

Work Package Plan

(Risk Assessments and Method Statement)

Title	Geotechnics RAMS
Project Name	<u>Menai PS</u>
Reference No	TBC
Revision Ref.	DRAFT

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WORK PACKAGE DETAILS				
Project Name:	Menai PS			
Project Number:	TBC			
Principal Contractor:	Eric Wright Water			
Responsible Contractor:	Eric Wright Water			
Programme Dates: (Subject to weather)	Start:	TBC	Finish:	TBC

DOCUMENT APPROVAL		
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Approved By: (If applicable)	Name:	
	Title:	
	Signed:	
	Date:	

REVISION STATUS DETAILS		
Revision No	Date	Description
DRAFT	03/08/23	

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PROJECT LEAD ACCEPTANCE

The following members of the Project Management Team have been fully briefed in the content of this document, in order to execute their respective roles and responsibilities in delivery of this Work Package Plan in a safe manner.

Job Title	Name (Print)	Signature	Date
Project Manager	TBC		
Site Supervisor	TBC		
Driller Operator	TBC		
UXO Engineer	TBC		

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A WORK PACKAGE DETAILS

A.1 Description and Sequence of Work

Summary

The proposed scheme is required to inform works on additional assets at Menai pumping station.

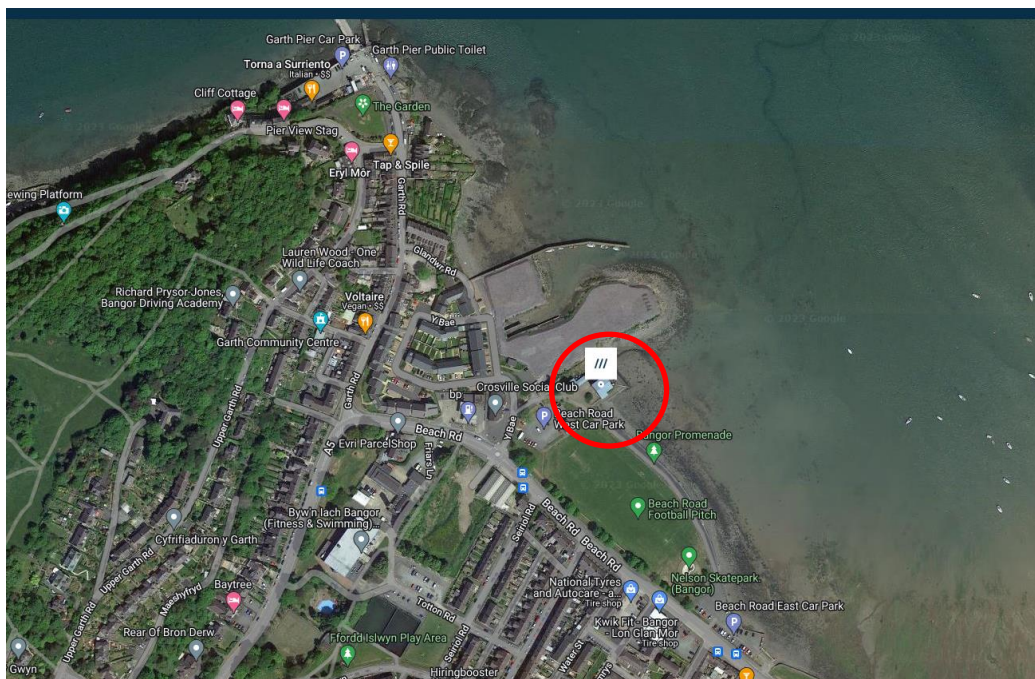
- To undertake a ground investigation adjacent to the existing pumping station location on the foreshore
- Access for drilling rigs & equipment is deemed to be drive-on with access and any enabling works to be arranged by Eric Wright Water

Scope of Works

- EWW supervising engineer to issue permit to dig prior to commencement of the works.
- 1 No. Cable Percussive borehole to 10.0m
- Assumed Unexploded Ordnance (UXO) watching brief.

The study area is adjacent to Menai pumping station Beach Rd, Bangor LL57 1AT

Figure 1: Site layout Plan



A.2 Control of Risks

Risk Assessment

Below is the risk assessment produced by Geotechnics for the proposed ground investigation works. All personnel involved in the operation will participate in a tool box talk and sign off the associated work sheet. This will be completed before undertaking the tasks.

All health and safety incidents will be reported to the Health and Safety officer at Geotechnics (Mike Coates) within 30 minutes of incident occurring. All accidents shall be reported on the Geotechnics Accident Report forms.

Risk assessments are a statutory requirement under the Management of Health & Safety at Work Regulations 1999.

A copy of the Risk Assessment is available to all persons who could be affected.

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HSE Risks & Control Measures

The risks are assessed using the following scoring system.

