Continuous Flight Auger Bored Piles (CFA) Method Statement

Garages to the South of 27a West End Lane, NW6 4QJ

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Contents

Document Status

Revision	Prepared by:	Date	Reviewed by SHE Advisor	Date
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Introduction

1.1 This piling method statement generally describes the resources allocated to undertake the proposed piling works and methods employed.

1.2 This piling method statement confirms the proposals for the installation of Qty: 32, 300mm diameter, CFA piles in key locations for load bearing wall at the garages to the south of 27a West End Lane, NW6 (the 'Site' or 'Application Site').

2.0 Access

2.1 Site access will be confirmed at the pre-start meeting. Access for all plant and equipment will be through the main site entrance.

2.2 Banksmen will be made available for manoeuvring vehicles whenever the piling rig moves, to offer safety to all parties and to avoid damage to property and vehicles.

3.0 Plant, Equipment and Tools

3.1 The following plant equipment specification (or direct equivalent) is anticipated;

- CFA Piling Rig
- Augers
- Jet wash bowser
- Diesel Bowser
- Concrete pump and hoses
- Static concrete agitator and drum

3.2 In addition to the above, hand held mechanical cutting gear (abrasive wheels) for cutting reinforcement may be requirements. This is unlikely but noted for reference. Shovels and wheel barrows will be used, if required to remove spoil around the pile head.

4.0 Health, Safety and Welfare

Risk Assessment

4.1 The safest method of work will be assessed and implemented so far as is reasonably practicable. Compliance will the risk assessment form part of the contract.

Welfare Facilities

4.2 Site welfare and first aid arrangements will be main by the main contractor.

P.P.E

4.3 The following P.P.E will be worn by all operatives whilst on site;

- *Safety boots*
  These will be compliant to EN345, 200 Joules and have steel midsole to prevent piercing from sharp objects.

- *High visibility jacket or vest*
  These will be replaced once they become damaged, discoloured or washed more than the manufacturer's recommendations. They are also CE certified and EN 471 Class 2.

- *Hard hats*
  These will be steel toe capped and compliant to EN397 (for external works).

- *Safety gloves*
  Gloves will be provided which are compliant to EN 388.

- *Eye protection*
  All eye protection will be complaint will EN166 1.F. They will be replaced when they become scratched or damaged.

- *Ear protection*
  When noisy work is taking place hearing protection shall be used in accordance with EN 352.

COSHH

4.4 Assessment sheets for all hazardous substances will be available on site and COSHH briefings have been given to the relevant operatives.

Method Statement

5.0 CONTINOUS FLIGHT AUGER PILES (CFA)

(a) The rig will be tracked into approximate position and a bung inserted in the bottom of the auger (unless an auger flap is being used).

(b) The auger is centred vertically over the pile position. The rig mast is checked and adjusted for verticality. The hydraulic mast foot is then lowered to the ground.

(c) The banksman will check the position of the auger tip, final adjustment of level and verticality of the rig mast will be undertaken and the auger tip will be lowered to the ground by the rig operator.

(d) Piling then proceeds as follows

(e) The augers are rotated and advanced into the ground in a manner suitable to the ground conditions, a Kelly bar may be engaged to extend the stroke of the augers if required.

(f) Once the drill augers have reached the design depth, the auger will be lifted by up to 100mm to release the bung prior to pre-charging the auger stem with concrete.

(g) Concrete is pumped, under pressure and at a sufficient rate to ensure a continuous and monolithic shaft, to the bottom of the auger through its hollow stem. When extracting the auger, bore spoil on the auger is cleared using the auger cleaner on the piling rig assisted, if necessary, by the attendant 360 degree excavator. Cleaning of the auger by hand may be necessary when working close to other operations or avoid excessive splashing.

The auger is withdrawn at a controlled rate of extraction, such that the volume of concrete placed is slightly greater than the theoretical volume of the pile shaft. The extraction rate is not necessarily constant and may be adjusted to allow for local variations in soil conditions. The extraction rate is checked against “real time” parameters with the aid of a pile monitor system fitted to the rig (PL20 or similar). The CFA pile monitor comprises transducers fitted on the piling rig. These are connected to a portable computer console with keypad and graphics display in the operators cab. The system facilitates computer-aided construction of the CFA piles to a template of predefined construction parameter

(h) On completion of the pile the system checks the monitored construction parameters against the template and alerts the operator to any discrepancies via a status system. Should the pile contain non-conformities identified to be “driver error” they will be corrected by re boring whilst the concrete remains plastic. Non-conformities (accepting the known limitations of the system) will be brought to the site management’s attention for review.

