandage.

Arterial Bleeding – **ARTERIAL BLEEDING MUST ALWAYS BE TREATED BY A DOCTOR** - Bleeding from an artery can cause death within a few minutes, so urgent first aid is essential. This type of bleeding pulsates and squirts blood, as the pulse beats. To stop the bleeding from an artery:

- Apply hard pressure on the wound, and keep this up until the patient receives medical treatment;
- Press with a sterile cloth or just use your hand, if nothing else is available;
- Put a bandage on the wound if possible. If blood soaks through the bandages, press harder until the bleeding stops;
- Do not remove the soaked bandages, but place another on top if necessary;
- Do not attempt to clean the wound;
- The person must be made to lie down, preferably with their head lower than the rest of the body. This will ensure that enough oxygen gets to the brain.
- If possible, position the wounded area higher than the rest of their body - so that the bleeding will be reduced.

Nosebleeds – Occur when small blood vessels in the mucous membranes of the nose burst. Blood may also run into the stomach and then be vomited up.

Do not bend the head backwards or lie down, because this increases blood pressure in the head and so increases the bleeding.

To limit the bleeding:

- Pinch the nostrils shut with the index and middle finger for 10 minutes. This way, the vein is compressed, which is often enough to stem the flow;
- While the nostrils are shut, the person must breathe through their mouth;
- If the bleeding continues, it is important to contact a doctor.
- If the person frequently suffers sudden, intense nosebleeds - they should also consult a doctor.

Chocking – Chocking happens when the passage through the windpipe is blocked. This usually occurs when food that hasn't been thoroughly chewed gets stuck. If someone looks like they are chocking, ask them if they're able to talk.

A person who is genuinely chocking can usually only communicate with hand movements, and may place their hand against their throat. In such a case they will definitely need help, so summon assistance for them.

Provided the person is conscious and talking, you should not interfere. Encourage them to cough. However, be prepared to do so, if the obstruction appears to become complete or markedly worse.

If the person is conscious, but struggling to breath, stand behind them and lean their head slightly forward.

Using a flat palm, strike them forcefully between the shoulder blades, in the hope they will cough up (and out) the item causing choking. Repeat up to five times. If unsuccessful, proceed to the Heimlich manoeuvre.

The Heimlich Manoeuvre

- Stand behind the person, who is choking;
- Place your arms around their waist, and bend them well forward;
- Clench your fist, and place it right above the person's navel (belly button);
- Place your other hand on top, then thrust both hands backwards onto the stomach with a hard, upward movement;
- Repeat this until the object stuck in the throat is expelled through their mouth.

If you need to carry out this manoeuvre on yourself, place a clenched hand above your navel (belly button) and your other hand on top. Then thrust your fist hand hard into your stomach.

Repeat this until the object stuck in the throat is expelled through the mouth.

Shock – Shock occurs when too little blood circulates to the brain.

This means that the brain is not receiving enough oxygen, which leads to a feeling of faintness, disorientation and dizziness.

Shock may occur: -

- After an accident involving loss of blood;
- After a serious infection, with loss of fluid;
- After a serious burn;
- After other accidents that cause loss of fluids or blood;
- As part of an allergic reaction (anaphylaxis).

When there is not enough blood in the blood vessels, the blood pressure drops and too little oxygen is circulated to the brain.

When this occurs, a person may: -

- Go pale;
- Turn sweaty, clammy and cold;
- Become dizzy;
- Become anxious or restless;
- Have a weak, fast pulse;
- Have low blood pressure;
- Have slow, weak breathing;

- Lose consciousness.

What to do if someone is in shock?

- The person must lie on their back – preferably with their feet raised – to ensure enough blood gets to the brain;
- Make sure the person is warm, comfortable and covered by a blanket if possible;
- Do not give them anything to drink because they could run a risk of choking;
- If the person vomits or bleeds from the mouth, he or she must be placed on their side to prevent choking;
- Call for an Ambulance; a person in shock must always be treated by a doctor.

Burns – The first thing to do is to limit the extent of the damage and prevent the burn from becoming worse.

- Taking care that you do not put yourself at risk from the cause of the burns, move the person away from the danger area. Smother flames with a blanket or douse the person with water but beware of electricity or caustic chemicals;
- Remove clothing or jewellery from the burned area but do not try to peel back any clothing that is stuck to the skin;
- The burnt area must be cooled by being placed under tepid running water. The water should not be unpleasantly cold;
- Keep the damaged area under running water for at least one hour or longer if the pain has not stopped. Up to four hours of this treatment can be beneficial. However, in severe burns it is more important to get the person to hospital for treatment, so do not let this delay calling the Ambulance;
- Meanwhile keep the person warm; a lot of heat can be lost from large burns so put a blanket or clothing around the non-injured areas;
- First-degree burns e.g. mild sunburn, may not require this treatment although it may help to soothe discomfort;
- Put cling film or a plastic bag over the burn before moving the person to hospital, but do not wrap the cling film tightly around the limb;
- Do not put any creams on the burn at this stage, but you can give the person simple pain relief such as paracetamol.

Which burns need to be treated by health professionals?

- Burns that are bigger than the palm of the hand;
- Burns on the face, neck, hands and in the groin;
- All chemical and electrical burns (electrical burns can look surprisingly minor while causing a lot of damage, and chemical burns may need specific treatment for the chemical that caused them);
- All third-degree burns;

- Most second-degree burns.

Remember that it can be difficult to distinguish between second- and third-degree burns, so always have a doctor or nurse check all but the most minor burns.

For Minor Injuries the company vehicle will transport the injured person to the local casualty department at the *above Hospital* if required.

For Major Injuries, Kaymac on site First Aider will administer First Aid on site, and then contact the emergency services requesting an ambulance to the site location.

The majority of Kaymac personnel are trained in First Aid and the operative's First Aid certification will be sent to Cyngor Gwynedd Council ahead of mobilisation. For Minor Injuries, a record of the accident is to be entered with all details in the Company Accident Book and notify Cyngor Gwynedd Council's responsible person.

For Major Injuries, Kaymac will compile report on accident and ensure H.S.E. is informed by way of form F2508.

4.2 Emergency Contact Numbers

To contact the police, ambulance or fire service in an emergency; dial 999

Bronglais General Hospital (24hr A & E)	01970 623131
Ambulance, Police or Fire & Rescue Service	999
HSE Incident Contact Centre	0845 3009923
HSE Infoline	08701 545500
Natural Resources Wales Incident Hotline	0300 065 3000 (Option 1)
Gareth Crees, Kaymac Health & Safety Manager	01792 301818
Josh Burgess – Kaymac Site Supervisor & First Aider	07810 868205
Jon Colcombe – Kaymac Project Manager	07771 803693
Kaymac Head Office – Swansea	01792 301818
Rhydian Roberts – Cyngor Gwynedd Council	07795 012730

5.0 Reporting Accidents, Work Related Diseases and Dangerous Occurrences

5.1 Reporting procedures

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) require that certain accidents that happen on site must be reported to the

Health and Safety Executive. Any of the following types of accidents that occur on site have to be reported in the first instance to the company Safety Officer or Safety Manager who will then notify H.S.E.

Fatal or Specified Injuries see www.hse.gov.uk/riddor/specified-injuries.htm for further details) should be reported by completing the appropriate form at www.hse.gov.uk/riddor/report.htm as soon as possible or by telephone by calling the Incident Contact Centre on 0345 300 9923 (Monday to Friday 08.30 to 17:00). A report must be received within 10 days of the incident.

Any Dangerous Occurrence should be reported as soon as possible at www.hse.gov.uk/riddor/report.htm by completing the appropriate form. A report must be received within 10 days of the incident.

An occupational disease should be reported as soon as possible at www.hse.gov.uk/riddor/report.htm by completing the appropriate form. A report must be received within 10 days of the incident.

5.2 Over-seven-day incapacitation of a worker

Accidents must be reported where they result in an employee or self-employed person being away from work, or unable to perform their normal work duties, for more than seven consecutive days as the result of their injury. This seven-day period does not include the day of the accident, but does include weekends and rest days. The report must be made within 15 days of the accident.

