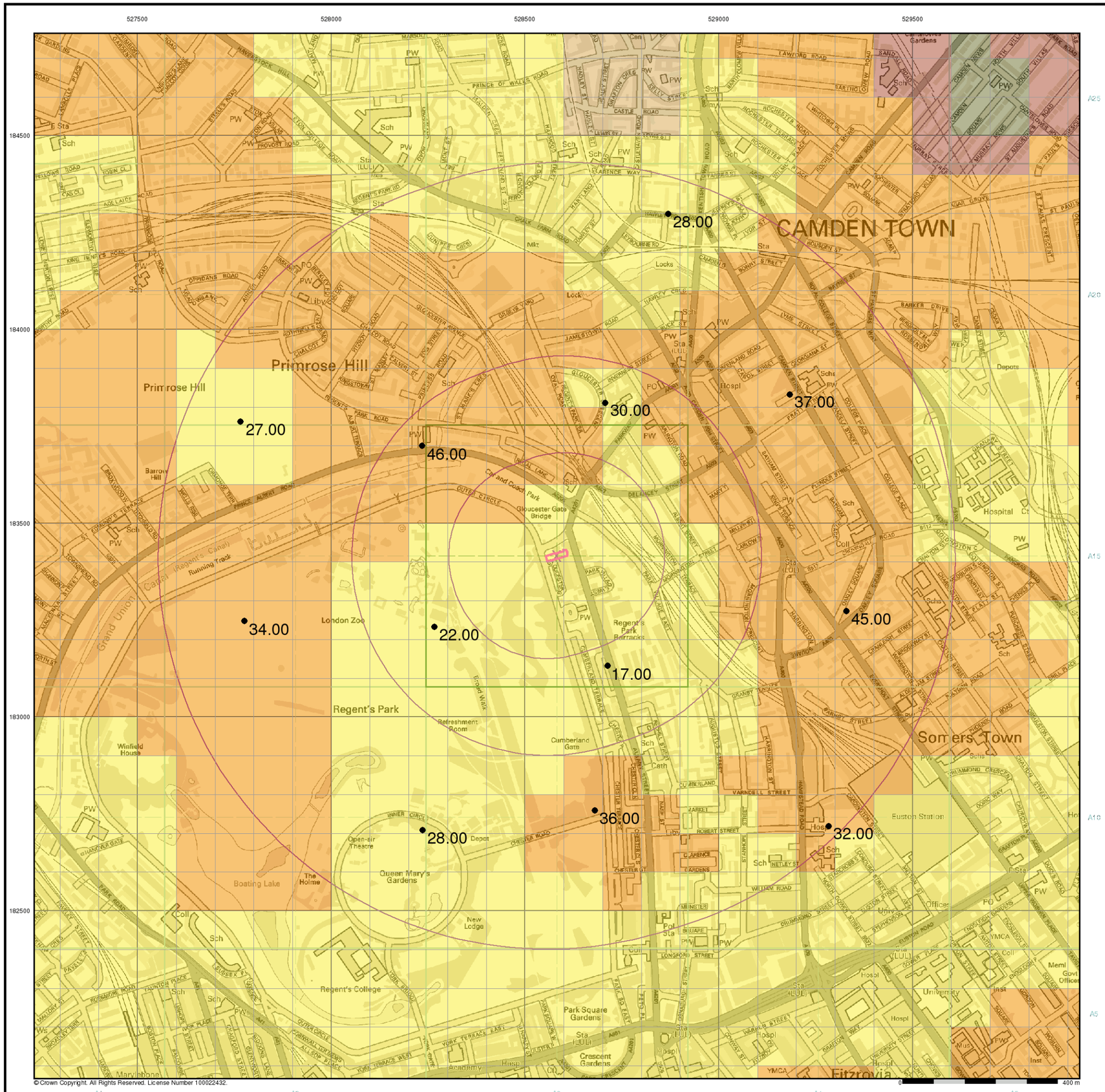


Envirocheck®

General

Specified Site | Specified Buffer(s) | X Bearing Reference Point

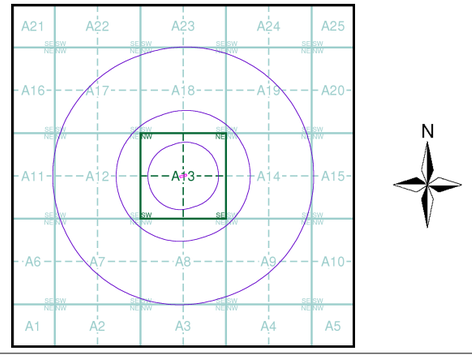
Urban Soil Chemistry Nickel

● BGS Urban Soil Chemistry Measured Concentration Values (mg/kg)

Nickel Concentrations mg/kg

- < 15
- 15 - 30
- 30 - 45
- 45 - 60
- 60 - 80
- 80 - 100
- > 100

Urban Soil Chemistry Nickel - Slice A



Order Details

Order Details:	73958436_1_1
Customer Ref:	15060
National Grid Reference:	528580, 183420
Slice:	A
Site Area (Ha)	0.09
Search Buffer (m)	1000

Site Details

1 Gloucester Gate Lodge, Outer Circle, Regents Park, LONDON, NW1 4HA

TQ28SE/233
2856.8343
256.

GROUND EXPLORATIONS LIMITED

BOREHOLE SECTION SHEET

Date October, 19 51.

CONTRACT NAME GLOUCESTER GATE. ORDER NO.

Bored for : The Commissioners of Crown Lands.

Address : 1, Cambridge Gate, N.W.1.

Address of Site : 1 & 2 Gloucester Gate.

District or Town : London. County : Middx.

Standing Water Level : Below Surface Dia. of Borehole : 6 Inches.

Water Struck (1) : Nil. Ft. B.S. (2) : Ft. B.S. (3) : Ft. B.S.

Boring Commenced : 25. 10. 51. Boring Completed : 26. 10. 51.

