126 St Pancras Way NW1 9NB

Basement Impact Assessment

March 2024

MAUND GEO-CONSULTING

Produced for:
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Report Title	126 St Pancras Way	Site Address	126 St Pancras Way, London NW1 9NB
Work Stage	Basement Impact Assessment	Report Date	March 2024
Brief Description of the Report Contents	Undertake a Basement Impact Assessment, including a ground movement assessment for a basement extension to the rear of an existing lower ground floor in a terrace property.		

Document Control Sheet

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Record of Issue

Issue	Status	Date	Author	
V1	Draft for review	08/03/24	Julian Maund BSc PhD CEng MIMMM CGeol FGS Registered Ground Engineering Adviser	

Distribution

Organisation	Contact
Client	A. Thomas
Baker Chatterton Structural Design	Dylan Chatterton
Scenario Architecture	Luca Dalmasso

Contents

1 Non-Technical Summary

A basement impact assessment (BIA) has been undertaken for hydrogeology, surface water land stability in general accordance with CPG Basements (2021) for a site at 126 St. Pancras Way NW1 9NB, in the London Borough of Camden.

The basement will extend an existing lower ground floor to the rear of the property and include a sunken patio/lightwell to the rear of the basement into the rear garden. The proposed basement will occupy an area of approximately 16^2, with a further $10m^2$ for the patio.

The BIA report considered relevant information from existing sources included in the 'Guidance for subterranean development' produced for the London Borough of Camden (November 2010), as well as historical maps and records, TfL Property Asset Register, Environment Agency and BGS records.

A ground investigation at the site was undertaken by Card Geotechnical Ltd (CGL) in 2016 at the adjoining property 124 St Pancras Way which is also owned by the client. The investigation comprised one borehole to 8.65m below ground level, 5 trial pits and geotechnical and contamination testing of the soil.

The ground investigation confirmed the ground conditions as a layer of Made Ground of gravelly fine to coarse sand to a depth of approximately 0.9m which overlies soft to firm silty clay over gravel of possible Head deposits to a depth of 2.15m, over firm to stiff London Clay. Groundwater was encountered during monitoring after the ground investigation to depths of between 1.86 and 1.21m. The groundwater is considered to present localised perched water and not a regional groundwater. The geotechnical and groundwater parameters proposed by CGL and previously accepted by LBC have been adopted were possible for this BIA.

An assessment of hydrogeology has shown that the strata underlying site is considered non-productive strata of very low permeability and is not designated as an aquifer within Environment Agency (EA) guidelines. The proposed basement will have a negligible impact on groundwater flow.

An assessment of surface water indicates the site is in an area of low surface water flooding risk. The proposed basement will have a negligible impact on surface water.

An assessment of land stability has been made from the excavation and construction of the basement. It has been calculated that heave in the centre of the basement is not expected to exceed 9.5 mm resulting from the excavation and construction. The foundation formation will be able to accommodate the maximum dead and live load from the wall loads of up to 135 kN/m (dead and live loads combined), acting on a thickened perimeter slab, with net settlement of < 25 mm. The proposed basement will have a negligible impact on land stability.

The maximum damage category for the adjacent properties of 124 and 128 St. Pancras Way has been calculated to be within Category 1 (very slight damage). Similarly, the subject

property has also been assessed to have a Damage Category within Category 1. There will be no impact on the highway or footway of St. Pancras Way, or 1A Reeds Place to the rear of 126 St Pancras Way from the basement construction.

An appropriate monitoring regime should be adopted prior to the works and maintained throughout construction to manage risk and potential damage to the neighbouring structures as construction progresses onsite.

2 Introduction

2.1 Terms of Reference

Maund Geo-Consulting Ltd (MGC) was instructed on 22/02/24 by Scenario Architects on behalf of Anya Thomas ("the Client") to undertake a Basement Impact Assessment (BIA) for the site at 126 St Pancras Way NW1 9NB.

2.2 Terms and Conditions

This report has been prepared for the Client in consideration of the proposed further development of the site. The report is for the sole and specific use of the Client, and MGC shall not be responsible for any use of the report or its contents for any purpose other than that for which it was prepared and provided. Should the Client require to pass copies of the report to other parties for information, the whole of the report should be so copied, but no professional liability or warranty shall be extended to other parties by MGC in this connection without the explicit written agreement thereto by MGC.

MGC has used reasonable skill, care and diligence in the investigation, calculations and design recommendations for the project. The inherent variation of ground conditions allows only definition of the actual conditions at the locations and depths at the time of the investigation. At intermediate locations, conditions can only be inferred. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

2.3 Scope and Objective

The principal scope and objective of the report is as follows:

- An assessment of land stability, hydrogeological and surface water risks associated with the proposed development.
- An assessment of the ground conditions at the site and derivation of geotechnical parameters to be used in a ground movement assessment (GMA).
- Modelling of the ground movement in relation to the additional imposed loads from the proposed basement in general accordance with CIRIA C760,
- Determination of the Burland Damage Assessment Category.

2.4 Author

This report has been prepared by Dr Julian Maund, director of Maund Geo Consulting Ltd, who is a chartered engineer and chartered geologist with over 35 years' experience. Dr Maund is a UK and Ireland Registered Ground Engineering Adviser and a member of the

Association of Geotechnical Specialists. The surface water assessment has been undertaken by Phil Henry of Croft Engineers who is a chartered civil engineer (MICE).

2.5 Sources of Information

Background information has been derived from the ground investigation report by CGL for 126 St Pancras Way and sources of published information.

The list of information sources is shown below in Table 2.1:

Table 2.1 Information type and sources

Information Type	Source
Geological mapping	BGS/ GSD*
Hydrogeological data	BGS / EA / GSD
Ground and groundwater conditions	Ground Investigation by CGL undertaken in October 2016
Historical Mapping	National Highways GDMS
Utilities	LSBUD, Thames water, Cadent Gas, Zayo Ducts
Environmental designations	Groundsure / EA/ BGS/ UKHSA
Structural Drawings	Baker Chatterton Structural Design Ltd
Scheme Drawings	Scenario Architecture Ltd
Construction Method Statement	Baker Chatterton Structural Design Ltd

* Guidance for Subterranean Development for LBC - Arup 2010

Relevant scheme drawings are included in Appendix A. The CMS is included in Appendix B. The ground investigation factual information is included in Appendix C. Utility information in Appendix D. A Radon report is included in Appendix E.

2.6 Site Location

No. 126 St Pancras Way is located in Camden, London, NW1 9NB. The site location is shown in Figure 2.1

2.7 Site Description

The site currently comprises a mid-terrace residential property with three above-ground storeys, a lower ground floor/single storey basement and a rear garden. The property is some 5.5m wide and is generally level, with the exception of steps to the lower ground floor level, which extends to some 1.6 metres below ground level (mbgl) and includes a lightwell and secondary access to the front of the property. No mature trees are present on the site.

1 The property shares party walls with Nos. 124 and 128 St Pancras Way to the north and south of the site, respectively. No. 128 also have similar existing basements to approximately 1.6m bgl. No. 124 is also owned by the owner of 126 and has a planning application (2023/3867/L) for a basement to approximately 3m bgl.

No. 126 has a boundary at the rear of the garden with No. 1A Reed's Place to the east. To the west, the property is directly bounded by the highway and pavement of St Pancras Way.

The site is located some 1.2km east of Primrose Hill and 1.7km southeast of Hampstead Heath. Spot height elevations of 28.5m metres above Ordnance Datum (m AOD) and 30.4 m AOD are noted on Wilmot Place, to the southwest and east of the site respectively, indicating that ground levels in this area gradually rise towards the northeast. See Figure 2.1

Figure 2.1 Site location and spot heights

The slope angle map, included within CPG41, indicates that the site is in an area where slopes are within 1° to 7°.

Existing services are located within the highway to the front of the property.

2.8 Proposed Development

The proposed development includes the provision of a basement. The basement layout will accommodate a bathroom and a gym. The basement floor to ceiling height is less than the height of the lower ground floor to preserve the building hierarchy.

Figure 2.2 shows the proposed basement outline compared to the existing from Drawing EX-A3.01 included in Appendix A. The proposed basement (section A-A) is shown in Drawing PR-A3.01 included in Appendix A. Figure 2.2 shows that up to 3.5m of soil will be excavated for the proposed basement and between 1.0 and 1.6m of soil removed for the patio and rear garden.

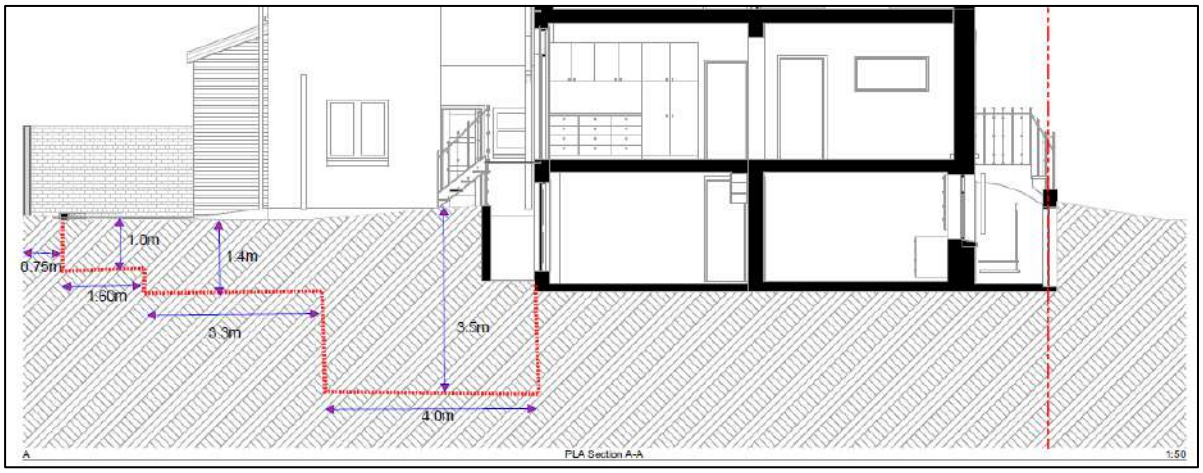

Figure 2.2 Dimensions (approximate) used in ground movement modelling

The existing foundations to No. 126 St Pancras Way are to be underpinned, which will include the rear garden patio. The construction sequence is shown in Drawings J460-BC-SK-3080 and 3090 **and** the Construction Method Statement by Baker Chatterton Structural Design (BCSD) (reference J460-S-RP-001_00) included in Appendix B.

3 Desk Study

3.1 Site History

A review of available historical mapping indicates that the site was constructed in the mid-1800s, prior to which it comprised open farmland. The surrounding area was developed at a similar time, changing from a primarily rural environment to a residential area.

No significant changes were noted to the site since its construction and the site is not noted to have suffered bomb damage during the Second World War, see Figure 3.1.

Figure 3.1 Bomb damage from WWII

Key:
Black Total Destruction
Purple: Damage beyond repair
Dark red: Seriously damaged – repair doubtful
Light red: Seriously damaged – repairable at cost
Orange: General blast damage – not structural
Yellow: Blast damage – minor in nature

3.2 Geology

The British Geological Survey (BGS) Geoindex (https://mapapps2.bgs.ac.uk/geoindex/) indicates that the site is directly underlain by the London Clay Formation (LCF).

With reference to borehole records obtained in Geoindex (TQ28SE4, 260m to the NE and TQ28SE1491 330m to the S) The London Clay has been proven to be some 32m to 46m thickness in the site area. It is underlain by some 21m to 23m of Lambeth Group and Thanet Sand at levels of -7mOD to - 18mOD. The surface of the chalk has been proven at depths of 54m to 69m bgl. The borehole records are included in Appendix C.

3.3 Hydrogeology

The London Clay Formation is designated a 'non-productive stratum' by the Environment Agency.

The site does not fall within a Groundwater Vulnerability Zone, nor is the site located within a groundwater source protection zone (GSPZ).

Based on historic borehole logs, groundwater is anticipated to be perched over the London Clay, within the Made Ground, if present.

3.4 Hydrology, Drainage and Flood Risk

The closest significant body of water is the *Regent's Canal*, some 300m south of the site. The *Hampstead Ponds* are some 2.3km to the northwest of the site. Environment Agency mapping[5] indicates that the site is not located within a zone at risk of flooding by river or sea and is within Flood Zone 1 ("low probability"), defined as land having a less than 1 in 1000 annual probability of flooding. The CPG4 indicates that *St Pancras Way* was not flooded during extreme rainfall events in 1975 and 2002 and therefore it is considered that the risk due to surface water flooding is low.

Figure 3.2 taken from https://www.gov.uk/check-long-term-flood-risk indicates that the site is in an area of very low surface water flood risk.

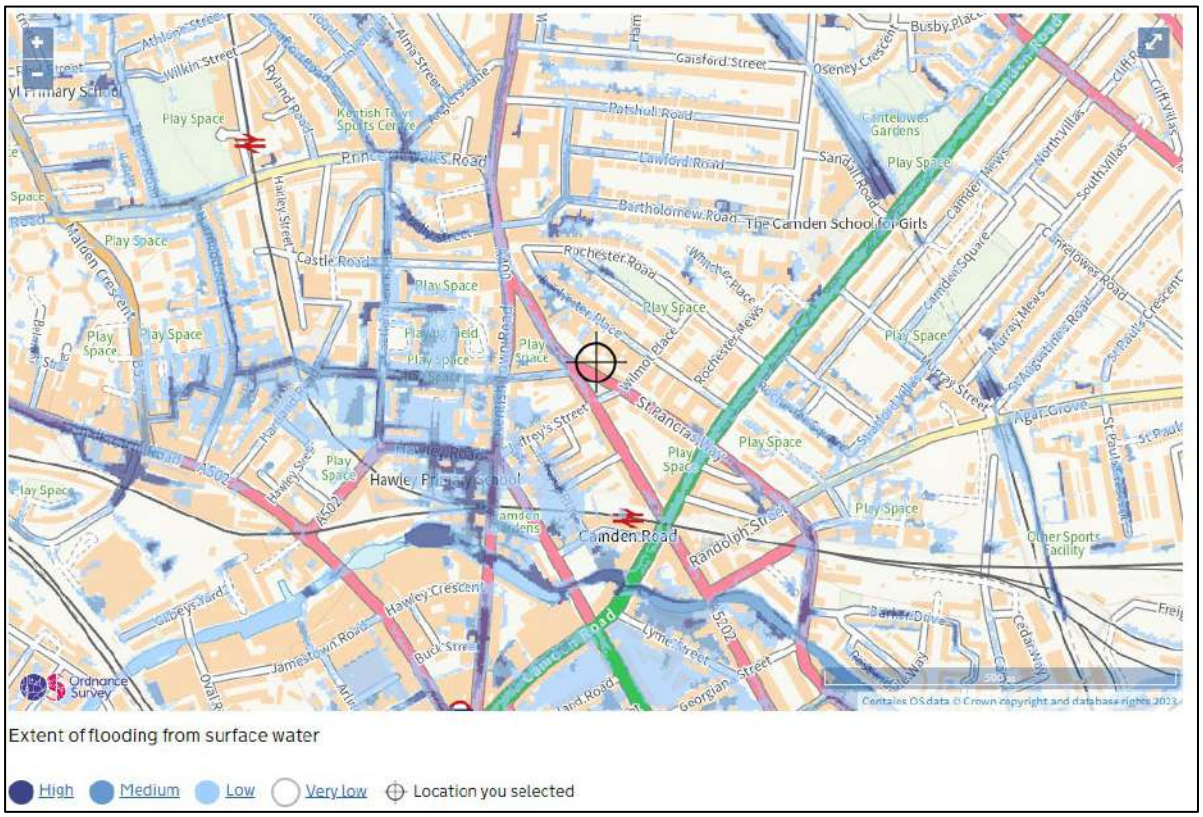

Figure 3.2 Surface water flood risk

3.5 Natural Hazards

The assessment of natural hazards is summarised in Table 3.1.

Table 3.1 Natural Hazards

Natural Hazard	Risk (Stated by BGS)	Comment
Shrink-Swell	Moderate	The site is underlain by the LCF which comprises low plasticity silty fine sandy clays. This material has potential shrink swell properties.
Running Sand	Very Low	Not applicable to the site geology
Compressible Ground	Negligible	Clay soil of the LCF is subject to consolidation from additional imposed loads, which are limited by appropriate foundation design
Collapsible deposits	Very Low	Not applicable to the site geology
Landslide	Very Low	Not applicable to the site geology/topography
Soluble Rock	Negligible	Not applicable to the site geology
Radon	<1%	No Radon protection measures are necessary-

3.6 Underground Services

Underground services provided by utility companies including Thames Water (water and sewage), Cadent (gas) run within the highway of St. Pancras Way. The information is provided in Appendix D. As the proposed basement is to the rear of the property at a distance of at least 12m from the excavation there will be no significant impact on these services from ground movement.

3.7 Tunnels / London Underground

Further to consultation with the TfL Property Asset Register, there are no tunnels within at least 50m of the site.

3.8 Trees

It has been recommended by arbiculturalists Crown Tree Consultancy, that two trees located at the rear of the back garden; a Wild Cherry of approx. 9.5m height and a Bay Laurel of 14m height should be removed. The existing ground level lowered by approximately 1m. The removal of the trees is understood to be also requested by the owners of 1A Reed's Place.

3.9 Radon

A search by the UK Heath Security Agency/ BGS was obtained for 124 St. Pancras Way. The report indicated the site is not in a Radon affected area. The report is included in Appendix E.

4 Screening

4.1 Introduction

Screening is undertaken as outlined in Section 6.2 of the GSD recommendations. It identifies if there are hydrogeological , surface water land stability issues associated with the proposed development that require detailed analysis and investigation. If there are no significant issues identified in the screening stage, then further stages are not required. The report follows the flow charts set out in CPG: Basements 2021 (CPG) and makes reference to the GSD.

4.2 Subterranean (Groundwater) flow

This section answers questions in Figure 12 of CPG:

The source of information for the assessment of subterranean flow is from the GSD and the ground investigation undertaken at 124 St. Pancras Way (Appendix C).

Table 4.1: Responses to Figure 12, CPG

Question	Response	Action required
1a. Is the site located directly above an aquifer?	No. The site is underlain by the Possible Head over the London Clay Formation. This is considered an unproductive stratum.	None
1b. Will the proposed basement extend beneath the water table surface?	No The shallowest mapped stratum is the London Clay Formation, which is an unproductive stratum	None
2. Is the site within 100m of a watercourse, well, or potential spring line?	No. There are no known watercourses, wells or spring-lines within 100 m of the site[b,c].	None
3. Is the site within the catchment of the pond chains on Hampstead Heath?	No. The site is not within the catchment of the ponds [b]	None

Question	Response	Action required
4. Will the proposed basement development result in a change in the proportion of hard surfaced/paved areas?	No The garden is currently paved	None
5. As part of site drainage, will more surface water than at present be discharged to ground (e.g., via soakaways and/or SUDS)?	Soakaways are not likely to prove effective in the London Clay due to low infiltration rates.	None. Due to the geology of the LCF, soakaway drainage will not be suitable
6. Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond or spring lines?	No.	None

a. Camden Geological, Hydrogeological, and Hydrological Study, Arup, 2010. (Fig. 8).
b. Camden Geological, Hydrogeological, and Hydrological Study, Arup, 2010. (Fig. 11).
c. Camden Geological, Hydrogeological, and Hydrological Study, Arup, 2010. (Fig. 14).

4.3 Non-technical Summary Groundwater Flow

In summary, the site is underlain by the relatively impermeable London Clay Formation, which is an unproductive stratum, and there is therefore no anticipated groundwater table or general flow to be affected by basement construction.

4.4 Slope / Land Stability

This section answers questions posed by Figure 2 in CPG.

Table 4.2: Responses to Figure 13, CPG

Question	Response	Action required
1. Does the site include slopes, natural or man-made, greater than about 1 in 8?	No. The site area is level at approximately 30 m AOD	None
2. Will the proposed re-profiling of the landscaping at site change slopes at the property boundary to greater than about 1 in 8?	No.	None
3. Does the development neighbour's land including railway cuttings and the like with a slope greater than about 1 in 8?	No No railway is present within 500m of the site	None.
4. Is the site within a wider hillside setting in which the general slope is greater than about 1 in 8?	No.	None
5. Is the London Clay the shallowest stratum on site?	Possible Head deposits overlie London Clay which is present from 2.1m bgl but above the basement depth.	Determine heave and ground movement from the excavation of the soil and construction of basement walls.

Question	Response	Action required
6. Will any trees be felled as part of the proposed development and/or are any works proposed within any tree protection zones where trees are to be retained?	A Wild Cherry of 9.5m height and a Bay Laurel of 14m height are located at the rear of the back garden. It is recommended by an arboriculturist that these trees should be removed. There is no TPO on these trees	Liaison with neighbour at 1A Reed's Place
7. Is there a history of shrink/swell subsidence in the local area and/or evidence of such at the site.	No records.	Investigation and assessment
8. Is the site within 100 m of a watercourse or a potential spring line?	No [a,b].	None
9. Is the site within an area of previously worked ground?	No. Historical mapping shows no change in land use from at least 1882 to the present day.	None
10. Is the site within an aquifer?	No. The site is underlain by the London Clay. Formation. This is considered an unproductive stratum	None
11. Is the site within 50m of the Hampstead Heath Ponds?	No.	None

Question	Response	Action required
12. Is the site within 5 m of a highway or pedestrian right of way?	The site fronts directly onto St Pancras Way, however the basement excavation is at the rear of the property, some 9.6m from the highway and is outside the zone of influence	None.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	The proposed works include the excavation of material to the rear of the existing lower ground floor and is part of a terrace of houses, and therefore the effect of heave in the underlying London Clay due to basement excavation will need to be considered	A ground movement assessment will be undertaken to assess impact (Burland Damage Assessment) as a precaution for No. 124 and 128 St Pancras Way. However No 124 is also owned by the owner of 126 and is planning to construct a similar size basement
14. Is the site over (or within the exclusion zone of) any tunnels?	No.	None.

a. Camden Geological, Hydrogeological, and Hydrological Study, Arup, 2010. (Fig. 8).
b. Camden Geological, Hydrogeological, and Hydrological Study, Arup, 2010. (Fig. 11).
c. Camden Geological, Hydrogeological, and Hydrological Study, Arup, 2010. (Fig. 14).
d. Groundsure Report (Appendix C) September 2016

4.5 Non-technical Summary Land Stability

The basement excavation will result in unloading of the London Clay Formation at depth which may result in heave movements. The construction of the basement will increase the differential depth of foundations between the site and neighbouring properties. However, the basement will be constructed to the rear of the properties which will reduce the ground movement impact on the neighbours The impact assessment will assess potential damage caused by ground movements to adjacent properties and will recommend measures to mitigate such movements.

4.6 Surface Water and Flooding

Table 4.3: Responses to Figure 3, CPG4

Question	Response	Action required
1. Is the site within the catchment of the ponds chains on Hampstead Heath?	No.	None
2. As part of the proposed site drainage, will surface water flows (e.g., volume of rainfall and peak run-off) be materially changed from the existing route?	No. The rear garden is currently paved, and the proposed basement will therefor result in no increase in the amount of hardstanding.	None
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	No. The garden is currently paved	None
4. Will the proposed basement result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?	No.	None
5. Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No. The proposed excavation would remove a large proportion of the Made Ground that may be present on site and as such will not impact on water quality.	None
6. Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example because the proposed basement is	No EA surface water flooding maps indicate the site to be within Flood Zone 1 (less than 1 in 1000 annual probability of a flood event). It is noted that St Pancras Way did not flood	None

below the static water level of nearby surface water feature.	during the significant flooding events of 1975 and 2002, and therefore the risk of flooding is considered to be relatively minor.	

4.7 Non-technical Summary Surface Flow and Flooding

In summary the proposed development will not increase the proportion of impermeable surfaces. In addition, the site is not known to be at risk of flooding. The surface water and flooding assessment by Croft Engineers is included in Appendix G.

5 Scoping

5.1 Introduction

This section considers the output from the screening survey where further actions are required. It considers the scope of information required in addressing these actions and what the potential impacts are of the basement construction. The existing ground conditions and the location of the basement can be summarised in a conceptual site model as indicated in Figure 5.1.

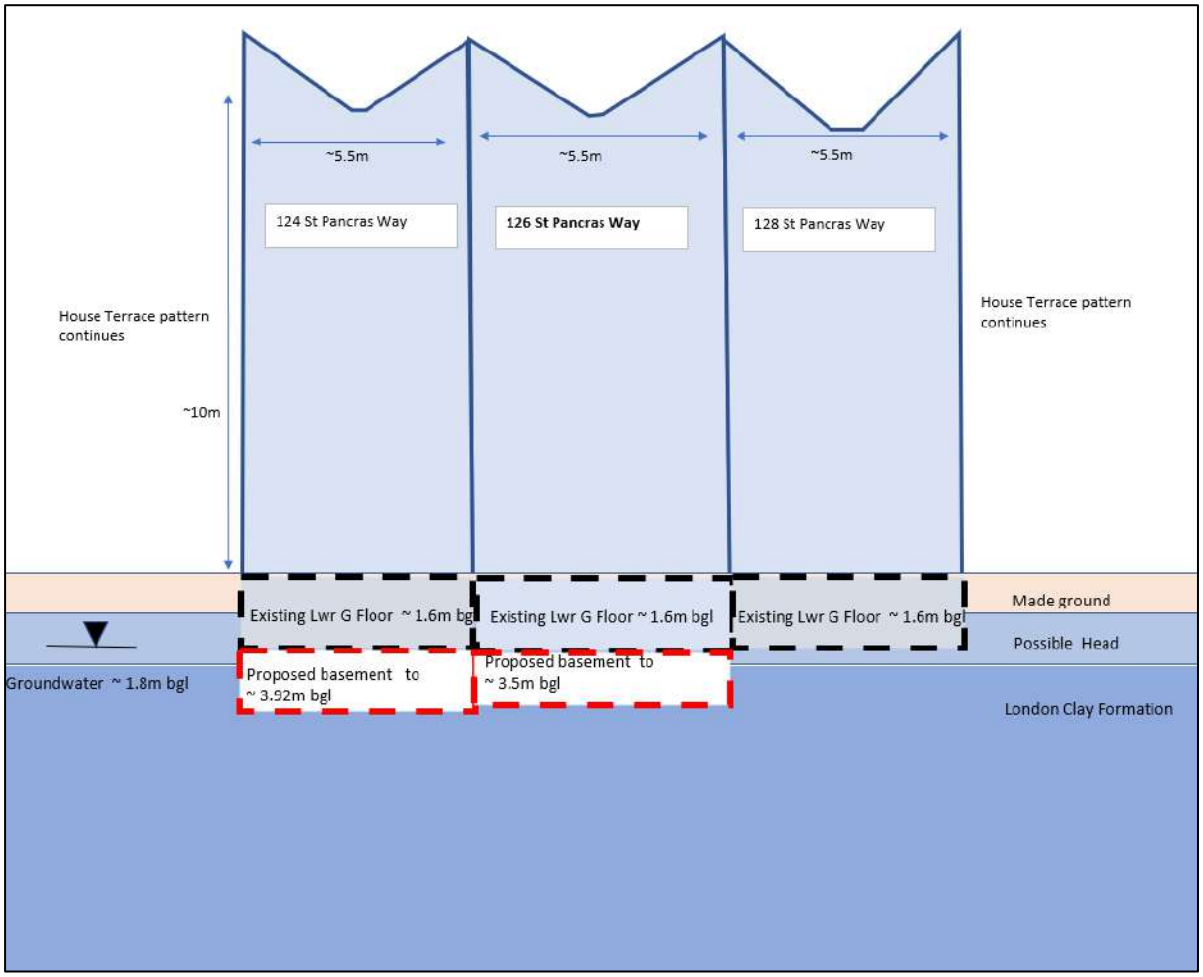

Figure 5.1 Conceptual Site Model (Not to scale)

As indicated in a previous submission to LBC by Card Geotechnical Ltd (CGL) for 124 St Pancras Way the basement will not have a significant impact on groundwater flow or level in the vicinity of the site.

Based on observations of perched water at the site during the site investigation and subsequent monitoring, the basement excavation is expected to encounter perched water within the granular Possible Head Deposits (0.25m thick at a depth 1.8m). It was observed by CGL during the ground investigation that the infiltration of the perched water rate into WS01 appeared to be relatively slow, of the order of 10-8 m/s. As such, it is considered likely that a limited volume of water may be encountered by the excavation and that this can be adequately accommodated with pumping from locally excavated sumps. The design of perched water control measures should be undertaken by a suitably qualified and experienced contractor. The information from the work on the basement at124 will help to confirm any groundwater issues for 126.

There is no requirement for groundwater mitigation measures in terms of the basement impact for groundwater due to the London Clay being an unproductive strata, as summarised in Table 5.1 taken from Table 4.1

Table 5.1 Summary of Scoping Requirements - Hydrogeology

Screening questions of concern - Hydrogeology	Potential Impact	Mitigation
None	None	None

The land stability issue relates to the ground movements resulting from the excavation within the London Clay Formation which will be addressed by a ground movement analysis as summarised in Table 5.2 taken from Table 4.2.