5.3 Over-three-day incapacitation

Accidents must be recorded, but not reported where they result in a worker being incapacitated for more than three consecutive days.

5.4 Non fatal accidents to non-workers (e.g. members of the public)

Accidents to members of the public or others who are not at work must be reported if they result in an injury and the person is taken directly from the scene of the accident to hospital for treatment to that injury. Examinations and diagnostic tests do not constitute 'treatment' in such circumstances.

5.5 Keeping records

A record must be kept of any reportable injury, disease or dangerous occurrence. This must include the date and method of reporting; the date, time and place of the event, personal details of those involved and a brief description of the nature of the event or disease. The record can be kept in any form preferred, but each site is supplied with a

copy of the Accident Book BI 510 issued by the HSE, and this is the company's preferred method of keeping such records.

6.0 Risk Assessments

RISK ASSESSMENT SCHEDULE	Client: Cyngor Gwynedd Council Location: Repair Works to North Promenade in Barmouth Start Date: Wednesday 17th March 2021 (TBC)	
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SECTION A – IDENTIFICATION OF HAZARDS AND RISK LEVEL BEFORE ACTION

RISK CATEGORY CALCULATION

PROBABILITY MULTIPLIED BY SEVERITY EQUALS RISK LEVEL

PROBABILITY	SEVERITY	RISK LEVEL
1. Highly improbable 2. Improbable 3. Probable 4. Likely 5. Highly Likely	1. Minor injuries 2. Multiple injuries x 1 3. Multiple injuries 2 + 4. Fatality 5. Multiple fatalities	1-4 Minimal 4-9 Acceptable 10-14 Moderate 15-19 Substantial 20-25 Intolerable

HAZARD	RISK	PROBABILITY	SEVERITY	RISK LEVEL
KAYMAC PERSONNEL				
Manual Handling.	Back or other musco-skeletal injuries due to poor work practices.	3	2	6
Noise.	Work induced hearing loss	2	3	6
Biological Agents.	Leptospirosis or Legionella infection	2	4	8
Working at Height	Musco-skeletal injuries from falls.	2	5	10
Collapse of areas of unstable structure.	Crush injuries.	2	5	10
Slips, Trips or falls.	General injuries	2	2	4
Possible presence of discarded used hypodermic syringes.	Needle-stick injuries resulting in biological contamination or risk of Hepatitis B & C or HIV	3	4	12
Dust contamination	Respiratory illness.	3	4	12
Exposure to wet or windy conditions	Illness from exposure to poor weather conditions.	5	2	10
Environmental Hazard – spillage from re-fuelling operations	Contamination of the environment.	2	3	6
Substances	Dermatitis or other skin damage due to	3	4	12

hazardous to health.	contact with hazardous substances.			
Contamination of the watercourse	Contamination of the watercourse and damage to ecosystems and natural habitats.	3	4	12
Aggressive behaviour towards company employees	Injuries sustained by employees.	2	3	6
High tides.	Injuries sustained by employees. Damage to equipment. Delays to construction works leading to additional costs.	3	3	9
Falling objects.	Head injuries.	2	3	6
Exceptional weather.	Exceptional weather may delay progress of construction works leading to additional costs.	3	4	12
Risk of pollution of watercourse.	Pollution of the watercourse leading to fish kills. Prosecution by Natural Resources Wales.	2	4	8
Planned events, particularly around Bank Holidays	Additional disruption to traffic and residents.	1	1	1
Vandalism to any part of the works.	Cost of repair or replacement.	2	3	6
Risk of Structural Failure of structure during works.	Risks to personnel and delays to construction works leading to additional costs and contract prolongation.	1	5	5
Use of electrical equipment.	Electrical shock/burns, heart attack, risk of fire.	3	5	15
Working with vibrating equipment.	Hand/Arm Vibration Syndrome-nerve or circulatory damage to hands and/or fingers.	2	3	6
Contact with buried services.	Electric shock. Damage to plant and equipment.	3	5	15
Contact with overhead cables.	Electric shock. Damage to plant and equipment.	1	5	5
Delivery of equipment.	Injuries to pedestrians and damage vehicles.	3	3	9
Lifting of Piles.	Crush Injuries.	3	3	9
Injury to site personnel working adjacent to excavator and piling unit.	Crush Injuries.	3	5	15
Pile installation – Noise/Vibration.	Long term health problems with hearing.	3	3	9
Failure of Piling	Damage to plant and equipment.	3	3	9

Works				
Cutting/burning	Burns to skin.	2	3	6
Welding	Health problems with eyes.			
Delivery of piles.	Injuries to pedestrians and damage vehicles.	3	3	9
Open leader trench.	Falls into open excavation.	2	3	6
Transport of piles from laydown area to works area.	Crush injuries to Kaymac operatives and pedestrians.	2	3	6
GENERAL PUBLIC				
Movement of company vehicles during access / egress to site	Members of the public being struck by vehicles.	2	4	8
Members of the public coming into contact with work equipment	Injuries sustained by public.	2	4	8
Interface with traffic / pedestrians.	Injury to workforce or public.	3	5	15
Public interface.	Death / injury of public following entry to working area.	3	5	15

RISK ASSESSMENT SCHEDULE

**Client: Cyngor Gwynedd
Council**

**Location: Repair Works to
North Promenade in
Barmouth**

**Start Date: Wednesday 17th
March 2021 (TBC)**



SECTION B – IDENTIFICATION OF HAZARDS AND RISK LEVEL AFTER ACTION

RISK CATEGORY CALCULATION

PROBABILITY MULTIPLIED BY SEVERITY EQUALS RISK LEVEL

PROBABILITY	SEVERITY	RISK LEVEL
1. Highly improbable	1. Minor injuries	1-4 Minimal
2. Improbable	2. Multiple injuries x 1	4-9 Acceptable
3. Probable	3. Multiple injuries 2 +	10-14 Moderate
4. Likely	4. Fatality	15-19 Substantial
5. Highly Likely	5. Multiple fatalities	20-25 Intolerable

HAZARD	RISK	PROBABILITY	SEVERITY	RISK LEVEL
--------	------	-------------	----------	------------

KAYMAC PERSONNEL

Manual Handling	The need for manual handling is eliminated or reduced as far as practicable by the availability of mechanical handling devices/machinery, the positioning of storage areas as near as is practicable to where materials will be used. Information, instruction and training provided on safe manual handling techniques. Guidance provided on risk reduction measures e.g. 'team lifting, dividing the load, kinetic handling etc. Staff are encouraged to report work related back pain at an early stage. Staff are encouraged to seek medical advice if suffering from work related back pain.	1	2	2
Noise.	Ear defender to be available if noise levels rise to more than 80 dB(A) Daily Personal Exposure Level	1	3	3
Biological Agents.	Cover any cuts or abrasions with waterproof dressing prior to work. Wear gloves! Wash and disinfect hands prior to eating or drinking.	1	4	4
Working at Height	Only competent staff are employed to work at height.	1	5	5

