

Method Statement

Method Statement Details

Method Statement Number	77
Method Statement Date	04/11/2021
Method Statement Author	Jenny Hormell
Project/Contract	Hough End Leisure Centre - Manchester
Start Date	03/12/2021
Expected job duration	9-10 weeks
Client Contact	David Stone
Description	Installation of 20 no. geoloops and associated pipework. Hough End Leisure Centre 480 Princess Road Manchester M20 1HD
Site Address	

Signatures

	Name	Title	Signature	Date
Document Author	Jenny Hormell	Manager		04/11/2021

Data protection statement

The information and data provided herein applies only to the contract for which it was written, it shall not be duplicated, disclosed or disseminated by the recipient in whole or in part for any purpose whatsoever without the prior written permission from HS Direct Ltd.

It is the duty of all employees to observe the following Risk Assessment framed to provide a code of good practice and conduct with the object of preventing accidents. At all times employees must work in a safe manner both to prevent personal injury to themselves or to other personnel.

Emergency Contact Details

Name	Jenny Hormell	Lee Hormell	Mark Crew	
Telephone Number	01246 938499	01246 938 499/07540 635766	07807 753419	

To be observed by all staff at all times, any deviation from these control procedures must be authorised by the site manager or safety representative.

Communication with Other Workers on Site.

All staff will report to the site office for induction on arrival at the site. The site manager will inform staff of any hazards that are present on site. Staff will inform the site manager of the work to be carried out and how it could affect other trades working on the site. Where necessary notices will be posted advising of any hazards present during the works. Where contractor activities cross, the senior person must liaise with the other trades to ensure safe operation.

First Aid

It is the responsibility of the company to ensure adequate First Aid provision for its staff. Adequate means provision of a trained first aider, suitable first aid equipment and/or the provision of an appointed person at the minimum.

A trained First Aider will be a suitable person who has attended an HSE approved course of at least three days duration.

An Appointed Person is a person provided by the employer to take charge of the situation (e.g. to call an ambulance) if a serious injury/illness occurs in the absence of a First Aider. The Appointed Person can render emergency First Aid if trained to do so. All staff when inducted will be made aware of the location of the First Aid kit.

Manual Handling

All staff and contractors have been instructed on the potential dangers of manual handling, and have received manual handling training. Equipment provided to reduce manual handling must be used where provided. Staff and contractors will not lift items of tools or equipment that are beyond their capabilities. Heavy or awkward items will be split into smaller units where possible or dual lifted where this is not possible. It is the responsibility of the site foreman/employer to identify and control manual handling activities as they occur on site on a day to day basis.

Material Handling

All materials required for site will be unloaded to a designated unloading and storage area which will be away from the work area as far as is practicable. This area will be kept tidy to minimise trip hazards. Materials as and when required will be collected from the storage area and transferred to the work area. All staff will take care when handling materials and will use mechanical aids wherever possible. When stacking materials particular care must be taken to ensure that the stack is secure and that the product does not get damaged.

Fuel Storage

Red derv will be stored in a bunded fuel bowser in a designated area. This will be transferred to the working area for refuelling in a fuel cube.

Personal Protective Equipment (PPE)

PPE will be provided as a last form of protection against a hazard. Staff will use the appropriate PPE for the task as identified in the risk assessment.

All site workers will wear Safety boots, Hi Visibility Vests, Hard Hats and protective clothing at all times, other items of PPE such as eye protection, hearing protection and gloves are available to be worn as and when necessary and as determined by the risk assessment.

Preparation & Induction

A risk assessment will be carried out for all tasks which will be discussed with members of staff and the sub contractors, any queries or concerns will be raised with the contract manager who will ensure it is dealt with. Staff and sub contractors will be inducted onto site in order to understand the hazards present on site and the tasks that are to take place. Staff will also be advised of other site activities that could impact on their work and be made aware of any liaison that needs to take place between different trades. Staff will follow all site rules and safety procedures.

Staff and Training

The task will be carried out by staff from GSS Ltd, all staff are qualified, experienced, receive ongoing training, and hold suitable qualifications. Apprentices are under constant supervision by experienced members of staff.

Any sub contractors appointed by us have been assessed for their ability and suitability to carry out the tasks allocated to them.