Special Remarks :

Jar Samples :

2'6"-6092; 4'6"-6093; 8'0"-6094; 12'0"-6095; 15'0"-6096; 17'6"-6097; 22'0"-6401; 30'0"-6403;

Core Samples :

10'6"-12'0"-6098; 13'6"-15'0"-6099; 18'6"-20'0"-6100; 23'6"-25'0"-6402;

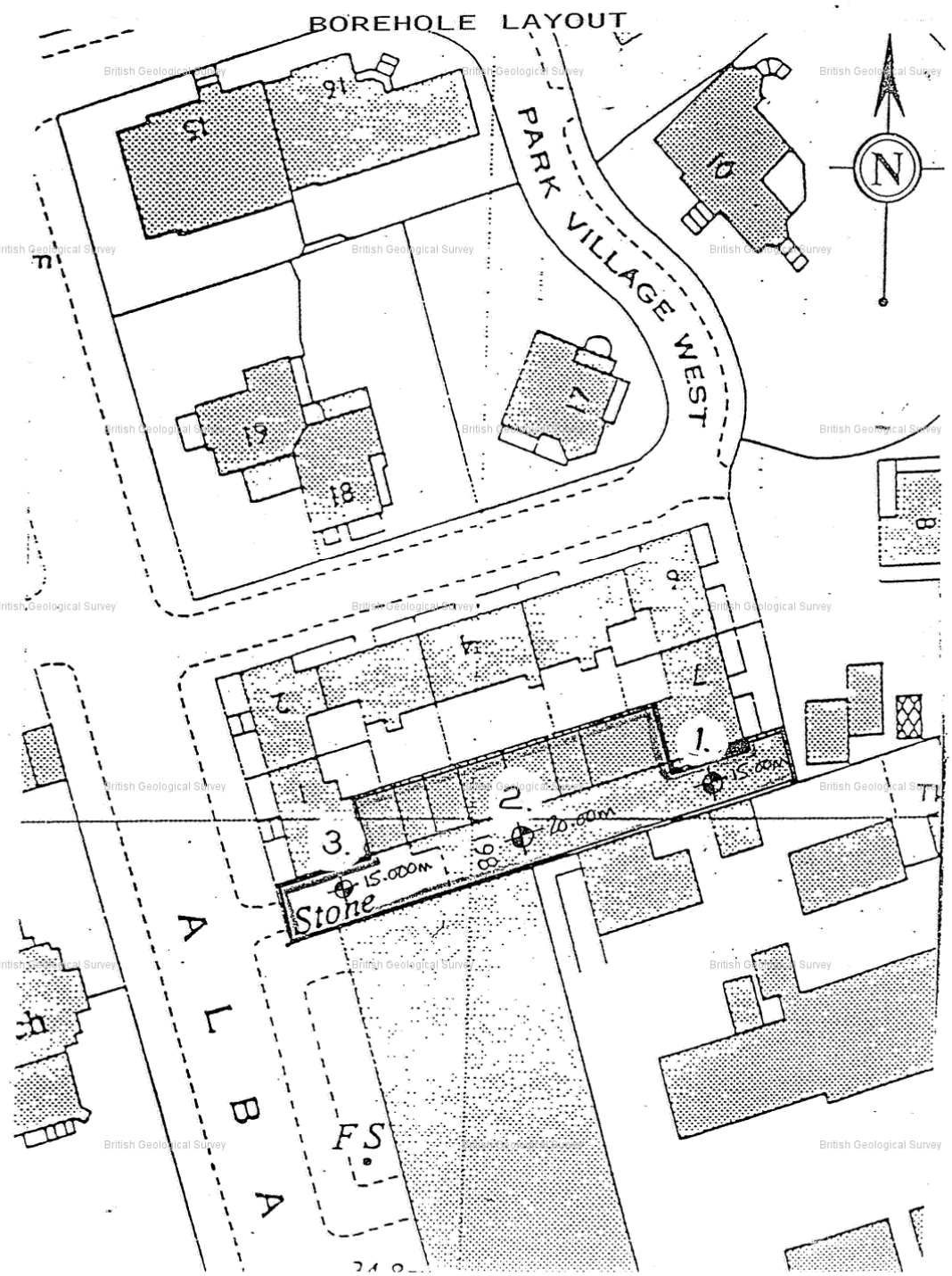
DESCRIPTION OF STRATA	Thickness Feet	Thickness Inches	Depth Below Surface Feet	Depth Below Surface Inches
Clients are requested to examine the samples of the Strata submitted, as the descriptions employed below are general terms and responsibility is not accepted for their application to commercial purposes.				
No. Boring. 1				
Fill (Tar-Mac)	0	2	0	2 (0.05m)
Fill (Hardcore)	1	4	1	6 (0.96m)
Fill (Brown Clayey Roots)	3	6	5	0 (1.52m)
Topsoil and Roots	2	6	7	6 (2.29m)
Brown Clay	22	6	30	0 (9.14m)
TOTAL FROM SURFACE ...	30	0		

This form is to be returned to Head Office immediately the borehole is finished.

Foreman's Signature..... *Date* October, 1951.