	The work is organised so that the possibility of falls from height are minimised. All personnel to work behind safety barriers where possible.			
Collapse of areas of unstable structure.	Condition of structure to be monitored for duration of works.	1	5	5
Slips, Trips & Falls.	Keep site tidy and remove any non-permanent trip hazards where possible.	1	2	2
Possible presence of discarded used hypodermic syringes.	Always assume there will be needles mixed in with debris-handle with extreme caution! Use appropriate gloves. When wading through water, dry suits should have steel toe caps and mid-sole protection. If a needle penetrates the skin; Encourage the wound to bleed by holding under running clean water; Wash the wound with soap and water; Dry the wound and cover with a waterproof dressing; Seek urgent medical advice – A&E.	2	4	8
Dust contamination	Appropriate PPE must be worn and dusty surfaces should be wetted down where possible.	1	4	4
Exposure to wet or windy conditions	Appropriate clothing to be worn during poor weather conditions, surface personnel to wear diver's dry suits when entering the watercourse.	2	2	4
Environmental Hazard – spillage from re-fuelling operations	Comprehensive spill kits to be provided along with training in its deployment. Refuelling operations ONLY to take place over supplied drip-trays and more than 10m away from watercourse.	1	3	3
Substances hazardous to health i.e. cementitious products	COSHH assessments are to be carried out and the information gained is passed to those who may be at risk. Manufacturer's safety data sheets are made available. Systems of work eliminate or minimise the chance of skin contact. Information is provided on the safe use of hazardous substances. Adequate washing and first aid facilities, including trained first aiders, are available. Cleaning procedures exist for non-disposable protective clothing.	1	5	5
Contamination of the	Ensure environmental mitigations are in	1	4	4

watercourse	place at all times as detailed in the method statement. Polythene to be laid down on scaffolding to prevent materials from falling into watercourse.			
Aggressive behaviour towards company employees	Do not enter into any confrontation with any members of the public. Segregate working areas where possible to prevent any unauthorised access into work areas. Inform police if necessary.	1	3	3
High tides.	Tide tables to be monitored on a daily basis by the site manager. Kaymac Site Manager will be signed up to the Natural Resources Wales Flood Watch and will receive automated phone calls regarding Flood Events and/or SSA for the area.	3	2	6
Falling objects.	Equipment to be checked before, during and after use. Hard hats to be worn at all times while in structure. Be aware of headroom restrictions while working. When materials are being hauled out of the manhole, operative to stay clear until signal given that the area is clear and safe. All Equipment will be suitable for use.	1	3	3
Exceptional weather.	Where possible, review programme to prioritise completion of weather dependant activities early.	2	4	8
Risk of pollution of watercourse.	Kaymac Environmental coordinator to monitor compliance of control measures to prevent pollution. COSHH assessments for all coshh items. Dispose of all waste materials to designated skips etc. Emergency spill kits are to be maintained at every work location or be easily accessible at all times from a centralised location. Equipment to be stored on designated drip trays/ bundied areas. Specific concrete wash out areas.	1	4	4
Planned events, particularly around Bank Holidays	No planned events identified to date. Liaise with Gwynedd CC for information on planned events.	1	1	1
Vandalism to any part of the works.	Securely fence and protect the works from unauthorised access.	1	3	3
Risk of Structural Failure during works.	Monitor structure throughout the works and have appropriate working methods to	1	5	5

	mitigate the risk.			
Flood risk.	Site Manager to receive Flood warnings. If required, personnel to evacuate site to a safe location.	2	3	6
Use of electrical equipment.	Personnel to be trained and competent in the use of electrical equipment; 110v equipment only to be used for work on site (apart from welding); equipment to be checked daily by supervisor and result entered onto PUWER check sheet; operators to carry out visual checks on electrical equipment prior to each use. Hot Works Permit Required for welding. Tool box talks for personnel using electrical equipment.	1	5	5
Working with vibrating equipment.	The lowest vibration tool that is suitable and can do the work efficiently will be selected. The use of high-vibration tools wherever possible will be strictly limited and controlled. The exposure limit for the equipment should be obtained and this should not be exceeded. The use of good quality gloves will be used to encourage good blood circulation which should help protect operatives from developing vibration white finger, but these should not be relied upon to provide protection from vibration. Carry out health surveillance to personnel exposed to vibration from tools and equipment.	1	3	3
Contact with buried services.	Prior to any excavation or sheet pile installation area to be CAT Scanned by a trained operative. Service Drawings to be checked and any identified services marked on the ground using timber pegs or spray paint. Other than that notified above, service drawings for area have not identified any services within the piled area, however operatives should proceed with care. If any unidentified services are located cease work and contact Cyngor Gwynedd Council. Piling to be controlled on a Permit to Dig	1	5	1

	briefed and issued to Piling Foreman.			
Contact with overhead cables.	Not anticipated as there are no overhead cables present at works location. Works to be carried out in accordance with approved RAMS. Exclusion zone to be set up in accordance with power providers guidelines. Kaymac to set out exclusion zone.	1	5	5
Delivery of equipment.	Delivery Wagons to comply with the Site Traffic Management Plan and adhere to the Delivery Route instructions. Site Speed limit Maximum of 5mph. All deliveries to be guided into position by a banksman. Kaymac to provide banksman to stop or traffic if required. Excavator and Piling Hammer to be tracked off back of low loader in Pen-y-Gogledd Car Park. Where space permits, all wagons to enter & exit compound area in a forward gear. Banksman to ensure delivery wagons do not block road and that priority is given to non-construction traffic.	1	3	3
Lifting of Piles.	Piles to be positioned adjacent to works. Weight of lift to be within capabilities of Excavator. Trial lift where piles hoisted approx. 150mm above ground to be undertaken prior to removing from wagon. When lifting single piles, Pile quick release shackle to be used. Guide rope to be utilised when lifting piles and other large items. No lifting to be undertaken if wind speed exceeds 10m/s (22mph) or operatives do not feel it is safe to do so. Banksman to ensure materials are not slewed over operatives working. Operatives to ensure they do not stand beneath a suspended load. Lifting gear to be selected by a competent person (Qualified Slinger / Signaller) and capacity and condition checked. Lifting Gear to have 6 monthly inspection, damaged or faulty equipment should not be used and immediately quarantined.	1	3	3

	Lifts to be in accordance with Lift Plan.			
Injury to site personnel working adjacent to excavator.	All plant movements to be supervised by qualified Banksman at all times. Banksman to establish “No Entry Controlled Zone” extending 3m beyond the perimeter of the Excavator. Only personnel nominated by the Banksman may enter this zone. Road to be closed off within proximity of piling and access area.	1	5	5
Pile installation – Noise/Vibration.	Sheet Piles to be installed with movax unit. Operator to be trained and competent. All plant to be controlled by a banksman at all times. Banksman to ensure that excavator has correct lifting equipment for pile section. Piles to be toed into the ground a sufficient depth prior to releasing quick release shackle. If obstruction encountered at shallow depth pile to be removed and obstruction dug out. If obstruction hit at low level, pile to be removed and larger ‘pilot’ pre-driving pile to be driven to remove obstruction before reinstalling the GU 8N pile. When operatives clutch pile hands to be kept free from any areas they are likely to become trapped. Operatives working in close proximity to Machinery to wear additional PPE or Ear Protection when required.	1	3	3
Failure of Piling Works	Sheet Piles to be installed as per design to the position and Toe levels specified. If Toe levels cannot be achieved or any onsite conditions differ to the design, cease work immediately and contact Cygnor Gwynedd Council representative. Any deviation from Design to be approved by Cyngor Gwynedd Council. Piles to be clutched together to form a rigid wall and installed plum.	1	3	9
Cutting/burning Welding	Cutting/Burning Welding of Sheet Piles is not envisaged. If required, Cutting/Burning Welding of Sheet Piles to be controlled with a Hot Works Permit.	1	3	3

	Operative cutting to be trained & competent. Additional PPE of Face Mask, Fire Retardant Gloves/Overalls to be used. Hot works area to be fenced off/shrouded at all times with warning signs erected. Sparks etc. to be directed from other work activities. When welding Support brackets excavator to lift/hold in position until weld complete. Fire Extinguisher to be available at all Hot Works Locations			
Delivery of piles.	Kaymac to provide banksmen to control the traffic during deliveries. Speed limit to be enforced and speed to be limit to walking pace. Kaymac to provide and manage exclusion zone within Pen-y-Gogledd Car Park. Vehicles to travel in forward gear at all times possible.	1	3	3
Open leader trench.	Only excavate leader trench for the planned days work ahead. Any open leader trench to be backfilled at the end of each shift.	1	3	3
Transport of piles from laydown area to works area.	Speed limits to be applied for the servicing road. Banksmen to be present at all times when Excavator is in use and speed limited to the banksmen's walking pace. Traffic control to be managed by Kaymac. Reversing to be minimised at all times possible. When offloading trailer ensure that the road is clear of pedestrians. Banksmen to ensure a safe working zone is available before loading/unloading piles. Ensure all lifts with the 8T Excavator are to be under their SWL. The piles will be strapped to the trailer to reduce the likelihood of falling.	1	3	3
GENERAL PUBLIC				
Movement of company vehicles during access/egress to site	Ensure that banksman is in attendance while moving vehicles on site.	1	4	4
Members of the public coming into	Work areas to be cordoned off, path running underneath bridge to be closed for	1	4	4

contact with work equipment	duration of the works and pedestrians/cyclists etc to be diverted over the road and appropriate signage to be erected. Road running over the bridge to be restricted for the duration of the works. NO reversing of vehicles/plant is to be carried out without banksman.			
Interface with traffic / pedestrians.	Suitable traffic / pedestrian management to be in place; protective barriers, adequate safety zones, appropriate signage etc.	1	5	5
Public interface	Border around work site to be fenced, preventing public from entering the works site.	1	5	5

7.0 Personnel Information Briefing Forms

KAYMAC MARINE & CIVIL ENGINEERING LTD.