Table 5.2 Summary of Scoping Requirements – Land Stability

Screening questions of concern – Land Stability	Potential Impact	Mitigation
5. Is the London Clay the shallowest stratum on site?	Possible Head deposits overlie London Clay which is present from 2.1m bgl but above the basement depth.	Determine heave and ground movement from the excavation of the soil and construction of basement walls.
6. Will any trees be felled as part of the proposed development and/or are any works proposed	A Wild Cherry tree of 9.5m height and a Bay Laurel of 14m height are located at the rear of the back garden. It is	The proposed basement will be at an approximate depth of

Screening questions of concern – Land Stability	Potential Impact	Mitigation
within any tree protection zones where trees are to be retained?	recommended by an arboriculturist that these trees should be removed.	3.5m begl below the influence of desiccation from the trees.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	The proposed works include the excavation of material to the rear of the existing lower ground floor and is part of a terrace of houses, and therefore the effect of heave in the underlying London Clay due to basement excavation will need to be considered.	A ground movement assessment will be undertaken to assess impact (Burland Damage Assessment) as a precaution for No. 122, 124 and 126 St Pancras Way.

Table 5.3 Summary of Scoping Requirements – Surface flow and flooding

Screening questions of concern – Surface flow and flooding	Potential Impact	Mitigation
None	None	None

6 Site Investigation/ Additional Assessments

6.1 Site Investigation

An intrusive investigation was undertaken by CGL in October 2016 and comprised one window sampler borehole (WS1) and foundation inspection pits at 124 St Pancras Way. The borehole was undertaken in the rear garden, with ground level at the borehole position raised approximately 0.2m above the general garden ground level. The location of the exploratory holes is shown in Appendix C. TP1 was abandoned due to poor access and suspected Asbestos Insulation Board within the cupboard in which the pit was proposed. The ground investigation was undertaken in general accordance with BS 1377:19906 and BS 5930:20157.

The site investigation comprised:

- 1 No. Inspection Pit to 1.40m
- 1 No. Window sampler borehole to 8.65 m bgl.
- The in-situ strengths determined by standard penetration testing and hand shear vane testing
- Disturbed soil samples were obtained from the exploratory holes for laboratory geotechnical testing and further examination.
- A 20 mm diameter groundwater monitoring well was installed to 4.2 m
- 5 No. hand dug trial pits
- Groundwater monitoring on two occasions after the site investigation
- Contamination laboratory testing including SOM, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium and zinc, TPH, PAHs, Phenols, Cyanide and Asbestos Screen and Waste Acceptance Criteria.
- pH and Sulphate tests (BRE SD1)
- Geotechnical Lab testing (plasticity, water content)

The CGL factual ground investigation information and relevant historical borehole records are included in Appendix C.

7 Ground and Groundwater Conditions

7.1 Stratigraphy

The ground conditions, based on the CGL records are summarised in Table 7.1 below.

Table 7.1 Summary of ground conditions

Stratum	Description	Depth at top of Strata (mbgl)	Approx. level (m AOD)*	Thickness of Stratum (m)	SPT N Values
Made Ground	Paving slabs over pale orange, brown fine to coarse sand. Over Loose dark brown silty gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of brick, flint and rare concrete. Slightly ashy.	0.0	30.0	1.0	
Possible Head Deposits	Firm dark brown with occasional orange, brown mottling silty CLAY. Over Medium dense dark orange, brown slightly sandy clayey angular to subrounded fine to coarse GRAVEL of flint. Sand is fine to coarse.	1.0	29.0	1.15	6
Weathered London Clay Formation	Firm brown with occasional blue grey mottling silty CLAY. Becoming Firm to stiff very closely to extremely closely fissured dark brown with blue grey and orange, brown mottling silty CLAY. Fissures are closed, planar and unpolished with a 'blocky' fabric. Fine to coarse sand sized selenite crystals noted	2.1	27.90	1.35 (proven)	6 to 16

* This is an approximate ground level based on OS mapping adjacent spot heights .

7.2 Groundwater

Groundwater was not reported during drilling to a depth of 8.45m. Subsequent monitoring on the 15/03/17 and 31/03/17 indicated groundwater to the minimum depth of 1.21 or an approximate level of 28.79 m AOD. The shallow depth of the groundwater is considered to represent localised perched groundwater and not regional groundwater.

Table 7.2 Groundwater Monitoring

Date of Monitoring	Groundwater (depth metres below ground level)	Approximate Level (m AOD
10/16	Borehole dry to base of borehole at 8.45 m	21.50
15/03/17	1.86	28.14
31/03/17	1.21	28.79

A rising head permeability test was undertaken on 31 March 2017 by CGL, utilising the monitoring well installed in the window sampler borehole. The water in the borehole was bailed to a depth of 2.21m bgl (below the base of the granular Possible Head Deposits) and the water levels was then measured at regular intervals, with a total test duration of 35 minutes.

The water level recovered to 2.18m bgl after 15 minutes, and then stabilised at this depth until the end of the test. A permeability for the screened soils of 10^{-8} m/s has been calculated, indicating therefore that recharge is very slow. It is considered that groundwater control can be managed by localised sump pumps during construction.

7.3 Consideration of the individual stratum, with reference to the basement.

The level of the basement excavation will be approximately 3.5m below existing ground level at circa 26.5m AOD.

The plot of cu against level includes the results of HSV testing and cu values correlated from SPT 'N' values (based on established correlations). CGL commented that the HSV and raw SPT 'N' values are not in agreement. HSV values gave consistently higher values than the raw SPT 'N' derived cu values. However, during the site investigation logging it was considered by CGL that the consistency of the soils agreed with the HSV test results, and on this basis, the raw SPTs are considered to be unrepresentatively low. It is possible that the low SPT 'N' values are due to a high energy ratio (er) of the drilling rig used (er of 95%). If corrected (SPT N_{60} are adopted the derived cu values would be in good agreement with the HSV tests results. This approach has been used for evaluating the geotechnical design parameters (see Section 7.4). The N_{60} values are used to give an equivalent Cu value based on the high to very high plasticity, from Atterberg Limits testing where N_{60} x *f1* is 4.5 (after Stroud and Butler 1975), which is shown graphically in Figure 7.2.

An overall ground model is illustrated in the conceptual model in Section 5.

7.3.1 Made Ground

Made Ground was found to comprise paving slabs set in sand underlain by loose silty gravelly sand with frequent brick. An effective angle of friction of 30^0 is assumed for the granular material.

A preliminary assessment by CGL showed that the Made Ground for off-site waste characterisation purposes indicates that the Made Ground in the rear garden is not hazardous. Waste acceptance criteria (WAC) testing indicates that the Made Ground is suitable for disposal at an inert waste facility, subject to confirmation during the works that the Made Ground is chemically consistent with No. 124. The results of the WAC testing are included in Appendix C.

No visual or olfactory evidence of contamination was noted in the natural soils and laboratory testing did not identify contamination. On this basis, the natural soils may be classified as inert for off-site disposal.

7.3.2 Possible Head Deposits

A HSV test within the cohesive Possible Head Deposits indicated a cu value of 56kPa, which is consistent with the relative consistency of 'firm' noted during intrusive works. A single SPT 'N_{60}' value of 9.5 was recorded in the cohesive Possible Head Deposits, correlating to a Cu value of 43kPa.

Laboratory testing identified a natural moisture content of 34%, Plastic Limit of 22%, Liquid Limit of 69% and Plasticity Index of 47%, corresponding to a clay of 'high plasticity as shown in the Atterberg Chart in Figure 7.1. This gives an effective angle of friction of 21% (BS 8004 2015).

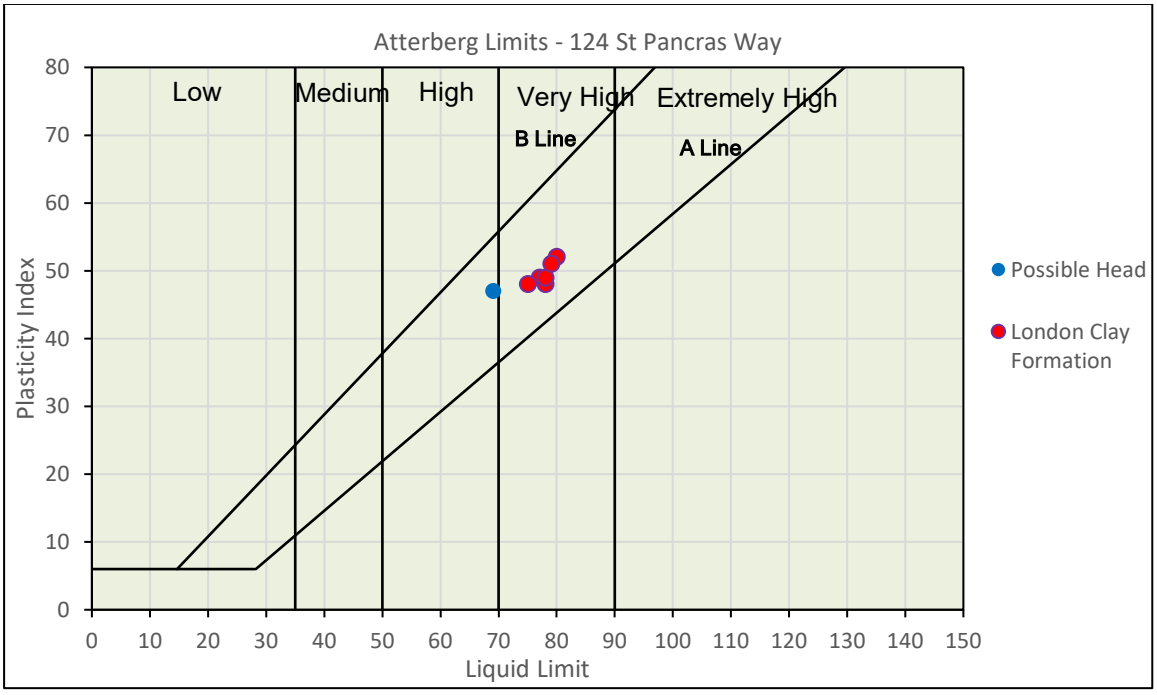

Figure 7.1 Atterberg Chart

7.3.3 London Clay Formation (LCF).

Interpretation of the CGL SPT N values of the LCF is based on a 95% energy ratio to give N_{60} values. Borehole WS1 indicates the LCF is weathered to a depth of 8.45m. The plasticity is very high as shown in the Atterberg Chart in Figure 7.1, with an average Plasticity Index from 6 No. tests being 49%. This gives an effective angle of friction of 21% (BS 8004 2015).

HSV testing in the LCF indicated cu values in the range of 54kPa to 58kPa, increasing to between 70kPa and 108kPa (generally increasing with depth). These values are consistent with the firm, and firm becoming stiff relative consistencies noted during the intrusive works for LCF. SPT 'N_{60}' values in the LCF show reasonable approximation to HSV values shown in Figure 7.2.

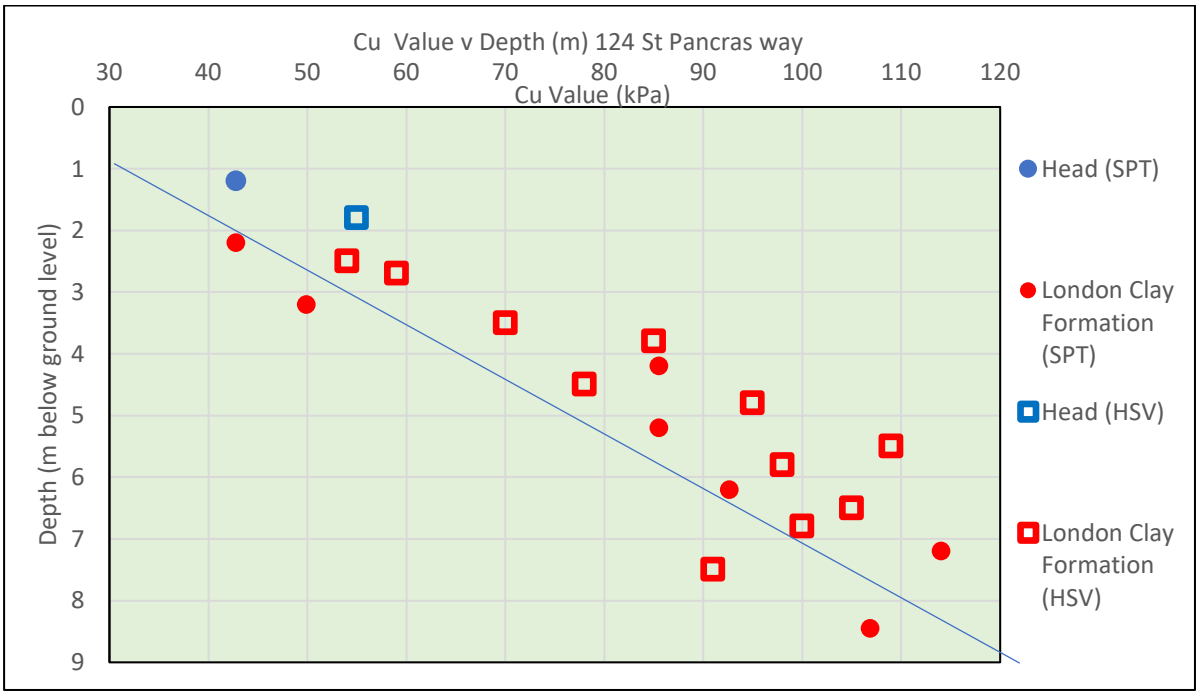

Figure 7.2 Cu value from HSV and SPT N_{60} against depth

The deformation moduli (E_u and E') of the LCF were cautiously estimated from the relationship between Cu and Eu after Burland et al. 2001 by CGL and this approach has been adopted here.

7.4 Sub –surface Concrete

The results of lab testing for sulphate and pH are summarised below in Table 7.3. The full analysis is included in Appendix D.

Table 7.3 Sulphate and pH categories

Sample depth (m)	Soil Type	Total Sulphate as S04	Sulphate S04 2:1 extract	pH	Sulphate Class (DS)	ACEC Class
0.5-0.8	Made Ground		0.24 g/l	7.1	DS-1	AC1s
1.5	Possible Head	850 mg/kg	0.24 g/l	7.9	DS-1	AC1s
2.5- 5.0	London Clay Formation	0.11 -2.2 mg/kg	0.54 – 3.0 g/l	7.6 0 7.9	DS-3	AC2s

It is recommended that an overall design sulphate class of DS-3 and an Aggressive Chemical Environment for Concrete (ACEC) class of AC2s is adopted for the basement slab and underpinning.

7.5 Characteristic values of geotechnical parameters

The parameters used for purposes of settlement / heave modelling in Section 7 previously adopted by GCL and accepted by LBC are shown in Table 7.4.

Table 7.4 Geotechnical Design Parameters

Strata	Design Level m bgl	Class	Undrained Cohesion Cu (kPa)	Effective angle of shearing resistance MPa	Bulk unit weight kN/m^3	Deformation Modulus E_u (E') MPa	K_a	K_p	K_o
Made Ground	0	n/a	n/a	30**	18**	(10)*	0.35	2.9	0.69
Possible Head Deposits	1.0	CM	30 + 9z	21**	19**	20 + 6z (15 + 4.5z)*	0.49	2.1	0.69
London Clay Formation	2.1	CM	45 + 9z	21**	20**	26 + 6z (21 + 4.5z)**	0.49	2.1	0.69

Notes:
* Look 2014
**BS8004 2015

a. z = depth below upper surface of the stratum
b. Based on 600 Cu - Burland, Standing J.R., and Jardine F.M. (eds) (2001), Building response to tunnelling, case studies from construction of the Jubilee Line Extension London, CIRIA Special Publication 200.
c. Based on 0.75Eu - Burland, Standing J.R., and Jardine F.M. (eds) (2001), Building response to tunnelling, case studies from construction of the Jubilee Line Extension London, CIRIA Special Publication 200.

Active and Passive pressure coefficients k_a and k_p from BS EN 1997-1 Annex C. k_o from Brooker and Ireland 1965
The parameters in Table 7.2 are unfactored (Serviceability Limit State) and considered to be 'a cautious estimate.'
Localised perched water is assumed to be at 1.2 m bgl or ~28.80 m AOD.

8 Ground Movement Assessment

8.1 Outline Geotechnical Design Parameters

Refer to Section 7.5 for geotechnical parameters, which are considered to be a cautious estimate of characteristic values in accordance with BS EN1997 and have been previously accepted by LBC based on an earlier BIA by CGL for the adjacent property owned by the same owner.

8.2 Outline Temporary and Permanent Works Proposals

The temporary and permanent works proposals have been prepared by BCSD and are presented in Appendix B.

8.2.1 Presumed Bearing Resistance

The foundation formation level of the basement will be at approximately 3.5 m below existing ground level. At the formation level an undrained shear strength of the soil (Assumed CM) has been evaluated as 30 +9z kPa or ~62 kPa. Below the proposed patio the undrained shear strength will be 30 + 9z 1.4 or ~43 kPa.

Wall loads have been calculated by BCSD to be between 40kN/m to 135kN/m (combined DL + LL). The wall load is placed on a foundation width of 1.0 to 1.5m giving a bearing pressure of between 40 and 135 kPa for the underpin walls for the proposed basement. The wall loading for the proposed patio are 35kN/m over a foundation of 1.0m or a bearing pressure of 35 kPa as shown in Drawing J460- 126 St Pancras Way - Foundation Loading - 01 from BCSD in Appendix A.

In consideration of net loading allowing for the removal of 1.4 and 3.5 m of soil (indicated on Figure 2.2 as the maximum depth of soil removed at the basement location) in the proposed basement of 70 kPa (based on a unit weight of 20 kN/m^3) below the ground floor. This gives a net loading of up to approximately 65 kPa below the basement (135-70 kPa). On the same basis this will be -9.8 kPa below the proposed patio 35-(1.4 x 20) =7 (kPa).

A net foundation loads can be accommodation by the indicated shear strength of the soil without significant (<25 mm) settlement. The actual ground movement will however be determined from the net effect from the removal of soil during the basement excavation causing heave and the subsequent effect of construction which is considered in Section 9.

8.2.2 Effect of Heave from soil excavation

During the basement excavation there will be removal of 3.5m of soil below the proposed basement and up to 1.4m below the proposed patio. Dimensions of the excavation is based on Figure 2.2.

The ground model is based on the ground conditions assessment in Section 7. The effects of short term undrained, and long term drained conditions have been considered cumulatively, which is a conservative assessment as a worst case.

The PDisp polygon areas for excavation are shown in Figure 8.1 and the polygon loading areas in Figure 8.2.

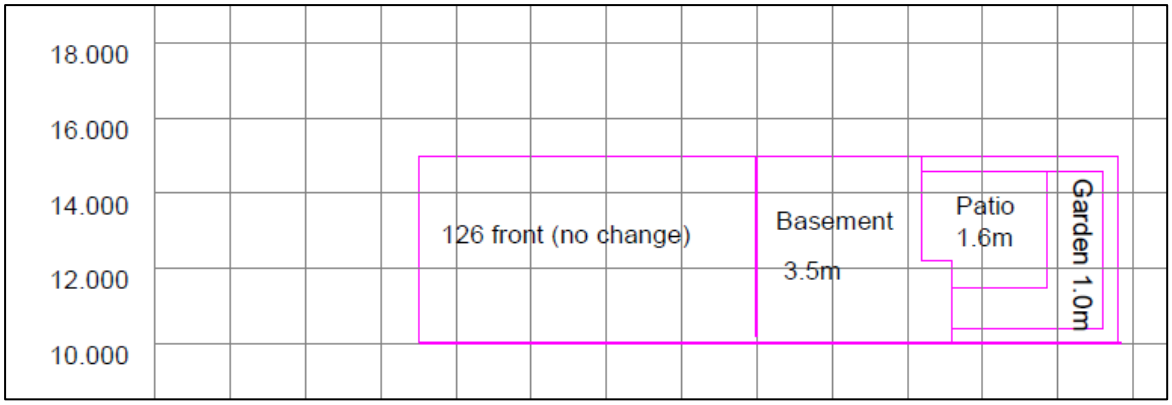

Figure 8.1 Excavation areas and depths

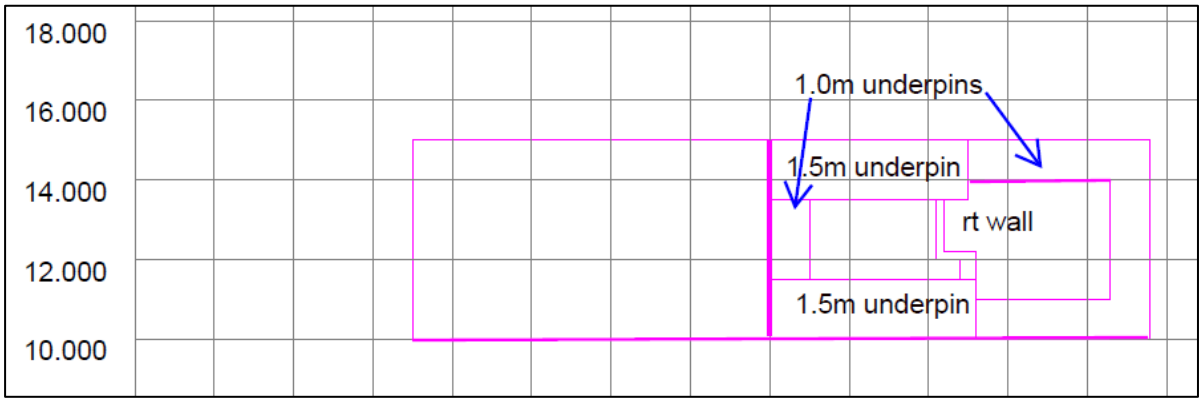

Figure 8.2 Loading areas

The contours of heave from the excavation are shown in Figure 8.3

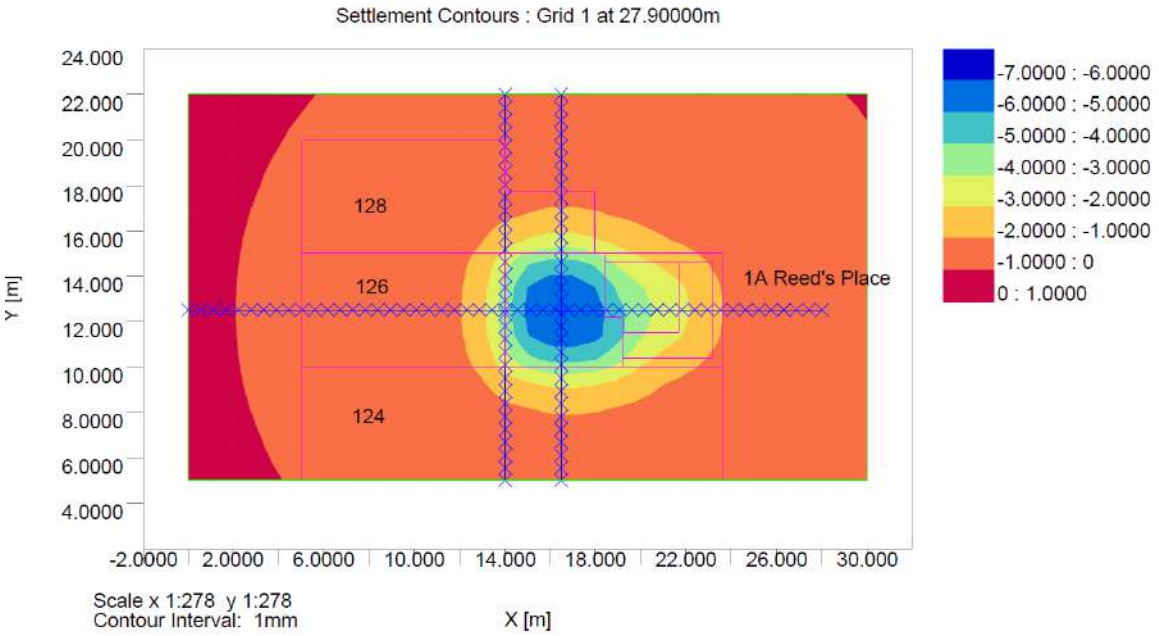

Figure 8.3 Contours of heave- short term undrained condition from excavation

The long and cross sections from the plan in Figure 8.3 are shown in Figures 8.4, 8.5 and 8.6 which have been drawn to intersect the movement for the subject property, No. 124, the closest to the rear elevation of Nos. 122 and 126 at approximate existing foundation level of -2.1m, and the foundation level of – 1.0m for the rear extension to No. 126 respectively. The input parameters are included in PDISP report in Appendix F.

The ground movement has been evaluated using PDisp version 20.12, which shows a maximum heave of up to – 5.4 mm[1] under short term undrained conditions as shown in Figure 8.4 and 8.6.

The maximum heave at the boundary with 122 and 126 along the rear of the main buildings is 1.5mm, this increase to 3mm for the rear extension of No. 126. The maximum heave for between the proposed basement and the subject property boundary is 2.5mm

[1] Note that heave is stated as a negative number in PDisp, but is a positive number in the Ground Movement Assessment in Section 9

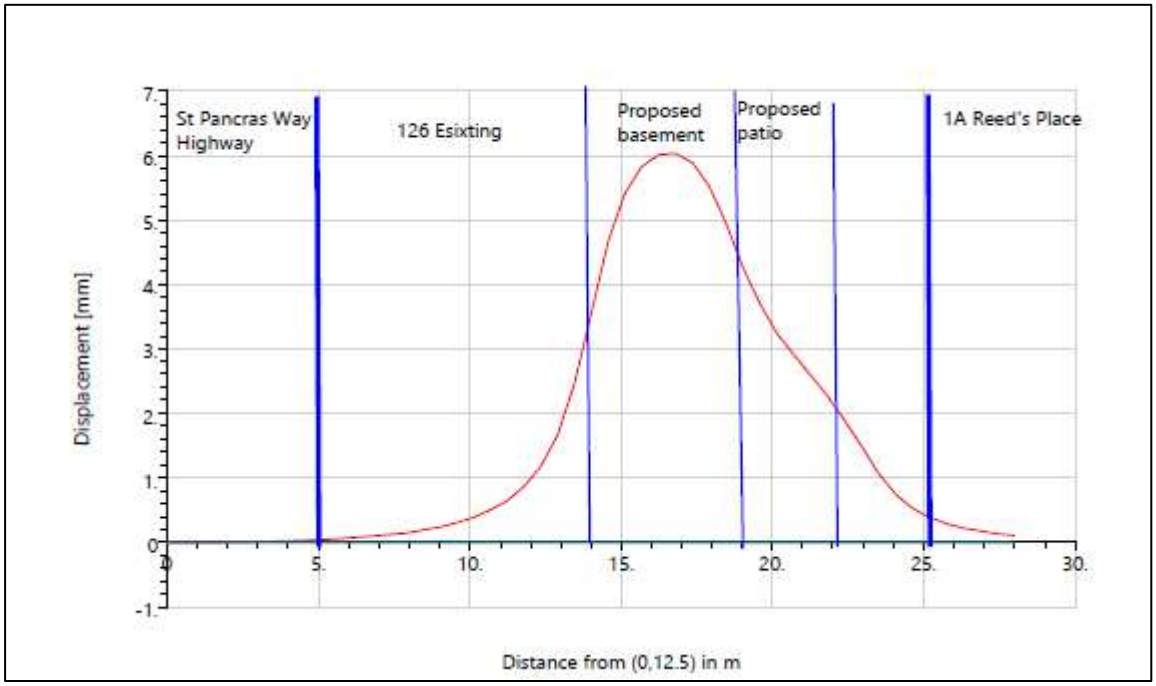

Figure 8.4 Section SW-NE front to back No. 126 short term undrained

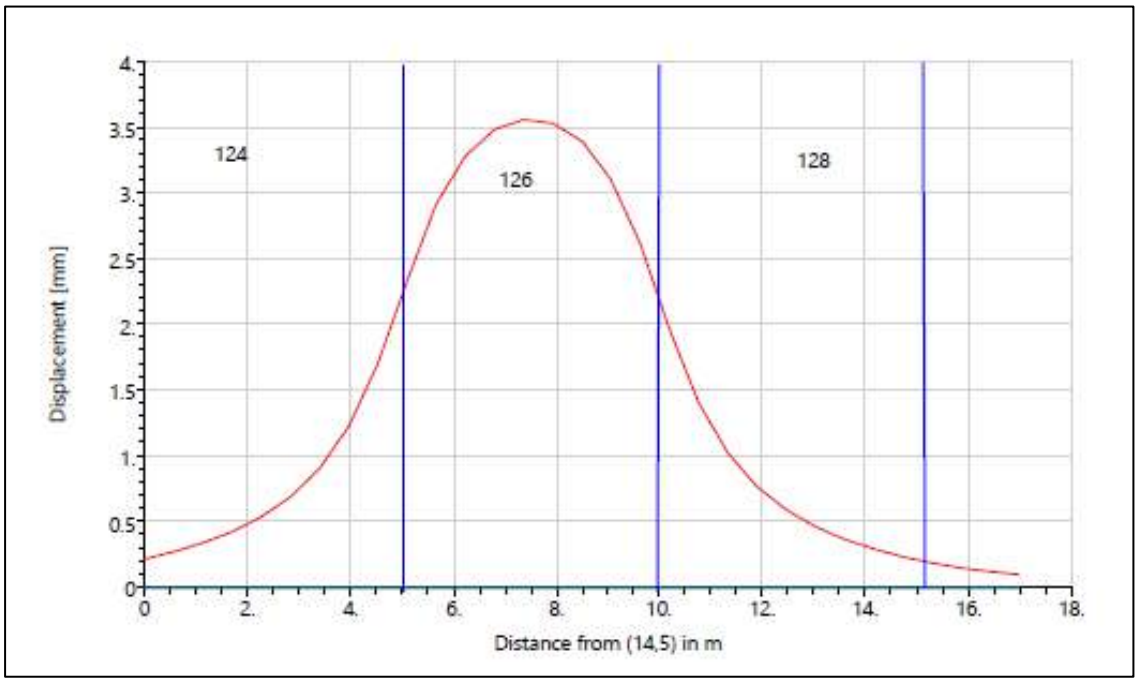

Figure 8.5 Section along rear of 124,126 and 128 short term undrained

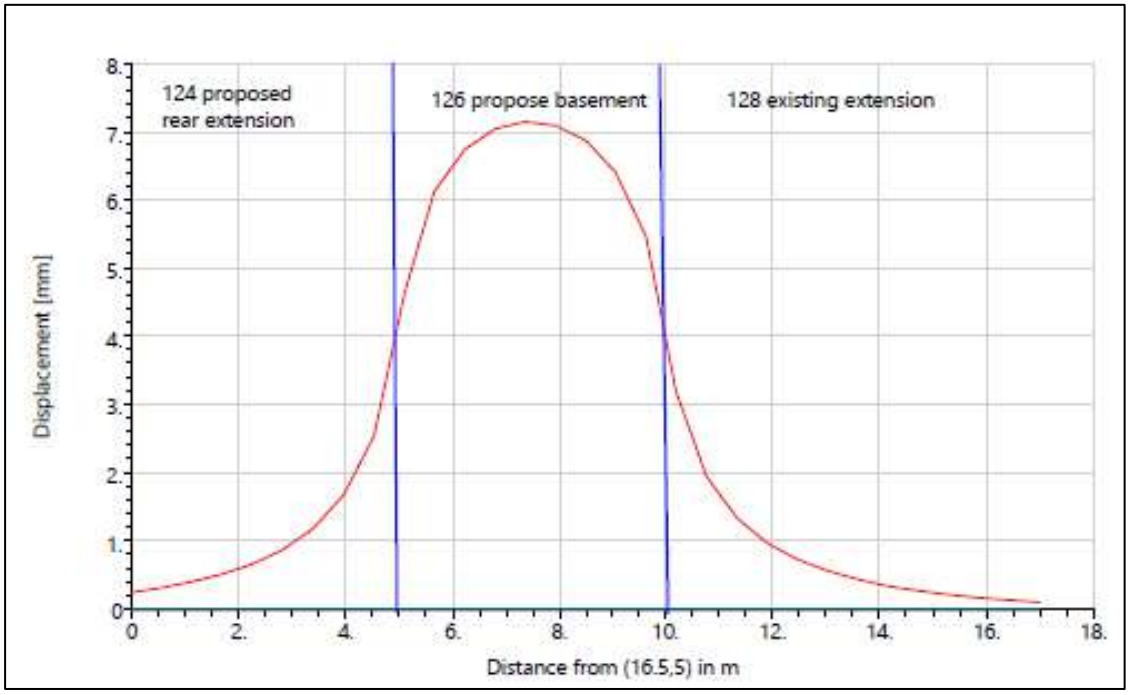

Figure 8.6 Section across rear including extension of 126 short term undrained

Long term drained conditions are shown in Figure 8.7, 8.8, 8.9 and 8.10 where up to 2.5 mm heave and 0.5mm of settlement was determined (Figure 8.8 and 8.10). Long term drained movements are less than 0.5mm at the boundaries of 122 and 126 St Pancras Way (Figure 8.9). There is a maximum heave of 0.4mm at the boundary with the 126 rear extension. The combined movements are discussed further in Section 9 and 10.

