# CONSTRUCTION METHOD STATEMENT

## 28 Charlotte Street

## Fitzrovia

## London

## W1T 4NF

METHOD STATEMENT PRODUCED BY:
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PROJECT No: S4444

## CONTENTS

## 1.0 INTRODUCTION

This Construction Method Statement is produced for submission to London Borough of Camden as part of a planning application for works to 28 Charlotte Street, W1T 4NF and should not be used for any other purposes, e.g. construction or Party Wall Awards.

## 2.0 SCOPE OF WORKS

A new single storey basement is proposed under the rear of the existing property under the study. This will create space for bedrooms to the lower ground floor flat.

## 3.0 DESCRIPTION OF 28 CHARLOTTE STREET AND ADJOINING PROPERTIES

The front part of the building is a six storey mid-terraced victorian property of masonry construction with timber floors to ground floor and upper levels and timber rafters to form the roof. The property is in a sound condition structurally. The adjoining properties are of similar construction and look to be in sound condition from an external non – intrusive visual examination.

## 4.0 GEOLOGY AND HYDROLOGY CONDITIONS

The existing site geology from British Geological Survey information is of Lynch Hill gravel formation, which has been confirmed by local boreholes which show sand and gravel to between 7.0m and 8.5m below ground level underlain by London clay formation.

The new basement will be designed to limit ground bearing pressure to 150kN/$m^2$ in order to limit settlement.

The building's design shall also resist floatation with a safety factor of not less than 1.1 as specified in BS8007:1987 cl. 2.2.3.2.

Thus the existing geology at the depth of the proposed basement will be capable of supporting the new imposed loads.

## 5.0 STRUCTURAL CALCULATIONS

See calculation sheets S4444/ C1 – C4 for calculations to each wall face, showing the assumed loadings and design of underpins. These calculations can be found in the Appendices. Assumptions that were made in these calculations were that the existing wall construction followed the London Building Acts of 1844, found in CIRIA Report 111.

## 6.0 CONSTRUCTION DRAWINGS

See drawing Nos S4444 / GA01 and D01 in the Appendices for underpinning layout, sequencing and sections to the party walls of the property. This underpin has been taken as the general case on the plans when showing the underpinning areas and sequences.

## 7.0 CONSTRUCTION SEQUENCE OF THE NEW BASEMENT

1. Excavation will commence from above the front of the proposed basement through the existing basement progressing towards the rear.
2. The existing ground bearing concrete floor to the rear of the property, above the proposed basement, will be broken out and removed from site.
3. A conveyor belt will be set up through the existing basement to convey the spoil from the excavation to a skip placed on the road for disposal.
4. The existing property will be underpinned in a 'hit and miss' underpinning sequence. See drawing MS/01 & MS/02 for the construction sequence of a typical underpin, and Underpinning Specification in the Appendices.
5. The underpins to form the new basement will require horizontal propping until completion of the basement slab.
6. As excavation progresses, any existing foundations discovered will be broken out and removed from site to make way for the new basement construction.
7. The existing walls of the building over will be temporarily propped using steel beam needles at regular centres, as necessary. Temporary concrete pad foundations may be required beneath the props, or the props may be supported on the concrete bases of underpins already constructed, whenever the location allows.
8. New concrete pad foundations and strip foundations will be constructed, where specified on the structural drawings.
9. New steel beams and columns will be installed, as specified on the structural drawings. These will be supported on the underpins or on the new concrete foundations. Steel beams supported by existing masonry walls will bear on concrete padstones, as specified on the structural drawings. The padstones will spread the load on the existing masonry with stresses kept to acceptable levels.
10. The top of the new steel beams will be dry – packed to the underside of the existing walls above, and the existing walls will be repaired and made good, as required.
11. When all the underpins to the existing property have been completed, bulk excavation to the whole site will be carried out.
12. Horizontal propping across the site, if required by design, will be installed at high level. This will be via a proprietary propping system such as Mabey props or similar.
13. Once the bulk excavation is down to approximately 500mm above the proposed basement level, a second level of horizontal props will be installed, if required by the design.
14. Excavation will then be carried out down to formation level.
15. The below – slab drainage for foul & ground water, sumps and pumps will then be installed. The pumps will discharge the foul / ground water into the existing sewer system to the front of the property.
16. The new basement RC slab (ground – bearing slab) will then be constructed.

