Appendix to Paragraph (5a)

Description of Proposed Works

The marshalling area at St Margaret's Hope Pier was constructed about 13 years ago and extended in 2017. With the increased amount of traffic using the ferry route between St Margaret's Hope and Gill's Bay in Caithness Pentland Ferries has now ordered a larger ferry and an increased marshalling area is required. This would also remove queueing traffic from the main road.

The area of the extension of the marshalling area will be 2733 m^2 and will fill in a fairly useless area of the foreshore between the existing marshalling area and the main road as can be seen on drawing no SMH 311.

The seaward face of the proposed works will be steel sheet piles. These are at present on site welded into panels. Their maximum thickness is 10 mm.

The sheet piles cannot be driven as they are already welded and consequently they will be set into a concrete foundation.

Allowing for corrosion in the splash zone of 0.075 mm per side per year, it is clear that these piles would be unserviceable in 30 to 40 years. Consequently a concrete wall 600 mm thick will be cast against the inner face of the piles. This will remove all localised pressure from the piles and the structure will remain in a safe condition even if the piles suffer severe corrosion. The piles/ concrete wall will be retained using 75 mm steel tie rods and 1 m^3 anchor blocks located within the fill material.

There will be drain holes in the piles/concrete wall and clean gravel drainage paths within the fill.

The bulk of the fill will comprise bales of compressed and banded rubber tyres to PAS 108. All voids within and surrounding these bales will be filled with sand, silt or scalpings to create a solid fill.

The fill material will be left possibly in excess of a year to ensure that it has drained and that all settlement has taken place. When all settlement has taken place a structural reinforced concrete deck slab will be cast on top of the temporary surface. The construction of this deck does not form part of this application as it is above HAT.

The final reinforcing to the deck slab will be tied to the reinforcing bars in the 600 mm concrete wall to give added support to the whole structure.

A suitable handrail will be erected on top of the 600 mm concrete wall.

A new office and cafeteria will later be constructed on the extended marshalling area and will be served by a sewage treatment plant giving a 30:20 SS:BOD standard with the outfall to LWMST.

Appendix to Paragraph 5(c)

Duration of Project

The work will start on site immediately following the granting of the licence.

Stockpiling of compressed and banded tyres will start almost immediately as during the winter there is space on the ferry for deliveries but not during the busy summer months.

The banded tyres will be temporarily stored on an adjacent farm which is licensed for the storage of banded tyres.

The construction will last for approximately 12 months. This does not include the construction of the reinforced deck slab. This is above HAT and as such does not form part of this application. It is probable that vehicles would use the extended marshalling area for several months to allow for all settlement before the concrete slab is cast.

Appendix to Paragraph 5(e)

Estimated gross cost of the proposed works

All materials are at present owned by Mr Andrew Banks/Pentland Ferries and are in stock adjacent to the site of the works with the exception of the concrete, the clean gravel for the drainage layers, some of the reinforcing mesh for the deck slab and the baled tyres.

The estimated cost of the works does not include the cost of the materials in stock as they are mainly materials left over from previous contracts and will have been charged against these contracts and will have been notified in previous applications.

The cost of the deck slab and any concrete above HAT are not included.
The cost of the GRP sewage treatment plant tank is included but not the compressors or controls which will be housed in an annex to the office building at a later date. The cost of the sealed steel cover to the STW is not included.

The main costs are the charge out rate for the 35 tonne excavator and the concrete batching plant which will be used for the construction of the foundations and the concrete backing to the sheet pile wall. All plant is owned by Pentland Ferries. These are the only pieces of plant which will be used on site.

The estimated gross cost of the proposed works is £180 000.

Appendix to Paragraph 5(f)

The location of the project is shown on the Location Plan which forms part of Drawing no SMH 311.

It is a copy of part of 1:25000 scale ND with the central part of the construction being ND 44550 94025

The area of the construction is bounded by the following co-ordinates:

1. N 58° 49.864'	W 2° 57.731'
2. N 58° 49.864'	W 2°57.716'
3. N 58°49.786'	W 2°57.731'
4. N 58°49.776'	W 2°57.731'
5. N 58°49.810'	W 2°57.746'
6. N 58°49.816'	W 2°57.736′

These co-ordinates are shown on drawing no SMH 311.

Appendix to Paragraph 5(g)

1. The planning authority for the area is
   Orkney Islands Council
   Council Offices
   School Place
   Kirkwall, KW15 1NY

However the planning authority for marine works within the harbour area at St Margaret's Hope is

2. The Clerk to St Margaret's Hope Pier Trustees
   Heads
   St Margaret's Hope
   Orkney, KW17 2TL

3. The land owner is Mr A Banks who owns the foreshore to LWMST

4. Local Harbour Authority is St Margaret's Hope Pier Trustees

Appendix to Paragraph 5(h)

Method Statement

The sheet piles for the retaining wall are already welded into panels and consequently cannot be driven. The panels will require to be set into the wet concrete foundation.

Using a 35 tonne tracked excavator remove all silt, sand etc from beach area from existing sea wall to location of foundation and stock pile on site for later use.

Excavate for foundation and stock pile excavated material on site for later use.

Place concrete blocks at intervals in the foundation excavation to ensure that the sheet pile panels do not reach the bottom of the foundation thus cutting it into two halves.

Allowing for 3 deliveries of ready-mix concrete per day, i.e. about 20 m^3, this will be sufficient for a 10 m length of foundation. Erect temporary support for sheet pile panels and place panels in foundation excavation.

Cast concrete with an additive which prevents cement loss for underwater concrete into foundation excavation.

Once concrete has set, burn holes at 6 m intervals in piling at foundation level and fix cuttings of pvc pipe for drainage.

Maintaining a support for the piles now in position, continue with setting the next 10 m length of panels as above.

Continue as above until all panels are in position.

Erect shutter behind panels and cast concrete wall 600 mm thick approximately 1500 mm high and position reinforcing bar.

Place first layer of compressed tyres over whole area and fill voids with sand/silt etc.

Place clean crushed stone as drainage layer between concrete wall and tyres and spread 100 mm thick layer of clean crushed stone as drainage layer on top of tyres/sand etc.

Place or cast in situ concrete anchor blocks and fit steel tie bars.

Continue with next layer of compressed tyres and fill voids with sand/silt/scalpings.

Raise drainage layer behind concrete wall up to top of fill level and cover fill with a further drainage layer.

Erect shutter and construct concrete wall to full height.

Temporary support for sheet piles may now be removed.

Continue fill up to final level.

Cut tops of piles to line and level.

Use infilled area on a temporary basis possibly for over a year to allow all settlement to take place.

Erect batching plant for site batched concrete.

Set reinforcing mesh in position and cast concrete deck slab in alternate panels with 25 mm dowel bars linking panels.

Erect final handrail.

The above would indicate that each activity will be completed before the next starts. In practice, the construction of the concrete wall will probably start when placing of the panels is about 10 m ahead and the placing of fill and drainage material will start as soon as the shutters for the concrete wall have been struck.

Additional work for sewage treatment plant

Cast concrete base to line and level on cleaned foreshore behind piles before infill has reached this point.

Cover concrete base with wet mortar and lower GRP tank on to base and position correctly. Fill tank with clean water to prevent flotation as tide rises. This also prevents the tank from distorting when the concrete surround is cast.

Erect shutters and place 300 mm thick anti-flotation concrete surround to tank.

Remove shutters and continue with infill.

100 mm outfall pipe to be constructed vertically behind concrete wall and through piles to LWMST. Chamber for anti-flood valve constructed at outfall of tank.

Appendix to Paragraph 5(i)

When the application was made for the previous extension to the marshalling area in 2016 a Eurasian otter survey was carried out for Pentland Ferries by NDR (Environmental Services. A copy is enclosed.

It is not anticipated that there will have been any change since the survey was carried out.

Appendix to Paragraph 6(a)

Steel

Sheet piles	75 tonnes
Steel channels	11 tonnes
Tie rods	4.7 tonnes
Nuts + washers for tie rods	234 kg
Nuts + washers for piles	766 kg
Steel reinforcement in wall	2.3 tonnes
Total steel	94 tonnes

Concrete

Foundations	372 m^3
Wall	267 m^3
Anchor blocks	13 m^3
Supports for building	20 m^3
Surround to GRP tank	45 m^3
Recycled temporary foundation	19 m^3
	736 m^3 = 1693 tonnes

Note The RC deck slab has not been included as it is above HAT

Fill material

Compressed and banded rubber tyres at 800 kg	5200 tonnes
GRP tank	1 tonne
Clean gravel	960 m^3
Scalpings 50 mm to dust	1440 m^3
Silt/sand from excavation	960 m^3
100 mm dia pvc pipe	40 m
Geotextile	600 m^2

Method of delivery

All steel is at present instore adjacent to site.
All concrete/crushed stone etc will be by road.
All baled tyres will be delivered by ferry to the site.

Note: all compression and baling will take place outwith Orkney.

Appendix to Paragraph 6(d)

Temporary supports for the steel piles will be constructed as in the accompanying sketch.