Risk (R) = Likelihood x Severity			Likelihood (L)	Severity (S)				
				Negligible=1	Minor=2	Absence=3	Major=4	Fatal=5
1 to 6	Low	Ensure control measures are maintained.	Remote=1	1	2	3	4	5
8 to 10	Medium	Unacceptable risk - implement control measures	Unlikely=2	2	4	6	8	10
12 to 25	High	Unacceptable risk - Specialist knowledge required to implement control measures	Possible=3	3	6	9	12	15
NOTE: The following PPE is mandatory and shall be worn at all times: High Visibility Waist-Coat or Jacket, Safety Helmet, Safety Glasses, Gloves and Safety Boots or Safety Wellingtons			Probable=4	4	8	12	16	20
			Certain=5	5	10	15	20	25

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The following table lists the risks (health, safety and environmental) for the activities in the method statement:

Activity	Hazard	Persons who might be harmed	Initial Risk			Control Measures	Residual Risk		
			L	S	R		L	S	R
Drilling through contaminated land	Exposure risk to hazardous substances	Employees Sub-Contractors General Public	3	3	9	- Reference should be made to Geotechnics Limited Guidance Information Sheets 01, 02 or 03 depending on the BDA (British Drilling Association) site categorisation. - In the event that the site is classified as 'Red', a specific Risk Assessment and procedures shall be required prior to commencing any work on site.	2	3	6
Breaking ground	Buried Services	Employees Sub-Contractors	3	5	15	- A check for buried services must be made prior to commencing hole. Checks comprise visual inspection for scars within hardstanding surfaces, marker posts, signal boxes, manhole cover, service boxes, etc. Service plans shall also be consulted. - Reference must be made to SWP 08-Underground Services and SWP 09-Use of Cable Avoidance Tool and Signal Generator. - All personnel using Cable Avoidance Tools and Signal Generators must be trained and competent. - A Permit to dig / drill shall be issued prior to breaking ground and excavating to a minimum depth of 1.2 metres unless otherwise stated by the Client.	1	5	5
Manoeuvring rig on beach front	Collision with pedestrians	Employees Sub-Contractors General Public	3	5	15	- Site works to take place between specified times to reduce interaction with general public - Site supervisor to plan route to borehole position and ensure route is clear of pedestrians and ground is even and firm. - Secure fencing to be set up around drilling rig for duration of work and site supervisor to ward off general public from the rig. - Appropriate warning signage to be deployed	1	5	5

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Towing rig on beach front	Getting cut off by tide	Employees Sub-Contractors General Public	3	5	15	- Prior to operations, consult the daily tide timetable and inform all site personnel of high and low tide times. Determine a cut off time to cease works if tide is expected to affect working areas or access routes before the working window finishes. - All access routes to be walked prior to mobilisation to ensure firm and even ground for rig and inform the Lead Driller of proposed access route 'Balloon' tyres with low ground bearing pressure shall be fitted to the rig	1	5	15
Operating rig on beach front	Breakdown	Employees Sub-Contractors	3	5	15	- Low ground bearing pressure tyres are to be fitted to the rig to be used to reduce likelihood of rig becoming stuck. - Full mechanical check to be carried out on rig prior to site works beginning. - Lead Driller to be equipped with full set of tools for rig in the event of a simple mechanical breakdown. - External local fitter to be sourced and put on standby for duration of works in case of a more serious mechanical breakdown.	1	5	15
Operating rig on beach front	Shift work & incoming tides	Employees Sub-Contractors	3	5	15	- The working window of each shift will be determined by the tide times & extent of high tide (ie whether high tide will encroach on working area) - If high tide extends into a designated safety zone (to be determined by EWW) a shift cut-off time will be determined. - If the borehole has not reached the proposed termination depth by the cut-off time, the borehole casing will be capped and the rig will be dropped and demobilised via the designated access routes. - The rig will then be remobilised to the location at the next working window (according to tide times) and the borehole continued.			
Set up and operation of cable percussion drill rigs	Stability of drill rig during operation	Sub Contractors	3	5	15	- Ensure that only operators with the necessary skills, knowledge, training and experience operate cable percussion drill rigs and any supporting plant (eg tracked dumper if required). - Ensure that the stay bars are connected and secured with bolts or retaining pins at all times once the rig has been erected. - Ensure that the footprint of the rig is in firm, three point contact with the ground surface before commencing operation. - Throughout the drilling operations periodically check the stability of the rig, if required stop work and adjust to level.	1	5	5

