Construction method statement

in relation with the formation of a new basement

@ 52 Portobello Road W11 3DL

PROJECT NO: 10411

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Construction method statement

52 Portobello Road W11

Introduction

This method statement should be read in conjunction with the Structural Engineer’s and Architect’s drawings and the attached illustrations.

Please also refer to the attached illustration showing underpinning stages. This sketch details the construction method we are likely to adopt, based on the assumed ground conditions consisting London Clay to a depth of excavation.

Please also refer to the attached hoarding and conveyor layout sketch, which details a typical compound layout over the footpath and the highway.

The key stages are as follows:

1) Establish access, hoarding and conveyor
2) Temporary support to excavated faces
3) Temporary support to floors and walls
4) Ground water disposal
5) Reinforced concrete underpinning
6) Installation of new steel beams / columns
7) Excavation, drainage and basement slab construction
8) Internal waterproofing membrane and screed
9) Potential impact on 24 Shinfield Road and adjoining properties
10) Neighbourhood liaison

1) Establish access, hoarding and conveyor

The hoarding and conveyor will be positioned at the front of the property, which will be subject to any restrictions imposed by the local governing authority. The layout will be similar to the attached hoarding and conveyor layout sketch, which details a typical conveyor setup over the highway and footpath.

Carefully protect and/or remove any internal or external fixtures and fittings affected by the works.

Erect plywood hoarding with vertical standards, anchored to the ground. The hoarding will be fully secure with a lockable door for access.

Provide protection to public where conveyor extends over footpath.

Depending on the requirements of the local governing authority, construct a plywood bulkhead onto the pavement. The hoarding to have plywood roof covering, night-lights and safety notices.
Install conveyor at basement level. Ensure that the conveyor is adequately supported and secured to the hoarding using a temporary scaffold structure.

Install temporary electrical and water supplies from Clients permanent connections.

2) Temporary support to excavated faces

Of prime concern during the basement works will be the control of ground movement and ground water to ensure that the effect on adjacent buildings and infrastructure is minimal and within acceptable limits.

Ground conditions will be continuously assessed by a competent person to determine the means and method of supporting any face of any excavation. Our highly trained, experienced and competent Foreman shall ensure that every part of every excavation is inspected at the start of each shift.

Our temporary works proposal for the support of clay soils is typically as follows:

Note: Existing foundation corbel (if applicable) are to be removed prior to any excavation is carried out below the existing foundations, alternatively they may be removed after the underpinning has been carried out. The corbels must not be removed during the excavation period.

Hand excavate a preliminary pit approximately 1.00m wide x 1.00 m long to underside of existing foundation approximately 1.00 m deep. 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 excavation the pit to formation level of new re concrete toe, provide at all times adequate lateral support and propping as excavations progresses to maintain acceptable levels of safety. See attached illustration. Rear of excavation is not to remain unsupported for longer than 48 hours and must be propped when the site is unattended.

3) Temporary support to floors and walls

Supporting existing timber floors above basement excavation

Should the timber floor will remain in situ, it will be supported by a series of steel beams that will support the floors, to provide the open areas in the basement.

Position 100x100mm temporary timber beam 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.

Supporting existing solid concrete floors above basement excavation

The support of the existing concrete floor will be undertaken in conjunction with the underpinning process. Two opposite pins are constructed and allowed to cure as described elsewhere. The pins will project proud of the above existing perimeter walls by approximately 100mm, this will allow bearing for the steel joists/ beams spanning across & supporting the area of solid floor above. The area of solid floor exposed will be the approximately width of the pin and generally accepted to be self-supporting during this process. However, if the
underside is found to be in poor shape then temporary boarding and props are to be introduced. This process is to continue one pin width at a time. Dry-pack from the top of beam to the underside of solid slab as described elsewhere.

**Supporting existing walls above basement excavation:**

Where steel beams need to be installed directly under load bearing walls, temporary works will be required to enable this work. Support consist the installation of steel needle beams at high level, supported on vertical props, to enable safe removal of brickwork below, and installation of the new beams and columns.

Once the props are fully tightened, the brickwork will be broken out carefully by hand. All necessary platforms and crash decks will be provided during this operation.

Decking and support platforms to enable handling of steel beams and columns will be provided as required.

Once full structural bearing is provided via beams and columns down to the new basement floor level, the temporary works will be redundant and can be safely removed.

Any voids between the top of the permanent steel beams and the underside of the existing walls will be packed out as necessary. Voids will be dry-packed with a 1:3 (cement: sharp sand) dry-pack layer, between the top of the steel and underside of brickwork above.