Tools and Electrical Equipment

All tools and equipment will be visually inspected on a regular basis, defective or damaged equipment will be removed from service. Electrical tools will be 110V or battery operated where possible. Sub contractors will not be allowed to bring on to site any damaged or defective tools, the site foreman is responsible for ensuring that all tools and equipment allowed on the site are fit for purpose. Any portable electrical equipment taken on to site must be PAT tested every 3 months when used on construction sites, 6 monthly for heavy use activities and annually for other activities. A risk assessment will determine if inspection periods need to be varied.

Welfare

The principle contractor is responsible for providing adequate washing, toilet, drying and refreshment facilities for staff and sub-contractors, staff and contractors are responsible for ensuring that such welfare facilities are maintained in a clean and wholesome manner. This will be your responsibility when you are the principle contractor, it may be necessary occasionally for your company to identify suitable local amenities.

Code of Conduct – COVID-19

COVID-19 - Code of Conduct

This code of conduct describes how the movement of people, plant and equipment will be managed during the COVID19 pandemic in order to keep the Main Contractor, Workers, Clients, sub-contractors, customers and the public safe. This Code of conduct should be used in conjunction with other standard safety notices in this document.

Communication with Other Workers on Site

When working with other trades on site, operatives will make sure they are working with social distancing guidance. If this is not possible work should be stopped and discussed with Ground Source Solutions (GSS) COMPANY on-site supervisor.

If operatives are feeling unwell, they will inform the GSS site supervisor who must inform the Site Manager before leaving the site

Loading and Unloading

The loading & unloading area should be restricted to authorised people. Signage should be erected to warn others of loading & unloading taking place. Steps should always be used to get on or off a delivery vehicle. Only authorised persons should be allowed in the work area, visitors must be warned of all vehicle movement and should be supervised at all times.

- Where practical, materials should be loaded/unloaded from vehicles and moved in storage areas by mechanical means where possible, forklift, crane or pallet truck (All equipment cleaned as per COVID-19 hygiene control advice).
- Manual handling of materials should only be undertaken if social distancing rules can be maintained.
- The banding/unbinding of materials or the loading/unloading of bins should be carried out by one person at a time or by a designated team.
- Operatives should not approach or congregate around material storage areas, bins or racks (Social distancing rules are maintained at all times).
- All yard operations must follow the same health and safety requirements (including 2.0m minimum social distancing rules) as for work on site.

Personal Protective Equipment (PPE).

Due to the ongoing COVID 19 Viral Pandemic, the following additional PPE may be required subject to the risk assessment or site rules.

- Disposable Gloves
- Face Masks.

The current **social distancing guidelines must be adhered to wherever practically** possible. If the social distancing guidelines cannot be met, the following further PPE may be required.

The duration of close working will be kept to a minimum.

- Face Mask. (FFP2 minimum rating)
- GSS will provide all employees with Alcohol Hand Sanitizer and wipes which will be applied at regular intervals.

GSS PPE and site standards will also be adhered to. These requirements will be highlighted on entry to the site.

Travelling to Work

When travelling at work or between offices, site, client's premises etc, GSS workers will travel in their work bubble.

Driving at Work

- Journeys should be shared with the same individuals and with the minimum number of people at any one time.
- Good ventilation (i.e. keeping the windows open) and facing away from each other may help to reduce the risk of transmission.
- Wherever possible drivers and passengers should maintain a distance of two metres and avoid touching their faces.
- The vehicle should be cleaned using gloves and standard cleaning products, with particular emphasis on handles and other areas where passengers may touch surfaces.
- Use hand cleaning facilities before entering and after getting out of the vehicle and at entrances and exits points wherever possible or hand sanitiser if soap and water are not available.
- Wash their hands for 20 seconds using soap and water or hand sanitiser if soap and water are not available.

Plant and Equipment

Where practical Plant, machinery and equipment on site must not be shared and should be used only by one person.

- Where different workers, operators or drivers must share the used of Plant, machinery and other equipment consideration must be made to working in dedicated teams.
- Common touchpoints, cabs, handles and all areas that are touched must be cleaned between use.
- Operators/Drivers should wear gloves and must avoid touching their face.
- Communication between operators, drivers, banksmen, and supervisors etc should take place in line with current social distancing guidance.