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Transporting on site and Setting up / bringing down the rig.	Entrapment with overturning cable percussion drill rig due to uneven ground, slopes, collapse during transportation, erection and striking down.	Sub Contractors	3	5	15	- Determine the route prior to travelling to the borehole location(s), select the most appropriate routes to avoid obvious soft spots and minimise avoidable damage; If drilling is required on slopes, benching or scaffold platforms may be required. - Consideration should also be given to the additional weight that may be generated by the drilling operation i.e.. the pull down forces used to extract casing and the overall stability of the rig whilst moving. - Care should be taken whilst travelling the route maintaining vigilance for trip / slip hazards and other moving vehicles or machinery. - The rig should be set up and operated in accordance with SWP 01 – Cable Percussion Boring. Additional timbers maybe required to enable the levelling of the rig. All drilling equipment should be compliant with current LOLER and PUWER legislation and be accompanied by in date certificates. - Equipment must be inspected before commencement of works to check for any defects or potential failure. Any equipment found to be unserviceable must be reported, destroyed/withdrawn and replaced if required.	1	5	5
Operation of cable percussion drill rigs	Contact or entrapment with moving parts	Sub Contractors	3	4	12	- Maintain safe distance from the tool whilst in operation. - Ensure people not involved in the drilling operations remain outside of the danger zone. If required erect Heras fencing to form secure work area around the drill rig. - The winch guard must be in place whilst the rig is in operation. - In the event of an emergency during operation the controls must be released, the brake applied and the engine stopped. Activate emergency stop or switch off ignition. - Soft ground may lead to shifting of the rods/casing. Fully assess hazards prior to taking remedial action. - Do not allow hands to enter danger areas. - Ensure that the key is removed at all times when the drill rig is left unattended. - Do not work beneath suspended overhead tools. Always lower tools to ground level before conducting other operations below the crown wheel.	1	4	4
Operation of cable percussion drill rigs	Noise	Employees Sub Contractors General Public	4	3	12	- Cable percussion drilling equipment can exceed the upper action level of 85 dB which requires hearing protection to be worn as mandatory. - In order to minimise noise exposure, adequate hearing protection shall be readily available and worn as required. - The lead driller should monitor the noise levels from the rig and shall wear, and instruct the second man to wear, hearing protection as required. - Ear protection MUST be worn at all times during SPT testing works.	2	3	6

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						• Area of cordon to be set up around the work area to prevent access by unauthorised people.			
Operation of cable percussion drill rigs	Vibration	Sub Contractors	4	3	12	• It is not envisaged that any vibration generated by the drilling operation will exceed the permitted exposure level.	2	3	6
Operation of cable percussion drill rigs	Exhaust Fumes	Employees Sub Contractors	4	3	12	• Consideration should be given to the direction of the prevailing wind during the set up of the rig. • Where possible, the rig should be set up so as to allow the fumes being emitted from the exhaust to blow downwind from the driller. In the event that wind direction changes, or it is not possible to position the rig appropriately, the driller should try to take steps to minimise the fumes from being emitted into the breathing zone of the drilling crew. • Regular maintenance should minimise the degree of the fumes being emitted.	2	3	6
Operation of cable percussion drill rigs	Fire	Employees Sub Contractors	2	5	10	• Keep combustible materials clear from sources of heat (engine & exhaust) and utilise drip trays as required. • Foam, Dry Powder or Co2 fire extinguishers to be available on site. Fire extinguishers to be serviced and maintained in good working order. • The drill site to be kept clear of combustible materials that could assist fire in spreading. • Smoking is prohibited at the work site.	1	5	5
Operation of cable percussion drill rigs	Flying particles / dust	Employees Sub Contractors General Public	3	3	9	• In the event that excessive dust is generated, this should be dampened down with water. • Safety goggles and dust masks should be readily available and worn as required. • Readily available clean water or eyewash should be provided. • Any dust or debris should be kept to a minimum where practicable. The lead driller to continually monitor for any changes.	1	3	3