**PERSONNEL INFORMATION
BRIEFING**



Document Reference (If Applicable)	GL/KM/CGWYNEDDC-NPRW-B/FEB21/1	Issue No.	1
Briefing Subject	Repair Works to North Promenade in Barmouth		

Key Points
1. Equipment checks 2. Health & Safety implications 3. Scope of works 4. Method of carrying out the works 5. Hazards and risks 6. Emergency evacuation plan 7. Emergency contact numbers 8. Location of welfare facilities 9. Location of hospital

Briefing delivered by		Date	
-----------------------	--	------	--

Briefing Received By-Name	Signature

Appendix A – Hospital Route

Bronglais General Hospital (24hr A&E)

Barmouth LL42 1BJ

Bronglais Hospital, Bronglais General H

Add destination

Leave now

OPTIONS

Send directions to your phone

via A487

Fastest route, the usual traffic

1 hr 15 min

44.2 miles

DETAILS

Explore Bronglais Hospital

Restaurants

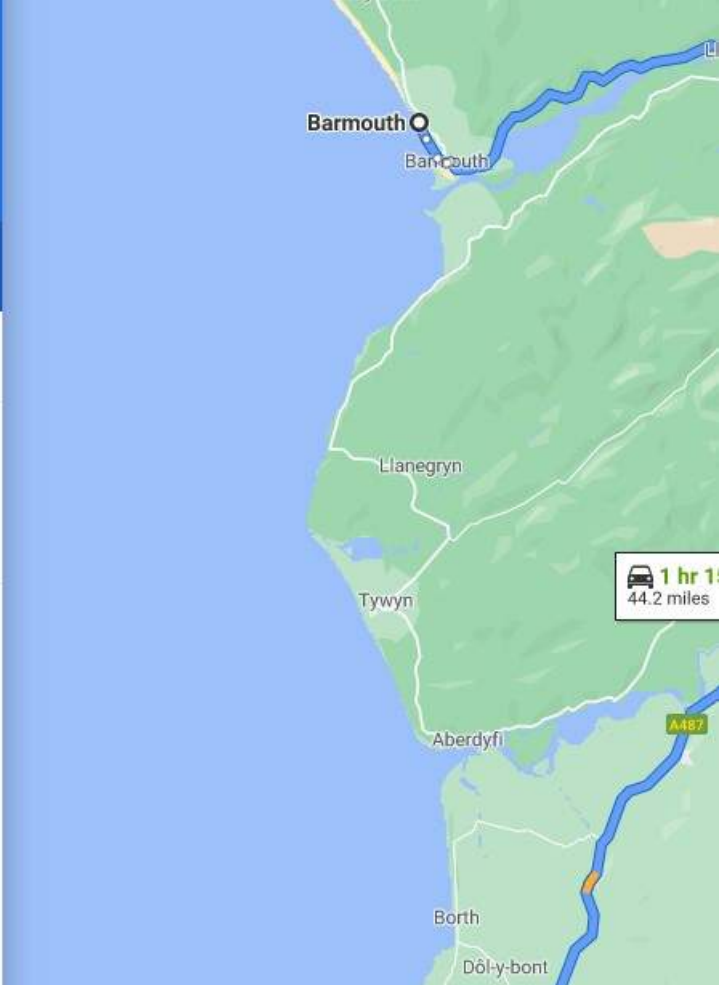
Hotels

Gas stations

P

Parking Lots

More



Appendix B – Management Structure

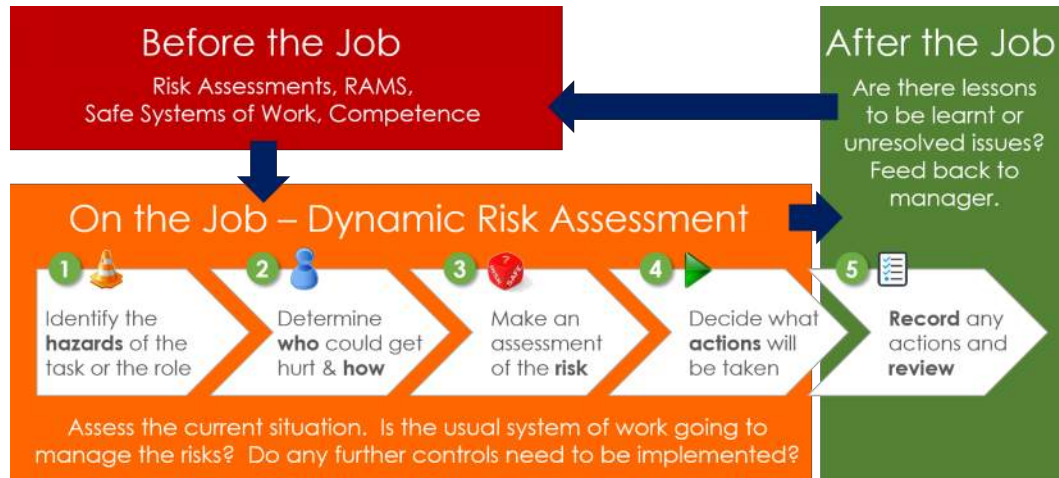
Role	Name	Qualifications	Experience
Managing Director	Gareth Crees	NEBOSH General Certificate in Occupational Health & Safety Part 1 Commercial Diver Mechanical Fitter	35 years in the diving and marine engineering industry; Managing Director since acquiring the company in 1986.
Operations Manager	Jeff Lippiett	Part 1 Commercial Diver BEng (Hons) Civil Engineering CPCS Construction Project Manager	35 years in the diving and marine engineering industry; 7 years as a commercial diver/supervisor, 28 years as Operations Manager with Kaymac.
Project Co Ordinator	Jon Dean	BSc (Hons) Construction & Project Management HND Building Studies	Project Manager with the company for 8 years.
Senior Project Engineer	Rhys Colcombe	BEng (Hons) Civil Engineering MSc Civil & Structural Engineering CEng MICE CPCS Appointed Person NEBOSH General Certificate in Occupational Health & Safety NEBOSH Environmental Management	Joined the company as a Graduate Engineer in 2009, appointed Project Engineer in 2013.
Site Agent/Manager	Gareth Lippiett	HND Construction Project Management SMSTS NEBOSH General Certificate in Occupational Health & Safety Working towards NVQ level 4 In construction site supervision to obtain CSCS Supervisors Gold Card	Joined the company in 2010 as a Junior QS, appointed as a Site Agent/Manager in 2013.
Dive Superintendant and	Alan Byrne	Part 1 Commercial Diver	Joined the company as our first

Civil Engineering Site Manager		ADC Diving Supervisor CPCS Lift Supervisor, Slinger/Signaller SMSTS CPCS 360 machine driver Working towards NVQ level 4 In construction site supervision to obtain CSCS Supervisors Gold card	apprentice diver in 2004, made supervisor and then Dive superintendant 2016
Dive Supervisor and Civil Engineering Site Manager	Jonathan Colcombe	Part 1 Commercial Diver ADC Diving Supervisor CPCS Lift Supervisor, Slinger/Signaller SMSTS CPCS 360 machine driver Working towards NVQ level 4 In construction site supervision to obtain CSCS Supervisors Gold card	Joined the company as an apprentice diver in 2007, made supervisor and then Site manager 2015
Civil Engineering Site Manager	Dean Munkley	SMSTS Working towards NVQ level 4 In construction site supervision to obtain CSCS Supervisors Gold card CPCS CSCS First Aid at Work	Joined the company in 2017 as Civil Engineering Foreman.
Site Supervisors	Steffan Williams	Part 1 Commercial Diver SSSTS CSCS Confined Space First Aid at Work	Joined the company in 2015 as a Commercial Diver, appointed as Confined Space and Dive inspections Site Supervisor in 2016.
Site Supervisors	Josh Burgess	SSSTS CSCS CPCS Confined Space	Joined the company in 2008 as an apprentice fitter, appointed as Site Supervisor in 2018.