P. & R. Ltd.—6376

PAGE: 1	LOCATION	BOREHOLE LAYOUT
DATE: 21.03.89	198 ALBANY STREET - REGENTS PARK	



PAGE: 4

DATE: 21.03.89

LOCATION

198 ALBANY STREET - REGENTS PARK

BOREHOLE 3

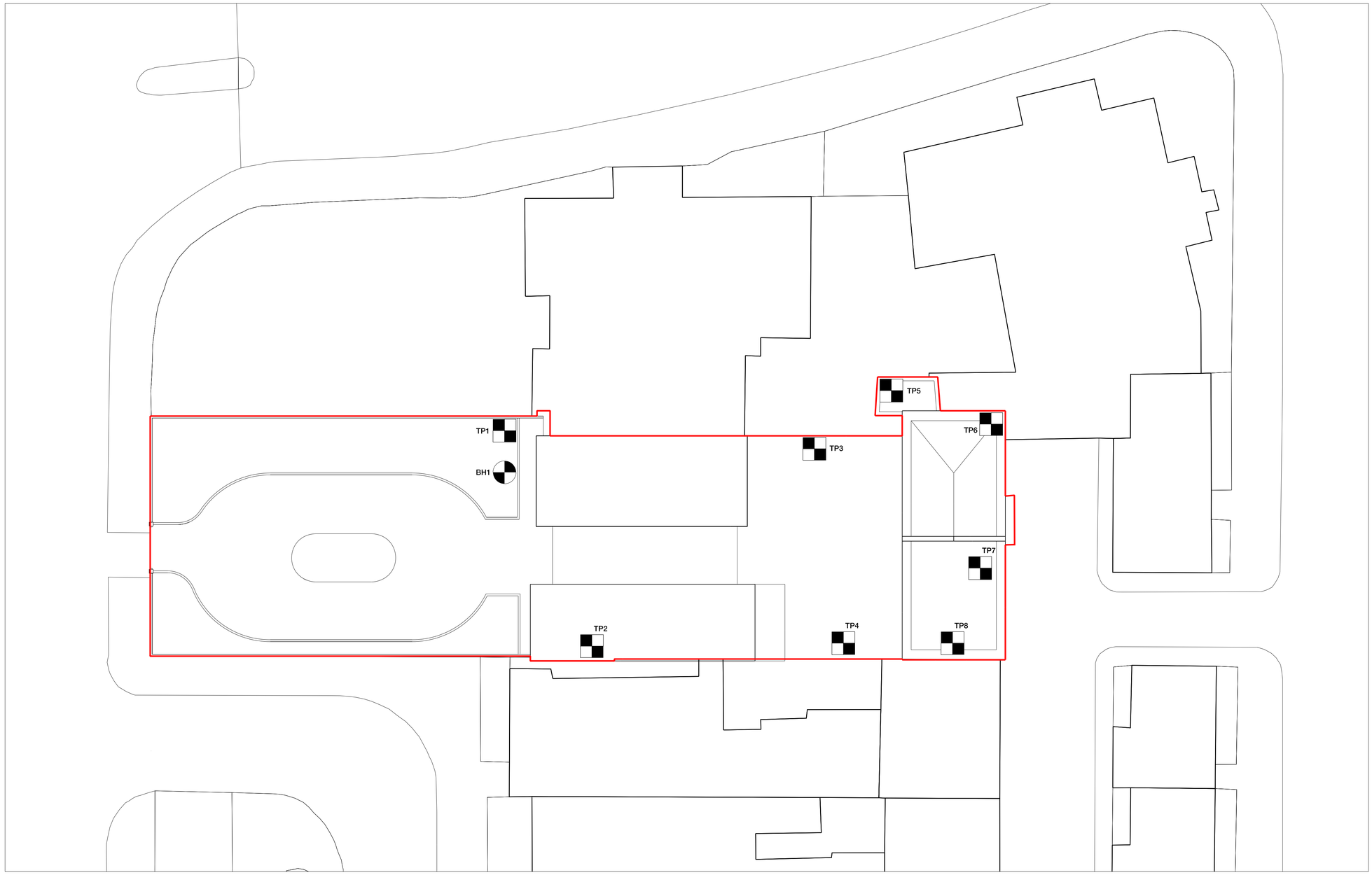
DESCRIPTION	REDUCED LEVEL m	DEPTH m	LEGEND	SAMPLE TYPE	SAMPLE DEPTH	THICKNESS m	SPT	REMARKS
CONCRETE		0.00				0.10		
Brick FILL		0.10				0.60		
Soft brown CLAY		0.70		U100	1.00			--926 /3 / 1.0U
						1.70		
Firm brown blue CLAY		2.40		U100	2.50			--926 /3 / 2.5U
				U100	4.00			--926 /3 / 4.0U
						3.90		
				U100	5.50			--926 /3 / 5.5U
Firm brown CLAY		6.30						
				U100	7.00			--926 /3 / 7.0U
				U100	8.50			--926 /3 / 8.5U
						5.90		
				U100	10.00			--926 /3 /10.0U
				U100	11.50			--926 /3 /11.5U
Firm grey CLAY		12.20						
				SPT	13.00		29	--
						2.80		
				U100	14.50			--926 /3 /14.5U
		15.00						

TERRAMECH INVESTIGATIONS LIMITED
183 LONG LANE TILEHURST READING

REMARKS:

U100=100mm dia. UNDISTURBED SAMPLE U38=38mm dia. UNDISTURBED SAMPLE D=SMALL DISTURBED SAMPLE
B=BULK SAMPLE W=WATER SAMPLE SPT=STANDARD PENETRATION TEST CPT=CONE PENETRATION TEST

Appendix H – Scope of site investigations



Notes:

1. This drawing is to be read in conjunction with all relevant architects and engineers drawings and specifications.
2. Do not scale this drawing.
3. Key:

TP1 Trial Pit - 750 x 750 area on plan, depth to expose wall footing

BH1 Borehole - Min. 15m deep

REV	COMMENTS	DATE	ENG	APP
01	Issued for Information.	27/10/15	FG	

STATUS
Information

TECHNIKER

Techniker Ltd
Consulting Structural Engineers
13-19 Vine Hill
London EC1R 5DW
T: 020 7360 4300
E: info@techniker.co.uk
W: www.techniker.co.uk

PROJECT
Gloucester Lodge

SUBJECT
Trial Pit Locations

SCALE @ A1
NTS

BY **WS** DATE **26/10/15**

DRAWING No. **15060/SK005** REV **01**

$DATE$ $TIME$ $PENTBLS$

Natalie Chue

From: Richard Upton <richard.upton@grm-uk.com>
Sent: 29 July 2016 13:16
To: Matthew Wells
Subject: RE: Gloucester Lodge [Filed 29 Jul 2016 16:21]
Attachments: E12276 2016-07-29 (T) RU QTE-1.pdf

Matthew,

Thank you for your enquiry. Please find attached our quote for undertaking the following:

- 1 Nr CP hole to 15m
- 8 Nr had dug trial holes to confirm foundation depths of retaining walls (incudes rotary coring to confirm wall thicknesses.
- Water level logging. Includes for 3 hr infiltration test (not anticipated to move due to London Clay geology).
- Geotechnical testing to include PI, pH and sulphate testing. SPTs will be taken at 1m centres to 5m and 1.5m centres thereafter.
- Letter report.

Due to access restrictions, we have allowed for the portable CP rig to be used, which is charged on a day rate basis. We estimate that it will take 2 days to complete the works.

As always, parking is tightly controlled in London and it is presumed that sufficient free parking will be available for the duration of the works. We have included a contingency rate should alternative parking requirements need to be made. These will be charged at cost.

Having spoken to our drilling contractor, the earliest we could fit this work in, as it stands, would be W/C 15th August, due to the specialist nature of the drilling equipment and the current demand for it.

We trust that this is sufficient for your current requirements; however, if you have any queries, then please do not hesitate to contact us.

Richard Upton,
GRM Development Solutions Ltd
richard.upton@grm-uk.com
www.grm-uk.com
01283 551249

GRM Development Solutions Ltd
Laurus House, Centrum 100
Burton-upon-Trent
Staffordshire
DE14 2WH
Telephone: 01283 551249
Fax: 01283 211968
www.grm-uk.com

QUOTATION

Enquiry/Project Number:	**E12276**
Quote Number:	**1**
Date:	**29/07/2016**

Location of work :
Gloucester Lodge
London

For:
Matthew Wells
Techniker

Summary:

1 No CP borehole to 15m and 8 hand dug trial holes to confrim foundations and wall thickneses.

Client Supplied Information:

Basement Impact Assessment and scope of works.

Prepared By: Richard Upton

Item No	Description	Unit	Qty	Unit Rate	Total
Section B	**Phase II Intrusive Investigation**				
B002	Engineer for site supervision and logging	Sum	1		
B003	Mobilisation of cut down cable percussion rig with 0-15m equipment.	Visit	1		
B004	e/o Item 14 - Mobilisation of cable percussion equipment to 30m.	Visit	R/O		
B005	Set up rig and drill CP borehole to 15m	Day	2		
B006	Contingency for parking	Sum	R/O		
B007	Installation of water monitoring well	Sum	1		
B008	Standing time outwith GRM control	Hr	R/O		
B009	Technicians for Hand Dug Pits (includes concrete corer)	Sum	1		
B010	Provide dataloggers for water level monitoring	Sum	1		
B011	Replacement of data loggers lost/damaged outwith GRM control	Nr	2		
B012	Retrieval of data loggers	Sum	1		
B013	Geotechnical Testing	Sum	1		
B014	Letter Report	Sum	1		

Appendix I – Ground movement assessment

Design Note – Ground Movement Assessment

Project: Gloucester Lodge

Job No: 15060

Date: 12.08.2016

By: AA

Chk: FG

Introduction

A single storey basement extension to an existing residential building is to be constructed and is situated adjacent to Gloucester Gate Mews, London. The building neighbours the Mews to the east and existing buildings to the remaining sides as can be seen in the aerial view in Figure 1 below.

