CD&B BASEMENTS

CONSTRUCTION MANAGEMENT PLAN
APPENDIX F

CONTRACTORS METHOD STATEMENT
Rev 1

UNDERPINNING OF PARTY WALL

Flat 1, 31 Heath Drive, London NW3 7SB

client: **Callender Howworth**
date: **17th April 2016**
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This document to be read in conjunction with the following:

Appendices

A. **MMP Design drawings 4467 -01, 02, 03**

B. **Underpinning Diagrams - clay soil**

C. **1193-110-SITE SET UP PLAN**

1. General

The works described herein are the underpinning of the Party Walls of No 31 Heath Drive NW3.
It is our intention that the ground floor alterations will be carried out prior to the formation of the basement.

The extent and scope of the underpinning is shown in Appendix A – MMP Design drawings 4467 -02 & 03

2. Hoarding for Access and Conveyor

Access to the working area will be from the side entrance to the lower ground floor, please see Appendix C- 1193-110-SITE SET UP PLAN

On commencement, site operatives will carry out the following sequence of works;

- Carefully protect existing railing, gates and fixtures.
- Protect carefully the existing hedge and planting
- Protect front access path with plywood boarding.
- Erect a 2.4m high marine ply hoarding around the trunk of the tree outside the main entrance on the pavement comprising plywood hoarding; 50mm x 100mm vertical standards @ 400mm centres; 50mm x 100mm top bearer; 100mm x 100mm sole bearer spiked to ground.
- Erect 3.00m high site compound comprising plywood hoarding; 50mm x 100mm vertical standards @ 400mm centres; 50mm x 100mm top bearer; 100mm x 100mm sole bearer spiked to ground. Lockable door for access.
- Protect lower ground floor windows and reveals within hoarding with plywood fixed to 50mm x 50mm perimeter bearer fixed to wall.
- Construct plywood protection to public where conveyor extends over footpath.
- Construct plywood roof covering to hoarding supported on 50mm x 100mm bearers at 400mm centres.
- Install conveyor.
- Install night-lights and safety notices.

3. Temporary Works Procedure

The underpinning will be constructed in the sequence shown on the structural engineer's drawings or as agreed on site by the appointed Building Control Officer.

Our temporary works proposals for the support of clay soils are as follows:

- Site operatives hand excavate directly underneath the wall to be underpinned using hand and compressed air tools to form a preliminary pit approximately 1.00 m wide x 1.00 m long to underside of existing foundation approximately 1.00 m deep. The length of any base is individually assessed on site with due regard to the type and condition of the foundation, and structural geometry above.
- Install 2 No horizontal Acrow props at top and bottom of the excavation spanning across onto the central soil mass (dumpling excavation); use scaffold boards as spreaders at both ends of the props.
- Hand excavate the pit as above to formation level of new reinforced concrete toe, providing at all times adequate lateral support and propping as excavations progress to maintain acceptable levels of safety. Rear of excavation will not remain unsupported for longer than 48 hours and will be left fully propped when the site is unattended.
- Once the excavation is completed to the design depth and width and having been confirmed as being appropriate by our engineers. The stratum at the proposed founding depth will be then be inspected by the Building Control Officer prior to any reinforcement being placed or concrete being poured.

Our temporary works proposals for supporting existing structures above basement excavation are as follows:

As and when required by the sequence of underpinning operations:

Supporting existing timber floors above where sleeper walls have been removed:

- Position 100x100mm temporary timber beam/plates lightly packed to underside of joists either side of existing sleeper wall and support with vertical Acrow props @ 750 centres. Remove sleeper walls and insert steel beam as a replacement. Beams to bear at masonry walls onto concrete padstones (refer to Structural Engineer's details for padstone & beam sizes) Dismantle props and remove timber plates.

4. Concrete underpinning

This stage describes the construction of the concrete underpinning.

The following is to be read in conjunction with the Structural Engineer's details in respect of dimensions and all associated notes covered on their drawing and Appendix B – MS Propping Diagram. The sequence of construction of the underpinning will be in a hit and miss pattern (1, 4, 2, 5, 3, 6), depending on the structural environment and access constraints.