Each steel support will weigh 350 kg
It is unlikely that more than 6 supports will be used at any time
Total weight 2.1 tonnes

These will be placed at 5 m intervals and will support
25 m lengths of waling weighing 1.75 tonnes.
Total weight of steel 3.85 tonnes
These will be removed and reused as the sheet pile wall progresses.

There will be 38 concrete foundations in total for the temporary supports at 0.5 m^3 each = 19 m^3.
These will be broken up after use and recycled as part of the fill.

Timber shuttering to wall, office supports and round GRP tank will be 100 m^2.
The shuttering will be progressively moved as the sheet pile wall and its concrete backing progresses. The timber shuttering will be removed from site on completion of the wall.

Extension to Marshalling Area at St Margaret's Hope Pier, Orkney

Construction Phase Health & Safety Plan

Pentland Ferries
St Margaret's Hope
Orkney

Contents

Appendices

Health & Safety Plan
Construction (Design and Management Regulations 2015)

1.0 The Project

The Project comprises the extension in a southerly direction of the marshalling area for the ferry terminal at St Margaret's Hope pier. The area of the extension is 1000 m^2.

The extension will comprise a steel sheet piled wall backed with reinforced concrete. There will be drain holes through the steel/concrete and the area to be filled from foreshore level to existing marshalling area level will be filled using carefully placed baled hydraulically squashed motor tyres with all spaces between the bales filled with gravel;/crushed stone. There will be clean crushed stone placed over each layer of baled tyres to act as a drainage layer. The maximum height will be three bales.

A reinforced concrete deck slab will be constructed on top of the infilled area and a suitable handrail will be constructed at the seaward edge.

1.01 Client

Pentland Ferries
St Margaret's Hope
Orkney
KW17 2SW
Tel: 01856 831900

1.02 Principal Designer under CDM Regulations

R T Cross B.Sc, C.Eng, M.I.C.E.
Breck Environmental Consultancy Services
Summerhill
Strathpeffer
Ross-shire
IV14 9AZ
Tel: 01997 420111

1.03 Designer/Engineeer

R T Cross B.Sc, C.Eng, M.I.C.E.
Breck Environmental Consultancy Services
Summerhill
Strathpeffer
Ross-shire
IV14 9AZ
Tel: 01997 420111

1.04 Temporary Works Co-ordinator

R T Cross B.Sc, C.Eng, M.I.C.E.

1.05 Principal Contractor

Pentland Ferries
St Margaret's Hope
Orkney
KW17 2SW
Tel: 01856 831900

1.06 Management Structure for the Works

Mr Andrew Banks, Managing Director and Contracts Manager

Operatives

1.07 Location of Works

St Margaret's Hope Pier, Orkney
ND 445 944

1.08 General Description of the Construction Work

An access will be constructed from the existing marshalling area to the foreshore. The area to be raised to form the extension to the marshalling area is above the low water mark. All debris and loose material will be cleared from the area of foreshore to form a sound base for the construction.

The sheet piles which will form the outer skin of the sea-ward wall are at present welded together to form panels and as such cannot be driven as would be normal with sheet piles.

Temporary supports for the piles will be erected to the seaward side of the pile wall and a foundation trench minimum 1.0 m deep will be excavated. The base of the trench will have precast concrete blocks placed at intervals to prevent the sheet piles from passing completely through the concrete foundation. Holes will be burnt in several of the piles to allow the concrete to pass through the piles to ensure a suitable "grip"

Concrete with an additive to prevent cement loss when covered with seawater will be poured into the trench and the panels of piles lowered into the wet concrete and secured to line and level.

Holes cut in sheet piles and drainage pipes inserted.

Foundation and shuttering prepared for first concrete lift behind sheet piles. Concrete with additive cast 1.2 m high behind piled wall.

First layer of tyre bales carefully placed as fill. Geotextile rolled out over seaward side of tyres between tyres and concrete. Crushed single size stone placed between geotextile and concrete to act as a drainage layer.

Gravel/crushed stone placed over tyres and vibrated, if necessary, to fill all interstices between bales of tyres to form a drainage path and a level working base for the next row of tyres.

Raise shutter for concrete and pour next concrete lift.

Carefully place tyres, raise geotextile and drainage layer and infill with gravel/crushed stone.

Tie back concrete lift to anchor blocks in fill.

Repeat as above with third lift leaving reinforcing bars protruding from top of concrete to tie into deck slab reinforcement. Finish top gravel/crushed stone layer to line and level and allow for settlement, make up fill as necessary.

Place reinforcing mesh in panels and secure to reinforcing bars in concrete wall.

Cast concrete deck slab in panels and remove all temporary support.

Erect barrier at seaward side and adjust existing stone wall between new marshalling area and existing road to suit altered traffic marshalling.

Paint lines as necessary.

It should be noted that most of the work will take place in tidal conditions.

The concrete batching plant will be set up well to the north of the pier to prevent any blown cement or dust from the batching plant from reaching the public waiting to board the ferry. Concrete will be delivered to the site using concrete mixer trucks.

1.9 Timescale for Completion of Works

The work will start on site in the autumn of 2017. This will be after the summer ferry traffic has reduced in volume allowing space on the ferry for delivery of baled tyres and also allowing for a lesser number of vehicles parked on the existing marshalling area.

The construction work should be virtually complete with the concrete deck in place in time for the increased ferry traffic in early summer 2018.

2.0 Existing Environment

2.01 Site Situation

The site is situated between HWMST and LWMST marks lying within the pier area at St Margaret's Hope and extends southwards by approximately 40 metres from the existing marshalling area with its seaward face in line with that of the existing.

Stored materials and concrete batching plant will be located within the industrial area to the north of the pier buildings, a distance of about 300 metres from the construction area. There will be a limited amount of storage adjacent to the site on the marshalling area and once the

first and second lifts of baled tyres is in position storage of gravel/crushed stone and tyre bales will be on top of the positioned bales and not on the existing marshalling area.

The site is relatively sheltered and should not suffer down-time due to wave action during the winter months.

2.01 Existing Structures and Services

The construction area is to the south of the existing marshalling area which has been completed with a partially open face to easily allow an extension to be constructed. There are no services on site. Rainwater from the road frequently runs across the surface of the existing marshalling area into the sea or through holes in the existing wall into the sea. This situation will continue once the extension is completed.

2.03 Site Investigation

The site lies between HWMST and LWMST. The underlying stratum is Eday marl which dips at about 10° to the sea. There is a thin layer of silty sand over the marl. An otter study was carried out as part of the licence application for the work. There was no indication of the presence of any otters.

2.04 Interaction with Ferry Traffic

With the construction work taking place during the winter months when there are reduced numbers of vehicles using the ferry, it will be fairly easy to segregate construction traffic from ferry traffic. All construction traffic will use the road when travelling from the storage area to the north of the pier buildings and all ferry traffic will be within the existing marshalling area.

There will be no movement of construction traffic while the ferry is loading or unloading.

There will be relatively few movements of construction traffic. These will comprise a concrete mixer truck used for construction of the foundation and the construction of the concrete fill behind the sheet piled wall.

There will then be a lengthy period while the bales of tyres and the gravel is placed before the concrete deck is constructed. During this period most materials will be stored within the site.

When constructing the deck, the contractor may decide to reposition the batching plant within the construction site well to the south of any parked vehicles. At this stage there should be no interaction between any construction plant and vehicles waiting to board the ferry.

At all times the traffic will be monitored and improvements to directions, signage and procedures will be introduced if it is considered these measures will improve site safety.

2.05 Access to Site

Access to the site is via the existing marshalling area which in turn is accessed from the Pier Road at St Margaret's Hope. Access will be through the gated Heras fence which will prevent interaction between site work and traffic waiting to board the ferry.

Appropriate warning signs will be erected to warn ferry users of construction traffic.

Access to the concrete batching plant is from the Pier Road and through the access to the industrial area to the north of the pier and pier buildings.

Initial stock piles will be in the industrial area but these will be moved on to the site once the initial layer of baled tyres and gravel has been placed.

During the initial stage of the construction work, deliveries of materials from storage and of concrete in mixer trucks will pass along the pier road to the construction site. A stone wall will separate this delivery traffic from the ferry traffic with the exception of the actual access to the construction site.

Appropriate signs will be erected adjacent to the ferry booking office where pedestrians will have to cross the Pier Road.

Construction vehicles will not be permitted to operate on the road or the access to the site while traffic is boarding or exiting the ferry.

2.06 Existing Information

This can be gained from the contract drawings and the otter study, both of which were required for purposes of licensing the construction work.

3.0 Drawings

3.01 Contract Drawings

See appendix A 06 Drawing Schedule

4.0 The Design

Significant hazards and a broad indication of the precautions assumed for dealing with them.

4.01 Hazard	Precaution
Interaction between ferry traffic and construction traffic	Heras fence to be erected across access to site and adequate signage to be used. A traffic flow plan for construction traffic and deliveries outwith the construction site will be implemented. No construction traffic outwith the site will be permitted while the ferry is loading or unloading. Construction traffic outwith the site will be separated from ferry traffic by a stone wall 900 high.
Temporary storage of materials	During the initial stage of the construction work most of the materials to be used will be stored in the industrial area to the north of the pier and pier buildings, some 300 m from the construction site.

