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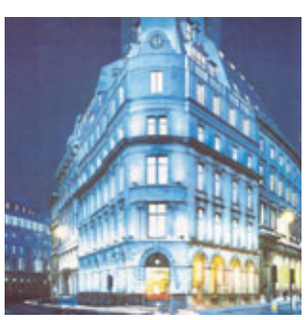

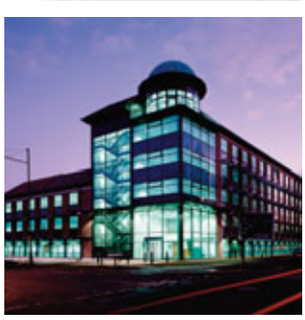

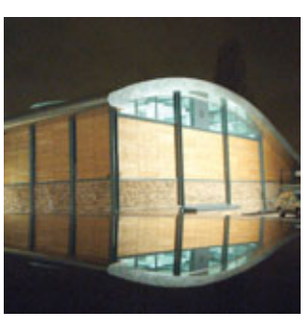

STRUCTURAL ENGINEER'S REPORT IN SUPPORT OF THE PLANNING APPLICATION FOR THE REDEVELOPMENT AT

48 QUEENS GROVE
LONDON
NW8 6HH

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6800/02/TM/Rev B **OCTOBER 2011**

I N D E X

APPENDICES

48 QUEENS GROVE, NW8

1.0 INTRODUCTION

1.1 This structural report has been prepared to support the planning application for the redevelopment at 48 Queens Grove, NW8. The report outlines the structural design philosophy and the anticipated construction methodology for the proposals. It presents factual information and interpretation regarding the existing building, the site, the geology, hydrogeology, environmental considerations and the boundary aspects in relation to the proposed re-development.

1.2 This report forms part of a wider framework of reports intended to satisfy Camden Planning Policy DP27 Basement and Lightwells. It is also intended to satisfy the requirement for a Basement Impact Assessment (BIA) as described in Camden Planning Guidance CPG4 for land stability.

1.3 For information relating to the Basement Impact Assessment for surface flow and flooding and subterranean (groundwater) reference is to be made to the following reports produced by Potamus Consulting:-

- Drainage Assessment 0025/LH/11-2010/0019 Rev A

- Hydro geological Risk Assessment 0025/LH/11-2010/0018 Rev A

1.4 This report should be read in conjunction with all Architects' and other Consultant's reports, drawings and other documentation submitted with the planning application.

1.5 This report is based on a visual inspection of the existing property without any recourse to trail pits or opening up works at this time, and no assurance is given that areas which are covered or inaccessible are free from rot, decay, cracks or other defects.

1.6 All directions left and right hand are given standing in the Queens Grove facing the front door of the house.

2.0 DESCRIPTION OF THE SITE

2.1 The site address is 48 Queens Grove, London, NW8 6HH and is located in the Swiss Cottage Ward of the Borough of Camden.

2.2 The local area is predominately residential comprising 'villa' style housing. The Royal Horse Artillery barracks is located in the vicinity.

2.3 The site comprises a substantial detached residential property with a separate ancillary building, referred to as the 'coach house', situated in the rear garden.

2.4 The site is bounded to the east by Queens Grove road, to the south by St. John's Wood Park road, to the west by N0. 30 and existing three storey house and to the north by 47 Queen's Grove.

2.5 The site is afforded good access directly from the street with off street parking space in front of the existing 'coach house'.

2.6 The Jubilee London Underground network is located approximately 400m to the west.

3.0 OVERVIEW OF PROPOSED REDEVELOPMENT

3.1 The following is a brief overview of the proposed redevelopment. It is provided to give context to the following sections of the report. Reference should be made to the Architect's and other Consultant's reports and drawings for a detailed description of the various disciplines proposals.

3.2 The proposals comprise:-

- Construction of a new single storey basement beneath and extending into the rear garden of the existing main house.

- Demolition of the existing two storey 'coach house' and construction of a new two storey 'coach house' constructed in its place.

- Construction of a new single storey extension linking the main house with the new 'coach house'.

- Retention of the existing main house facades and modifications to the internal structural arrangement including installation of new floors, forming new door and window openings and installation of new stairs.

- Replacement of existing mansard roof with a new mansard on a like for like basis.

3.3 The new basement is to be used as high specification residential space and is to contain a swimming pool and associated leisure facilities, living spaces and mechanical and electrical plant space.

3.4 The basement grade to be provided is a class 3 basement as defined in BS 8102:2009.

4.0 DESCRIPTION OF THE EXISTING PROPERTY

4.1 The main house was constructed in the 1930's. The form of construction comprises solid load bearing masonry walls with timber suspended floors typical of this time. The roof is of timber mansard construction. The existing property is not listed.

4.2 There is currently a small cellar to the rear right hand corner of the main house.

4.3 The two storey coach house is of a more modern period and comprises load bearing masonry construction with timber floors and roof structure. The building is currently used as garage space on the ground floor with staff accommodation over.

4.4 The existing buildings appears to be in a structurally sound condition.

5.0 DESCRIPTION OF THE LOCAL GEOLOGY & HYDROGEOLOGY

5.1 The published 1:50,000 geological maps, and previous experience from other nearby projects, indicate that the site geology comprises a shallow depth of made ground over weathered brown clay overlying London clay to considerable depth.

5.3 As clay is a relatively impermeable material there is no specific ground water table. Slight flows of ground water may be encountered running between the two varying clay layers or any sandy or gravelly lenses within possibly found within the clay layers. However, this is unlikely to present a problem in relation to the proposals.

5.4 The site is situated within the Environment Agency's Flood Zone 1. The site is therefore at little or no risk from fluvial flooding.

5.5 As the site is part of an extensively developed area of London overland flow and surcharging of existing sewers could pose a potential risk. Surface water drainage is to be designed and detailed in such a manner as to mitigate against such risk by means of adopting sustainable urban drainage systems (SUDS) where practical.

5.6 The site is not believed to be located within a radon affected area.

5.7 A site walk over has confirmed that there are no significant slopes on or adjacent to the site. Information provided by the British Geological Survey states "slope instability problems are unlikely to be present. As such no special actions are required to avoid problems due to landslides".

5.8 A detailed soil investigation will be undertaken prior to detailed design in order to provide site specific ground information in relation to the geology and hydrology. This will include boreholes, trial pits, ground water monitoring, and insitu and laboratory soil tests.

6.0 STRUCTURAL PROPOSALS

6.1 Drawings showing the structural proposals are included in Appendix A.

6.2 The basement structure is to comprise a bored piled embedded retaining wall with reinforced concrete lining wall. Inboard of this wall a new reinforced concrete box will be constructed. The foundation slab is to comprise a reinforced concrete ground bearing piled slab.

6.3 The existing main house facades are to be retained during construction. This will be supported on a Pynford stool beam system supported on new piled foundations in the permanent case. In the temporary case the façade will be vertically supported on the beam system described above and laterally supported using scaffold or steel truss frames.