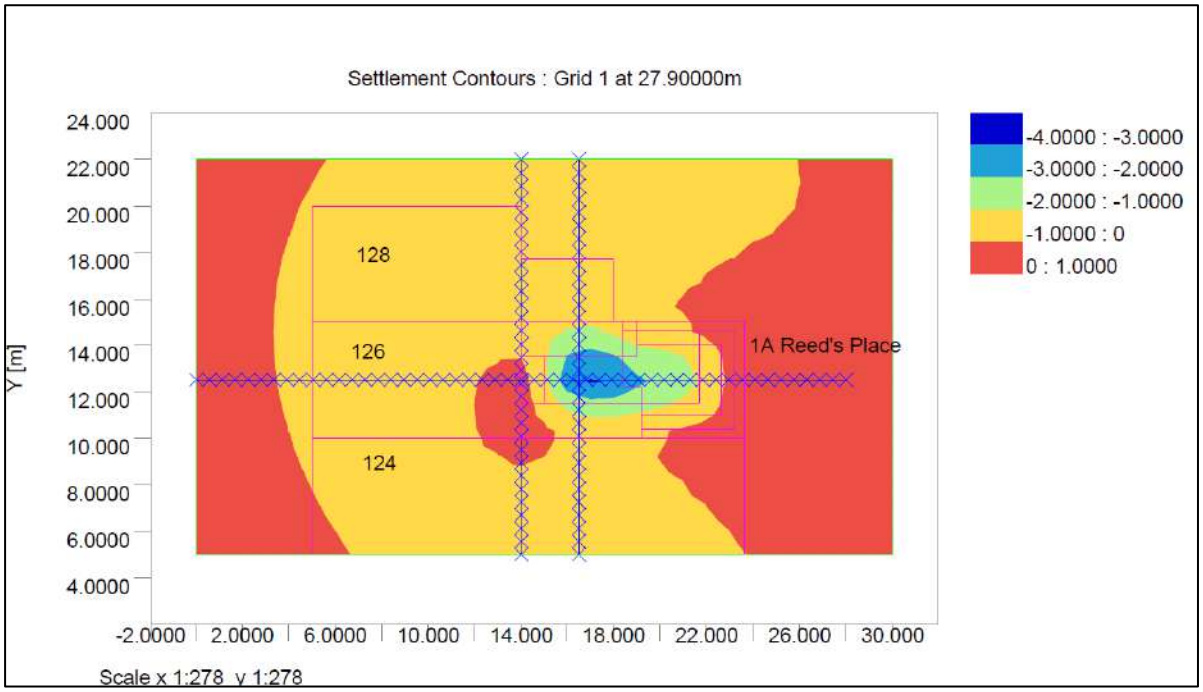

Figure 8.7 Contours of heave/settlement- long term drained conditions - construction

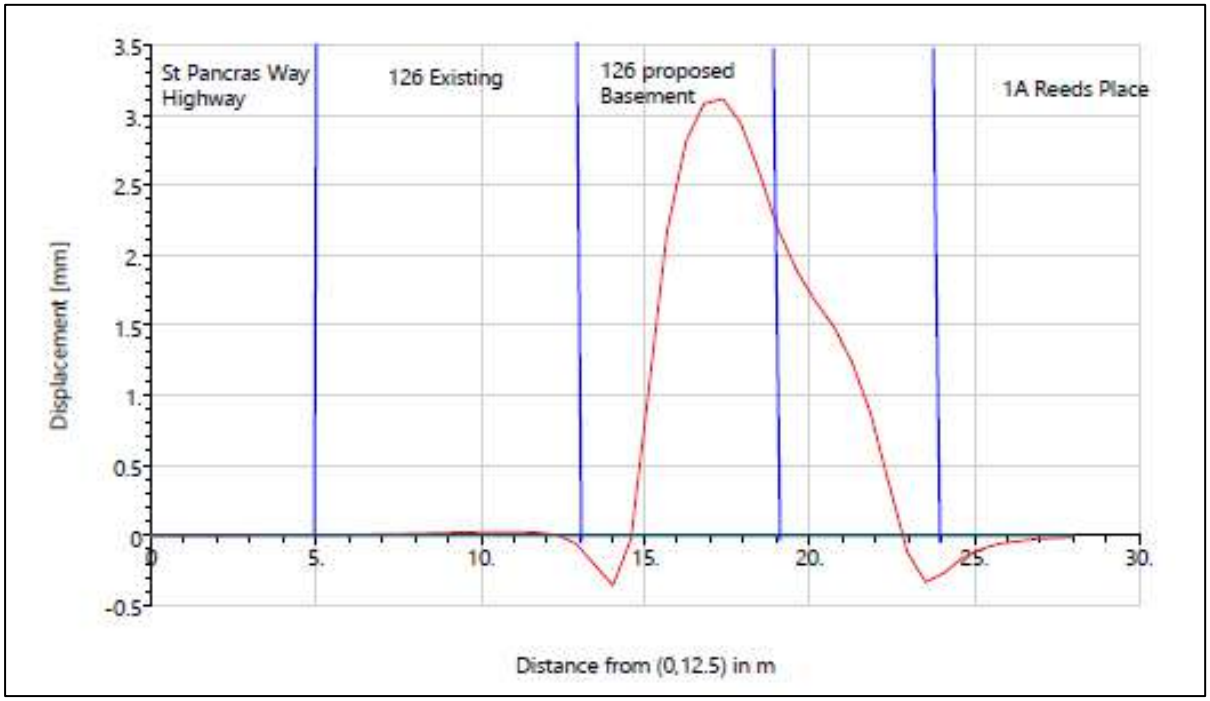

Figure 8.8 Section SW-NE front to back No. 126- Long term drained

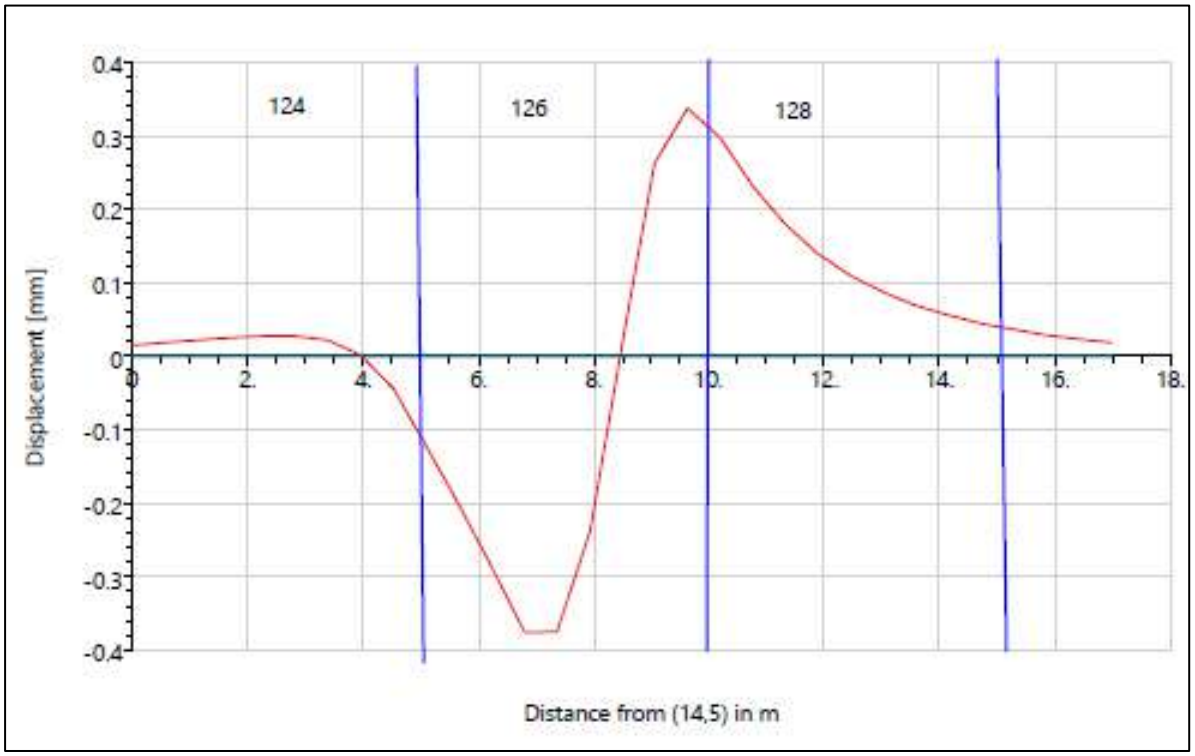

Figure 8.9 Section along rear of 124,126 and 128 long term drained

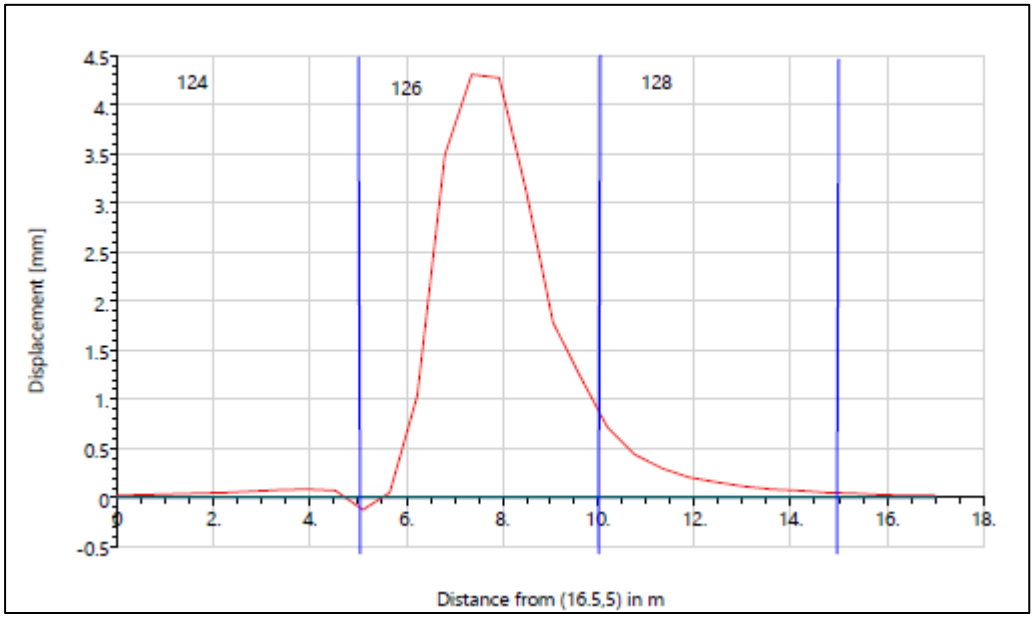

Figure 8.10 Section across rear including extension of 128 long term drained

These models have been used as a basis for the ground movement assessment and damage assessment in Section 9 and 10 respectively. The input report for PDisp is included in Appendix F.

9 Damage Impact Assessment

9.1.1 Introduction

The information obtained from the ground investigation on the soil conditions in relation to the proposed basement construction has been assessed for impacts on existing building structures. The principal impacts are ground movements from the installation and excavation for the basement. These movements are vertical and horizontal movements of the foundation formation level from isostatic readjustment from the excavation and possible vertical and horizontal impacts of existing structures from the basement wall construction.

This section provides an assessment of ground movement that may result from the construction of the basement and to determine how these may affect the adjacent building structures and the highway.

The proposed construction sequence for the basement is summarised in the Drawings by BCSD included in Appendix A.

The ground conditions of the site are essentially the Head over London Clay. A conceptual model of the proposed basement is shown in Figure 5.1.

Ground movements resulting from underpinning are not well documented and there is no specific method for assessing their magnitude. It should be noted that CIRIA C760 (2017), which is often used as a reference for ground movement assessments, is for embedded retaining walls and not concrete underpins.

When underpinning is carried out in a well-controlled manner, movements are typically small. A widely accepted movement from the installation of underpins is for 5mm of horizontal and vertical movement for a single stage underpinning, in addition to the global movements from excavation and subsequent settlement from the imposed loads acting on the underpins.

The ground conditions at 124 St Pancras Way will display heave from excavation and long term movement from the imposed loads, although CIRIA C760 indicate long term movement are limited beyond the excavation as indicated in Figure 9.1.

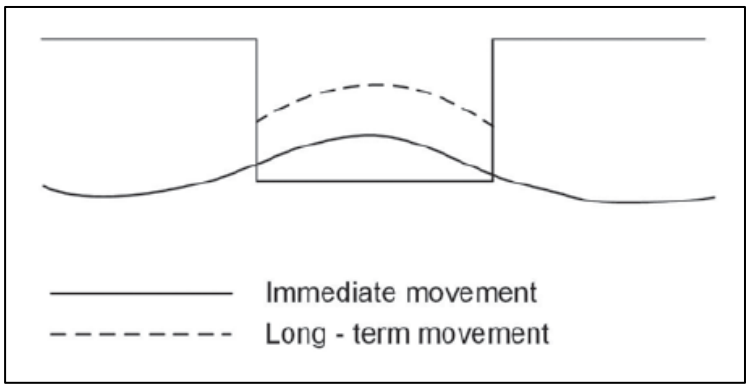

Figure 9.1 Impact of short term immediate undrained and long term movement (From CIRIA C760 Fig 6.10)

The following ground movements have been assessed:

- **Short term vertical heave / settlement movements**: London Clay and is susceptible to short term heave and time dependent swelling on unloading, which will occur because of basement excavation, generating upward ground movements. Short term heave has been analysed by Pdisp in the undrained condition.
- **Long term vertical ground movement in the drained condition:** The net loading / unloading on formation soils will generate ground movement, which could affect adjacent foundations which will happen over a period after construction. This has been modelled with Pdisp. This considers existing stress conditions, and the weight of soil removed and the load from the new basement.
- **Vertical and horizontal movement from underpin installation:** Underpins act as stiff concrete retaining walls, which limits the potential for wall deflection. However, deflections that do occur may generate surface settlements, which could impact adjacent properties.
  From experience within the industry, at least 5mm of additional ground movement (both vertical and horizontal) is typically anticipated for the proposed single stage underpinning.

9.2 Modelling of movements due to vertical and horizontal stress changes

The predicted ground response due to vertical unloading of the ground through excavation for the proposed basement has been modelled using the OASYS program PDisp version 20.12.

PDisp assumes a linear elastic behaviour of the soil and a flexible structure. The finite stiffness of the structures will tend to redistribute or smooth out the movements, when compared to those predicted by PDisp. The settlement calculations therefore represent free field movements unaffected by the stiffness of the structures and are likely to be conservative (i.e., the distortions of the structure would be less than those obtained from the predicted movements).

The analysis was undertaken for the combination of short-term undrained movements and long-term drained movements. The 'hard layer' base to the analysis was taken as 10 m AOD. In addition, it has been assumed for ground modelling that the soil mass is removed in its entirety before the underpins and are placed, when in reality this is an incremental process. When the overall mass of the soil removed relative to the load of the re-imposed structure is considered onto a cohesive soil, this presents a reasonable scenario.

9.2.1 Vertical Movements due to excavation (Undrained/short term)

The excavation is assumed at 3.5m below the existing lower ground floor for the basement and 1.4m below the patio.

A short term (undrained) analysis was undertaken using parameters in Table 7.4 above to determine the heave movements likely to arise as a result of the excavation

(i.e., the movements likely to occur prior to the construction of the new structural elements and the consequential vertical loading of the soil). The analysis indicated a maximum heave of 6 mm occurring centrally within the basement excavation (Figures 8.4, and 8.6, with 2.25 mm at the boundary with 124 and 128 St. Pancras Way main building and 4mm for the 126 extension.

9.2.2 Vertical movements following construction of the new basement (drained/long-term)

The movements of the ground following construction are assessed for the long term (drained) case using parameters in Table 7.4 above.

The PDisp assessment indicates that peak heave movements in the long term again occur under the centre of the basement, with a magnitude of 3.2 mm occurring centrally below the basement (Figure 8.8 and 8.10), with settlement or heave of less than 0.4mm at the boundary with 124 and 128 St. Pancras Way .

9.2.3 Vertical deflection from underpin installation

As indicated above in Section 9.1, 5mm of vertical movement is assumed for installation. The distance behind the wall to which negligible movement occurs has been assumed at 3.5 times the excavation depth after CIRIA C760.

9.2.4 Horizontal deflection from underpin installation

As indicated above in Section 9.1, 5mm of horizontal movement (δ_{max}) at the basement wall is assumed for installation. The distance behind the wall to which negligible movement occurs is assumed to be 4 times the height of the underpin of ~3.5m. δ_h is the difference between δ_{max} and the movement of the far wall of the neighbouring property.

It should be reiterated that the movements due to vertical and horizontal stress changes do not occur in isolation to the other movements resulting from the basement construction process and the actual ground movements, particularly around and beyond the perimeter of the proposed basement, will be from the quality of workmanship during excavation and installation.

10 Damage Category Assessment

10.1 Introduction

The calculated ground movements have been used to assess potential 'damage categories' that may apply to neighbouring properties due to the proposed basement construction. The methodology proposed by Burland and Wroth and later supplemented by the work of Boscardin and Cording has been used, as described in *CIRIA Special Publication 200* and *CIRIA C760*. General damage categories are summarised in Table 10.1 below:

Table 10.1: Classification of damage visible to walls (reproduction of Table 6.4, CIRIA C760)

Category	Description	Approx. Crack Width (mm)	Limiting tensile Strain
0 (Negligible)	Negligible – hairline cracks	<0.1	0.0 – 0.05
1 (Very slight)	Fine cracks that can easily be treated during normal decoration	<1	0.05 – 0.075
2 (Slight)	Cracks easily filled; redecoration probably required. Some repointing may be required externally.	<5	0.075 – 0.15
3 (Moderate)	The cracks require some opening up and can be patched by a mason. Recurrent cracks can be masked by suitable linings. Repointing of external brickwork and possibly a small amount of brickwork to be replaced.	5 -15 or a number of cracks > 3	0.15 – 0.3
4 (Severe)	Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows.	15-25 but also depends on number of cracks	> 0.3
5 (Very Severe)	This requires a major repair involving partial or complete re-building.	> 25 but also depends on number of cracks	

10.2 Damage Assessment Categories for neighbouring properties

Vertical ground movement for sections through 124, 126 and 128 and 128 extension St. Pancras Way are shown in Figures 10.1 to 10.4. For these wall sections, the combined impact of short-term heave and long-term settlement/ heave and installation has been shown. The location of the sections is shown diagrammatically in Figures 8.3/8.7.

Figures 10.5 shows the influence of horizontal strains in accordance with CIRIA 760, with Figure 10.6 and Table 10.2 showing the Damage Assessment Category. Figures 10.1 to 10.6 are included after the report text. The assessment has been based on the limiting tensile strain for Category 1 of a strain of 0.075 %.

Table 10.2: Summary of ground movements and corresponding damage category

Adjacent Property	124 St. Pancras Way	128 St. Pancras Way	128 St. Pancras Way (Rear Extension)	126 St Pancras Way (subject site)
Building width approx.- L (m)	5.5	5.5	2.5	5.5
Building height approx.- H (m)	10	10	5	10
L/H	0.5	0.5	0.5	0.5
max deflection (Δ) in metres (from Figs 10.1-10.4)	0.00175	0.00125	0.0002	0.00175
Δ/L (%)	0.032	0.023	0.005	0.016
εlim	0.075	0.075	0.075	0.075
Δ/L/εlim	0.42	0.30	0.07	0.21
length to negligible horizontal movement - 4x increased wall height (m)	14	14	14	14
δh_{max} (m)	0.005	0.005	0.005	0.005
δh (m)	0.002	0.002	0.0012	0.004
δh/L (%) = εh	0.036	0.0036	0.036	0.030
Damage Category	**<1**	**<1**	**<1**	**<1**

The Damage Assessment category is between 0.5 and 1.0.

There has been no Damage Category Assessment undertaken for 1A Reed's Place as it is beyond the range of any significant ground movement from the basement excavation and construction, shown graphically in Figure 8.3 to 8.10.

10.3 Impact on Highway

Figures 8.4 and 8.8 indicate that there is no ground moment from the proposed basement at the footway or highway of St. Pancras Way, therefore there is no impact from the proposed basement on the footway, highway and associated underground services.

11 Monitoring Strategy

The results of the ground movement analysis show that with good construction control, damage to adjacent structures generated by the assumed construction methods and sequence can be controlled to be within Category 1 ‘slight’ damage. A formal monitoring strategy should be implemented on site in order to observe and control ground movements during construction. The monitoring strategy traffic light approach has been set out in the CMS by BCSD.

The system should operate broadly in accordance with the ‘Observational Method’ as defined in CIRIA Report 185. Monitoring can be undertaken by installing survey targets to the top of the wall and face of the adjacent building. Baseline values should be established prior to commencement of works. Monitoring of these targets should be carried out at regular time intervals and the results should be analysed to determine if any horizontal translation of the wall or tilt/settlement of the neighbouring structure is occurring. Regular monitoring of these targets will allow ground movement trends to be detected early and a mitigation strategy can be implemented to control further movement. Monitoring data should be checked against predefined trigger limits and can also be further analysed to assess and manage the damage category of the adjacent buildings as construction progresses.

It is recommended that a condition survey is undertaken on all adjacent property facades prior to the works commencing and ideally when monitoring baseline values are established. Existing cracks or structural defects should be carefully recorded, documented and regularly inspected as construction progresses.

12 Conclusions

The results of this Basement Impact Assessment are supported by site investigation data and outline construction methods and sequence provided by the structural engineer.

The maximum damage category for the adjacent properties has been calculated to be within Category 1 (slight damage).

An appropriate monitoring regime should be adopted and maintained throughout construction to manage risk and potential damage to the neighbouring structures as construction progresses onsite.

13 References

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BS EN 1997-1 Eurocode 7 Geotech Design Part1 General Rules- inc. corrigendum Feb 2009

BS EN 1997-2 Eurocode 7 Geotechnical Design Part 2 Ground Investigation and Testing – inc. corrigendum 2010

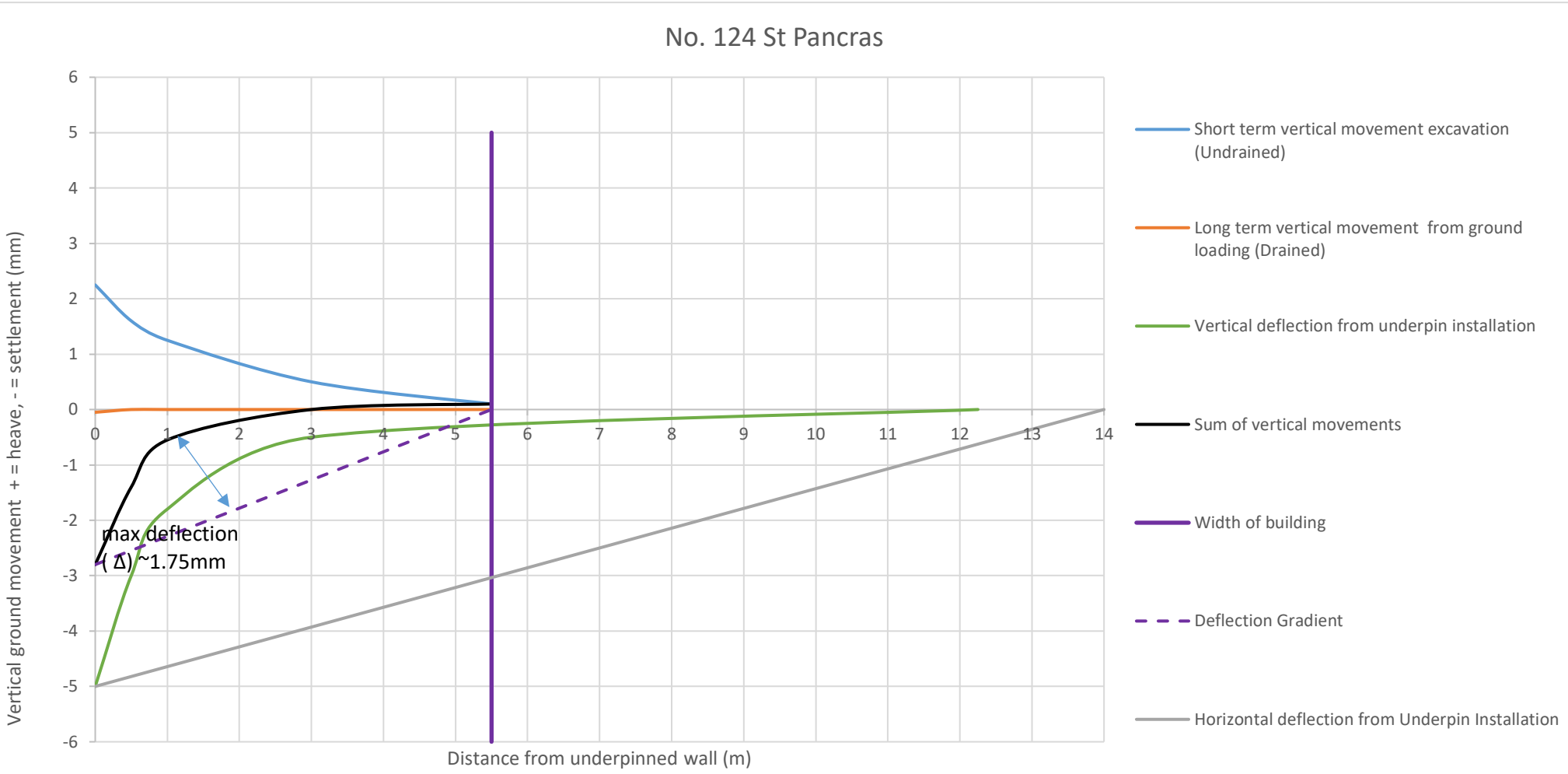
BS 8002: 2015 Earth Retaining Structures

BS 8004: 2015 Code of practice for Foundations

BGS Geology of Britain Viewer (*http://mapapps.bgs.ac.uk/geologyofbritain/home.html)*

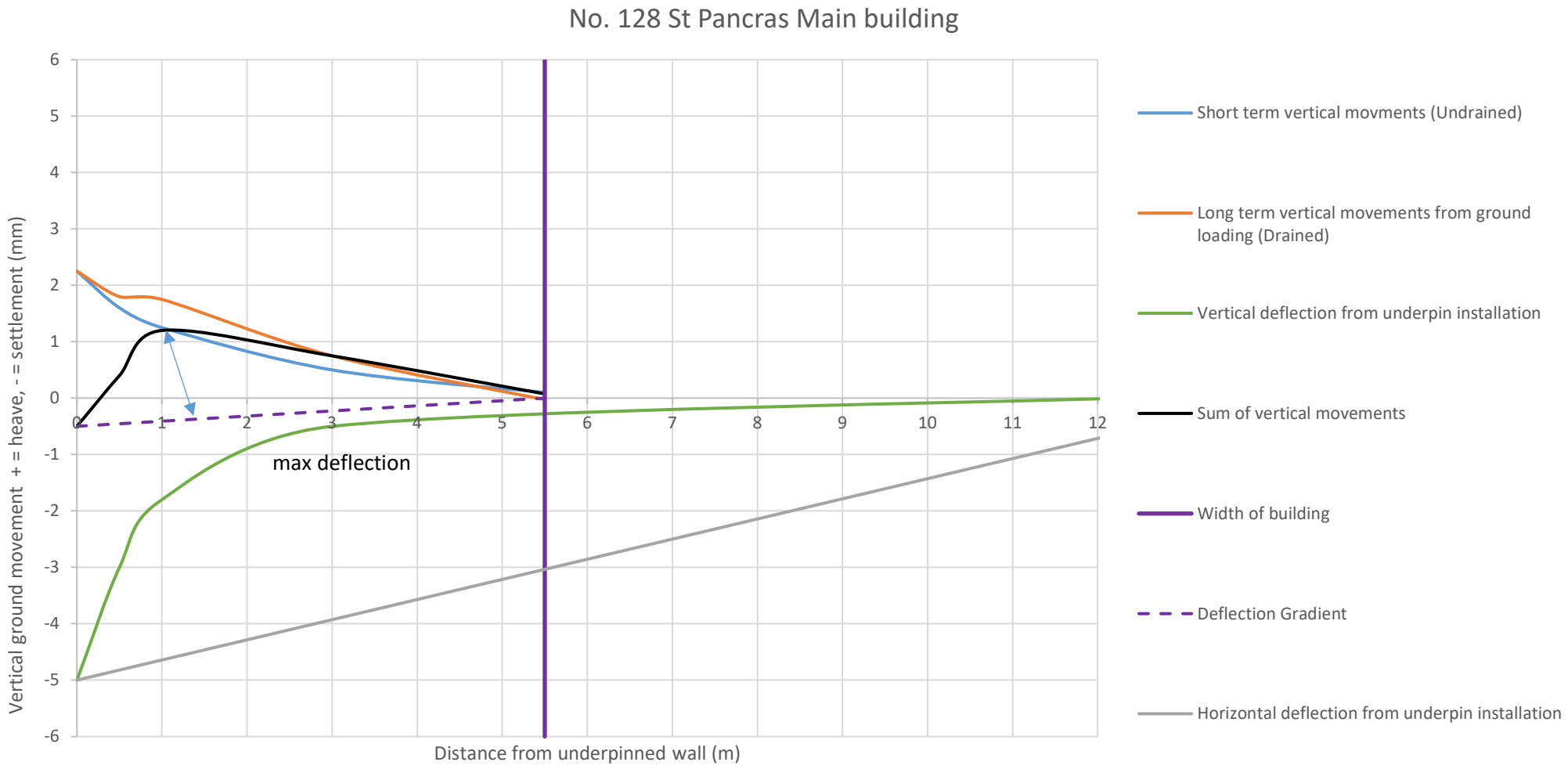
CIRIA C760 Guidance on Embedded retaining wall design 2017.