- GSS Workers should be allowed extra time or breaks to wash their hands and clean equipment where necessary.

Welfare

GSS workers will not travel to or attend work if any of the following apply.

- The recorded temperature of above 38.5°C (100.4°F).
- They have a consistent cough, loss of taste or smell.
- They have had a positive COVID-19 test.
- Anyone within their household has any of the above symptoms or has a positive COVID-19 test.

If any of the above apply you should make your immediate manager aware at the earliest opportunity.

- All workers will wash their hands for 20 seconds with water and soap when they are entering and leaving a site or use a sanitising hand wash/Sanitising Station.

Test and Trace

GSS will comply with current Government Guidance regarding Test and Trace.

In order to help minimise the onward spread of Covid-19, Ground Source Solutions Ltd may release your contact details and shift data to the NHS Test and Trace service where Ground Source Solutions Ltd employees or subcontractors are identified as people who may have been in contact with the virus.

If there is more than one case of COVID-19 associated with the workplace, this information may be passed to PHE.

Digging Out (Excavations)

The area of excavations will first be checked for live services using cat scanners and plans where possible. Any existing services will be protected or moved as required. The holes will be either dug using an excavator or hand dug by two men using pick and shovel; the excavations will be dug to the required width and depth according to the plans. To prevent the potential for subsidence or collapse coffer dams will be used to support the sides where the depth exceeds 1.5 metres, a distance of approx 1.2 metres is left in situ and another section is dug out, the intermediate sections are not dug out until the back fill or concrete in the original excavations has been set for 48 hours.

Emergency Information

Nearest Accident and Emergency:

Manchester Royal Infirmary

Tel: 0161 276 1234

Oxford Road
Manchester
Greater Manchester
M13 9WL

Excavation Safety

On site dig permits may be required, refer to the site manager where applicable. No machines are allowed near the excavations to minimise the risk of collapse, all trenches will be protected from collapse with braced timber shuttering and sandbags, or coffer dams; the site foreman will ensure the safety of each excavation prior to allowing work. Barriers will be erected around all excavations. Access and egress to trenches will be via short timber ladders, all excavations will have a banksman on duty and an evacuation hoist on site whilst the trench is being worked. Occasionally water enters the excavations and this has to be cleared out by hand bailing, severe flooding may require the use of a pump. GSS Ltd. staff are aware of the dangers of standing water and will take precautions to ensure contaminated water does not get onto the skin or enter the body. Good standards of hygiene will be maintained prior to eating, drinking, and clearing site. A fact sheet on Leptospirosis is provided and will be read by all staff and sub contractors under our control. Excavation inspections should be made in accordance with the HSE 'Construction information sheet No 47 (rev1)'.

Machine Tools

Machine tools will only be operated by competent persons. Apprentices will be allowed to operate machinery if under the direct supervision of a competent person. Machine tools will be isolated when not in use and under no circumstances will they be left unattended. All machine tools will be PAT tested on at least an annual basis and visually inspected on a daily basis by the competent person. Construction sites require that PAT tests are carried out every 3 months. Any tools found to be damaged will be removed from site immediately until a repair or replacement can be effected.

Moving Plant and Equipment

Ground Source Solutions Ltd will arrive on site and the team leader will meet with the site manager to ascertain if there is any local health and safety issues before our staff are allowed on site, the staff will be familiarized with any local inductions and safe system of works,

Staff will create a sterile area with the use of barriers, fencing and red striped barrier tape as applicable , giving limited access to Ground Source Solutions Ltd staff only will be the only personnel allowed in the restricted area

Lifting of plant and Equipment: A test lift will be made of the a unit before the main lift occurs. the units will be lifted & placed on the truck by trained operatives the equipment will be lifted to the rear of the vehicel & strapped for safe transportation.

Ground Source Solutions Ltd will check all equipment for damage and report, if in order the lifting equipment will be loaded back to the vehicle for return to the hire station. All staff will make the area accessible and sign out of site

Site Access and Egress

The principle contractor is responsible for providing safe access and egress to the site, GSS Ltd. staff will ensure safe access and egress is maintained for themselves and other contractors in the area they are working in, good standards of housekeeping will be maintained.

Material Deliveries

Deliveries to site will be scheduled with the relevant personnel informed. Supervised offloading will be carried out by GSS and materials stored in designated areas.