6.4 Temporary works will be required to support the existing house's internal load bearing structure during the construction of the basement. This would take the form of temporary needle beams and props supported on piled foundations.

6.5 The Engineer is to undertake a detailed structural survey once the Contractor has completed the 'soft strip'. Any significant cracks or defects noted within the existing structure will be repaired prior to undertaking any basement works.

6.6 The basement is to comprise a reinforced concrete box structure with a concrete ground floor slab supported on reinforced concrete columns. The ground floor slab is to be designed to withstand the loadings imposed by the intensive green roof typical of a landscaped residential garden.

6.7 The basement is to be designed in accordance with BS 8102:2009 'Code of practice for protection of below ground structures against water from the ground'. Lateral water pressures and flotation uplift pressures due to ground water are to be calculated on the basis of the results of the site investigation. The piled ground slab is to be designed to resist the hydrostatic flotation forces and transfer uplift into the piles.

6.8 The resulting removal of the overburden due to the basement excavation will result in heave of the underlying clay. The piled ground bearing slab is to be designed to be suitability stiff to resist these heaves forces and distribute the resultant uplift in to the piles.

6.9 The proposed basement construction is commonly adopted for such developments and has been successfully used by Sinclair Johnston & Partners on numerous projects of similar size and scale in similar ground conditions. In particularly at the recently completed development at 25 Avenue Road, situated in the local area.

6.10 Structural alterations to the main house comprise the installation on new suspended floors, creation of new window and door openings within existing walls, installation of new steel beams supporting the floors and stairs and construction of a new steel and timber mansard roof. This roof is to be replaced on a 'like for like' basis.

6.11 It is proposed to demolish the existing coach house and rebuilding using similar materials. The structure will comprise load bearing masonry with timber or precast concrete suspended floors. The roof is to be traditional cut timber construction.

6.12 The new single storey extension will be of load bearing masonry construction with timber roof.

6.13 Both the new coach house and extension are to be constructed off the new reinforced concrete basement substructure.

7.0 CONSTRUCTION METHODOLOGY

7.1 The works can be split into three elements:-

1) Enabling works

2) Basement construction works

3) Existing house refurbishment works

Anticipated construction sequences for the enabling and the basement construction works are given in appendix E. The following section discusses the various site specific construction activities that have been addressed at the planning stage.

7.2 Piling is to be undertaken using rotary bored techniques to reduce vibration and noise issues. A restricted access piling rig would be used to allow piling to be constructed within the existing property and adjacent to site boundaries.

7.3 The proposals require the excavation of a single storey basement. This will require spoil being transported off site to a licensed landfill.

7.4 Should a crane be required to serve the basement during construction a luffing jib crane would be positioned so as to provide adequate radius position for unloading and distributing construction materials across site. This type of crane would avoid the 'oversail' of adjoining properties.

7.5 The Contractor would adopt a traffic management system would be adopted to cover all aspects of vehicle and pedestrian movements to and from site. Vehicle movements would be planned and coordinated to ensure that congestion to the surrounding highways is not aggravated. All site traffic would be spray cleaned prior to leaving the site, in accordance with the local Highways standard requirements.

7.6 The works are to be undertaken by a competent Contractor with experience in this kind of work.

7.7 The Contractor is to manage construction waste in accordance with ‘The Site Waste Management Plans regulations 2008’ and other relevant legislation. As such the Client/Contractor will be required to provide a site waste management plan identifying how waste will be managed and reduced during construction.

8.0 ENVIRONMENTAL ISSUES

8.1 Made ground is to be removed from site during the excavation for the basement. Therefore, removing any pollutant linkage toward human health and controlled waters. Clean, inert material is to be used to reinstate the garden and landscaping.

8.2 All concrete is to be specified with a cement combination containing a proportion of recycled cement replacement material to reduce the carbon dioxide emissions associated with the production of concrete.

8.3 As required by legislation the Contractor will be required to prepare a site waste management plan. This plan will, where possible, attempt to reduce the quantities of site waste.

9.0 ADJOINING PROPERTIES AND PARTY WALL MATTERS

9.1 The site is bounded to the west and east sides by adjoining properties and is situated in a built up residential area. As such Party Wall Awards under the Party Wall etc., Act 1996 will be required.

9.2 The proposals comprise the excavation for a single storey basement adjacent to and in close proximity to surrounding buildings. The bored piled embedded wall and permanent reinforced concrete box is to be designed to resist all lateral earth, surcharge and ground water pressures and is to be sufficiently stiff to ensure lateral deflections are kept within well defined and acceptable limits. The proposed form of construction is well established and has been used successfully on many similar developments in similar ground conditions with similar site constraints.

9.3 During construction suitably designed lateral propping will be installed to support the piled walls and restrict ground movements in the temporary case.

9.4 During detailed design, site specific lateral ground movements will be defined. These limiting values will be used to ensure that the temporary and permanent works proposals limit ground movement to acceptable levels to ensure the structural integrity of the adjacent properties.

9.5 As described in section 5, there are no significant slopes on or adjacent to the site. As described by the British Geological Survey “slope instability problems are unlikely to be present. As such no special actions are required to avoid problems due to landslides”.

10.0 CONCLUSIONS

10.1 It is proposed to construct a new single storey basement under the existing property at 48 Queens Grove, NW8. The sub-structure is to comprise bored concrete piled walls with a reinforced concrete box. The existing house is to be temporarily supported during construction and supported on new piled foundations in the permanent condition.

10.2 The existing two storey 'coach house' is to be demolished and a new two storey building constructed in its place. A new single storey extension will link the main house with the new coach house.

10.3 The existing facades to the main house are to be retained during and post construction. The internal structural to main house is to be altered including the installation of new floors, creation of new door openings and infilling of existing openings.

10.4 The structural proposals will be executed using well established construction techniques that have been used successfully on many similar developments in similar ground conditions.

10.5 The permanent basement structure is to be designed to resist all lateral earth, surcharge and hydrostatic loads to ensure that ground movements are limited to acceptable values and to ensure the structural integrity of the existing and adjacent properties. Similarly the bored piled wall is to be designed and propped during construction to minimise lateral movements.

10.6 Proposed construction sequences are provided in Appendix B. These show that the works can proceed in a safe and logical manner. An on site loading/unloading bay is to be formed to allow site traffic to park directly on site; thus keeping the surrounding roads clear.

