Structural Report
Re: Proposed Basement
At 42-45 Belsize Park
London NW3 4LY

For

Belsize Developments Ltd.

R H Horwitz Associates
23 High Street
Ingatestone
Essex CM4 9DU

Job No. 6422/Doc1/Draft 4
Date: October 2011

Contents

Introduction

The proposed development includes the retention of the front and left hand flank facades to Nos 44 and 45 Belsize Park and right hand flank wall to No 42 Belsize Park, and retention of linked structures between neighbouring properties Nos 41 and 46 Belsize Park, demolition of Nos 44 and 45 and site clearance of the remaining portions of Nos 42 and 43 which collapsed in October 2008 as described in Ove Arup's Report (November 2008), introduction of a new basement to be constructed beneath the development of a pair of semi-detached houses and eight self-contained flats as shown on Messrs Osel Architecture drawings all forming part of the current submission for planning.

R H Horwitz Associates have been instructed by Belsize Developments Ltd to prepare a structural report outlining the proposed method of construction of the basement and how the structural stability of the existing facades and of neighbouring properties shall be protected.

This report should be read in conjunction with Card Geotechnics Ltd's Basement Impact Assessment and Hydrological Report CG/4812a May 2011 which sets out to satisfy the requirements of Camden Guidance document CPG4.

The proposed method of construction above ground floor will be an insitu reinforced concrete frame.

Section 1 of this report should be read in conjunction with Ove Arup & Partners reports for Nos 42-43 and 44-45 Belsize Park November 2008 reference No 126290.

Section 2 sets out a revised façade retention support system which takes account of the current proposals for the basement construction.

Section 3 provides a commentary of the proposed construction sequence, methodology and stability protection measures for the construction of the basement.

Section 1 Update to Structural Report prepared by Arup No 44/45 Reference No 126290

1.1 No further structural assessment of the buildings has been carried out since Arup prepared their report in November 2008.

Since notification that a number of props had been stolen from the site, Keltbray returned to the site in May 2011 to install shoring as noted on the method statement appended to this report in Appendix A, together with details of the temporary shoring to No 44-45.

1.2 The condition of the buildings remain such that they should be considered unsafe and protective crash decking and shoring installed to satisfy Section 4.2 of Arup's report should remain in place.

1.3 Recommendations as set out in Arup's report for façade retention and demolition have been expanded by this report to take account of the current proposals.

The following sections of this report set out the method by which the existing buildings are to be dismantled and façade remedial works and retention undertaken.

Section 2 Façade Retention and Demolition of Building 44-45

The indicative construction sequence shown on drawings prepared by Arup have been adapted to incorporate the proposed basement layout and construction sequence as set out in this proposal.

The following steps are based on the fact that the structural stabilisation works outlined in Section 4.2 of Arup Report have been undertaken

Sequence of Work

- Carry out schedule of conditions to adjacent properties
- Install movement monitoring system
- Carefully dismantle entrance portico and steps for safe storage off site for reuse in the restoration of the existing facades
- Install façade retention system to front and flank facades on temporary piles and top down basement slab as set out in Section 2.1 and on construction sequence drawings 6422/EW/01-14. Appendix B.
- Repair/consolidate/strap façade; replace decayed lintels; brace openings and remove glazing (see Section 2.2)
- Carefully dismantle rear of buildings (see section 2.3)

Section 2.1 Façade Retention Scheme

The construction sequence and façade retention details illustrated on drawings in Appendix B are based on preliminary design and assessments final designs will be prepared by specialist temporary works engineer, including approved method statements for checking by the Project Engineer for submission to Building Control for approval.

Before the façade retention system can be clamped to the façade walls these will be inspected by a qualified structural engineer and substantial repair undertaken to the façade to facilitate safe clamping of the retention system and dismantling of the buildings. Should fixings be required to be taken into the wall site insitu pullout test will be carried out prior to final design to determine the walls adequacy.

No Stucco render shall be removed from the façade throughout the execution of the works or until the façade has been tied into the new structure and any movement associated with the basement excavations have occurred.

Section 2.2 Façade Repairs Prior to Dismantling of Rear

- Refer to Section 4.5 Arup Report

Section 2.3 Dismantling of Rear Building

- Refer to Section 4.6 Arup Report

Section 3 Proposed Methods for Construction and Stability Protection

3.1 General Description of Site Boundary Conditions

- Front Boundary — Back of highway footpath to Belsize Park
- Rear Boundary — Existing access into the rear of No 42-45 adjacent to ramped road access down to below ground parking to properties fronting Belsize Lane
- Left Hand Flank — Garden area lying to rear of No 46 Belsize Park to the rear a single storey extension attached to two storey property fronting onto Belsize Lane
- Right Hand Flank — Garden area lying to rear of No 41 Belsize Park

3.2 Existing Buildings

- No 42/43 — Part standing front façade and side hall first floor link with No 41 still in place
- No 44/45 — Buildings remain in place with temporary shoring for protection against potential collapse

3.3 Proposed Basement Layout

- See drawings reference Nos 6422/EW/01-14.
- This report is to be read with Messrs OSEL drawing series

3.4 Anticipated Ground Conditions

Basement excavations are anticipated to remain in the firm to stiff London Clay strata which from previous ground investigations of this site have been identified to lie within 0.4m and 1.4m depth with overlying made ground and head deposits.

No water table within the upper stratas is anticipated.

From previous investigation recorded water levels are such that dewatering requirements are considered to be low risk.

3.5 Design Intent

- The basement shall be designed to resist applied loads and forces from lateral earth and hydrostatic pressure, surcharge from neighbouring buildings and proposed buildings built on top of the basement. All vertical and horizontal forces are to be transferred through the basement into the foundation system taken down into the stiff London Clay sub-strata.

- Design shall take account of predicted settlements and negative uplift forces due to clay heave and shall set out to limit settlement, lateral displacements and rotations to within acceptable tolerances taking into account the new structures existing facades and neighbouring buildings.

- Foundations shall be designed to recommendations set out in the ground investigation report to limit settlements to acceptable tolerances and to not impact on the stability of neighbouring properties.

- The design shall be carried out using geotechnical data and recommendation as set out in Messrs Card Geotechnical Report reference No 4812 August 2008 and amendments 2011.

3.5 Design Intent (cont)

- The basement construction will be designed to resist hydrostatic pressures as set out in and in accordance with the current British Standards and Approved Documents for Basement design including watertight construction details with drained cavity Type C Basements for habitable areas. The car park area will be exposed fair face concrete Type A construction.

- The buildings' superstructure shall be constructed using insitu reinforced concrete frames sprung form the basement ground floor slab with stability cores taken down into the basement foundation system utilizing concrete shear walls forming the lift cores.

- The frame shall include isolated columns and walls supporting solid flat slab floor plates with insitu staircases. The roof construction above third floor shall be formed using structural steel with laid up timber rafters and joists. External cladding will be cavity wall construction tied to the frame by stainless steel frame ties with wind posts spanning between floor plates where unrestrained wall panels form large openings in the façade, all to be designed to current British Standards, Building Regulations and approved documents.

- The retained façade shall be laterally restrained and tied back into the concrete frame using cast-in anchorages along the edge of the floor plates and vertically at wall and column abutments and vertically supported on the basement structure.

- Drawings reference Nos. 6422/EW/01-14 in Appendix B illustrate the various forms of construction to be adopted and proposed measures to maintain stability of the façade and neighbouring properties.

3.6 Method of Construction of Proposed Basement

- The construction sequence proposed is to install the façade retention system and repair/restore the facades as set out in Section 2 followed by the demolition and removal of the remaining buildings to both Nos 42/43 and 44/45. Once the facades are secure construction of the perimeter retaining wall to the rear of the site will be carried out installing a contiguous piled wall using continuous flight auger or injection piles designed by specialist to support the lateral earth pressure and surcharge from the adjacent properties.

- Temporary props shall be installed to resist lateral thrust and to restrict and reduce the risk of lateral displacement at the top of the wall, thus securing stability to the boundary. Where access is limited between the buildings and piling operations are not practical, traditional methods of underpinning shall be used to construct reinforced concrete retaining walls.

- The walls shall be cast in sections of no greater than 1.2m wide and in a sequence that enables the lateral stability of the adjacent earth embankments and buildings to be maintained.

- Temporary propping shall be installed to secure each pin against sliding and rotation until the walls are anchored into the completed basement structure.

- The basement below the façade retention scheme shall be constructed using traditional methods of underpinning. Lower sections of sub-structure brickwork shall be carefully cut out to enable the reinforced concrete pins to extend to proposed ground floor level. The top of the basement wall shall be cast with extending reinforcement for a monolithic connection with the proposed reinforced concrete ground floor forming the basement lid.

3.6 Method of Construction of Proposed Basement (cont)

- Open cut bulk excavations will be commenced from the rear of the site and temporary propping of the perimeter retaining wall will be installed together with lateral restraint props anchored to the top down slabs, the props shall be pre-loaded using flat jacks prior to excavations continuing.

- Excavations local to top down slabs shall be carried out to enable lateral bracing to piles to be installed. After the temporary piles have been suitably braced, excavations will be taken down to the deeper basement level from which construction of underpinned retaining walls and foundations will be commenced forming the lower basement slab.

- Construction of the basement columns and walls will follow to underside of the ground floor slab together with completion of internal supports to the rear suspended concrete terrace slab.

- After the first lift has been completed the basement ground floor and rear terrace slabs will be poured. Once the slab is securely anchored to the perimeter retaining walls the concrete frame can be constructed off of the basement. The basement construction shall be carried out in a continuous sequence programmed to avoid discontinuity of construction and long periods where excavations are left open and temporary propping is relied upon.

- Access into the rear basement car park will be from the existing ramp. This will require a new opening to be cut through the existing reinforced concrete wall. The opening will be formed by installing a steel goal post frame to provide support to the elevated garden terrace.

3.6 Method of Construction of Proposed Basement (cont)

- Where the proposed basement is lower than the existing reinforced concrete wall mass concrete underpinning will be installed along the wall's length taken down below basement formation level.

- The basement construction will create a monolithic reinforced concrete box anchoring the boundary retaining walls into the ground floor slab and terrace slab. Transferring surcharge loading from the neighbouring properties into the basement foundations together with providing support to the proposed new buildings and retained facades.

- Once the basement construction has been completed and secured the construction of the superstructure concrete frame will continue in one continuous operation.

- Only once all permanent works have been completed and have attained their design strength will the temporary works and façade retention system be removed.

3.7 Movement & Settlement

- A detailed analysis shall be carried out to establish predicted settlements and lateral displacements order of magnitude to enable assessment of potential damage to adjacent buildings. This will be carried out by Card Geotechnics Ltd.

3.8 Sequence of Works

Stage

1. Install façade retention system on temporary piles to Nos 44 and 45.

2. Consolidate/strap façade; install monitoring system.

3. Demolish rear buildings and back prop flank walls to be retained.

4. Install top down slab piles and slab supports to Nos 42 and 45.

5. Install flank wall retention system to Nos 42 and 45.

6. Install contiguous pile wall to rear and garden boundaries. Install temporary sheet piles to open cut basement to front gardens of Nos 42 and 43.

7. Reduce levels and construct pile capping beams.

8. Excavate to basement level 1 and cast thrust blocks in open cut basement area to rear, install back props to top of retaining walls and top down slabs leaving earth burn to front and flank walls.

9. Underpin façade and flank walls and install back propping using standard underpinning sequence.

10. Install basement flank walls in open cut basement area using standard underpinning sequence and back prop onto thrust blocks.

11. Underpin existing ramp retaining wall.

12. Excavate and construct basement level 1 car park slab.

13. Excavate basement Level 2 to front of buildings 42 and 43.

14. Construct basement Level 2 foundations and slab.

15. Construct first lift columns and walls in open cut basement.

16. Construct first lift columns and walls to pick up top down slabs.

17. Construct terrace and ground floor slabs over car park and rear area anchored into top down slabs and retaining walls.

18. Remove back propping once ground floor construction has reached design strength and façade system has been transferred onto basement box.

3.8 Sequence of Works (cont)

19. Construct reinforced concrete frame and cladding, provide lateral restraint anchors/strapping to facades.

20. Dismantle façade stability frames once full restraint to new building has been achieved.

21. Cut down temporary piles in garden area.

Section 4 Limitations

R H Horwitz Associates have prepared this report, in accordance with the instructions of Belsize Developments Ltd (Client) under ACE Terms and Conditions for its appointment, for the sole and specific use of the Client. R H Horwitz Associates shall not be responsible for any use of this report or its contents for any purpose other than that for which it was prepared. No professional liability or warranty shall be extended to other parties without R H Horwitz Associates explicit written agreement.

R H Horwitz
C.Eng. BSc.(Hon) M.I.Struct.E

APPENDIX A

METHOD STATEMENT
Shoring up of the remaining structure 44 & 45 Belsize park known as Goldsmiths Cottage

Company	**Keltbray Ltd**		
Method statement No.	**KB-BP-981-001**	Revision No.	0
Title	**Shoring up of dangerous structure**		
Start Date of Works	**TBC**	Duration	

Revision History				
Document No.	Revision No.	Issue Date	Author	Description of Modifications
KB-981-001	AA	6th May 2011	R Ellis	Draft for comments
KB-981-001	0	10th May 2011	R Ellis	WHP comments added

This Revision				
	Print Name	Signature	Position	Issued to:
Author	R Ellis	R Ellis	Project Manager	WHP
Checked by				

Status of This Revision			
Overall Approval Status	Yes	No	Date
Cat A Accepted for implementation. Work may proceed as planned.			
Cat B Not accepted for implementation. Resubmission required.			
Date Returned to Contractor			

Sign of by Project Manager	Print Name	Signature	Date
	R Ellis		

Table of Contents

Risk Assessment Index (Stored within Risk Folder)		New for this Task Specific MS
Number	**Title**	
001	Lifting Operations	
005	Working at height	
007	Loading wagons	
008	Wagon movements	
012	Working around holes and leading edges	
013	Supervision of work	
025	Scaffolding	
030	Fire (Site)	
038	Noise at Work	

COSHH Assessment Index (Stored within COSHH Folder)		New for this Task Specific MS
Number	**Operation / Process / Substance**	
001	Diesel	
034	Concrete Dust	
035	Rockwool	
039	Leptospirosis	
047	Foaming Handwash	

Health and Safety Factors	
Demolition Phase	**Key Factors**
Design	▪ Structural knowledge of the structure and site surveys or assessments ▪ Structural knowledge of any adjacent structure ▪ Equipment and methods selected
Planning	▪ Site knowledge ▪ Health and Safety risk assessment ▪ Development of safe sequences of demolition activities
Execution	▪ Workforce Supervision ▪ Control of method statements implementation ▪ Communication of unplanned discoveries ▪ Safety information and training selection

1. Introduction

The purpose of this document is to describe how Keltbray intend to undertake works to install propping and stabilise the building known as Goldsmiths cottage that comprises of No: 44 & 45 Belsize park

The building has previously been declared a dangerous structure, the adjacent building is part demolished ant the site in general is in a dilapidated condition

The building has scaffold support to the exterior and has previously been propped in order to stabilise the building.

The previous props have been removed by persons unknown, without any authorisation or authority

This has left the building in a tentative state that if left uncheck may rapidly deteriorate.