Figures 10.1 to 10.6



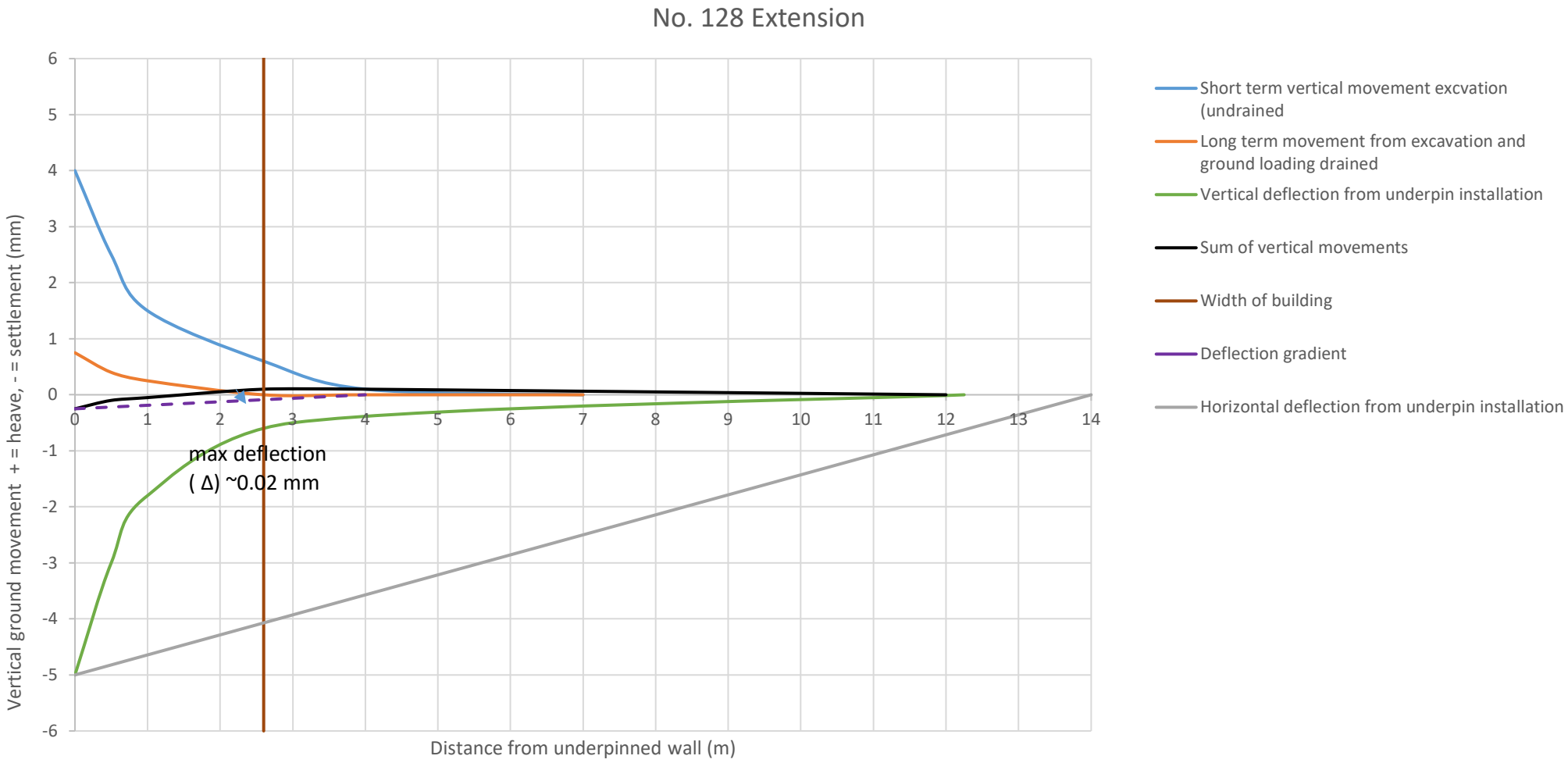
Client		Project
Anya Thomas	MAUND GEO-CONSULTING	126 St. Pancras Way NW1 9NB

Job No.	Title	Figure
MGC-144	Combined Movements 124 St. Pancras Way	10.1



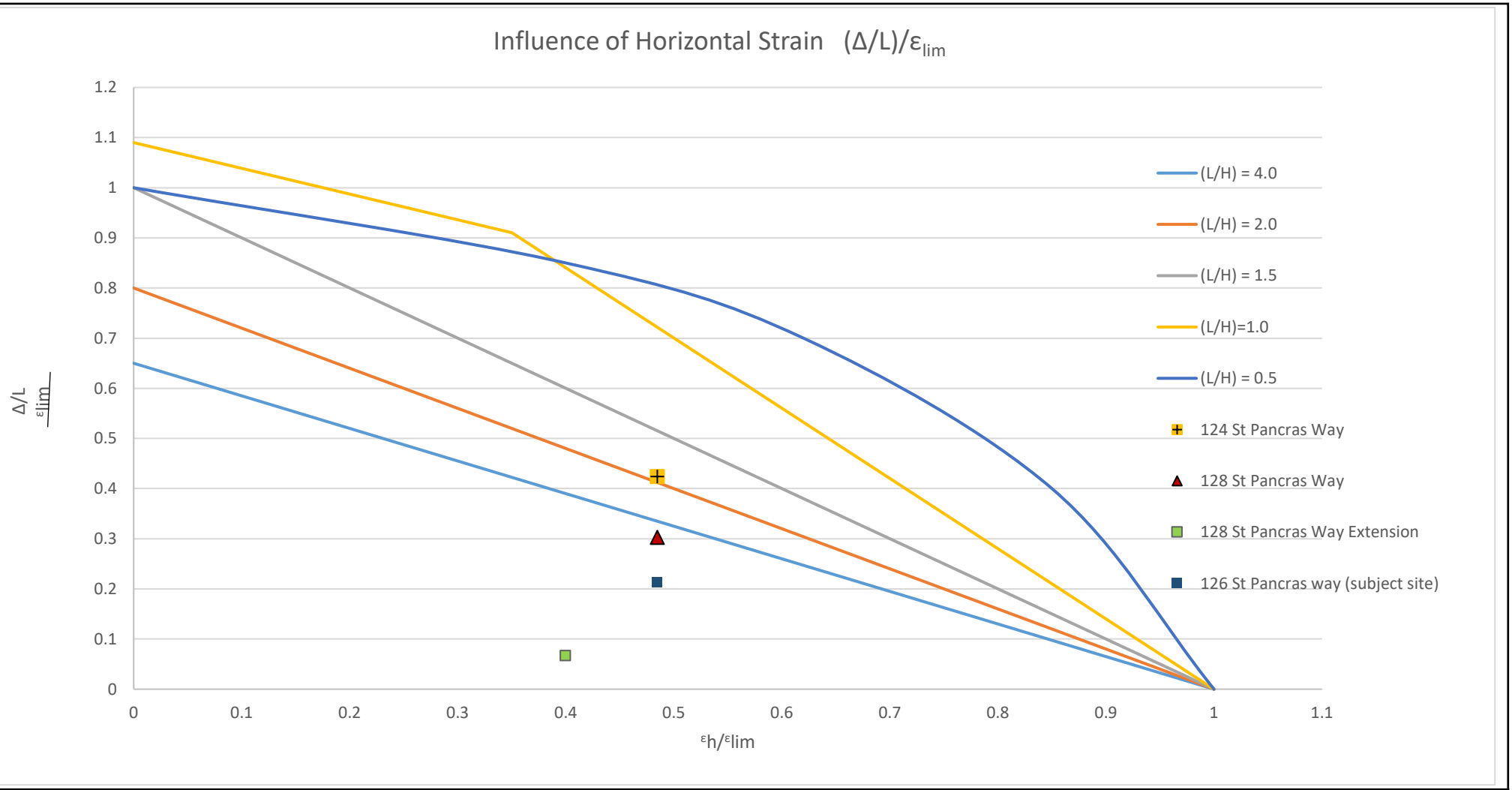
Client		Project
Anya Thomas	MAUND GEO-CONSULTING	126 St. Pancras Way NW1 9NB

Job No.	Title	Figure
MGC-144	Combined Movements 128 St. Pancras Way (Main Building)	10.2

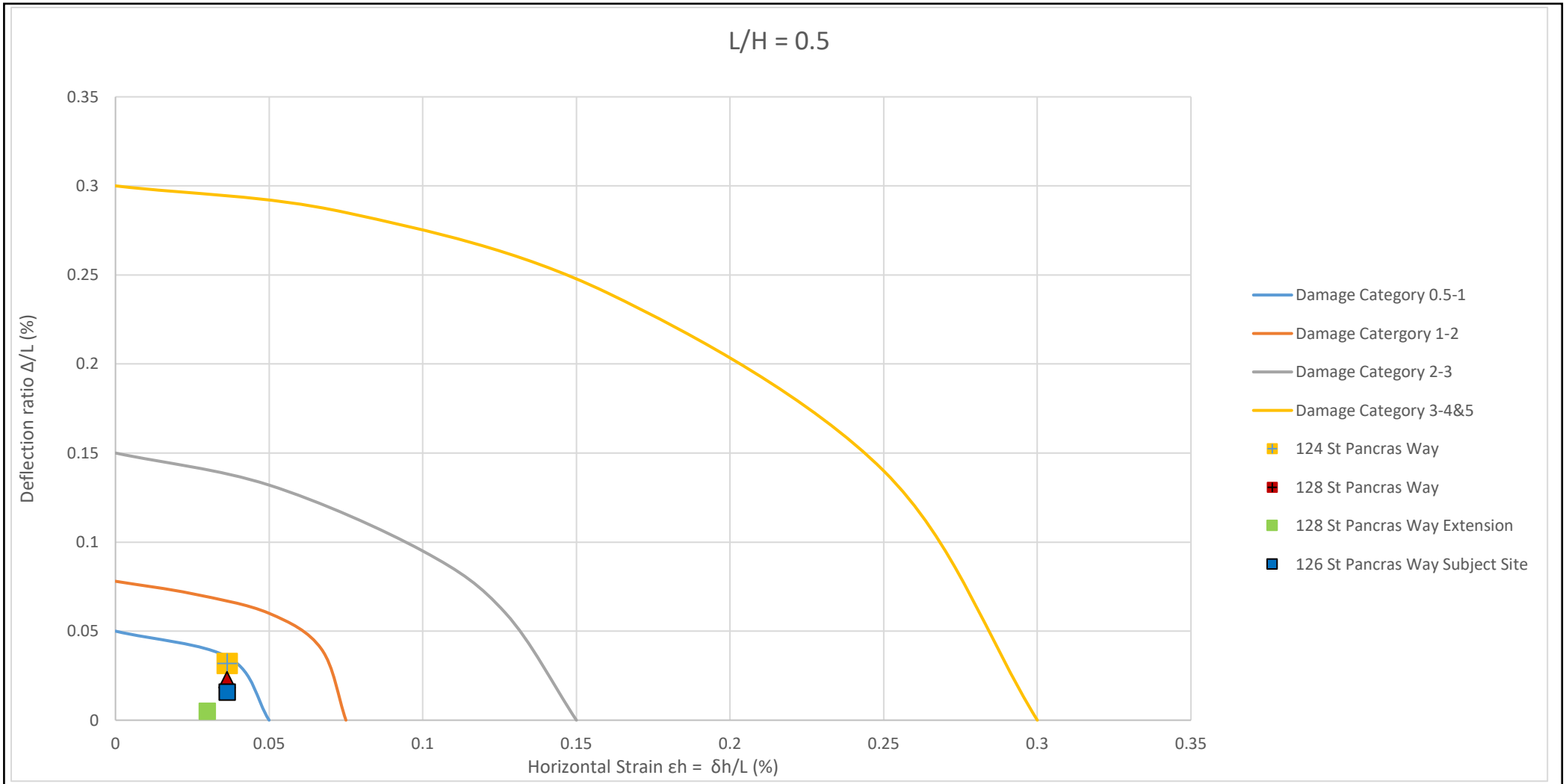


Client		Project
Anya Thomas	MAUND GEO-CONSULTING	126 St. Pancras Way NW1 9NB

Job No.	Title	Figure
MGC-144	Combined Movements 128 St. Pancras Way (Extension)	10.3



Client Anya Thomas	MAUND GEO-CONSULTING	Project 126 St. Pancras Way NW1 9NB
Job No. MGC-144	Title Influence of Horizontal Strain	Figure 10.5

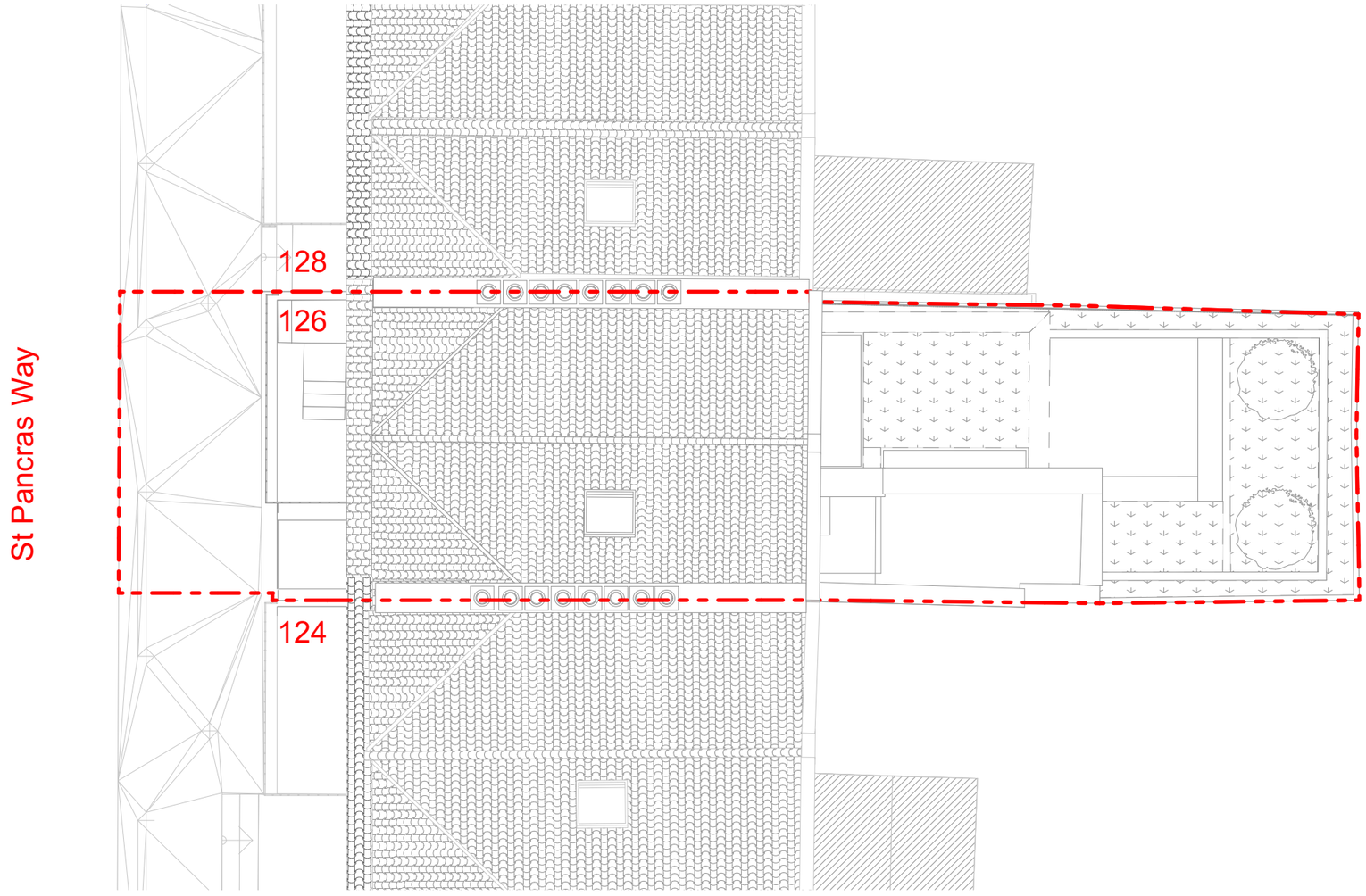


Client		Project
Anya Thomas	MAUND GEO-CONSULTING	126 St. Pancras Way NW1 9NB

Job No.	Title	Figure
MGC-144	Damage Category	10.6

Appendix A: Drawings

FOR PLANNING	
Rev	Date



Proposed Site Plan 1:100

SCALE 1:100
0 2000 4000mm

S/A
10b Branch Place
London N1 5PH
p: 0207 686 3445
e: info@scenarioarchitecture.com
w: www.scenarioarchitecture.com

Project Name:
Project Name

Client:
Chris & Shanti Thomas

Site Location:
126 St Pancras Way
London NW1 9NB
United Kingdom

Scale @ A3
1:100

Project No.
176

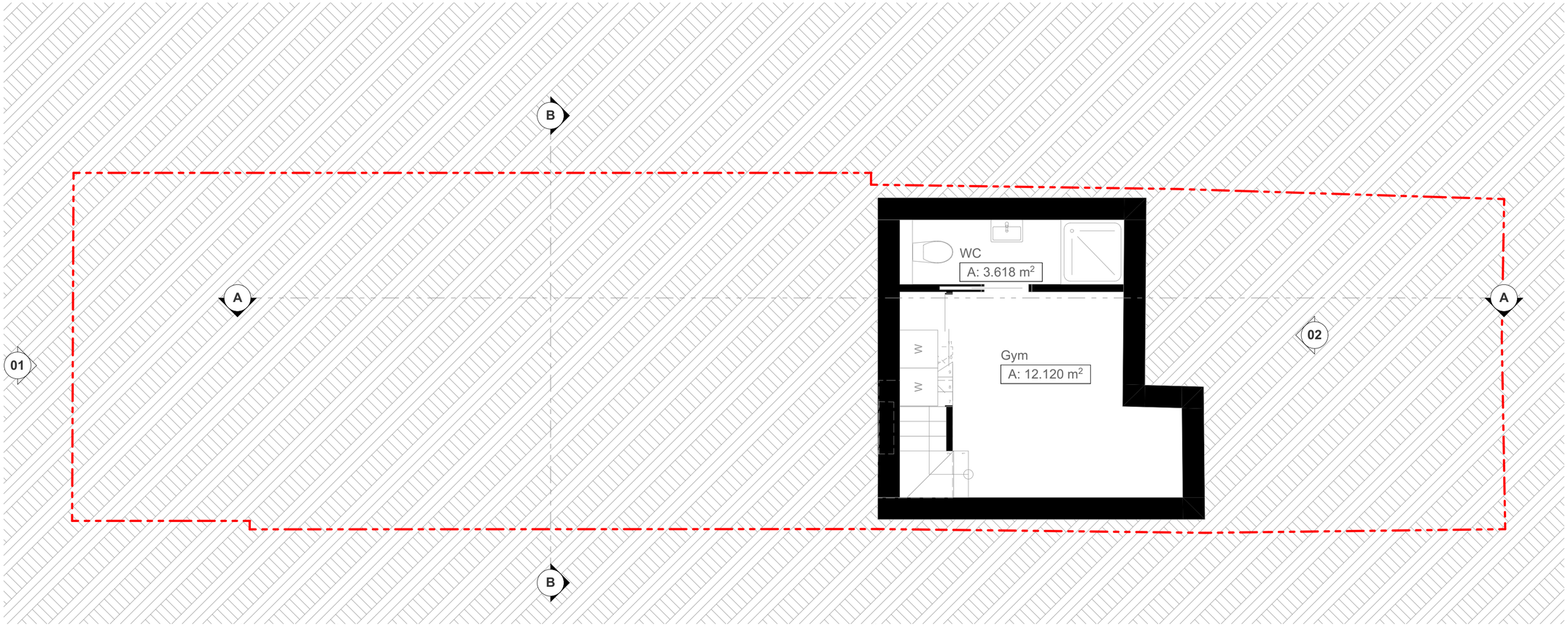
Drawing Name
Site Plan

Drawing Number
PR-A0.01

Rev

Planning
Not For Construction

Rev	Date



1 Basement 1:50

outline of existing

blocked openings

SCALE 1:50
0 1000 2000mm

S/A
10b Branch Place
London N1 5PH
p: 0207 686 3445
e: info@scenarioarchitecture.com
w: www.scenarioarchitecture.com

Project Name:
Project Name

Client:
Client Name

Site Location:
126 St Pancras Way London
NW1 9NB United Kingdom

Scale @ A2
1:50

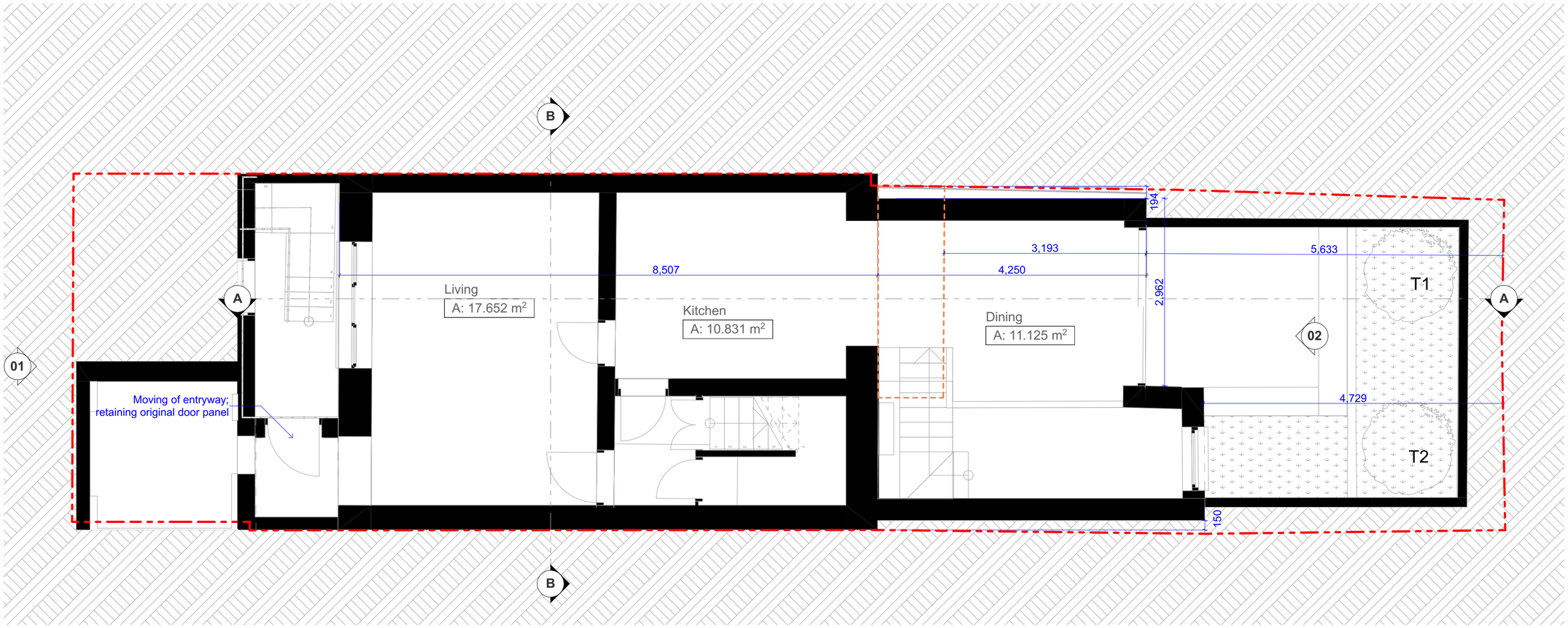
Project No.
176

Drawing Name
Proposed Basement Plan

Drawing Number
PR-A1.01

Rev

Planning
Not For Construction
Rev | Date



1 Lower Ground Floor 1:50

outline of existing

blocked openings

SCALE 1:50
0 1000 2000mm

S/A
10b Branch Place
London N1 5PH
p: 0207 686 3445
e: info@scenarioarchitecture.com
w: www.scenarioarchitecture.com