- The ground conditions will be checked by the building control inspector prior to installation of design reinforcement and concreting.
- The design reinforcement will be installed for the slab over the void for the mass toe and bars left turned up to accept the new RC stem, steel reinforcement will be held in position using plastic spacers and Class "B" engineering bricks.
- Pour concrete foundation to the levels shown on the drawing.

Allow 24 hours for the concrete to cure before the next stage;

- Following construction of the toe, a single sided shutter formed from timber and KD4 trench sheeting is then erected and back propped as required, and then concrete poured to form the underpinning base up to a maximum of 100mm below the underside of the existing foundation.

After 24 hours the temporary wall shutters are removed. The void between the top of the underpin base and underside of the existing foundation will then be dry packed with a mixture of sharp sand and cement (Ratio 3:1 sharp sand: cement) as follows;

- Trim and clean underside of existing foundation and dry pack between new stem of pin and underside wall well-rammed in horizontal layers not exceeding 75mm thick. Dry packing shall be left for at least 24 hrs before commencing works on any adjacent sequence of underpins.
- Three days after each pin has been completed we will strike formwork and support concrete pin horizontally off dumpling excavation to withstand any horizontal earth pressure. The propping is to have continuous scaffold boards at each end.
- The dumpling excavation (central area of excavation) shall not be removed until the perimeter underpinning has been completed. Prior to this work we will construct a thrust concrete block below level of floor slab (approx 450x350x350) remove horizontal scaffolding; re-erect diagonal propping supported off the concrete thrust block and up against new concrete pin with double scaffold boards as spreaders tightly packed with folding wedges. Propping to remain until concrete pin has reached its maximum strength.

- Site operatives will then break off projecting brick or concrete footing back to internal face of brick wall and a further 48 hours will be allowed before the next sequence of underpinning can be excavated.
- Construction joints, when required, will be formed using a suitable shear key or joggle joint.

5. Excavation, drainage and basement slab construction

Once the retaining structure is complete to all walls, the bulk excavation can be completed.

- Site operatives will provide maintain lateral restraint to the retaining wall by means of the installation of horizontal propping using Titan Super props or similar and timber walings to the face of the RC wall across the width of the basement to prevent to allow for excavation to formation level prior to construction of the new basement slab.
- The mass will be removed and levels reduced to formation level.
- The pump sump units and associated underground drainage will then be installed in conjunction with the mechanical and electrical details and architectural layouts.
- The design steel reinforcement will then be fixed in the slab. This will be checked by the engineer and building control inspector prior to concreting.
- Once the slab has been cast, all temporary shoring can be safely removed.

7. Internal waterproofing membrane and screed

- Once the basement slab is complete, the DELTA internal waterproofing cavity membrane will be installed as per the architectural layouts and manufacturers technical specification.
- The floor finishes which may include insulation and under floor heating, can be laid as per the final architectural details.
- A cement and sand screed will be applied on the slab surface.
- This completes the structural work by the Contractor, in preparation for the fit out works.

8. Ground Water Disposal

Should ground water be encountered then our proposals for ground water disposal would be as follows:

- Install 2 No 50mm diaphragm submersible pumps in sumps to drain ground water with flexible hoses discharging into nearest manhole.
- Provide UPVC silt tank of 400 litres capacity for pumped ground water to filter fines and gravel prior to water discharging into house manhole
- Flexible hose connection from silt tank to discharge into nearest manhole.
- Operatives will be instructed to regularly empty the silt tank of deleterious matter.

9.Supervision and Inspecting Excavations

A competent person will supervise the installation, alteration and removal of excavation support.

People working in excavations will be given clear instructions on how to work safely. A competent person will inspect excavations:

• At the start of each shift before work begins;

• After any event likely to have effected the strength or stability of the excavation;

• After any accidental fall of masonry, earth or other material.

Plant Details

All hired plant bought on to site will be inspected prior to use. The Hire Company will submit evidence of last test and all statutory test certification.

Plant will be recorded on a 'Plant Register'
Mechanical Plant operation is to be carried out only by a nominated competent person (CITB or similar recognised approved body).

Technical Information

Please refer to attach Structural Engineer CMS, drawings and Architects drawings.

Deliveries and Site Access

All deliveries are to be co-ordinated by the Project Manager.

For safety a Banksman will be available to coordinate traffic to ensure safety during deliveries and departures from site.