10.7 A full site investigation will be undertaken prior to undertaking detailed design.

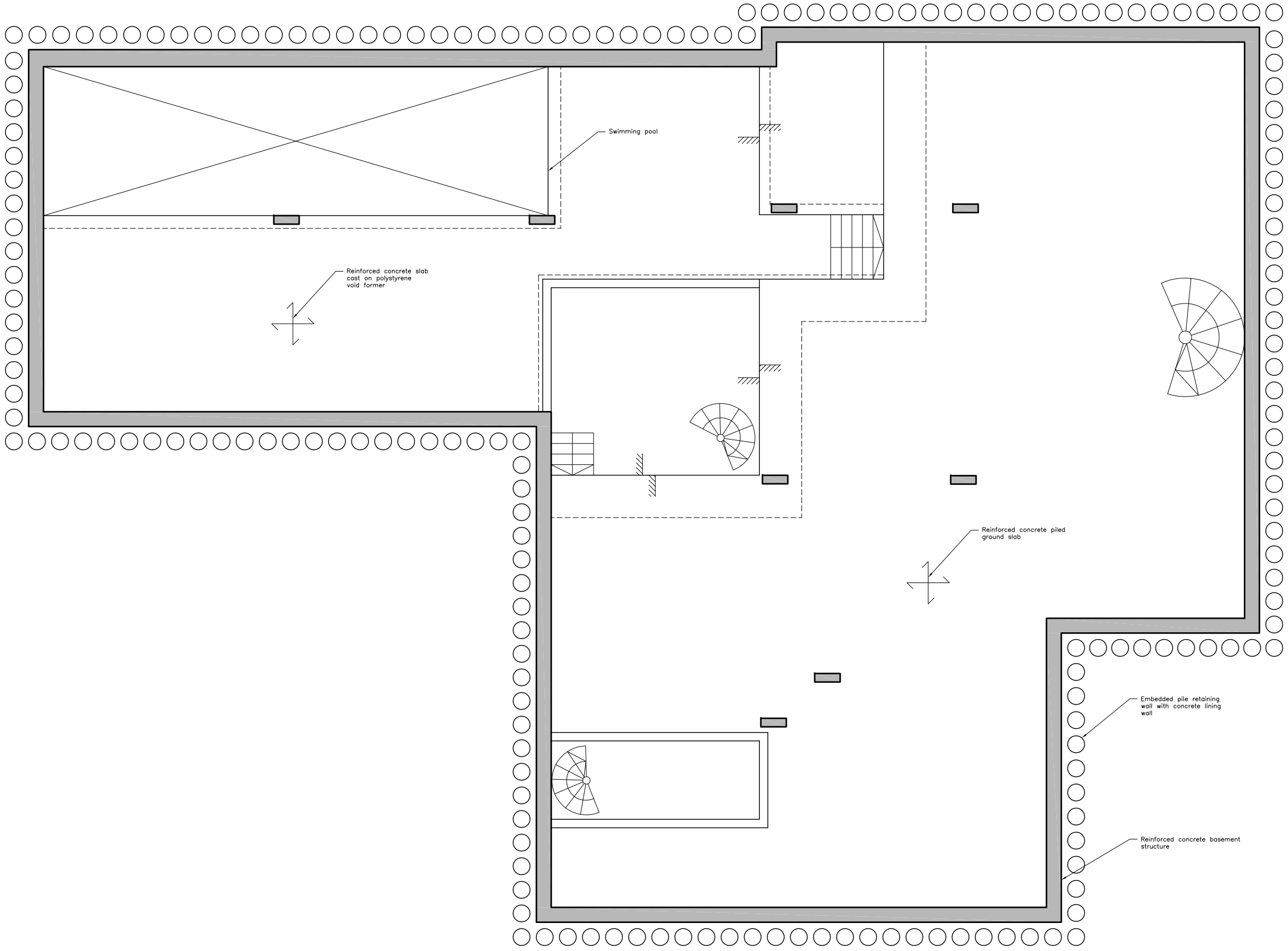
10.8 The proposed works are to be executed by a competent Contractor with experience in the chosen form of construction and working on restricted site.

Thomas Musson BEng CEng MIStructE

48 QUEENS GROVE,
NW8

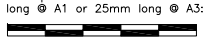
APPENDIX A

STRUCTURAL DRAWINGS



NOTES:

1. All structural engineering drawings are to be read with the specification and with all relevant Architect's and Service Engineer's drawings and specifications.
2. Do not scale from this drawing in either paper or digital form. Use written dimensions only. To check drawing has been printed to intended scale this bar should be 50mm long @ A1 or 25mm long @ A3:



3. All dimensions are in millimetres and levels in metres.

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–	21.09.11	TJM	Issued for inclusion in planning report.

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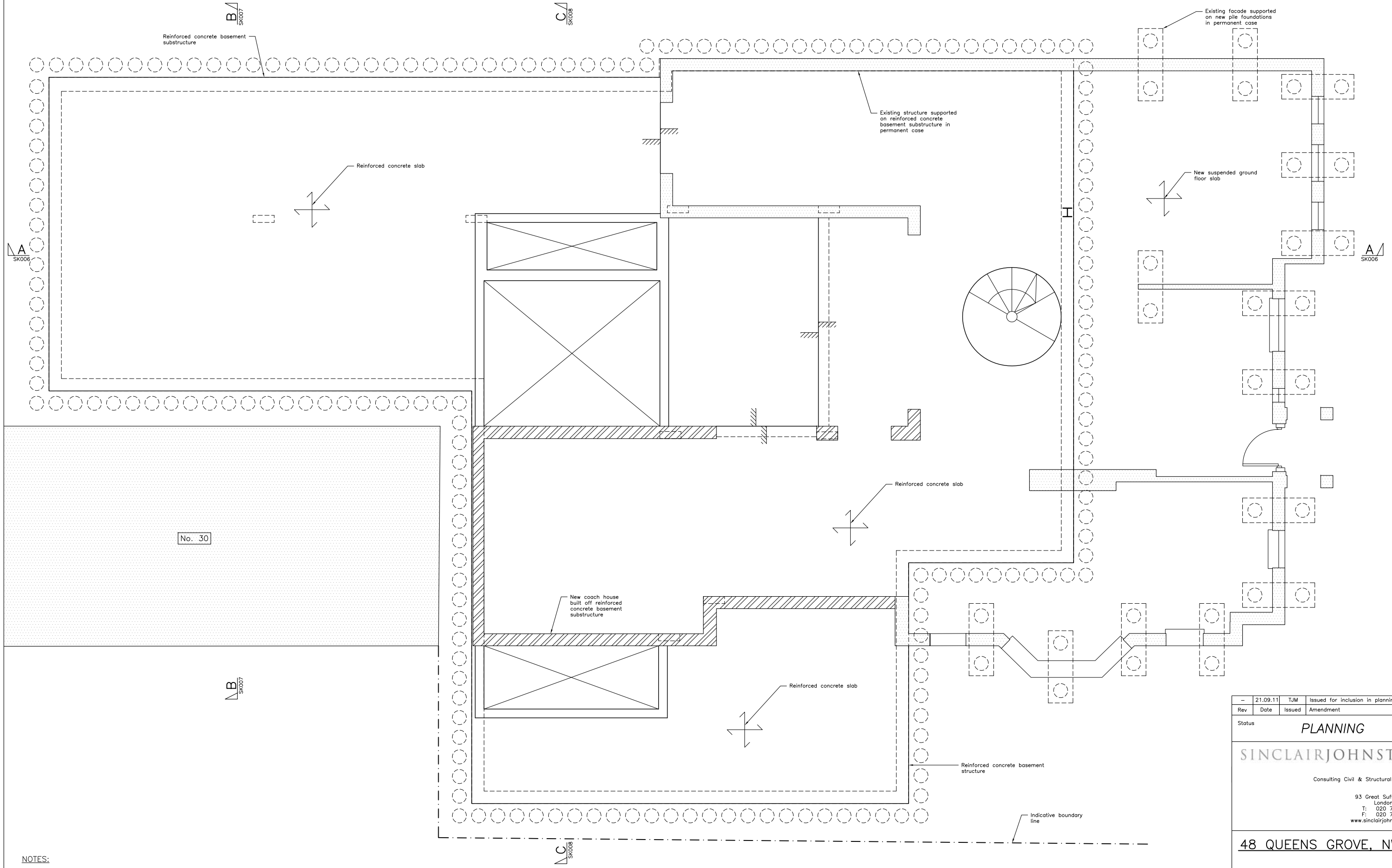
48 QUEENS GROVE, NW8