Project Name:
Project Name

Client:
Client Name

Site Location:
126 St Pancras Way London
NW1 9NB United Kingdom

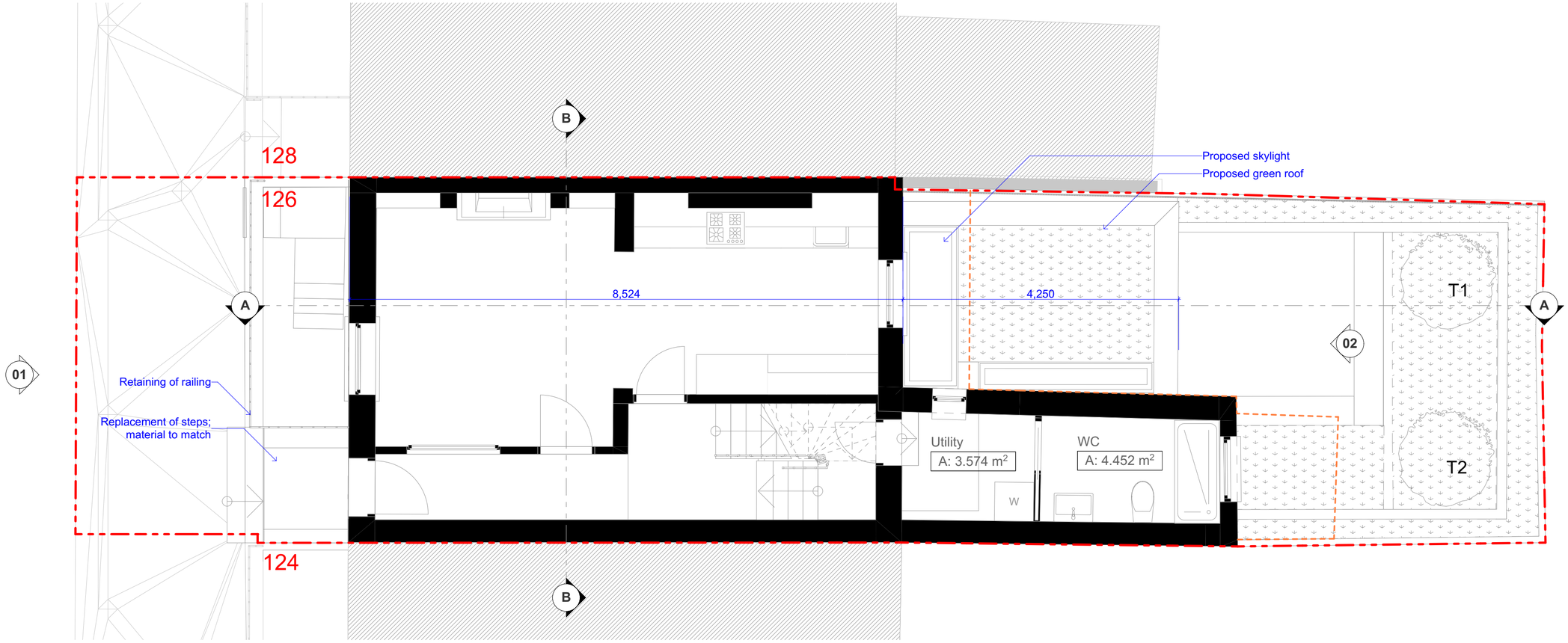
Scale @ A2
1:50

Project No.
176

Drawing Name
Proposed Lower Ground Floor Plan

Drawing Number | Rev
PR-A1.02

Planning
Not For Construction
Rev | Date



1 Ground Floor 1:50

outline of existing

blocked openings

SCALE 1:50
0 1000 2000mm

S/A
10b Branch Place
London N1 5PH
p: 0207 686 3445
e: info@scenarioarchitecture.com
w: www.scenarioarchitecture.com

Project Name:
Project Name

Client:
Client Name

Site Location:
126 St Pancras Way London NW1 9NB United Kingdom

Scale @ A2 **1:50**
Project No. **176**

Drawing Name
Proposed Ground Floor Plan

Drawing Number **PR-A1.03**
Rev

Planning
Not For Construction

Rev	Date

1 First Floor 1:50

outline of existing

blocked openings

SCALE 1:50
0 1000 2000mm

S A
10b Branch Place
London N1 5PH
p: 0207 686 3445
e: info@scenarioarchitecture.com
w: www.scenarioarchitecture.com

Project Name:
Project Name

Client:
Client Name

Site Location:
126 St Pancras Way London
NW1 9NB United Kingdom

Scale @ A2
1:50

Project No.
176

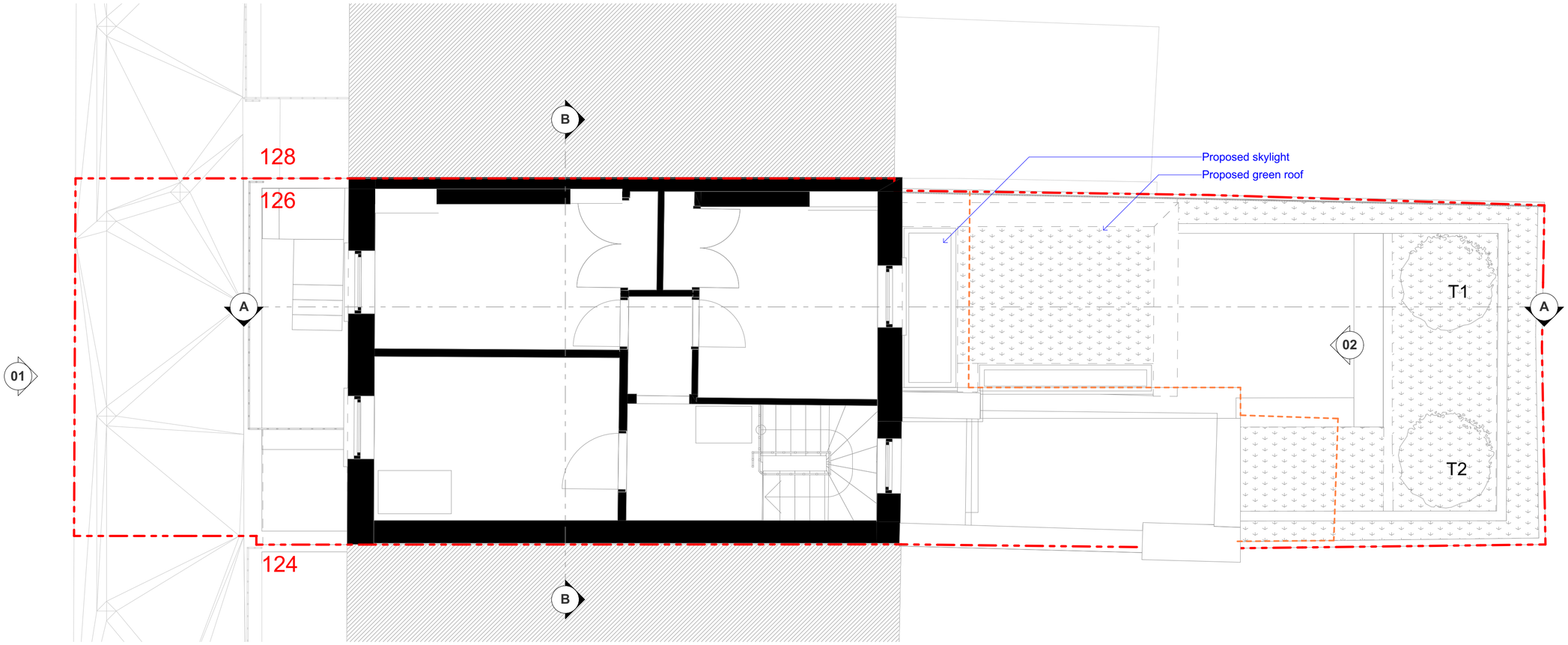
Drawing Name
Proposed First Floor Plan

Drawing Number
PR-A1.04

Rev

Planning
Not For Construction

Rev	Date



1 Second Floor 1:50

outline of existing

blocked openings

SCALE 1:50
0 1000 2000mm

S A
10b Branch Place
London N1 5PH
p: 0207 686 3445
e: info@scenarioarchitecture.com
w: www.scenarioarchitecture.com

Project Name:
Project Name

Client:
Client Name

Site Location:
126 St Pancras Way London
NW1 9NB United Kingdom

Scale @ A2
1:50

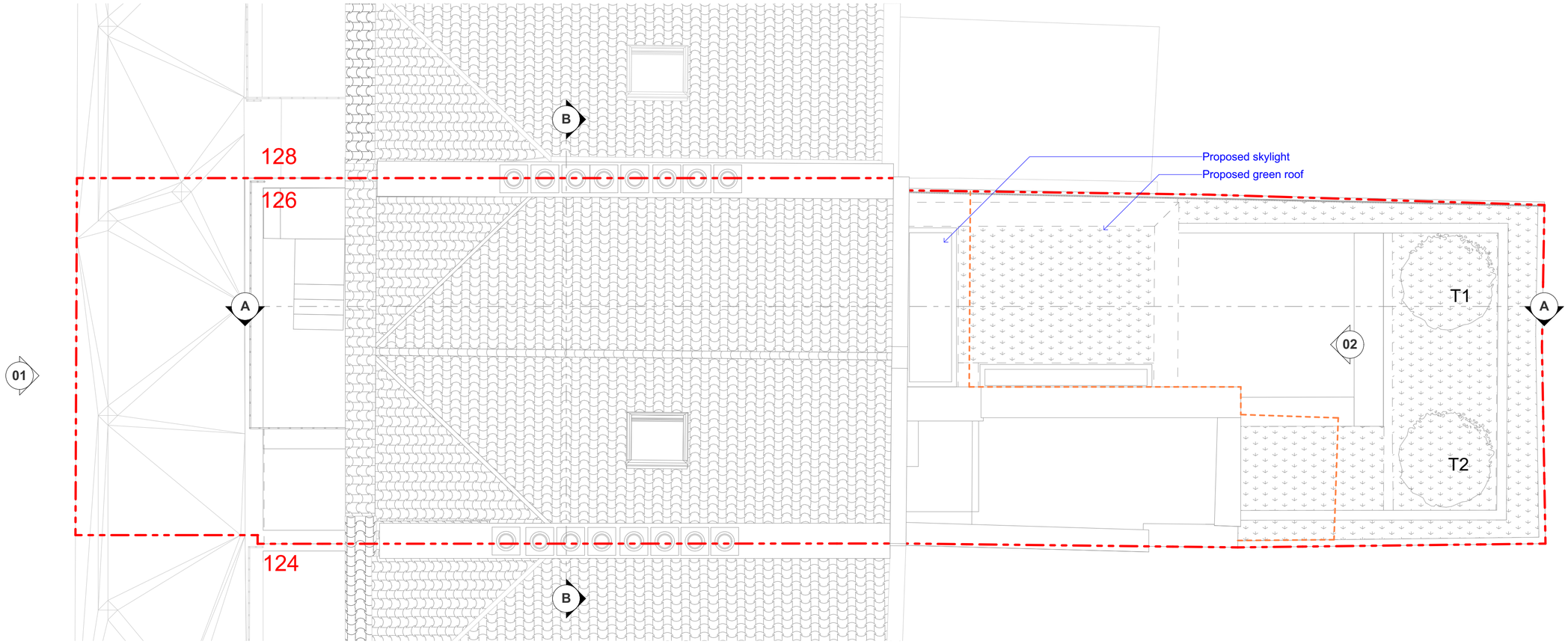
Project No.
176

Drawing Name
Proposed Second Floor Plan

Drawing Number
PR-A1.05

Rev

FOR PLANNING	
Rev	Date



1 Roof 1:50

outline of existing

blocked openings

10b Branch Place
London N1 5PH
p: 0207 686 3445
e: info@scenarioarchitecture.com
w: www.scenarioarchitecture.com

Project Name:
Project Name

Client:
Chris & Shanti Thomas

Site Location:
126 St Pancras Way
London NW1 9NB
United Kingdom

Scale @ A2 **1:50**

Project No. **176**

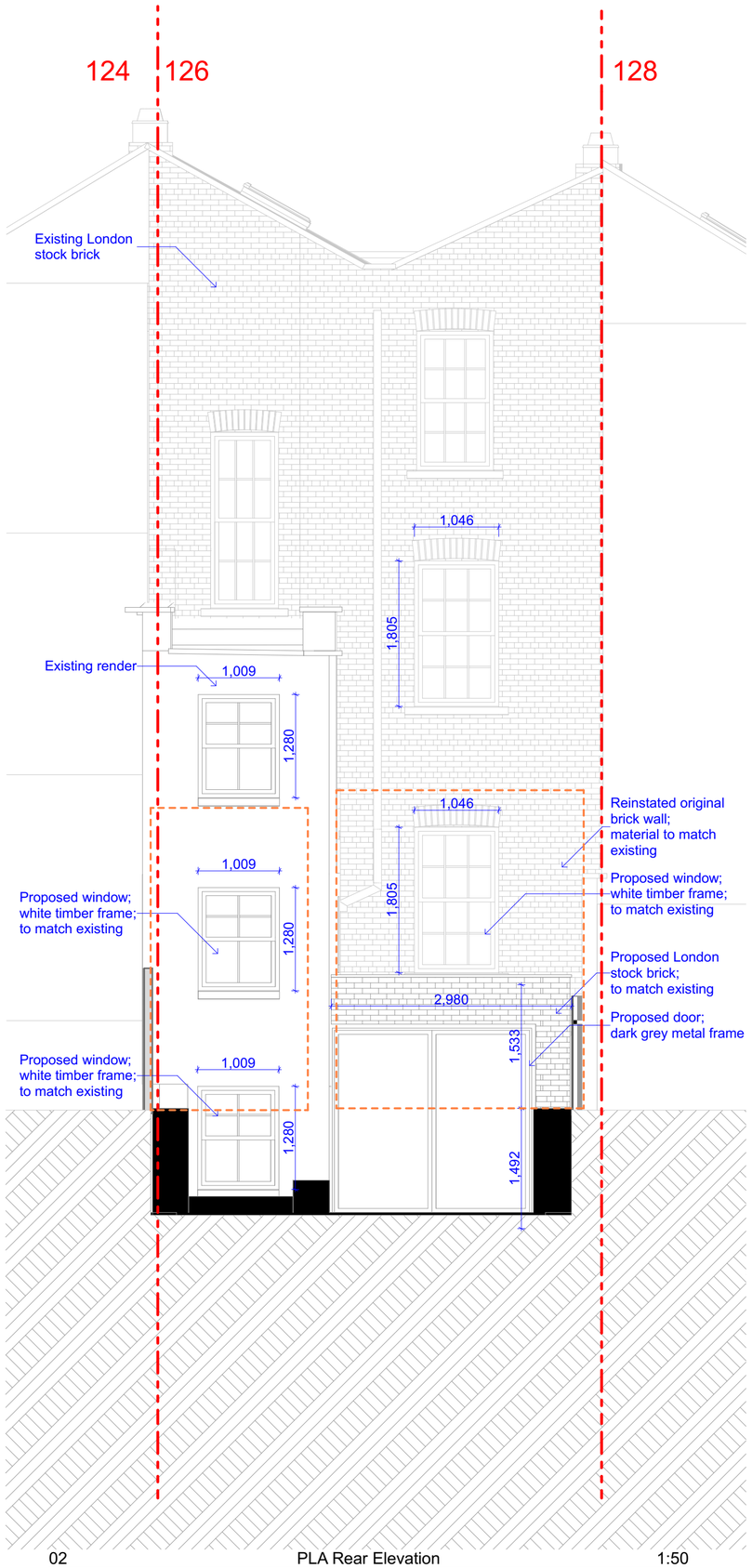
Drawing Name
Proposed Roof Plan

Drawing Number **PR-A1.06**

Rev

SCALE 1:50
0 1000 2000mm

01 PLA Front Elevation 1:50



02 PLA Rear Elevation 1:50

outline of existing

blocked openings

SCALE 1:50
0 1000 2000mm

FOR PLANNING

Rev	Date

10b Branch Place
London N1 5PH
p: 0207 686 3445
e: info@scenarioarchitecture.com
w: www.scenarioarchitecture.com

Project Name:
Project Name

Client:
Chris & Shanti Thomas

Site Location:
126 St Pancras Way
London NW1 9NB
United Kingdom

Scale @ A2
1:50

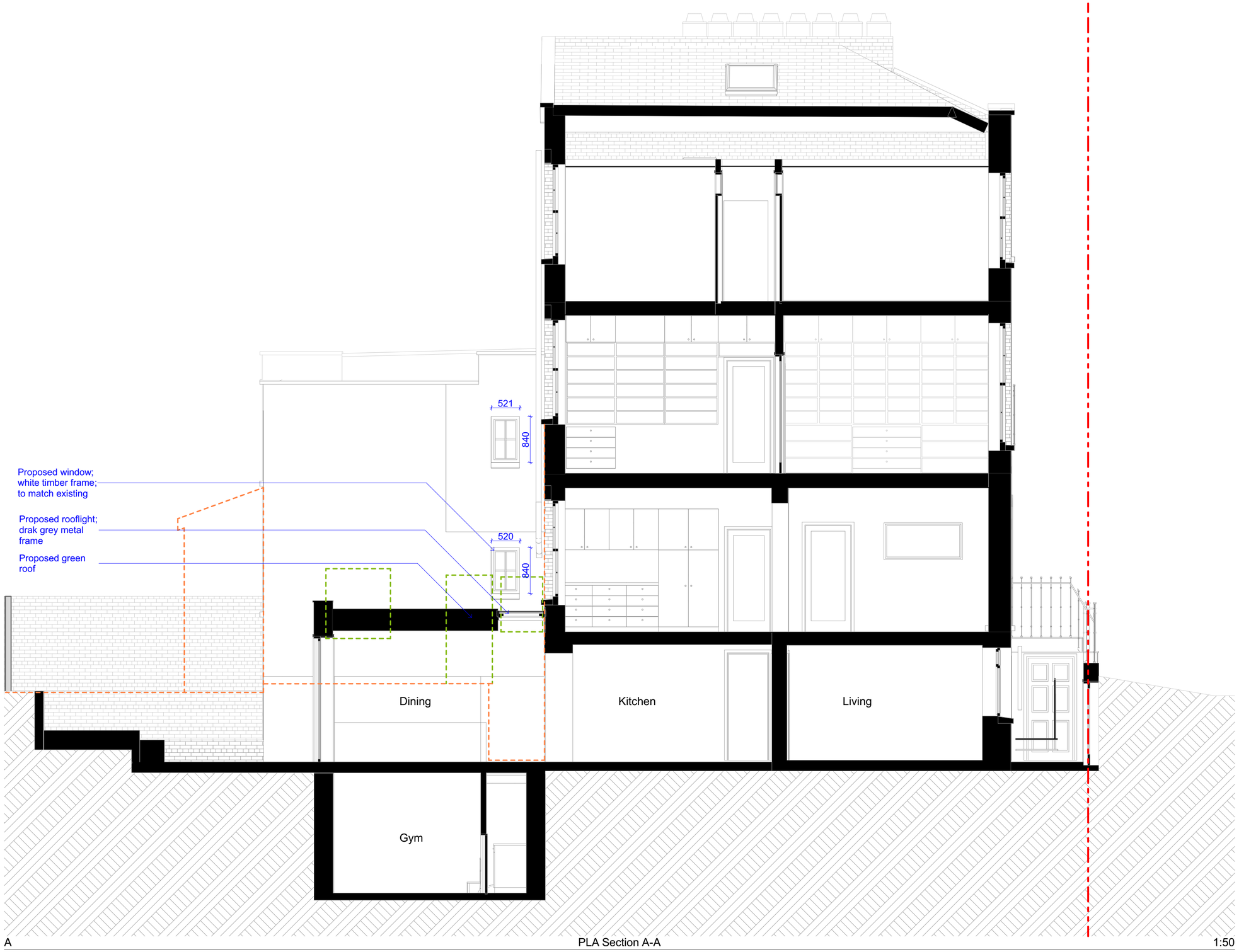
Project No.
176

Drawing Name
Proposed Elevations

Drawing Number
PR-A2.01

Rev

FOR PLANNING	
Rev	Date



A PLA Section A-A 1:50

outline of existing

blocked openings

S/A

10b Branch Place
London N1 5PH
p: 0207 686 3445
e: info@scenarioarchitecture.com
w: www.scenarioarchitecture.com

Project Name:
Project Name

Client:
Chris & Shanti Thomas

Site Location:
126 St Pancras Way
London NW1 9NB
United Kingdom

Scale @ A2
1:50

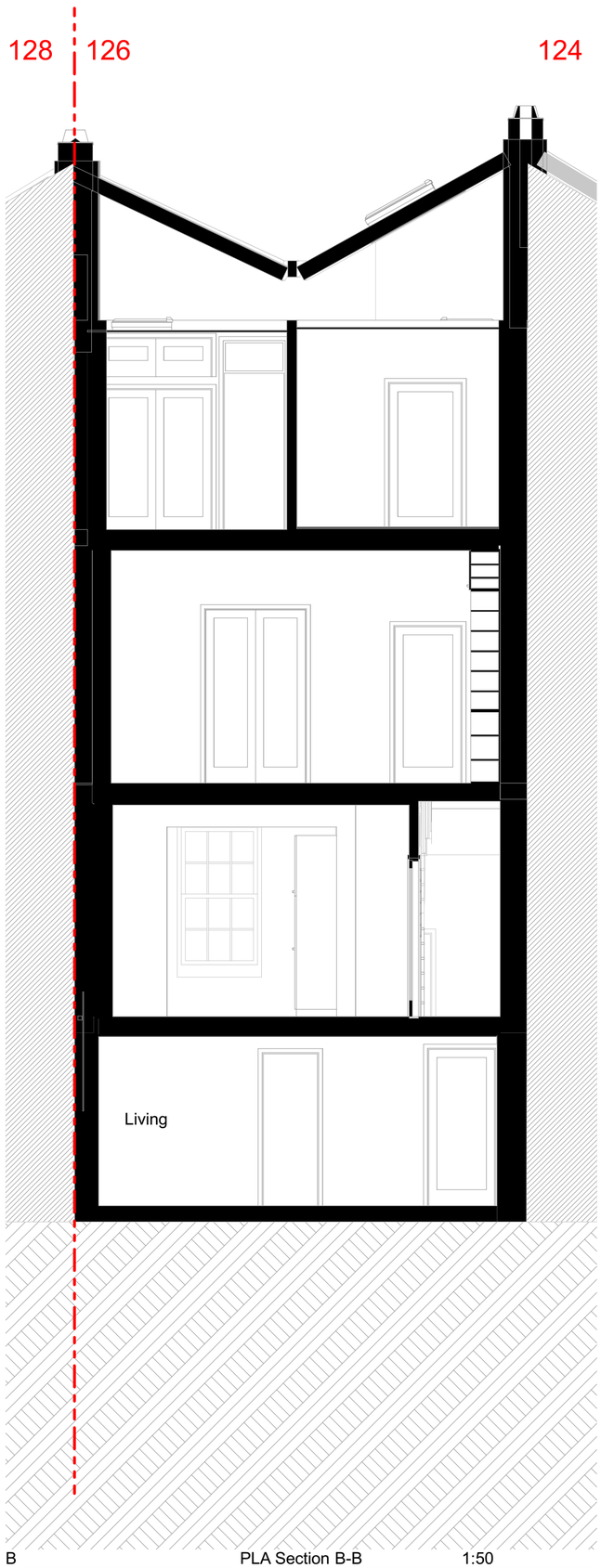
Project No.
176

Drawing Name
Proposed Sections

SCALE 1:50
0 1000 2000mm

Drawing Number
PR-A3.01

Rev



B PLA Section B-B 1:50

FOR PLANNING

Rev	Date

10b Branch Place
London N1 5PH
p: 0207 686 3445
e: info@scenarioarchitecture.com
w: www.scenarioarchitecture.com

Project Name:
Project Name

Client:
Chris & Shanti Thomas

Site Location:
126 St Pancras Way
London NW1 9NB
United Kingdom

Scale @ A2
1:50

Project No.
176

Drawing Name
Proposed Sections

SCALE 1:50
0 1000 2000mm

Drawing Number
PR-A3.02

Rev

BASEMENT CONSTRUCTION MONITORING NOTES
Movement monitoring to existing retaining walls required during construction to minimise risk of damage to neighbouring properties.

Contractor to undertake a condition survey of the property and the adjacent neighbouring walls prior to commencing site.

The Contractor is to notify the engineer if any changes to the walls condition occur during the works.

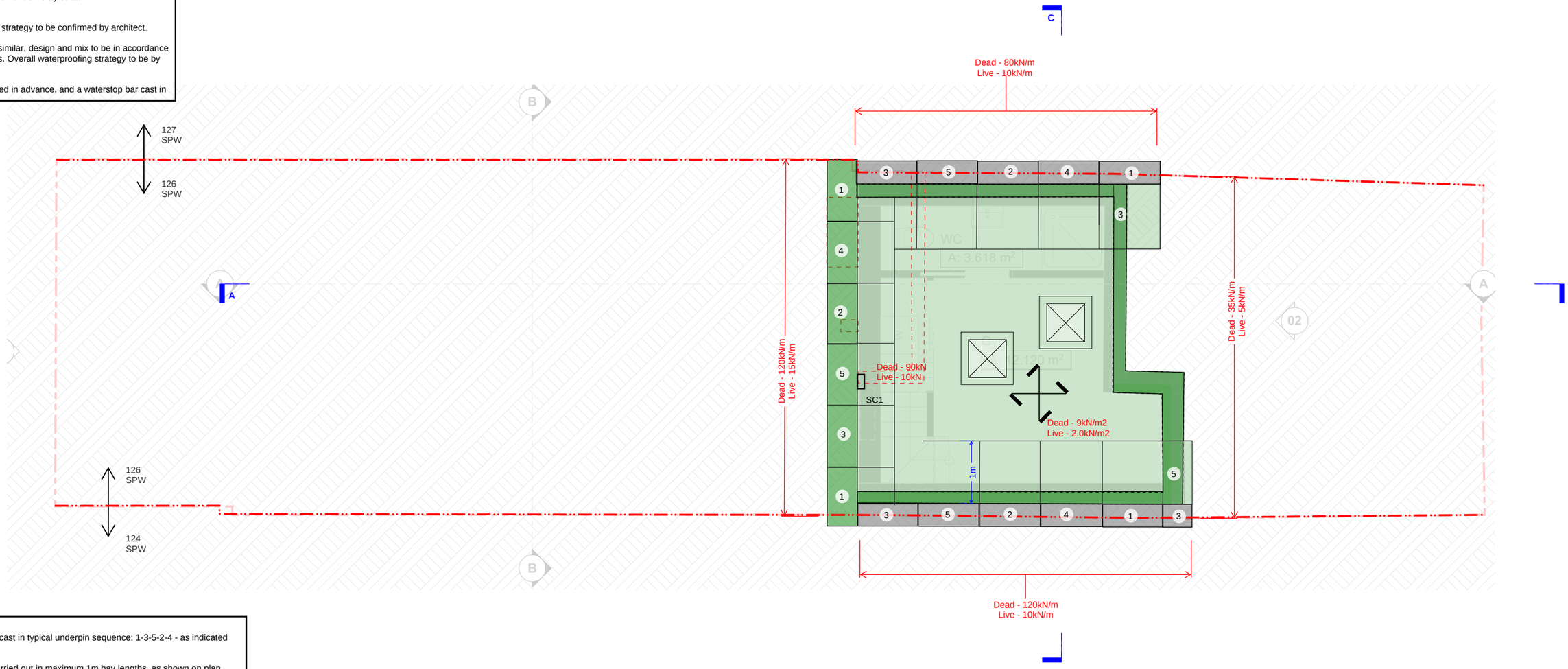
SITE GROUND INFORMATION
Contractor should refer to CGL Site Investigation report for information on the; site geology and hydrology; soil contamination; existing footing depths.

Basement to be formed within the London Clay stratum.

WATERPROOFING NOTES
Overall basement waterproofing strategy to be confirmed by architect.

Waterproof concrete by Sika or similar, design and mix to be in accordance with manufacturers requirements. Overall waterproofing strategy to be by architect.

All construction joints to be agreed in advance, and a waterstop bar cast in



UNDERPINNING NOTES
New underpins assumed to be cast in typical underpin sequence: 1-3-5-2-4 - as indicated on plan

Concrete underpinning to be carried out in maximum 1m bay lengths, as shown on plan.

Any reinforcing bars required to tie into top or bottom slabs are to be installed and left projecting into the soil until such time that they can be cast in.

All pins are to be tied together with horizontal B10 lapping bars. Bars are to be left projecting a minimum of 500mm into soil until adjacent pin can be cast.

Contractor to allow a minimum of 3 days days after casting pin before moving onto the adjacent. Min 7 days between adjacent pins.

The Engineer and Building Inspector are to be notified when excavations are ready to receive concrete and their approval obtained before concrete is place

The excavations are to be kept dry at all times and the bottom is to be bottomed out immediately before concrete is placed.

Pins to be temporarily propped until Basement and Lower Ground floor has been cast and sufficiently cured.

The concrete is to be placed within 75mm of the underside of the existing foundations. After 24 hours the gap is to be packed with Fosroc Conbextra GP flowable grout and left for 48 hours before commencing the excavation on the next bay in the sequence.