No road closures are envisaged. We will require the suspension of two parking bays directly outside the property for the duration of the excavation. A large skip will be positioned on the suspended bay at the front of the property with temporary hoarding around in order to facilitate the removal of waste and other materials from the construction works.

Consultation with Councils Transportation Team on the proposal will be carried out prior to works commencing.

Materials

Materials will be temporarily unloaded into the front parking bay then moved and stored in then front garden.

All Materials will be as per specification from approved suppliers.

Training

Training will be carried out through on-site inductions and tool box talks.

10.Control Measures

Site Rules

All operatives will be informed via a site induction / toolbox talk and expected to comply with the Contractor's site rules.

They will be informed of emergency procedures, assembly points, first aid and location of facilities.

Access to Work Area

Site personnel access will be through the hoarding to the front of the building.

The provision of a safe means of access to the work area is the responsibility of the Contractor / Client.

Control of Dust and Dirt Emissions

The use of water sprays to control dust levels will control potential dust pollution. The hoarding placed around the skip will be designed to ensure the impact of dust is kept to a minimum. This operation will take place at all times during the excavation process and when site vehicles and or plant are moving from site.

All waste will be removed from site by registered waste handlers and taken to a tip authorised and licenced to accept the waste type.

Welfare Facilities

Site accommodation and welfare facilities will be provided by the Contractor / Client throughout the duration of construction.

Personal Protective Equipment (PPE)

All operatives will wear appropriate personal protective equipment at all times issued to them. The Site Management and Contractor Foremen will take appropriate and immediate action of an employee does not use appropriate protective clothing.

PPE required as follows:

• Hard hat

• Safety boots

• Gloves

• High visibility jacket / clothing

• Ear defenders / plugs (when using breakers, working near compressor, etc)

• Goggles / visor (when using breakers in concrete)

• Dust mask / Respiratory protection, breathing

• Safety Harness (when in confined spaces)

Noise and Vibration

All woks will be completed in accordance with building control's environmental policy and the site NVDMP.

Electric hand tools will be used for all or the great majority of the work, significantly reducing noise and vibration compared with compressed air tools. Compressed air tools will only be used if electric tools are not sufficiently powerful to deal with the specific areas of work.

Power

A 110V electrical supply only will be allowed on the Project. This will be supplied via a 110V step down transformer from the existing 240V supplies

Electrical leads and spider boxes will be inspected weekly. All portable tools will be visually inspected prior to use.

No unauthorised repairs will be permitted. Any defective equipment will be immediately withdrawn from service.

Fire

All works contractors will be fully acquainted with the site emergency procedures and will ensure their personnel comply with them in the event of an emergency. Emergency Plans will be displayed in suitable locations on site and the site notice board.

A plan of site's fire escape routes and details of the local hospital will be displayed along with any statutory notices on the site notice board.

This information will also be conveyed to all operatives during the site induction.

Vermin

Vermin are not expected to be encountered, however if vermin are found then the Council's Pest Control services will be contacted so that an appropriate course of action can be taken.

9.Monitoring

The Engineer has confirmed that the anticipated building damage category is Risk level 0 or 1 in accordance with Burland et al – i.e negligible to very slight cracking which is easily treated with normal decoration.

Trigger levels

- Green - Fresh cracks up to 1mm - no action. Make good on completion.
- Amber - Fresh cracks 2-4mm - review work procedures and alter as necessary to minimise cracking. Inform Party Wall Surveyors and Engineer.
- Red Fresh cracks greater than 5mm - STOP work. Ensure area is adequately propped. Inform Party Wall Surveyors and Engineer.

Upon commencement of site set up datum points will be established on the façade of the properties and the adjoining properties, these will be recorded from a fixed point opposite.
Once underpinning is underway further checks will be carried out at fortnightly intervals, details will be submitted to the Supervising Engineer.
The main method of monitoring however will be regular visual inspection of the property by the Structural Foreman, should any evidence of movement appear excavation works will cease pending site inspection by the Supervising Engineer and will not recommence until a suitable way forward has been agreed.

Appendix

A. **MMP Design drawings 4467 -01, 02, 03**

B. **Underpinning Diagrams - clay soil**

C. **1193-110-SITE SET UP PLAN**