	As work on the site progresses, deliveries of materials will be directly on to the site thus eliminating the requirement to transport materials from storage to the Site. Public access to the industrial area is not permitted.
Existing Services	There are no existing services on site.
Confined Space Working	There will be no confined space on site.
Lone-worker	No lone worker will be permitted
Tidal Working	The site is located between HWMST and LWMST. This means that virtually all work prior to placing the final gravel layer and constructing the concrete deck will have to be carried out during periods of low tide. A concrete additive will be required to prevent the rising tide from washing the cement out of recently poured concrete in the foundation and the concrete back to the sheet piled wall. Where appropriate, the workforce will wear buoyancy aids and a safety boat will be available at all times. This will be in addition to their normal PPE.
Working with Cement, particularly during periods of strong wind	Every precaution must be taken to prevent cement dust being blown from the batching plant during periods of strong wind. The cement will be stored in a locked steel storage container in 1 tonne bags and the bags carefully transported to the batching plant taking every precaution to prevent spillage particularly during periods of high wind. It is imperative that all operatives and those working in the vicinity of the batching plant must wear eye protection.
Dust from crushed stone stockpiles	Similar to above, blown dust must be eliminated from stockpiles or during transportation. Stockpiles will be hosed to prevent dust from blowing and lorries transporting the gravel will have their loads covered. Operatives must wear eye protection.
Working adjacent to contractors' plant	All operatives to wear a minimum of high visibility clothing, hard hat, steel toecap boots and appropriate eye protection and gloves for the work in hand.
Working with baled rubber tyres	About 60% of the fill for the extension of the marshalling area comprises baled compressed motor tyres. Each bale will weigh about 750 kg.

They will be placed using the bucket of an excavator. A banksman will be present to supervise the placing of the bales and must be fully aware of their weight and the possible danger should they slip or move from position while being placed.

Working with sheet piles

The sheet piles will be provided welded into panels and can only be handled as panels.
These panels will be positioned using either a very large excavator or a crane each fitted with suitably certificated spreader bar and chains.
Before setting the panels into the foundation trench, substantial temporary supports will be constructed which will prevent the panels from moving in the wet concrete foundation due to wind or wave action.
A construction vehicle fitted with a working basket will be required to allow an operative to disconnect the lifting equipment from the piles once in position.
Lifting and placing the panels will not be permitted when wind speed exceeds 20 mph.

4.02 Designer's Risk Assessments

The designer's risk assessment are attached in the appendix. Pentland Ferries will produce method statements to reduce and control risks identified in the Designer's Risk Assessment.

5.0 Construction Materials

5.01 Materials Requiring Particular Precautions

Cement for concrete and crushed stone/gravel will require carefull handling to prevent dust blowing during periods of strong wind.

Baled tyres weigh approximately 750 kg per bale. These will be moved and placed using an excavator but precautions should be taken to ensure that operatives are well out of their path should they move or roll while being unloaded or placed.

The steel sheet piles will be provided welded into panels. Care will be required while lifting and placing these panels particularly during periods of high wind. These operations should be suspended where the wind speed exceeds 20 mph.

The concrete additive used to prevent cement loss for underwater concreting must be COSSH registered, stored carefully and used in accordance with the manufacturer's instructions.

6.0 Site Wide Elements

6.01 Sanitation and Messing Facilities

The operatives will use Pentland Ferries large general purpose shed located in the industrial area to the north of the pier and pier buildings as their mess room, which contains toilet,

office, mess-room, drying facilities etc. The operatives will ensure that the facilities are maintained in a clean and tidy state.

6.02 Laydown Area, Storage

Initially all storage of materials including concrete batching will be adjacent to the large general purpose shed to the north of the pier and pier building. This area will also be used for delivery of spare parts for plant and machinery.

Once the first and second lifts of baled tyres have been positioned, storage of baled tyres and crushed stone etc will be within the working area of the site.

During the construction of concrete deck, all materials with the possible exception of cement will be laid down within the working area.

7.0 Overlap with Client's Undertaking

There will be no overlap with construction plant and ferry traffic. The construction plant will work entirely behind a Heras fence.

Deliveries of materials and concrete from the lay-down area and batching plant to the site will be carefully controlled. There will be a stone wall between the delivery traffic and the ferry traffic with the exception of the exit from the industrial area and the entrance to the working area through the gate in the Heras fence.

No movement of delivery traffic will be permitted while the ferry is loading or unloading.

Personnel may cross the ferry traffic stream when entering or leaving the facility. The number of personnel will not exceed 5.

8.0 General Site Rules – Pentland Ferries

8.01 Working Practices

This section details the rules and standards which relate to all employees at work, contractors and visitors. It is the responsibility of all to obey these rules and to behave in a safe manner whilst at work.
Deliberate contravention of these rules shall be considered a break in an employee's contract of employment or a breach of contract from that employee's employer.

1. No machine, item of plant or equipment is to be operated by any person, unless they have been trained and are authorised to do so.
2. All machine guarding is to be in place and correctly adjusted, prior to the machinery being used.
3. Any fault, defect, including damage, or malfunction in any item of machinery, plant, equipment, tool or guard, must be reported immediately.
4. No machine, plant or equipment is to be left unattended or cleaned whilst in motion unless the operative is authorised to do so.
5. Repairs, maintenance or adjustments to machines, plant or equipment are only to be carried out by authorised personnel only.

2. All machine guarding is to be in place and correctly adjusted, prior to the machinery being used.
3. Any fault, defect, including damage, or malfunction in any item of machinery, plant, equipment, tool or guard, must be reported immediately.
4. No machine, plant or equipment is to be left unattended or cleaned whilst in motion unless the operative is authorised to do so.
5. Repairs, maintenance or adjustments to machines, plant or equipment are only to be carried out by authorised personnel only.
6. All substances are only to be stored and used in accordance with the manufacturer's written instructions, and returned to storage after use.
7. All hazard notices or warning signs displayed on site are to be obeyed.
8. All safety equipment and facilities provided are to be used and not misused or wilfully damaged.
9. The work area is to be kept clean and tidy at all times; all waste is to be disposed of in the correct container.
10. All liquid spillages are to be cleaned up immediately.
11. Emergency exits and equipment are not to be obstructed.
12. Any use of, or damage to, fire fighting equipment is to be reported immediately.
13. Prompt medical assistance must be sought for any injury received at work, and the injury must be reported as soon as possible.

8.1 Sub-contractors

No sub-contractors will be used during the contract.

8.2 Communicating with Workforce

All employees will receive a site induction before commencing work on the site (copy attached)

All relevant information for the safe construction of the Works shall be provided to Pentland Ferries' workforce by their representative.

8.3 Health & Safety Goals

Pentland Ferries' health and safety goal is to have an injury free project.

The Directors and Management of Pentland Ferries are fully committed to the Health, Safety and Welfare of their employees, and fully accept responsibility for other persons who may be affected by their activities on the project.

8.4 Health and Safety File

The Construction Phase Health and Safety plan will be developed by Pentland Ferries with details on management and prevention of health and safety risks created by them providing a co-ordinating mechanism as construction progresses.

This will enlarge into the Health and Safety File which will follow the format required by the CDM principal designer.

On handover of the Works, the Health and Safety File will alert those responsible for the completed project to the risks that must be managed when the structure is maintained, repaired, renovated or demolished.

9.0 Continuing Liaison

9.01 Principal Contractor/ CDM principal designer

Pentland Ferries will alert the CDM principal designer of any eventualities or conditions during the construction phase resulting in substantial design changes which might affect resources for control of health and safety, as soon as he is aware of any such circumstances.

9.02 Meeting and Co-ordination

Meetings will be held as deemed necessary to review the Works and co-ordinate construction and health and safety matters.

Appendix A.01

Emergency Procedures

In the event of an emergency, the Emergency Co-ordinator Mr Andrew Banks or his deputy shall inform the required emergency services:

Police, Fire, Ambulance Tel. 999

Site location: St Margaret's Hope Pier, Orkney

Site contact: Mr Andrew Banks

Pentland Ferries main office tel 01856 831900

Appointed person: Mr Andrew Banks

The Emergency Co-ordinator, or his deputy, shall direct the emergency services to the casualty/ incident on site, and provide assistance whilst they are on site.

First Aid kits are kept in the messing hall, the ferry terminal building and on board the ferry which may be at its berth at the time of any incident.

Incidents/ accidents not requiring 999 emergency call out may be dealt with at:

Appendix A.02

Accidents, Dangerous Occurrences and Ill Health

All accidents or dangerous occurrences must be reported by Pentland Ferries' representative on site and recorded on an Accident Report Form.

The local Health and Safety Executive Office (Longman Road, Inverness. Tel: 01463 234141) will be informed by the Principal Contractor if

1. A person dies as a result of an accident caused by or connected with the work.
2. A person suffers a major injury/accident (including admission to hospital for more than 24 hours) or a health condition as a result of an accident caused by or connected with the work.
3. A "dangerous occurrence" takes place because of or in connection with the work.
4. A person at work is prevented from working for 7 or more days as a result of an injury or illness caused by an accident at work.
5. A person at work is affected by a "specified disease" diagnosed by a doctor as attributable to their work.