It is our intention re install props in a progressive manner on a room by room and floor by floor basis to re support the building

2. Scope of Works

Check, repair and make safe site security hoarding

Install welfare facilities

Check external scaffolding and amend repair as necessary

Initial inspection by qualified structural engineer(s)
Install internal and external propping system (S)
Check and report on any services heads found
Close up any external opening to prevent unwitting entrance into the building

3. Enabling Works

Inspection by qualified engineers
Install welfare
Repair / secure site hoarding
Inspect / Repair scaffolding
Check on a room by room floor by floor basis that any floors, stair wells are sound for personnel to access to adjacent rooms floors and corridors
Deliver propping equipment
Board off any ground floor openings

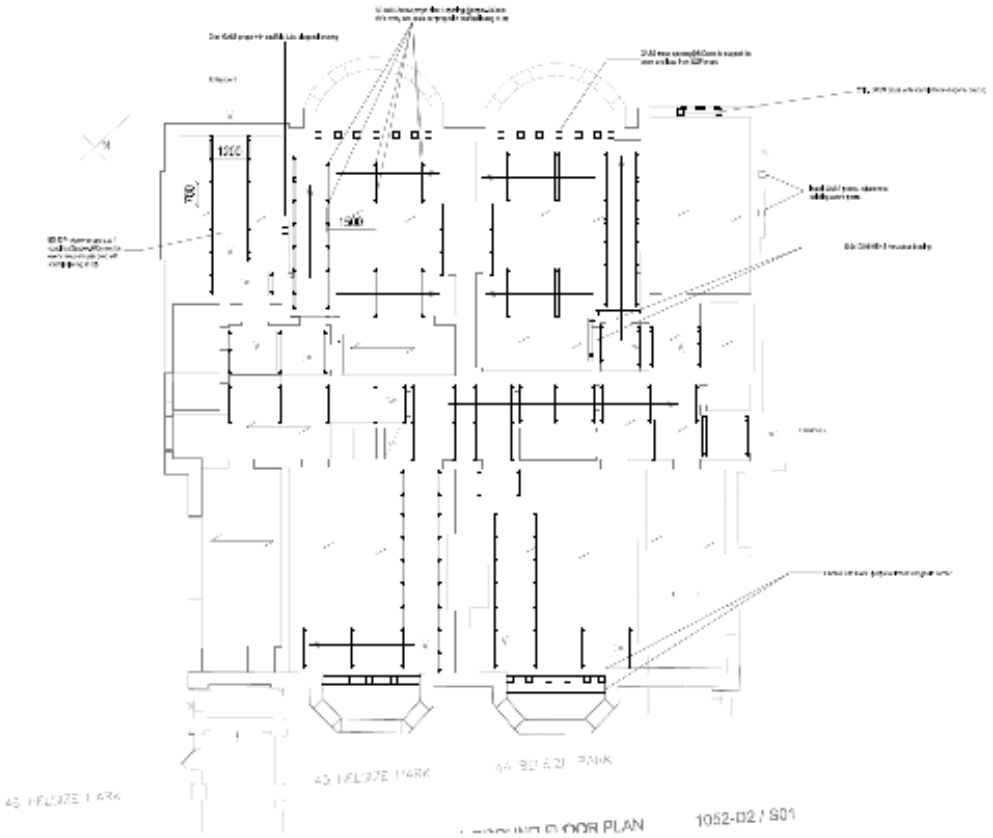
4. Method of Works

Site set up

- The site welfare and electrical generator will be delivered to site, with a HiAb lorry and set up a suitable distance away from the building, addition equipment and tools will be delivered by smaller vehicle
- Site operatives will off load the and set up the welfare unit and the electricians will set up the electrical supply form the generator
- The structural engineer and works supervisor will briefly vist the down stairs area to assetain ant immediate dangers
- The materials needed to secure the site hoarding will be delivers and once the electrical installation is complete and the welfare facilities are functional the carpenters will undertake any securing works to the hoarding
- The propping equipment will be delivered to site by a HIAB lorry and off loaded a suitable distance away from the building

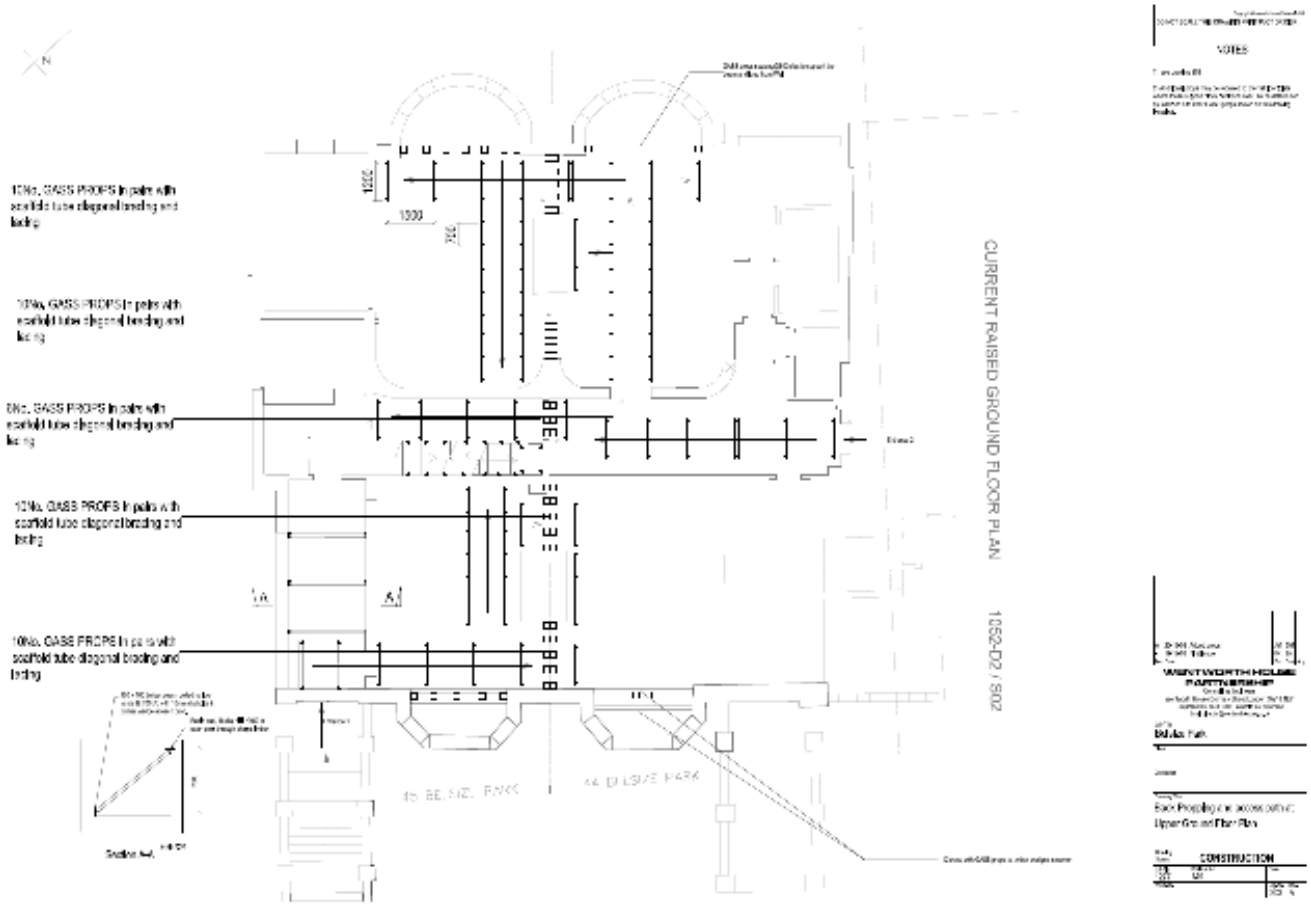
Propping of ground floor

- Starting from the door to the rear of 44 Belsize park, commence installation of props as per drawing below in the following sequence :
- Enter into the first room on ground floor and place a free standing light into the area
- Install accrows in first room, ensuring that the accrows are not over tightened as to exert any unwanted forces onto the structure, these accrows will form a safe route from the door way to the spine wall and additional areas where the structural support props need to be installed as per the drawing below
- Progressively install accrows and lighting units to form the safe route
- Install structural support props as per the drawing below
- Install lacing to props (as per lacing detail below)
- Check all props are secure
- Move onto the adjacent room or corridor and repeat the process
- Continue sequence of installing safe route accrow propping and structural support props throughout the ground floor
- This process will be repeated on a room by room basis, as far as practicable across the width of both buildings, in a logical fashion working from the rear of the buildings to the front of the buildings
- Once the ground floor have been secured, the works supervisor and the structural engineer will check the existing staircases for soundness of construction prior to personnel using the stairs

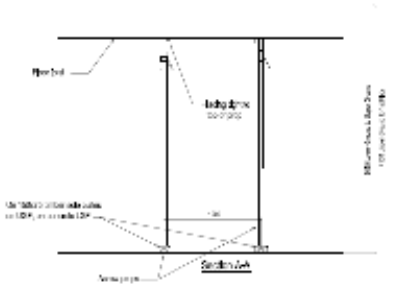

1200
700
1500
1052-D2 / S01

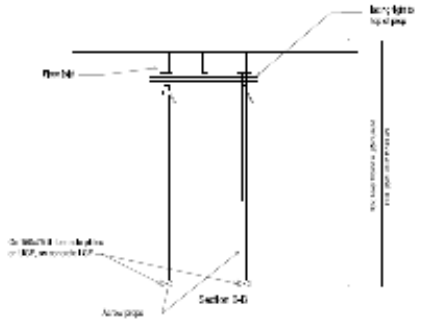
Upper floors

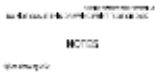
- Where the stairs are found to be un suitable an alternative stair will be sought and site personnel instructed to use the selected stairs
- If no stairs are found to be suitable the accrows or props will be utilised to back prop the stair case form use
- Once a stairs has been secured the works manager will commence temporary propping the shortest route from the stair case to the rear of the building
- Once an access route has been secured the propping will commence as per the sequence of the ground floor



Lacing details







5. Logistics

6. Hazards / Risks

- Total or part collapse of the building during propping installation
- Falling though unsound flooring or from unsound stairs
- Contact with live electrical or gas services

7. Control Measures (Permits, Exclusion Zones, PPE etc)					
Permits Required	Yes	No	Assessments (Attach If Yes)	Yes	No
Hot works		X	**COSHH**	X	
Crane check list		X	Noise		X
Excavation		X	Manual handling	X	
Confined space entry		X	Electrical Isolation	X	
Riser shafts		X			
Further Control Measures / Security Requirements.					
As stated above, due to the highly dangerous nature of the works being carried out on the site, no personnel are to enter the building without express permission for the site manager or the supervisor in charge of that are of works.					
As indicated above prior to the works being carried out an electrical isolation certificate will be required for the building.					
Personal Protective Equipment	Yes	No		Yes	No
Safety Helmet	X		Gloves	X	
Protective Footwear	X		Hearing Protection		X
High Visibility Clothing	X		Overalls	X	
Eye protection	X		Body Harness		X
Face Respirator		X	Other?		X
Equipment To Be Used	Yes	No	**Equipment To Be Used**	Yes	No
Lifting	X		Cradle		X
Mechanical hoist		X	Excavation shoring		X
MEWP		X	Ventilation Equipment		X
Ladder		X	CAT		X
Hoist		X	Mechanical tools	X	
Test Equipment		X	Excavation shoring		X
Task Lighting	X		Lifting slings/chains	X	
Scaffolding	X		Mechanical plant (State)		X
Mobile scaffolds		X			

8. Resources

Management / Supervision

1 works supervisor

1 visiting safety adviser

1 visiting projects manager

Structural engineer on call

Labour

- 4 men & 1 working supervisor for 4 weeks to install props etc
- Additional 1 week provisional making safe, such as void in fills, sharps, bio hazards etc
- 4 man days scaffolders to check existing scaffold
- 6 man days carpenters to secure hoarding
- 6 man days for carpenters to board off all external openings at ground level + materials
- 2 man days for electrics
- Roaming site security

Plant & Equipment

- 1 No: Oasis cabin (serviced) for the duration
- 1 No: 100 kVa generator for supply into building + small bunded diesel tank
- 1 No: MDU for same
- 2 No: 10 kVa transformers & 50 meters of cable
- 4 rolls of festoon , bulbs etc
- Gas props and acrrow as per sketches above
- Scaffold tube and fitting as needed

Materials

Timber

Props

Diesel fuel

9. Training & Supervision

Training Certificates Required

	Yes	No		Yes	No
Scaffold	X		Mobile Elevating Platform	X	
Forklift		X	Mobile Access Towers	X	
Dumper		X	Banksman	X	
Excavator		X	Abrasive Wheels	X	
Others (Please state):					
Overall Assessment of Risk after the Implementation of Control Measures (tick					

one)					
Low	Moderate	Substantial	High		
		x			

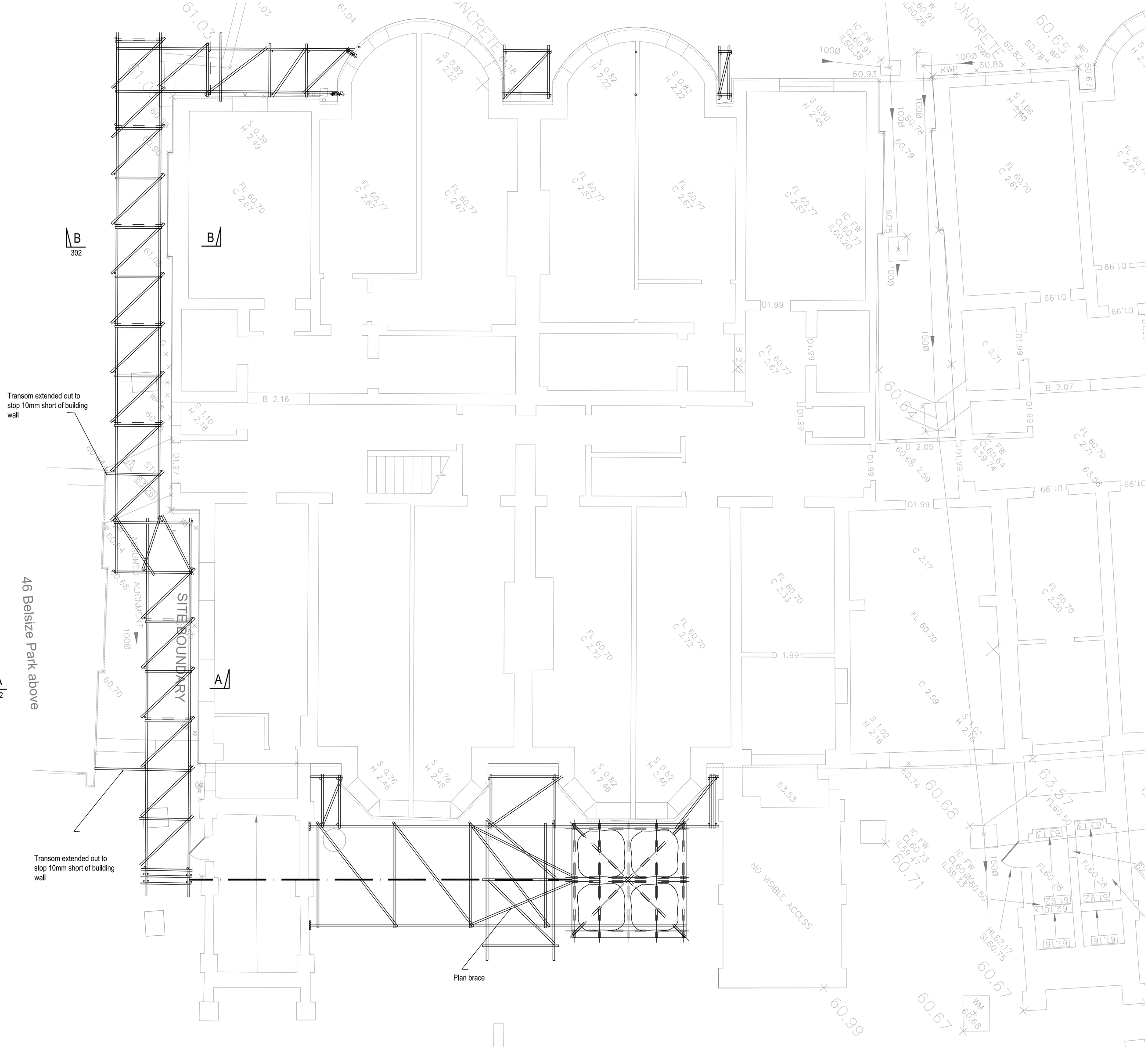
10. Emergency Arrangements	
First Aid Measures required	Rescue / Security Measures required
At least 1 first aider to be on site during working hours	Emergency services
Rescue	
By	
How	

11. Contractor Monitoring & Compliance				
Who is accountable for monitoring compliance with the method statement?	The Site Manager			
Will any test / sampling requirements impose compliance standards?	**Yes**	x	**No**	
If yes, who will carry them out and with what equipment?	Wentworth house partnership			

12. Appendix A

13. Appendix B

14. Appendix C



NOTES

1) RISK ASSESSMENT WARNING

This building has been classified as a dangerous structure. No-one is to enter it during the erection of this scaffold. All work must be done from the outside.

a) It is assumed that these works are to be carried out by a competent contractor

2) This is NOT an access scaffold. It is an engineered structure carried out in scaffold. Transoms are to be fixed to ledgers adjacent to standards and with right angled couplers. Plan bracing is to be fixed to standards with right angled couplers. It is set out as a five board scaffold with standards at 1300c/cs. All ledgers to be joined with sleeve couplers and splice tubes with 2 fitting each side of joint Scaffold lift heights are set out to suit window levels.