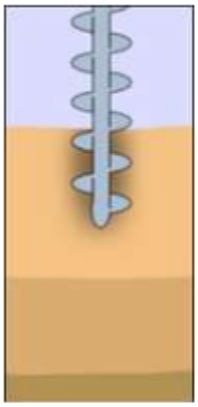
(i) Should a blockage occur the auger is extracted by rotating anti-clockwise to leave as much soil supporting the hole as possible. See Blowing Out procedure below for

clearing blockages. In all instances, once the blockage is cleared the hole is re-drilled to a founding level slightly deeper than originally achieved.

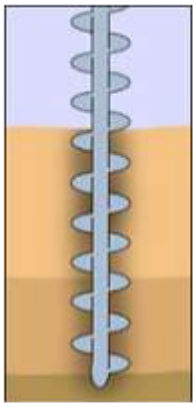
(j) Bore spoil arising's and concrete over break from boring and construction is removed from the pile head by a full time attendant 360o excavator.

(k) The concrete pile is cast to ground/working platform level. Pile shaft concrete cannot be left below the existing piling platform. A minimum distance of 500mm is recommended from piling platform level down to pile cut off level to ensure sound concrete at the pile head.

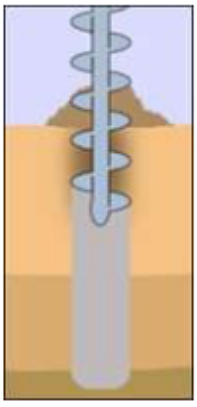
(l) The remaining arising's and concrete overbreak from the bore is removed by the full time attendant excavator and the top of the concrete checked for contamination.



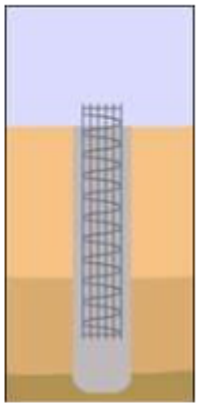
The cutting head of the auger is fitted with an expendable cap



The auger is screwed into the ground to the required depth.



Concrete is pumped through the hollow stem, blowing off the expendable cap under pressure.



Maintaining positive concrete pressure the auger is withdrawn and the reinforcement is placed into the pile up to the required depth.

Pile Reinforcement

1. All reinforcement material shall be from a CARES approved supplier. A designated area will be assigned by the main contractor for steel fixing. The steel fixing trestles will be positioned on firm ground (preferably an area of the piling platform).

2. Steel will be lifted onto the fixing trestles manually, or by using the attendant machine if in bundles weighing more than 25kg.

3. Steel fixers will fabricate one cage at a time using soft annealed tie wire, sufficiently tied to allow handling and placement. Fabricated cages will be lifted off the trestles and stock piled within an agreed storage area (see lifting requirements below).

4. The Foreman will check that the reinforcement complies with the design before placing.

5. Reinforcement will be lifted and plunged into the wet concrete to the required level (two men if the cage weighs more than 25kg, use the attendant excavator and/or auxiliary line on the rig for cages in excess of 50kg).

6. Adequate numbers and rows of spacers will be used on the reinforcement cage to provide the required cover, this will consist of at least 3 no. at the top and 3 no. at the bottom of the cage.

7. The Foreman and banksman will ensure that there is no debris or mud on the reinforcement and that no contamination is pushed into the concrete by the reinforcement.

8. Care and attention is required to ensure that the excavator bucket does not catch the reinforcement cages within previously installed piles.

9. De-bonding foam sleeves can be attached to the reinforcement projecting above the helical to aid the trimming process, if requested. Due to the method of installation there can be no guarantee of the finished level of debonding foam.