Appendix A.03

Contractors' Method Statement

Construction of Temporary Support for Sheet Pile Panels

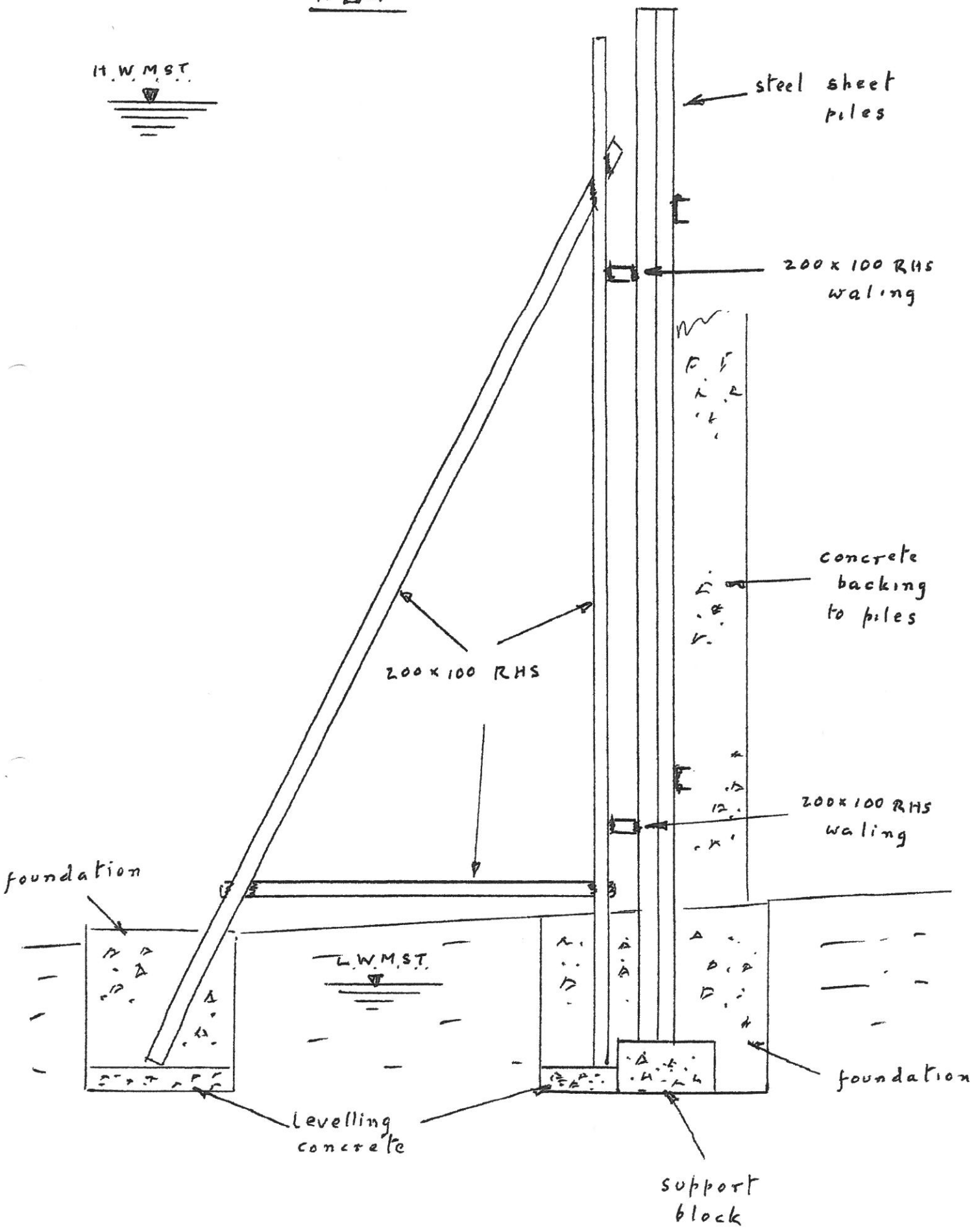
Drawing	See attached sketch
Plant	360° tracked excavator Loadall with man basket Welding equipment Cutting equipment Concrete batching plant Concrete mixer truck Lifting frame and chains Safety boat Survey equipment
PPE	HI-viz clothing, safety boots/waders, hard hats, life jackets, welding mask welding gloves, eye protection, gloves
Personnel	Excavator operator, banksman, welder. Concreter/labourer, surveyor, batching plant operator, driver for mixer truck
Procedure	Using 200 x 100 RHS steel, fabricate "A" frames as per sketch Excavate foundation holes for bases of "A" frames and place concrete With suitable additive in holes all to the correct level. Note all work is tidal and very little time will be available for work on the foreshore. Once concrete has set within foundation holes lower "A" frames into position and set to line and level. Weld walings into position to secure "A" frames to line and level. Fill foundation holes with concrete Continue as above until the temporary supports extend to the full length of the prepared sheet-piled wall.

Foundation for Sheet Pile Panels

Plant	360° excavator Concrete mixer truck Survey equipment Poker vibrator
PPE	HI-viz clothing, safety boots/waders, hard hats, life jackets, eye protection, gloves
Personnel	Excavator operator, concreter/labourer, surveyor
Procedure	Excavate to line and level foundation trench as per drawing, minimum depth 1.0 m and width sufficient to support concrete fill behind sheet piled wall plus 1.0 m minimum for the sheet pile.

Temporary Support for Sheet Piles

N.T.S.



As the tide will cover the excavation twice each day, the excavation will require to be carried out in short sections to prevent the excavation from collapsing due to the action of the tide.
The contractor will decide on the length of foundation to be excavated without fear of collapse depending on the work rate available from plant and labour.
Concrete blocks will be placed in the bottom of the trench at suitable intervals to support the steel panels and to allow the concrete of the foundation to pass under the panels. This will prevent the foundation from acting as two separate supports, one on each side of the panel.
The concrete blocks will be placed correctly to line and level and the trench filled with concrete with a suitable additive to prevent loss of cement when the foundation is covered with seawater.

Placing Sheet Pile Panels

Plant	Excavator with lifting bar and chains, or crane Welding equipment Cutting equipment Loadall with man basket Survey equipment
PPE	Hi-viz clothing, hard hats, safety boots/waders, eye protection, welding mask and protective clothing, gloves including welding gloves, buoyancy aids
Personnel	Excavator/crane operative, welder, 2 labourers/concreters
Procedure	Sheet pile panels to be lifted from stock pile adjacent to the working area using either a 360° tracked excavator fitted with a suitably certificated lifting beam and chains or a tracked crane with similar beam and chains. The panels to be lifted carefully lowered into the wet concrete of the foundation ensuring that they are correctly placed to line and level and are supported top and bottom by the temporary support system. Once positioning is correct, temporarily weld or similarly fix the panels both top and bottom to the supporting frame. Cut drain holes in the panels just above the foundation and insert pvc drain pipes.

Concrete behind Sheet Pile Wall

Plant	Excavator, concrete batching plant, concrete mixer truck, powered wood working tools, poker vibrator, survey equipment
PPE	Hi-viz clothing, safety boots/waders, eye protection, hard hats, gloves
Personnel	Shuttering joiner, excavator operator, batching plant operator, mixer truck driver, labourer/concreter

Procedure

Fabricate 1.2 m high timber shutters, clean and if necessary scabble surface of foundation.
Erect shutters and check levels
Erect substantial timber shutter supports.
Ensure that drain pipes pass through the shutters
Fill shutters with concrete with suitable additive, vibrate and finish to level
Continue the above procedures extending the foundation, the sheet piling and the first concrete lift behind the wall until the whole extent of the wall has been completed.
Remove shutters from behind wall.

Filling the Area behind the Wall

Plant

360° excavator, dump truck, poker vibrator

PPE

Hi-viz clothing, safety boots/waders, hard hats, eye protection, gloves

Personnel

excavator operator, dump truck driver, labourers

Procedure

Clean all debris from working area.
The baled rubber tyres to be collected from the stock pile and placed firmly and securely on the base of the working area leaving space for the drainage layer of single size crushed stone behind the concrete.
Place geotextile down the face of the baled tyres beside the concrete wall and fill between the concrete and the geotextile with crushed single size stone.
Import gravel and crushed stone and spread over the whole area of baled tyres ensuring that all gaps etc are completely filled, using a poker vibrator if necessary.
Construct layer of gravel/crushed stone over the baled tyres to level to provide a working surface for the next lift of baled tyres.

Raising the Wall/Infill

Continue as above with the timber shutter, the concrete fill and the baled tyres. When the shutter is removed, fill area behind the wall with the raised geotextile and crushed stone drainage layer.
Continue as before positioning the baled tyres and infilling with gravel.
After this lift tie the steel sheet piled wall back to anchor blocks located within the fill.
Continue as above with a third lift of concrete leaving reinforcing bars projecting from the top of the pour to connect with reinforcing mesh in the deck slab.
Continue as before, raising the drainage, the tyres and the gravel and finish the gravel layer to suitable level and falls for the construction of the deck slab.
Remove temporary supports on seaward side of the sheet piled wall and if necessary cut the top off the piles to the correct level.