PROPOSED BASEMENT PLAN

Drawn	T Musson	Scale	1:50 at A1

Drawing No. 6800/02/SK01 Rev –



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PROPOSED GROUND FLOOR PLAN

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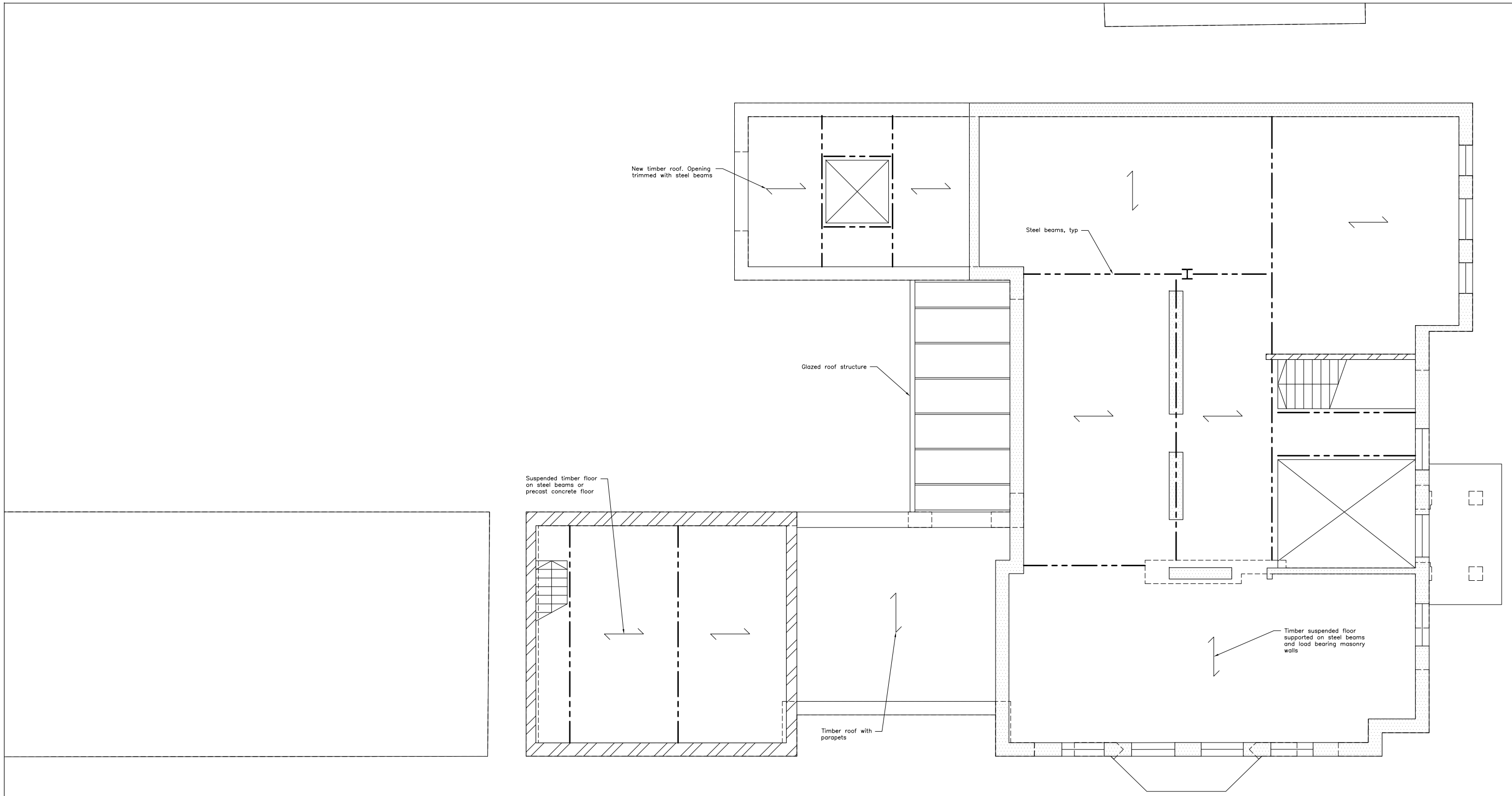

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PROPOSED FIRST FLOOR PLAN

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Drawing No.		Rev	
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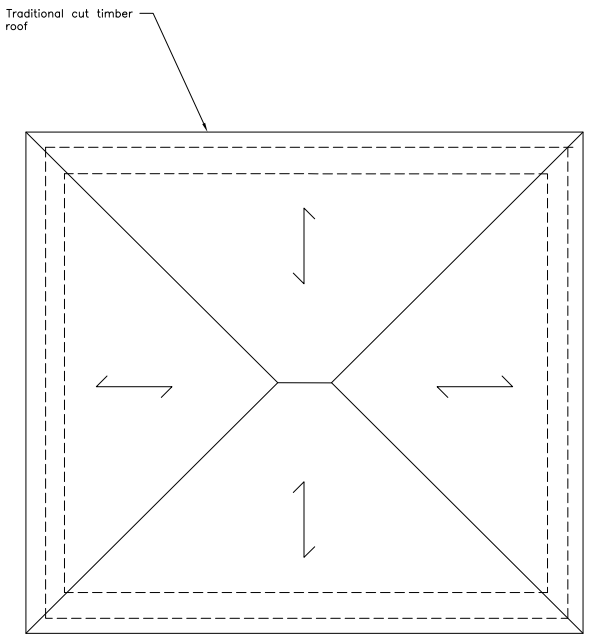

