

APPENDIX E - SUB-CONTRACTOR RISK ASSESSMENTS AND METHOD STATEMENTS

☐ Risk Assessments and Method Statements

DESCRIPTION OF WORKS: Newbridge (Afan Avan) Seismic Survey

SITE LOCATION: Riverside Road, Port Talbot, SA12 6BT

What3Words: ///yours.tens.caves

OSGB: SS75523,89202

Lat/Long: 51°35'16"N , 003°47'53"E

AtlasGeo Project Code: AG1860

Atlas Office Address: Unit 12 Swansea Valley Business Park,
Ystalyfera, Swansea, SA9 2EB

CLIENT: Tetra Tech, Cardiff.

CONTACT: Mr N Bool
Telephone: 02920 829 200

METHOD STATEMENT PREPARATION

3

The following method statement has been prepared and checked by the following:

	Name	Date	Signature
Prepared by:	Alex Birtwisle	06/10/2023	
Checked & authorised by:	Sarah Birtwisle Newson	06/10/2023	
Accepted by: (Client)			

AMENDMENT CONTROL

Amendment No.	Details of Amendment	Authorised By	Date

HEALTH AND SAFETY BRIEFING

Names and signatures of all persons attending safety/MS briefing to indicate that they have had and understood the briefing in full by Atlas Geophysical survey supervisor.

Name	Company	Date	Signature

If the working method changes before or during the shift, the work should stop until a new method statement has been written and briefed to the entire workforce.

INDEX

1. Site location
2. Objectives and methods of working
3. Risk assessments
4. Labour force
5. Equipment
6. Training
7. Portable equipment
8. Mechanical equipment
9. Materials
10. Storage and handling of substances and materials
11. Temporary structures/shoring
12. Working at Height
13. Permits to work/dig
14. Working Near Water
15. Control of work with hazardous substances and processes
16. First aid
17. Fire
18. Personal Protective Equipment (PPE)
19. Housekeeping
20. Staff welfare facilities
21. Site access and egress
22. Warning/hazard signs and notices
23. Waste management
24. Road Closures and Blocks
25. Accident reporting
26. Lone working
27. Briefing
28. Site risks and control measures
29. Emergency action plan

1. SITE LOCATION

- 1.1. The Seismic survey will be undertaken within the areas highlighted in the aerial photographs below.



Fig 1. Survey area at Oak Weir Lock

2. OBJECTIVE AND METHODS OF WORKING

- 2.1. This investigation aims to use non-intrusive methods to determine the geological structure of the riverbed and bedrock beneath.

2.2. **Survey Preparation**

1. The survey team will arrive at a predetermined meeting point for a safety briefing from the site supervisor.
2. After the survey team has completed site inductions, they will prepare the GPR equipment. This will involve:
 - Removing the testing equipment from the vehicle and preparing equipment for the survey.
 - The survey team will reach the locations through the designated access point.
 - Acquisition settings will be checked, and the survey will commence.
3. The water level within the river channel will be assessed, and a decision will be made as to whether the level is suitable for the survey to commence.

2.3. **Survey Data Acquisition**

1. GNSS will be used to locate the geophone positions along the survey profile. The positions will be marked with ranging poles or marker flags.
2. A rope will be stretched across the river channel and anchored at both ends. The rope will be used to keep data acquisition cables away from water.
3. Geophones will be placed on the riverbed and coupled to the cables suspended on the rope traversing the river channel.
4. The cables will be connected to acquisition computers placed on the river bank.
5. The use of a sledgehammer will initiate seismic events. Events will be undertaken at appropriate points along the survey profile and recorded on the acquisition computers.

2.4. EQUIPMENT DEMOBILISATION

Demobilisation is the reverse procedure to setting up the system. When the site has been inspected for cleanliness, the team will inform the Client and depart. If the above method changes before or during the shift, work should stop until a new method statement has been written and briefed to the survey team.

3. RISK ASSESSMENTS

3.1. Risk assessments for all works are presented in Appendix 1.

4. LABOUR FORCE

4.1. Qualified geophysicists will undertake the GPR data acquisition.

Alex Birtwisle BSc Hons FGS

Sarah Birtwisle Newson BSc Hons

4.2. The Client will be responsible for controlling any permits to work and initial site inductions and escorts (if required).

5. EQUIPMENT

5.1. All equipment used for the survey is hand-held and powered by an internal 6V battery.

5.2. Geode Seismograph with associated geophones and cables.

5.3. RTK-GNSS

6. TRAINING

6.1. All AtlasGeo staff will have been trained in general health and safety awareness and issued with the company health and safety policy. The team also carry current CSCS certification.

7. PORTABLE EQUIPMENT

7.1. The proposed equipment will be listed in 5.1 and used as detailed in the appropriate testing procedures.

7.2. Only approved and calibrated equipment will be used, with their inspection, service or calibration records available on request.

7.3. The user must thoroughly check all equipment before starting work; any damaged equipment is to be placed beyond use and a replacement sourced. Staff are reminded that no modification or misuse of equipment is acceptable.

7.4. The proposed equipment for this investigation phase does not produce excessive noise or cause vibration.

8. MECHANICAL PLANT

8.1. No mechanical plant is required for this investigation.

9. MATERIALS

10.1 None.

10. STORAGE AND HANDLING OF SUBSTANCES AND MATERIALS

- 10.1. None

11. TEMPORARY STRUCTURES / SHORING

- 11.1. Not applicable

12. WORKING AT HEIGHT

- 12.1. Not applicable

13. PERMITS TO WORK

- 13.1. Any work permits remain the responsibility of the Client. Should permits be required, these shall be briefed to the team at the start of the shift, and staff are to ensure they comply with the permits as briefed.

14. WORKING NEAR WATER

- 14.1. Inflatable buoyancy jackets will be worn at all times.
14.2. A 'life ring' floatation aid is on hand and will be placed outside the survey vehicle for ease of access during the survey.
14.3. Lone working will not be permitted, and a buddy system will be in place.

15. CONTROL OF WORK WITH HAZARDOUS SUBSTANCES AND PROCESSES

- 15.1. COSHH data sheets will be available in the site file for all commercially purchased goods as follows:-

- 15.1.1. None

- 15.2. COSHH hazard sheets shall be prepared for the following substances generated on-site as follows:-

- 15.2.1. None

16. FIRST AID

- 16.1. Each works vehicle will carry a travel first aid box, and all first aiders should make themselves known during the daily brief. Atlas Geophysical First Aiders are Alex Birtwisle and Momoto Craddock.
- 16.2. The nearest hospital with an accident and emergency facility is shown below and is approximately 11 miles from the site. Should emergency medical treatment be required, staff should consider contacting the emergency services by calling 112 or 999, stating the nature of the emergency and the exact location of the casualty.

Morrison Hospital,
Heol Maes Eglwys,
Morrison,
Cwmrhdyceirw,
Swansea
SA6 6NL

17. FIRE

- 17.1. Powder fire extinguisher provided within survey vehicle.

18. PERSONAL PROTECTIVE EQUIPMENT (PPE)

- 18.1. The team leader will ensure that all operatives have been issued and wear all the appropriate PPE. The standard PPE for investigations shall be as follows:
- 18.1.1. Class 3 High visibility clothing (jacket or sleeved waistcoat and trousers)
 - 18.1.2. Buoyancy Aid
 - 18.1.3. Safety footwear
 - 18.1.4. Safety helmet
 - 18.1.5. Eye protection
 - 18.1.6. Ear protection (when required for background noise using the 2m rule)
 - 18.1.7. Gloves
 - 18.1.8. Class 3 Waterproofs (if/when required)

19. HOUSEKEEPING

- 19.1. All staff shall maintain a clean and tidy working environment while working on-site. Particular care should be taken to avoid creating slip/trip hazards.

20. STAFF WELFARE FACILITIES

- 21.1 Welfare facilities will be available locally.

21. SITE ACCESS AND EGRESS

- 21.1. Access to the site will be granted by the Client and follow the procedures dictated by the Client.

22. WARNING / HAZARD SIGNS AND NOTICES

- 22.1. No specific hazards are known to exist; however, staff must remain vigilant in their presence. If identified, then the possible impact that the warning/hazard may have should be considered, and if necessary, advice should be sought.

23. WASTE MANAGEMENT

- 23.1. No waste is expected to be created during this investigation; however, staff are reminded that all waste and rubbish should be removed from the site and returned to the laboratory for environmentally sound disposal.

24. ROAD CLOSURES

- 24.1. Not applicable.

25. ACCIDENT REPORTING

- 25.1. All accidents and near misses will be reported to the client's representative.
- 25.2. On return, all accidents and near misses shall be duplicated following AtlasGeo's internal accident reporting procedures.

26. LONE WORKING

- 27.1 Lone working shall not take place at any time during these works.

27. BRIEFING

- 27.1. At each site, a copy of the Method Statement and Risk Assessments will be circulated to all team members, who will acknowledge that they have read and understood the requirements by signing sheet 3 of this document. Alex Birtwisle, Atlas Geophysical survey supervisor, will give the briefing.