Concrete Deck Slab

Plant	Concrete batching plant, concrete mixer truck, hydraulic concrete finishing roller, excavator, poker vibrator, survey equipment.
PPE	Hi-viz clothing, hard hats, safety boots, eye protection, gloves, buoyancy aids when appropriate.
Personnel	steel fixer, shuttering joiner, batching plant operator, mixer truck driver, excavator operator, 2 minimum concreters/labourers.
Procedure	Tie reinforcing mesh to reinforcing bars in concrete wall. Set shutters to allow concrete to be poured in alternate panels to correct line and level. Place reinforcing mesh in appropriate panels. At this stage, the batching plant may be moved on to or adjacent to the area to be concreted. Pour, vibrate and finish alternate panels. Repeat with adjacent panels until whole area has been concreted. Erect safety rail at seaward edge of construction and alter existing stone wall beside the road as required. Tidy up site and paint lines for traffic.

Appendix A 04

Risk Asssessment

Location: St Margaret's Hope Pier, Orkney

Operation/Process: Fabrication and erection of temporary supports for sheet piled wall

Equipment Used: Steel cutting and welding equipment
360° tracked excavator
Loadall with man basket
Concrete batching plant
Concrete mixer truck
Lifting frame and chains
Safety boat
Survey equipment

	Yes	No
Can task be eliminated		X
Substances used: are COSHH assessments required	X	

Additive for concrete to prevent cement loss requires COSHH assessment.

Hazards Identified

Risk	Low	Medium	High
Personnel working adjacent to plant		X	
Personnel working at height		X	
Personnel working in tidal conditions	X		
Excavation for foundation and filling with concrete	X		
Positioning and welding into position temporary supports		X	

Exposed persons Those involved in task	Total number 4
Frequency of exposure	1 to 2 hours per day depending on tidal conditions for about 2 weeks in total

Control Measures	Extent to which control measures reduce risk
Appropriate ppe to be worn at all times	Reduces risk of eye injury or cement burns. Reduces risk of drowning if falling into tidal water
Banksman present during all lifting operations	Reduces possibility of heavy objects being moved by crane or excavator contacting anything other than their correct final position

Site to be kept tidy, good housekeeping	Reduces risk of trip, slip or vehicle accident
Cement to be stored and handled in such a way that it is protected from the wind	Reduces risk of eye injury or cement burns
No transportation of materials from storage or batching plant to site while ferry traffic is boarding or leaving the ferry	Reduces risk of accidents at times of high traffic activity adjacent to the site
Safety boats available at all times	Instant response should anyone fall into the harbour
Life belts available	Additional support should anyone fall into the harbour
Tool box talk prior to positioning the supports for the sheet pile panels	Everyone on site to know exactly what they should be doing when positioning and securing the heavy supports
Appropriate ppe to be worn when welding. All site operatives to be made aware that welding is about to take place	Essential for welders to prevent burns, any eye injury. Possibility of temporary blindness reduced for site operatives if they know that welding is about to take place

Additional meaures required

None
Monitoring results

Assessor	Position	Date
[redacted]	Principal Engineer	July 2017

Risk Assessment

Location: St Margaret's Hope Pier, Orkney
Operation/Process: Foundation for sheet piled wall
Equipment used: 360° excavator, concrete batching plant and mixer truck, poker vibrator
Safety boat.

	Yes	No
Can task be eliminated		X
Substances used: are COSHH assessments required Cement and cement additives	X	

Hazards Identified

Risk	Low	Medium	High
Personnel working adjacent to plant		X	
Personnel working with cement/concrete		X	
Personnel working in tidal conditions	X		

Exposed persons Those involved in risk	Total number 4
Frequency of exposure	1 to 2 hours per day Duration depends on tidal conditions About 2 weeks in total

Control measures	Extent to which they control risks
Cement to be bagged and protected from wind when loading the batching plant	Reduces the risk of eye injury and cement burns
Concrete mixing to be halted during periods of high wind	As above
Banksman to control movement of mixer truck on site	Reduces the possibility of vehicle accident near the foundation excavation

Additional measures required:

A skip with tremmie suspended from the excavator may be required when placing the concrete if it is considered that the ground conditions adjacent to the foundation excavation are not sufficiently stable to allow the mixer truck near to the excavation particularly after the excavation has been covered by the tide several times.

Monitoring Results

Assessor	Position	Date
[redacted]	Principal Designer	July 2017

Risk Assessment

Location: St Margaret's Hope Pier
Operation/Process: Erection of sheet piled wall
Equipment used: 360° excavator or crane with lifting bar and chains
welding equipment,
loadall with man basket
safety boat

	Yes	No
Can task be eliminate		X
Substances used: are COSHH assessments required		X

Hazards Identified

Risk	Low	Medium	High
Personnel working adjacent to steel panels being craned into position		X	
Personnel working at height	X		
Personnel working in tidal conditions	X		
Site welding at height		X	

Exposed persons Those involved in risk	Total number 4
Frequency of exposure	1 to 2 hours per day depending on tidal conditions About 2 weeks in total

Control measures	Extent to which they control risks
Operation to be suspended if wind speeds exceed 20 mph	Reduces risk of panels being blown about and possibly causing injury
Steel panels to be welded to steel supports before releasing lifting chains	Reduces possibility of panels moving and causing an accident due to tidal or wind conditions
Banksman to direct lifting operations	Ensures that all those involved in the operation are aware of movement of panels
Tool box talk to be carried out before operation starts	Ensures that all site operatives know exactly what they should be doing during the lifting and placing of the panels

Additional measures required
Excavator may be required to hold the panels against the supports during welding at times of high wind

Monitoring Results

Assessor	Position	Date
[redacted]	Principal Engineer	July 2017

Risk Assessment

Location: St Margaret's Hope Pier
Operation/Process: Construction of concrete wall behind steel piled wall
Equipment used: 360˚ excavator with skip
Concrete batching plant
Concrete mixer truck
Poker vibrator
Timber shutters with suitable joinery tools

	Yes	No
Can task be eliminated		X
Substances used : are COSHH assessments required Cement and cement additives	X	

Hazards Identified

Risk	Low	Medium	High
Personnel working adjacent to plant		X	
Personnel working with cement/concrete		X	
Personnel working in tidal conditions and during final lift working over water	X		

Exposed persons Those involved in risk	Total number 4
Frequency of exposure	1 to 2 hours per day for the first concrete lift 2 to 4 hours per day for the 2nd concrete lift Over 4 hours per day for the third lift All depending on tidal conditions About 6 weeks in total

Control measures	Extent to which they control risks
Cement to be bagged and protected from wind when loading batching plant. Eye protection to be worn	Reduces risk of eye injury and cement burns
Concrete mixing to be halted during periods of high winds	As above
Placing of shuttering panels to be halted during periods of high wind	Reduces risk of an accident should a shuttering panel be blown about during a strong wind

Additional measures required
None

Monitoring results

Assessor	Position	Date
[redacted]	Principal Engineer	July 2017

Risk Assessment

Location: St Margaret's Hope Pier

Operation/Process: Placing baled motor tyres as fill for marshalling area extension

Equipment Used: 360° tracked excavator
Dump truck
Poker vibrator

	Yes	No
Can task be eliminated		X
Substances used: are COSHH assessments required		X

Hazards identified

Risk	Low	Medium	High
Personnel working in vicinity of baled tyres being positioned – risk of being trapped/crushed	X		
Personnel working in tidal conditions	X		

Exposed persons Those involved in risk	Total number 3
Frequency of exposure	1 to 2 hours per day for the first lift of bales 2 to 4 hours per day for the 2nd lift Over 4 hours per day for the 3rd lift Depending on tidal conditions About 8 to 10 weeks in total

Control measures	Extent to which they control risk
Operatives instructed to stand well clear as bales are being loaded on to site and being placed	Reduces risk of operatives being accidentally hit by a moving bale
Crushed Stone to be vibrated into all voids between the bales and covering layers to be substantially tracked by the excavator	Ensures that there is a sound and level working surface prior to placing the subsequent lifts of bales Reduces the possibility of slips, trips or vehicles driving on unstable ground

Additional measures required

None

Monitoring Results

Assesssor	Position	Date
[redacted]	Principal Engineer	July 2017

Risk Assessment
Location: St Margaret's Hope Pier
Operation/Process: Construct reinforced concrete deck slab
Equipment used: Concrete batching plant
Concrete mixer truck
Poker vibrator
Hydraulic concrete roller/finisher
Joinery saws and tools for shutters
Steel cutting tools for reinforcement

	Yes	No
Can task be eliminated		X
Substances used: are COSHH assessments required Cement	X	

Hazards Identified

Risk	Low	Medium	High
Personnel batching and working with concrete		X	
Personnel working over water	X		
Personnel working at height	X		
Cutting reinforcing steel and placing	X		
Trip hazards due to shutters being laid out as panels for casting as alternative panels of concrete decking	X		

Exposed persons Those involved in risk	Total number 4
Frequency of exposure	All of working day for about 6 weeks

Control measures	Extent to which they control the risk
Cement for concrete batching to be bagged and protected from wind when loading the batching plant Eye protection to be worn	Reduces risk of eye injury or cement burns
Concrete batching to be suspended during periods of high wind	As above
Operatives to wear buoyancy aids when working at the edge of the structure	Reduces possibility of drowning should operatives fall into the sea
Safety boat available	As above
Operatives to be trained in operation of the hydraulic concrete finisher	Reduces risk of accident if operative is untrained

Additional measures required
None

Monitoring Results

Assessor	Position	Date
[redacted]	Principal Engineer	July 2017

Appendix A 05

Pre-Construction Information Documents

Ecological Survey Report dated 28th April 2016
Schedule to Licence no 05972/17/10 dated 08/3/2017 issued by Marine Scotland (enclosed)
Method Statement which formed appendix to paragraph 7 of the application to Marine Scotland (enclosed)

Appendix A 06

Drawing Schedule
Drawings nos SMH 301A
SMH 303

Appendix to Paragraph 7

Method Statement

The sheet piles for the retaining wall are already welded into panels and consequently cannot be driven. The panels will require to be set into the wet concrete foundation.