Site Supervisors	Ben Dark	SSSTS CSCS Confined Space First Aid at Work	Joined the company in 2007 as an apprentice fitter, appointed Site Supervisor in 2019.
Site Supervisors	Jan Evans	SSSTS CSCS Confined Space First Aid at Work	Joined the company in 2008 as fitter and welder, appointed Site Supervisor in 2019.

Appendix C – Dynamic Risk Assessment

DYNAMIC RISK ASSESSMENT



		LIKELIHOOD				
		1	2	3	4	5
SEVERITY	1	Low	Low	Low	Low	Low
	2	Low	Low	Medium	Medium	Medium
	3	Low	Medium	Medium	Medium	Medium
	4	Low	Medium	Medium	High	High
	5	Low	Medium	Medium	High	High

[illegible]

Appendix D – Amendments

No.	Description	Page No.	Date	Initials
1				
2				
3				
4				
5				



Covid-19 Managing the risk on site

Before coming to work:

- Think – am I healthy right now?
- Have I been in contact with anyone diagnosed or self-isolating?
- Have you travelled recently?
- Should I be self-isolating?
- Do I have a **high temperature** or **new continuous cough**?

Only come to site if the answer to **all of the above** is **NO**. Don't put others at risk, take care of each other!

Getting to Site:

Our sites generally have minimal space so please follow these simple steps every day

- Do not enter the office cabin unless instructed by the Site Manager
- One person per sub-contractor can leave the site arrived on site through the window - in and out
- If the weather is good, toolbox talks, will be held outside
- In poor weather, briefings will be staged outside
- Keep 2m distance between yourself and others
- Breaks will be staggered to take turn in the canteen facilities
- Max. 3 people at a time in the canteen, maintain 2m personal space

CATCH IT

Germs spread easily. Always carry tissues and use them to catch your cough or sneeze.



BIN IT

Germs can live for several hours on tissues. Dispose of your tissue as soon as possible.



Keeping healthy:

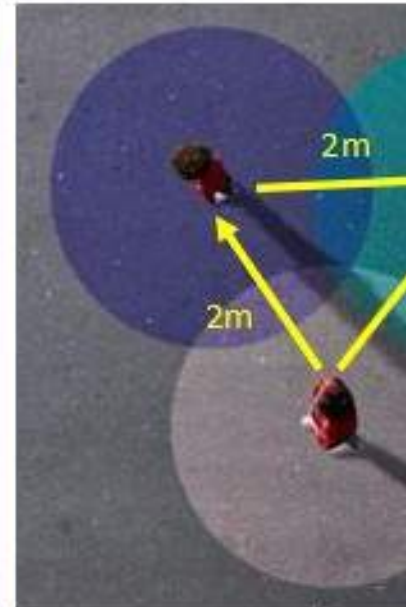
- If you develop a **high new continuous cough**, return home and self-isolate
- Let your line manager or site management take appropriate action
- Think about what you touch (avoid as much as possible):
 - Door handle:
 - Taps
 - Tools
 - Your face

Covid-19

Managing the risk on site

On Site:

- Maintain **2m** from everyone else
- Extra precautions below for activities where contact is essential
- Keep your **gloves** on
- **Don't answer your phone** on site – wait until you can wash your hands before you touch it
- **Avoid sharing tools**
- **Don't share PPE**



Divers:

Extra precautions will be taken when you're helping the divers to

- Tenders to don FFP3 nitrile **disposable gloves** before diver
- **Dispose of the gloves** :
– single use PPE

Site Operating Procedures – Protecting Your Workforce

Introduction

Construction sites operating during the Coronavirus Covid-19 pandemic need to ensure they are protecting their workforce and minimising the risk of spread of infection.

This guidance is intended to introduce consistent measures on sites of all sizes in line with the Government's recommendations on [social distancing](#).

These are exceptional circumstances and the industry must comply with the latest Government advice on Coronavirus at all times.

The health and safety requirements of any construction activity must also not be compromised at this time. If an activity cannot be undertaken safely due to a lack of suitably qualified personnel being available or social distancing being implemented, it should not take place.

We are aware that emergency services are also under great pressure and may not be in a position to respond as quickly as usual.

Sites should remind the workforce at every opportunity of the Site Operating Procedures which are aimed at protecting them, their colleagues, their families and the UK population.

If a site is not consistently implementing the measures set out below, it may be required to shut down.

Self-Isolation

Anyone who meets one of the following criteria should not come to site:

- Has a high temperature or a new persistent cough - [follow the guidance on self-isolation](#)
- Is a [vulnerable person](#) (by virtue of their age, underlying health condition, clinical condition or are pregnant) ☐ Is living with someone in [self-isolation](#) or a [vulnerable person](#).

Procedure if Someone Falls Ill

If a worker develops a high temperature or a persistent cough while at work, they should:

- Return home immediately
- Avoid touching anything
- Cough or sneeze into a tissue and put it in a bin, or if they do not have tissues, cough and sneeze into the crook of their elbow.

They must then follow the guidance on self-isolation and not return to work until their period of self-isolation has been completed.

Travel to Site

Wherever possible workers should travel to site alone using their own transport and sites need to consider:

- Parking arrangements for additional cars and bicycles
- Other means of transport to avoid public transport e.g. cycling
- Providing hand cleaning facilities at entrances and exits. This should be soap and water wherever possible or hand sanitiser if water is not available
- How someone taken ill would get home.

Site Access Points

- Stop all non-essential visitors
- Introduce staggered start and finish times to reduce congestion and contact at all times
- Monitor site access points to enable social distancing – you may need to change the number of access points, either increase to reduce congestion or decrease to enable monitoring
- Remove or disable entry systems that require skin contact e.g. fingerprint scanners
- Require all workers to wash or clean their hands before entering or leaving the site
- Allow plenty of space (two metres) between people waiting to enter site
- Regularly clean common contact surfaces in reception, office, access control and delivery areas e.g. scanners, turnstiles, screens, telephone handsets, desks, particularly during peak flow times
- Reduce the number of people in attendance at site inductions and consider holding them outdoors wherever possible
- Drivers should remain in their vehicles if the load will allow it and must wash or clean their hands before unloading goods and materials.

Hand Washing

- Provide additional hand washing facilities to the usual welfare facilities if a large spread-out site or significant numbers of personnel on site
- Ensure soap and fresh water is readily available and kept topped up at all times
- Provide hand sanitiser where hand washing facilities are unavailable
- Regularly clean the hand washing facilities and check soap and sanitiser levels
- Provide suitable and sufficient rubbish bins for hand towels with regular removal and disposal.

Sites will need extra supplies of soap, hand sanitiser and paper towels and these should be securely stored.

Toilet Facilities

- Restrict the number of people using toilet facilities at any one time e.g. use a welfare attendant
- Wash hands before and after using the facilities
- Enhance the cleaning regimes for toilet facilities particularly door handles, locks and the toilet flush
- Portable toilets should be avoided wherever possible, but where in use these should be cleaned and emptied more frequently
- Provide suitable and sufficient rubbish bins for hand towels with regular removal and disposal.

Canteens and Eating Arrangements

With cafés and restaurants having been closed across the UK, canteens cannot operate as normal.

Whilst there is a requirement for construction sites to provide a means of heating food and making hot drinks, these are exceptional circumstances and where it is not

possible to introduce a means of keeping equipment clean between use, kettles, microwaves etc. must be removed from use.

The workforce should also be required to stay on site once they have entered it and not use local shops.