Rev	Date		Dm	Dsn	App
B	22/01/09	Plan brace added in green	SE	SM	SM
A	16-12-08	ISSUED FOR CONSTRUCTION	SE	SM	SM
-		First Issue			

WENTWORTH HOUSE PARTNERSHIP
Consulting Engineers
Wentworth House Dormay Street London SW18 1EY
Telephone 020 7643 1050 Facsimile 020 7643 1051
Email director@wentworth-house.co.uk

Job Title
44-45 Belsize Park

Client
Hammerhead Construction

Contractor
Hammerhead Construction

Drawing Title
Facade Scaffold Shoring
Plan at Level 4

Drawing Status: **CONSTRUCTION**

Job No.	Scale at A1	Date
1277	1:50	13/12/08
Web.no.		Drg.no. 200 / Rev. B

DO NOT SCALE THIS DRAWING PRINT PLOT OR DISK

NOTES

1) RISK ASSESSMENT
a) It is assumed that these works are to be carried out by a competent contractor

WARNING
This building has been classified as a dangerous structure.

2) The acrow props with scaffold tube lacing as per drg 305 are to be installed progressively to provide a measure of protection to operatives installing the GASS props. Operatives are not to operate outside of these protected walkways

3) This drawing is based upon the

EDI survery drawing1052-D2/S01

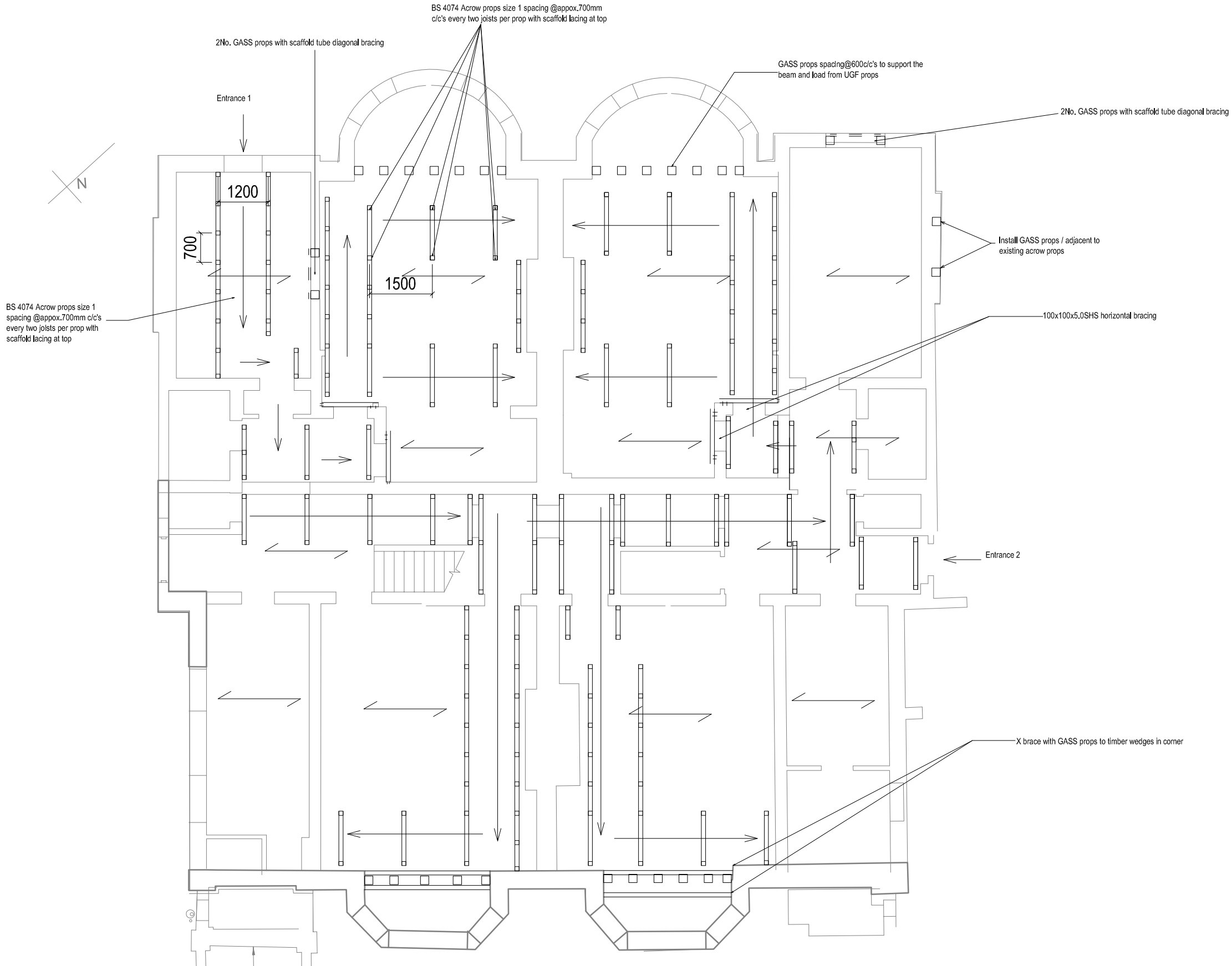
ARUP drawing SK101

4)Joist Spanning direction shown on drawing to be confirmed on site, if they do not comprise with drawing ask for WHP advise prior before construction.

5) Floor load has been taken as 0.5kn/m2 as per ARUP's drawing, Existing brickwork density has been taken 19kN/m3 Live load on floors has been taken as 0.75kN/m2, Live load on roof has been taken as 0.6kN/m2

6) this drawing is approximate only to uncertain degree of soft strip works

7) All GASS props to have 150 x75 head & sole plates



1052-D2 / S01

Rev	Date		Drn	Dsn	App
A	23-12-08	General revision	JM	SM	
-	19-12-08	First Issue	KX	SM	

WENTWORTH HOUSE PARTNERSHIP
Consulting Engineers
Wentworth House Dormay Street London SW18 1EY
Telephone 020 7643 1050 Facsimile 020 7643 1051
Email director@wentworth-house.co.uk

Job Title
Belsize Park

Client

Contractor

Drawing Title
Back Propping and Access Path at Lower Ground Floor Plan

Drawing Status: **CONSTRUCTION**

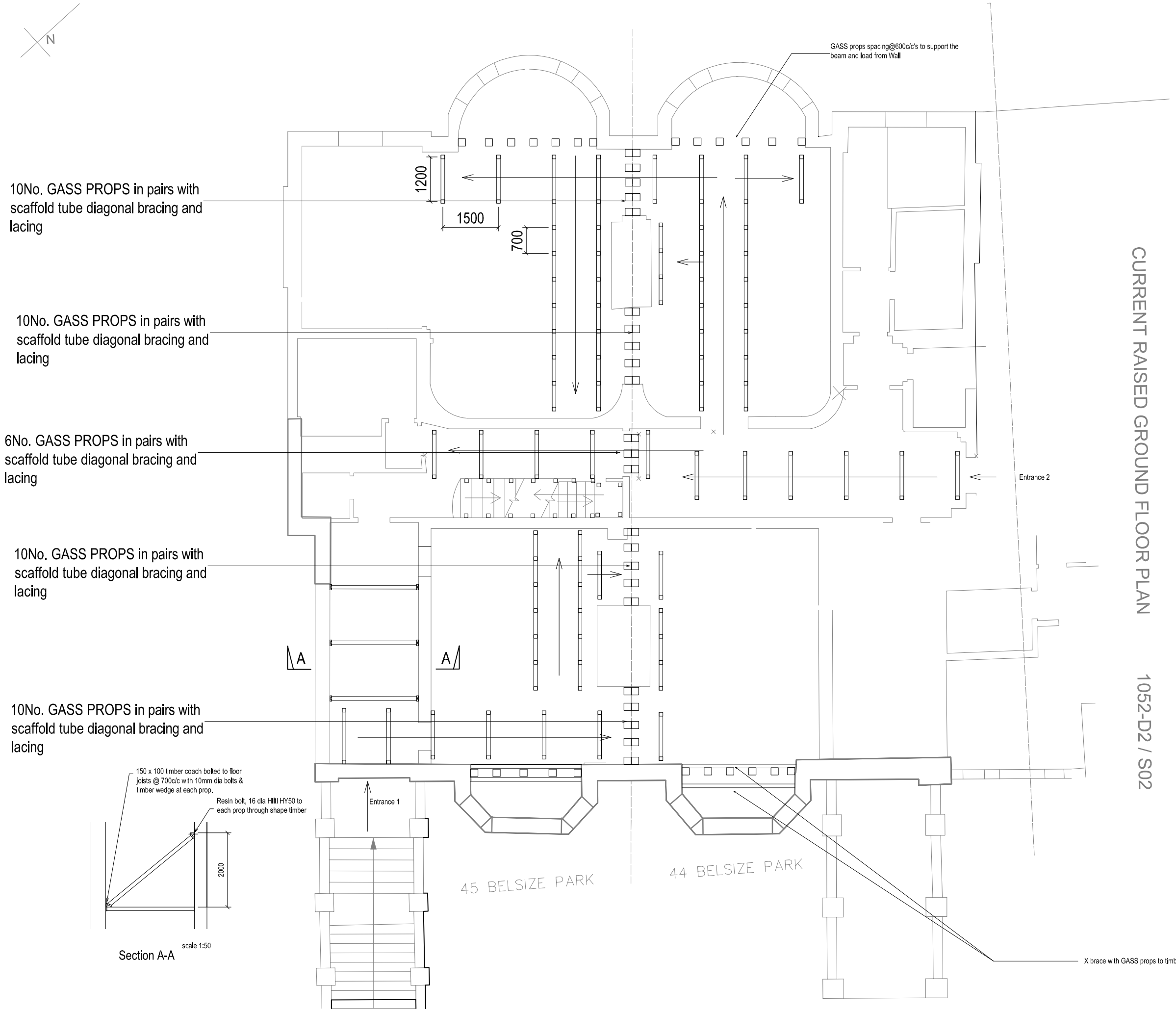
Job No.	Scale at A1	Date
1277	1:50	
Web.no.		Drg.no. 202 / Rev. A

DO NOT SCALE THIS DRAWING PRINT PLOT OR DISK

NOTES

1) see drawing 202

2) Additional props may be required to the 1st floor joists where these support block partitions over. To be determined by WHP on site after GASS props shown on this drawing installed.



scale 1:50

Section A-A

Rev	Date		Dm	Dsn	App
A	23-12-08	Added props	JM	SM	
-	19-12-08	First Issue	KK	SM	

WENTWORTH HOUSE PARTNERSHIP
Consulting Engineers
Wentworth House Dormay Street London SW18 1EY
Telephone 020 7643 1050 Facsimile 020 7643 1051
Email director@wentworth-house.co.uk

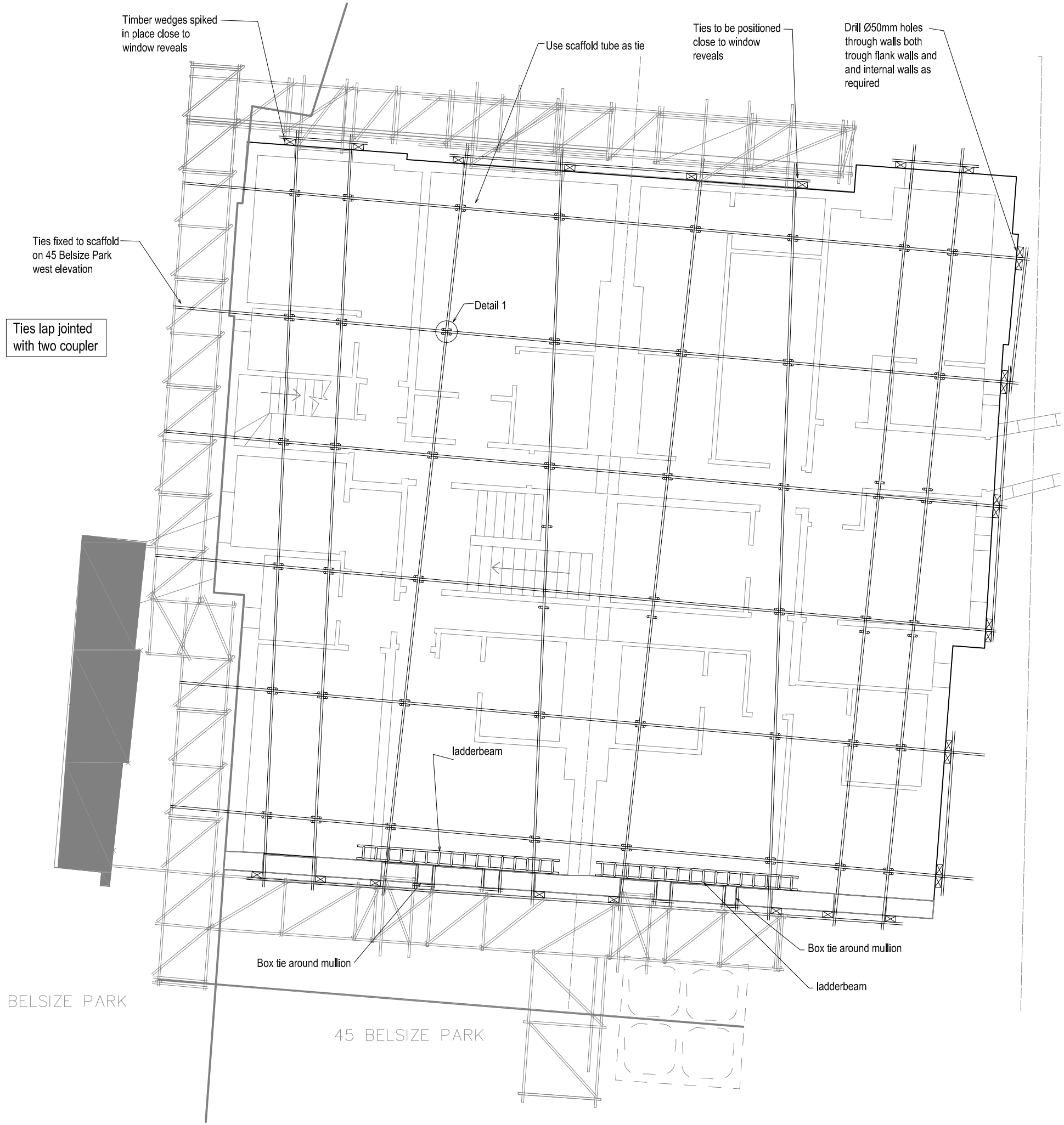
Job Title
Belsize Park

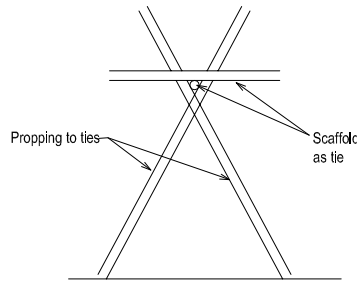
Client

Contractor

Drawing Title
Back Propping and access path at Upper Ground Floor Plan

Drawing Status	CONSTRUCTION	
Job No. 1277	Scale at A1 1:50	Date
Web.no.		Drg.no. 203 / Rev. A





Detail 1
scale 1/20

DO NOT SCALE THIS DRAWING PRINT PLOT OR DISK

NOTES

1) RISK ASSESSMENT
a) It is assumed that these works are to be carried out by a competent contractor

WARNING
This building has been classified as a dangerous structure.

b) This work is not to be carried out until the shoring on drawings 202, 203, 305 has been put in place.