Proposed Member Reference Table:

Beam Schedule
SB1 - 203UC S355
SB2 - 203UC S355
SB3 - 254UC or 203UC with plate over
DJ1 - 2x170x47 C24 timbers bolted

Lintel & Padstone Schedule
L1 - Catnic CN71A External solid wall lintel
L2 - 140x100mm wd R6 Hi-Spec Naylor Lintel

Column and Wall Schedule
SC1 - 200x100 RHS
SC2 - 203UC
SC3 - 160x80 RHS

Floor Schedule
TJ - 150x47 C24 timber joists

Proposed Basement Plan

BAKER CHATTERTON STRUCTURAL DESIGN

INSTAGRAM:
@BakerChatterton

WEB:
www.BCStructural.co.uk

Project:
126 St Pancras Way, NW1

Drawing Title:
Proposed Basement Plan

Issued:
03.24

Drawn by:
AB

Drawing Number:
J460-BC-SK-3080

Rev:
P1

Scale:
NTS

Symbols Key
- Denotes moment connection
- Denotes floor span
- Denotes rafter span
- Denotes cranked beam

Abbreviations
J"x" - Timber Joists
DJ - Double Joists bolted together
TrJ - Triple Joists bolted together
TB"x" - Timber Beam
TC"x" - Timber Column
W"x" - Wall type
SB"x" - Steel Beam
SC"x" - Steel Column
L"x" - Lintel over
PS"x" - Concrete padstone
CU - Column Under

Notes:
1. Do not scale from these drawings
2. All dimensions to be checked on site by contractor
3. Drawing to be read in conjunction with general notes drawing
4. Where discrepancy occurs between specification and drawing, Engineer to be notified immediately
5. Temporary words design, method statement and construction sequence to be determined by contractor
6. Where discrepancy occurs between drawings and findings on site, Engineer to be notified immediately
7. Contractor may allow for splicing of steelwork to aid erection if necessary, final design by contractor, to be coordinated with BC Structural Design.
8. Refer to architects details for fire protection of all elements
9. All foundations assumed to be founded a minimum of 1.0m BGL on natural undisturbed ground – to be checked by Building Control or an Approved Inspector – assumed bearing capacity – 100kN/m2. If adjacent to existing foundation, excavation to be stepped at 45degrees to avoid undermining. Foundations to be 450mm deep MC and a minimum of 450mm wide UNO.
10. All setting out to Architects information

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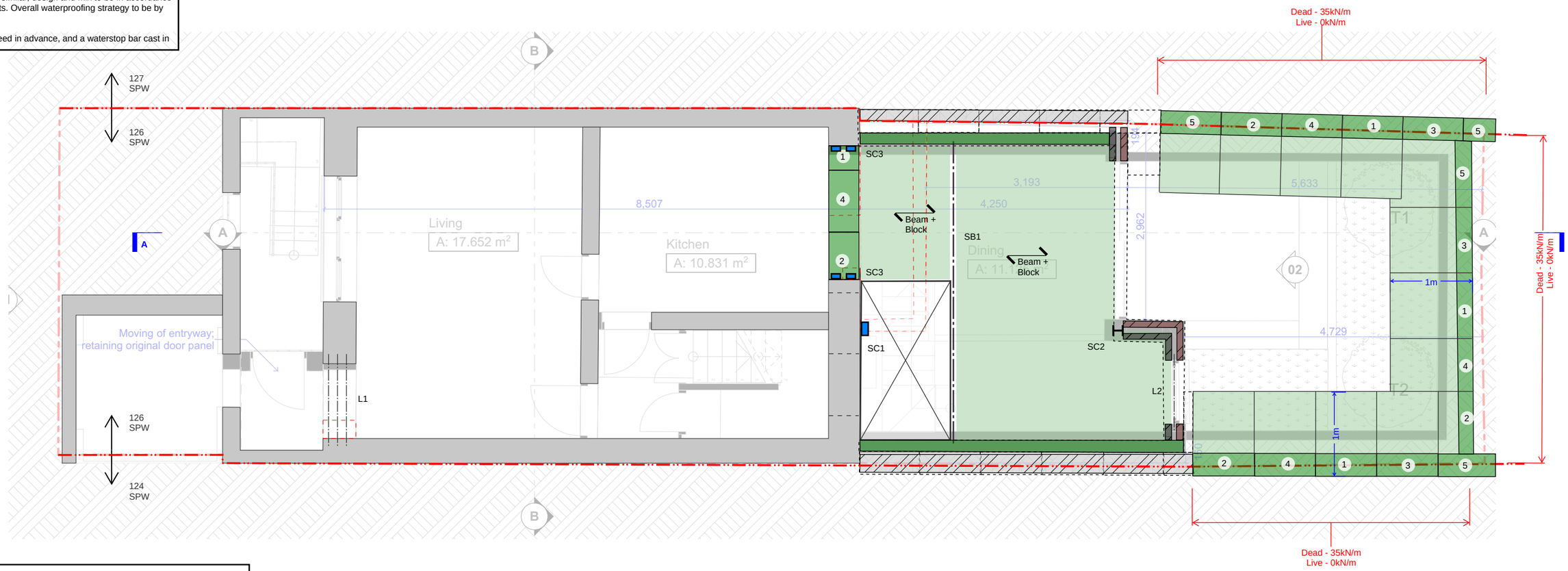

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DJ1 - 2x170x47 C24 timbers bolted

Lintel & Padstone Schedule
L1 - Catnic CN71A External solid wall lintel
L2 - 140x100mm wd R6 Hi-Spec Naylor Lintel

Column and Wall Schedule
SC1 - 200x100 RHS
SC2 - 203UC
SC3 - 160x80 RHS

Floor Schedule
TJ - 150x47 C24 timber joists

Proposed Lower Ground Floor Plan

Symbols Key
- Denotes moment connection
- Denotes floor span
- Denotes rafter span
- Denotes cranked beam

Abbreviations
J"x" - Timber Joists
DJ - Double Joists bolted together
TrJ - Triple Joists bolted together
TB"x" - Timber Beam
TC"x" - Timber Column
W"x" - Wall type
SB"x" - Steel Beam
SC"x" - Steel Column
L"x" - Lintel over
PS"x" - Concrete padstone
CU - Column Under

Notes:
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3. Drawing to be read in conjunction with general notes drawing
4. Where discrepancy occurs between specification and drawing, Engineer to be notified immediately
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9. All foundations assumed to be founded a minimum of 1.0m BGL on natural undisturbed ground – to be checked by Building Control or an Approved Inspector – assumed bearing capacity – 100kN/m2. If adjacent to existing foundation, excavation to be stepped at 45degrees to avoid undermining. Foundations to be 450mm deep MC and a minimum of 450mm wide UNO.
10. All setting out to Architects information

BAKER STRUCTURAL DESIGN CHATTERTON
INSTAGRAM: @BakerChatterton
WEB: www.BCStructural.co.uk

Project:
126 St Pancras Way, NW1

Drawing Title:
Proposed Lower Ground Floor Plan

Drawing Number:
J460-BC-SK-3090

Issued: **03.24**
Drawn by: **AB**
Rev: **P1**
Scale: **NTS**

Appendix B: CMS

BAKER CHATTERTON STRUCTURAL DESIGN

Construction Method Statement

126 St Pancras Way, NW1 9NB

Ref: J460-RP-001
Date: 07.03.2024
Status: Issued for information
Revision: 00
Prepared By: Alexander Baker

Baker Chatterton Structural Design
Company Address: 8 Marsden Road, London, England, SE15 4EE
Company Number: 13004780

Contents

Revision History

Revision	Status	Issue Date
00	Issued for Planning	07.03.24

1.0 Introduction and Brief

Baker Chatterton Structural Design have been appointed by Shanthi and Christy Thomas, the current owners, to carry out the structural design for the proposed refurbishment of 126 St Pancras Way.

This report has been prepared for the client noted above. This report shall not be relied upon by other parties without the express written authority of Baker Chatterton Structural Design. Neither the whole nor any part of this report, nor any reference there to, may be included in any document or statement, nor may it be published in any way without our prior approval in writing as to the form or content in which it will occur.

2.0 Experience and Qualifications of Author

The author of this note, Alexander Baker, is a chartered structural engineer (MIStructE) and has worked on refurbishment projects across London and the South of England for over 9 years. In that time, he has accrued a wide range of experience in the adaption and re-construction of existing buildings, including for new sub-structures, and understands the details and risks involved when working with existing structures, especially basements.

3.0 Existing Property

3.1 Site Description

The existing property is located on St Pancras Way, within the Camden borough. The site bound by Royal College Street and Wilmot Place.

Camden Road over ground station is located approximately 100m away to the South.

College Gardens sits opposite the site, a local green space, lined by large Lime trees.

The building is a mid-terrace property likely constructed in the Victorian era.

The main house towards the front comprises of four floors, including a Lower Ground Floor. Access to the Lower Ground Floor is provided by a lightwell to the front.

The outrigger to the rear comprises two floors, with the levels staggered from the main house, with access provided off the existing stairwell.

There is a single storey timber projection off the rear of the Ground Floor outrigger that appears to be a child's playhouse.

The existing garden level sits level with the Ground Floor of the outrigger, with external steel steps down to the Lower Ground Floor. Two large trees are positioned within the boundary wall of the rear garden..

3.2 Existing Structure

The existing structure comprises of timber joisted floors supported on load bearing masonry spine wall internally and solid masonry walls externally.

The load bearing masonry walls are supported on corbelled masonry footings. The depths assume to vary for the main house and the outrigger and boundary walls.

This has been based on a combination of information gathered from our site walkover undertaken on 04.03.2024, our experience of working with similar properties The site visit report summarising the findings from the visit can be found at Appendix C.

No trial pits have been undertaken at 126 St Pancras Way, trial pits and a site investigation have previously been undertaken by CGL in 2017 in the adjacent 124 St Pancras Way for the same client picking up the Boundary Wall to 126. As the buildings in the terrace were built at the same time, it is not unreasonable to assume the footings for the outrigger with 124 St Pancras Way are a similar depth to the footings with 128 St Pancras Way. This will be confirmed with further trial pits post planning.

Image 1 – Photo of front elevation

3.3 Appraisal of Existing Structure

The structure appeared to be in reasonable condition.

No obvious defects or cracking were noted within the building. Some minor hairline cracking was noted around lintels and openings to the outrigger. These are not of structural concern.

4.0 Proposed Works

4.1 Summary of the Proposed Works

The architectural proposals for the site have been provided by Scenario Architects. The structural alteration to the building includes:

- The full width extension of the existing lower ground floor below the rear garden and outrigger structure.
- The construction of a new basement level below the lower ground floor at the rear of the demise. The construction of the basement will require existing perimeter walls and the rear elevation to be underpinned and strengthened with a reinforced concrete retaining structure. The basement slab will be formed of a new ground bearing slab. This may require void former under and will be developed in the next stage.
- A new lower ground outrigger extension and removal of load bearing outrigger walls at GF level.

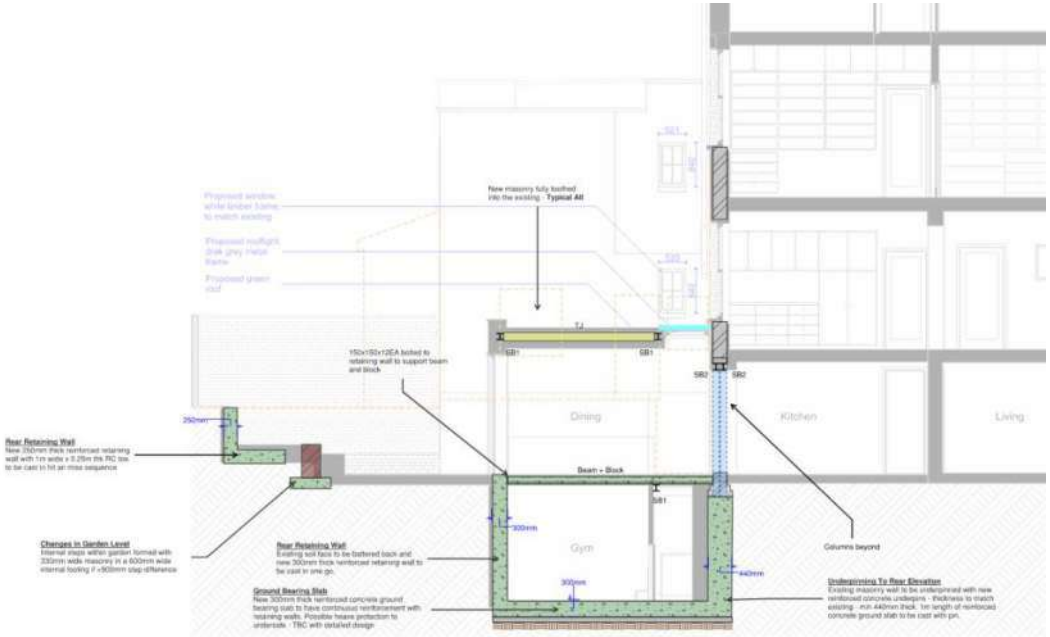

Image 3 – Proposed section through building

4.2 Basement Structure

The proposed basement extension will sit below the existing lower ground floor extension.

The party walls and existing rear elevation will be underpinned in 1m wide strips.

The party walls will be underpinned in mass concrete supported on a mass concrete footing below basement level that will match the width of the existing. A new reinforced concrete retaining wall will be constructed inbound of the underpin to resist the lateral earth pressures. The underpins below the rear elevation will be formed in reinforced concrete.

The retaining walls will act as propped cantilevers, with fixity at the base provided through the ground bearing slab, with propping at the head provided by the suspended Lower Ground Floor structure.

The reinforced concrete wall will project above the LGF to restrain the portion of masonry wall that sits below the neighbours ground level.

The basement floor will be a reinforced concrete ground bearing slab, constructed within the London Clay strata. The slab will act as a raft foundation spreading the vertical loads acting on it through the retaining wall structure.

The floor slab will be capable of resisting moments and shears enacted at the perimeter by the retaining walls, as well as uplift forces arising from heave and hydrostatic pressures.

Heave forces have been determined from the geotechnical site investigation and included within the Basement Impact Assessment.

Hydrostatic pressures for the design of retaining walls have been calculated based on a water table 1m below ground level. While for buoyancy, it has been assumed to be acting at the existing Lower Ground Floor level, after which, any water level rises would affect all of the surrounding properties.

4.3 Lower Ground Extension

The Lower Ground Floor will be suspended over the basement and formed using a precast concrete beam and block system. The floor will span between the retaining walls and internal steel beam framing. The beam and block will be packed tight to the perimeter walls for restraint and will have 75mm structural screed over. The structural topping will tie the floor together and allow it to act as a diaphragm, resisting the lateral forces applied by the retaining walls.

The external lightwell will be formed of reinforced concrete cantilever retaining walls, designed to resist overturning.

Water pressures will be limited by providing weep holes at regular centres and granular backfill behind the walls.

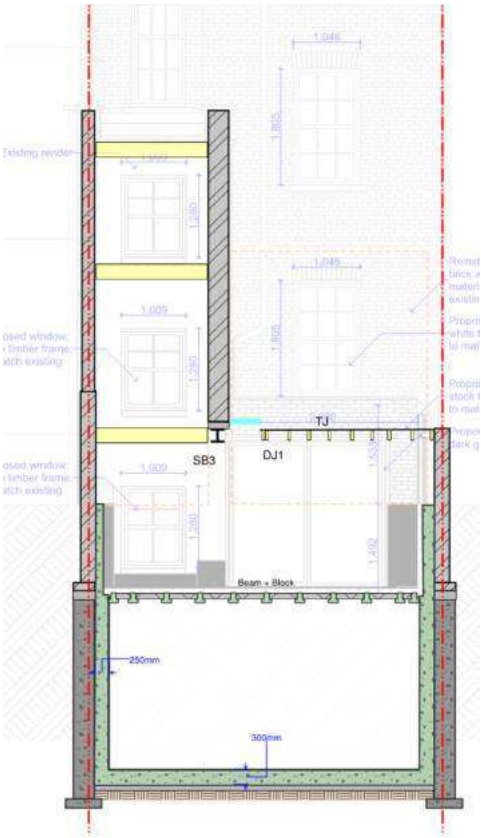

Image 4 – Proposed section through Party Walls

4.5 Lower Ground Floor Outrigger Extension

It is proposed to demolish the existing masonry flank wall below Ground Floor to the outrigger, the suspended timber floor, and extend over the proposed extent of the new Lower Ground Floor.

The extension above LGF will be framed internally in structural steel members and a timber joist infill floor.

The new framing will support the existing solid masonry walls to the outrigger above and transfer the vertical load to the proposed ground bearing slab at Lower Ground Floor.

4.6 Opening within Rear Elevation

It is proposed to form a new wide opening within the existing load bearing rear elevation at Lower Ground Floor, to provide improved access to the new Lower Ground Floor extension. The existing masonry above will be supported on a new steel frame.

Deflections will be limited at mid-span to limit the risk of movement within the masonry elevation above.

4.7 Waterproofing

The overall waterproofing strategy is to be confirmed by the architect.

The new lower ground sub-structure is to be formed using water-resistant concrete that uses a SIKA additive, or similar approved.

The basement walls have been designed to limit crack widths to 0.3mm in accordance with typical manufacturer guidance for water proof additives.

Hydrophilic water bars are to be laid across all construction joints within the basement.

4.8 Below Ground Drainage

The design of the below ground drainage is to be by others. RC pits will need to be formed within the suspended basement slab to maintain a waterproof barrier and resist heave forces arising from the clay strata below.

4.9 Ground Movement and Damage Impact Assessment

The retaining walls have been designed so that the lateral deflections under normal loading combinations will limit any damage to the neighbouring properties to a maximum of Category 1, as outlined in the CIRIA Report 760 on embedded retaining walls.

Category 1 means that possible slight damage that will only require redecoration and possibly repointing.

A Ground Movement Assessment has been undertaken by MAUND GEO-CONSULTING LTD that has reviewed both lateral and vertical settlements, which confirms that the proposals sit within the limits noted above.

For further information, reference should be made to the GMA report.

5.0 Site Geology and Geotechnical Parameters

The geotechnical parameters used within the structural design for the basement is noted below.

The following soil profile has been taken from CGL's Basement Impact Assessment report from 2017, where on site investigations were undertaken.

Soil strata was recorded below the Lower Ground Floor:

- 0.0 to 0.6m – Made Ground
- 0.6m to 8.5m – Weathered London Clay becoming stiff

Water table was not struck within the window sample

The proposed basement has been designed to be positioned within the Weathered Clay formation.

The following geotechnical design parameters have been used:

- An allowable bearing pressure of 90kN/m^2 has been advised for foundations within the weathered clay layer within CGL's report. Additional capacity has been assumed when accounting for removal of overburden pressures due to excavation.

- Angle of shearing resistance for:
  - Made ground – 30 degrees
  - London Clay – 21 degrees (ka) The London Clay formation is taken as normally consolidated and ko pressures taken as 0.69.

- Active earth pressures have been assumed for cantilever retaining walls.

- At rest earth pressures taken for propped cantilever walls.

- Water levels assumed to act at 1m BGL in the accidental condition.

- Heave pressures are assumed to be 50% of the overburden, on the basis that the instant heave forces will occur during the construction.

- DS-3 and AC-2s class taken for new structure within clay layer.

6.0 Construction Methodology

6.1 Temporary Works

The anticipated temporary works and associated construction sequence required to safely form the new basement structure are indicated within Appendix B.

The final temporary works design and methodology will be the responsibility of the Main Contractor. Baker Chatterton will review any temporary works proposals prior to works commencing.

All construction works are to be undertaken by a competent contractor and will be closely controlled in accordance with relevant building regulations and design codes. All ground works and underpinning are to be in accordance with BS EN 1197-1.

6.1.1 Outline Temporary Works Proposals

To form the underpins, the Contractor will have to form local excavations against the existing walls. These excavations are to be shored with trench sheeting restrained by regularly spaced Acrow props.

Once underpinning works are complete, temporary propping will be required to restrain the existing masonry party walls at Lower Ground Floor, as well as the proposed basement retaining walls, to allow the site to be excavated and the basement box completed.

It is proposed to install temporary flying shores to the base of the existing party wall footings at the existing ground level to prevent movement during construction.

The head of the basement underpins are to be restrained by a temporary waler beam to the perimeter of the basement, propped at regular centres by flying shores. The base of the walls will be restrained by propping the RC toe to the underpin.

The rear wall of the basement will be cast in one go, assuming the earth can be safely battered back.

6.2 Basement Construction Sequence

The following construction sequence is given below. Baker Chatterton will visit site at the key stages to monitor the construction and ensure works are in keeping with the agreed methodologies.

Stage 1
Provide temporary propping to existing outrigger over the proposed basement, install props to base of existing party walls and demolish the walls below.

Stage 2
Excavate locally to form underpins. Lower trench sheeting and install Acrow props as you dig down.

Stage 3
Cast mass concrete underpin, dry packing above to underside of existing footing. Cast RC liner wall and toe.

Stage 4
Backfill local excavation with excavated soil, compacting in layers. Remove trench sheeting and propping as you go.

Repeat stages 2 to 4 until all underpins are complete. Refer to Section 6.3

Stage 5
Locally excavate trench, shoring with trench sheeting and Acrow props, to allow props to be installed against RC toes.

Stage 6
Excavate the rest of the site and cast the remaining ground bearing basement slab.

Stage 7
Cast the upstand retaining wall to restrain the existing masonry walls and construct the Lower Ground floor structure. Once the permanent works are constructed, remove the remaining temporary props.

6.3 Underpin Construction Notes

The Contractor should adhere to the following when undertaking underpinning works.

- New underpins assumed to be cast in typical underpin sequence: 1-3-5-2-4 - as indicated on plan
- Concrete underpinning to be carried out in maximum 1m bay lengths, as shown on GAs.
- Any reinforcing bars required to tie into the bottom slab are to be installed and left projecting into the soil until such time that they can be cast in.
- All pins are to be tied together with horizontal lapping bars. Bars are to be left projecting a minimum of 500mm into soil until adjacent pin can be cast.
- Contractor to allow a minimum of 3 days days after casting pin before moving onto the adjacent. Min 7 days between adjacent pins.
- The Engineer and Building Inspector are to be notified when excavations are ready to receive concrete and their approval obtained before concrete is placed.
- The excavations are to be kept dry at all times and the bottom is to be bottomed out immediately before concrete is placed.
- Pins to be temporarily propped until Basement and Lower Ground floor has been cast and sufficiently cured.
- The concrete is to be placed within 75mm of the underside of the existing foundations. After 24 hours the gap is to be packed with Fosroc Conbextra GP flowable grout and left for 48 hours before commencing the excavation on the next bay in the sequence.

6.4 Outline Monitoring Proposals

A structural monitoring strategy will be developed to ensure that the underpinning and ground works do not cause excessive movements to the neighbouring properties.

The Contractor is to carry out a pre-commencement condition survey of the existing party walls and front and rear facades to 124, 126 and 128 St Pancras Way.

6.4.1 Monitoring Locations

The Contractor is to install monitoring points to the rear façade and party walls. Final locations to be confirmed and agreed with the Party Wall Surveyors.

6.4.2 Trigger Levels

Trigger levels are to be based on a traffic light system “Green, Amber and Red”.

The trigger levels will be based on the GMA, and follow the following logic.

Green Trigger Action

- All ‘green’ readings shall be tabulated and reported to Engineer and Employer no later than weekly or within 48 hours of completion of greater interval regimes.
- Monitoring to be stepped up to weekly.
- The Contractor should highlight to the engineer the works that caused the movement and actions should be taken to limit further movement.

Amber Trigger Action

- All ‘amber’ readings shall be reported within 24 hours.
- General photographs of the site are to be issued to the surveyors and engineers for immediate review
- The project engineer and Surveyors are to be informed immediately and to meet on site within 10 working days to review the construction and agree further actions at the meeting with the contractor to immediately implement these as applicable.

Red Trigger Action

- All works are to stop and any excavations stabilised immediately.
- All ‘red’ readings shall be immediately notified by telephone to the key individuals.
- General photographs of the site are to be issued to the surveyors and engineers for immediate review

- The project engineer and Surveyors are to be informed immediately and to meet on site ideally within 48 hours but no later than 5 working days to determine how to review and agree way forward.

6.4.3 Monitoring Frequency

Recordings taken fortnightly initially. Then to become weekly during excavation works.

6.5 Site Management – Noise, Dust and Vibration Reduction

The works are required to be undertaken in accordance with all statutory legislation relating to construction works.

The Contractor will be required to demonstrate a positive attitude and commitment toward minimising environmental disturbance to local residents and will be required to be registered with the Considerate Contractors Scheme.

Noise, dust and vibration will be controlled by employing Best Practicable Means (BPM) as prescribed in the following legislative documents and the approved code of practice BS 5228:

- The Control of Pollution Act 1972
- The Health & Safety at Work Act 1974
- The Environmental Protection Act 1990
- Construction (Design and Management) Regulations 1994
- The Clean Air Act 1993

Certain measures to be adopted by the contractor include:

- Coordinated delivery times to avoid peak traffic.
- Ensuring all plant has sound reduction measures (mufflers, baffles or silencers).
- Strict adherence to the site working hours.
- Breaking out of existing slabs will be undertaken by saw cutting before breaking.
- All areas to be kept clean
- When breaking out and cutting the existing structure, the working area is to be kept suitably wetted, to minimise dust creation.

Appendix A – Proposed Drawings

GENERAL

1. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS, ARCHITECTURAL AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.

2. ARCHITECTS AND SPECIALISTS DRAWINGS SHOULD BE REFERRED TO FOR VERIFICATION OF ALL SETTING OUT DIMENSIONS AND FOR LOCATION OF ANY SERVICES.

3. SETTING OUT COORDINATES TO BE PROVIDED BY THE ARCHITECT.

4. THE CLIENTS, DESIGNERS AND CONTRACTORS ARE TO BE AWARE OF THEIR DUTIES UNDER THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015. REFER TO THE HEALTH AND SAFETY EXECUTIVE FOR FURTHER INFORMATION (WWW.HSE.GOV.UK) FOR FURTHER INFORMATION IF IN DOUBT.

5. STRUCTURAL ARRANGEMENTS SHOWN ARE TYPICAL AND LOCATIONS OF EXISTING STRUCTURAL ELEMENTS MAY VARY FROM THOSE INDICATED. WHERE SUCH VARIATIONS REQUIRE ALTERATIONS TO THE NEW STRUCTURE, BC STRUCTURAL DESIGN MUST BE CONSULTED.

6. THE EXISTING STRUCTURE IS TO BE SURVEYED BY THE MAIN CONTRACTOR TO OBTAIN THE SETTING OUT OF THE PROPOSED STRUCTURE RELATIVE TO THE EXISTING.

7. ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM. ALL DIMENSIONS ARE IN mm, UNLESS NOTED OTHERWISE.

8. DO NOT SCALE FROM THE DRAWINGS. WORK TO FIGURES/DIMENSIONS ONLY. ANY DISCREPANCIES IN DIMENSIONS ARE TO BE REFERRED TO THE ENGINEER BEFORE WORK COMMENCES.

9. ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO PREPARING ANY WORKING DRAWINGS OR COMMENCING ON SITE.

10. ALL WORK BY THE CONTRACTOR MUST BE CARRIED OUT IN SUCH A WAY THAT ALL CURRENT HEALTH AND SAFETY REQUIREMENTS ARE SATISFIED.

11. ALL WORK BY THE CONTRACTOR MUST BE CARRIED OUT IN COMPLIANCE WITH THE REQUIREMENTS OF THE RELEVANT STATUTORY AUTHORITIES AND REGULATIONS.

12. THE CONTRACTOR MUST IDENTIFY ANY DISCREPANCIES BETWEEN THE ARCHITECTS AND ENGINEERS DRAWINGS. ANY DISCREPANCIES DISCOVERED SHALL BE REFERRED TO THE ARCHITECT FOR DETERMINATION OVER WHICH WILL TAKE PRECEDENCE.

13. ALL PROPRIETARY PRODUCTS TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

14. ALL EXISTING FOOTINGS ARE TO BE CHECKED FOR DEPTH AND WIDTH WHERE NEW LOADS ARE BEING APPLIED ONTO EXISTING WALLS AS PER THE NOTES ON THE PLANS.

15. ALL EXISTING LINTELS ARE TO BE CHECKED PRIOR TO INSTALLATION OF ANY STRUCTURE AS PER THE NOTES ON THE PLANS.

16. INSULATION, TANKING, FIREPROOFING AND WATERPROOFING ARE TO THE ARCHITECTS DETAILS

TEMPORARY WORKS / DEMOLITION

1. ALL DEMOLITION SHALL BE CAREFULLY PLANNED AND CARRIED OUT IN ACCORDANCE WITH BS6187 – CODE OF PRACTICE FOR DEMOLITION, BS5228 PARTS 1 AND 2 – NOISE AND VIBRATION CONTROL ON BUILDING SITES AND THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015

2. THE CONTRACTOR IS RESPONSIBLE FOR THE DEVELOPMENT OF ALL DEMOLITION SEQUENCES AND METHOD STATEMENTS.

3. PRIOR TO THE REMOVAL OF ANY LOAD BEARING OR SUPPORTING WALLS, THE EXISTING STRUCTURE MUST BE FULLY INVESTIGATED AND ADEQUATELY PROPPED. NO WALL OR PART OF THE STRUCTURE SHALL BE LEFT IN A DANGEROUS OR UNSTABLE STATE AT ANY TIME.

4. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE BUILDING/ STRUCTURE/ PARTY WALLS/ EXCAVATIONS ETC. DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY DESIGN CALCULATIONS AND DRAWINGS FOR ALL TEMPORARY STRUCTURES AND WHERE NECESSARY DETAILED MEMBER CHECKS. ALL ELEMENTS RELATING TO TEMPORARY WORKS ARE TO BE REMOVED FROM SITE ON COMPLETION OF THE PERMANENT WORKS.

5. IF THE CONDITION OR CONSTRUCTION OF THE BUILDING DIFFERS FROM THE DRAWINGS THE CONTRACTOR IS TO NOTIFY THE ENGINEER.

6. DEMOLITION WORKS SHALL BE UNDERTAKEN IN A MANNER THAT AVOIDS DAMAGE TO ADJACENT BUILDINGS AND PAVEMENTS. ANY DAMAGE SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR AND MADE GOOD ACCORDINGLY.

7. WHERE TEMPORARY WORKS ARE REQUIRED, THE CONTRACTOR SHALL ALLOW FOR APPOINTING A COMPETENT TEMPORARY WORKS ENGINEER TO DESIGN ALL NECESSARY SUPPORTS FOR THE EXISTING STRUCTURE DURING THE COURSE OF THE WORKS.

CDM

1. THE CLIENT MUST APPOINT A PRINCIPAL DESIGNER AND THEY MUST INFORM THE HEALTH AND SAFETY EXECUTIVE OF
THE WORKS BY FILLING IN AND SUBMITTING AN F10 FORM PRIOR TO STARTING WORK ON SITE WHERE A PROJECT IS
NOTIFIABLE.

2. THE CONTRACTOR MUST ENSURE THAT THE CONTRACT ADMINISTRATOR HAS AGREED ALL NECESSARY PARTY WALL NOTICES PRIOR TO CARRYING OUT WORKS UNDER, ON OR ADJACENT TO A PARTY WALL.