Any voids in the brickwork left after removal of needle beams can at this point be repaired by bricking up and/or dry-packing, to ensure continuity of the structural fabric.

**4) Ground Water Disposal**

Our proposals for ground water disposal if required are:

Install 1 No 50 mm diaphragm submersible pumps in sumps to drain groundwater with flexible hoses running to silt tank with flexible hose connection from silt tank to discharge 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.

Silt tank to be regularly emptied of deleterious matter.

Connect a flexible hose from silt tank to discharge into nearest manhole.

**5) Reinforced concrete underpinning**

This stage consists of the construction of the reinforced concrete underpinning.

The following is to be read in conjunction with the Structural Engineers drawings in respect of reinforcement, dimensions and all associated notes covered on their drawing.

Note: Unsafe foundation corbel and loose masonry are to be removed prior to any excavation is carried out below the
existing foundations to allow for a safe working environment. Otherwise the existing foundation corbel or
masonry may be removed after the underpinning has been carried out. The corbels must not be removed during
the excavation period.

The walls to the perimeter of the basement will be underpinned in reinforced concrete. The underpins will take
the vertical loads from the walls and horizontal loads from the earth.

*The sequence of construction of the underpinning will be in accordance with the sequence on the engineer’s
drawings. The sequence of the underpinning will be such that any given underpin will be completed, dry-packed,
and a minimum period of 48 hours lapsed before an adjacent excavation commenced to form another underpin.

The access pit is first excavated, directly underneath the wall to be underpinned. The width of any base is
individually assessed on site with due regard to the type and condition of the foundation, and structural
geometry above. The maximum width of any underpinning base will be 1000 mm.

Hand excavate the pit to formation level of new reinforced concrete toe, provide at all times adequate lateral
support and propping as excavations progress to maintain acceptable levels of safety.

Insert to each side of the 1000mm wide excavated pit 3 x 300mm steel trench sheets.

The interlocking steel trench sheets (non-sacrificial) to the side of the excavation on either side of the dumplings
are to be supported at top-, mid- and bottom-point with 4 No diagonal acrow props restrained onto double
scaffold boards as spreaders, tightly packed with folding wedges against the steel trenching.

Span a 70 x 70 mm SHS support steel across the sacrificial trench sheets positioned against the back of the
excavation under the existing foundation. The SHS support steels will be restrained horizontally across to the
dumpling excavation with 2 sacrificial jack props. The sacrificial interlocking steel trench sheets positioned
behind the SHS are to be further supported at mid- and bottom-point with 2 No diagonal sacrificial jack props
restrained onto double scaffold boards as spreaders, tightly packed with folding wedges against the steel
trenching.

The propping to the trench sheets will be left in place, until 24 hours after the completion of the underpins. This
method ensures that at all times the excavation is controlled, and indeed the integrity of the surrounding soil
and structure above is maintained, to enable permanent works construction.

In the event that the existing foundations to the wall are found to be unstable, sacrificial jack props will be
installed underneath the foundation to prop the bottom few courses of bricks. These jack props will be left in
place and will be incorporated into the concrete stem.

Once the excavation is completed to the design depth and length, the stratum at the proposed founding depth is
confirmed as being appropriate by our Forman or the Building Control Inspector.

The design steel reinforcement will be fixed in the toe section of the underpinning base. This will be checked by
the Building Control Inspector prior to concreting.

Following construction of the toe, the design steel reinforcement will then be fixed in the stem (or wall) section.
This will be checked by the Building Control Inspector prior to concreting.
A single sided shutter is then erected, and concrete poured to form the underpinning base up to within 50mm to 75mm of the underside of the existing wall foundations.

Concrete will be chuted into a ‘bath’ within the excavated basement and placed by wheelbarrow and/or bucket, or mixed on site. The exact arrangement will be finalised when works commence on site.

Excavation for an underpin section will be dug in a day, and the concrete to the base poured by the end of the same day. The concrete to the stem of the underpin will be poured the following day.

On the following day, the gap between the concrete and the underside of the existing foundation will be dry-packed with a mixture of sharp sand and cement (ratio 3:1).

Once the dry-pack has gained sufficient strength, any protrusions of the footings into the site will be carefully trimmed back using hand or mechanical tools. The protrusions will be trimmed back to be flush in-line with the face of the wall above.

A minimum of 48 hours will be allowed before adjacent sections will be excavated to form a new underpin.

6) **Installation of new steel beams / columns**

The steel beams / columns will be delivered and unloaded by the delivery lorry into the front yard / garden area.

Materials will be checked off against delivery notes, and any discrepancies advised to the Project Manager.

*Steel beams / columns will be erected progressively as the underpinning and excavation progresses.