This design note provides an assessment of the ground movement and damage classification onto the existing adjacent structures. The calculations of the structural behaviour of proposed basement structure in the temporary and permanent conditions are also presented.

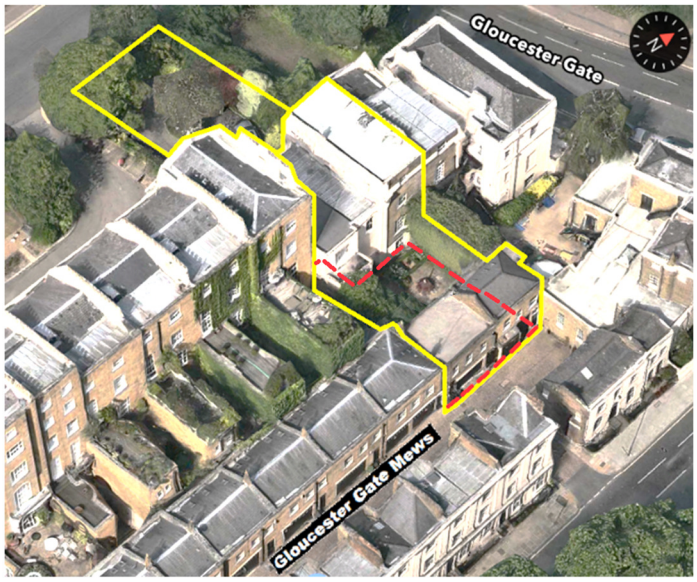


Fig. 1 Aerial view of Gloucester Lodge, dashed line represents extent of basement extension

Existing Structure

The existing buildings date to the late 19th century and are a Victorian house style of construction with traditional load bearing masonry with timber floors. The buildings have a lower ground level and vary in height between two to four storeys. Above the proposed basement the existing building is two storeys in height.

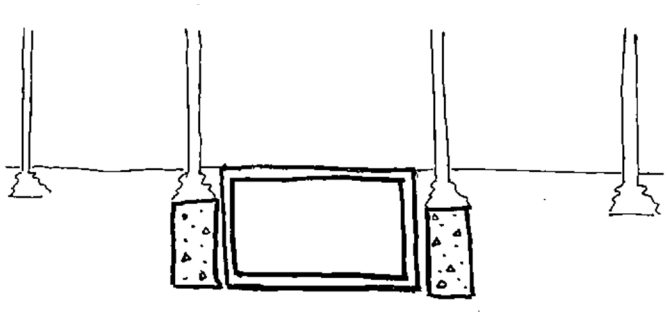
Proposed Construction

The proposed basement is formed of reinforced concrete construction and forms a box structure with perimeter retaining walls that are propped by the lower ground floor slab. The basement slab behaves as a ground bearing raft transferring the forces onto the subsoil.

In relation to supporting the existing superstructure, there are two options that are considered and outlined below:

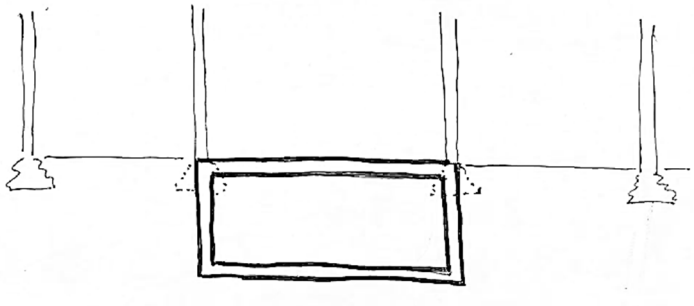
Option 1

The existing masonry walls will be underpinned with mass concrete to the same level as the basement. This means that the vertical loads transferred from the existing superstructure to its existing foundations will be unchanged. The new basement will be independent while supporting the lateral loads.



Option 2

The existing masonry walls will be underpinned by new basement structure itself making the existing foundations redundant. This means the basement structure will support itself and the superstructure. Susceptible



Assumptions and Loadings

Temporary Condition (Options 1 and 2)

The basement structure will be temporarily propped during construction and designed for an applied internal construction load of 2.5kN/m² and an applied external surcharge traffic loading of 10kN/m².

Permanent Condition

The retaining walls are propped by the lower ground floor slab and a 10kN/m² traffic load has been conservatively assumed to act on all sides of the basement. This will prevent uncertainty in any unknown present or future built adjacent basements.

An imposed residential loading of 1.50kN/m² plus lightweight partitions of 0.50kN/m² is assumed for the floors.

Option 1

The basement structure is vertically self-supporting and retaining the soil only. The existing superstructure is supported on its existing foundations which are underpinned.

Option 2

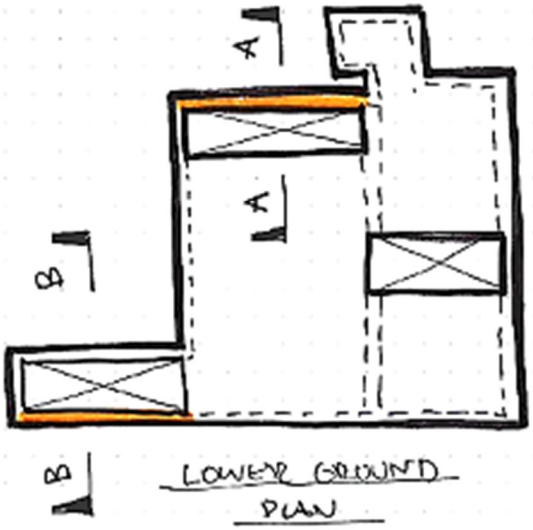
The basement structure supports itself and the existing superstructure as well as retaining the soil.

Soil Conditions

A safe allowable bearing pressure of 150kPa for London soil at 4m depth and a water table at 1m below ground level is conservatively assumed in the analysis.