3. THE CONTRACTOR IS TO ENSURE THAT THE BUILDING CONTROL OFFICER AND STRUCTURAL ENGINEER ARE NOTIFIED TO CARRY OUT INSPECTIONS OF ANY STRUCTURAL WORK PRIOR TO COVERING UP WITH FINISHES.

4. USE PROPRIETARY PRODUCTS IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS. REPORT IN ADVANCE ANY CONFLICT WITH THIS SPECIFICATION OR WITH THE DRAWINGS. ADJOINING BUILDING

FOUNDATIONS

1. THE SOIL AT THE UNDERSIDE OF FOUNDATIONS TO OBTAIN A MINIMUM BEARING PRESSURE OF 100KN/m2 TO THE SATISFACTION OF THE BCO STRUCTURAL ENGINEER UNLESS STATED IN THE CALCULATIONS PACKAGE. FOUNDATIONS TO BE A MINIMUM OF 1.0m BELOW GROUND LEVEL UNLESS NOTED OTHERWISE.

2. IF SUITABLE BEARING STRATA IS NOT FOUND AT THE DEPTH/LEVEL INDICATED ON THE DRAWINGS, EXCAVATION SHALL BE TAKEN DEEPER AS DIRECTED BY THE ENGINEER.

3. ALL FOUNDATIONS TO BE FORMED UNLESS THE ENGINEER APPROVES USE OF THE SOIL AS SHUTTERING.

4. PRIOR TO COMMENCING ANY EXCAVATIONS ADJACENT TO EXISTING STRUCTURES, THE FORMATION LEVEL OF THE EXISTING FOUNDATIONS WILL NEED TO BE CONFIRMED.

5. ALL EXISTING DRAINAGE AND SERVICES SHALL BE EXPOSED LOCALLY TO NEW FOUNDATIONS TO VERIFY EXACT LOCATION AND DEPTH.

6. EXISTING FOUNDATIONS SHALL NOT BE UNDERMINED BY NEW EXCAVATION UNLESS PERMITTED BY THE ENGINEER.

7. ALL BASES TO BE SYMMETRICAL ABOUT COLUMNS UNLESS NOTED OTHERWISE.

8. WHERE NO SITE INVESTIGATION HAS TAKEN PLACE AND WHERE TREES ARE ADJACENT TO THE SITE IN THE PRESENCE OF CLAY SOILS THE CONTRACTOR SHALL INFORM THE STRUCTURAL ENGINEER BCO AND ALLOW FOR THE FOUNDATIONS TO BE DESIGNED IN ACCORDANCE WITH NHBC PRACTICE NOTE 4.2 RECOMMENDATIONS.

9. ALL MASS CONCRETE FOUNDATIONS ARE TO BE MINIMUM STRENGTH CLASS RC 25/30. U.N.O.. REINFORCED CONCRETE FOR FOUNDATIONS TO BE OF DESIGN FND-2, SULPHATE CLASS DS-1 AND ACEC CLASS AC-2S IN ACCORDANCE WITH BRE SPECIAL DIGEST 1.

10. ALL REINFORCED CONCRETE FOUNDATIONS ARE TO BE MINIMUM STRENGTH CLASS RC32/40 AND COMPLY WITH ACEC CLASS AC-2S, IN ACCORDANCE WITH BRE SPECIAL DIGEST 1 UNLESS STATED WITH THE MINIMUM COMPRESSIVE STRENGTH STATED ON THE PLANS.

11. WHERE SERVICE INVERT LEVELS ARE BELOW THE FOUNDATION FORMATION LEVEL, THE FOOTINGS MUST BE INCREASED TO A MINIMUM OF 300MM BELOW THE INVERT OF THE PIPE AND PROVIDE 300mm SURROUND TO THE PIPE. THE PIPE MUST BE SLEEVED WITH A MINIMUM OF 25mm CLEARANCE TO ANY FACE OF THE PIPEWORK BY EITHER LOW-DENSITY POLYSTYRENE OR UPVC SLEEVE.

12. NEW FOUNDATIONS TO BE CAST IMMEDIATELY AFTER PREPARATION OF FOUNDATION EXCAVATIONS OR, ALTERNATIVELY, MATERIAL AT FORMATION LEVEL MAY BE PROTECTED USING A BLINDING LAYER OF CONCRETE.

13. FORMATION TO BE INSPECTED AND APPROVED BY THE BCO OR STRUCTURAL ENGINEER PRIOR TO PLACING OF CONCRETE.

14. ALL UNSUITABLE MATERIAL AT FORMATION LEVEL TO BE REMOVED AT REPLACED WITH COMPACTED HARDCORE OR LEAN MIX CONCRETE AS DIRECTED BY THE BCO OR STRUCTURAL ENGINEER.

15. GROUND BEARING SLABS TO BE AS FOLLOWS UNLESS STATED OTHERWISE AND IN STRICT ACCORDANCE WITH THE SOILS INVESTIGATION:
150mm THICK WITH A142 MESH TOP (40mm COVER) WITH 300mm MINIMUM LAPS ON 1200 GAUGE DAMP PROOF MEMBRANE, ON SAND/ CEMENT BLINDING, ON MINIMUM 150mm HARDCORE COMPACTED FREE FROM IMPURITIES.

16.ALL FOUNDATIONS ADJACENT TO EXISTING FOOTINGS SHALL HAVE A DISPERSAL ANGLE OF 45 DEGREES TO THE UNDERSIDE OF THE FOOTING OR AT THE SAME LEVEL AS THE EXISTING. ON NO ACCOUNT SHALL THE NEW FOOTINGS SURCHARGE THE EXISTING FOUNDATIONS OR DRAINS. WHERE THIS OCCURS REFER TO THE ENGINEER FOR FURTHER INSTRUCTIONS.

17. THE USE OR HIGH ALUMINA CEMENT OR MARINE DREDGED AGGREGATE SHALL NOT BE PERMITTED.

18. ALL REINFORCED CONCRETE IN THE GROUND TO BE CAST UPON 50mm THICK GEN 1 BLINDING CONCRETE.

19. ALL BACKFILLING IS TO BE D.O.T. TYPE 1 FULLY COMPACTED IN 150 THICK LAYERS. RECOMPACTED CLAY AND OTHER DUG MATERIAL WILL NOT BE PERMITTED BELOW NEW GROUND SLABS.

20. DETAILS OF EXISTING FOUNDATIONS AND DRAINAGE INDICATED ON THE DRAWINGS ARE TAKEN FROM ORIGINAL CONSTRUCTION DRAWINGS. EXACT SIZE AND LOCATION ETC. TO BE CONFIRMED ON SITE BY TRIAL EXCAVATIONS.

CONCRETE

1. THE SUPPLY AND INSTALLATION OF ALL CONCRETE WORKS SHALL BE IN ACCORDANCE WITH BS EN 13670

2. ALL REINFORCED CONCRETE FOUNDATIONS ARE TO BE MINIMUM STRENGTH CLASS RC 32/40. U.N.O.

3. COVER TO REINFORCEMENT TO BE 40mm, U.N.O.

4. ALL MASS CONCRETE FOUNDATIONS TO BE CAST IN ONE CONTINUOUS POUR, UNLESS NOTED OTHERWISE.

5. THE CONTRACTOR IS TO INSTALL THE CAST-IN HOLDING BOLTS FOR THE COLUMNS IN TUBES ETC, IN ACCORDANCE WITH THE FABRICATORS DRAWINGS.

6. ALL REINFORCEMENT TO BE INSTALLED AND FIXED IN ACCORDANCE WITH BS 8666: 2005

7. MINIMUM BAR LAP LENGTH TO BE IN ACCORDANCE WITH BS-EN-1992.

8. THE CONTRACTOR IS TO PROVIDE PROPRIETARY CHAIR BARS ANDSPACERS TO ADEQUATELY SUPPORT AND MAINTAIN COVER TOREINFORCEMENT THROUGH OUT CONSTRUCTION.

9. CONCRETE FOR PADSTONES IS TO BE 2:3:6 (CEMENT:FINE SAND:COARSE SAND) NOMINAL MIX, WITH OPC AND 10mm MAX AGGREGATE.

10. READY MIXED CONCRETE MUST BE OBTAINED FROM A PLANT WHICH HOLDS A CURRENT CERTIFICATE OF ACCREDITATION UNDER THE QUALITY SCHEME FOR READY MIXED CONCRETE.

11. SITE-MIXED CONCRETE MAY BE USED WHEN AGREED WITH THE ENGINEER. AN AGREED PRE-BATCHED AND BAGGED PROPRIETARY CONCRETE MUST BE USED UNLESS AN ALTERNATIVE SITE BATCHED CONCRETE HAS BEEN AGREED WITH THE ENGINEER.

STEELWORK

1. ALL STEELWORK TO COMPLY WITH THE NATIONAL STRUCTURAL STEELWORK SPECIFICATION FOR BUILDING CONSTRUCTION.

2. OVERALL STRUCTURE AND ALL INDIVIDUAL STEELWORK COMPONENTS TO COMPLY WITH BS:EN1090-2EXECUTION CLASS EXC2.

3. ALL STEELWORK (EXCEPT HOLLOW SECTIONS) TO BE GRADE S355 TO BS EN10025-2:2003 (INCLUDING LATEST AMENDMENTS). ALL HOLLOW SECTIONS TO BE GRADE S355 TO BS EN10210-1:2006 (INCLUDING LATEST AMENDMENTS) UNLESS NOTED OTHERWISE. STEEL SUB GRADE TO BE DETERMINED BY CONTRACTOR IN ACCORDANCE WITH BS5950-1 TO PREVENT BRITTLE FRACTURE.

4. STEELWORK CONNECTIONS SHALL BE AS DETAILED ON THE DRAWINGS. DETAILS AND CALCULATIONS FOR ANY VARIATIONS TO CONNECTIONS SHOWN, OR ANY NOT SHOWN NOT SHOWN OR THE DRAWINGS SHOULD BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION.

5. ALL BOLTS TO BE GRADE 8.8 AND SHERADIZED.

6. ALL WELDS TO BE A MINIMUM 6mm FULL PROFILE FILLET U.N.O.

7. ALL INTERNAL STEELWORK IS TO BE BLAST CLEANED TO SA 2½ AND PAINTED WITH 75 MICRONS ZINC PHOSPHATE PRIMER.

8. NON-SHRINK GROUT UNDER BASE PLATES IS TO BE 40N/mm² MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS.

9. COPIES OF STEELWORK FABRICATION DRAWINGS ARE TO BE FORWARDED TO THE ENGINEER FOR INSPECTION PRIOR TO FABRICATION.

10. BEAM BEARINGS ON MASONRY TO HAVE MINIMUM 100mm BEARING.

11. ANY BEAM SPLICE IS TO BE CONSTRUCTED USING THE GENERAL GRADE HIGH STRENGTH FRICTION GRIP BOLTS (HSFG) TORQUED TO THEIR SPECIFIED PRE-LOAD. CONTACT FACES BETWEEN ATTACHED ELEMENTS ARE TO BE BLAST CLEANED AND LEFT UNPAINTED.

12. HOT ROLLED STEELWORK DESIGNATED TO BE GALVANISED SHALL BE HOT DIP GALVANISED IN ACCORDANCE WITH BS EN ISO 1461, WITH A MINIMUM MEAN COATING TO BE 85 MICRONS. STEELWORK IN EXTERNAL CAVITY TO BE HOT DIP GALVANISED TO 85 MICRONS

13. NEW STEEL BEAMS OR FRAMES BELOW EXISTING WALLS ARE TO BE INSTALLED ON THE CENTRELINE OF THE WALL UNLESS NOTED OTHERWISE ON THE DRAWINGS. DRY PACK TO BE 3:1 SHARP SAND:CEMENT WELL RAMMED IN. BOX FRAMES TO BE BOLTED TO EXISTING MASONRY RESIN FIXED USING M12 BOLTS AT 500mm C-C VERTICALLY

14. UNO RESIN TO BE HITLI HIT HY 270-A INTO MASONRY AND HILTI HIT HY 200-A INTO CONCRETE

15. ALL STEELWORK TO BE BURIED BELOW GROUND LEVEL SHALL BE ENCASED IN CONCRETE WITH A MINIMUM CONCRETE COVER OF 100mm.

16. ALL STEELWORK BUILT INTO PERIMETER WALLS OR POTENTIALLY DAMP LOCATIONS SHALL BE COATED ADDITIONALLY WITH 2 COATS OF BITUMINOUS PAINT.

17. REFER TO THE ARCHITECTURAL DRAWINGS AND SPECIFICATION FOR THE FIRE PROTECTION REQUIREMENTS.

18. LOCATION OF STEEL SPLICES TO BE AGREED WITH BC STRUCTURAL DESIGN

UNDERPINNING

1. THE EXISTING FOUNDATION DIMENSIONS ARE TO BE CONFIRMED BY TRIAL HOLE INVESTIGATION PRIOR TO CONSTRUCTION. IF THERE ARE DISCREPANCIES BETWEEN THE ON SITE FINDINGS AND THE DRAWINGS THE CONTRACTOR MUST CONTACT THE ENGINEER.

2. THE EXISTING WALLS ARE TO BE UNDERPINNED TO THE DEPTHS SHOWN ON THE DRAWINGS.

3. UNDERPINNING SHALL BE CARRIED OUT IN LENGTHS NOT EXCEEDING 1m, ON A 1 IN 4 HIT AND MISS ARRANGEMENT, UNLESS AGREED OTHERWISE WITH THE ENGINEER.

4. OVERDIG FOR ACCESS PURPOSE IS ONLY PERMITTED FROM ONE DIRECTION. ADDITIONAL EXCAVATION OF ANY KIND, WHICH MAY UNDERMINE THE EXISTING FOUNDATIONS IS STRICTLY FORBIDDEN DURING UNDERPINNING OPERATIONS.

5. THE UNDERSIDE OF EXISTING FOUNDATIONS TO BE UNDERPINNED IS TO BE THOROUGHLY CLEANED TO EXPOSE SOUND CONCRETE/BRICKWORK. NEW FORMATION LEVEL IS TO BE INSPECTED PRIOR TO POURING NEW CONCRETE. THE FOUNDATIONS ARE TO BE CONCRETED UP TO WITHIN 75mm OF UNDERSIDE OF EXISTING FOUNDATION.

6. AFTER A MINIMUM CURING TIME OF 48 HOURS THE 75mm GAP IS TO PINNED BY MACHINE RAMMING IN DRY PACK GROUT. GROUT TO BE 2:1 SHARP SAND:CEMENT MIX WITH JUST SUFFICIENT WATER TO ALLOW BALLING IN THE HAND.

7. SUBSEQUENT EXCAVATIONS UNDER THE SAME WALL SHALL NOT COMMENCE FOR A MINIMUM PERIOD OF 48 HOURS AFTER PINNING OF A SECTION. THE SEQUENCE SHALL BE AGREED WITH THE ENGINEER AND SHALL BE STRICTLY ADHERED TO.

8. THE DEPTH OF UNDERPINNING MAY VARY FROM THOSE SHOWN ON THE DRAWINGS TO SUIT SITE GROUND CONDITIONS, AND ARE TO BE CONFIRMED ONCE OPENING UP WORKS COMMENCE.

9. ALL CONCRETE IS TO BE MINIMUM STRENGTH CLASS C32/40 AND DESIGNED AS FND-2, SULPHATE CLASS DS-1 AND ACEC CLASS AC-2S IN ACCORDANCE WITH BRE SPECIAL DIGEST 1.

MASONRY / BLOCKWORK

1. ALL MASONRY WALLS SHOWN ON THE STRUCTURAL DRAWINGS ARE TO BE CONSIDERED LOAD BEARING UNLESS NOTED OTHERWISE AND ARE TO BE CONSTRUCTED BEFORE THE NEXT FLOOR LEVEL. FOR ALL WALLS, INCLUDING NON LOAD BEARING, REFER TO THE ARCHITECTS SPECIFICATION.

2. CONCRETE MASONRY UNITS: TO CONFORM TO BS.EN 771-3, WITH A MINIMUM COMPRESSIVE STRENGTH OF 7N/mm²

3. BRICKWORK: TO CONFORM TO BS EN 1996, WITH A MINIMUM CRUSHING STRENGTH OF 15N/mm². WATER ABSORPTION 12%.

4. ALL MORTAR ABOVE GROUND TO BE M4 IN ACCORDANCE WITH BS EN 1996-1-1, MORTAR BELOW GROUND TO BE M6 TO BS EN 1996-1-1 UNO

5. IN COLD WEATHER, CONTRACTOR IS TO TAKE THE NECESSARY PRECAUTIONS TO PREVENT FROST DAMAGE TO FRESHLY LAID MASONRY BY PROVIDING INSULATED COVERS, ETC.

MASONRY/ BLOCKWORK cont.

6. UNLESS NOTED OTHERWISE ON THE ENGINEERS OR ARCHITECTS DRAWINGS, VERTICAL MOVEMENT JOINTS SHALL BE PROVIDED AT A MAXIMUM 0F 6m CENTRES.

7.CAVITY TIES TO BE AT MAXIMUM 900mm CENTRES HORIZONTALLY AND 450mm CENTRES VERTICALLY FOR CAVITIES UP TO 75mm. REDUCE HORIZONTAL SPACING TO 750mm FOR CAVITIES OVER 75mm. STAGGERED PATTERN TO BE ADOPTED. USE TWO-PART TIES FOR CAVITIES EXCEEDING 150mm WITH A MINIMUM EMBEDMENT OF 75mm. AT OPENINGS TIES TO BE AT 225mm CENTRES VERTICALLY. CAVITY TIES TO BE STAINLESS STEEL WITH A MINIMUM EMBEDMENT OF 50mm.

8. PADSTONES ARE TO BE GRADE C35 CONCRETE, SIZE AS INDICATED ON THE STRUCTURAL DRAWINGS.

9. WALLS TO BE RESTRAINED AT GROUND FLOOR CEILING AND GABLE WALLS BY THE PROVISION OF 30x5 x1000mm LATERAL RESTRAINT STRAPS AT MAXIMUM 1.2m CENTRES CARRIED ACROSS AT LEAST 3 JOISTS OR RAFTERS, ETC, WITH A MINIMUM OF 38mm WIDE x 3/4 DEPTH NOGGINS.

10. MATERIALS FOR WALL TIES, SUPPORT ANGLES, RESTRAINT FIXINGS ETC. TO BE 304 STAINLESS STEEL.

11. LINTELS, WINDPOSTS, WALL TIES, SUPPORT ANGLES, RESTRAINT FIXINGS ETC TO BE INSTALLED AS PER MANUFACTURERS / SUPPLIERS SPECIFICATIONS AND INSTRUCTIONS

12. SEE ARCHITECTS DRAWINGS FOR:
A) SETTING OUT DIMENSIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
B) DETAILS OF ALL DAMP-PROOFING, WATERPROOFING AND SEALANTS.

13. NEW LINTELS TO BE 100w x 140dp PRECAST, PRE-STRESSED UNLESS NOTED OTHERWISE.

14. PROVIDE 2 LINES OF BRICKFORCE BEDJOINT REINFORCEMENT IN ALL MASONRY SKINS ABOVE & BELOW ALL OPENINGS EXTENDING 500mm BEYOND THE OPENING.

15. THE TERM DRY PACK IS A SITE PREPARED MIXTURE OF 1:1 SAND:CEMENT WITH SUFFICIENT WATER TO ALLOW THE MIXTURE TO BEMOULDED INTO A DRY DOUGH LIKE MIXTURE.

16. ALL BRICKWORK WITHIN THE GROUND OR WITHIN 150 OFF GROUND LEVEL SHOULD BE LAID WITH SULPHATE RESISTING MORTAR

17. ALL MASONRY BELOW THE DPM SHOULD BE 7N/mm2 BLOCK OR FROST RESISTANT BRICKWORK

18. TIES AT BLOCKWORK MOVEMENT JOINTS TO HAVE ONE END DEBONDED USING A DEBONDING SLEEVE. TIE TO BE AT LEAST 200 LONG SPACED AT 450mm VERTICAL CENTRES.

19. ALL BRICKWORK IS TO BE LAID WITH FROGS, IF ANY, FACING UPWARDS

STRUCTURAL TIMBER

1. ALL STRUCTURAL TIMBER SHALL BE PLAIN SAWN AND IN ACCORDANCE WITH BS5268: PART 2: 2002 AND BS EN338: 2003. UNO.

2. ALL STRUCTURAL TIMBER SHALL BE STRENGTH CLASS C24 MINIMUM U.N.O. IN ACCORDANCE WITH BS5268:PART 2: 2002 AND BS EN338: 2003.

3. STRUCTURAL TIMBER MEMBERS MAY ONLY BE DRILLED OR CUT FOR SERVICES WHERE SPECIFIED ON BC STRUCTURAL DESIGN DRAWINGS. IN NO CIRCUMSTANCES SHALL THE TOP OR BOTTOM OF JOISTS BE CUT OR NOTCHED WITHOUT THE WRITTEN APPROVAL OF BC STRUCTURAL DESIGN.

4. THE WORKMANSHIP SHALL NOT BE LESS THAN THAT SET OUT IN THE RELEVANT CLAUSES OF BS5268: PART2: 2002

5. PLYWOOD TO BE SCREWED TO JOISTS AND RAFTERS WITH 4.5MM DIAMETER SCREWS, MIN 70MM EMBEDMENT. INTERNAL JOINTS SCREWS AT 300MM SCREWS, PERIMETER JOINTS SCREWS AT 150MM CENTRES. JOINTS IN PLYWOOD TO BE STAGGERED.

6. EXTERNAL GRADE PLYWOOD TO BE USED OVER ROOFS.

7. JOIST HANGERS ARE TO BE MADE FROM WELDED AND GALVANISED MILD STEEL STRAPS, UNO – MAXI SPEEDY, ADJUSTABLE TOP HUNG HANGERS OR SIMILAR. FULLY NAILED.

8. 30x5mm GALVANIZED RESTRAINT STRAPS AND TYING DOWN STRAPS TO EXTERNAL WALLS ARE TO BE "EXPAMET" TYPE HD OR SIMILAR APPROVED GALVANISED MILD STEEL. STRAPS FIXED IN ACCORDANCE WITH BS5628: PART 1: 2005 + PART 3: 2005 AND BS8103: PART 1: 1995 AT 1.2m C-C TO BE FIXED TO 2 BRICK COURSES W/ 50MM LONG NO12 SCREWS AND NAILED ACROSS 3 JOISTS. DETAILS AVAILABLE UPON REQUEST

9. TIMBER TRUSSED RAFTERS TO BE DESIGNED BY THE CONTRACTOR TO THE LOADS GIVEN ON THE DRAWING AND TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH BS5268: PART 3: 2006.

10. GLULAM BEAMS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH BS EN 1194: 1999.

11. ALL TIMBER CONNECTIONS TO BE DESIGNED BY THE CONTRACTOR TO THE REACTIONS GIVEN ON THE DRAWINGS AND IN ACCORDANCE WITH BS5268: PART 2: 2002. DESIGN CALCULATIONS AND SHOP DRAWINGS TO BE SUBMITTED TO BC STRUCTURAL DESIGN FOR COMMENTS. 2 No. COPIES ARE TO BE MADE AVAILABLE

12. CONTRACTOR TO PROVEIDE SHOP DRAWINGS MINIMUM 5 WORKING DAYS PRIOR TO COMMENCING SHOP WORKS. 1 COPY WILL BE RETURNED WITH COMMENTS.

13. ALL FLOOR JOISTS ARE TO HAVE FULL DEPTH SOLID STRUTTING AT SUPPORTS AND 1/3 POINTS U.N.O.

14. ALL TIMBER FIXINGS ARE TO BE HOT DIP GALVANIZED AND TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.

15. THE CONTRACTOR IS TO PROVIDE ALL PACKS, STRAPS, BLOCKING PIECES ETC NECESSARY TO RESTRAIN THE TIMBER ELEMENTS.

16. ALL NEW STUD WALLS TO HAVE SOLID BLOCKING UNDER WHERE WALL RUNS ACROSS JOISTS AND DOUBLE JOISTS BOLTED TOGETHER UNDER WHERE PARALLEL.
17.ALL NEW TIMBER JOISTS TO HAVE NOGGINS BETWEEN JOISTS AT EACH END AND AT SPACINGS NOT EXCEEDING 30 X JOIST WIDTH. UNO.

18. ALL BOLTS INTO TIMBER ARE TO HAVE 50SQ X 3 THK MILD STEEL WASHERS BELOW NUT.

19. DOUBLE JOISTS BOLTED TOGETHER WITH 12MM DAI BOLT AT 500mm C-C

20. TIMBER ROOF TRUSSES AND BRACING TO BE DESIGNED AND DETAILED BY SPECIALIST SUBCONTRACTOR. TRUSSES TO BE DESIGNED AND FABRICATED IN ACCORDANCE WITH BS 5268: PARTS 2 AND 3.

21. ALL TRUSSES TO BE CONNECTED TO TIMBER WALL PLATE BY MEANS OF APPROVED TRUSS CLIPS.

22. BC STRUCTURAL DESIGN TO BE INFORMED OF ANY EXISTING ROTTING OR DAMAGED TIMBERS TO BE REPLACED LIKE FOR LIKE W/ C24 TIMBERS OF THE SAME SIZE

BAKER STRUCTURAL DESIGN CHATTERTON

INSTAGRAM:
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WEB:
www.BCStructural.co.uk

Project:
126 St Pancras Way, NW1

Drawing Title:
General Notes

Drawing Number:
J460-BC-SK-1000

Issued:
03.24

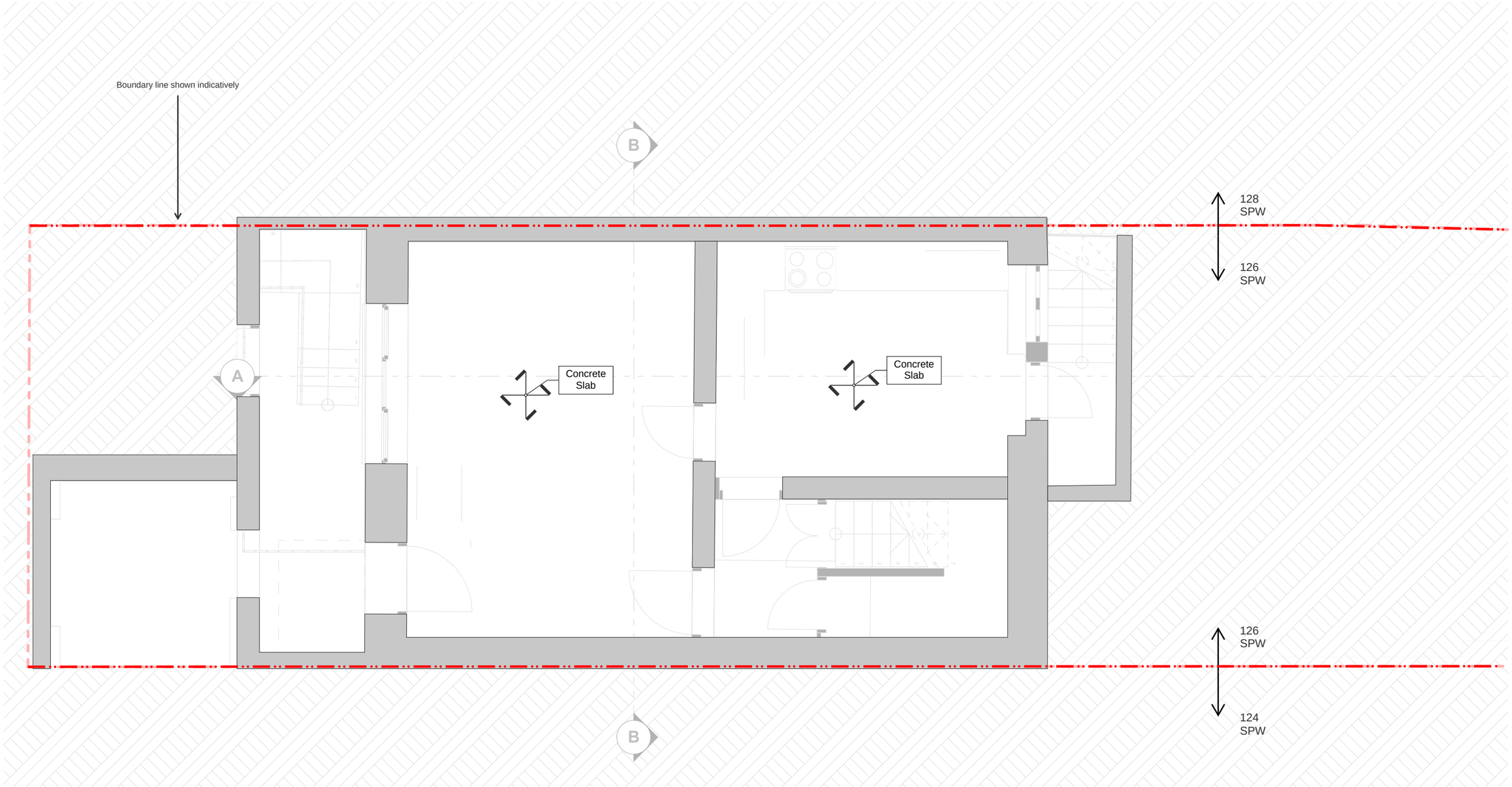
Drawn by:
AB

Rev:
P1

Scale:
NTS

Work in Progress

Existing structure assumptions based on limited opening up works. Existing structure to be verified on site. Contractor to notify engineer if the existing arrangements vary from that shown.