- Dedicated eating areas should be identified on site to reduce food waste and contamination
- Break times should be staggered to reduce congestion and contact at all times
- Hand cleaning facilities or hand sanitiser should be available at the entrance of any room where people eat and should be used by workers when entering and leaving the area
- The workforce should be asked to bring pre-prepared meals and refillable drinking bottles from home
- Workers should sit 2 metres apart from each other whilst eating and avoid all contact
- Where catering is provided on site, it should provide pre-prepared and wrapped food only
 - Payments should be taken by contactless card wherever possible
 - Crockery, eating utensils, cups etc. should not be used
- Drinking water should be provided with enhanced cleaning measures of the tap mechanism introduced
- Tables should be cleaned between each use
- All rubbish should be put straight in the bin and not left for someone else to clear up
- All areas used for eating must be thoroughly cleaned at the end of each break and shift, including chairs, door handles, vending machines and payment devices.

Changing Facilities, Showers and Drying Rooms

- Introduce staggered start and finish times to reduce congestion and contact at all times
- Introduce enhanced cleaning of all facilities throughout the day and at the end of each day
- Consider increasing the number or size of facilities available on site if possible
- Based on the size of each facility, determine how many people can use it at any one time to maintain a distance of two metres
- Provide suitable and sufficient rubbish bins in these areas with regular removal and disposal.

Avoiding Close Working

There will be situations where it is not possible or safe for workers to distance themselves from each other by 2 metres.

General Principles

- Non-essential physical work that requires close contact between workers should not be carried out
- Work requiring skin to skin contact should not be carried out
- Plan all other work to minimise contact between workers

- Re-usable PPE should be thoroughly cleaned after use and not shared between workers
- Single use PPE should be disposed of so that it cannot be reused
- Stairs should be used in preference to lifts or hoists ☒ Where lifts or hoists must be used:
 - Lower their capacity to reduce congestion and contact at all times
 - Regularly clean touchpoints, doors, buttons etc.
- Increase ventilation in enclosed spaces
- Regularly clean the inside of vehicle cabs and between use by different operators.

Site Meetings

- Only absolutely necessary meeting participants should attend
- Attendees should be two metres apart from each other
- Rooms should be well ventilated / windows opened to allow fresh air circulation
- Consider holding meetings in open areas where possible.

Cleaning

- Enhanced cleaning procedures should be in place across the site, particularly in communal areas and at touch points including:
 - Taps and washing facilities
 - Toilet flush and seats
 - Door handles and push plates
 - Hand rails on staircases and corridors
 - Lift and hoist controls
 - Machinery and equipment controls
 - Food preparation and eating surfaces
 - Telephone equipment
 - Key boards, photocopiers and other office equipment.
- Rubbish collection and storage points should be increased and emptied regularly throughout and at the end of each day.

Covid-19

Kaymac will adhere to all advice and guidance issued by the UK and Welsh Governments, Public Health Wales and or any other regulatory/government body (<https://www.gov.uk/coronavirus>) at the time works are due to commence. Please see Kaymac Coronavirus (COVID-19) Policy for further information.

Other Items

Kaymac Policies to be adhered to during the works will include but not limited to: -

- Health & Safety Policy;
- Drugs & Alcohol Policy;
- PPE Policy;
- Coronavirus (COVID-19) Policy.

All Kaymac operatives have been briefed on the most recently updated *Kaymac Policies* and it is the responsibility of all for ensuring that the intentions of the policies are effectively implemented on site with Site Agents/Managers ensuring necessary appropriate action is determined and actioned upon if required.

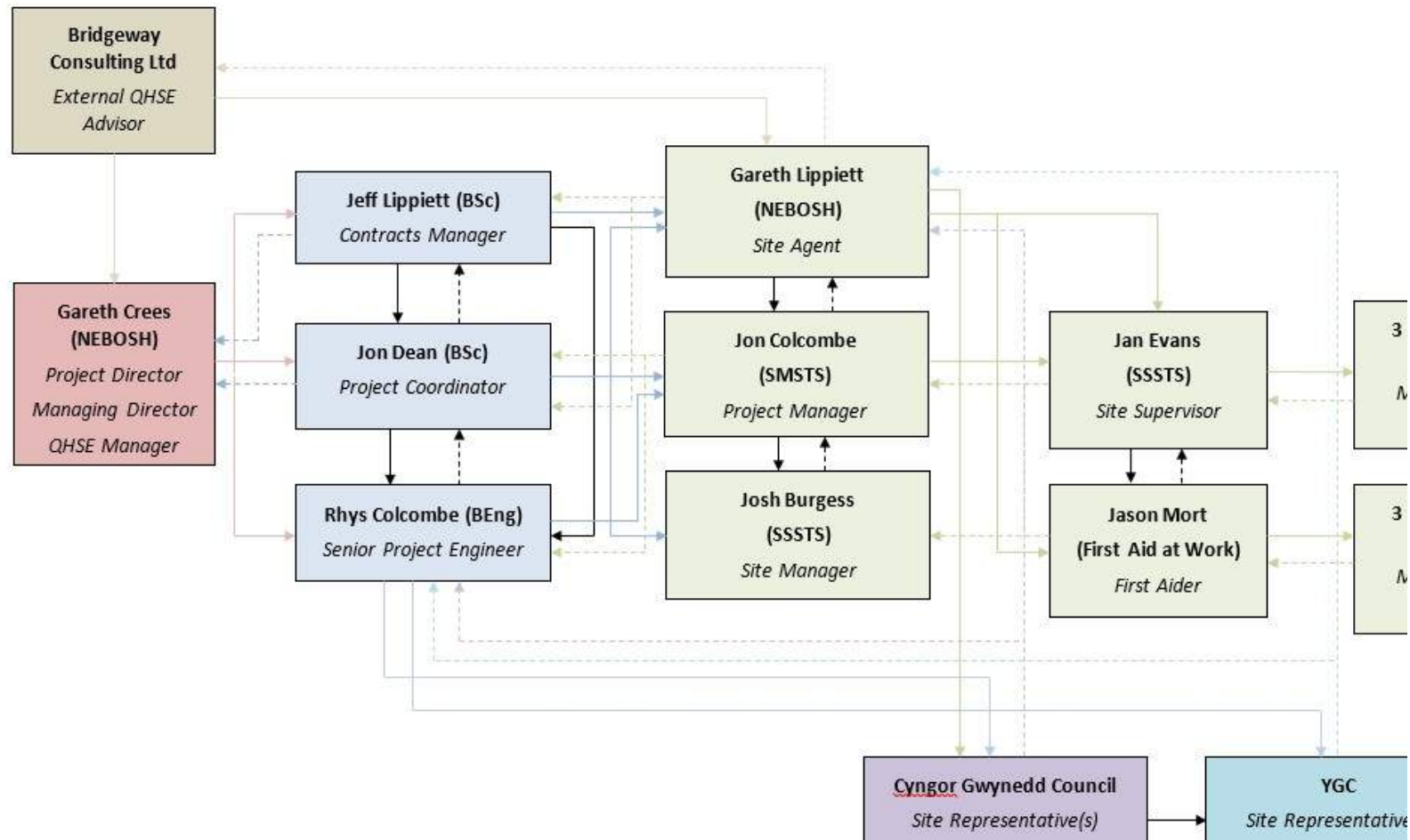
Appendix F – Tide Table – Barmouth (March)