28. SITE RISKS AND CONTROL MEASURES

- 28.1. Risk assessments for work activities are shown in Appendix 1. In addition to those already produced, the Site Supervisor/Lead Technician should review the risks assessed and ensure that this satisfactorily covers the site conditions as found; should additional risks be identified, a point of work risk assessment should be completed. If the site team cannot mitigate any additional risks encountered to a satisfactory level, work may not proceed; in this case, the client's representative must be notified, and advice from the Project Manager must be sought.

29. EMERGENCY ACTION PLAN

- 29.1. The contact telephone numbers of all personnel pertinent to this project are listed below:

Name	Position	Company	Contact Number
Alex Birtwisle	Director	AtlasGeo	07798 673 108
Sarah Birtwisle Newson	Technician	AtlasGeo	07881 360 208

APPENDIX 1

Risk Assessments

RISK ASSESSMENT FOR SEISMIC INVESTIGATION NEAR WATER

Likelihood (L)

1. Very Unlikely
2. Likely
3. Inevitable

Severity (S)

1. Minor Injury
4. Serious Injury
- . Fatality

Operational activity	Possible Hazard	Primary Risk			Who is at risk	Measures to reduce risk	Persons responsible for controlling risks	Residual risk		
<i>General Inspection / Investigation</i>		(L)	(S)	RF				(L)	(S)	RF
General site working	Trips, falls and other injuries	2	1	2	Site personnel	- Good housekeeping is to be maintained at all times. - The site working area is to be kept clean and tidy, with the surrounding areas always kept clear. - All site personnel are to wear suitable PPE as detailed in method statement section 19. - Site-specific briefings are to be given to all site staff before commencement on-site. - First aid kits shall be supplied and available at all times.	Site personnel	1	1	1
Access, egress & site movements	Collision with other vehicles/personnel/plant	2	3	6	Site personnel	- Only use approved access and egress routes as explained at the site induction - Always observe speed limits and directions whilst on site. - Use double flashing beacons situated on the highest point of the vehicle. - Always use a banksman for vehicle/plant movements.	Site personnel	1	3	3
General testing activities	Personal collision/damage from other site vehicles	2	3	6	Site Personnel	- Ensure others are aware of your movements - Never work in unlit areas where site movements are taking place without the cover of your vehicle or portable lighting. - Be aware of other activities in your surrounding area.	Site personnel	1	3	3
Manual Handling	Back Injury Crushing injuries Muscle and ligament damage	2	2	4	Site personnel	- If necessary, use a trolley or wheelbarrow to transport samples and equipment to and from the van. - Park near the working area to reduce the distance carrying samples. - Everyone has their safe limit. Assess your own, ask for assistance and <u>never exceed your safe limit</u>. - If required, use team lifting practice	Site personnel	1	2	2

RISK ASSESSMENT FOR SEISMIC INVESTIGATION NEAR WATER

Likelihood (L)

1. Very Unlikely
2. Likely
3. Inevitable

Severity (S)

1. Minor Injury
2. Serious Injury
3. Fatality

Operational activity	Possible Hazard	Primary Risk			Who is at risk	Measures to reduce risk	Persons responsible for controlling risks	Residual risk		
General Inspection / Investigation		(L)	(S)	RF				(L)	(S)	RF
Transmission of the SARS-CoV-2 virus	The transmission of the SARS-CoV-2 virus leads to the symptoms of the Covid-19 disease. This may lead to further infection of staff and may lead to medical complications.	2	2	4	Staff, Site personnel,	- Always keep 2m from other people - Where 2m is impossible, or in a closed space, a. Face covering will be used. - Wash/sanitise hands regularly. - Wash surfaces and equipment with an anti-viral solution.	Site personnel	1	2	2
Leptospirosis/Weils Disease	The transmission of bacteria is typically from vermin.	3	3	4	Staff, Site personnel,	- Wash hands before and after the shift. - Disinfect cuts and grazes immediately. - Wear protective clothing - Wash hands before drinking or eating.	Site personnel	1	2	2
Working within Traffic Management	Accidental contact with live traffic Personal injury to staff Damage to equipment Risk to members of public	2	3	4	Staff, Site personnel, Members of the public	- While working within the confines of the survey area, one survey team member will act as a 'look-out' and warn of traffic in proximity. - Place temporary barrier tape between cones in the work area to provide a physical barrier that should not be crossed.	Site personnel	1	1	2
Drowning	Falling into water.	1	3	4	Site personnel,	- Do not work within 2m of water without floatation aid. - No loan-working near water. - The water level in the lock is to be at the upstream level - No working near fast-flowing water (without handrails or safety boat) - Lifebuoy/throw lines to be located in the work area (Volker to supply)	Site personnel	1	1	2

RISK ASSESSMENT FOR SEISMIC INVESTIGATION NEAR WATER

- Likelihood (L)**

 - 1. Very Unlikely
 - 2. Likely
 - 3. Inevitable
- Severity (S)**

 - 1. Minor Injury
 - 2. Serious Injury
 - 3. Fatality

Operational activity	Possible Hazard	Primary Risk			Who is at risk	Measures to reduce risk	Persons responsible for controlling risks	Residual risk		
Additional risk assessment		(L)	(S)	RF				(L)	(S)	RF

NOTE: Should you be on site and additional risks not covered within the risk assessment, please complete the boxes above, detailing the activities, potential hazards and the measures adopted to reduce the risks. When completed, please submit a copy to your line manager, who will review and update the risk assessment if necessary.

Pre Start Documents



Site	Newbridge GI, Port Talbot. Tetra Tech				SA12 6BT			
Scope Of Work	BH #	Base Depth		Inclination	Instrumentation			
	2no boreholes drilled by cable percussion	Approximately 20m		Vertical	Boreholes to be backfilled to ground level or completed with a 50mm installation c/w seals, filters and security cover			
Drilling Contractor	Apex Drilling Services Limited Sturmi Way, Village Farm Industrial Estate, Pyle, Bridgend				CF33 6BZ			
	Roger Martin	Director	roger.martin@apex-drilling.com		07768 146 639			
	Thomas Martin	Director	thomas.martin@apex-drilling.com		07974 685 274			
	Keith Richards	Contracts Manager	keith.richards@apex-drilling.com		07974 309 072			
Supervising Engineer	Nic Bool	07917 735669						
Deployment	Start Date	Monday 21 st August 2023						
	Deployment	Dando 2000		Serial Number	2000/0775			
	Driller	Alun Jones						
	Crewman	Lee Bincham						
	Fitter(s)	Huw Barwick						
	Support Plant	Water bowser						
	Rig Operation	Monday to Friday				08:00 - 16:30		
	BDA Classification	Green						
Security	To be agreed first day on site							
Materials	Drilling Operations	Water to operational drilling plant				Apex		
Minimum P.P.E.								
	Description	Overalls	Gloves	Ear Plugs	Vest	Helmet	Glasses	Safety boot
	Colour	Orange	Red	Yellow	Yellow	Blue	Clear	Black
	Misc.	High Vis.			High Vis.			Wellington
Induction	Company	Induction Type		Operational Drilling Crew		Support Crew		
	Tetra Tech	Generic			Required		Required	
		Site specific			Required		Required	
	Apex Drilling	RAMS		Completed		Completed		
Apex Drilling	Insurance	Employers Liability				£ 10,000,00.00		
		Public / Products Liability				£ 10,000,00.00		
		Contractors All Risk				£ 1,000,00.00		
		Hired Plant				£ 550,00.00		
		Professional Indemnity				£ 2,000,00.00		
	Accreditation	Avetta (PICS)		SMAS	CBH Scheme	BDA		
	Constructionline		Outsource Safety	ISO 9001				
Project Goals		Zero lost hours			No major or minor injuries			
		Improve efficiency			Increase awareness of Health and Safety on site			
		Improve the working environment			Work with the local community / integrate where possible			

Proceed	Site work is safe to proceed	Site work is not safe to proceed
---------	------------------------------	----------------------------------

Pre Start Documents



Site	Newbridge GI, Port Talbot Tetra Tech		SA12 6BT							
Work Activity	Daily Pre Start Check Sheet									
Guidance	- Complete this borehole check sheet for each borehole on the site regardless of proximity etc. - Read through the points below - tick as appropriate - If elaboration on points as required, please list on the back of the sheet. - If there are any hazards not identified, please list on the back of the sheet and correlate with numbers. - If you are satisfied to proceed with site work, please tick and sign below. - In the event that a hazard has been identified and cannot be rectified contact Tetra Tech immediately - Upon completion this sheet is to be stored in the site health and safety file and available for viewing.									
Required P.P.E.										
Description	Overalls	Gloves	Ear Plugs	Vest	Helmet	Glasses	Safety boot			
Driller	Y	N	Y	N	Y	N	Y	N		
Crewman										
Visual Inspection	Item	OK	NO	NA	PTO	Item	OK	NO	NA	PTO
	Engine cover locks					No sign of vandalism				
	Drilling & winch rope									
Level Inspection	Item	OK	NO	NA	%	Item	OK	NO	NA	%
	Engine oil					Diesel				
Operation Check	Item	OK	NO	NA	PTO					
	Winch guard					Emergency stop				
4x4	Item	OK	NO	NA	%	Item	OK	NO	NA	PTO
	Engine oil					Handbrake				
	Hydraulic oil					Visual inspection				
	Water levels									
Water Bowser	Item	OK	NO	NA	%	Item	OK	NO	NA	PTO
	Wheel condition					Tap condition				
Proceed	Site work is safe to proceed					Site work is not safe to proceed				