17. Once the new basement slab has gained sufficient strength, the horizontal propping across the site will be removed.
18. After the new basement slab has cured, a drained – cavity layer will be laid to the slab and walls.
19. A layer of insulation will be placed on top of the drained – cavity layer on the slab, and in front of the drained – cavity layer on the walls.
20. Finally a layer of screed will be laid to form the finished basement floor.

## 8.0 POTENTIAL IMPACT ON 28 CHARLOTTE STREET 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.

As the new and existing foundations are all founded in the same strata of similar capacity, the risk of differential settlement is minimal.

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 is likely to be minimal and is likely to be accommodated in the elasticity of the superstructure. This has been borne out in the vast majority of past projects on similar properties.

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

## 9.0 SLOPE STABILITY

The site is located on ground that is relatively flat and so slope instability can only be initiated in the temporary condition as the proposed basement is being built. This would be via a collapse of the partially formed underpinning.

This is highly unlikely due to the construction sequence and implementation of temporary works and is covered by the statement above on the impact on adjoining properties.

## 10.0 POTENTIAL IMPACT ON EXISTING AND SURROUNDING UTILITIES, INFRASTRUCTURE AND MAN – MADE CAVITIES

Any local services on the property's land will be maintained during construction and re – routed if necessary. The exact location of these services will not be known until the works commence. However the impact will be negligible as these services will be maintained. If it is necessary to relocate or divert any utilities, the Contractor and Design Team will be under a statutory obligation to notify the utility owner prior to any works. This will be so that they can assess the impact of the works and grant or refuse their approval. There are no known man – made cavities (e.g. tunnels) in the vicinity of the proposed basement.

## 11.0 POTENTIAL IMPACT ON DRAINAGE, SEWAGE, SURFACE AND GROUND WATER LEVELS AND FLOWS INCLUDING SUDS

All existing drainage and sewage connections will be maintained throughout the construction works so there will be no impact on these existing systems.

The proposed refurbishment will not alter the current state of the property, which will remain as a mixed use retail and residential building. Therefore there will be no significant change in discharge to the existing drainage and sewage systems.

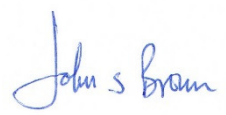
Surface water will not be altered as the proposed works are underground and there will be no change to the external 'hard surfaces'.

The site–specific borehole confirms that the new formation is above the ground water level, thus there will be no impact on ground water flows and levels.

## 12.0 POTENTIAL IMPACT ON EXISTING AND PROPOSED TREES

The property does not have a garden, therefore no existing trees will be felled during the construction of the proposed basement. In addition, there are no trees protected by Tree Preservation Orders in the vicinity of the proposed basement that will be damaged by the construction works.

Prepared By



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August 2015

**APPENDICES**

The following appendices are included with this report.

| | | |
|---|---|---|
| Appendix A | - | BGS borehole reports |
| Appendix B | - | Initial Calculation sheets |
| Appendix C | - | Drawings GA01 & D01 |
| Appendix D | - | Drawing MS01-02 |
| Appendix E | - | Underpinning Specification |

**APPENDIX A**

**GEOTECHNICAL SURVEY FROM BGS INFORMATION**

TQ28SE 1044

# RECORD OF BOREHOLE NO. 2 2950 8170

Basement level: 93.11ft. above O.D.Newlyn — Dia. of boring: 8in. to 21ft., 6in. to 80ft.

Type of boring: Shell and Auger — Lining tubes: 8in. to 21ft.