Rev	Date		Drn	Dsn	App
A	23-12-08	Added ladder beam	JM	SM	
-	19-12-08	First Issue	MW	SM	

WENTWORTH HOUSE PARTNERSHIP
Consulting Engineers
Wentworth House Dormay Street London SW18 1EY
Telephone 020 7643 1050 Facsimile 020 7643 1051
Email director@wentworth-house.co.uk

Job Title
44-45 Belsize Park

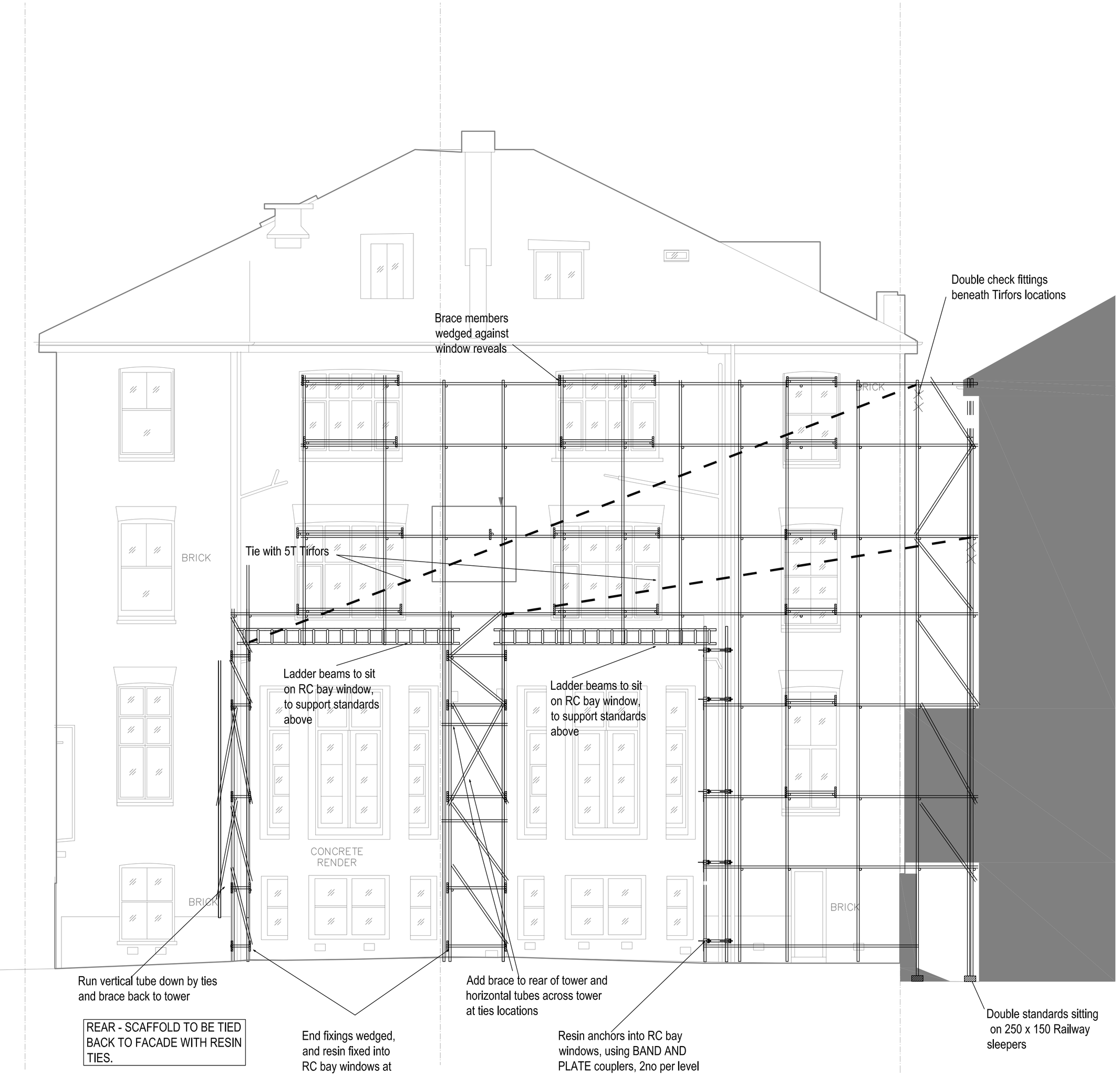
Client
Hammerhead Construction

Contractor
Hammerhead Construction

Drawing Title
Plan
Tying scheme for
44-45 Belsize park

Drawing Status: **CONSTRUCTION**

Job No.	Scale at A1	Date
1277	1/50	Dec./ 08
Web,no.		Drg.no. 210 / Rev. A



REAR ELEVATION

NOTES

1) RISK ASSESSMENT WARNING

This building has been classified as a dangerous structure. No-one is to enter it during the erection of this scaffold. All work must be done from the outside.

a) It is assumed that these works are to be carried out by a competent contractor

2) This is NOT an access scaffold. It is an engineered structure carried out in scaffold. Transoms are to be fixed to ledgers adjacent to standards and with right angled couplers. Plan bracing is to be fixed to standards with right angled couplers. It is set out as a five board scaffold with standards at 1300c/cs. All ledgers to be joined with sleeve couplers and splice tubes with 2 fitting each side of joint Scaffold lift heights are set out to suit window levels.

Rev	Date		Dm	Dsn	App
B	22-01-09	Tubes added for displaced ties	SE	SM	SM
A	16-12-08	FOR CONSTRUCTION	SE	SM	SM
-		First Issue	SE	SM	SM

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Wentworth House Dormay Street London SW18 1EY
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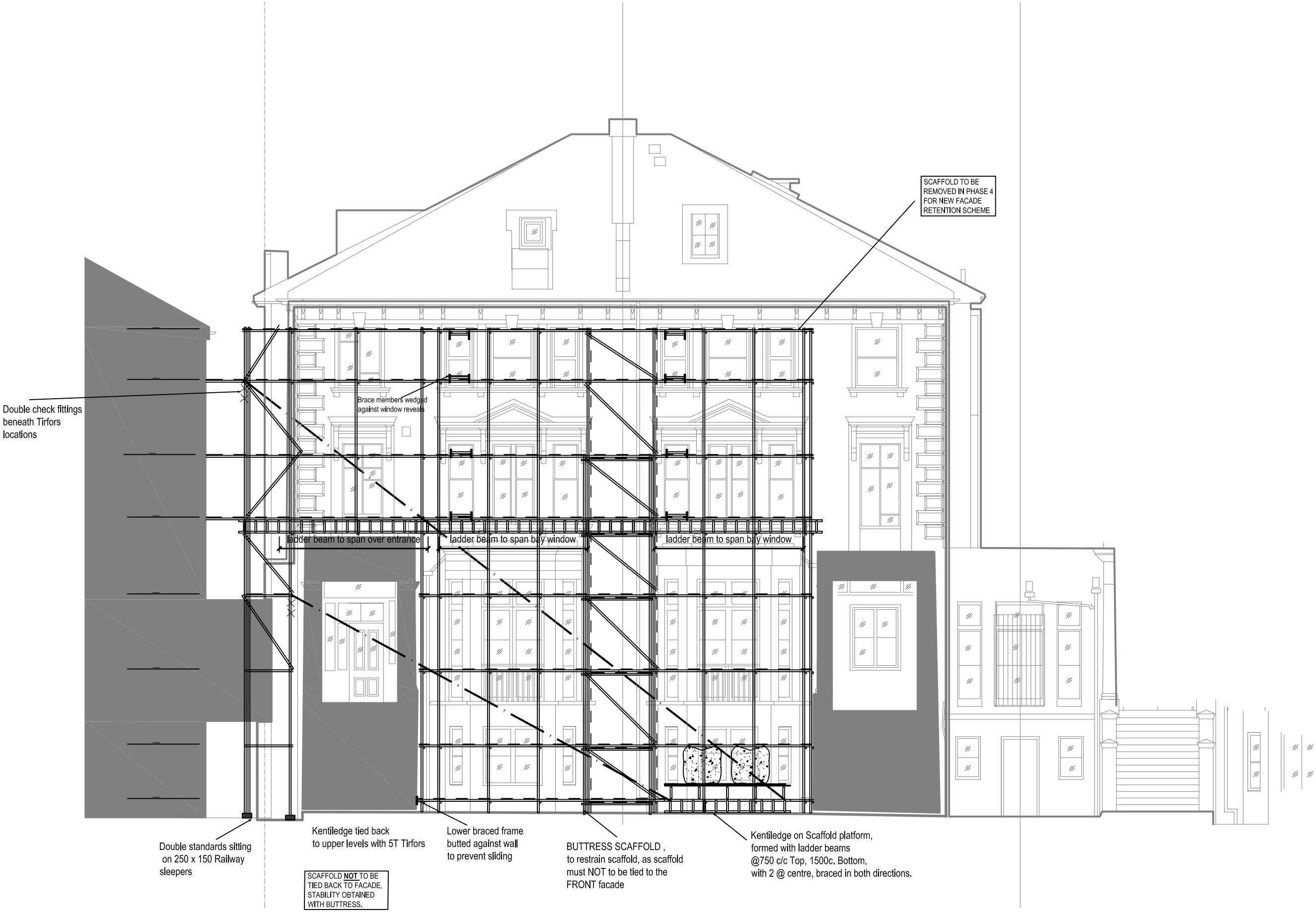
Job Title
43-44 Belsize Park

Client
Hammerhead Construction

Contractor
Hammerhead Construction

Drawing Title
Facade Scaffold Restraint
Rear Elevation

Drawing Status	**FOR CONSTRUCTION**	
Job No. 1277	Scale at A1 1:50	Date 13/12/08
Web.no.		Drg.no. 300 / Rev. B



46 BELSIZE PARK 45 BELSIZE PARK **FRONT ELEVATION** 44 BELSIZE PARK 43 BELSIZE PARK

NOTES

1) RISK ASSESSMENT WARNING

This building has been classified as a dangerous structure. No-one is to enter it during the erection of this scaffold. All work must be done from the outside.

a) It is assumed that these works are to be carried out by a competent contractor

2) This is NOT an access scaffold. It is an engineered structure carried out in scaffold. Transoms are to be fixed to ledgers adjacent to standards and with right angled couplers. Plan bracing is to be fixed to standards with right angled couplers. It is set out as a five board scaffold with standards at 1300c/cs. All ledgers to be joined with sleeve couplers and splice tubes with 2 fitting each side of joint Scaffold lift heights are set out to suit window levels.

Rev	Date		Drn	Dsn	App
A	16-12-08	FOR CONSTRUCTION	SE	SM	SM
-		First Issue	SE	SM	SM

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Job Title
44-45 Belsize Park