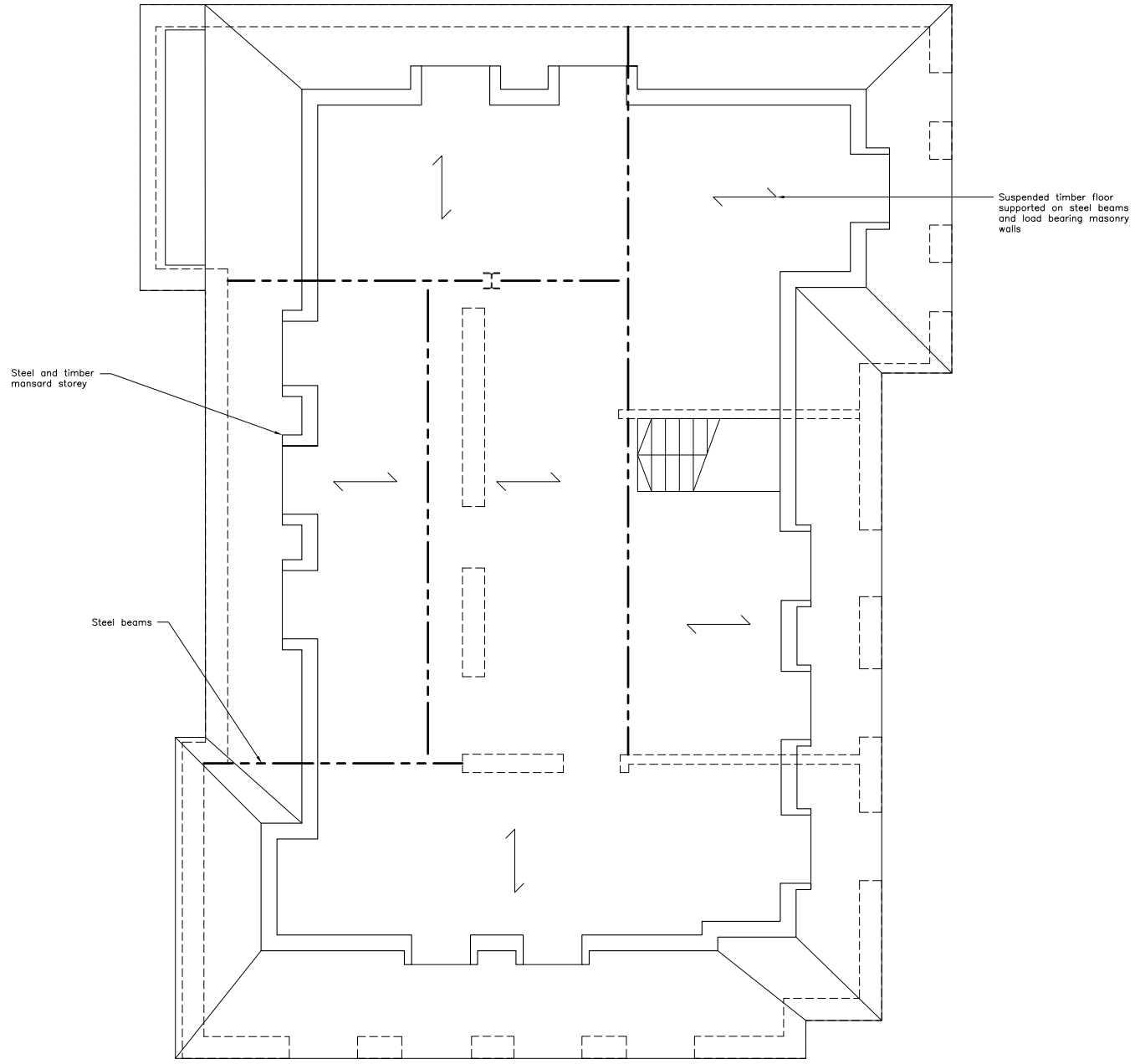

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48 QUEENS GROVE, NW8

PROPOSED SECOND FLOOR PLAN

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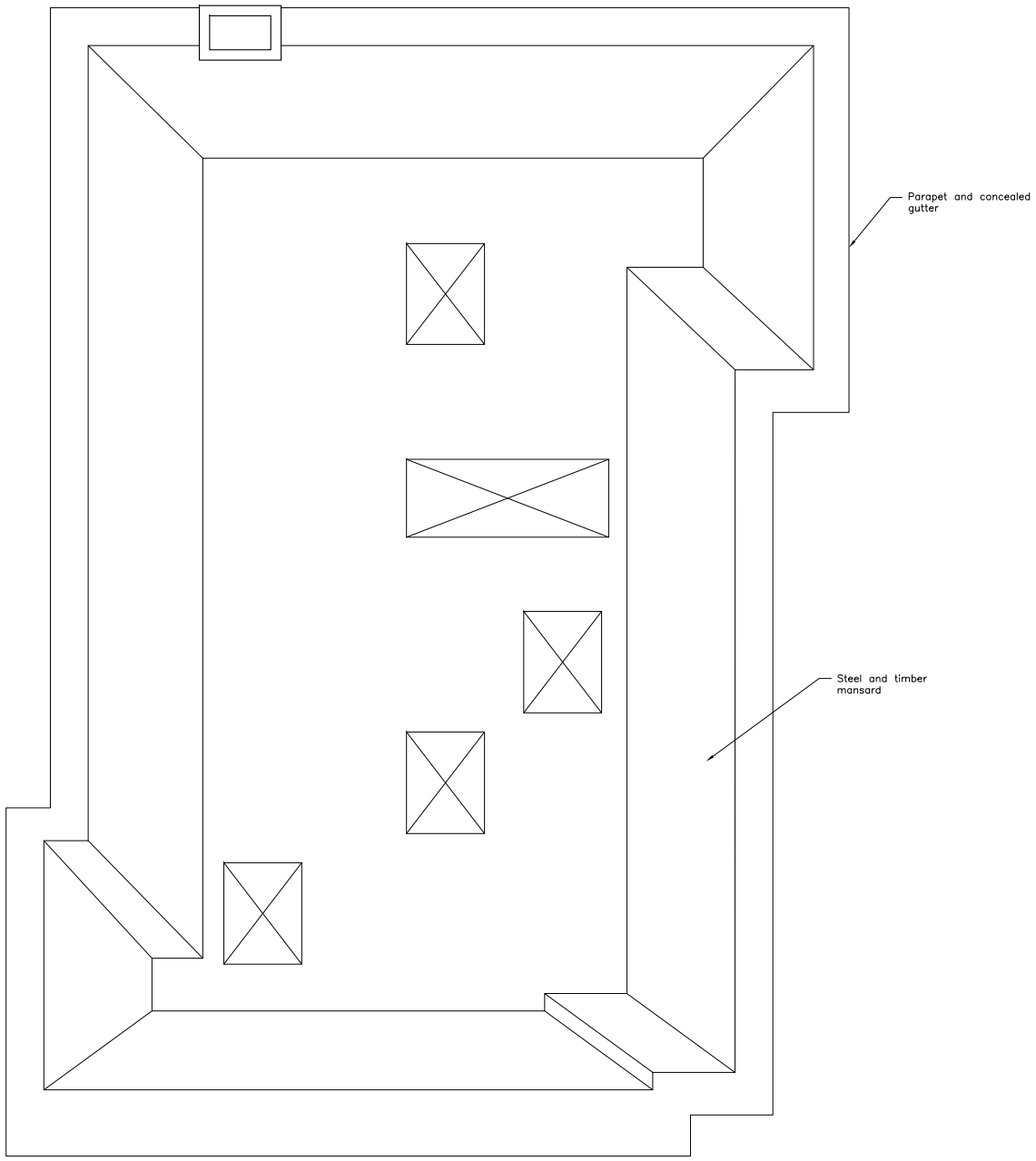