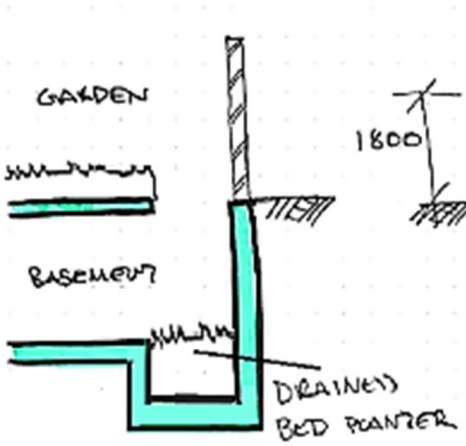
Ground Movement

Title: GLOUCESTER LODGE	By: AA	Job No: 15060	
Subject: MOVEMENT ASSESSMENT	Chk:	Date: AUG-16	



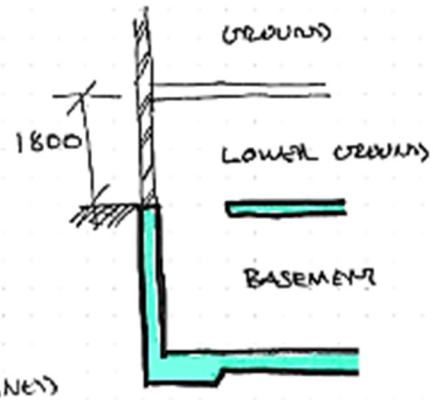
AREAS SUSCEPTIBLE TO MOVEMENT

ALL OTHER AREAS ARE PROPPED BY THE RC SLAB THEREFORE NO MOVEMENT IS EXPECTED ACCORDING TO ANALYSIS.



SECTION A-A

GARDEN WALL WILL MOVE WITH BASEMENT RC WALL. NO CRACKS OCCUR

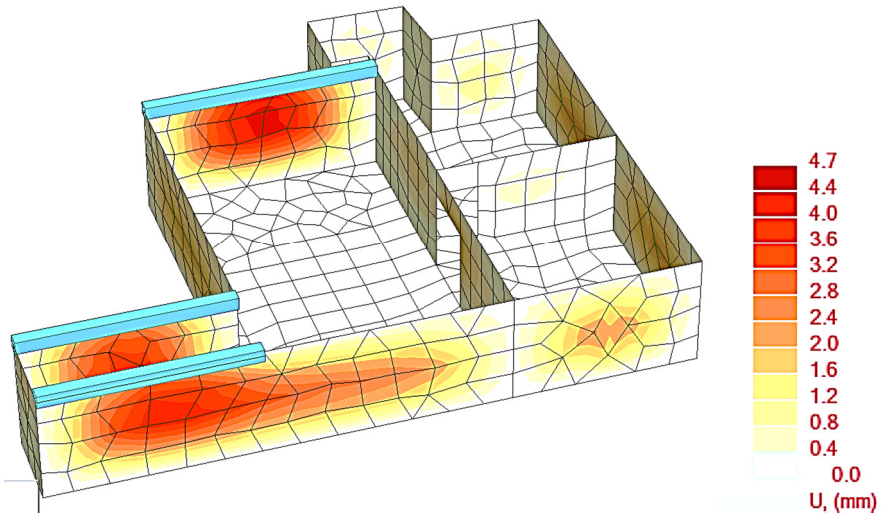


SECTION B-B

MASONRY WALL ABOVE RESTRAINED BY GROUND FLOOR SLAB. POSSIBLE CRACK OCCURANCE. SEE NEXT PAGE FOR ASSESSMENT.

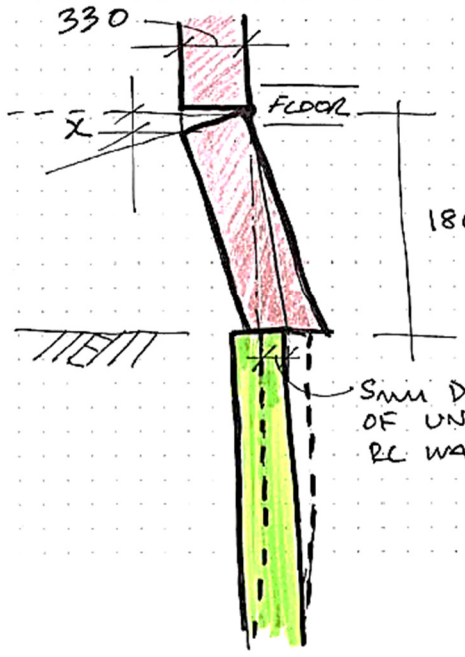
Summary of Analysis

The detailed analysis and design calculations can be found at the end of this design note. In summary, the maximum movement of the basement walls is less than 5mm at the worst case positions (adjacent to openings). This results in a maximum potential crack width of 0.92mm in the existing wall above as calculated in the following page.



Title: GLOUCESTER LODGE		By: AA	Job No: 15060
Subject: MOVEMENT ASSESSMENT		Chk:	Date: AUG-16

FROM THE FE ANALYSIS, THE RC WALL ADJACENT TO THE OPENING SHOWN IN SECTION B-B IN PREVIOUS PAGE IS EXPECTED TO MOVE LATERALLY BY 5MM. THE CORRESPONDING CRACK WIDTH INDUCED IN THE EXISTING WALL ABOVE IT, IS CALCULATED HEREIN.