10. Records of all work carried out will be kept on Pile Log Sheets.

Blowing Out

- At the end of the shift the concrete hoses require clearing of concrete ready for work the next day. Blowing out is undertaken in 2 passes, as below:

  First pass

- Introduce a concrete blow out ball into one end of the concrete line.

  (i) Attach the blowout adapter to the same end of the flexible hose and a ball catcher to the other end.

  (ii) Connect the blow out adapter to the 250cfm compressor and gradually open the compressor valve.

  (iii) Blow the ball through the lines.

  Second pass: As stated in the first pass but with the addition of water.

  In the event of a Line blockage:

  (iv) Switch off the compressor and release the air pressure at the blow out chamber.

  (v) Carefully break the joints in the line being aware of any potential trapped air within the lines.

  (vi) Clear the obstruction and repeat the blow out procedure.

6.0 Inspection

6.1 All mobile plant equipment subject to thorough inspections under PUWER/LOLER regulations.

6.2 All mobile plant undergoes pre-use inspections with defects being reported to the site manager/site supervisor.

6.3 Defective equipment is withdrawn from service and replaced or repaired where necessary.

6.4 All other equipment to undergo a pre-use inspection check and all major defects reported immediately.

General

- All workers and visitors to sign in. Personal undertaking any work on site will have a full induction carried out by the principal contractor.
- All areas where work is to be carried out will be segregated using barriers if work impedes access.
- Access to the direct area of work will be on foot.
- Mobile plant will be transported prior to work commencing by the use of a low loader or other suitable means.
- A banks man shall be used when site deliveries are required.
- Materials shall be removed routinely to avoid waste build up.
- Lorries, removing all arising material, when leaving or approaching site will be assisted by banksman.

7.0 Monitoring

7.1 All records of any accidents will be recorded in an accident book.

7.2 Relevant authorities (HSE) shall be notified of a RIDDOR/major accident or dangerous situation.

7.3 Site manager shall monitor procedures carried out and stop proceedings if there is any deviation away from method statements.

7.4 SWP monitoring shall be undertaken by the H&S manager randomly.

7.5 Please see appendices for located hospital location.

8.0 Environmental

8.1 The generator shall be supplies with a drip tray to negate any fluid spillages from impacting the environment.

8.2 Spill kilts shall accompany the generator and all vehicles/mobile plant to site and used where necessary to soak any fuel spillages.

8.3 Any hazardous waste will be taken to a registered hazardous waste site.

8.4 Any much away/spoil material shall be removed from the site and disposed of at a relevant waste site.

9.0 Noise

9.1 All noise controls implemented and further in accordance with BS 5228-1:2009 code of practice for noise and vibrations control on construction sites (part 1).

- Plant shall not be run unnecessarily
- Work undertaken in daytime hours only to the site stipulations.
- Works only undertaken in the confines of the site.
- Employees trained to employ appropriate techniques to keep noise to a minimum.
- Mobile plant positioned in specific areas to minimised noise output to localised housing/neighbours.
- Machinery serviced annually / periodically from new.

- Mobile noise plant purchased with noise output considered in purchase
- 360 Excavator operating at lower revs where possible
- Enclosure panels kept closed during operations.
- Areas where noise exposure is above 85db shall be clearly signed

10.0 Vibration

10.1 All vibration controls implemented and further guidance shall be in accordance with BS standard 5228-1:2009 code of practice for noise and vibration control on construction sites (part 2).

Work methods;

- Work undertaken in daytime hours only to site stipulations.
- Work only undertaken in the confines of the site.
- Employees trained to employ appropriate techniques to keep vibrations to a minimum.
- Mobile plant position in specific areas and the direction of operation/excavation to reduce the vibration impact imposed on other, neighbouring properties.
- Machinery serviced annually/periodically from new.
- Mobile plant purchased from new with minimal vibration output/exposure to the operative.
- Ergonomic seating adaptable to operative requirements needs to reduce vibration exposure to operative.
- Exposure to vibration works reduced by rotating operating operatives regularly.
- Anti-vibration gel gloves word to reduce the vibration exposure further.
- Site supervisor to ensure ELV is never exceeded.

11.0 Utility Protection

11.1 The following method will be undertaken in order to prevent and minimise the potential for damage to subsurface sewerage infrastructure;

(a) A full CCTV survey has already been undertaken and will form part of the piling contract documentation.