Vehicle Safety

All company vehicles are subject to a planned maintenance and inspection program. Staff responsible for vehicles will carry out daily and weekly checks to ensure continued roadworthiness. All drivers will hold the appropriate licence for the vehicle they are driving and they will comply with road traffic regulations and the Highway Code. All loads will be securely fastened to the vehicle by competent persons prior to travel. Drivers will take regular breaks on long journeys. Audible warnings for reversing will be used where fitted and banksmen will be used when reversing.

Project: Installation of 20 No. Geo-loops and Associated Pipework - Hough End Leisure Centre - M20 1HD

Method Statement for Installation of Geothermal Ground Heat Exchangers and Associated Pipe Works

1. Introduction

This method statement details the particulars for the installation of Geothermal Ground Heat Exchangers and Associated Pipe Works.

The main drilling operation involves the installation of 20 no Geo-loop on the site. The boreholes are 150mm diameter x 150m.

2. Programme

- a. The programme for the works to complete the installation is 9-10 weeks duration.

These works will be carried out over 1 no visit.

1. The Installation, grouting and testing of 20 no Geo-loops.

To meet the above programme requirement it is anticipated that up to 1 no. drilling rigs will be utilised.

b. Site Working Hours

The site working hours will be 08.00 - 18.00 hours Monday to Friday.

3 General Description of Works

Installation of 20 no geothermal wells to a depth of 150m. A 40 mm Geo-loop assembly will be installed in the well and back-filled using a thermal grout.

4 Drilling Operations

- a. Drilling of the boreholes will be completed by up to 1no hydraulic track mounted drill rigs with a static weight of 8.5 tonnes.

Note 1: On the site we reserve the right to change the flushing medium as ground conditions dictate and have therefore also included drilling with water techniques.

- b. The rig will have on board water/foam pumps.

- c. GSS will set out the borehole position using the agreed parameters to the information as provided on the construction drawings. The principle contractor is to assist in marking out the borehole position. GSS will hand over a borehole positions drawing.

The working area shall be protected by utilising pedestrian interlocking type fencing and where necessary and plastic separation blocks to provide a safety zone supplied and installed by the Principal Contractor..

- d. Prior to any drilling taking place, a Permit to Dig will be requested from the Principal Contractor. Drawings of the existing, new and temporary underground services will be made available.

Note 2:

- e. Water for the drilling works will be taken from a supply provided by the Principal Contractor. The flow will be adjusted to suit the requirement for the rig. The flow rate will be monitored by a flow meter located in the connection between the hydrant and the rig.

A drilling polymer will be used to help stabilise the borehole when drilling through the unconsolidated sand.

A sacrificial bit may also be used to overcome the influx of sand whilst the borehole is cased to a depth of 20m to allow the inserting of the Geo-loop.

- f. A settlement tank will be provided by GSS around the perimeter of the field taking due note of adjacent services and footprint of the rig.

- g. Waste water and spoil from the works will be allowed to gravitate into the settlement tanks to settle ready for re-use /recycling.

- h. Clarified water will gravitate, or be pumped into an adjacent foul water manhole identified by the Principal Contractor.

- i. The clarified water will be sampled and analysed before discharge to drain to ensure compliance with the conditions on the consent obtained from the Water Authority.

- j. The captured silt/sludge will be removed from the silt trap and taken to a designated area agreed by the Principal Contractor. The material will be allowed to dry out before being removed from site by the Principal Contractor.

- k. Drilling for the Geo-loop will only proceed after all of the above measures are in place.

- l. Physical counting of the drill strings, which will be double checked when the Geo-loops are lowered into the borehole, will check and confirm boring to the correct depth.