Using a 35 tonne tracked excavator remove all silt, sand etc from beach area from existing sea wall to location of foundation and stock pile on site for later use.

Excavate for foundation and stock pile excavated material on site for later use.

Place concrete blocks at intervals in the foundation excavation to ensure that the sheet pile panels do not reach the bottom of the foundation thus cutting it into two halves.

Allowing for 3 deliveries of ready-mix concrete per day, i.e. about 20 m^3, this will be sufficient for a 10 m length of foundation. Erect temporary support for sheet pile panels and place panels in foundation excavation.

Cast concrete with an additive which prevents cement loss for underwater concrete into foundation excavation.

Once concrete has set, burn holes at 6 m intervals in piling at foundation level and fix cuttings of pvc pipe for drainage.

Maintaining a support for the piles now in position, continue with setting the next 10 m length of panels as above.

Continue as above until all panels are in position.

Erect shutter behind panels and cast concrete wall 600 mm thick approximately 1500 mm high and position reinforcing bar.

Place first layer of compressed tyres over whole area and fill voids with sand/silt etc.

Place clean crushed stone as drainage layer between concrete wall and tyres and spread 100 mm thick layer of clean crushed stone as drainage layer on top of tyres/sand etc.

Place or cast in situ concrete anchor blocks and fit steel tie bars.

Continue with next layer of compressed tyres and fill voids with sand/silt/scalpings.

Raise drainage layer behind concrete wall up to top of fill level and cover fill with a further drainage layer.

Erect shutter and construct concrete wall to full height.

Temporary support for sheet piles may now be removed.

Continue fill up to final level.

Cut tops of piles to line and level.

Use infilled area on a temporary basis possibly for over a year to allow all settlement to take place.

Erect batching plant for site batched concrete.

Set reinforcing mesh in position and cast concrete deck slab in alternate panels with 25 mm dowel bars linking panels.

Erect final handrail.

The above would indicate that each activity will be completed before the next starts. In practice, the construction of the concrete wall will probably start when placing of the panels is about 10 m ahead and the placing of fill and drainage material will start as soon as the shutters for the concrete wall have been struck.

Appendix to Paragraph 8

Steel

Sheet piles	25.5 tonnes
Steel channels	3.75 tonnes
Steel tie rods	1.77 tonnes
Nuts & washers for tie rods	90 kg
Nuts, bolts etc for piles	250 kg
	31.4 tonnes
Steel reinforcement in wall	0.8 tonnes
Steel reinforcement in deck slab	9 tonnes
Handrail	0.3 tonnes
	10.1 tonnes
Total steel	41.5 tonnes
Compressed rubber tyres	1150 tonnes

Concrete

Foundation	126 m^3
Wall	90 m^3
Anchor blocks	6 m^3
Deck slab	300 m^3
Total concrete	522m^3

Fill material

Clean gravel drainage layers 50mm single size	360 m^3
Scalpings, 50 mm to dust	540 m^3
	900 m^3
Silt/sand	360m^3
Cuttings of 150 mm pvc pipe	12 m

Appendix A 07

Responsibilities for Health & Safety – Pentland Ferries

Mr Andrew Banks, Managing Director

Appendix A 08

Introduction to Safe Systems of Work SSOW

Knowledge, skills, competence, attitude
Principles of work control and how work is controlled within the SSOW system

Main legal requirements:
PPE Personal protection equipment
COSHH Control of substances hazardous to health
PUWER Possession and use of work equipment regulations
LOLER Lifting operations and lifting equipment regulations
Health & Safety at Work Act 1974 – primary legislation
Health & Safety Guidance 250 – guidance document – good practice
Manual Handling Regulations
Working at height
Use of electrical equipment
Noise
Use of hazardous substances
Use of work equipment

Appendix A 09

Site Safety Induction Information and Confirmation

Appendix A 09

Induction Confirmation

Site: St Margaret's Hope Pier, Orkney

Person giving induction:

Date of induction:

The following items have been explained to the inductee:

- The Company's policy for health, safety and welfare.
- Allocation of safety responsibilities.
- Site specific rules.
- Safe systems of work, where applicable.
- General hazards in and around their work area.
- Specific hazards allied to their work area including the detail of the risk assessment and noise implications of that task.
- Fire and emergency procedures (including the location and use of extinguishers).
- First aid – names and locations of appointed persons/first aiders, introduction to them, position of first aid boxes and rules for their use.
- Use, availability and storage of protective clothing and equipment.
- Procedures for reporting accidents, injuries and property damage.
- Welfare – location of messing facility, toilets and other welfare matters.
- The importance of hygiene and health.

I have received the site safety induction and understand the safety requirements and obligations placed upon me.

Signed by.....(having received safety induction)

Print name.....

Company.....

This form is to be held in the site records.

Appendix A 09

Induction Confirmation

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- The importance of hygiene and health.

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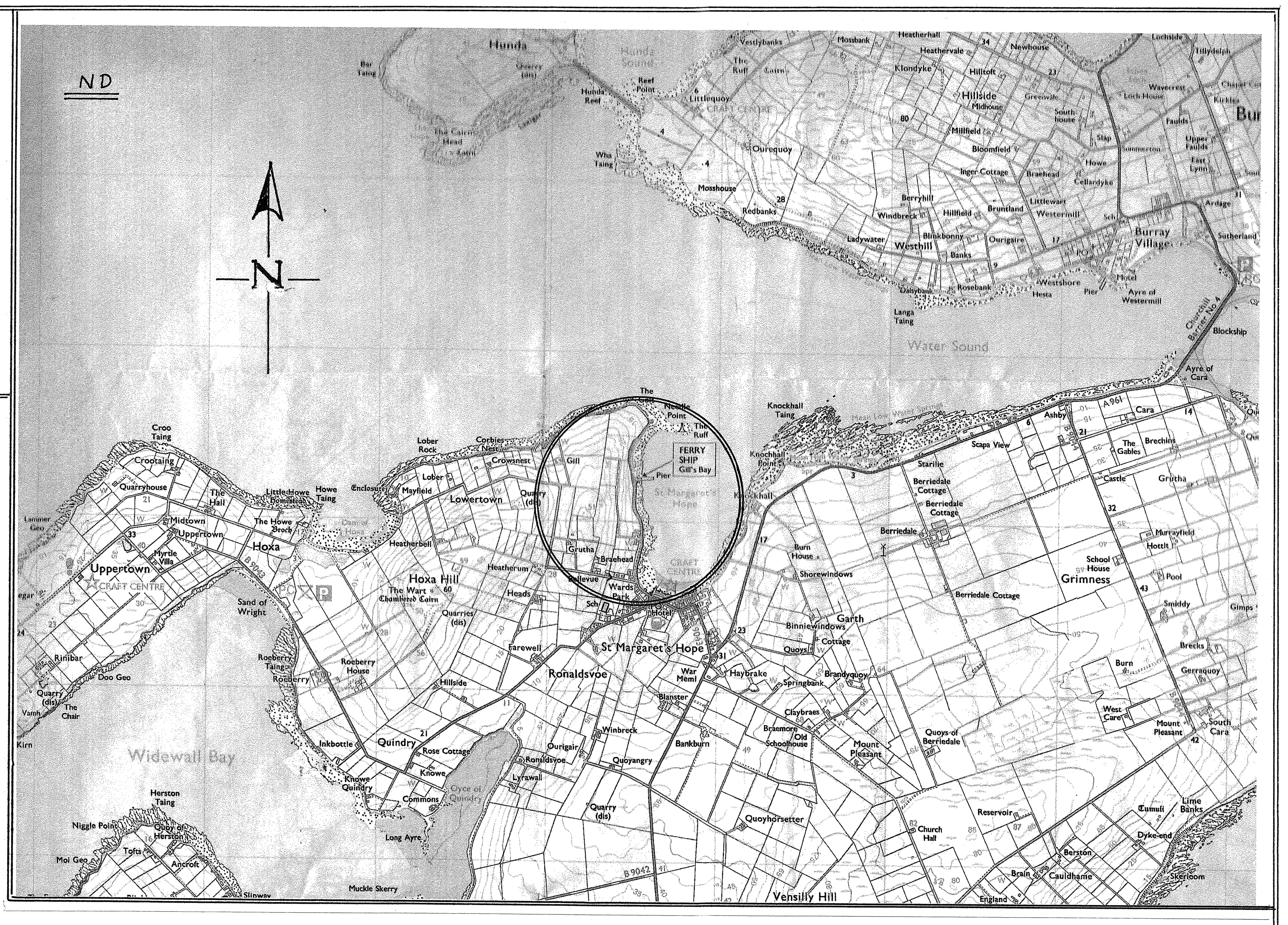
Print name.....