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Housekeeping	Slips, trips and falls	Employees Sub Contractors	4	3	12	- The run out route should be monitored if location is on soft ground as conditions will deteriorate with repeated trafficking of the same route. - Borehole location to be kept clear of debris. - Borehole location to be laid out in an orderly manner to minimise contact with ancillary equipment and consumables. - Work should be carried out in accordance to SWP - 12 Housekeeping. Rod trestles to be placed to allow for passage around the work site, trestles to be levelled such that rods do not roll and apply uneven load to one side. - The lead driller and second man to continually monitor for any changes to underfoot conditions. Where conditions deteriorate additional measures such as bog matting or ground protection boards may be required.	2	3	6
Accessing cable percussion rig components at the summit of the cable percussion drill rig	Working at Height	Sub Contractors	3	5	15	- Prior to any drilling works being carried out, the drilling equipment and drilling crew are to be checked to have suitable arrangements to prevent the need to work at height, as per AGS guidance. - The rig should be fitted with an ancillary winch which allows the machine to be lowered without the need for persons to climb the mast. - If for any reason the mast needs to be lowered or raised using the electric winch, the driller must check the condition of the drum, steel wire rope and rope guide to mitigate any chance of snagging or any issues with defects. - The Site Supervisor is to ensure all necessary checks of equipment have been made.	1	5	5
Removal of detached or stuck tooling in the bore hole	Impact with tooling	Sub Contractors	3	4	12	- Reference should be made to SWP 01A – Cable Percussion - Retrieval of detached or stuck tooling. - The retrieval of tooling should only be carried out in accordance with SWP 01A unless an alternate method is discussed and agreed with the Regional Office Manager or Health and Safety Manager.	1	4	4
Moving of drilling ancillary equipment	Manual Handling	Sub Contractors	4	3	12	- All Manual handling activities should be carried out safely and with reference to SWP 15 – Manual Handling and Lifting. - The drill site to be well organised with ancillary equipment set up in an orderly manner. - Drilling and SPT rods should be laid down and not left stood upright. The hammer and anvil is usually stood up and leant against the rig frame. (The potential risk of the hammer falling is outweighed by the more likely manual handling injury when picking up or laying down.) - Hands kept clear of all 'nipping or trapping' points on tooling when moving it.	2	3	6

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						Care and attention should be continually restated so as to continue to work safely and cautiously. • In the event that additional help is required, this should be sought as opposed to taking risks. • Where possible, mechanical handling aids / assistance should be used at all times when undertaking manual handling activities.			
Maintenance of cable percussion drill rigs	Failure of cable percussion rig components	Sub Contractors	3	4	12	• All plant and machinery must be in serviceable condition and checked to be so before commencing works. • All equipment must be accompanied by relevant LOLER and PUWER certification on site, which must reference any serial numbers and identifying numbers. • Daily checks must be carried out on all equipment and recorded, and the equipment must be monitored throughout the shift. If any faults are identified on site which cannot be rectified immediately, the machinery must not be used until equipment is repaired or replaced. • The Site Supervisor is to ensure equipment has relevant LOLER and PUWER certification prior to work commencing on site and ensure that daily check lists are completed prior to each shift. Checks lists are to be maintained for the duration of the project.	1	4	4
Driving company vehicles	Competency of driver	Employees	4	5	20	• Vehicles are operated in accordance with Geotechnics Ltd schedule 2 Driver Policy. • Drivers must hold a valid driving licence for the classes appropriate to the vehicle being driven. • Annual DVLA checks will be made of all driving licences. • Drivers are required to declare any endorsements or points incurred. • Drivers are required to declare any medical condition that may affect their ability to operate a company vehicle. • Drivers are require to operate vehicles in line with the Highway Code, The Road Traffic Act and other relevant legislation. • It is illegal to use a hand-held mobile phone while driving and it is also an offence to 'cause or permit' a driver to use a hand-held mobile phone while driving. Using hands-free equipment may also distract your attention from the road. It is recommended that the vehicle is stationary with the engine switched off and parked safely when using mobile phones.	1	5	5

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Activity	Hazard	Persons who might be harmed	L	S	R	Control Measures	L	S	R
Handling Fencing	Heavy loads	Sub-Contractors, Employees	3	4	12	• All persons involved in manual lifting of loads will be 'Manual Handling Awareness' trained. • Manual movements of individual fences around the work location can be undertaken by one person. • Movements of multiple quantities of fencing shall be achieved by loading and transporting the fencing between locations using the CPT rig. • All manual lifting of loads will be carried out following the kinetic lifting method: • Keep the load close to the waist • Adopt a stable position • Ensure a good hold on the load • Moderate flexion of the back, hips and knees at the start of the lift • Don't flex the back any further while lifting • Avoid twisting the back or leaning sideways	2	3	6
Handling Fencing	Slips, trips and falls	Employees Sub Contractors	3	4	12	• Maintain good levels of housekeeping around the work location. Site Supervisor to monitor this on a daily basis.	1	4	4

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A.3 Resources

A.3.1 Personnel

Title	Specific Requirements
Site Supervisor	CSCS, SSSTS, First Aid at Work
Rig Operator	CSCS

A.3.2 Plant and Equipment

Item	Specific Requirements
Cable Percussive Drilling Rig	Inflation tyres, spill kits provided, pre-start mechanical check, provision of relevant tools for rig breakdown, local fitter arranged to be on standby.

A.3.3 Summary of Equipment & Tasks

Number	Equipment Required	Certification?	Who inspects?
1.	Cable Percussive rig	Yes	

Number	Procedures	Who performs?	Who supervises?
1.	RAMS	Site Supervisor	Geotechnics
Number	Environmental Precautions	Responsible person	Supervisor
1.	Avoid loss of items of equipment to the sea	All personnel	Geotechnics
2.	Avoid spillage of fuel, hydraulic fluid etc.	All personnel	Geotechnics

A.3.4 PPE requirements

Each person must have the following Personal Protective Equipment (PPE). Check your equipment before leaving the warehouse. Ensure that all lifejackets are in date and you are satisfied that they have been tested.