Lightweight steels will be moved and erected by hand and installed by fitters working from scaffolds.

Main beams will be moved into their lifting position using roller skates and lifted with genie lift and bolted into place by fitters working from scaffolds.

7) **Excavation, drainage and basement slab construction**

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

Depending on the structural design it may be a requirement to implement propping to resist sliding forces (as per structural engineering requirements) at the base of the underpins, prior to construction of the new basement slab, and to allow for excavation to formation level. Generally, the underpinning works are completed around the perimeter walls, with the central soil mass (dumpling) left intact as detailed on the attached sheet.

This enables the earth mass to act as a firm support for the underpinning stem single sided shutters, and also to provide a prop force at the base of the pins.

The pump sump units and associated underground drainage will then be installed in conjunction with the mechanical and electrical details and architectural layouts.

Once excavation to formation level has been completed, and the slab cast any temporary shoring can be safely removed.
The design steel reinforcement will then be fixed in the slab. This will be checked by the Structural Engineer and Building Control Inspector prior to concreting.

8) **Internal waterproofing membrane and screed**

Generally the waterproofing membrane will be in accordance with the manufacturer’s recommendation.

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 Basements 4 You, in preparation for the fit out works.

9) **Potential impact on 52 Portobello Road and adjoining properties**

The proposed basement under the existing property will be formed using an underpinning method, constructed in sections each no wider than 1000mm, with no adjacent underpins constructed within a 48 hour period. This method of construction reduces the amount of potential ground movement and so minimises the effects of settlement of the adjacent structures.

Expected settlement is zero provided an experienced contractor is appointed who undertakes the works using good practice in accordance with the structural design and follows all agreed method statements, installing all necessary temporary vertical and lateral supports required. In practice some settlement is possible but this should be no worse than 'aesthetic', according to the BRE’s definition. If these conditions are met, any settlement that occurs will be minimal and will be accommodated in the elasticity of the superstructure. This has been borne out by past projects on similar properties.

The design and construction methodology, as described above, deals with the potential risks and ensures the excavation and construction of the proposed basement will not affect the structural integrity of 52 Portobello Road and the adjoining properties.

10) **Neighbourhood liaison**

The contractor will understand the sensitive nature of the site and recognise the importance of the neighbourhood liaison role in ensuring the smooth running of site activities and their relation to the local residents and general public’s welfare.

During the excavation and construction works he will ensure that all works are carried out safely and in such a manner that it will not inconvenience pedestrians or other road users and with a positive consideration to the needs of the local residents, site personnel and visitors as well as the general public.

Footways and carriageways will be kept tidy and in a safe condition. Hoardings, safety barriers, lights and other features will be maintained in a safe and tidy condition. The site is to be kept clean and in good order at all times, with surplus materials and rubbish controlled within the site and not allowed to spill over into the surroundings.
Disturbance from site operations due to the effects of noise and dust emissions will be minimised by the use of plant and equipment fitted with suitable noise suppression facilities in accordance with the manufacturer’s recommendations.

In addition to this, working times as stipulated within the contract particulars will be complied with and the contractor would look to discuss with London Borough of Kensington and Chelsea these times as a proactive approach to control of noise emissions from the site.
hoarding protection to skip approx 3.0m high

temporary timber chute to direct spoil into skip

conveyor to be enclosed where passing over footpath approx. 600mm wide

existing boundary wall to remain

hoarding to front garden forming site compound

maintain min. 1.2m footway

PLAN AT PAVEMENT LEVEL

conveyor set back min. 300mm from face of kerb

temporary chute to direct spoil into skip
temporary tarpaulin dust sheet as reqd.

conveyor belt

hazard tape

lighting

ELEVATION

minimum 2.3m clear

CONVEYOR ANGLE SUBJECT TO SITE CONSTRAINTS

TYPICAL HOARDING & OVERHEAD CONVEYOR INSTALLATION

scale 1:100
**CLAY SOILS - STAGE 1**

- **Profile of proposed foundation pin**
- **Central soil mass (dumping) retained for propping against as required**
- **Wall mesh placed ready for shuttering**

**CLAY SOILS - STAGE 2**

- **Note on exiting foundations**
  - The staging of the removal of existing foundations/demolition may vary from the drawing (following site investigation) refer to method statement.

**CLAY SOILS - STAGE 3**

- **Existing floor supported with props & timber plates as specified in method statement.**
- **Existing brick footings removed**
- **Dry pack max 5% mix applied as per after final concrete pour**

**CLAY SOILS - STAGE 4**

- **Prop after formwork has been struck off with continuous scaffold boards as indicated to centre of pin**
- **Construct sacrificial thrust block below level of proposed floor slab.**