

**METHOD STATEMENT FOR THE
CONSTRUCTION OF A BASEMENT**

AT

**46 HOWITT ROAD
LONDON
NW3 4LJ**

by

**ADS ASSOCIATES
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1.0 Brief

ADS Associates have been commissioned by Mr John Bradbury to prepare a method statement for the construction of a new basement below the existing property located at 46 Howitt Road, London NW3 4JL in February 2013.

The scheme is based on a set on outline Architectural drawing supplied to us by Newman Zieglmeier.

2.0 Background

The existing building is a three storey mid terrace building constructed circa 1900.



It comprises a tiled, mansard type pitched roof with dormer windows over the main house, timber suspended floors and painted brickwork walls. The rear addition comprises a tiled, mono-pitched roof.

There is a narrow basement under the entrance hall of the property with 1900mm headroom.

The property has a small front and rear garden.

The internal staircase provides access to all the upper two levels.

3.0 Proposed Basement

It is proposed to construct a basement under the entire footprint of the building and to form lightwells front and rear together with a two storey, full width, rear extension.

The overall depth of construction to form the basement would be approximately 3.4m below the existing ground floor level in order to provide 2.8m headroom within the basement.

The means of constructing the basement is by the traditional use of a series of sequenced 1200mm wide underpins of the main structural elements with the new vertical support comprising reinforced concrete walls and slabs. The minimum thickness of the reinforced concrete would be 300mm. The construction method is covered in more detail in section 7.

The design of the basement shall be carried out in accordance with the following British Standards:-

BS 8102:2009 Code of Practice for the protection of below ground structures against water from the ground

BS 8110:1997 Structural use of concrete

BS 8500-1:2006+A1:2012 Concrete. Complementary British Standard to BS EN 206-1. Method of specifying and guidance for the specifier.

BS 8004 Code of practice for foundations

It is recognised that there are now Euro code equivalents to the British Standards listed above namely:-

BS EN 1992 Design of concrete structures

BS EN 1997 Geotechnical design

However, at this stage it is proposed to use the set of British Standards inter alia unless any interested party requests otherwise.

Other references that shall be used in the detailed design stage are as follows:-

CIRIA Report 139

Ove Arup's Resistant Design for Basements

Building Regulations Approved Document Basements for use as dwellings

4.0 Proposed Alterations

It is proposed to also construct a two storey full width rear extension to the rear of the main house and to undertake alterations to the internal layout on all the existing floors. The programming of this work is not included at this stage.

5.0 Desk Top Studies

5.1 Google Maps – Underground Assets

The local map shows that the nearest underground tube station is Belsize Park is approximately 200m away. The London Underground infrastructure is not, therefore, considered to be a factor in the proposed scheme.

5.2 Flood Risk Assessment

The property sits outside of any given flood risk zone for flooding from rivers without defences or extreme flood and, therefore, is not considered further.

The property sits outside of any given flood risk zone for flooding from reservoirs and, therefore, is not considered further.

It would, however, be prudent to ensure that the walls on the curtilage of the site are not altered in any way in order to continue to provide protection from local flooding during periods of excessive precipitation.

5.3 City of Westminster - Highways

The ground storey is approximately 300mm above street level and there is a retaining wall at the front of the property that supports part of the front garden and the street level beyond.

Building Regulation permission for the structural alterations in forming the new lightwell in the front garden will be sought, in due course, through the City of Westminster Highway Department.

6.0 Construction Programme

A master construction programme will be made available by the successful main contractor during the tender period and updated on Award of the Contract. Prior to this a Construction programme will be made available by Newman Zieglmeier for the Planning and Building Control applications.

7.0 Construction Management

7.1 Site Security and Access

All boundaries to the site will be protected with timber hoarding to ensure containment of the construction activities throughout the duration of the project. The hoarding will display the details of the main companies involved in the scheme and the emergency contact details.

The plant and vehicular movements through the construction phase will be scheduled to minimise the street congestion and the effects on immediate neighbours, so far as reasonably practical.

Jet washing facilities will be provided for cleaning of vehicle tyres and the road or pavement at the end of each day.

The parking of contractor's vehicles will be off site and on the local highways.

For more details reference should be made to the Construction Management Plan prepared by Newman Zieglmeier relating to this project.

7.2 Site Personnel

The site work force will be familiar with this type of work and supervised by competent personnel at all stages of the work.

7.3 Recycling and disposal of waste

A waste management plan will be prepared to address the re-use and recycling of the materials arising from the demolition, excavation and construction stages.

7.3 Contractors compound

The confined site limits the amount of space available for storage of materials. The materials will generally be brought to site on an 'as required' basis until completion of the basement. Thereafter, the basement and lightwells will be used, together with the upper floors, for storage.