Number	PPE	Issued in standard kit?
1.	Hi-visibility vest or jacket	Y
2.	Protective helmet	Y
3.	Steel toe capped boots	Y
4.	Gloves	Y
5.	Light Eye Protection	Y

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Supervision required

Geotechnics will supervise at all times.

Site Mandatory PPE shall be worn at all times.

A.4 Safety Documents and Permits

Safe System of Work/ Procedure	Safety Document/Permit	Issued by	Additional Information
Point of Work Risk Assessment		Geotechnics	
Permit to Dig		EWV	
UXO Clearance		UXO	UXO engineer as required

A.5 Inspection and Test

Operation	Inspection/Test	Responsibility	Document Reference

B **SITE DETAILS**

B.1 **Access**

- Access is to be confirmed by EWW who will also organise any enabling works for access to the borehole location

B.2 **Site Layout**



B.3 **Plant and Machinery Movements**

The drilling rig is to be operated by trained and competent personnel ONLY.

The site supervisor shall act as plant marshal during the movement of plant between test locations and access from Beach Rd. The marshal will ensure members of the public keep a safe distance from the rig at all times, and to limit the effect on public traffic when travelling along the promenade.

B.4 **Site Sensitivity**

The site is within the vicinity of numerous residential properties adjacent to the promenade. As such, there is an apparent necessity for a degree of sensitivity to be respected during site operations and mobilisations/demobilisations. It must be ensured that noise and nuisance (e.g. from vehicular movements) are kept to an absolute minimum.

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B.5 Communication and Contact Details

Name	Company	Title	Contact Details

Should any members of the public require further information or have any complaint they should be direct to the EWW POC.

B.6 Fire

The arrangements in relation to fire are as follows:

Means of raising the alarm: Shout "Fire Fire".

Following this all operatives will cease work, make the working area safe and proceed to the fire assembly point.

The site supervisor will be responsible for raising the alarm with other land users at the site.

Means of fighting a fire: The Site Supervisor shall ensure that appropriate types and numbers of fire extinguishers are provided and located near to the drilling rig.

Only trained and competent personnel shall use a fire extinguisher, and shall only do so if their immediate safety or exit route is not compromised.

In the event that the Fire Emergency Services are required, these will be contacted by either the Site Supervisor or Lead Driller.

Fire Assembly point: The location of the fire assembly point shall be highlighted at the site induction.

B.7 First Aid

The Site Supervisor shall ensure that an appropriate First Aid kit provision is available for use and kept in the van. In the event that additional first aid treatment or facility is required, the Site Supervisor shall ensure that the Emergency Services are called, or the casualty is transported to the nearest Accident and Emergency Unit as detailed below.

The first aid trained person(s) on site shall be advised to all personnel working on site at the site induction.

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B.8 Emergency Arrangements

Glan Clwyd Hospital
Rhuddlan Road, Bodelwyddan, Rhyl, Denbighshire
LL18 5UJ
Tel: 01745 583910
Type of Hospital: Major acute - Major A&E - Open 24 hours

<http://www.wales.nhs.uk/sitesplus/861/page/41577>

Emergency procedures

In the event of a rig breakdown whilst on the beach front, the rig operator shall attempt to resolve the issue using the tools at his/her disposal. Simultaneously an external local fitter shall be immediately contacted and shall travel to site to help resolve the issue. Personnel shall monitor the position of the tide and abide by the predetermined cut off time to evacuate the beach front.

Should the rig be fixed to the extent that it is mobile again, it shall be immediately transported off the beach front to the designated compound area in order to undergo a full mechanical check from the fitter.

Should the fitter/operator be unable to fix the breakdown, personnel shall abandon the rig in order to ensure they are able to evacuate the beach front by the predetermined cut-off time in order to avoid being affected by the tide.

Full list of emergency contact numbers can be found in the project folder.

B.9 Interfaces

Interaction with the public in the vicinity of the promenade and beach is possible. Should any member of the public need any further information then they will be directed to the EWW point of contact.

B.10 Welfare

Welfare facilities shall be located on site and shall comprise of a welfare van to be parked at an agreed location.

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B.11 Beach Works

The shift duration for the works will be determined by the tide times

Prior to the works the tidal window shall be consulted and a predetermined point of the tide shall be agreed upon as the point at which operations shall cease and plant/equipment to be mobilised off the beach and back to the promenade compound.