(b) Pile positions are to be marked and visually inspected for any chambers or scarring in the existing surfaces that may indicate a service being present.

(c) Area to be CAT scanned by suitably trained operative and any potential services marked with paint.

(d) Existing pipework to be stopped and capped as approximate. The existing hardstanding will be cleared before piling is commenced.

(e) Existing utility plans to be checked including any abandoned building connections shown on Thames Water plans. Any existing utilities will be marked with paint on the site.

(f) Any potential services in close proximity to piles are to be hand dug in a trial hold methodology to investigate for signs of serve eg. Sand, marker tape, shingle pipe etc.

(g) Whilst preparing for piling, a reduced dig of approximately 600mm across the site will be undertaken, any scaring in the made ground is to investigated prior to laying the pile mat.

(h) Where necessary services shall be isolated.

12.0 Programme of Work

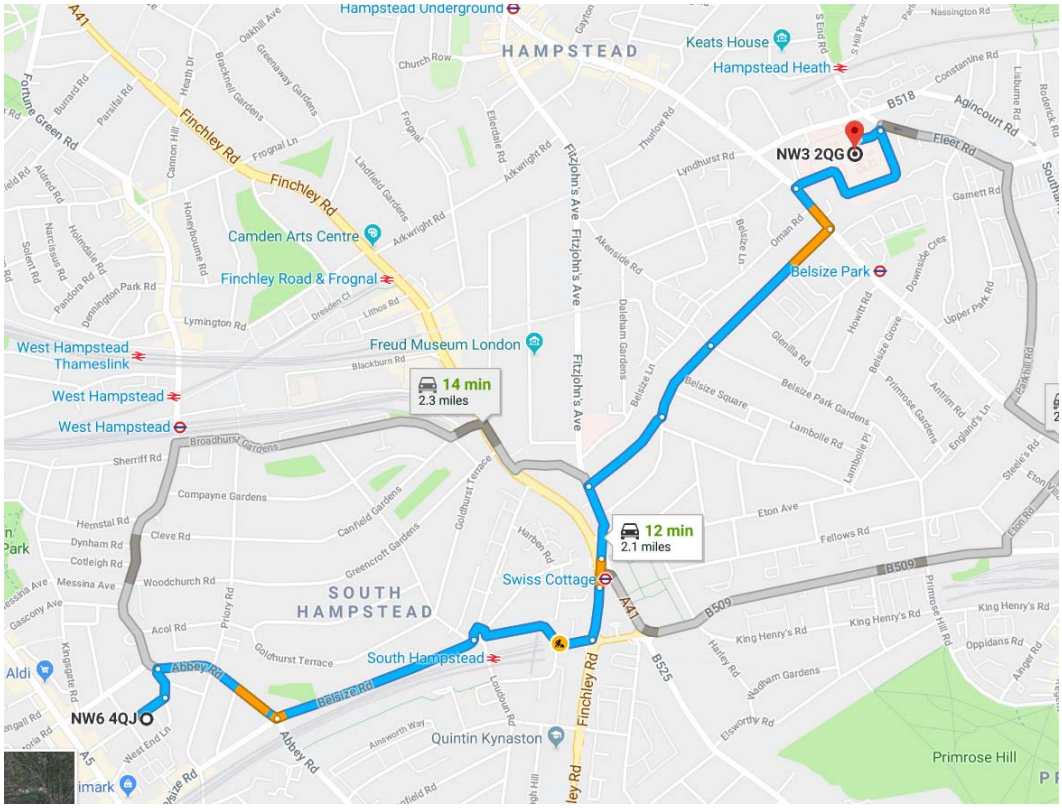
12.1 Following the preparation of the site, the estimated time frame for the piling is six weeks.

13.0 Appendices

The nearest Accident & Emergency department is located at:

Royal Free Hospital

Tel: 020 7794 0500 **Fax:** 020 7830 2468
Address: Pond Street, London, NW3 2QG
Website: http://www.royalfree.nhs.uk/
Email: rf.pals@nhs.net



Method Statement Briefing

Name	Date Briefed	Signature