| Daily Progress | Samples: Depth | Samples: Type | Change of Strata: Legend | Change of Strata: Depth | Change of Strata: O.D. Level | Description of Strata |
|---|---|---|---|---|---|---|
| | 1'6" | BD | | | | |
| | 3'6" – 5'0" | U(3) | | | | |
| | 5'0" | D | | | | |
| | 6'0" | BD | | | | |
| | 6'6" | D | | | | FILL (brown sandy clay, gravel and brick fragments) |
| | 8'6" – 10'0" | U(3) | | | | |
| | 10'0" | D | | | | |
| | 11'6" | BD | | | | |
| 13.8.65. | 12'6" | D | | | | |
| | 13'6" – 15'0" | U(3) | | | | |
| | 15'0" | D | | 15'6" | 67.6 | |
| | 16'6" – 17'6" | C(11) | | | | |
| | 17'0" | BD | | | | Medium dense brown SAND and GRAVEL |
| | 19'6" – 20'6" | C(11) | | 20'2" | 62.3 | |
| | 20'0" | BD | | | | |
| | 20'9" | D | | | | Stiff light brown silty CLAY |
| | 21'0" – 22'6" | U(3) | | 23'0" | 60.1 | |
| | 23'6" | D | | | | |
| | 24'0" – 25'6" | U(3) | | | | |
| | 25'6" | D | | | | |
| | 26'6" | D | | | | |
| | 29'0" – 30'6" | U(3) | | | | |
| | 32'6" | D | | | | Stiff, becoming very stiff with depth, fissured dark grey silty CLAY with a trace of fine sand from 35ft.6in. below ground level |
| | 34'0" – 35'6" | U(3) | | | | |
| | 35'6" | D | | | | |
| 18.8.65. | 38'6" – 40'0" | U(3) | | 40'0" | 53.1 | |
| | 40'0" | D | | | | |

Key to type of sample:
- U (4) — 4 in. dia. undisturbed sample.
- U (1¾) — 1¾ in. dia. " "
- D — disturbed sample.
- BD — bulk disturbed sample.
- V — vane test.
- (S ( )) — standard penetration test.
- (C ( )) — dynamic cone penetration test.

Figure in brackets is No. of blows for penetration shown in depth column (see Notes, page 1).

Remarks: (Observations on ground-water, etc.)

No ground-water was encountered during boring. Water was added to assist boring in the fill and the gravel. On completion of the borehole water stood at a level of 35ft. below ground level.

Sample of ground-water taken.

GOODGE STREET

Soils No: S/2706

FIG. 2

GEORGE WIMPEY & CO., LTD — CENTRAL LABORATORY — HAYES

**APPENDIX B**

**CALCULATION SHEETS**

**S4444/C1 – C4**

**APPENDIX C**

**DRAWING GA01 & D01**

**APPENDIX D**

**METHOD SEQUENCE MS01 & MS02**

**APPENDIX E**

**UNDERPINNING SPECIFICATION**

**General Underpinning Specification**

1. The walls to the perimeter of the new basement shall be underpinned in reinforced concrete and the underpins shall take the vertical loads from the walls and horizontal loads from the earth.
2. Underpinning bases shall be excavated in short sections not exceeding 1000mm in width. The sequence of the underpinning shall 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.
3. In the event that the existing foundations to the wall are found to be unstable, sacrificial steel jacks shall be installed underneath the foundation to prop the bottom few courses of bricks. These steel jacks shall be left in place and shall be incorporated into the concrete stem.
4. In the event that the ground is unstable, lateral propping shall be provided as required to the rear of the excavation and to the sides of the excavated working trench. The front and side faces of the excavation shall be propped using trench sheeting or plywood, timber boards and Acrow props as appropriate. Sacrificial back – shutters shall be used to the rear face of the excavation (i.e. underneath the wall) if required. Cementitious grout will be poured behind the back – shutters to fill up the voids behind the back – shutters.
6. Excavation for an underpin section shall be dug in a day, and the concrete to the base shall be poured by the end of the same day.
7. The concrete to the stem of the underpin shall be poured the following day. This shall be poured up to within 50 – 75mm of the underside of the existing wall foundations.
8. On the following day, the gap between the concrete and the underside of the existing foundation shall be drypacked with C35 concrete using 5 – 10mm coarse aggregate and Conbextra GP admixture by Fosroc UK Ltd in accordance with their instructions.
9. Once the drypack has gained sufficient strength, any protrusions of the footings into our site shall be carefully trimmed back using hand tools to avoid causing any damage to the foundation. The protrusions shall be trimmed back to be flush in-line with the face of the wall above.
10. A minimum of 48 hours shall be allowed before adjacent sections are excavated to form a new underpin.
11. Adjacent underpins shall be connected using T12 dowel bars 800mm long, 400mm embedment each side, at 300mm vertical centres.
12. Concrete cover to reinforcement shall be 35mm for cast against shutter or the top surface of the basement slab, 50mm for cast against blinding and 75mm for cast against earth.
13. Grade of concrete shall be C35 with minimum cement content 300kg/m3, maximum free water to cement ratio 0.60, slump 100mm.