Pre Start Documents



Site	Newbridge Gl, Port Talbot Tetra Tech		SA12 6BT									
Work Activity	Getting plant and support materials to borehole position											
Required P.P.E.												
	Description	Overalls	Gloves	Ear Plugs	Vest	Helmet	Glasses	Safety boot				
	Colour	Orange	Red	Yellow	Yellow	Blue	Clear	Black				
	Misc.	High Vis.			High Vis.			Wellington				
Persons At Risk	Driller	•	Crewman	•	Supervisor		Geologist	•	Client		Public	
Supporting doc.	Method	•	Risk	•	Permits	•	Pre-Start	•	Inductions	•	Site	•
Calculation	Colour Key	Green Low Risk - Proceed		Amber Proceed With Caution		High Risk Control Measures Required						
	Example Calculation											
	Severity	1	Minor injury			Severity (S)	2					
		2	Over 3 day injury			Likelihood (L)	3					
	3	Severe Injury		S x L		6						
Likelihood	1	Unlikely			6 High Risk Control Measures Required							
	2	Possible										
	3	Probable										
Persons At Risk	Before Control Operations				After Control Operations							
		Severity (S)	3			Severity (S)	3					
		Likelihood (L)	2			Likelihood (L)	1					
		S x L	6			S x L	3					
	6 High Risk Control Measures Required			3 Amber Proceed With Caution								
Risk	•	Hidden services / ruts				•	Undulating typography accessing borehole					
	•	Crew man access to boreholes				•	Failure to stop / loss of control					
	•	Interaction with site traffic				•	Sliding on fields					
	•	Interaction with public				•	Items of plant rolling away					
Control	•	All plant to be parked cross slope				•	No movement of vehicles without pre-start checks.					
	•	Signs to be displayed to indicate operational drilling area				•	Crewman to walk in front of vehicles - clear route for unforeseen issues.					
	•	Movement routes to be pre-agreed prior to move, with route walked for familiarisation.				•	Site to be aware of Apex movements - radio to be provided if required.					
Method	- Pre-start checks sheets to be undertaken at the start of the shift. - Borehole access routes to be pre-agreed and walked prior to any plant movement. - Communication methodology will be established with the site engineer upon induction. - Crewman to walk in front of all vehicles to clear for unforeseen ruts / services. - No riding as a passenger on plant without designated second seat. - Tetra Tech to be made aware of Apex daily movements. - No horseplay within the site. - All vehicles not in use to be turned off with keys removed from the ignition. - Only certified operators to use plant.											

Pre Start Documents



Site	Newbridge GI, Port Talbot Tetra Tech		SA12 6BT			
Work Activity	Setting up drilling rig and associated plant on borehole position					
Required P.P.E.						
	Description	Overalls	Gloves	Ear Plugs		
	Colour	Orange	Red	Yellow		
	Misc.	High Vis.		High Vis.		
Persons At Risk	Driller	•	Crewman	•		
			Supervisor			
			Geologist	•		
			Client			
				Public		
Supporting Reqs.	Method	•	Risk	•		
			Permits	•		
			Pre-Start	•		
			Inductions	•		
			Site	•		
Calculation	Colour Key	Green Low Risk - Proceed		Amber Proceed With Caution		
				High Risk Control Measures Required		
	Example Calculation					
	Severity	1	Minor injury			
		2	Over 3 day injury			
		3	Severe Injury			
Likelihood	1	Unlikely				
	2	Possible				
	3	Probable				
				Severity (S)	2	
				Likelihood (L)	3	
				S x L	6	
				6 High Risk Control Measures Required		
Persons At Risk	Before Control Operations			After Control Operations		
		Severity (S)	3		Severity (S)	3
		Likelihood (L)	2		Likelihood (L)	1
		S x L	6		S x L	3
			6 High Risk Control Measures Required			3 Amber Proceed With Caution
Risk	•	Setting up over shallow utility services		•	Bogging of drilling plant	
	•	Drilling through underground services		•	Hitting overhead services	
	•	Drilling borehole in wrong position		•	Injury to persons at risk	
	•	Part failure		•	Vandalism	
	•	Items of plant rolling away		•	Interaction with site traffic	
Control	•	Support plant to be parked cross slope		•	Pre-start check sheet to be completed daily.	
	•	Borehole map to be provided.		•	Borehole map to be correlated with site.	
Method	- View borehole position to ensure it correlates with maps - if not contact client immediately. - Service drawings to be checked to ensure no presence within access route or at the borehole position. - Stop machine prior to reaching borehole position and undertake pre borehole set up sheet. - Discuss machine set up with crewman and proposed set up configuration / direction. - Park support plant in agreed area - crewman to assist with hitching / unhitching and chocking of wheels. - Set up working area. - Locate machine on borehole position. - Apply handbrake and unhitch from 4x4 - Unload drilling equipment from rig - Remove covers and start rig - Place timbers under chassis of rig to provide level base - Use auxiliary winch to erect mast , crewman to remain a safe distance from rig - When upright legs to be brought into place and secured with cross members - Spreader bar to be fixed in position at base of legs - Driller to check rig is in a safe working position					

Pre Start Documents



Site	Newbridge GI, Port Talbot Tetra Tech						SA12 6BT	
Work Activity	Hand dig inspection pit to 1.20 metres below ground level (or rock head)							
Required P.P.E.								
Description	Overalls	Gloves	Ear Plugs	Vest	Helmet	Glasses	Safety boot	
Colour	Orange	Red	Yellow	Yellow	Blue	Clear	Black Wellington	
Misc.	High Vis.			High Vis.				
Persons At Risk	Driller	• Crewman	• Supervisor	Geologist	Client	Public		
Supporting Reqs.	Method	• Risk	• Permits	• Pre-Start	• Inductions	• Site		
Calculation	Colour Key	Green Low Risk - Proceed		Amber Proceed With Caution		High Risk Control Measures Required		
	Example Calculation							
	Severity	1	Minor injury			Severity (S)	2	
		2	Over 3 day injury			Likelihood (L)	3	
		3	Severe Injury			S x L	6	
	Likelihood	1	Unlikely			6 High Risk Control Measures Required		
		2	Possible					
		3	Probable					
Persons At Risk	Before Control Operations				After Control Operations			
		Severity (S)		3		Severity (S)		3
		Likelihood (L)		2		Likelihood (L)		1
		S x L		6		S x L		3
		6 High Risk Control Measures Required		3 Amber Proceed With Caution				
Risk	• Digging in the wrong position • Intersecting services • Not digging deep enough				• Electrocution • Slips, trips and falls • Interaction with hazardous substances			
Control	• Demarcation to be provided as required. • Pre-borehole set up sheet to be completed. • Borehole map to be provided. • Insulated tools to be used at all times • All materials to be stored next to the borehole				• Pre-start check sheet to be completed daily. • Borehole map to be correlated with site. • 5 gallons of water to be available. • Pit to be measured prior to termination • Early termination only to be instructed by Tetra Tech			
Method	• Borehole position to be clearly marked. • Service drawings to be obtained and correlated where necessary. • Method - • Hand digging to be undertaken using both shovola and standard shovels. • In the event of hard digging a pitting bar will be required • If the following are encountered digging to cease and Tetra Tech be contacted immediately: • Services / water / contamination / asbestos. • Upon reaching 1.20 metres • Inspection pit depth dipped / measured. • Base of the pit to be logged if required. • Backfill pit.							