In the event of a rig breakdown whilst on the beach front, the rig operator shall attempt to resolve the issue using the tools at his/her disposal. Simultaneously an external local fitter shall be immediately contacted and shall travel to site to help resolve the issue. Personnel shall monitor the position of the tide and abide by the predetermined cut off time to evacuate the beach front.

Should the rig be fixed to the extent that it is mobile again, it shall be immediately transported off the beach front to the designated compound area in order to undergo a full mechanical check from the fitter.

Should the fitter/operator be unable to fix the breakdown, personnel shall abandon the rig in order to ensure they are able to evacuate the beach front by the predetermined cut-off time in order to avoid being affected by the tide.

The beach and borehole location will be accessed from a point to be confirmed by EWW

A perimeter of fencing is to be set up around the rig during testing in order to keep the general public a safe distance from the plant. During transport of the rig to/from the borehole location the site supervisor shall act as marshal to ensure that members of the public keep a safe distance from the rig at all times.

C Briefing

C.1 Briefing Arrangements

A daily Briefing (DAB) will be undertaken prior to each day's work using this document for guidance. The risks associated with each task are detailed in Section A2 of this document. The daily activity briefing will also discuss the tidal activities and weather concerns during the beach works.

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C.2 Work Instructions

WI Reference	Title

D MONITORING

D.1 Monitoring of Work Package Plan

The work activity shall be monitored during operation for any deviation to this Work Package Plan and records of these checks noted in the table below.		
Checked By	Date Checked	Deviation From Work Package Plan (Yes /No)
If Yes, any deviations to the method of work described shall be detailed in the table below, identifying the operation numbers affected. The Project Lead shall be made aware of any changes to the Work Package Plan and shall review the associated Task Briefing Sheets to assess the impact of these changes. Operatives shall be re-briefed on any revised content within the Task Briefing Sheets, as appropriate.		
Operation No	Description Of Deviation	

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Exploratory Hole Location Plan

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Environmental Notes

To ensure our commitment to avoid damage and pollution to the environment please observe the following rules:

- At all times please try to ensure that no potentially contaminative material enters adjacent ground or waters
- Please ensure the site is kept tidy and that wastes are disposed of appropriately and immediately
- Please consider the potential for local nuisance and be considerate at all times
- Always wear appropriate protective equipment and ensure it is in good working condition
- Please report any unusual finds immediately to the engineer
- When in doubt, please ask

Site Specific Environmental Risk Assessment

BDA Site Classification (Circle)	Green (ASSUMED)	Yellow	Red
Ensure any special precautions for YELLOW and RED sites are STRICTLY observed and communicated to all site personnel. 1) Is there potential for contaminated soil on site? If so, describe any special methodologies that are required (e.g. ground/water protection, containment, disposal, clean drilling etc.) TBC 2) Is there potential for contamination of Controlled Surface Waters? If the site contains or is in close proximity to water bodies such as rivers, streams, canals, lakes, estuaries, coastal waters etc. then special measures may be required to prevent contamination and should be described here. The only vehicle or plant which will access the beach front shall be the Cable Percussive rig and support vehicle. The Lead Driller shall ensure there are no known leakages or damage to the rig which may be conducive to the spillage of oils, fuels or other fluids. A daily condition report will be completed and the site supervisor shall monitor the rig throughout to ensure there's no evidence of leakage. Spill kits and equipment shall be readily available to use and a plant nappy will be deployed beneath the rig. 3) Is there potential for contamination of Controlled Ground Waters (aquifers). If the site is over or adjacent to an aquifer then special measures may be required to prevent contamination and should be described here. Assumed not required. 4) Are there any ecological considerations on site (e.g. sensitive wildlife/habitat, invasive plants etc)? If so, identify the habitat or species present on site any special methodologies to mitigate the effects of the investigation on them or vice versa. None advised 5) Has Geotechnics Ltd been advised that special precautions will be necessary to mitigate nuisance caused by its operations (e.g. noise, dust, smoke, odour, visual etc)? If so, describe any special mitigation measures. None Advised			

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6) Waste. Describe how waste soils, other solids and liquids are to be stored, transported and disposed of.

It is not expected that any excess waste soils shall be produced during the works. Any waste soils which may be encountered shall be securely bagged and labelled before being disposed of using Geotechnics' Waste Carrier Licence.

7) Have you been advised that the site has archaeologically significant structures or deposits? If so, describe any methodologies in place to protect them.

None advised

8) Other things to consider (e.g. special considerations or instructions outlined by the client or regulatory authority, fuel storage, spill procedure, fire, resource use etc.)

All fuels and oils shall be left within the support vehicle off the beach front. Spill kits shall be readily available at all times.