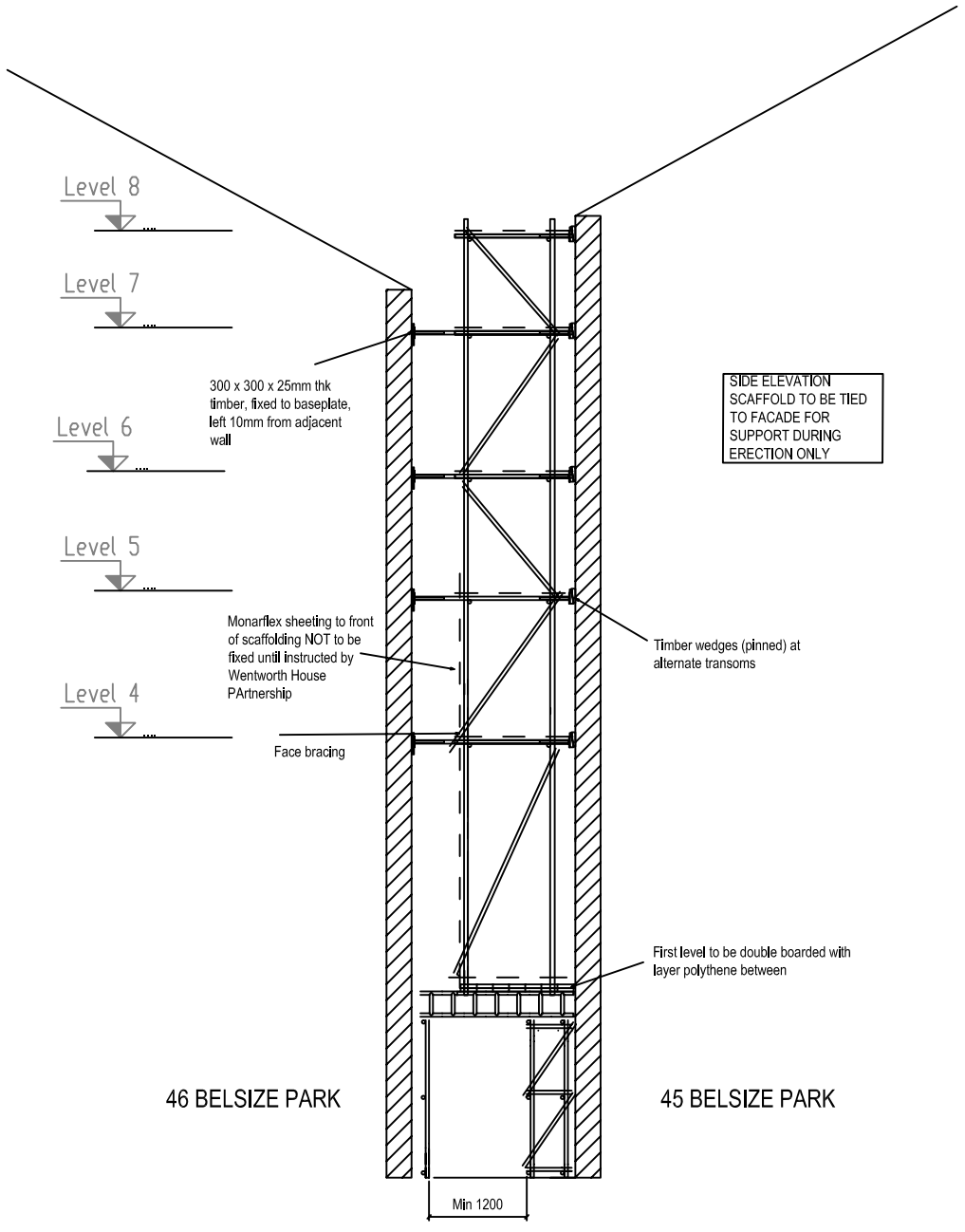
Client
Hammerhead Construction

Contractor
Hammerhead Construction

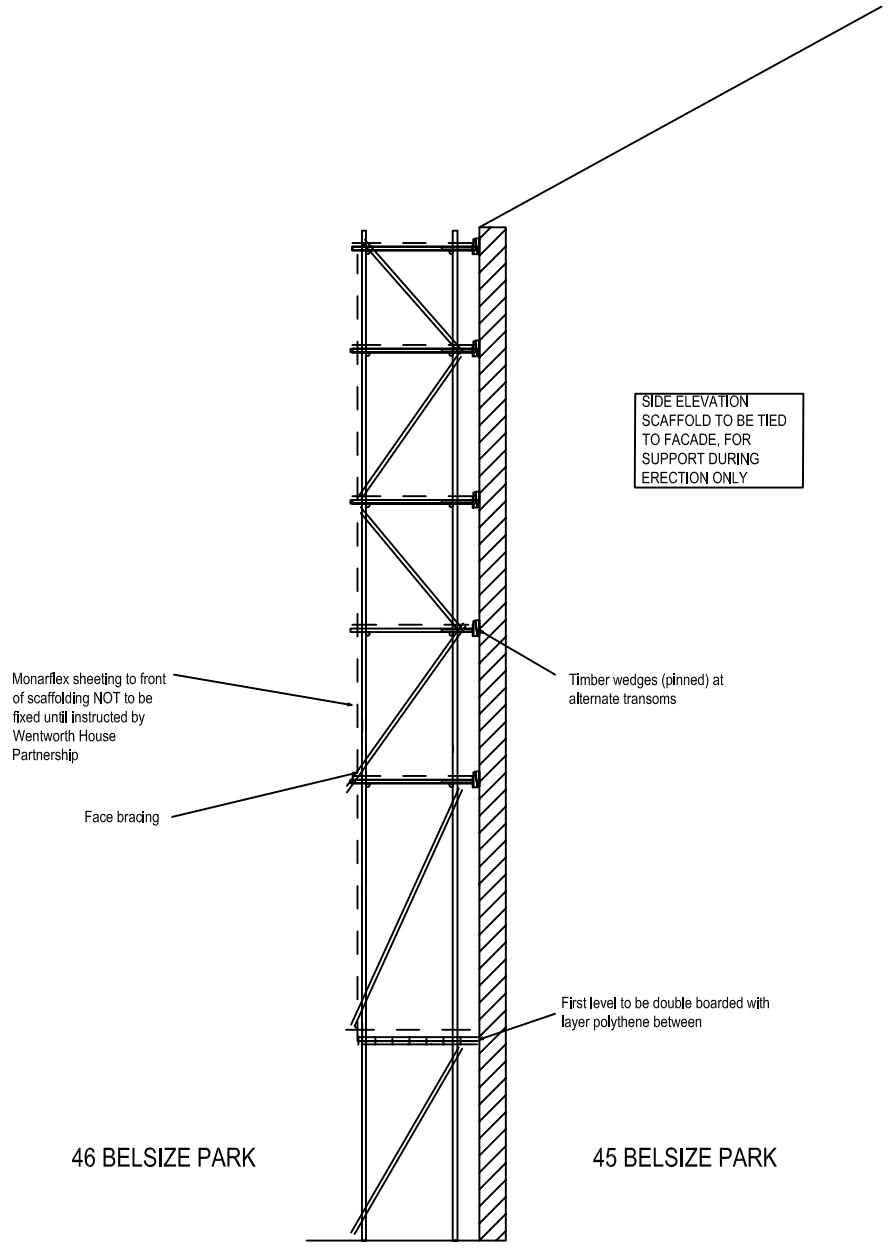
Drawing Title
Temporary Scaffold Restraint
Front Elevation

Drawing Status **FOR CONSTRUCTION**

Job No.	Scale at A1	Date
1277	1:50	13/12/08
Web.no.		Drg.no. 301 / Rev. A



SECTION A - A



SECTION B - B

NOTES

1) RISK ASSESSMENT WARNING

This building has been classified as a dangerous structure. No-one is to enter it during the erection of this scaffold. All work must be done from the outside.

a) It is assumed that these works are to be carried out by a competent contractor

2) This is NOT an access scaffold. It is an engineered structure carried out in scaffold. Transoms are to be fixed to ledgers adjacent to standards and with right angled couplers. Plan bbracing is to be fixed to standards with right angled couplers. It is set out as a five board scaffold with standards at 1300c/cs. All ledgers to be joined with sleeve couplers and splice tubes with 2 fitting each side of joint Scaffold lift heights are set out to suit window levels.

Rev	Date		Drn	Dsn	App
A	16-12-08	for construction	SE	SM	SM
-		First Issue	SE	SM	SM

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Job Title
44-45 Belsize Park

Client
Hammerhead Construction

Contractor
Hammerhead Construction

Drawing Title
Facade Scaffold Restraint Sections

Drawing Status	FOR CONSTRUCTION	
Job No. 1277	Scale at A1 1:50	Date 13/12/08
Web.no.		Drg.no. 303 / Rev. A

NOTES

1) RISK ASSESSMENT
a) It is assumed that these works are to be carried out by a competent contractor

2) This drawing is based upon the Engineers/Survey/Architects drawing reference.....Rev....dated.....

46 BELSIZE PARK 45 BELSIZE PARK **FRONT ELEVATION** 44 BELSIZE PARK 43 BELSIZE PARK

Rev	Date		Dm	Dsn	App
-	19-12-08	First Issue	MW	SM	

WENTWORTH HOUSE PARTNERSHIP
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Job Title
44-45 Belsize Park

Client
Hammerhead Construction

Contractor
Hammerhead Construction

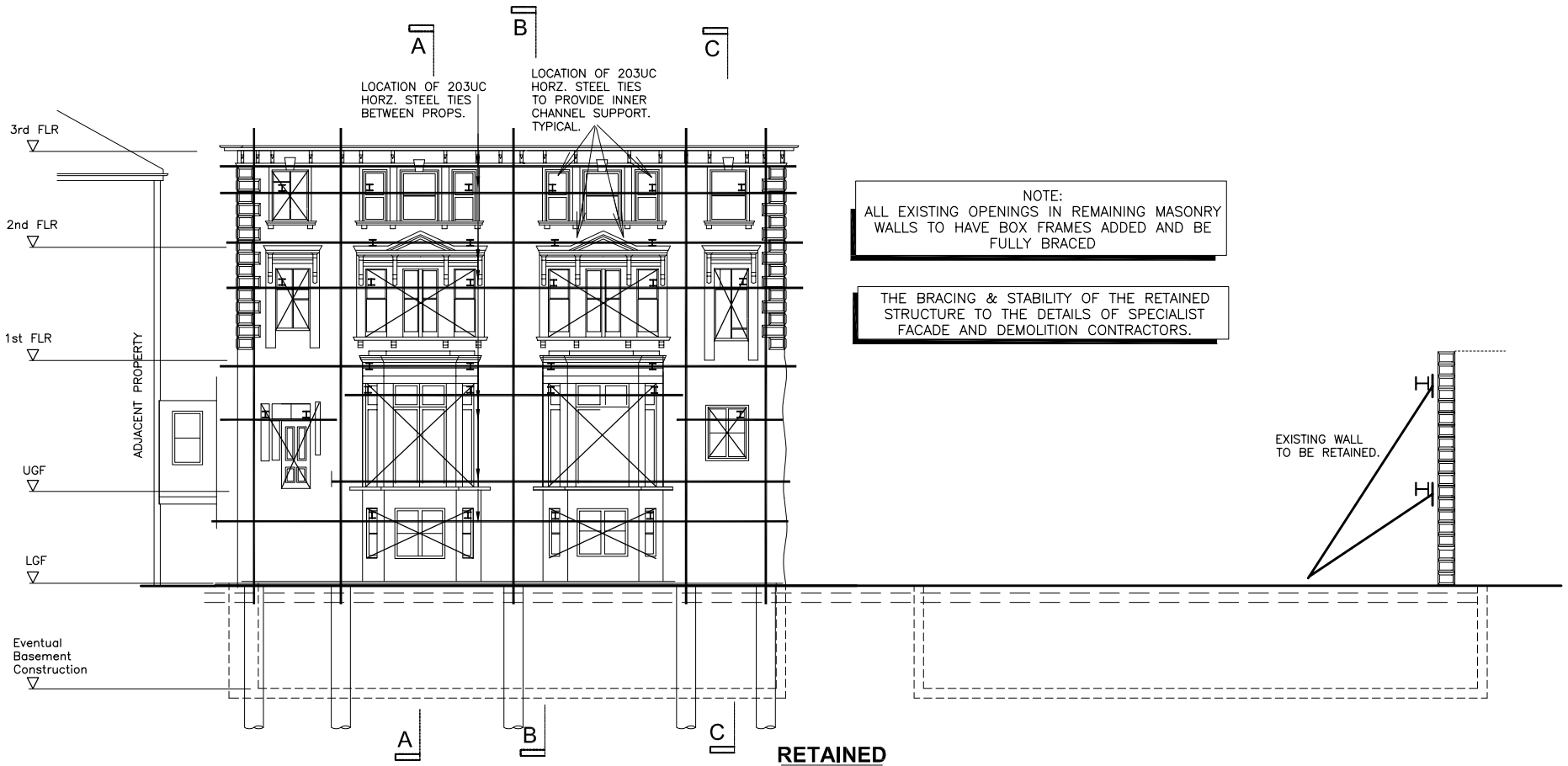
Drawing Title
Front Elevation
Tying for
44-45 Belsize Park

Drawing Status: **CONSTRUCTION**

Job No.	Scale at A1	Date
1277	1/50	Dec./ 08
Web.no.		Drg.no. 304 / Rev. -

APPENDIX B

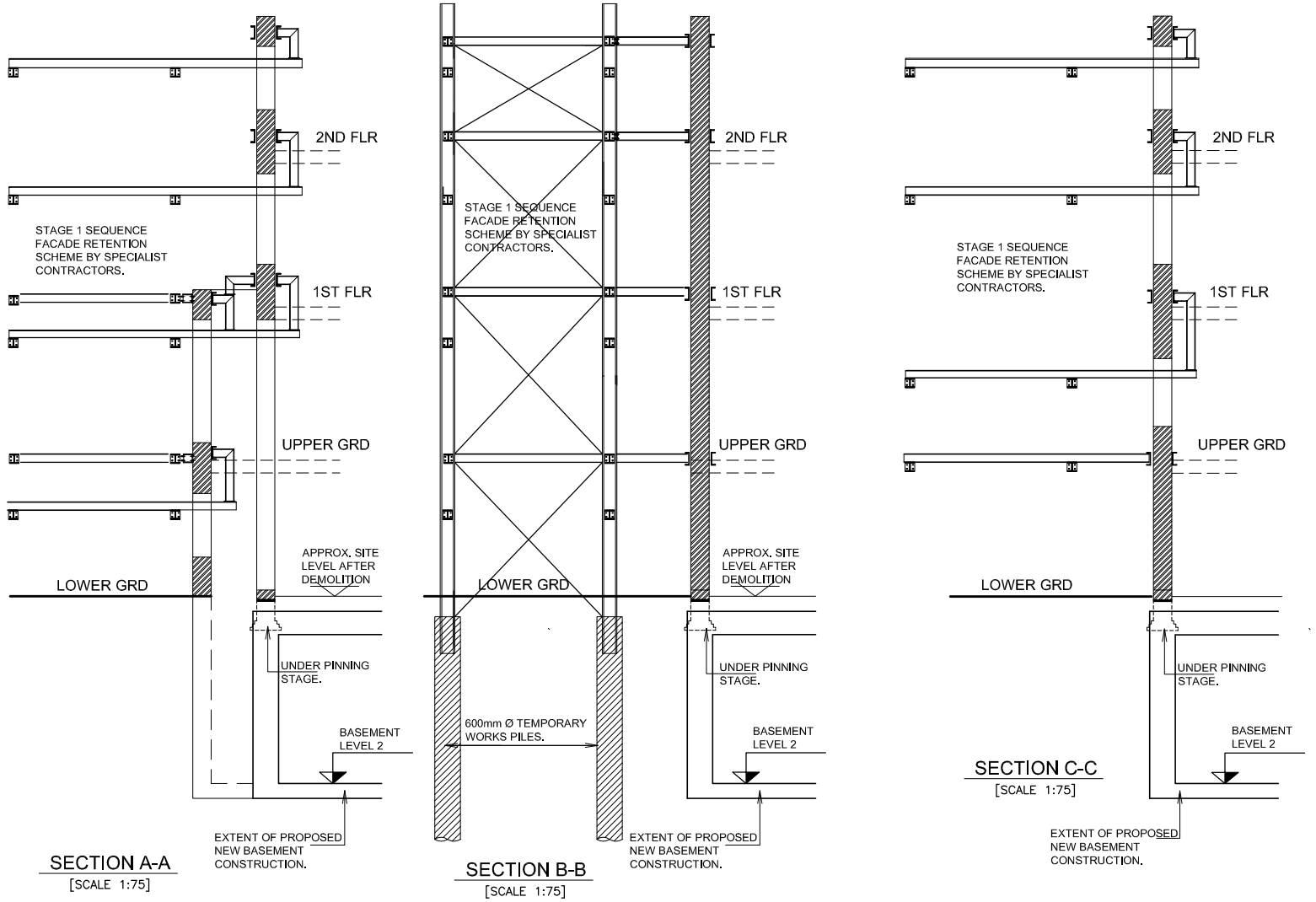
FOR SEQUENCE OF WORKS REFER TO DRAWING No 6422-EW-14



NOTE:
ALL EXISTING OPENINGS IN REMAINING MASONRY WALLS TO HAVE BOX FRAMES ADDED AND BE FULLY BRACED

THE BRACING & STABILITY OF THE RETAINED STRUCTURE TO THE DETAILS OF SPECIALIST FACADE AND DEMOLITION CONTRACTORS.

RETAINED
~ SOUTH ELEVATION ~
[Scale 1:100]



Rev.	Description.	Date.

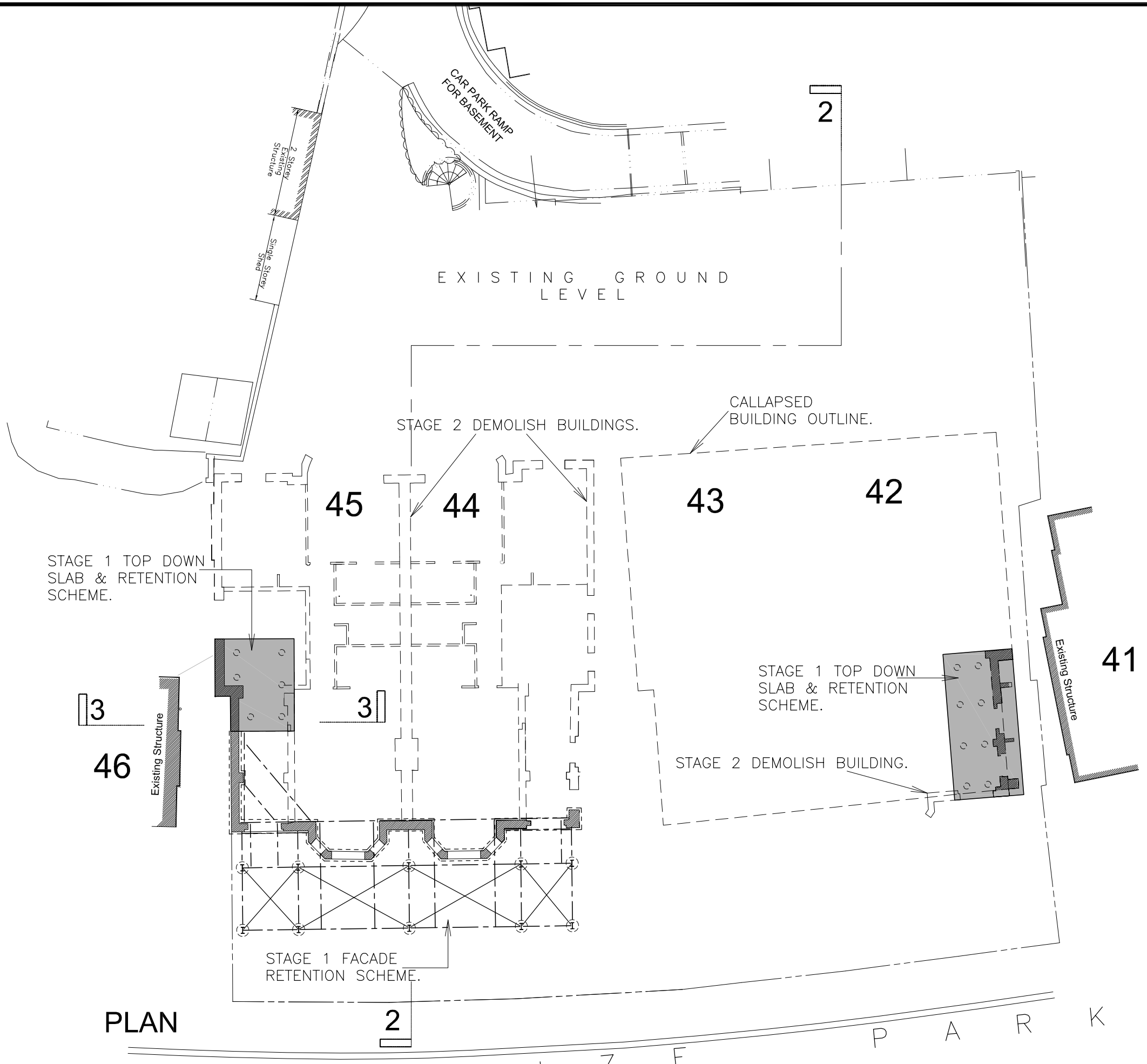
R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311 Fax: 01277 356683

42-45 BELSIZE PARK LONDON NW3

SOUTH ELEVATION AND SECTIONS FACADE RETENTION SYSTEM

Scale 1:100 @ A1	Date OCTOBER 2011		
Engineer RHH	Drawn G.D.U	Checked	
Client Belsize Developments Ltd	DRG No. 6422-EW-01		REV.