5. Installation of Geo-Loop

- a. The Geo-loop is on a 40mm, single flow and return HDPE loop with a restricted u-bend at the base. These are factory tested to 16 bar and are installed by the following method.
- b. The Geo-loop is placed on a reeler and is pre-charged with water to stop buoyancy in the hole. The reeler is attached to the forks of a telehandler and then lowered into the bore. The telehandler, with certificates of compliance will be provided by GSS. The telehandler operator will hold a CPCS/NPORS card.
- c. A 32mm grout pipe is attached to the base of the Geo-loop.
- d. All Geo-loops are filled with water to stop flotation and to aid the installation. The Geo-loops will be capped to prevent ingress of foreign matter and will be cut off at a later stage to suit the location of the flow and return horizontal pipe runs. Testing of each system field will be carried out in sections and then as a whole when the entire field has been completed to the flow and return valve manifolds. Testing will be carried out at 6 bar for 5 minutes – a form will be issued to record and confirm test results. This test is to check for possible damage to the Geo-loop during installation.
- e. Should a Geo-loop fail the test then this will remain in-situ and be marked as redundant. A new bore and Geo-loop will then be installed adjacent to the failed Geo-loop..
- f. A final test will be carried out when all system fields have been completed and tested and the pipe-work installed to an agreed termination point (within the plant room).

6. Grouting / Gravelling of Borehole

- a. After the installation of both the Geo-loop and the grout loop, the bores will be back-filled. A thermal grout mix will be pumped to the bottom of the bore via the grout tube. The grout shall be mixed using a Putzmeister SP11 Beliso Worm Pump.
- b. This method fills the bore hole completely. If for any reason such as a void or mine workings being present, then a measured amount of grout will be injected and the remainder of the bore will be filled with pea gravel. If the ground conditions are such that the water pressure washes out the grout reducing its stability, then the pea gravel will prevail and fill the void.
- c. When the ground loop has been grouted into position, it shall be cut and sealed just below ground level. Pre-cut plywood will then be placed over the bore positions to protect them.

7. Testing and Flushing of System Well Field

- a. On completion of system section testing, a final test is carried out on the whole system well-field. This is done by flushing and purging the entire system of any air which may have become trapped and to filter out any debris from the installation process. All works will be undertaken to International Ground Source Heat Pump Association Standards (IGSHPA)
- b. At this stage, dependent on the time-scale for usage and confidence that the system is secure, the glycol or methanol mix will be introduced by the Principal Contractor or M & E Contractor.. The system is subjected to a final pressure test once GSS are satisfied that the system is free from air and dirt and the correct percentage of glycol or methanol mix has been added,
- c. Dosing of the system will be carried out by others in strict accordance with the manufacturer recommendations and guidance notes. Measured amounts of chemical will be introduced via a dosing pot.
- c. Information required for the H & S file will be collected and issued to the Principal Contractor in due time for inclusion within the documentation for the entire geothermal scheme.

e. Plant Used for the Test and Installation of Heat Exchangers (All Supplied By GSS)

- 1 no. Drilling Rig
- 1 no. Grouting Plant and Mud Pumps
- 1 no. Loop Reeler
- 8 Tonnes Cat Excavator or 7.5m Telehandler
- Assorted Drills, Hammers, Tubes, Air/Water Pipes and Grouting Tubes

8. Access

- a. Access to site will be via Princess Road, Manchester.
- b. The main item of plant to be delivered will be the drilling rig (static weight - 8 tonnes each) on low-loader.
- c. It is anticipated that the low-loader will be able to access the site directly from Princess Road.

11. Resources

a. Drilling

- | | |
|----------------------|------|
| • Foreman/Supervisor | 1 no |
| • Rig operator | 1no |

- Assistant Drilling Rig Operator
- Plant Operator (CPCS/NPORS qualified)

2 no

b. Supervision

On Site Works Supervisor – James Stuart
Visiting Contract Manager – Mark Crew

The resources as noted above for site operations will be backed up by Head Office Management as required.

The Company's workshops at Chesterfield are available for any emergency repairs or breakdown at all times.

12. Safety

- Prior to any work commencing on site all operatives will attend the Principal Contractor site induction.
- Appropriate Risk Assessments are provided with the Method Statement. The responsibility for ensuring that operations are carried out to the required safety standards is undertaken on site by the Works Supervisor.
- All personnel will wear Safety Helmets, Boots, High Visibility Vests, Gloves, and Safety Glasses at all times. Hearing Protection and any other PPE requirements will be determined by risk assessment.

13. Accident Reporting

- All accidents will be reported immediately to the Principal Contractor. All accidents will be recorded in the GSS Ltd. Accident Book.
- In the event of a major injury, dangerous occurrence or over three days lost time accident, in addition to the above the Company's Safety Officer and Line Managers will be informed immediately by the quickest possible means.