The following notes are intended to assist field staff in completing site specific environmental risk assessment for field work sites. The site specific environmental risk assessment template is to be used as a 'checklist' to ensure all environmental issues such as waste, energy, wildlife, pollution, noise and nuisance are considered at the planning stage of a project. Any site-specific environmental issues and methodologies developed to address them should be communicated to site personnel (including subcontractors) during site induction. Geotechnics Ltd operates an Environmental Management System in accordance with ISO14001 and, as part of the requirements, the Company must ensure that all site personnel, including subcontractors, are aware of its commitment to good environmental practice and continual improvement in its environmental performance.

BDA Site Classification:

The site should be classified as GREEN, YELLOW or RED according to the British Drilling Association (BDA) Guidance. The Client should provide information on the presence of potential contamination, the current use of the site and also any historical uses, usually in the form of a desk study report or chemical test data.

GREEN sites are those which have not been disturbed (i.e. no presence Made Ground) and it is assumed that underlying soil strata is not contaminated.

YELLOW sites are those which contain substances that are not sufficiently harmful to potentially cause death, injury or impairment of health that nevertheless require precautions to be taken. If significant contamination is encountered or suspected from the results of a desk study certain parts of the site may need to be classified as Red. If this is the case separate method statements and working procedures will need to be implemented.

RED sites are those which contain or potentially contain substances that could subject persons, animals or the environment to risk of death, injury or impairment. Typical substances that would classify sites as RED include toxic metal and organic compounds, pharmaceutical and veterinary wastes, phenols, medical products, asbestos, cyanides, hydrocarbons, flammable and explosive materials.

Please circle appropriate classification. This is to remind you of what you need to consider on site.

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Contaminated Soil

Is the site likely to have ground contamination? If yes, consider how to prevent the spread of contaminated spoil/arising across site and consider how spoil should be classified for disposal purposes (i.e. hazardous waste). Contaminated waste soil must be disposed of appropriately in accordance with company waste procedures. Any special instructions or methodologies devised for working on contaminated sites should be briefed to all site personnel. Examples include clean drilling techniques, PPE, containment (sheeting, boarding, IBCs), and clean-up (washing down, road sweeping etc.)

Contamination of Controlled Surface Waters

Are there any water bodies such as rivers, streams, ditches, brooks, ponds, lakes, canals, estuaries, or coastline on or adjacent to site? If so, ensure that site personnel know the whereabouts of such water bodies and ensure that any special instructions or methodologies devised for working on or near controlled waters are briefed to all site personnel. Do not allow drill flush, oils, lubricants, chemicals and other contaminative materials to enter water courses, surface drains or groundwater. Even water with suspended solids (e.g. muddy water) should not be allowed to run off into rivers, ditches, ponds etc. Use materials such as drip trays, containers, sand bags, and plastic sheeting to prevent run-off into surface water drains and surface water bodies.

Contamination of Controlled Ground Waters (Aquifers)

Is the site over or adjacent to an aquifer? If yes, consider whether site operations are liable to introduce pathways via which contamination can spread to uncontaminated strata or into the water table. Are clean drilling techniques/aquifer protection measures required on site? If so, the drilling contractor must be briefed on the appropriate clean drilling techniques to be employed.

Ecological Considerations (Sensitive Wildlife/Habitat, Invasive Plants etc.)

Wildlife and its habitat must be protected on site. Many rare species of plants and animals, and certain types of habitat are protected by law. Even 'common' species of animals are protected by anti-cruelty laws. Sensitive/rare species, and protected habitat (e.g. SSSIs ('Site of Special Scientific Interest'), World Heritage Sites, Nature Reserves, Conservation Areas, National Parks, AONBs ('Area of Outstanding Natural Beauty'), water bodies, TPO ('Tree Preservation Orders') etc.) on or adjacent to the site should be identified and considered before mobilisation. Site personnel must be briefed on any special instructions or methodologies relating to site ecology.

If it is not possible to gather such information in advance, on arrival take a few minutes to familiarise yourself with the site and keep an eye out for signs of sensitive species (badgers, bats, newts, reptiles etc.) and wildlife habitat such as ponds, meadows, woodland, wetland, water courses, dunes etc. There is a series of 'Environmental Data Sheets' to assist you in assessing ecological issues. Where possible, situate exploratory hole locations in less sensitive areas of the site and away from trees and water bodies. NOTE: It is not only an offence to disturb or injure some animal species but the destruction or disturbance of habitat or animal dwelling may also constitute a criminal act.

Check if there any invasive or noxious species of plants on site (e.g. Japanese Knotweed, Himalayan Balsam, Giant Hogweed etc.) In some cases it is an offence to cause the dispersal of noxious plant species and to incorrectly dispose of waste soil containing noxious plant material. If your site has invasive flora, devise methodologies to ensure that such plants are not disturbed or dispersed to a wider area. Brief site personnel on the whereabouts on site of invasive flora and ensure they are aware of the issues and any special arrangements in place to deal with the problem.