Due to the confined nature of the site consideration will be given to minimise the levels of noise and dust pollution to normal standards.

7.4 Temporary Works

At all stages of the work a detailed system of both vertical and lateral propping is required.

The type of props and the loading requirements will be shown on the Construction drawings and monitored by the Contractor throughout the construction period.

Details of transferring the loading in the props to the new permanent works shall also be indicated on the structural drawings.

7.5 Enabling Works

The front garden will be reduced in level with construction of the lightwell to provide the route for access of workmen and the passage of excavated material, plant and storage of new construction materials.

A series of steel beams will be installed to provide support to the bay window, internal spine wall, rear wall and rear addition flank wall prior to the commencement of the underpinning. Incorporated in to this system will be a set of raking members to maintain stability to the remaining house in two orthogonal directions.

7.6 Basement Construction and sequences

The basement is formed a series of 1.2m wide underpins that are linked together to form a closed reinforced concrete box, the drawing in Appendix A refers.

The sequence is controlled to ensure adequate support of the gravity loads from the building above and to provide adequate lateral restraint to the below ground lateral loads arising from earth, water pressure and surcharge.

The traditional 1, 3, 5, 2 & 4 sequence shall be adopted to ensure that no more than 20% of the existing building walls are unsupported at any time.

The base is to be cast first, followed by the associated wall stem.

The base and walls are effectively made monolithic by the overlapping reinforcement as work proceeds and fully detailed on the structural drawings.

Temporary lateral support for the highway and pavement behind the lightwells shall be provided in the form of horizontal propping, at approximately 1.2m centres in two orthogonal directions, as indicated on the drawing in Appendix A.

Temporary lateral support for the soil below ground in the adjacent properties shall be provided in the form of horizontal propping, at approximately 1.2m centres across the width of the basement, as indicated on the drawing in Appendix A.

Temporary propping and sheets are required on a 1.2m grid, in the longitudinal direction of the basement, as work on the sequenced bays proceeds.

Having cast the sequenced bases and walls the underpins are grouted up in sequence to the underside of the existing walls using a series of folding wedges, as required, to transfer the gravity loads on to the new reinforced concrete retaining walls.

The grouted void shall comprise dry pack mortar solidly rammed in place.

The de-propping is done, carefully and the sequence indicated, once the reinforced concrete retaining walls have achieved their 28day strength.

The existing foul sewer is to be re-routed and re-aligned as required during the installation of the basement.

7.6 Water Table Classification

The design approach shall be to use a Type C drained protection as defined in BS8102 with a variable to high ground water table.

7.7 Basement Environment

The design approach shall be to provide a grade 3 waterproof protection for a ventilated, residential area with a performance level as given in BS8102.

7.8 Basement Waterproofing

The design approach shall be to use a Type C drained protection as defined in BS8102.

A proprietary waterproofing system such as Delta System 500 shall be used as part of a drained cavity solution fixed to the internal faces of the concrete walls and floor of the basement. This will be connected to a pumped sump and in to the existing foul sewer as required.

Permanent ventilation of the cavity shall be provided.

8.0 Basement Developments

8.1 Ove Arup Paper on Subterranean Basements

Arup's Subterranean Development Scoping Study, June 2008, was an extensive study of basement developments and looked at:-

- *Underground water, and the impact of basements on the aquifer, ground water flows and the like;*
- *Possible impact upon the structural stability of surrounding buildings. Including discussion of ground movements, and changes in the stiffness of foundation; and*
- *Sustainability.*

The Arup study concluded that whilst subterranean development had the potential to harm structural stability and have an impact upon flooding there was no reason why it would have to do so if designed carefully.

8.2 City of Westminster Policy on Subterranean Basements

The Council does not currently appear to have a specific planning policy in relation to basement excavation but is working with local residents and stakeholders to develop one.

This application is for a single family dwelling and hence meets the requirements for dwelling space within new basements as living space.

When considering applications for basement extensions, current adopted policies which are relevant include those set out in their Core Strategy, particularly policies CS27 (Sustainable Design), CS28 (Health and Wellbeing) and CS29 (Flooding).

This scheme shall address reduced energy use and emissions that contribute to climate change during the lifecycle of the development, in line with national and regional standards as a minimum; and ensure the reduction, reuse or recycling of resources and materials, including water, waste and aggregates during construction.

This scheme is in Flood Risk Zone 1 and, therefore, the requirements of CS28 do not apply.



Andrew D Stokoe
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APPENDIX A

TYPICAL BASEMENT CONSTRUCTION DETAILS AND SEQUENCES

Drawing No. 6630/01 Basement Details