DAY			TIDES FOR BARMOUTH					CO
			1 st TIDE	2 nd TIDE	3 rd TIDE	4 th TIDE		
1 Mon			 7:01 h  17:56 h	4:23 h  0.6 m	9:30 h  5.5 m	16:53 h  0.5 m	21:52 h  5.2 m	10
2 Tue			 6:59 h  17:58 h	5:01 h  0.6 m	10:10 h  5.5 m	17:31 h  0.6 m	22:32 h  5.1 m	97
3 Wed			 6:56 h  18:00 h	5:39 h  0.7 m	10:51 h  5.3 m	18:10 h  0.7 m	23:14 h  4.8 m	85
4 Thu			 6:54 h  18:01 h	6:21 h  0.9 m	11:34 h  5.0 m	18:55 h  1.0 m	23:59 h  4.5 m	70
5 Fri			 6:52 h  18:03 h	7:08 h  1.1 m	12:23 h  4.5 m	19:47 h  1.4 m		55
6 Sat			 6:49 h  18:05 h	0:52 h  4.1 m	8:08 h  1.4 m	13:21 h  4.1 m	20:56 h  1.7 m	45
7 Sun			 6:47 h  18:07 h	1:57 h  3.8 m	9:27 h  1.7 m	14:36 h  3.7 m	22:21 h  1.8 m	43
8 Mon			 6:45 h  18:09 h	3:24 h  3.6 m	10:58 h  1.6 m	16:16 h  3.6 m	23:50 h  1.7 m	51
9 Tue			 6:42 h  18:11 h	5:00 h  3.8 m	12:26 h  1.4 m	17:41 h  3.9 m		62
10 Wed			 6:40 h  18:12 h	1:03 h  1.4 m	6:07 h  4.2 m	13:32 h  1.2 m	18:37 h  4.2 m	73
11 Thu								
12 Fri								
13 Sat								
14 Sun			 6:31 h  18:20 h	3:51 h  0.8 m	8:54 h  5.2 m	16:10 h  0.7 m	21:09 h  4.9 m	90
15 Mon			 6:28 h  18:21 h	4:21 h  0.8 m	9:26 h  5.1 m	16:38 h  0.7 m	21:40 h  4.8 m	86
16 Tue			 6:26 h  18:23 h	4:49 h  0.8 m	9:57 h  5.0 m	17:06 h  0.8 m	22:10 h  4.7 m	80
17 Wed			 6:24 h  18:25 h	5:16 h  0.9 m	10:28 h  4.8 m	17:32 h  1.0 m	22:39 h  4.6 m	71
18 Thu			 6:21 h  18:27 h	5:43 h  1.1 m	10:58 h  4.6 m	17:59 h  1.2 m	23:10 h  4.3 m	61
19 Fri			 6:19 h  18:29 h	6:10 h  1.4 m	11:31 h  4.3 m	18:26 h  1.5 m	23:44 h  4.1 m	49
20 Sat			 6:17 h  18:30 h	6:39 h  1.6 m	12:09 h  3.9 m	18:59 h  1.8 m		38
21 Sun			 6:14 h  18:32 h	0:25 h  3.8 m	7:20 h  1.9 m	12:55 h  3.6 m	19:50 h  2.1 m	31
22 Mon			 6:12 h  18:34 h	1:18 h  3.5 m	8:47 h  2.1 m	14:00 h  3.3 m	21:36 h  2.2 m	31
23 Tue			 6:09 h  18:36 h	2:33 h  3.3 m	10:39 h  2.0 m	15:36 h  3.3 m	23:08 h  2.0 m	40
24 Wed			 6:07 h  18:38 h	4:17 h  3.0 m	11:53 h  1.8 m	17:15 h  3.0 m		54

27 Sat		▲ 6:00 h ▼ 18:43 h	1:54 h ▼ 1.1 m	7:02 h ▲ 4.9 m	14:27 h ▼ 0.8 m	19:27 h ▲ 4.9 m	100%
28 Sun		▲ 6:58 h ▼ 19:45 h	3:40 h ▼ 0.8 m	8:43 h ▲ 5.2 m	16:11 h ▼ 0.6 m	21:07 h ▲ 5.2 m	100%
29 Mon		▲ 6:55 h ▼ 19:46 h	4:23 h ▼ 0.6 m	9:25 h ▲ 5.5 m	16:52 h ▼ 0.4 m	21:48 h ▲ 5.3 m	113%
30 Tue		▲ 6:53 h ▼ 19:48 h	5:04 h ▼ 0.5 m	10:06 h ▲ 5.6 m	17:31 h ▼ 0.4 m	22:29 h ▲ 5.3 m	100%

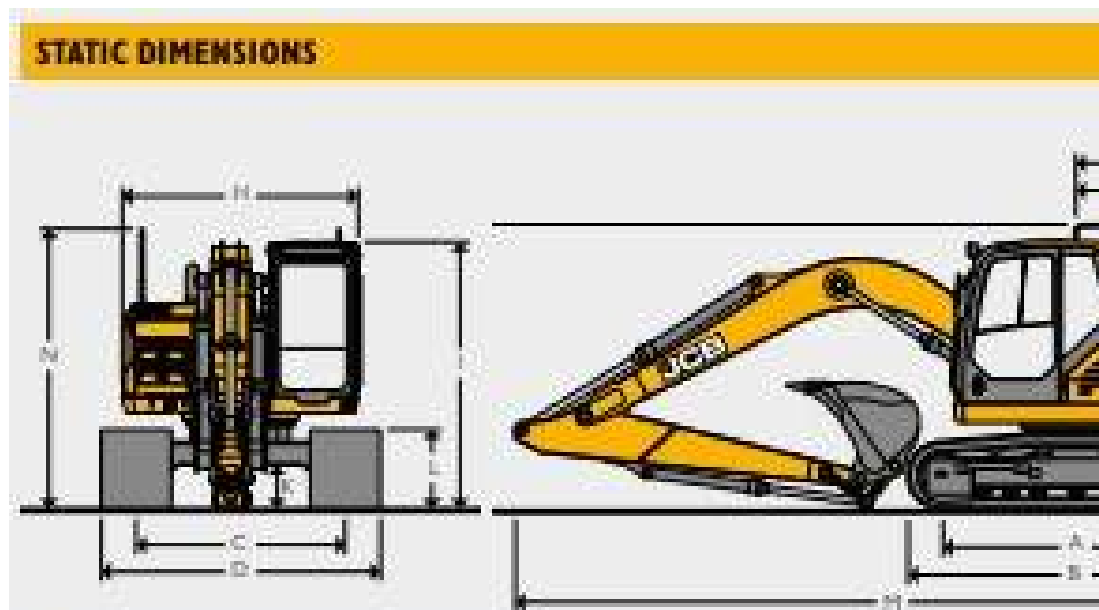
Appendix G - Kaymac Organisation and Reporting Chart

CYNGOR GWYNEDD COUNCIL – REPAIR WORKS TO NORTH PROMENADE IN BARMOUTH 2021 – PROJECT ORGANOGRAM



Appendix H – Piling Equipment

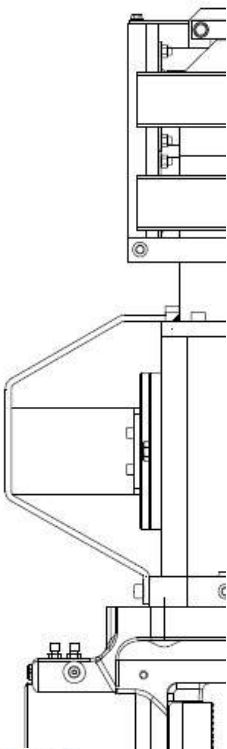
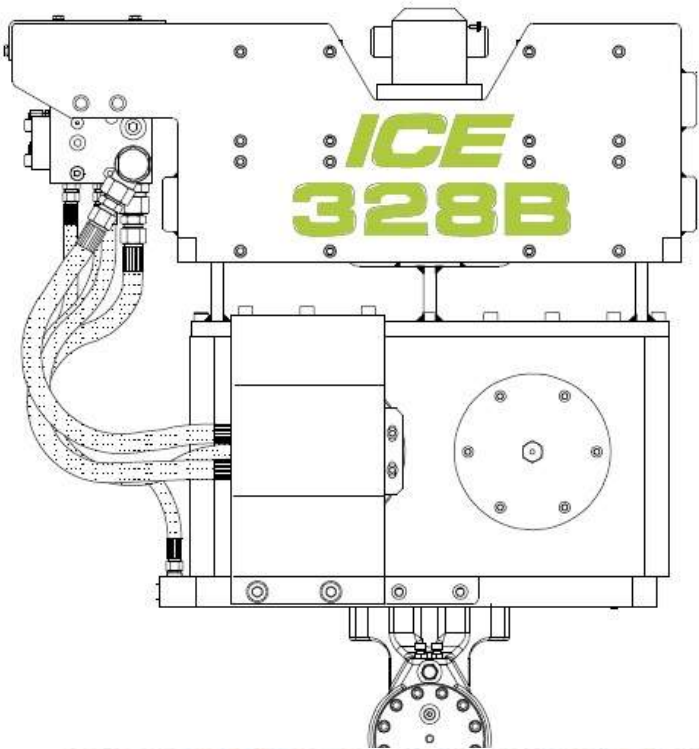
15T Excavator – JCB 140X LC: -