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



Rev.	Description.	Date.

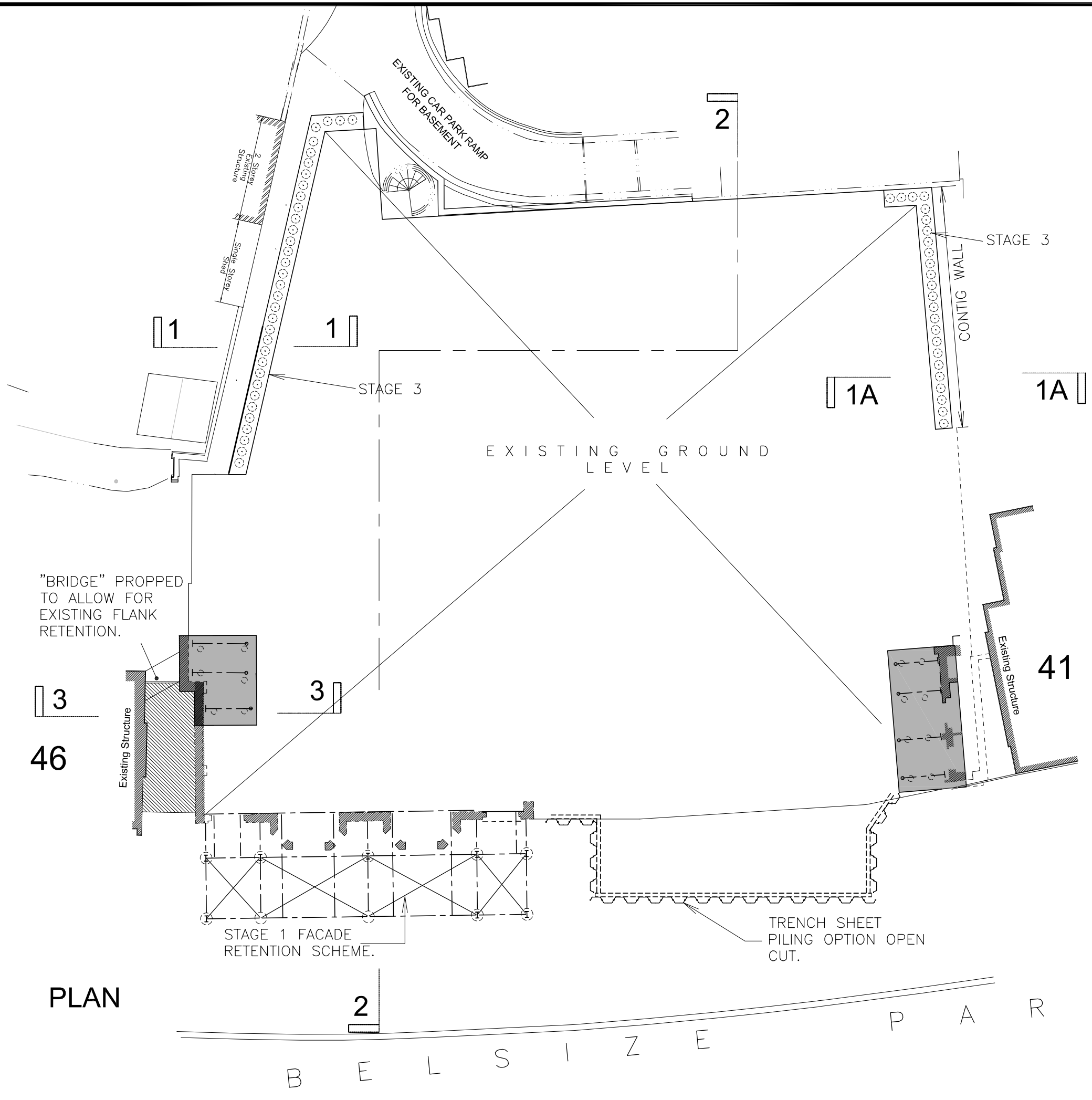
R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311 Fax: 01277 356683

42-45 BELSIZE PARK LONDON NW3

Enabling Works to Basement Stage 1 and 2

Scale 1:100 @ A1	Date Oct 2011	
Engineer RHH	Drawn G.D.U	Checked
Client: Belsize Developments Ltd	DRG No. 6422-EW-02	REV.

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



PLAN

Rev.	Description.	Date.

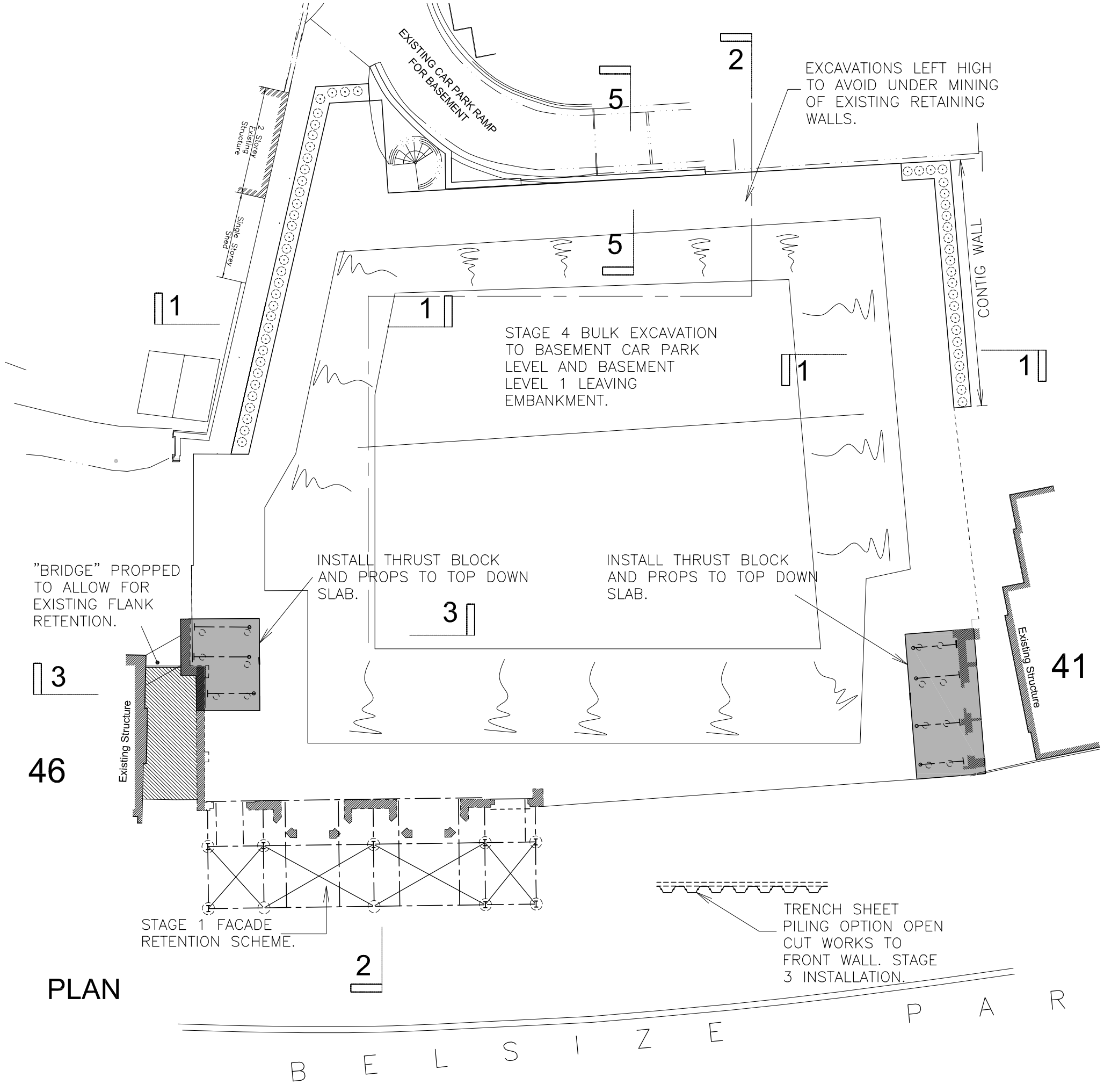
R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311 Fax: 01277 356683

42-45 BELSIZE PARK LONDON NW3

Enabling Works to Basement Stage 3

Scale 1:100 @ A1	Date Oct 2011		
Engineer RHH	Drawn G.D.U	Checked	
Client: Belsize Developments Ltd	DRG No. 6422-EW-03		REV.

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



Rev.	Description.	Date.

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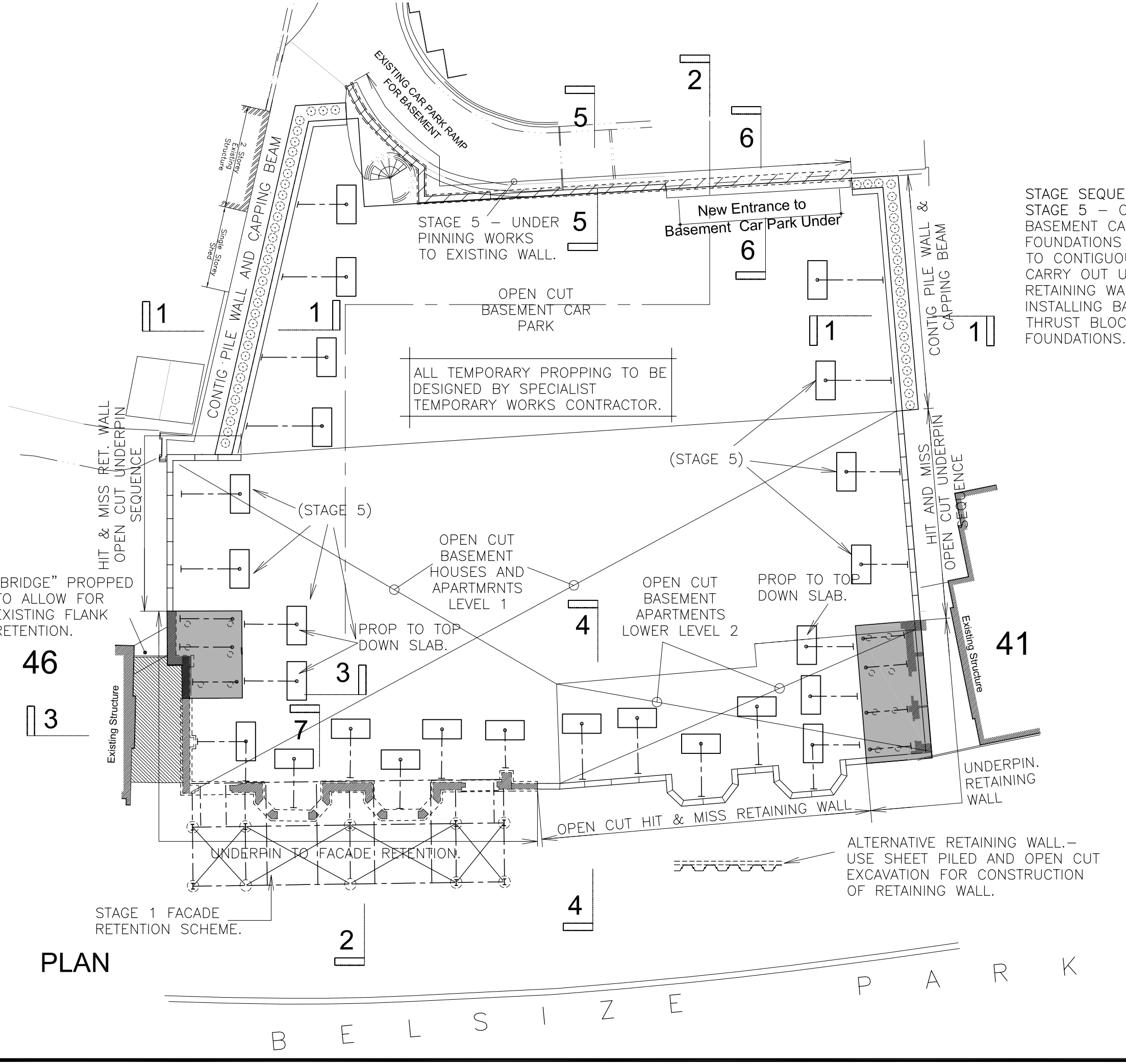
42-45 BELSIZE PARK LONDON NW3

Enabling Works to Basement Stage 4

Scale 1:100 @ A1	Date Oct 2011		
Engineer RHH	Drawn G.D.U	Checked	
Client	DRG No.		REV.
Belsize Developments Ltd	6422-EW-04		

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



STAGE SEQUENCE–
STAGE 5 – CONSTRUCT BASEMENT CAR PARK LEVEL FOUNDATIONS AND INSTALL PROPS TO CONTIGUOUS PILE WALL. CARRY OUT UNDER PINNING AND RETAINING WALL WORKS, INSTALLING BACK PROPPING ONTO THRUST BLOCKS AND FOUNDATIONS.

Rev.	Description.	Date.