Pre Start Documents



Site	Newbridge GI, Port Talbot Tetra Tech						SA12 6BT	
Work Activity	Cable Percussive Drilling							
Required P.P.E.								
	Description	Overalls	Gloves	Ear Plugs	Vest	Helmet	Glasses	Safety boot
	Colour	Orange	Red	Yellow	Yellow	Blue	Clear	Black
	Misc.	High Vis.			High Vis.			Wellington
Persons At Risk	Driller	•	Crewman	•	Supervisor		Geologist	
Supporting Reqs.	Method	•	Risk	•	Permits	•	Pre-Start	•
Calculation	Colour Key	Green Low Risk - Proceed		Amber Proceed With Caution		High Risk Control Measures Required		
	Example Calculation							
	Severity	1	Minor injury			Severity (S)	2	
		2	Over 3 day injury			Likelihood (L)	3	
	3	Severe Injury		S x L		6		
Likelihood	1	Unlikely			6 High Risk Control Measures Required			
	2	Possible						
	3	Probable						
Persons At Risk	Before Control Operations				After Control Operations			
		Severity (S)	3			Severity (S)	3	
		Likelihood (L)	2			Likelihood (L)	1	
		S x L	6			S x L	3	
6 High Risk Control Measures Required				3 Amber Proceed With Caution				
Risk	•	Entanglement within drill string			•	Trapping fingers within the casing/tools		
	•	Manual handling injury			•	Damage to drill string		
	•	Cuts and grazes			•			
Control	•	Demarcation to be provided as required.			•	Aforementioned PPE to be worn.		
	•	Pre-borehole set up sheet to be completed.			•	No loose clothing to be worn		
	•	Pre-start check sheet to be completed daily.			•	All guards to be fully operational.		
	•	Rods to be stored on rack or trestles only.			•	All threads to be lubricated.		
	•	Crewman to be experienced in suitable drilling procedure.			•	Working area to be clear		
Method	•	The appropriate tool is to be secured to the sinker bars						
	•	Drilling to be carried out by percussive methods						
	•	SPT.s U4's & Bulk samples to be taken when required						
	•	Drilling tool be changed depending on ground conditions						
	•	200mm Steel casing will be installed to keep the borehole open whilst drilling.						
	•	Final depth to be confirmed with client						
	•	200mm Casing to be with withdrawn and borehole to be backfilled to ground level or completed with a 50mm installation c/w seals, filters and cover						
	•	Rig to be lowered using auxillary winch						
	•	Rig loaded with drilling equipment and moved off borehole position						
	•	Borehole position to be left tidy, spoil levelled/removed.						

Pre Start Documents



Site Newbridge GI, Port Talbot
Tetra Tech

SA12 6BT

ANY EMERGENCY TO BE CO-ORDINATED WITH APEX/TETRA TECH SUPERVISOR

Medical Emergency

Procedure	- Check for danger and make the area safe. - Seek help. - Apply first aid if able to do so, or contact the site first aider or emergency services (if required). - Keep the person safe and warm until assistance arrives. - Report the accident - inform your supervisor who will inform the manager. - Record the incident as instructed.
-----------	--

Fire

Procedure	- Raise the alarm - shout 'Fire' and / or sound the emergency signal (e.g. air horn). - If you are trained and competent to fight a small fire, and it is safe to do so, tackle the fire with the correct fire extinguisher to aid your escape. - Do not put yourself at risk - get out and stay out. - Call the fire service immediately in the event of any uncontrolled fire. - Report the fire to your supervisor who will inform the manager. - Gather at the local muster point and await further instructions. - Record the incident as instructed.
-----------	--

Contact With Contamination

Procedure	- Stop work. - Remove contaminated clothing. - Wash area with water, use emergency washing / decontamination facilities. - Inform your supervisor and the Site Manager / Engineer. - Administer first aid as necessary. - Seek further medical advice if required. - Record the incident as instructed.
-----------	---

Unforeseen Utility Services

Procedure	- Stop work. - Assume the service is live until proven otherwise. - Do not approach or touch the affected service. - Inform your supervisor and the Site Manager / Engineer. - Stand for advice from the statutory providers and determine the next course of action. - Evacuate the area and await further instructions.
-----------	--

Spillage

Procedure	- Do not approach or clean up the affected area unless you are competent to do so. - Report the incident to your supervisor who will inform the manager. - Assess the risk - Identify the spilled material (use MSDS or COSH) and quantity - If flammable, extinguish all sources of ignition. - Determine primary dangers - drains, surface waters, potential for fumes, people etc. - Stop the spill at source, if safe to do so, or otherwise attempt to confine the spill using the correct spill kit. - Clean up the spill. - Decontaminate and dispose of the waste (used spill kit and PPE) in accordance with site waste procedures. - In most cases the spilled material will be hazardous waste.
-----------	---

Release To Water / Drains

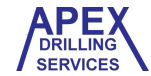
Procedure	- Stop work. - Report the incident to your supervisor - Contain or divert the substance away from the water course / drain (using earth dams, sand bags etc.) - Trace any drain to find the outfall / discharge point, consider blocking the drain. - Review method statement, design or the works and resources before commencing work.
-----------	--

Pre Start Documents



Site	Newbridge GI, Port Talbot Tetra Tech		SA12 6BT
Records	• Pre-borehole check sheet to be completed at the start of each borehole. • Pre-start daily check sheets to be completed at the start of each shift or new site. • Borehole logs to be maintained within a field log book and written on to daily drill logs each evening. • All records available for viewing at any point of the operational day. • Daily drilling logs available for submission in triplicate at the start of the following day.		
	Blue - Tetra Tech		Yellow - Tetra Tech
	White - Retained By Apex		
	• Daily drilling logs to contain the following information.		
	• Contract name	Newbridge GI, Port Talbot,	
	• Client	Tetra Tech	
	• Supervising geologist (s)	Nic Bool	
	• Date	.../.../ 2023	
	• Sheet number / working day	 of / Working day	
	• Method of drilling	Cable Percussive	
	• Type of casing	150mm/200mm/250mm diameter	
	• Depth, description, with identification of the stratum and whether it is intact or broken (where possible)		
	• Depths at which groundwater is encountered (if apparent)		
	• Details of voids or suspected anomalies or artificial obstructions.		
	• Standing time and reasoning for which.		
	• Sample numbers / depths		
	• Static water levels at the start and end of each shift.		
	• Details of support plant		
	• All sheets to be signed by Tetra Tech		
	Samples	• Samples to be taken at intervals instructed • Samples to be bagged in clear polythene bags and sealed using cable ties. • All samples to be labelled indicated bh number and depth at which sample is taken. • Sample labels to correlate with daily drilling logs.	
Site Completion	• Walk borehole position with Tetra Tech representative. • All permits and passes to be surrendered back to Tetra Tech		
Communication	• Drilling crew available for daily tool box talks as required. • Driller to enquire if there are any changes to daily operations. • Drill crew to sign in and out of each shift. • Site radio to be provided as required. • Driller equipped with mobile phone. • Vehicle fitted with Navman tracking system. • Driller communicates with his drilling manager frequently throughout the day.		
Breakdown	• Stop work. • Follow isolation procedure detailed within this pack.		

Pre Start Documents



Site	Newbridge Gl, Port Talbot Tetra Tech						SA12 6BT	
Work Activity	Isolation Procedure							
Required P.P.E.								
	Description	Overalls	Gloves	Ear Plugs	Vest	Helmet	Glasses	Safety boot
	Colour	Orange	Red	Yellow	Yellow	Blue	Clear	Black
	Misc.	High Vis.			High Vis.			Wellington
Persons At Risk	Driller	• Crewman	• Supervisor	• Geologist	• Client	• Public		
Supporting Reqs.	Method	• Risk	• Permits	• Pre-Start	• Inductions	• Site		
Isolation Key								
	Box	Hasp	Cable hasp	Driller	Crewman	Fitter	Sign	Point
Communication	- All padlocks are unique to each individual - named and single keyed - Once isolated padlock keys not to be put into isolation box - they are to be retained by the individual.							
Calculation	Colour Key	Green Low Risk - Proceed		Amber Proceed With Caution		High Risk Control Measures Required		
	Example Calculation							
	Severity	1	Minor injury		Severity (S)	2		
		2	Over 3 day injury		Likelihood (L)	3		
		3	Severe Injury		S x L	6		
Likelihood	1	Unlikely		6 High Risk Control Measures Required				
	2	Possible						
	3	Probable						
Persons At Risk	Before Control Operations				After Control Operations			
		Severity (S)	3		Severity (S)	3		
		Likelihood (L)	2		Likelihood (L)	1		
		S x L	6		S x L	3		
		6 High Risk Control Measures Required			3 Amber Proceed With Caution			
Risk	- Kinetic energy stored within the system - Indirect plant interfering with repair			- Use of machine without knowing its faulty - Machine activation during repair				
Control	- Plant to be turned off - all keys and immobilisers to be stored in isolation box. - Levers to be actuated to ensure all energy is released. - Hasp to be fitted to isolation point and individual padlocks fitted. - Individual keys to be retained by individual personnel. - Signs clearly to denote that rig is not fit for operation. - Air and water hoses to be disconnected and left permanently disconnected. - If required plant not affected by breakdown to be removed from operational area to agreed position.							
Method	Turn off all plant immediately.						Driller and crewman	
	Release all kinetic energy and stored system							
	Collect isolation box from van						Crewman	
	Remove all ignition and isolation keys and place into isolation box						Driller	
	Fit hasp, sign and personal padlocks to isolation point						Driller and crewman	
	Padlock keys to be individual and remain with that individual at all times.							
	The hasp has 6 ports - additional ports for any person who has to work / access the machine.							
	If required move all plant to a safe location, isolate and lock panels						Driller and crewman	
	Isolation box to be placed in secure location - van or quarry managers office						Driller	
	- Report the incident to your supervisor who will inform the quarry manager. - Wait for instruction.							