Nuisance

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Nuisance can arise due to noise, dust, smoke, odour, loss of amenity and visual impact of site operations. However, nuisance is difficult to predict and control as generally an action does not become nuisance until someone is disturbed by it and makes a complaint. Although unpredictable, there are steps we can take on site to minimise nuisance:

- Ensure that noise is kept to a minimum where possible. Check whether it is possible to position exploratory holes away from areas sensitive to noise (e.g. residential areas adjacent to site boundaries etc.)
- Switch off noisy plant when not in use.
- Try to keep dust creation to a minimum. In dry conditions, restrict the speed of site vehicles to avoid dust creation. Damp down with water if required.
- Where possible, position odorous operations (e.g. from engine exhaust gases) away from sensitive areas.
- Reduce unsightly site mess by keep the site clean and tidy. Collect and dispose of waste materials in accordance with Company waste procedures.
- If a local resident or site occupier makes a complaint about nuisance, be courteous and respectful. Reassure them that their complaint will be taken seriously. Sometimes it is possible to situate exploratory holes away from sensitive areas or to plan the order of drilling to lessen the impact on residents etc.

You should speak to the Client/Engineer or your management team before changing the works programme or scope of works. Ensure that you brief site personnel on any special methodology employed to minimise nuisance. Any complaints or feedback of an environmental nature, including nuisance, should be reported to the project manager and or the environmental coordinator or environmental rep and should be filed on the Company Comments Register.

Waste

Waste generated on site is generally waste soil (spoil), but may also comprise small amounts of timber, plastics, metal, glass, food and paper. Potentially hazardous wastes on site include oils, fuels, lubricants, contaminated soil and water, and asbestos. Hazardous, or special, waste is generally described as waste containing hazardous substances in such quantity as to be liable to cause death, injury or impairment to a living being, pollution of waters or an unacceptable impact on the environment if improperly handled, treated or disposed of. Contaminated soil should be stored in a covered skip to prevent rain water entering and causing the leaching of contaminants from the skip into underlying ground. All site skips must be sourced from a suitably licenced waste contractor or broker to ensure appropriate transportation and disposal of waste. The waste contractor must issue a Waste Transfer Note or a Hazardous Waste Consignment which should be retained and filed at your regional office.

Small amounts of site waste may be transported to regional offices for disposal in the office skip provided that it is accompanied by an internal Waste Transfer Note or a Hazardous Waste Consignment note. For guidance on how to complete a Waste Transfer Note or a Hazardous Waste Consignment please refer to the company waste training course and practical exercise or ask the environmental coordinator. When completing a Site-Specific Environmental Assessment, consider how you will ensure that waste is collected and deposited in the appropriate skip quickly and efficiently to avoid potential contamination of 'clean' areas. Any special methodologies or instructions concerning waste should be communicated to all site personnel.

Archaeological Considerations

Have you been made aware of any archaeological structures or deposits on site? If so, appropriate methodologies should be adopted in order to ensure archaeological features are preserved as they may be protected by legislation or planning guidance.

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Other things to consider

Storage of fuel, lubricants and chemicals (i.e. liquids other than water)

- Fuel, lubricants and chemicals should be kept in secure, labelled containers and should be kept safely inside locked site stores or a vehicle.
- Do not store liquids near surface drains or near water courses. If possible place chemical and fuel containers on a drip tray to catch spillages.
- Always use a funnel and drip tray when refuelling, topping up, decanting liquids etc.
- Spillages should be mopped up with a spill kit. Care! - Waste arising from a spill may need to be classified as Hazardous Waste.

Spill procedure

- Ensure that spill kits are available on site and that all site personnel know where to find them and how to deploy them.
- Used spill kits must be securely bagged and appropriately labelled and disposed of. THINK - should the spill material be regarded as Hazardous Waste?
- Do not allow spillages to enter surface water drains – these normally discharge into rivers or streams.

Fires

- No open fires are allowed on any site.
- If it is safe, some sites may allow gas burners to be used to melt wax for U-Tube samples provided the burner is appropriately shielded.
- Ensure fire extinguishers are on site and located in a prominent position.

Efficient use of resources

- Switch off vehicle engines, plant and machinery, lights, generators etc. when not in use to save energy and reduce pollution.
- THINK – before you consign materials to the skip - can they be reused?
- Plan ahead to reduce the number of journeys to and from site where possible.
- Adjust your driving style to save fuel.

Special Instructions

- Are there any special considerations or instructions to deal with particular environmental site issues outlined by the Client/Engineer or regulatory body (e.g Environment Agency, DEFRA etc?) If so, any special instructions or procedures must be briefed to all site personnel.

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