$$x = \frac{330}{1800} \times 5$$

$$= 0.92\ \text{mm}$$

CRACK WIDTH < 1.0 mm THEREFORE CATEGORY I

Detailed Calculations and Analysis

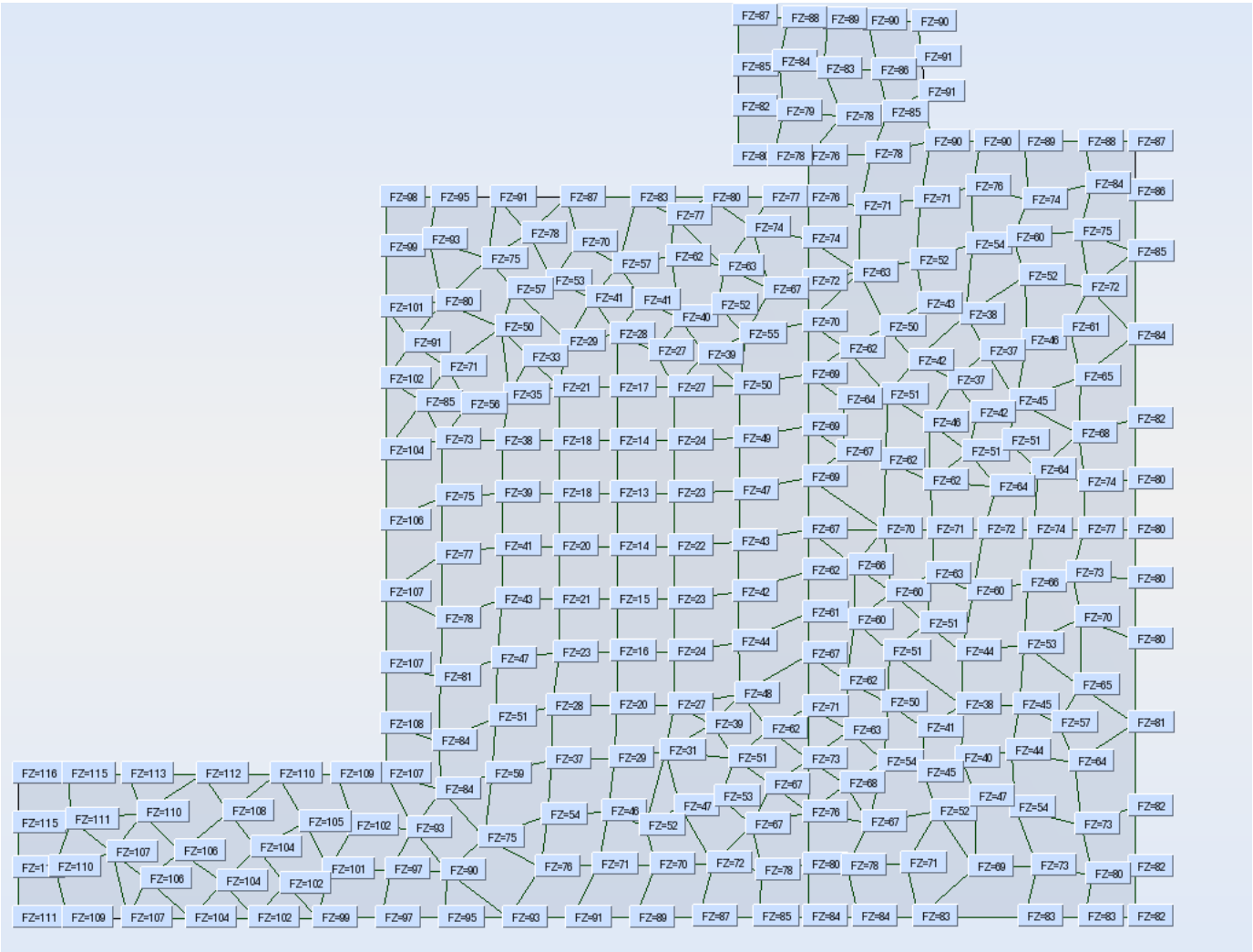
The applied loads in the FE model are listed below

Loads on Floors	**Description**	**Dead Loads kN/m²**	**Live Loads kN/m²**
Basement	Screed and finishes	2.50	
	Domestic live load and partitions		2.00
Lower Ground	Screed and finished	2.50	
	Domestic live load and partitions		2.00
Floors above	Timber floors	1.00	
	Domestic live load and partitions		2.00

Lateral Loads on Retaining Walls	**Description**	**Dead Loads kN/m²**	**Live Loads kN/m²**
Soil	Soil pressure at 4m	27	
Water Table	Water pressure at 3m	29	
Surcharge	10 kN/m² Surcharge	3.33	
Floors above	Timber floors	1.00	
	Domestic live load and partitions		2.00

Vertical Line Loads on Retaining Walls	**Description**	**Dead Loads kN/m**	**Live Loads kN/m**
	Two storey 330mm masonry wall above	50.0	
	Average 3m tributary width dead loads from 3 floors above	9.0	
	Average 3m tributary width live loads from 3 floors above		18.0

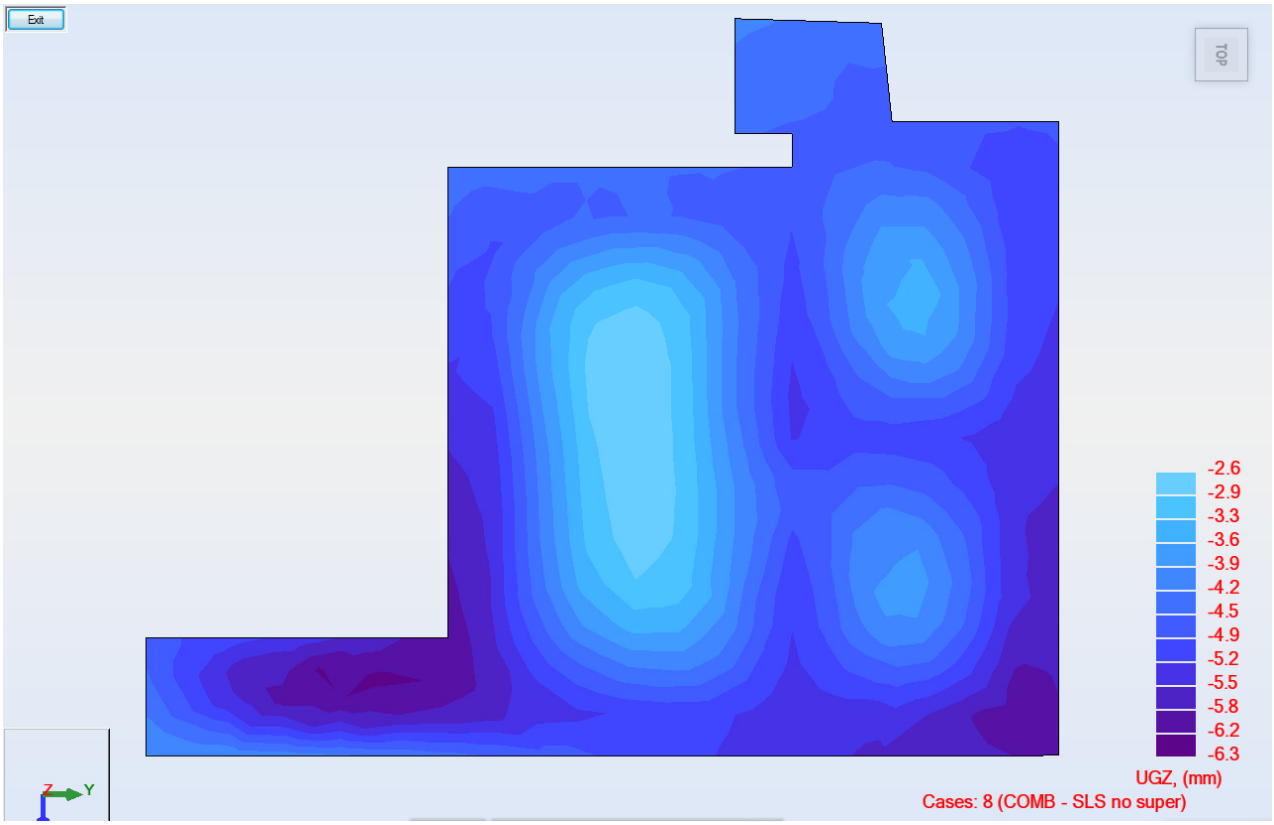
Unfactored bearing pressures kPa (kN/m²)



Maximum Applied Bearing Pressure < allowable 150 kPa OK

Maximum vertical deflections of the basement structure (mm)

The maximum vertical settlement of the basement slab is expected to be an average value of 4mm with a maximum of 6.3mm.