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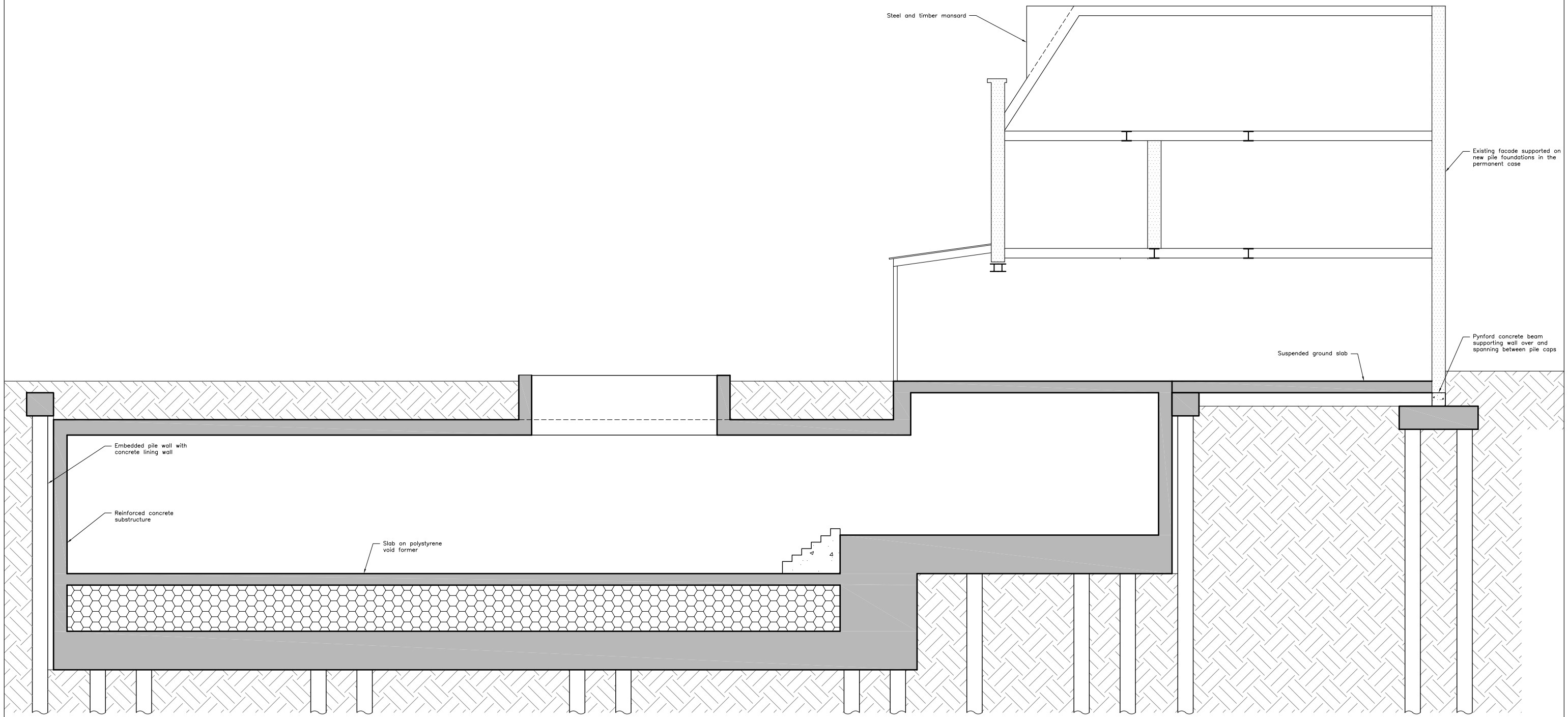
48 QUEENS GROVE, NW8

PROPOSED ROOF PLAN

Drawn T Musson | Scale 1:50 at A1

Drawing No. 6800/02/SK05 | Rev –



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48 QUEENS GROVE, NW8

SECTION A–A

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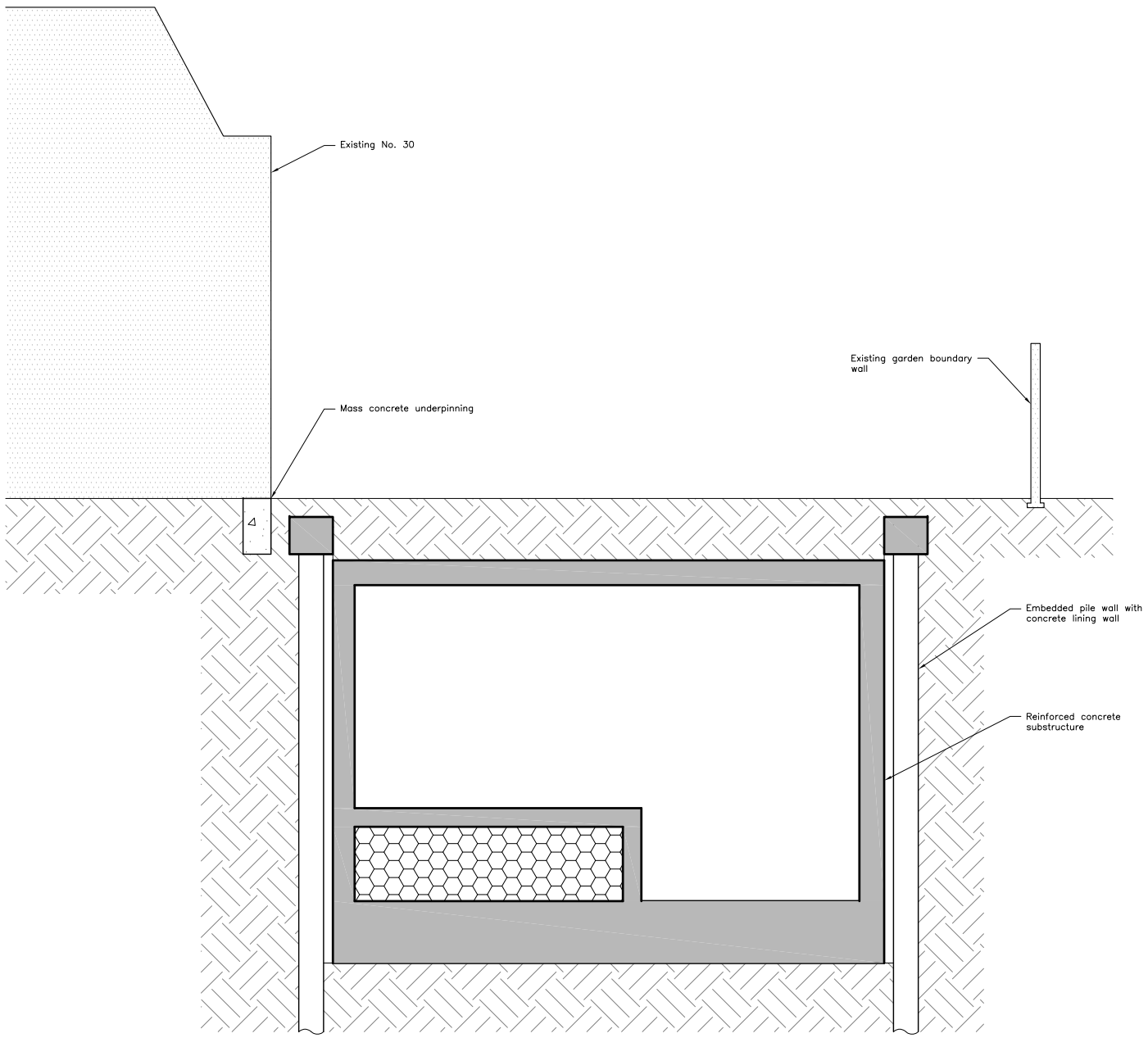