Pre Start Documents



Site Newbridge GI, Port Talbot
Tetra Tech

SA12 6BT

Declaration

I confirm that I have read and fully understood the RAMS document for operational work at the project detailed above.

I understand that failure to comply with any of the points within this document may lead to dismissal from site and if the severity requires it Apex Drilling Services Limited.

Any questions regarding this document must be made apparent prior to signing this declaration.

Signed

Name (PRINTED)

Position

Signed

Date

Month

Year

23

23

23

23

23

23

23

23

23

23

23

23

23

23

23

23

23

GROUND CLEARANCE

Office:	Site address:
Midland Survey Ltd Cromwell House Westfield Road Southam Warwickshire CV47 0JH	Newbridge Bridge, Port Talbot, SA12 6BT

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
Moving vehicles / plant	3	Contact with moving vehicles including forklift trucks, excavators, lorries etc	3	9	Wear Hi Visibility clothing and protective footwear in accordance with site rules. Ensure that you have informed all on site of your presence. Follow pedestrian Routes provided, Do not work behind stationary vehicles. Pay attention on sites with moving vehicles and in warehouses and especially when wearing hearing protection. One man to prevent entry from vehicles if appropriate. Stick to man routes on site. Erect no entry signs where practicable. Fence off. No work in the main carriage way will be carried out. Any measurements will be taken from the safety of the verge.	Site	Wear suitable PPE at all times. High vis to be worn at all times.	3	
Car Parks (presence of moving vehicles)	3	Being struck by moving vehicles, or injuring a car park user	3	9	Drive slowly to allow for unexpected vehicle movement. Ensure area is adequately lit with daylight, street lamps, fixed lighting or head lights from the vehicle. If possible use the car park during a low occupancy time. Make sure all drivers are appropriately licensed and experienced. Ensure all roads are free from moving traffic before exiting the vehicle, and ensure the roads are free from moving traffic when unloading / loading equipment from the vehicles. Use a full 360 degree check of the vehicle before driving away, and adopt Lucion's RISE program - Reverse Into Spaces Every Time, to ensure safety when later pulling away from a parking space. Stick to designated safe walkways if present.	Site, client, public	Ensure driving licence is kept on record and that the personnel have undergone the H&S induction, including driver training. Keep to 5mph when driving within car parks. Work wearing Hi Vis clothing (vest or jacket) to ensure maximum visibility. Use designated walkways.	3	

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
Slips, trips falls - floor obstructions - loose / uneven surfaces		3 Poor housekeeping, debris in location/area, poor visibility, wet / slippery surfaces, floor coverings in poor condition, trailing cables, loose wires, open hatches . Erection of access equipment on uneven or slippery surfaces.	3	9	Clear working area of obstacles, debris and be vigilant at all times of presence of trip hazards. Take care when working in wet / slippery areas. Maintain good housekeeping, make sure all trip hazards are tidied away. Ensure all hatches are closed. Ensure surface for erection of ladders / steps must be level and clear of debris. Ladders must be footed or tied at all times. Scaffolds/Podiums to be used and erected by PASMA trained operatives.	Site	Wear PPE including appropriate footwear. Use adequate lighting in poorly lit areas. Cable ties & regular inspections. Audits. Careful ladder siting and footing at all times.	3	☒
Substances hazardous to health		3 Incorrect use and control of substances hazardous to health	1	3	COSHH data sheets should be obtained for all chemicals present on site or vessel. Avoid contact with substances potentially hazardous to health. Wash hands before breaks	Site	Follow COSHH Guidelines. Wear PPE	3	
Used hypodermic needles		3 Puncturing skin with needles	1	3	Carry out visual inspection / risk assessment prior to commencement of work. Wear safety foot wear and gloves at all times. Needles to be removed by specialist company - if encountered STOP work and inform manager or client.	Site	Safety footwear / gloves / eye protection to be worn.	3	
Darkness/ poor visibility (surveys)		3 Working in environments where darkness and/or poor lighting is present greatly increases risk of injury by other means i.e. slips, falls, cuts etc	3	9	Assess conditions before entry to dark or poorly lit areas, consider specific hazards that may be present i.e. debris, hot pipes that may be obscured by darkness / poor lighting. Provide adequate lighting in dark / poorly lit areas. Hand torches and head / helmet mounted torches should suffice for smaller areas. Where larger areas are to be accessed consider provision of lighting such as tripod mounted systems. Do not work in traffic	Site	Hard hat to prevent head injury. Wear high vis.	3	
Climate - heat (heat/sun stroke, sunburn, fire risk)		3 Heat from hot climates. Remember can be amplified in confined spaces.	2	6	Reduce work during hottest periods of day (12pm-3pm). Carry out works during cooler hours of the day. Share work load, alternate shift patterns. Allow for regular work breaks in cooler areas. Ensure constant water supply for rehydration is available. Work under shade/shelter where possible. Be aware of fire ignition risk from glass (bottles etc.) Do not take vehicles, machines, electrical equipment etc. on to areas at risk	Site	Wear PPE. Vented hard hats. Adequate supply of cool water. Wear sunscreen as required. Use thermometers for temperature monitoring. Carry out works during appropriate times of day. Work-rest	3	

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
					from fire (dry grassland/ forests etc. Where a RED WEATHER WARNING HAS BEEN ISSUED BY THE MET OFFICE IF YOU ARE WORKING OUTSIDE, IN LOFTS/ ROOF SPACES, CONFINED SPACES etc. AN ADDITIONAL RISK ASSESSMENT SHOULD BE CARRIED OUT for the work/project to ensure all possibilities have been examined.		balance required. DO NOT work alone. Erect a cover for shade where appropriate.		
Climate - heat (heat/sun stroke, sunburn, fire risk)	3	Heat from hot climates. Remember can be amplified in confined spaces.	2	6	Reduce work during hottest periods of day (12pm-3pm). Carry out works during cooler hours of the day. Share work load, alternate shift patterns. Allow for regular work breaks in cooler areas. Ensure constant water supply for rehydration is available. Work under shade/shelter where possible. Be aware of fire ignition risk from glass (bottles etc.) Do not take vehicles, machines, electrical equipment etc. on to areas at risk from fire (dry grassland/ forests etc. Where a RED WEATHER WARNING HAS BEEN ISSUED BY THE MET OFFICE IF YOU ARE WORKING OUTSIDE, IN LOFTS/ ROOF SPACES, CONFINED SPACES etc. AN ADDITIONAL RISK ASSESSMENT SHOULD BE CARRIED OUT for the work/project to ensure all possibilities have been examined.	Site	Wear PPE. Vented hard hats. Adequate supply of cool water. Wear sunscreen as required. Use thermometers for temperature monitoring. Carry out works during appropriate times of day. Work-rest balance required. Erect a cover for shade where appropriate. If alone, maintain contact with manager.	3	
Climate - rain, ice, snow	2	Exposure to wet weather. Excessive exposure to wet weather conditions increasing the likelihood of slips trips & falls, as well as the potential for a decrease in body temperature whilst working in wet weather	2	4	Assess & monitor weather conditions & suspend or alter work activities to suit weather conditions (ie carry out work in indoor or sheltered areas) in the event of excessive rainfall or presence of ice or snow. Take regular breaks & ensure that welfare facilities are kept warm.	Site	Welfare facility heating, waterproof clothing, thermal undergarments.	2	
Flooding	3	Sudden flooding of a work area has possibility to cause death by drowning.	1	3	No works permitted in flooded areas. Flood prone areas to be assessed prior to entry and rapid escape routes established. Sources of water should be identified i.e. ground water, water tanks, pressurised pipework etc. Works are not to disturb any items that may give rise to flooding if	Site	As per site requirements	3	☒

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
					damaged i.e. badly degraded pipework, large water tanks etc. Where there is a significant risk of flood, works are not to continue until suitable control measures have been put in place. Clear escape route to be maintained at all times when working in areas where flooding may occur. If areas begin to flood, all staff to evacuate to safe area as soon as possible.				
Lone working - loss of contact with employee	2	Failure to contact office. Mobile phone not charged. No signal for mobile phone.	2	4	Contact office prior to commencement of work with details of time on job and location. Make arrangements to phone in to office at pre-determined times. If no mobile signal available use landline.	Site	Ensure mobile phone is charged at all times. Line manager to arrange site visit if pre-determined call-ins have been missed	2	
Sharp and jagged items	2	Site hazards such as broken glass, jagged metal, barbed wire etc also have potential to cause injury Sharp cutting tools have potential to cause injury.	3	6	If possible remove sharp hazards from area of work or render safe by boxing in etc. Where excessive sharp hazards are present on site or vessel a specialist subcontractor to be employed to clean up area and render safe.	Site	Gloves with appropriate cut and puncture resistance rating to be worn when working with cutting tools and handling sharp materials. Protective footwear with sole protection to be worn on all sites or vessels.	2	
Highly infectious disease (Covid-19)	3	An illness that can affect lungs and airways caused by coronavirus	2	6	*Do not touch your eyes, nose or mouth if your hands are not clean *Avoid close contact with people who have symptoms of coronavirus *Avoid unnecessary direct physical contact (shaking hands) or by touching surfaces *Social distancing - maintain personal space AFARP. https://www.gov.uk/government/publications/covid-19-guidance-on-social-distancing-and-for-vulnerable-people/guidance-on-social-distancing-for-everyone-in-the-uk-and-protecting-older-people-and-vulnerable-adults	All	*Wash your hands with soap and water often – do this for at least 20 seconds *Always wash your hands when you get home or into work *Clean down work station, equipment with anti-bacterial wipes (this includes vehicles) *Use hand sanitiser gel if soap and water are not available *Use of nitrile-type gloves *Cover your mouth and nose with a tissue or your sleeve (not your hands) when you cough or sneeze *Put used tissues in the bin immediately and wash your hands afterwards *Follow client and	3	