Appendix J – Structural stability report

Basic description, planning approval and brief

Proposals

The current proposals submitted for planning indicate minor alterations to an existing semi-detached Grade I-listed building formally known as Gloucester Lodge (address: No. 12 Gloucester Gate), and the demolition of its ancillary building, No. 12 Gloucester Gate Mews, at the rear of the site. Following a recent acquisition, the property boundary has been enlarged to include the currently uninhabitable No. 13 Gloucester Gate Mews, which will be rebuilt to consolidate the floor space of the two mews. The proposal seeks to add a new basement level for plant and services directly below the mews and the courtyard. The walled garden will be retained with a direct link from the ground floor of the main building to the mews added. Within it includes a new basement amenity space and a family room at ground level as a part of the linked access.

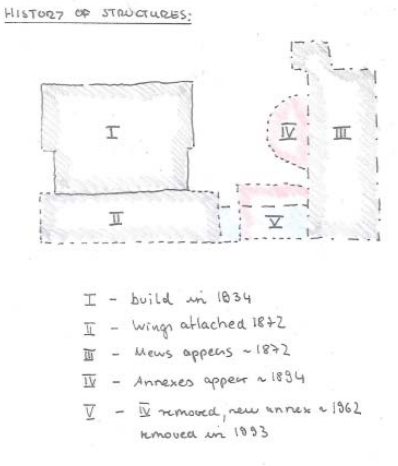
Existing structures

The existing Gloucester Lodge is a traditional three-storey building with a lower ground floor, which provides access to its subservient two-storey mews through a walled garden leading on to the street level of Gloucester Gate Mews.

Party Wall issues

The site is bounded to the north by No. 14 Gloucester Gate, which forms the second half of Gloucester Lodge. The property is connected to No. 15 Gloucester Gate, which is the current address of Bright Horizon Daycare and Nursery and which also shares a party wall with No. 13 Gloucester Gate Mews. Bounded to the south is No. 11 Gloucester Gate, a residential property and the final building on the north end of John Nash's Grade I-listed Gloucester Gate Terrace. Opposite the two mews on the east are Nos. 217 and 219 Albany Street. The space between these two end terraces forms the entrance into Gloucester Gate Mews from Albany Street.

Basic description, planning approval and brief



Planning Application

A planning application is to be submitted. The following points are substantial for further design statements.

- Application C is followed
- The site falls within the Regent's Park Conservation Area.
- The site has undergone numerous alterations in the past, as illustrated in (refer picture to the left). A recent 1993 consented planning application details the extensive changes to the interior of the building and the demolition of an annex which physically connected the main house to the mews. The design recognises the extent of this recent alteration and proposes the new additions to be in line with this precedent to preserve original heritage features.
- The scheme will require a basement excavation for the new level beneath the mews and the courtyard area.
- The application is accompanied by an Outline Construction Management Plan by Techniker. The plan attached states potential site constraints and commits to a minimal impact approach to the proposal's construction and demolition of its surrounding in particular.

Information required for further design development (scheme design)

Soil Conditions (required)

A soil investigation has not yet been carried out. Prior to further design a SI is paramount. It should cover

- the extent, materials and conditions of the existing footings
- exact level determination of existing footings within the plot and along the party wall areas
- the final ground conditions beneath the site, water issues
- expected settlement characteristics
- basement heave analysis
- foundation recommendations

Specification will be prepared by Techniker for the geotechnical site investigation works.

Borehole logs along 198 Albany Street indicate an continuous layer of clay (from soft to firm) down to 15m beneath the surface layer (finishes, made ground, fill) of 1m thicknesses. Due to a high variability in the ground conditions those remarks are just indicative.

Below ground drainage

No information is currently available for the existing drainage layout. To proceed with the foundation and future service design the drainage and sewage lines beneath the plot must be surveyed.

Information required for further design development (scheme design)

Fabric Conditions

No information is available for the quality of the existing floors, the properties of the masonry panels as well as the facades. Prior to further design those information should be obtained covering at least the following points.

- Condition, size and strength parameters of structural walls
- Condition, Size and strength parameters of existing floor joist
- Support conditions of existing floors (Pockets)
- Size of existing staircases

Fire place, chimney survey

To provide sufficient information for the future slab layout (support conditions) the chimney and fire places along the party walls needs a proper monitoring.

Structural design input (Performance criteria)

Additionally to the points above it would be prudent to have the following information available.

- Intended finishes
- Fire requirements
- Deflection and vibration limits
- Protected structural parts due to heritage obligations
- Preferred procurement method
- Special Live load and dead load requirements
- Water protection performance (basements)

Stair design

The design intent for the proposed stairs between the dining room and the garden room to the primary residence should be communicated.

Structural design (study)

It is paramount to state, that all given information are subject to a scheme and detailed design. The final foundation solution can only be developed after receiving a concise set of the investigations stated above.

Foundation and Underpinning general

The general structural methodology for the design and construction of the proposed subterranean portions of the proposed redevelopment will address potential hazards associated with the unknown elements of the adjoining structures and their foundations. Generally, one of the following conditions is expected to be encountered:

- Shallow foundations to the neighbouring properties / Party Walls: Conventional methods will be used to underpin the wall footings to suitable depth prior to commencement of excavation to incorporate the proposed basement.
- Excavation adjacent to an existing subterranean structure not shallower than the proposed basement. Existing structures (Party Walls) will be propped throughout the construction process to prevent lateral displacements

Early stage coordination with the party wall surveyor and the neighbour´s engineer would mitigate potential risk at later design stages.

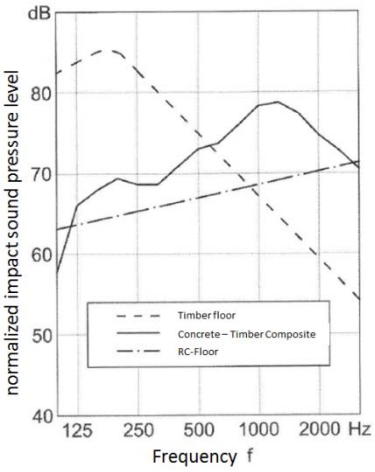
Monitoring of the adjacent building during demolition and construction phase will be mandatory.