Company.....

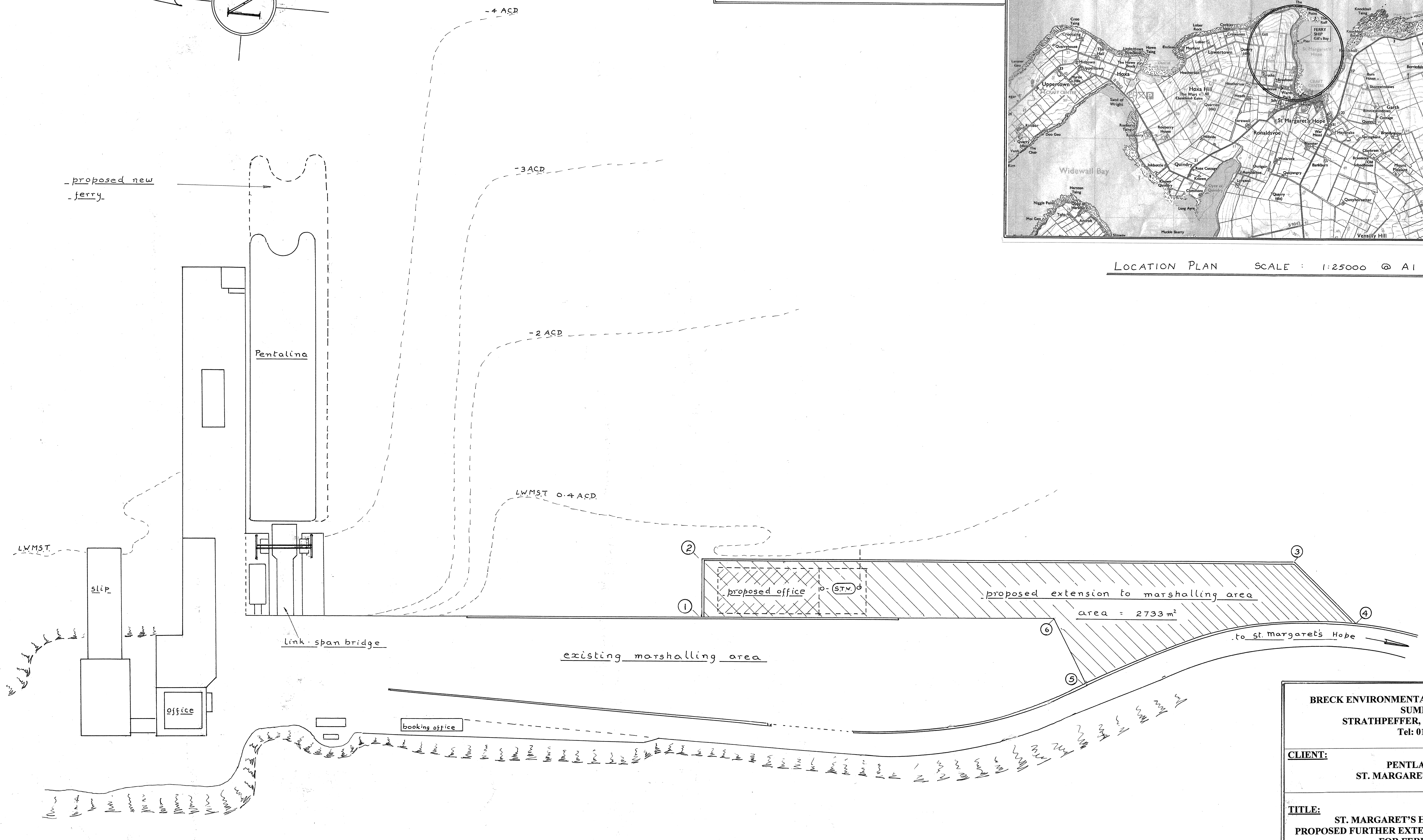
This form is to be held in the site records.

co-ordinates of points (1) - (6)

Point		Latitude	Longitude
(1)	N	58° 49·864′	W 2° 57·731′
(2)	N	58° 49·864′	W 2° 57·716′
(3)	N	58° 49·786′	W 2° 57·731′
(4)	N	58° 49·776′	W 2° 57·731′
(5)	N	58° 49·810′	W 2° 57·746′
(6)	N	58° 49·816′	W 2° 57·736′



LOCATION PLAN   SCALE : 1:25000 @ A1



BRECK ENVIRONMENTAL CONSULTANCY SERVICES
SUMMERHILL
STRATHPEFFER, ROSS-SHIRE. IV14 9AZ
Tel: 01997 420111

CLIENT:
PENTLAND FERRIES
ST. MARGARET'S HOPE, ORKNEY

TITLE:
ST. MARGARET'S HOPE FERRY TERMINAL
PROPOSED FURTHER EXTENSION TO MARSHALLING AREA FOR FERRY TERMINAL.
GENERAL LAYOUT and LOCATION PLAN