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
							specific guidelines - some may require the wearing of face coverings whenever you are moving around their site or within buildings or in spaces where social distancing is difficult, in particular retail premises		
Presence of animals including rodents and insects.	2	Being attacked / stung by bees / wasps when disturbing their environments. Animals not secured or under the control of owner. Possibility of being bitten by rodents	1	2	Ensure area is free from insect, animal (including bats) and bird nests. Do not enter area if suffer allergic reactions to insect bites / stings. Do not enter any area where there is an uncontrolled animal. If animal cannot be controlled / secured contact your line Manager for advice. If you are at risk leave the area immediately in a calm and orderly manner. Be aware of signs of rodent infestation, in particular the presence of rodent droppings, chewed items, nests etc. Avoid contact with rodents generally. Heavy infestations may require extermination by specialist contractors before work can commence.	Site	PPE, lighting, and insect sting cream. Ask if there are uncontrolled animals at the site, if a bat survey has been performed and are they present and are pigeons / sea birds etc present before commencement of work. Consider whether or not to proceed at this point. Wear PPE.	2	
Disturbances by the general public	1	Members of the public causing obstructions and/or interference with site teams or equipment	2	2	Ensure safe working zone is erected to prevent contact with the public (including hospital patients). Ensure all tools and equipment are monitored and kept within the working zone boundaries at all time. Use appropriate signage. If required, segregation fencing can be erected prior to works commencing. Work in pairs. Try to arrange for works to be carried out at a time when the presence of the public is at a minimum	Site, public	Understand the purpose of the presence of the public to help predict movements (through traffic, waiting area etc). Use of temporary boundary markers or fencing and/or warning signs (eg yellow floor standing) as appropriate to warn members of the public/occupants to keep away.	1	☒
Risk of violence	3	Presence of persons prone to violence	2	6	Assess the risk on arrival at site. Is the person (or persons) angry, intoxicated, under the influence of drugs or involved in criminal activities such as theft? Is the person (or persons) attempting to intimidate or threaten you in any way during the course of your work? (Note - this may include site staff / contractors as well as members of the public).	Site	IMMEDIATELY leave site if you think you are at risk. Do not provoke the situation. Contact your line Manager for advice.	3	
Manual handling of	2	Incorrect manual handling may result	3	6	Manual handling training provided to all staff as part of basic training, refreshed every 2 years. Follow guidelines in HSE document INDG 143	Site	Wear gloves with good grip if required. Protective footwear in the	2	☒

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
heavy and awkward objects, repetitive handling of smaller loads		in musculoskeletal injuries or pain in the body's joints, ligaments, muscles, nerves, tendons, and structures that support limbs, neck and back. These can be long term and debilitating.			Figure 1 for individual person lifting. For heavy or awkward loads summon assistance, do not attempt to lift solo. For large/awkward loads plan the works using the TILE approach (Task, Individual, Load, Environment) - see www.hse.gov.uk/msd/pushpull/risks.htm		event of dropped loads etc.		
Unstable/slippery footing on banks and verges (slippery surfaces, loose soil, concealed animal burrows hidden by vegetation, etc)	2	Unstable footing can result fall injuries, particularly on inclined surfaces.	3	6	Caution when working on banks and verges, particularly on inclined verges. Walk slowly and steadily, do not run. Do not attempt to traverse steep (30 degrees plus) slopes unless sure footing is available. Consider alternative routes from safer locations, use insitu steps if present.	Site	Safety boots with ankle support and metal sole. Standard highways PPE	2	☒
Falls into trial pits and hand digs	3	Potential of persons to fall into pits resulting in injuries up to fatality level	2	6	Open trial pits not to be left unattended during works. Safe working procedures and segregation from other site staff during excavation to minimise fall risks. Appropriate secure barriers/warning signs to be considered. The steps in the excavation limited to a height of 0.8m each. Do not stand at the edge. Excavations are limited to 1.2m lengths.	Site		3	
Biological hazards- Tetanus, Leptospirosis and Lyme disease (tick	3	Exposure to and infection by Leptospirosis and Lyme disease although not life threatening in most	2	6	Tetanus - All site staff to have up to date tetanus vaccinations Leptospirosis - Staff should be aware of leptospirosis (Weil's disease) symptoms and report to their doctor if they suspect they have been exposed and might have it. The disease enters the body via open cuts and wounds Initial symptoms include mild flu-like symptoms, such as a headache, chills and muscle pain. In 10% of cases the infection is more	Site	Leptospirosis - Wear gloves when handling/ working in areas where animal faeces and urine could be present. Ensure any exposed cuts and wounds are protected and that protective gloves are worn. Lyme	3	

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
borne disease)		cases can be potentially fatal to susceptible individuals.			severe and can cause life-threatening problems, including organ failure and internal bleeding. Avoid potential exposure on site by avoiding contact with faeces, sewage and dead and live animals. Known animal carriers include cattle, pigs, dogs and rodents, particularly rats. Lyme disease - Carried by ticks - potential to be in any greenfield sites. If bitten personnel should see their GP if they develop the following symptoms - a pink or red rash, often clear in the clear in the centre (a bulls eye) - a temperature of 38°C (100.4°F) or above - other flu-like symptoms, such as a headache or joint pain - swollen lymph nodes.		disease - avoid being bitten by (i) tucking trousers into socks (ii) use of insect repellent (iii) wearing long sleeved shirts		
Invasive plant species (Environmental)	2	Uncontrolled site investigation work could inadvertently assist the spread of invasive plant species causing an environmental impact.	3	6	Presence and extent of plant invasive species to be verified prior to works commencement. Seek information from client and other sources. Most common in UK are Japanese knotweed, giant hog weed, Himalayan balsam, rhododendron ponticum and New Zealand pigmyweed. Wherever possible avoid work in areas where invasive species are present, demarcate if necessary to prevent accidental incursion of work activities. If work is unavoidable. If disturbance is unavoidable comply with current requirements for control and disposal, see www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants for specific guidance and incorporate into Method Statement.	Environmental risk	N/A	2	
Protected species (Environmental)	2	Uncontrolled site works could harm protected species causing an environmental impact.	3	6	Refer to www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals for current lists of protected species and current requirements, and incorporate into method statement. Consult competent ecologist if required.	Environmental risk	N/A	2	
Nesting birds (Environmental Risk)	2	Uncontrolled site works could harm nesting birds causing an environmental impact	3	6	All wild birds (including both eggs and nests) are protected by law. Works should not intentionally kill or injure or take any wild bird or damage or destroy the nest whilst it is in use or being built or destroy the egg of any wild bird unless a mitigation survey and plan have been approved by the EA and implemented via consultation with a competent ecologist. Where work in the vicinity is possible without disturbing nests, establish the locations of bird nest sites (i.e. in trees, on the ground etc) and maintain a demarcation zone within which no works are to intrude	Environmental risk	N/A	2	☒

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
					upon.				
Restricted access / egress - survey locations	2	Basements, loft spaces, enclosed areas, alleyways, ducts, undercrofts not being readily accessible or exited	2	4	Ensure exit and entry points are known before entry and are visible / navigable from within locations	Site	Clear entry exit routes and adequate lighting	2	
Unsafe buildings	3	Poor structural integrity of building / location - carrying out work without appropriate barriers	2	6	Prior to arrival on site, at the commercial stage of the works, a structural survey will be requested from the client and guidance offered. If structural integrity is not known carry out a "point of work" structural safety assessment concentrating on integrity of floors & ceiling / roof structures by careful visual inspection prior to commencement of work. Remain vigilant at all times during survey. If in doubt DO NOT proceed with survey, contact Line Manager for advice.	Site	Read and understand any previously submitted documents of structural safety and entry procedures to building. Wear appropriate PPE for site (hard hat, gloves, boots, safety glasses etc). Segregate off identified structural weaknesses (missing floor boards etc) prior to works commencing and avoid during works. Inform client.	3	
Fire	3	Ignition of flammable substances	1	3	Sites - Avoid sources of ignition. No smoking on site. Consult the fire safety plan for property and discuss arrangements with the team. No hot working.	All	Be aware of plan or emergency evacuation procedure for site, ship or office.	3	
Electrical Wiring, cables, and electrical equipment (bus-bars, transformers etc)	3	Contacting live electrical components / equipment	2	6	Do not touch electrical or move into close proximity of electrical, wiring, cables, and electrical equipment. Please be aware that electricity can arc from high voltage exposed cables and equipment.	Site	n/a	3	
Biohazards including faeces and guano	3	Ingestion / inhalation / contamination / infection by animal/ human faeces	2	6	If infestation is severe i.e. faeces and guano layering across floor do not proceed any further, inform client and request them to contact specialist removal company. Wear gloves and RPE in infested areas and wash hands on exit if working in an area where faeces/guano is present. Avoid	Site	Wear Gloves (latex or similar). Use respirator with P3 filter where risk of inhaling spores or dust is present. Type 5/6 coveralls. Reinforced anti-	3	