STATIC DIMENSIONS

Model			140X LC
A	Track length on ground	mm	2800
B	Undercarriage overall length	mm	3500
C	Track gauge	mm	1900
D	Width over tracks (500 mm trackshoes)	mm	2400
D	Width over tracks (600 mm trackshoes)	mm	2500
D	Width over tracks (700 mm trackshoes)	mm	2600
D	Width over tracks (800mm trackshoes)	mm	2700
D	Width over tracks (850 mm trackshoes)	mm	2800
D	Width over tracks (900 mm trackshoes)	mm	2900
E	Counterweight clearance	mm	900
F	Tail length	mm	2100
G	Tail swing radius	mm	2100
H	Width of upper superstructure	mm	2400
H	Width of upper superstructure (with SIPS)	mm	2600
I	Height over cab	mm	2800
I	Height over cab (vandal guard – optional)	mm	3100
I	Height over cab (FOPS guard)	mm	2900

ICE 328B Excavator Mounted Hydraulic Vibrator: -



HIGH FREQUENCY VIBRATORY HAMMER



Eccentric moment	kgm	3
Max. centrifugal force	kN	3
Max. frequency	rpm	2
Max. amplitude *)	mm	
Max. static line pull	kN	
Max. oil flow	L/min	
Hydraulic power	kW/HP	63
Dynamic weight *)	kg	7
Total weight *)	kg	1

Appendix I – Exposure Conditions

Tides

The predicted tide levels that apply at Barmouth are provided in Table 1 below:

Tidal Level	Level (m AOD)
Highest Astronomical Tide (HAT)	3.26
Mean High Water Spring Tide (MHWST)	2.56
Mean High Water Neap Tide (MHWNT)	1.26
Mean Tide Level (MTL)	0.28
Mean Low Water Neap Tide (MLWNT)	-0.54
Mean Low Water Spring Tide (MLWST)	-1.74
Lowest Astronomical Tide (HAT)	-2.35
Note: Chart Datum is 2.44 metres below Ordnance Datum at Barmouth	

The above predicted tidal levels do not however account for changes in atmospheric conditions e.g. air pressure which can lower or increase the level of the tide (surges) or persistent wind conditions that can generate wind-driven currents and set-up water levels. Estimates of extreme water levels influenced by the above that will apply less frequently can be made based on available records and numerical modelling. Predicted extreme tide levels for the Barmouth frontage (CFB Ref 832), allowing for surges, have been defined from the Environment Agency's "Coastal Flood Boundaries" dataset (Environment Agency, February 2011), which were updated in 2019 to a 2017 base date (Environment Agency, 2019) as shown in Table 2 below.

[illegible]

Recorded tide levels at Barmouth are available since 1991 from the Class A tidal gauge (BODC), situated on an upright support of the railway bridge over the Mawddach on the Barmouth side.

Waves

The Barmouth frontage is directly exposed to waves generated by winds blowing across the Irish Sea and to swell waves generated in the Atlantic Ocean.

Hindcast wave conditions from the CEFAS Wavenet Hindcast database (Cefas, 2016) are available for location 1175 approximately 8km from the shoreline. This currently provides wave climate data for the period 1st January 1980 to 31st December 2016. A wave rose of this data is provided in Figure 5. This shows the predominant waves approaching the frontage are from the sector South West to West.

Beach Movement

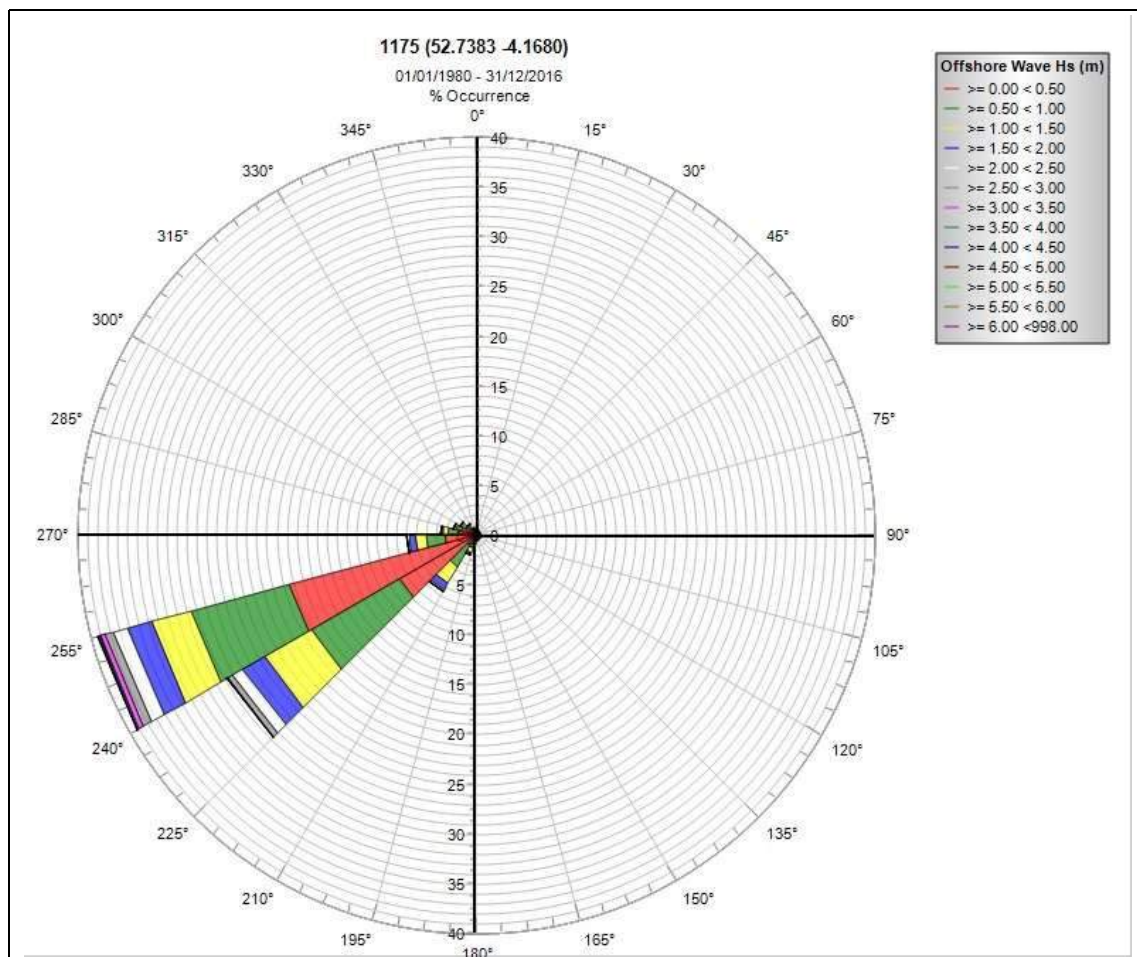
The predominant wave directions mean that waves will mostly impact the frontage either head in or slightly obliquely with the consequence that sediments will be moved on/offshore or in a northerly direction.

Although the whole frontage is groyne, the groyne field is in generally poor condition with many groyne boards missing and material able to be moved between adjacent cells.

When waves impact the sea wall normal to the structure material is moved on/offshore with movement of sediments also influenced by reflection of the lower vertical face of the structure.

Monitoring of changes in the profile of the beach in Barmouth has been carried out since 1993. The nearest profile (ref no.28) is located at the centre of the groyne bay between the slipway and the most northerly groyne. Figure 6 shows the time series of changes in the profile over the period 1993-2020.

CEFAS WaveNet Hindcast Wave Rose 1980-2016
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Beach Profile 28 Time Series