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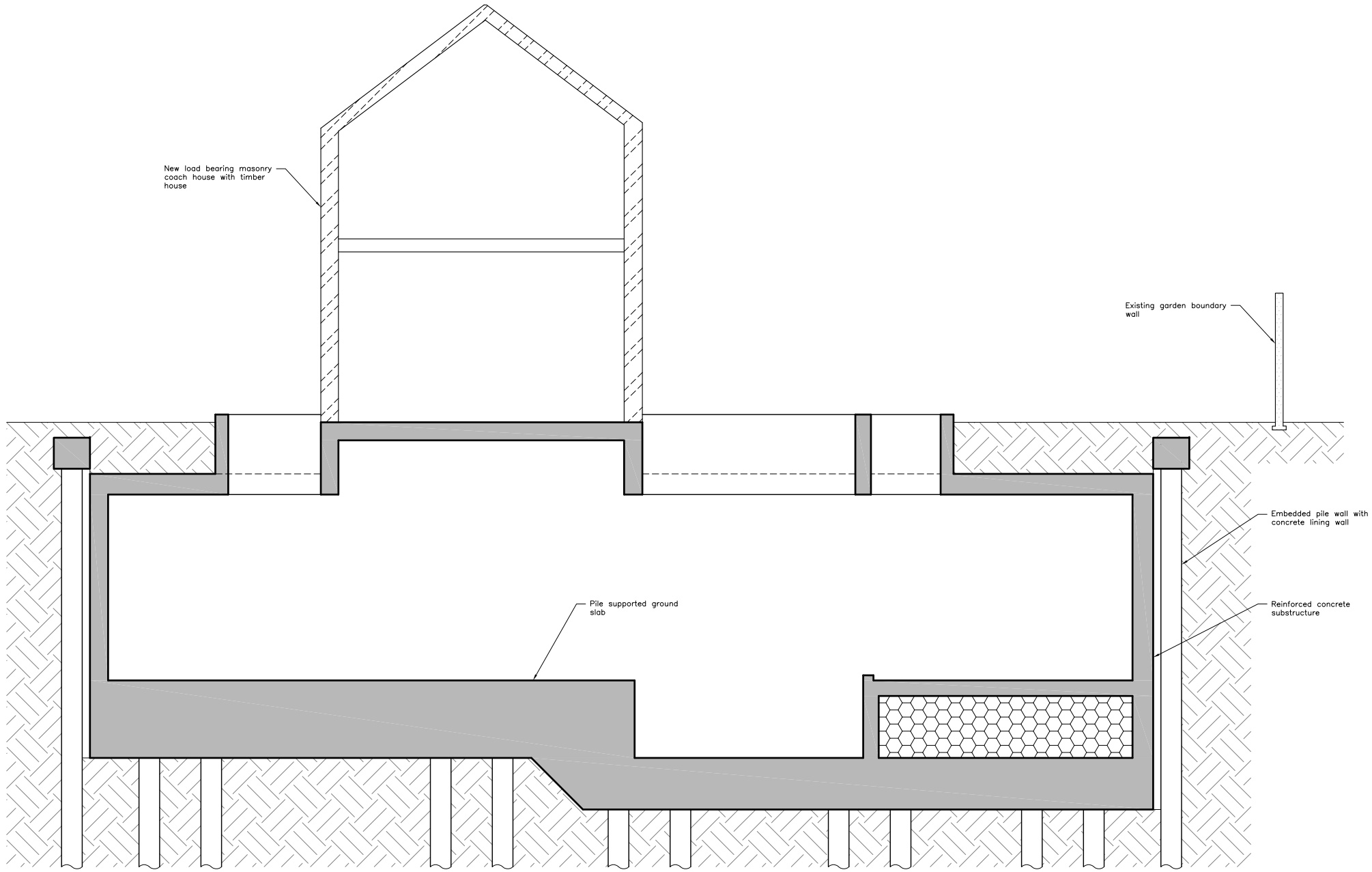
SECTION B–B

Drawn T Musson

Scale 1:50 at A1

Drawing No. 6800/02/SK07

Rev –



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48 QUEENS GROVE, NW8

SECTION C–C

Drawn T Musson | Scale 1:50 at A1

Drawing No. 6800/02/SK08 | Rev –

48 QUEENS GROVE,
NW8

APPENDIX B

ANTICIPATED CONSTRUCTION SEQUENCES

48 QUEENS GROVE, NW8

ENABLING WORKS SEQUNCE

This document is to be read in conjunction with Sinclair Johnston & Partners 'Structural Engineer's Report in Support of the Planning Application' dated September 2011.

1.0 Contractor to take possession of the site and set up site welfare facilities and site offices. 'Monitoring' points and survey stations to be set up and initial readings taken.

2.0 Contractor to erect site hoarding and ensure site is fully secure. Contractor to demolish existing coach house building.

3.0 Contractor to strip out internal finishes in existing house and expose all structure for inspection by the Engineer. Engineer to undertake full structural survey recording all load bearing elements and noting any structural defects. Services into the house to be terminated and made safe. Garden to be stripped out and hard landscaping removed.

4.0 Contractor to repair any noted structural defects to the existing house. Demolish all non-load bearing partitions. Remove all doors and windows and place in storage if to be reused. Brick up or install timber bracing to all major door openings.