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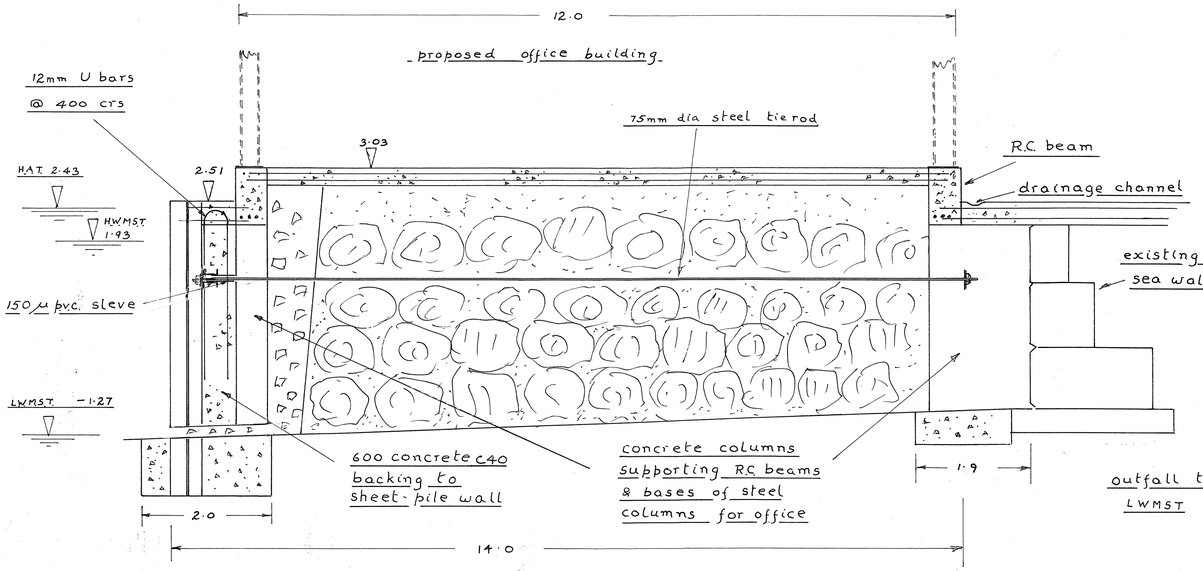
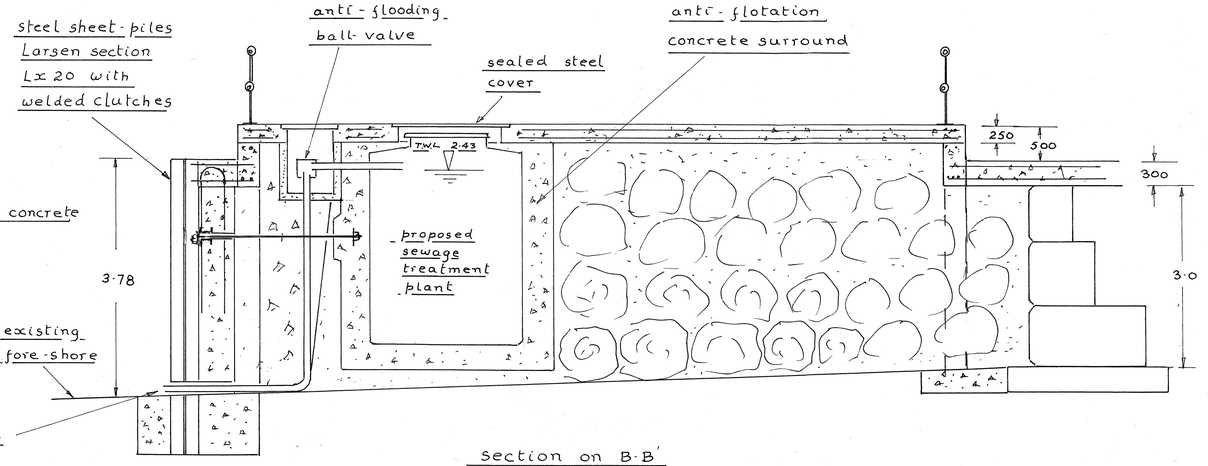
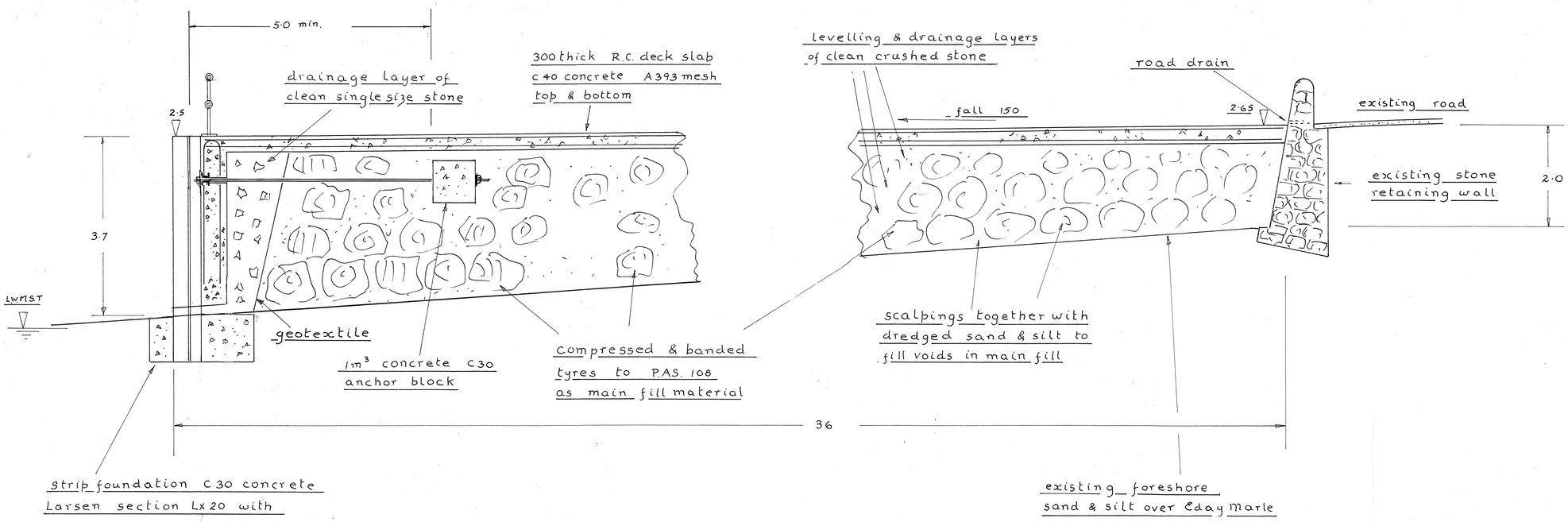


Section on A-A'



Section on B-B'

NOTE : all levels to Ordnance Datum (Newlyn)



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STRATHPEFFER, ROSS-SHIRE. IV14 9AZ
Tel: 01997 420111

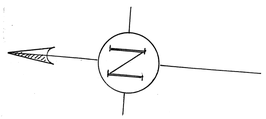
CLIENT:
PENTLAND FERRIES
ST. MARGARET'S HOPE, ORKNEY

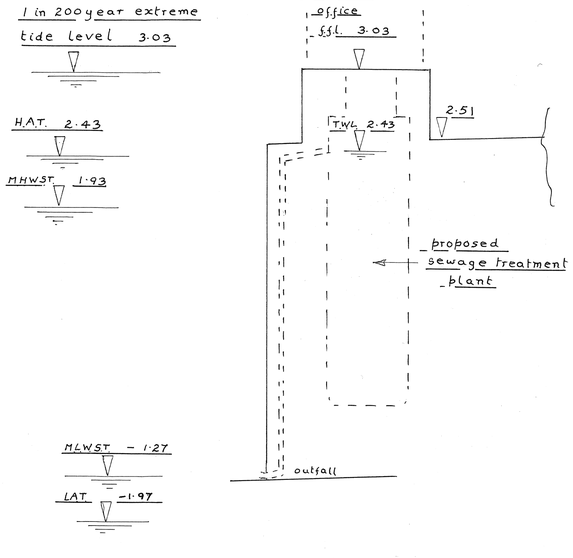
TITLE:
ST. MARGARET'S HOPE FERRY TERMINAL
PROPOSED FURTHER EXTENSION TO MARSHALLING AREA FOR FERRY TERMINAL.
SECTIONS

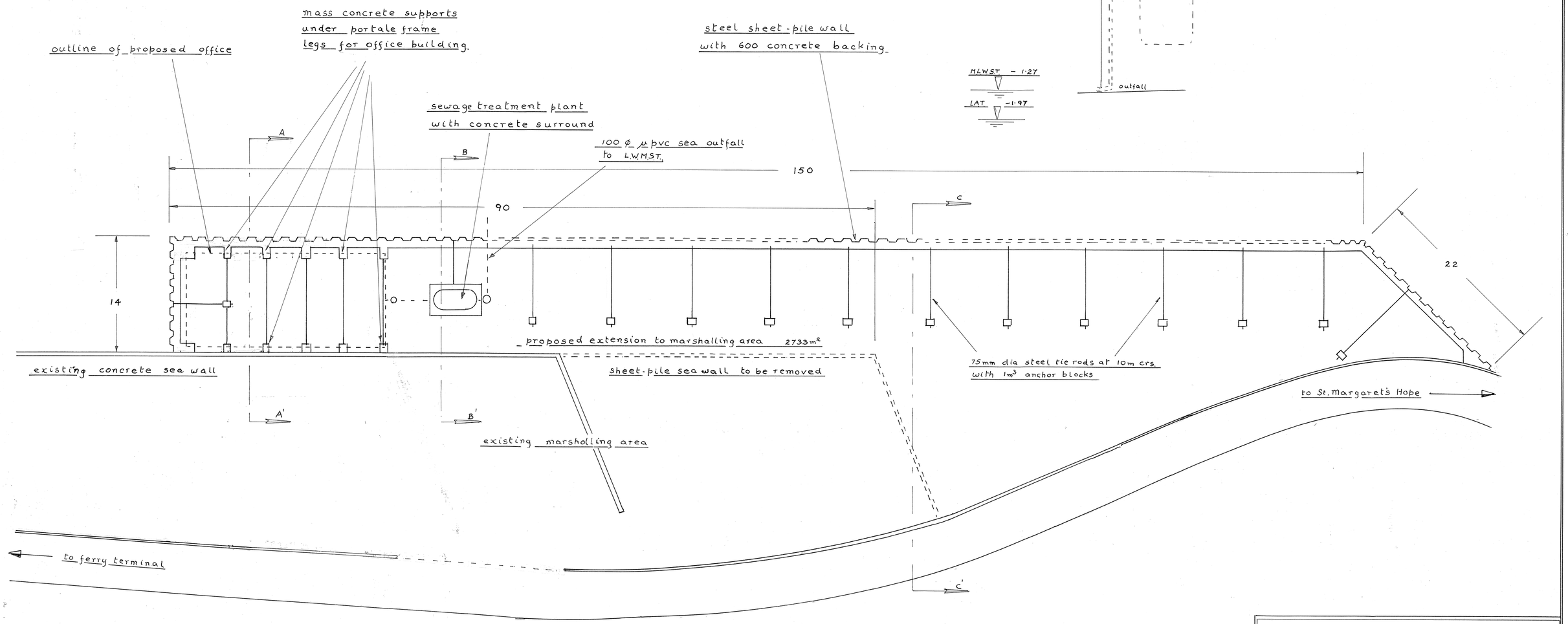
SCALE	DRAWN BY	DRAWING NO.
1:50 at A1	[redacted]	SMH 313
	DATE: FEBRUARY 2018	

Diagram showing appropriate tide levels. Not to scale

Tide levels shown to Ordnance Datum (Newlyn)







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SUMMERHILL
STRATHPEFFER, ROSS-SHIRE. IV14 9AZ
Tel: 01997 420111

CLIENT:
PENTLAND FERRIES
ST. MARGARET'S HOPE, ORKNEY

TITLE:
ST. MARGARET'S HOPE FERRY TERMINAL
PROPOSED FURTHER EXTENSION TO MARSHALLING AREA
FOR FERRY TERMINAL
DETAILED LAYOUT

SCALE	DRAWN BY	DRAWING NO.
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	DATE: FEBRUARY 2018	