Main House

Option 1 – Main House

- Demolish existing internal load bearing wall and floor plates as well as the dining room rear appendix
- Leave the front façade, parts of the rear façade and the party walls
- New 160mm RC-Floor panels cast into the space sitting on pockets within the existing wall elements and new build masonry walls.
- Underpinning of the Southwestern lower ground floor prior to extent the floor area.
- Underpinning of the courtyard façade walls to create sufficient safety for the required excavation of the link footings.
- Temporary works will be required

Option 2 – Main House



- Demolish parts of the existing internal load bearing wall and floor plates as well as the dining room rear appendix
- leaving the front façade, parts of the rear façade, northern spine internal wall and the party walls
- New Timber Concrete Composite floors (80mm) are installed using the existing timber (assumed 220mm) joist where possible to reduce the amount of shuttering as well as penetrating the existing walls
- Underpinning of the Southwestern lower ground floor prior to extent the floor area.
- Underpinning of the courtyard façade walls to create sufficient safety for the required excavation of the link footings.
- Price premium to pure RC-Wall approximately 35%
- Temporary works will be required

Garden room / Courtyard elements

The available courtyard space will be used to facilitate a new Gymnasium/Spa area at Lower Ground Floor Plan and a light glass box linking the main house with the Mews.

Planted roof above Gymnasium

- 200mm RC-Walls and/or 200mm RC blade columns to support a 250-300mm thick RC roof slab which is to support circa 600mm of planting in the courtyard
- Connect roof deck via shear connectors for movement joints along the edges of the mews and main building

Option 1 – Garden room

- Foundations as above
- Reinforced concrete walls approximately 160mm
- Reinforced concrete deck 160mm above lower ground floor
- Steel grillage above ground floor level (structural depth 200mm) carrying glazing at northern edge in grillage fins

Option 2 – Garden room

- Foundations as above
- Engineering brick walls approximately 315mm
- Reinforced concrete deck 160mm above lower ground floor
- Steel Beam / timber / plywood deck above ground floor level (structural depth 300mm)
- Glazing spanning between edge and centre beam

New Mews building

Mews underpinning

Whereas for the majority of the existing building traditional underpinning methods are applied, the temporary stability for the erection of the Mews building requires detailed attention.

Again - early stage coordination with the party wall surveyor and the neighbour´s engineer would mitigate potential risk at later design stages.

Two options are proposed.

Option 1 – traditional underpinning

- Underpin the neighbour foundation and the longitudinal edges traditionally (6 steps horizontally, 2 steps vertically) and brace the walls laterally until the basement has been finished
- The proposals required a careful consideration of the applied sequence
- Settlements are not avoidable, the final level depend on the stress/settlement relation of the ground
- Structural zone approx. 650mm
- Penetration of neighbour properties (approval required)

Option 2 – cased bored mini piles around the basement

- Introduction of an approx. 350mm cased bored mini pile ring around the perimeter
- Excavation in 2 steps vertically with a set of lateral bracings to reduced settlements
- Minor settlements are expected depending on detailed design and ground conditions
- Structural zone approx. 900mm
- No penetration of neighbour properties.

Structural design (study)

Mews - Basement /GF-construction

- 300mm RC-Raft with high reinforcement content
- The necessity of an internal drainage skin depends on the finally specified performance requirements

Table 11.2 Provisions for Performance Grades

From Table 1 of BS 8102: 1990[11.11]				Abbreviated commentary given by CIRIA Report 39[11.10]
Grade	Basement usage	Performance level*	Form of protection	
Grade 1 Basic utility	Car-parking; plant rooms (excluding. electrical equipment); workshops	Some seepage and damp patches tolerable	Type B with RC design to BS 8110[11.1].	Visible water and BS 8110 crack width may not be acceptable. May not meet Building Regulations for workshops. Beware chemicals in groundwater.
Grade 2 Better utility	Workshops and plant rooms requiring drier environment; retail storage	No water penetration but moisture vapour tolerable	Type A or Type B with RC design to BS 8007[11.3].	Membranes in multiple layers with well lapped joints. Requires no serious defects and higher grade of supervision. Beware chemicals in groundwater.
Grade 3 Habitable	Ventilated residential and working, incl. offices, restaurants, leisure centres	Dry environment	Type A or Type B with RC design to BS 8007, plus Type C with wall and floor cavities and DPM.	As Grade 2. In highly permeable ground, multi-element systems (possibly including active precautions, and/or permanent and maintainable under-drainage) probably necessary.
Grade 4 Special	Archives and stores requiring controlled environment	Totally dry environment	Type A or Type B with RC design to BS 8007 and a vapour-proof membrane, plus Type C with ventilated wall cavity and vapour barrier to inner skin and floor cavity with DPM.	As Grade 3.
* See CIRIA Report 139[11.9] for limits on environmental parameters				

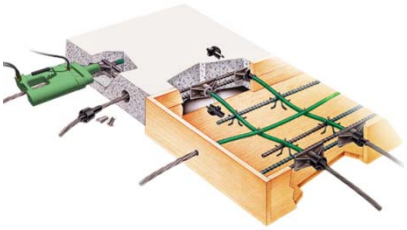
- 250mm/160mm RC-Walls at basement/ground floor level
- 160mm RC-Slabs above basement and lower ground floor

Structural design (study)

Mews - Upper Floor options

Option 1 – Link

- Structural Steel Portal frame at approximately 2000mm centre
- Cross-bracing at roof level at no glazed face and timber plywood decking
- Four side supported insulated safety glass (12/8/10)
- Timber stud or masonry infill wall panels longitudinal to provide longitudinal stiffness
- Wall opening to be coordinated



Option 2 – Link

- RC-concrete shell 140mm RC-Walls
- Min 180mm to 200mm post-tensioned roof deck at non glazed face to reduce deflections
- Two side supported insulated safety glass (18/9/12)
- Wall opening to be coordinated

Other comments

The following comments are just indicative and required further investigation at later design stages.

General stability

- The lateral stability of the Main house is provided by the internal and perimeter structural masonry walls in combination with slab diaphragm action. The slabs will need to properly tie into the walls. The use of Helifix needles between new slabs and existing walls is recommended.
- The Mews structure is stable due to the box-characteristics and the infill panels at the upper floor
- The link will be stabilised via floor diaphragms which are linked to the mews and the main building via shear studs running through movement joints (where required)
- The ground water level used for the basement buoyancy check was taken at 1.0m below the existing ground level. The water uplift force is less than the downward force arising from the weight of the structure therefore the building is stable during the event of high ground water level.

Joints

- Within the main house and the mews no movement's joints are required. Due to the basement characteristics of the mews movement joints are suggested as the stresses will vary and the extent of the new elements without joints are slightly onerous.
- For glazing works secondary movement's in-between the panels are compensated by the flexibility of the silicone joints. A minimum joint of 5mm is required.

Structural design (study)

Material grades

- The assumed concrete grade to be C28/35 and the steelwork to be grade S355.

Design life

- The usual design life should be 60 years. However the design expectation for waterproof basements may be less than required.

Robustness

- The main house is classified as a type 2B construction in accordance with the Building Regulation 2000 (edition 2004).
- The Mews and the link are classified as a type 1 construction. The same precautions as for the main house are maintained.
- Any further tying requirement will be identified during the next design stages

Contractors design work (proposals)

- RC-detailing
- Temporary works design
- Pile and underpinning design