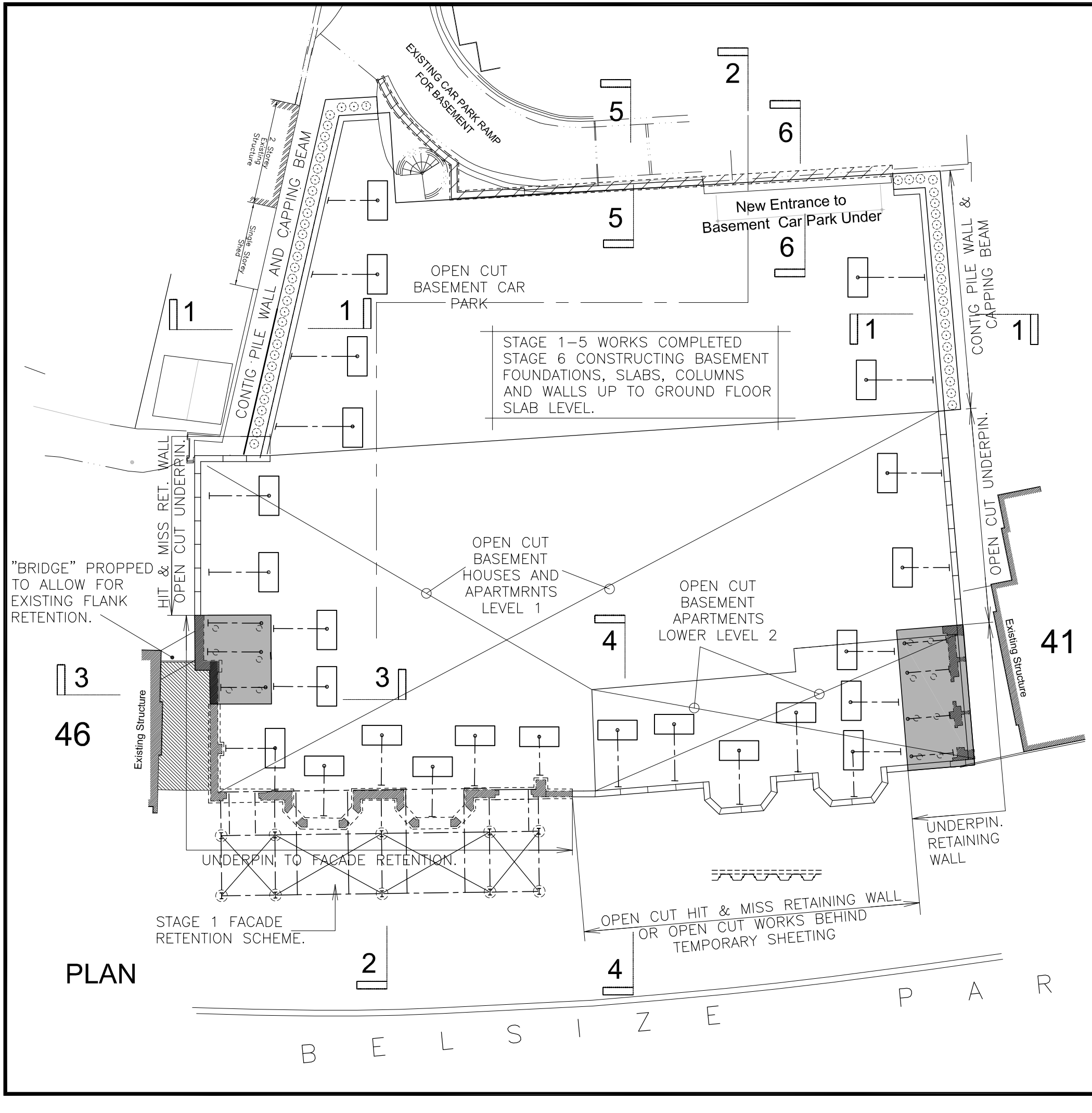
R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311 Fax: 01277 356683

42-45 BELSIZE PARK LONDON NW3

Enabling Works to Basement Stage 5

Scale 1:100 @ A1	Date Oct 2011		
Engineer RHH	Drawn G.D.U	Checked	
Client Belsize Developments Ltd	DRG No. 6422-EW-05		REV.

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



PLAN

Rev.	Description.	Date.

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Civil & Structural Engineering Consultants
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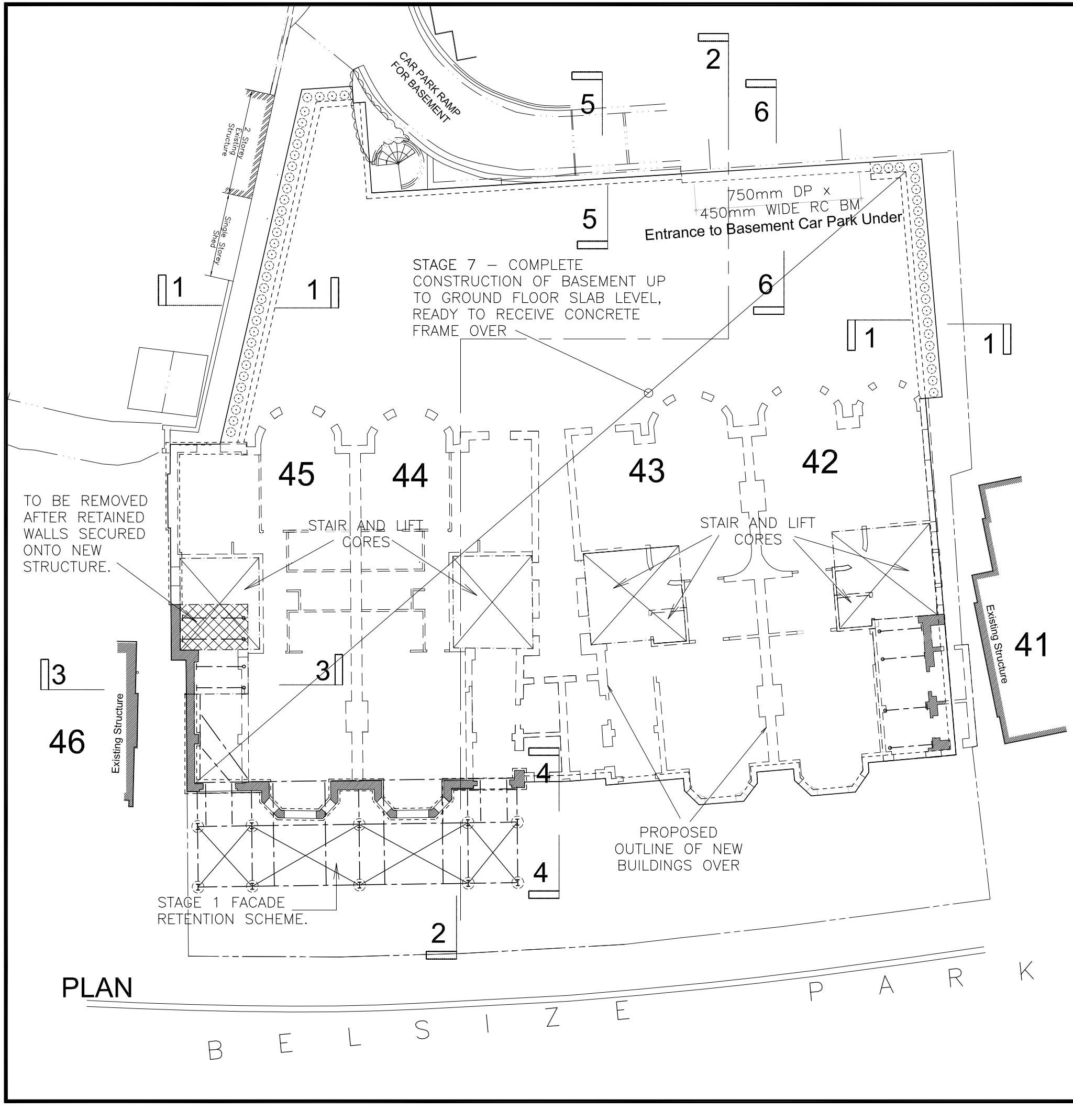
42-45 BELSIZE PARK LONDON NW3

Enabling Works to Basement Stage 6

Scale 1:100 @ A1	Date Oct 2011		
Engineer RHH	Drawn G.D.U	Checked	
Client Belsize Developments Ltd	DRG No. 6422-EW-06		REV.

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



PLAN

Rev.	Description.	Date.

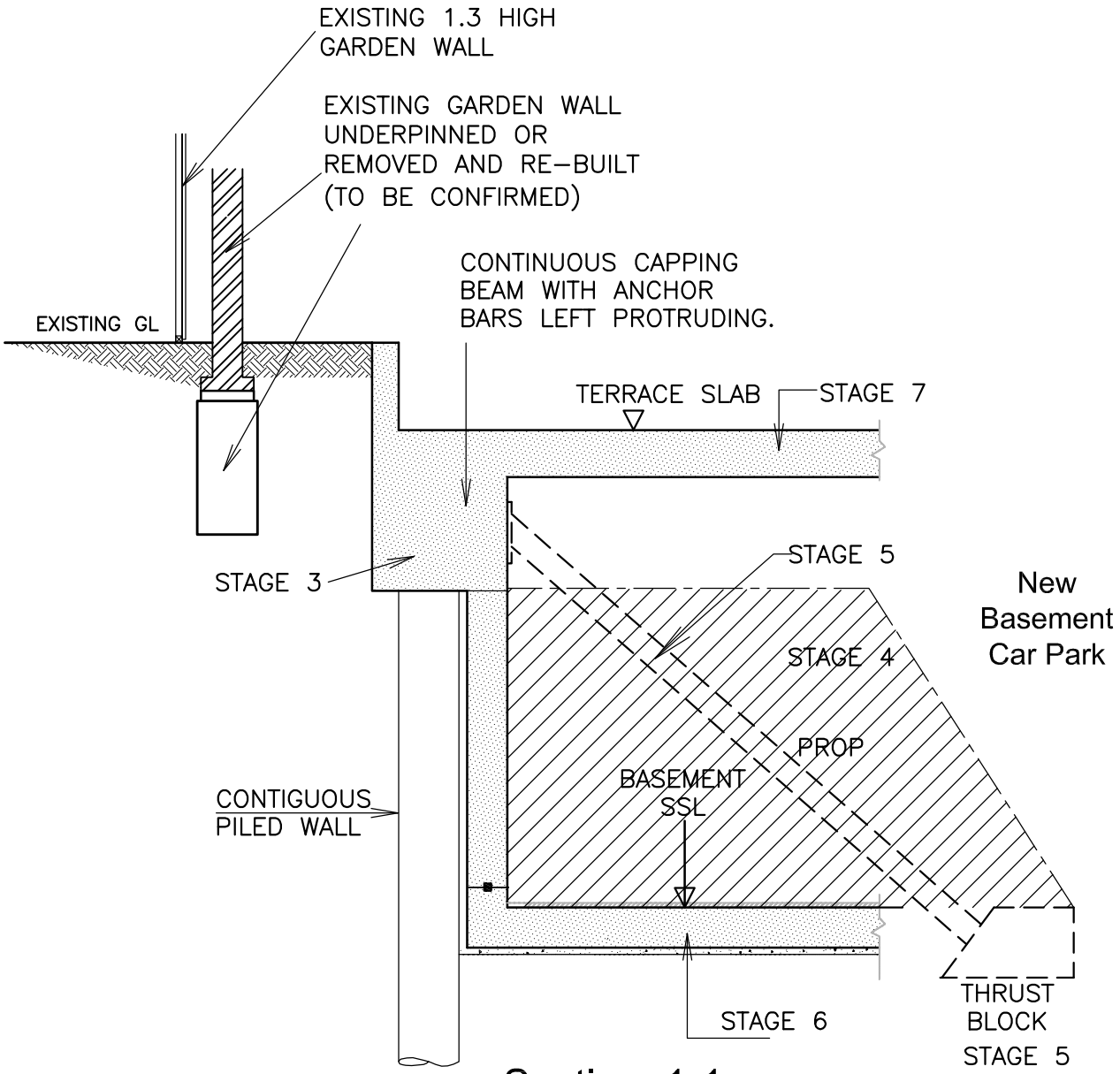
R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311 Fax: 01277 356683

42-45 BELSIZE PARK LONDON NW3

Enabling Works to Basement Stage 7

Scale 1:100 @ A1	Date Oct 2011	
Engineer RHH	Drawn G.D.U	Checked
Client: Belsize Developments Ltd	DRG No. 6422-EW-07	REV.

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



Section 1-1
Section 1A-1A similar

[SCALE 1:50]

42-45 BELSIZE PARK
LONDON NW3

Scale 1:50 @ A4	Date Oct 2011	
Engineer RHH	Drawn G.D.U	Checked

Enabling of Basement Area - Sections

R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311

Client	DRG No.	REV.
Belsize Developments Ltd	6422-EW-08	

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14

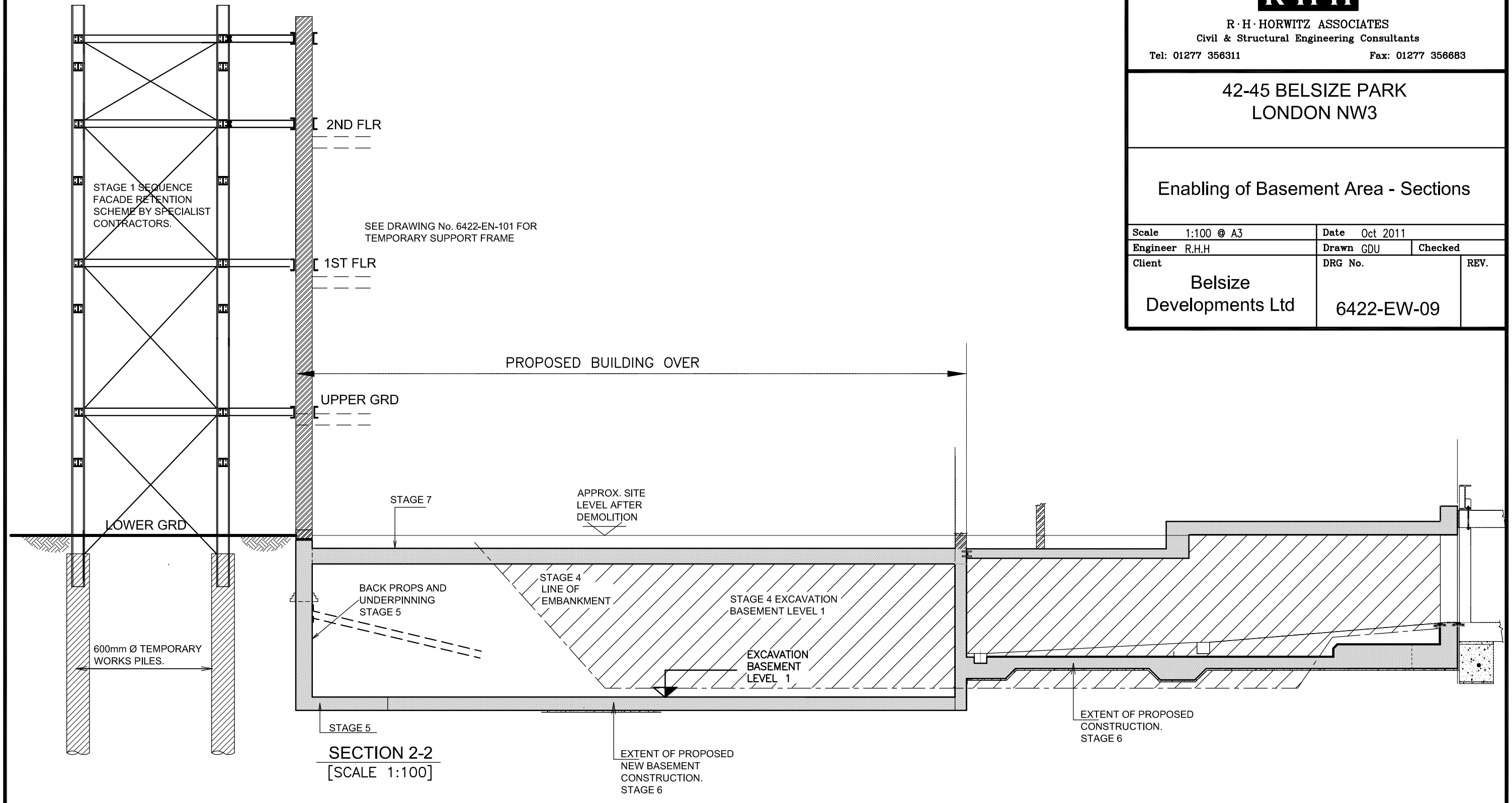
Rev.	Description.	Date.