14. Training/Experience

- All GSS line managers have had several years experience conducting drilling contracts/operations. Site Supervisors and other key site staff receive ongoing performance evaluations and have much experience in the installation of boreholes and drilling techniques.
- They will also receive as deemed necessary by the Safety Advisor, Contract Managers and relevant Directors any other Safety Training pertinent to the particular contract.
- A toolbox talk system is in operation with 38 basic subject headings. These are used by the Management to enhance and underpin site induction training. For the duration of the contract the Site Supervisor will deliver one toolbox talk each week.

15. Noise

Noise levels on all plant, and from other noisy activities shall be minimised whenever practicable.

16. Manual Handling

Only limited operations in drilling involve manual handling loads e.g. drill rods & one bag of cement max weight 25Kgs. If there is a risk of injury from manual handling and the operation cannot be avoided or mechanised, a manual handling risk assessment will be carried out prior to the operation. Personal protective equipment suitable for the task will be worn at all times.

17. Permit to Work

A "Permit to Dig" is required by GSS's Site Supervisor before undertaking any drilling work on the site.

18. First Aid

It is anticipated that the Principal Contractor will provide sufficient and adequate First Aid facilities and equipment.

19. Plant and Equipment

The Drilling Rig Operators will undertake daily inspection and maintenance checks and sign off the accepted Plant Register.

20. Waste

All general waste materials such as packaging etc will be removed from site daily. All waste produced from the drilling operations and

excavations to be stored in a designated area as defined by the Principal Contractor and removed from site by the Principal Contractor during or on completion of the works.

21. Site Personnel – Roles and Responsibilities

All personnel will be in possession of a current CSCS card. The plant operator will hold a current CPCS/NPORS card.

a. Site Supervisor

The Site Supervisor represents GSS on site and holds a current SSSTS/CSCS Gold Card. He is a responsible and competent employee and is appointed to the position after demonstrating the required practical knowledge and liaison skills.

He will ensure that all statutory and contractual obligations placed upon GSS on the site e.g. Health, Welfare, and Safety etc. are complied with.

b. Operator (Drilling Rig)

The operator will be a competent employee who will have obtained a recognised, CPCS certificate. He will follow instructions from the Site Supervisor who will inform him of details of the boreholes to be drilled. He will also work closely with the Second Rig Man (Banksman). The operator can only move the rig with the supervision of the banksman to ensure the drilling rig can be operated with safety.

c. Second Rig Man

The Second Rig Man will advise the Operator during all rig movements to ensure safety of personnel and plant.

The Second Rig Man will also ensure that the drill is set over the bore position prior to commencing drilling and during the drilling process.

d. Grouting Operator

Responsible for concreting operations and any other duties assigned to him as required by the Site Supervisor.

22. Borehole Construction

The well fields shall be positioned and set out by the Principal Contractor, thereafter GSS will position each bore, within the field. A short steel pin shall be used to identify the bore center. The Site Supervisor will ascertain the number from the Setting out Engineer/Principal Contractor.

The bore number shall be recorded in order to calculate the bored depth to the required founding level. At all times the bore construction shall be monitored.

The Site Supervisor will ensure that movement of any plant does not damage or run over previously constructed bores and that the bore position is sufficiently far from recently cast piles to prevent damage occurring during boring. Any movement of fluid concrete in a recently constructed bore during the boring of adjacent piles shall be reported by the Site Supervisor to the Contract Manager and await the issue of revised instructions if required.

The rig will be set up over the bore position. The mast vertically will be checked in both directions using a suitable spirit level. The mast foot will be lowered to the ground and any minor adjustments made as necessary.

23. Drill Records

The Site Supervisor shall instruct the Rig Operator of the required bore sizes, number and depths.

The Rig Operator shall maintain a record of all bores constructed, noting the number, diameter and depth. This record will be transferred by the Site Supervisor to the Record Sheet.

Daily work activity records will be completed by the Site Supervisor noting the daily work activity and highlighting any issues or forward actions.

24. Site Specific Considerations

We have not been notified of any specific considerations to be given to the building or area.

I have read and understood the contents of this Method Statement.

Anything I did not understand has been explained to me to my satisfaction.

I agree to follow the Method Statement and understand that any instructions are provided for my safety and the safety of others.

Print Name

Signed

Date[illegible]