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
(including in water)		including bird guano.			all direct contact with all biohazards including animal carcasses, faeces and guano.		slip overshoes. Anti bacterial wash / spray / hand gel / wipes to disinfect footwear. Follow decontamination procedure in SOP16.02.01 Do not eat or drink until PPE removed and hands thoroughly cleaned and washed		
Manholes	3	Lifting injuries/ falls down open manholes/ toxic gases/ access/ egress/ movement of liquids and free moving solids	3	9	Manholes should not be left unattended and covers to be replaced correctly when inspection is complete. Always lift with feet apart and with straight back. Do not twist or bend your back. Pick up your feet to pivot and turn. All manhole inspection is done from the surface. Before information is collated the manhole must aired to allow any noxious gases to dissipate. Do not enter chambers. A hydraulic lifter may be used. Under no circumstance must manhole covers be lifted using a forklift truck. When a cover is replaced it should sit stable and level with the ground to avoid accidents. Under no circumstance should an open manhole be left unattended. Barriers to are to be used to protect the Surveying team from intrusion and the public from falls. Unless trained or qualified in how to operate in confined spaces DO NOT ENTER manhole chambers or allow anyone else to. This includes bending down and leaning into the open chamber	Site, client , public	PPE including protective gloves, eye protection, work boots. Hydraulic lifter. Signage and Barriers	3	☒
Confined space - entry	3	Areas of limited access / egress. Areas of little activity and probable build up of gas and depletion of oxygen. Low light levels. Areas of limited space to move freely.	2	6	Decide whether entry into the confined space can be avoided. Obtain information from client about previous use.	Site	Operatives to have appropriate confined space training. Gas Free certs must be given prior to entry. Access / Egress must be suitably assessed and be adequate before entering. Gas monitors must be worn when entering a confined space. 3 man rule – 2 within area, 1 outside man. Additional lighting		☒

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
							maybe needed. 2 way radios must be provided to all personnel involved in area and outside area. Consult with client/site owner to ascertain as to what their procedure is for entering confined spaces & ensure that all operatives also adhere to this.		
Toxic gases or oxygen deprivation	3	Gas depletion, flammable, explosive or toxic gases present, also possibility of low oxygen levels. Typical in tanks / shafts / compartments where air circulation is poor.	3	9	Ensure all operatives are confined space trained to appropriate level. Request gas free certification from client where applicable. Vent compartment thoroughly prior to entrance if possible. Prior to all confined space entries a gas detector must be used to assess the suitability of the atmosphere - this can be lowered using a rope or similar. Allow the gas detector to take readings at representative locations (i.e. upper, middle and lower levels). Allow 5 minutes for each location to give the gas detector sufficient time to get a reliable reading. If the alarm sounds do not enter the space; apply additional ventilation if possible and repeat gas detector checks before attempting entry. Do not enter if the alarm sounds again. Two person minimum teams - one topside / outside. and one inside. Escape breathing set to be provided on Class NC2 and NC3 spaces. Tripod / harness winch required on NC2 class confined spaces where practical.	Site	Wear appropriate PPE.		
Confined space - communication	3	Loss of communication between those in inside and those outside the confined space.	2	6	Provide confined space inside persons with communication systems if out of voice contact. Maintain regular communication between topside and inside person.	Site	Wear appropriate PPE		
Emergency incidents in confined space	3	Incidents within confined space may require rapid rescue to prevent injuries or incapacitation escalating.	2	6	Classify confined space as NC1, NC 2 or NC 3 and incorporate sufficient and site specific emergency response procedure into method statement. Examples - NC 2 will require tripod, winch and harness system, NC 3 may require provision of rescue team from approved supplier i.e. Mines Rescue. Do not rely on Emergency Services as the sole option. Appropriate levels of confined space training to be provided.	Site	Wear appropriate PPE and RPE.		

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
Flooding or water present in space		3 Potential for drowning if standing water or flooding occurs.	2	6	Assess flood risk before entry - do not enter if significant flood risk is present. Do not enter confined spaces where standing water is present. Consider pumping out water if practicable.	Site	Wear appropriate PPE and RPE.		
High temperatures and/or humidity		3 High temperatures may cause dehydration (resulting in impaired decision making) heat exhaustion or heat stroke.	3	9	Assess heat levels before entry, reduce temperature if possible by isolating hot pipes, providing ventilation, air conditioning, barriering off hot pipes etc. Do not allow vulnerable individuals to work in hot confined spaces (i.e. those with heart conditions) Take regular breaks from hot conditions, slow work rates to a steady comfortable pace. Give the body chance to adapt to higher temperatures. Provide water and encourage workers to drink it.	Site	Wear appropriate PPE and RPE.		
Structural collapse		3 Structural collapse in a confined space could result in injuries up to fatality level	2	9	No entry into confined spaces where any evidence of instability is present i.e. possible collapse of ceiling or walls. If instability becomes evident with space then vacate immediately.	Site	Wear appropriate PPE and RPE		
Solid or semi solid materials capable of flow or engulfment		3 Potential to bury/drown or trap persons, examples include sand, muds, liquids with a solid crust on top such as sewage	3	9	Assess risk beforehand; do not enter spaces where such risks are present. Note that crusts over liquid may appear solid until "stepped on" so be vigilant and cautious if such hazards may be present in a working area.	Site	Wear appropriate PPE and RPE.		☒
Poor lighting		2 Poor illumination could lead to slips, trips, falls resulting in various injuries	3	6	Provide adequate illumination, use hands free head torches and supplement if necessary with lighting rigs.	Site	Wear appropriate PPE and RPE		
Fire/gas explosion		3 Fire or gas explosion has potential to cause fatality	2	6	Assess danger beforehand using gas detectors. Do not enter where gas detectors indicate gas buildup above safe levels. Carry gas detectors within space. Do not create sources of ignition such as sparks. Where a potential gas risk is present and entry is unavoidable use intrinsically safe lighting systems.	Site	Wear appropriate PPE and RPE		

GROUND CLEARANCE

Hazard	Consequence (A)	Risk Cause	Likelihood (B)	Risk Factor (A×B)	Preventive Action	Personnel Exposed	PPE / RPE / Control Measure Used	Residual Risk	Tick (All that apply)
Open water	3	Drowning/water borne disease	2	6	Do not enter the water. Keep at least 1 metre away from the waters edge. Wash hands after survey.	Surveyor		2	☒
Overgrown areas	2	Leading to awkward falls causing strains/broken bones	3	6	Overgrown areas are to be cleared before being entered. This can be done using a hacker or strimmer. In areas where vegetation is too dense to clear avoid the area and discuss an alternative approach with the Directors at Midland Survey and the site manager	Site	Full PPE must be used for this (over-trousers, jacket, gloves, work boots, hard hat, ear defenders and safety glasses)	2	

Signature(s) - Please include all persons present on site such as contractors, subcontractors, auditors, visitors

Name Printed	Signature	Company/ Position	Date



Method Statement

Ground Clearance Survey

Site name: Newbridge Bridge, Port Talbot, SA12 6BT

Client: Tetrattech

Special precaution: Drilling plant/open water

The purpose of this activity is to make sure an immediate area of land is clear from submerged pipes and cables before the drilling of boreholes can begin.

On Arrival at site

1. On attending site, the surveyor will report to the site engineer
2. Surveyor and assistant will be briefed on site safety before commencement of survey and a test approach agreed.
3. The surveyor should spend some time carefully walking round the site and making an informed judgement on any possible / existing safety risks. If there are significant risks, then this must be reported to the office immediately.
4. Surveyor and assistant will be expected to wear appropriate safety clothing as described below.
5. The Surveyor and assistant are to carefully read through all documentation with regards the survey requirements.
6. Site knowledge and any known records to be studied and investigated. The Surveyor should use this information to consider what services to expect to be present due to the nature of the site.

Commencement of ground clearance survey

The survey will consist of the surveyor identifying the services in close vicinity of the location to be drilled. These will be done using radio detection methods and Ground Probe Radar. The identified services will be marked on the ground.