R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311 Fax: 01277 356683

42-45 BELSIZE PARK
LONDON NW3

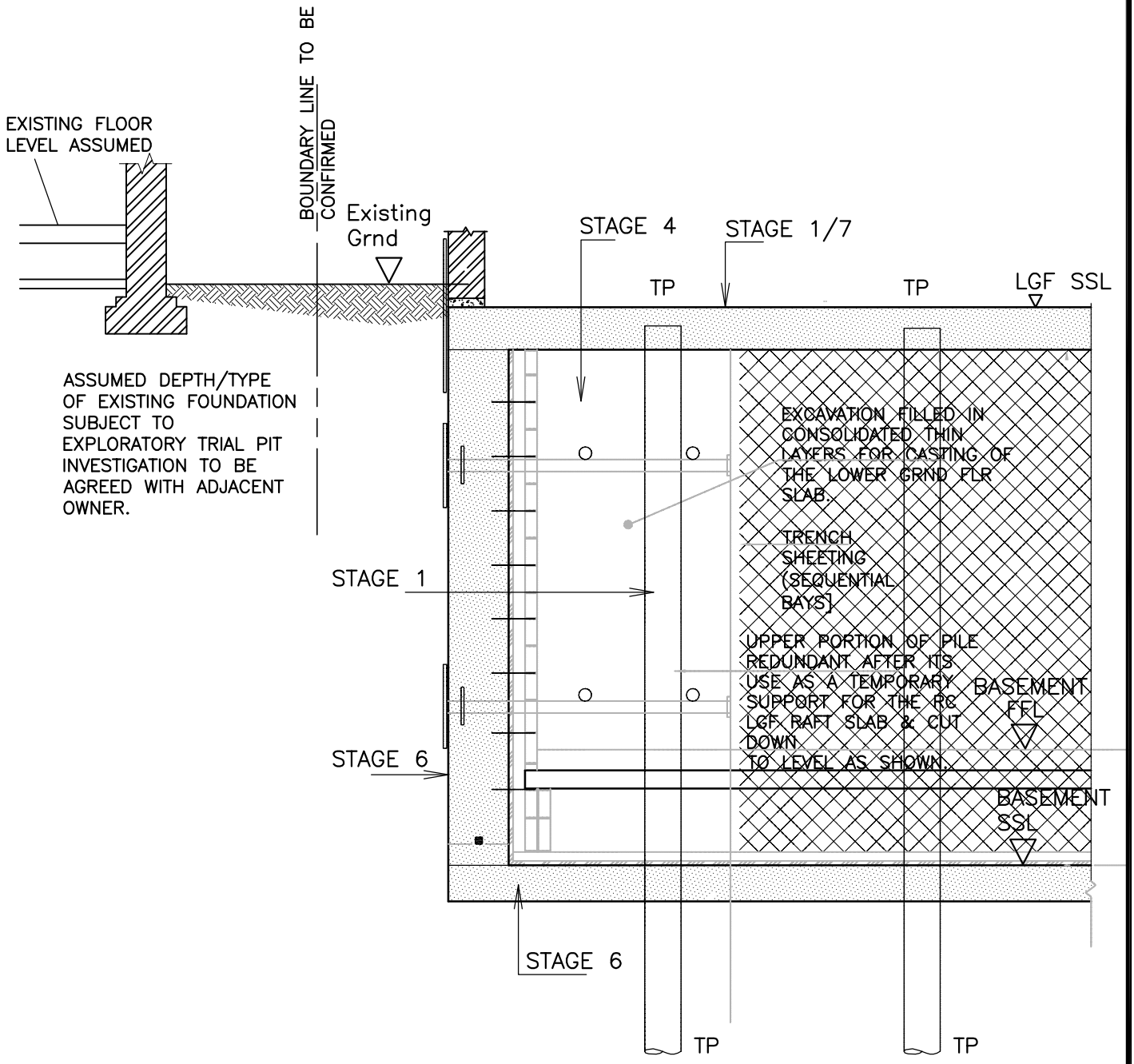
Enabling of Basement Area - Sections

Scale 1:100 @ A3	Date Oct 2011		
Engineer R.H.H	Drawn GDU	Checked	
Client: Belsize Developments Ltd	DRG No. 6422-EW-09		REV.



SECTION 2-2
[SCALE 1:100]

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



SECTION 3-3

[SCALE 1:25]

42-45 BELSIZE PARK
LONDON NW3

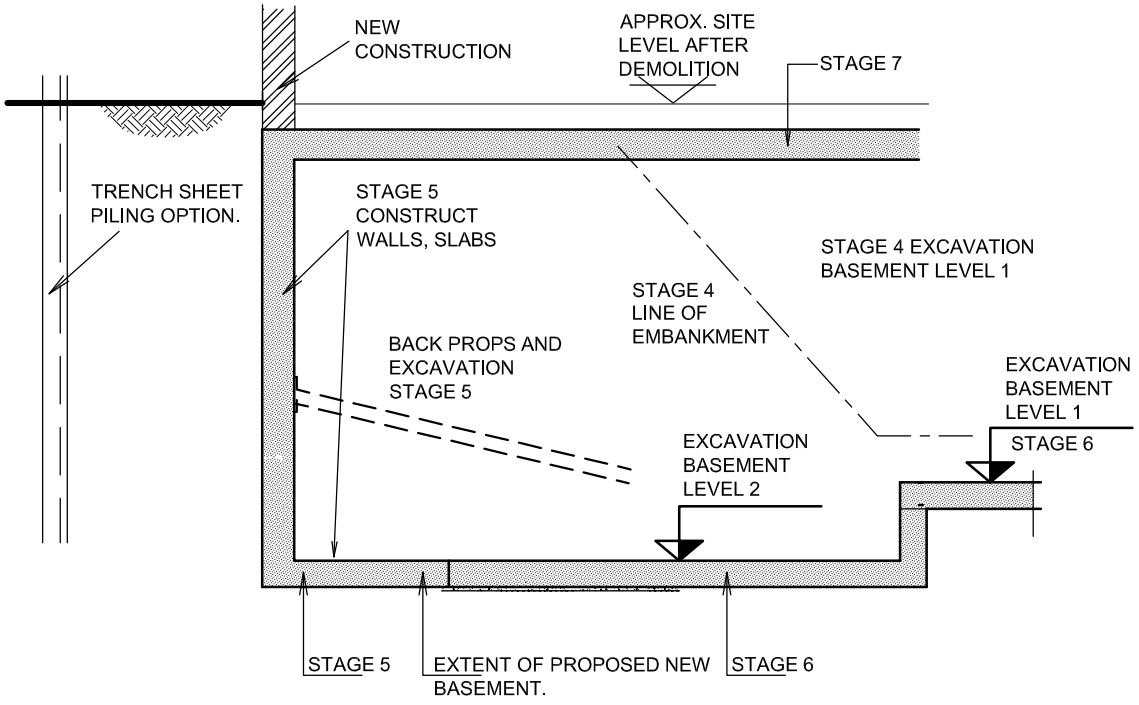
Scale 1:50 @ A4	Date Oct 2011	
Engineer RHH	Drawn G.D.U	Checked

Enabling of Basement Area - Sections

R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311

Client	DRG No.	REV.
Belsize Developments Ltd	6422-EW-10	

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



SECTION 4-4
[SCALE 1:100]

42-45 BELSIZE PARK
LONDON NW3

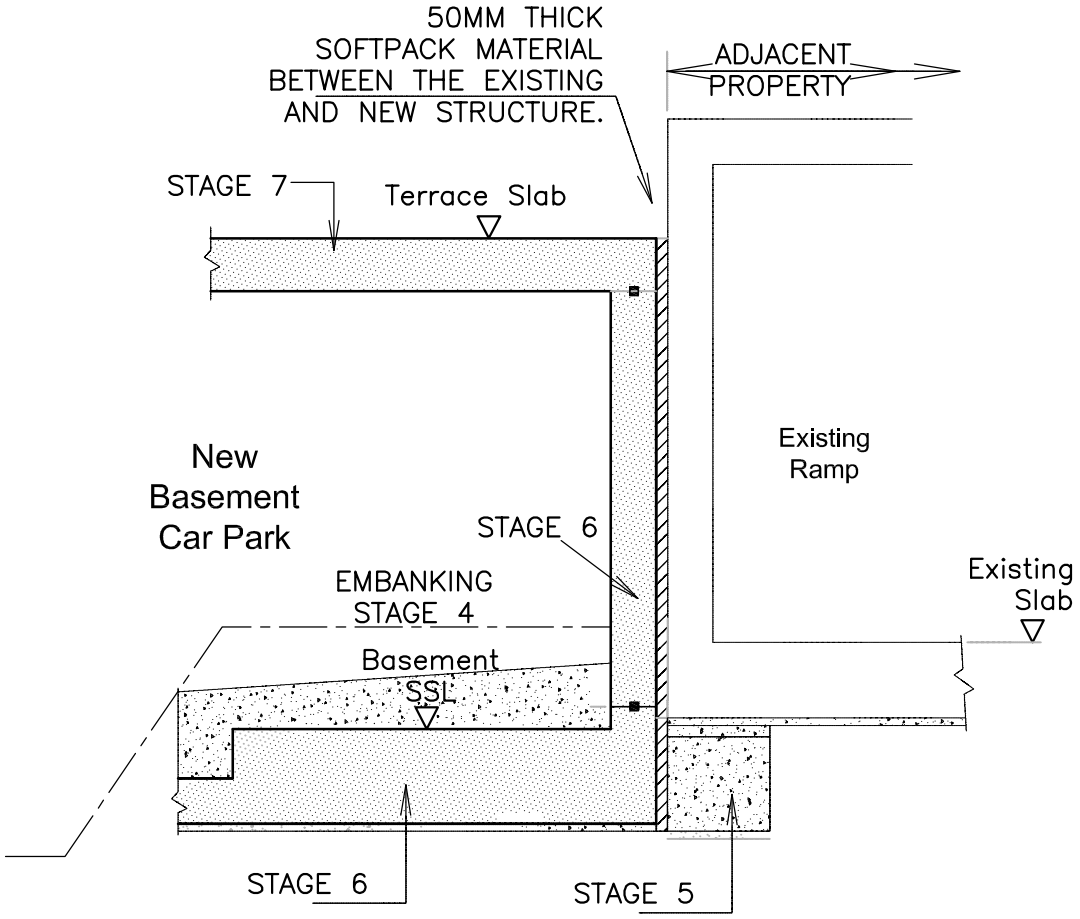
Scale 1:50 @ A4	Date Oct 2011	
Engineer RHH	Drawn G.D.U	Checked

Enabling of Basement Area - Sections

R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311

Client	DRG No.	REV.
Belsize Developments Ltd	6422-EW-11	

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



Section 5-5

[SCALE 1:50]

42-45 BELSIZE PARK
LONDON NW3

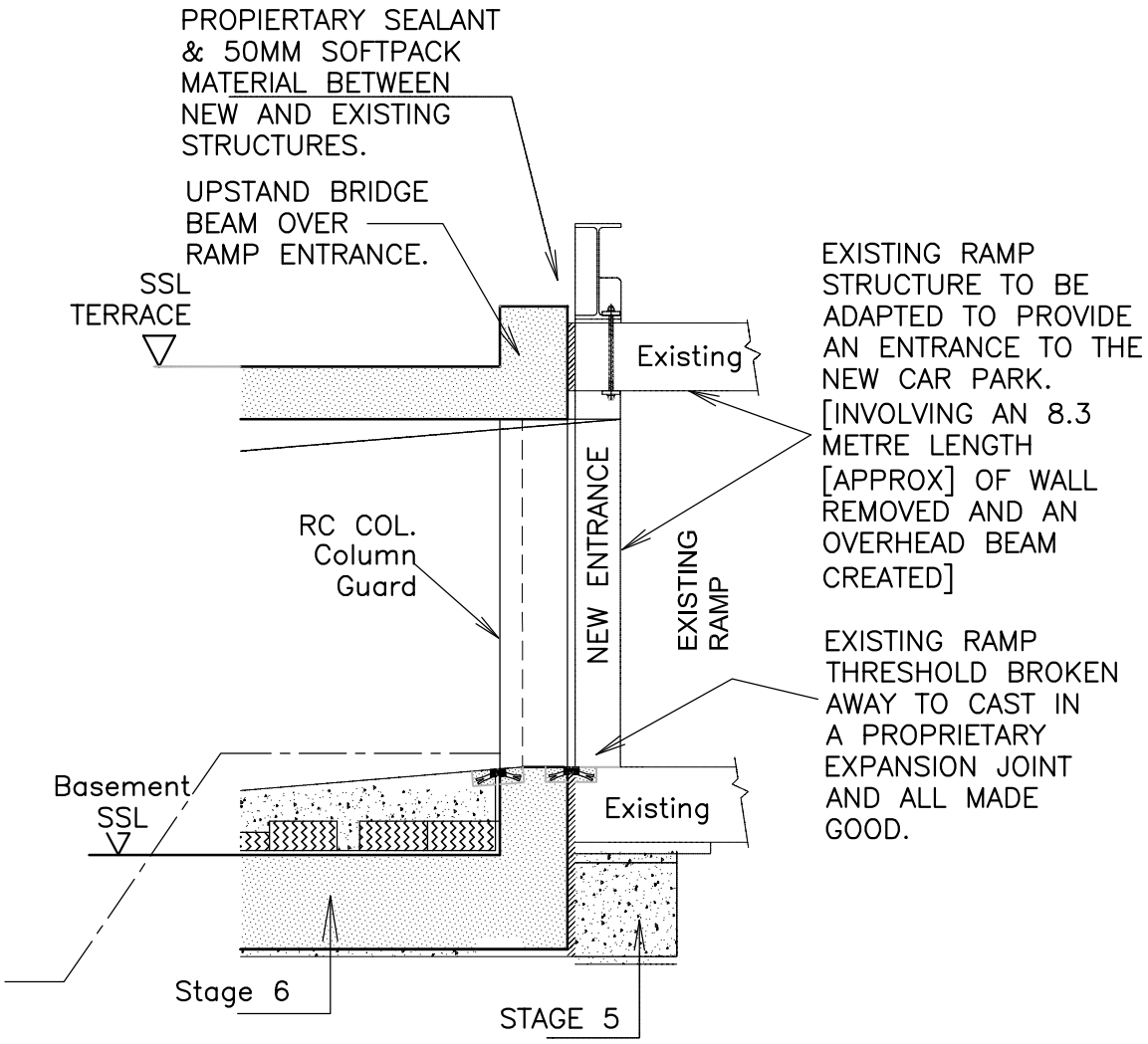
Scale 1:50 @ A4	Date Oct 2011	
Engineer RHH	Drawn G.D.U	Checked

Enabling of Basement Area - Sections

R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311

Client	DRG No.	REV.
Belsize Developments Ltd	6422-EW-12	

FOR SEQUENCE OF WORKS REFER TO
DRAWING No 6422-EW-14



Section 6-6

[SCALE 1:50]

42-45 BELSIZE PARK
LONDON NW3

Scale 1:50 @ A4	Date Oct 2011	
Engineer RHH	Drawn G.D.U	Checked

Enabling of Basement Area - Sections

R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311

Client	DRG No.	REV.
Belsize Developments Ltd	6422-EW-13	

SEQUENCE OF WORKS.

1.Install façade retention system on temporary piles to Nos 44 and 45.

2.Consolidate/strap façade; install monitoring system.

3.Demolish rear buildings and back prop flank walls to be retained.

4.Install top down slab piles and slab supports to Nos 42 and 45.

5.Install flank wall retention system to Nos 42 and 45.

6.Install contiguous pile wall to rear and garden boundaries. Install temporary sheet piles to open cut basement to front gardens of Nos 42 and 43.

7.Reduce levels and construct pile capping beams.

8.Excavate to basement level 1 and cast thrust blocks in open cut basement area to rear, install back props to top of retaining walls and top down slabs leaving earth burn to front and flank walls.

9.Underpin façade and flank walls and install back propping using standard underpinning sequence.

10.Install basement flank walls in open cut basement area using standard underpinning sequence and back prop onto thrust blocks.

11.Underpin existing ramp retaining wall.

12.Excavate and construct basement level 1 car park slab.

13.Excavate basement Level 2 to front of buildings 42 and 43.

14.Construct basement Level 2 foundations and slab.

15.Construct first lift columns and walls in open cut basement.

16.Construct first lift columns and walls to pick up top down slabs.

17.Construct terrace and ground floor slabs over car park and rear area anchored into top down slabs and retaining walls.

18.Remove back propping once ground floor construction has reached design strength and façade system has been transferred onto basement box.

19.Construct reinforced concrete frame and cladding, provide lateral restraint anchors/strapping to facades.

20.Dismantle façade stability frames once full restraint to new building has been achieved.

21.Cut down temporary piles in garden area.

FOR STAGES 1 - 7 SEE DRAWINGS 6422-EW-01 TO EW-13

42-45 BELSIZE PARK
LONDON NW3

Scale	Date Oct 2011	
Engineer RHH	Drawn G.D.U	Checked

Sequence Notes
Enabling of Basement Area - Sections

R·H·HORWITZ ASSOCIATES
Civil & Structural Engineering Consultants
Tel: 01277 356311

Client	DRG No.	REV.
Belsize Developments Ltd	6422-EW-14	