5.0 Mass concrete underpinning to be constructed where required. Sub-contractor to install piling using rotary bore techniques and a restricted access piling rig. Contractor to construct capping beam to perimeter piling and pile caps to existing house.

6.0 Temporary facade retention frames/scaffold to be erected. Temporary works to support the existing load bearing structure to be installed and supported on piled foundations.

7.0 Contractor to break out existing ground floor and reduce level to allow Pynford stools to be installed.

8.0 Contractor to break out pockets for the Pynford stools and install stools as per Sub-Contractors' method statement.

9.0 Once stools are installed and the building over is adequately supported the Contractor is to break out remaining masonry between stools.

10.0 Contractor to install reinforcement around stools and cast Pynford reinforced concrete beam. The retained facades are then fully supported on the new piled foundations.

11.0 The site is then ready for construction of the basement.

NOTES:

a) During the above works regular surveying of the monitoring points is to be undertaken to calibrate instrumentation and provide pre-excavation values.

48 QUEENS GROVE, NW8

BASEMENT CONSTRUCTION SEQUENCE

This document is to be read in conjunction with Sinclair Johnston & Partners 'Structural Engineer's Report in Support of the Planning Application' dated September 2011.

1) Sub-contractor to install piling using rotary bore techniques and a restricted access piling rig.

2) Contractor to excavate to underside of existing foundations and break out existing brickwork and footing below reinforced concrete Pynford beam.

3) Contractor to undertake excavation and install hydraulic struts. Reinforced concrete lining wall to be cast as excavation proceeds. Contractor to provide adequate sumps and pumps as excavation proceeds to deal with any inflowing surface water or rain water.

4) Contractor to cast concrete over site blinding and install any waterproofing membranes.

5) Contractor to fix reinforcement for the piled ground slab and cast concrete slab.

6) Contractor to fix reinforcement for vertical concrete elements and cast.

7) Contractor to fix reinforcement for ground floor slab and cast concrete.

8) Contractor to remove temporary needle beams and break down temporary piles. Contractor to make good all resulting voids.

NOTES:

a) During the above works regular surveying of the monitoring points is to be undertaken to calibrate instrumentation and provide pre-excavation values.

48 QUEENS GROVE, NW8

APPENDIX C

COMPANY PROFILE

SINCLAIRJOHNSTON

Sinclair Johnston & Partners Limited

Consulting Civil and Structural Engineers.

The Practice was established in 1983 to provide high quality, independent, professional advice on building structures.

Based in London we provide services on projects throughout the British Isles. specialising in complex projects requiring innovation and a high degree of investigation, understanding and design.

The philosophy of the Practice is one of teamwork providing 'Excellence in Design.'

Our portfolio includes a diverse range of projects from new build and alterations to historic buildings. New build projects include retail developments, offices, schools, hospitals, doctor's surgeries and exclusive residential developments. Specialist structural engineering advice is provided on the appraisal, repair and alterations of historic buildings and Scheduled Ancient Monuments.

Sinclair Johnston & Partners Limited
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Pile Foundation, Hampton Hill

William Ellis School, Hampstead

Galvanised Steel Hanger Connection
Wimbledon Bridge, Wimbledon

Our services include:

- Conservation Engineering
- Foundation Engineering
- Reinforced Concrete Design
- Steelwork Design
- Masonry Design
- Timber Engineering
- Investigation and Reports
- Litigation Support
- Acquisition and Investment Inspections and Reports
- Development Monitoring and Advice

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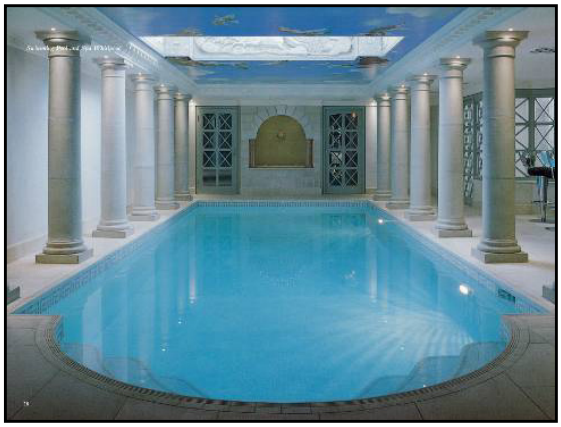
Basements

Smith Street, SW3: Two storey basement under existing house on very tightly constrained site with neighbouring 6 storey buildings.



Tregunter Road, SW10: Project to link house and lodge into single dwelling by adding basement sports complex under garden between the two.

Norland Square, W11: contentious planning application for large basement extending under and beyond this Grade II listed house approved after input from Sinclair Johnston & Partners Ltd mitigated neighbours' concerns regarding adjoining houses and nearby large trees.

Sinclair Johnston & Partners are advising on a large number of residential and commercial scale basement projects. These range from simple underground extensions within the footprint of the existing structure to basements several storeys deep and extending beyond the building itself and under the surrounding grounds, possibly linking several buildings together.

Our work in this field falls into two main areas:

- Structural design and method statements for underpinning, temporary propping and construction.
- Structural reports in support of planning applications.

In any project of this nature, thorough investigation of site conditions is crucial, especially as many projects around London occur in tightly constrained sites with large buildings either side and, in some places, tunnels for the London Underground below. Our long term experience in this work enables us to establish the structural situation early in the design process and advise accordingly.

Sinclair Johnston is a member of the Pyramus & Thisbe Club and is able to act as party wall surveyor in these projects.

Client: **Miscellaneous.**

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project sheet

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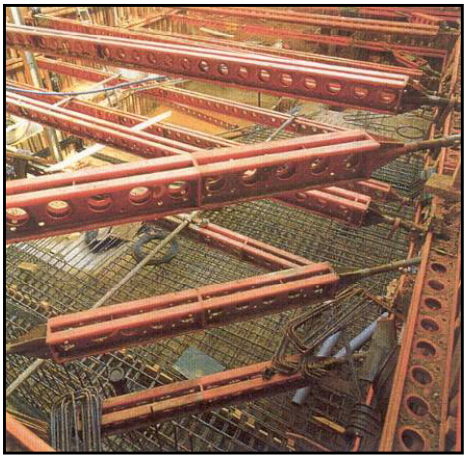
Excavations



Propping to temporary retaining wall.

King post construction and temporary propping

Contiguous bored pile retaining wall and capping beam.

There are several methods of providing secure temporary propping to excavations. Usual practice is for the final details and procedures to be worked up by the selected contractor into a method statement which is agreed by the structural engineer.

Raking struts may be of heavy timber or mild steel sections or, more usually, of purpose-made, heavy duty props by Mabey or RMD. Selection of propping method depends on soil conditions, depth of proposed excavation, surcharge from adjoining buildings and access for piling rigs and other heavy equipment.

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