Start of Services – Walk the site with locator looking for passive frequencies identifying covers and street furniture that will give an indication of services below ground. If stats are supplied these are used in conjunction with onsite information.

All services including those that are made of a conductible metallic material are located using electromagnetic techniques this consists of using a direct connection, transmitting clamp or inducing a signal along the service. These are normally traced from surface features such as lampposts, signs and manhole covers.

All services including those not made of a conductible metallic material are located using ground penetrating radar.

Drainage

Start of drainage – Lift manhole covers in the vicinity of each location and provide invert levels, flow direction, pipe diameter and sewer type flow direction being storm foul or combined. This will be carried out using manhole keys (or in some circumstances a hydraulic lifter).

Begin by clearing immediate area. Erect barriers and warning signs if necessary. For covers in carriage-ways traffic management may be needed-see Risk Assessment for more detail. Lift manhole cover and place to the side in the work area. Leave manhole to air for a few minutes before commencing survey. Do not leave work area unattended and do not enter manhole chamber at any time.

Link drainage runs from start of run to finish, this is done using flexi drainage rod with a locatable Sonde to accurately locate run position and depth where applicable.

Also depending on condition of drainage, environmentally safe dye is used to determine the correct run of individual pipes.

On clear and flowing runs tapping the up or down stream manhole will give an audible connection, this is only a link indication and is not relied upon.

Steel pipe work: If all above techniques are not successful electromagnetic location is used in the same way services are traced.

Draw up drainage check over all information gained once complete in conjunction with stats if supplied.

When all the above methods have been utilised, the Surveyor will carry out a power sweep of each location along with a GPR sweep. Once the location has been deemed safe enough to dig our Surveyor will mark a target symbol with 2/4 filled in.

Replace cover as found and remove barriers and signage.

Before Leaving Site

Before leaving site, a check should be made to ensure all possible services have been located and that all manholes and inspections covers have been safely replaced. Flexi-rods are to be cleaned on return to the office as described in the risk assessment.

The client should then be informed of any problems encountered or services that were unable to be identified. If possible, a site walk should be carried out to confirm that the correct areas have been fully surveyed and that the client understands the information provided. The client will sign the job sheet to confirm this.

Upon returning to the office all information should be handed in along with a brief report highlighting any problems or difficulties. The office is to be informed of any deadline requirements for the work carried out and any other client requests.

Personal Protective Equipment to be used

Yellow Jackets/Vests

Hard Hats

Steel toe-capped boots

Gloves

Goggles

Ear defenders



Resources

No mechanical plant is required to carry out this work.

No work will that we carry out is sub-contracted to another company.

No materials are needed to complete this work.

Equipment used will consist of;

1 x Surveyor

RD8000 locating tool.

GPR locating tool.

Manhole cover lifting tools (including keys, crowbar, hammer, screwdriver, separate tape, hydraulic lifter)

GPS and total station to record utilities locations.

Permits Required

No permits are required at this time.

Site Plan





Emergency Procedure & First Aid

In the event of any emergency incident the Senior Surveyor is to assess the situation and take the appropriate action, informing the emergency services where necessary.

All incidents should be reported back to a Director at Midland Survey at the earliest convenience. The site contact or client should be notified.

All vehicles contain First Aid Kits.

Nearest Hospital

Neath Port Talbot Hospital
Baglan Way
Port Talbot
SA12 7BX
Tel: 01639 862000

Date & Signature:
26/09/2023

Director

South Wales Ground Testing

Method Statement Wheeled Probing Rig

Equipment:

Wheeled rig
Hand jacking equipment
Samplers and probe rods
Hand tools

PPE required:

Overalls, hard hat, steel toe capped safety boots, ear defenders.

Training:

Training given by in house experienced personnel.
CSCS Card usually required on construction sites.
NVQ Land Drilling for lead driller

Pre Work Checks:

Integrity of winch cable
Engine and gear oil levels
Tyres for punctures
Integrity of pick up blocks and release mechanism, lubricate central rod and moving parts.

Method:

The rig is wheeled by hand to the borehole location and positioned vertically supported on boards. The weight is raised by means of the winch and either the first sampler or probe rod is positioned beneath the weight. The winch cable is disconnected from the weight and the engine is started. The chain then moves around the mast and the weight is raised and when it reaches the top of the mast is released and dropped. The sample tube or probe rod is therefore driven percussively into the ground. In the case of probing the blows required to drive the cone each successive 100mm is recorded. When the metre rod is driven into the ground, the engine should be stopped, the cable reconnected to the weight, the weight raised to the top of the mast and another rod attached. The process is repeated until the desired depth is achieved or refusal on hard strata. In the case of soil sampling once the tube is driven into the ground the rig is lowered horizontally resting on a trestle, the sample tube is withdrawn by means of hand jacks, the next sample tube is lowered into the ground and the rig repositioned vertically. Drill rods are attached to the sampler and the process repeated until the desired depth or refusal on hard strata is achieved.

Method statement read and understood:

.....
Signed by operative

Risk Matrix

Risk Rating Likelihood (L) X Severity (S)			Severity should an accident occur (S)				
			1	2	3	4	5
			Negligible Impact or personal injury	Slight Minor injury, damage or business impact	Moderate Lost time injury Moderate damage or business impact	High Fatality, serious injury, damage or business impact	Very high Multiple fatalities, serious injuries, damage or business impact
Likelihood of hazard occurring (L)	1	Very unlikely A n unusual combination of factors would be required for an accident or incident to occur	Low	Low	Low	Low	Low
	2	Unlikely A rare combination of factors would be required for an accident or incident to occur	Low	Low	Low	Medium	Medium
	3	Possible Could happen if a combination of accidental factors are present	Low	Low	Medium	High	High
	4	Likely Not certain to happen but additional factors may result in an accident or incident	Low	Medium	High	High	High
	5	Very likely Almost inevitable that an accident or incident would result	Low	Medium	High	High	High

Risk Level = Severity x Likelihood

Low Risk (Score 1-6)	Work may proceed providing specified controls are carried out to ensure principle of "As Low As Reasonably Practicable" (ALARP) is followed
Medium Risk (Score 8-10)	Consider revisiting the methodology to reduce risks, task may only proceed after consultation with specialist personnel and or HSE team
High Risk (Score 12-25)	Task may not proceed, revisit methodology to reduce risks to acceptable levels

South Wales Ground Testing

Risk Assessment and Control Measures for Drilling Operations

Project:		Pre mitigation risk			Mitigation Measures.	Post mitigation risk		
Hazard	Those at Risk	L	S	R		L	S	R
Sampling Rig General	Operatives				Conduct pre site safety check and operation of rig and equipment			
Hydraulic rams and moving parts trapping appendages.	Public	4	4	12	Lead operative suitably experienced, qualified and trained	1	4	4
Noise, and fumes.	Other site users				PPE as per method statement as minimum			
Entrapment while tracking unit.					Observe good housekeeping.			
					Ensure others not associated with rig operation cannot encroach into working area by means of barriers or other suitable means.			
Underground Services	Operatives				Ensure the proximity of services are noted			
Physical injury or asphyxiation due to contact with damaged buried pipe or cable.	Public	3	5	15	from up to date service plans.	1	5	5
	Other site users				Engineer to CAT scan working area.			
					Inspection pit to be hand excavated to 1.20m unless it is certain that there are no buried services in proximity.			
Contaminated land	Operatives				If the ground is anticipated to be contaminated then a site specific risk assessment will be created highlighting the anticipated pollutants and appropriate measures.			
Poisoning or asphyxiation due to contact with noxious or toxic substances from the sub substrata.	Public	2	4	8	In general operatives should observe any unusual odours or colours in the soil or groundwater. If any of these are encountered then drilling should cease and the supervising engineer notified.	1	3	4
	Other site users				Standard PPE should be worn at all times and hands should be washed prior to food, drinking or smoking breaks.			
Slips, trips and falls	Operatives				Keep working area as tidy as possible. Stack tools away from area immediately in front of the rig and control panel.			
Injury due to falling over items of equipment. Slipping on wet or uneven ground.	Other site users	4	3	12	Wherever possible set the rig up on even ground.	1	3	3
					Where the ground is particularly soft or wet place mats or boards around the rig to provide firm footing.			
Spitting of liner sleeves	Operatives				Ensure that appropriate gloves and safety goggles are worn			
It is required to split the plastic sample tube with a hooked bladed Stanley knife.		4	4	16	Ensure no part of the body placed is in the direction of the cut.	1	4	4
Possible injury due to contact with the blade or cur plastic edge.					Place Stanley blade at an angle so as not to snag on material within liner.			
					Ensure that no one else is in the vicinity			
Tracking of rig	Operatives				When tracking between positions, conduct a prior walkover to check for uneven ground, obstacles or depressions.			
Potential for rig to topple when tracking over uneven ground causing injury.	Public	3	5	15	Ensure that there is sufficient room for the rig to pass by any static obstacles.	1	4	4
Possible entrapment of persons between rig and other objects	Other site users							