Existing Lower Ground Floor Plan

BAKER STRUCTURAL DESIGN CHATTERTON

INSTAGRAM:
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WEB:
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Project:
126 St Pancras Way, NW1

Drawing Title:
Existing Lower Ground Floor Plan

Drawing Number:
J460-BC-SK-1090

Issued:
03.24

Drawn by:
AB

Rev:
P1

Scale:
NTS

Symbols Key

- Denotes moment connection
- Denotes floor span
- Denotes rafter span
- Denotes cranked beam

Abbreviations

J"x" - Timber Joists
DJ - Double Joists bolted together
TrJ - Triple Joists bolted together
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W"x" - Wall type
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SC"x" - Steel Column
L"x" - Lintel over
PS"x" - Concrete padstone
CU - Column Under

Notes:

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9. All foundations assumed to be founded a minimum of 1.0m BGL on natural undisturbed ground – to be checked by Building Control or an Approved Inspector – assumed bearing capacity – 100kN/m2. If adjacent to existing foundation, excavation to be stepped at 45degrees to avoid undermining. Foundations to be 450mm deep MC and a minimum of 450mm wide UNO.
10. All setting out to Architects information

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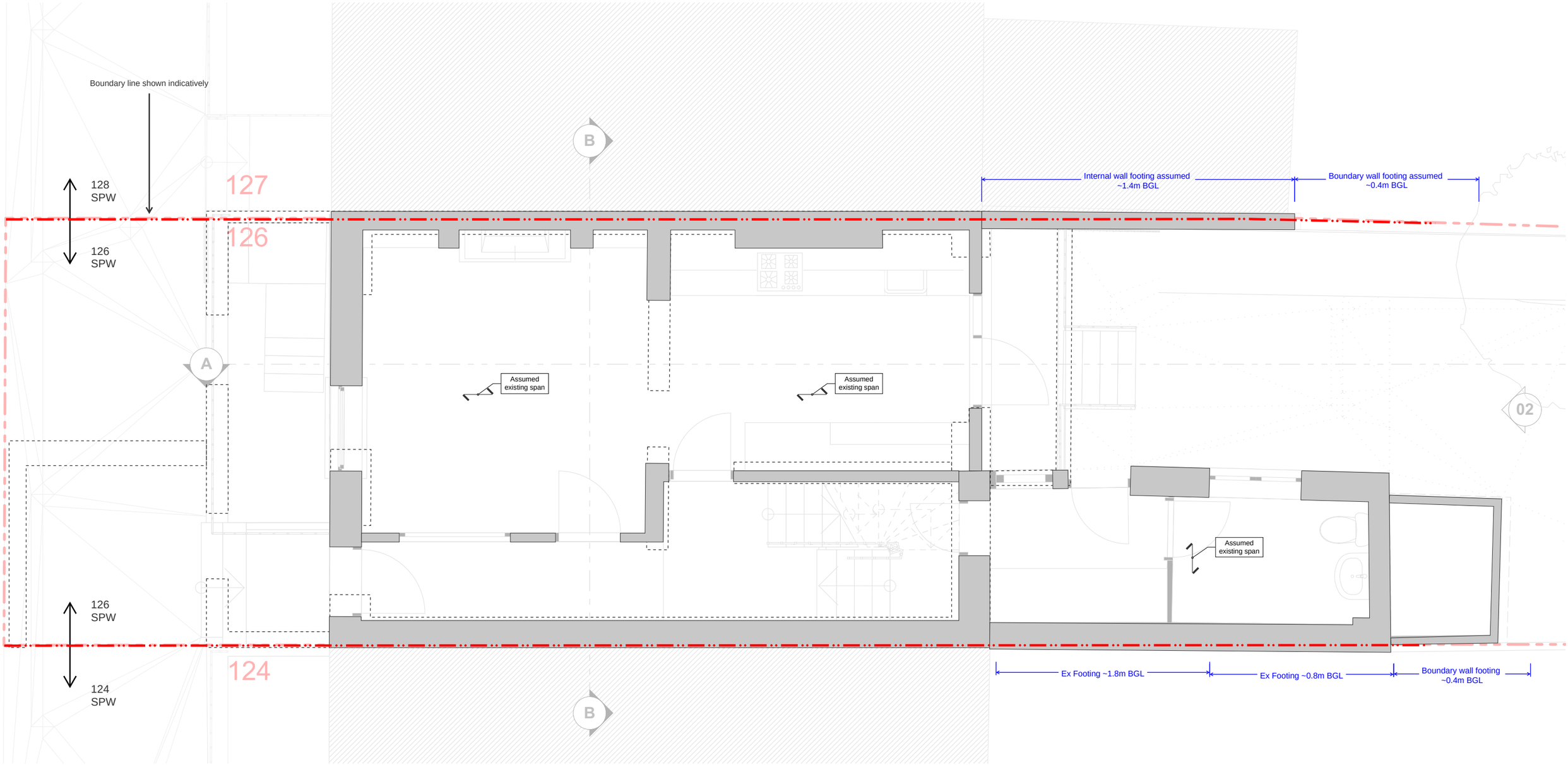

Existing Ground Floor Plan

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Project:
126 St Pancras Way, NW1

Drawing Title:
Existing Ground Floor Plan

Drawing Number:
J460-BC-SK-1100

Issued:
03.24

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P1

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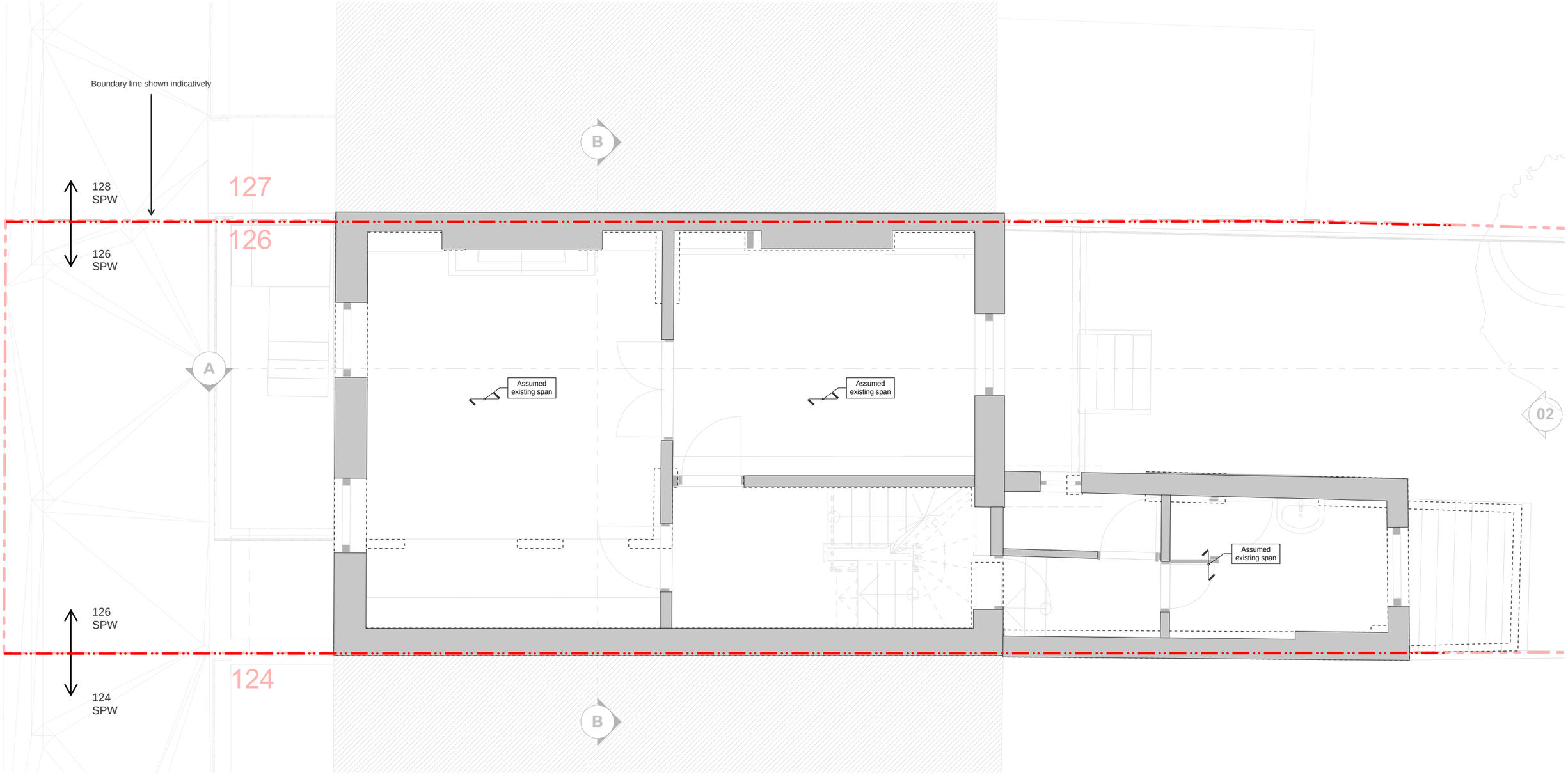

Existing First Floor Plan

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Project:
126 St Pancras Way, NW1

Drawing Title:
Existing First Floor Plan

Drawing Number:
J460-BC-SK-1110

Issued:
03.24

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Rev:
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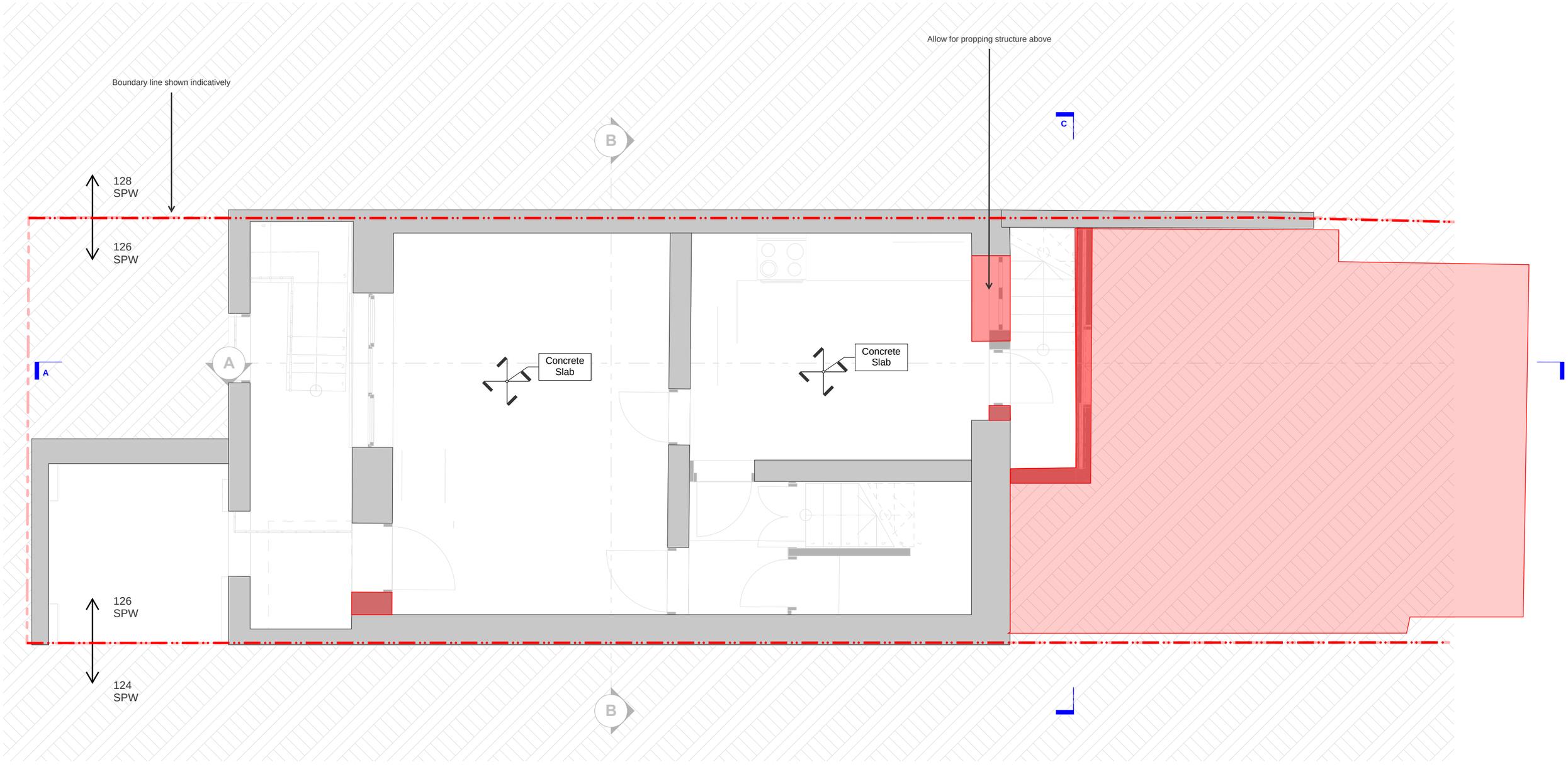
10. All setting out to Architects information

Demolition Plans TBC by Architect - Extent shown indicatively

Temporary works to contractor design - to be reviewed by Baker Chatterton



Demolition Lower Ground Floor Plan

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Project:
126 St Pancras Way, NW1

Drawing Title:
Demolition Lower Ground Floor Plan

Drawing Number:
J460-BC-SK-2090

Issued:
03.24

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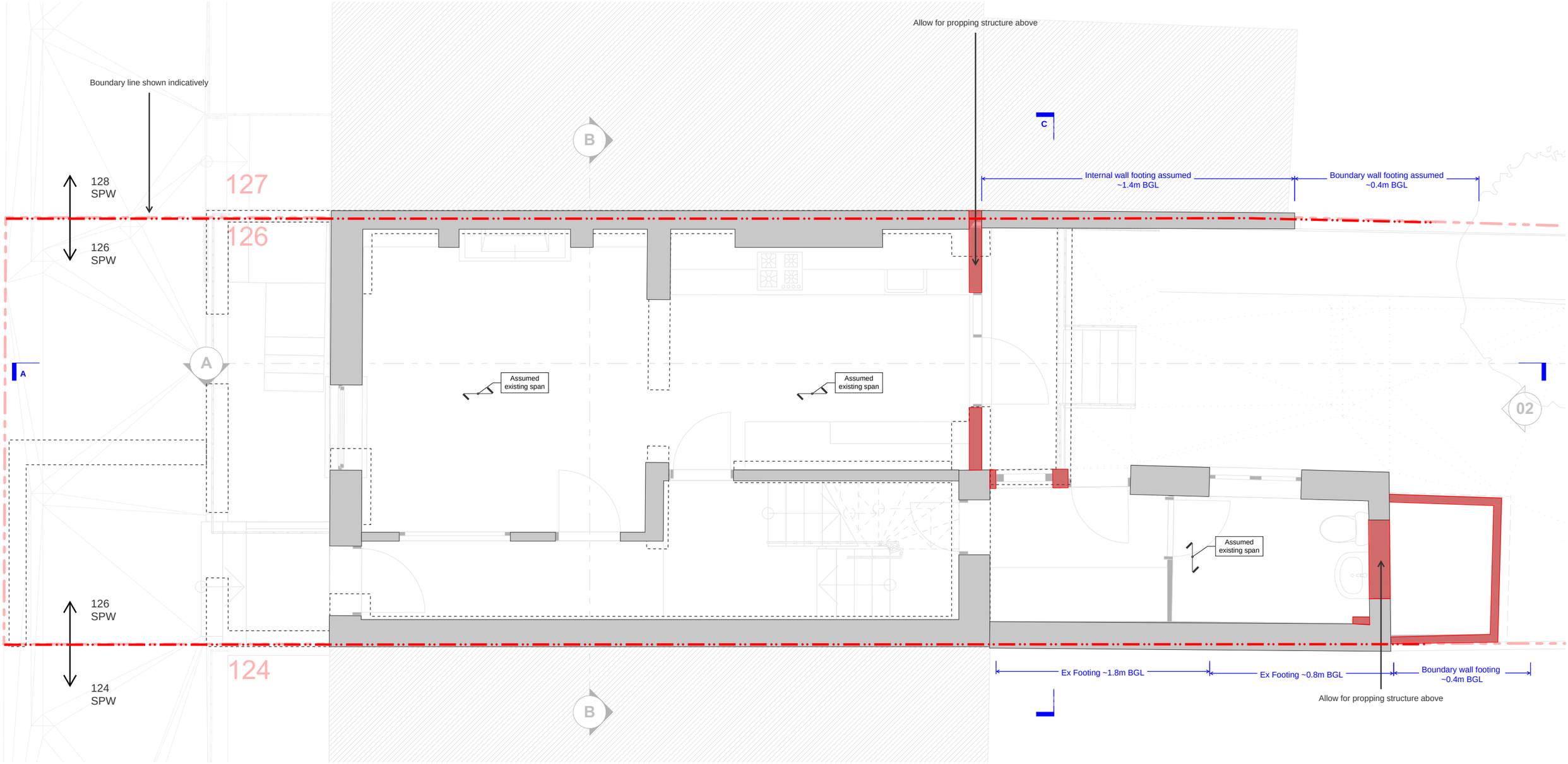

Demolition Ground Floor Plan

BAKER STRUCTURAL DESIGN CHATTERTON

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Project:
126 St Pancras Way, NW1

Drawing Title:
Demolition Ground Floor Plan

Drawing Number:
J460-BC-SK-2100

Issued:
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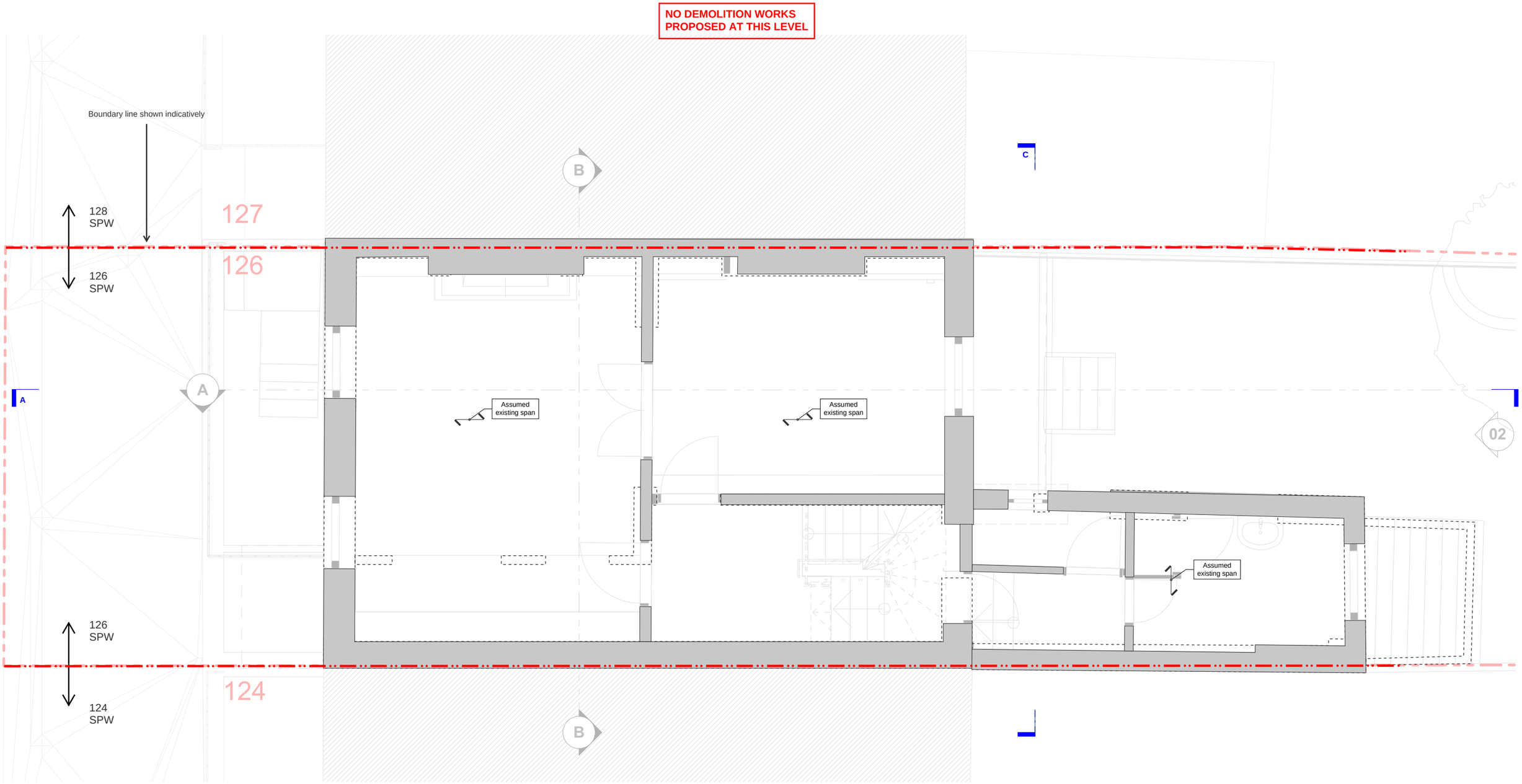

Demolition First Floor Plan

BAKER STRUCTURAL DESIGN
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Project:
126 St Pancras Way, NW1

Drawing Title:
Demolition First Floor Plan

Drawing Number:
J460-BC-SK-2110

Issued:
03.24

Drawn by:
AB

Rev:
P1

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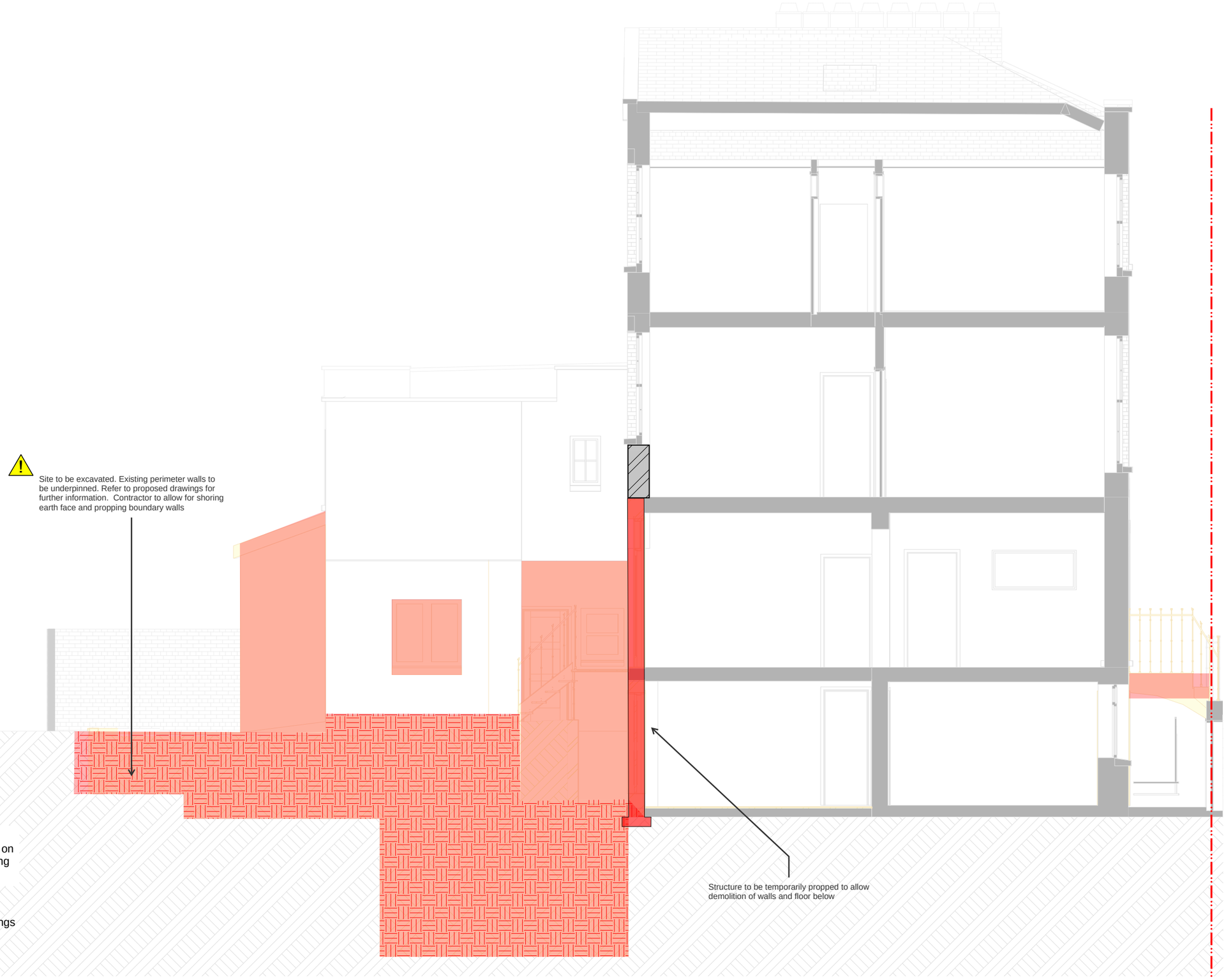

Existing structure assumptions based on assumptions. Existing structure to be verified on site. Contractor to notify engineer if the existing arrangements vary from that shown.

Extent of demolition TBC by Architect, extent shown is indicative. Refer to Architects drawings for exact demolition extent

All temporary works to Contractor design. To be submitted and reviewed by Baker Chatterton prior to installation

Demolition Section A-A

BAKER STRUCTURAL DESIGN CHATTERTON

INSTAGRAM:
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WEB:
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Project:
126 St Pancras Way, NW1

Drawing Title:
Demolition Section A

Drawing Number:
J460-BC-SK-2201

Issued:
03.24

Rev:
P1

Drawn by:
AB

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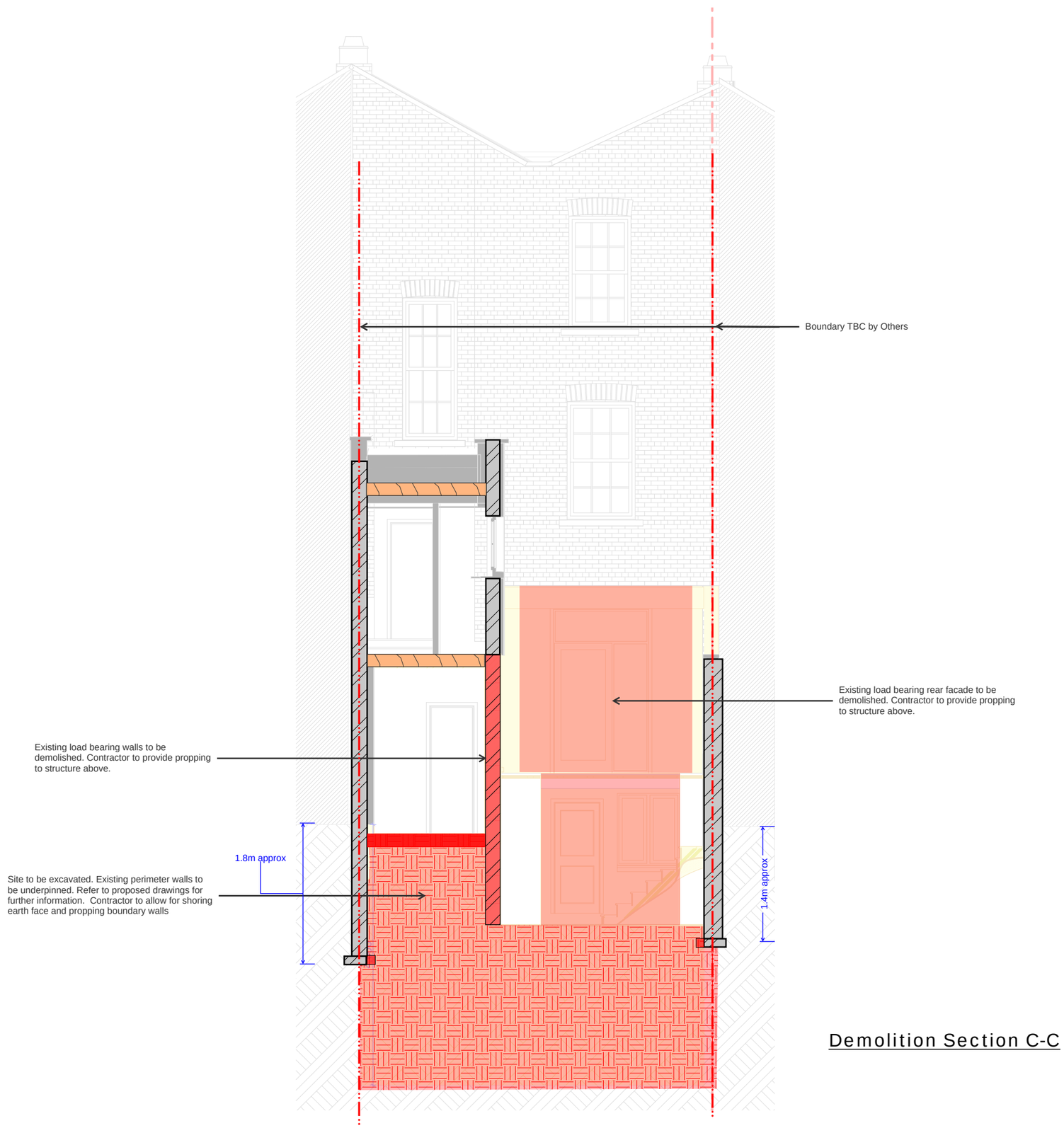

Demolition Section C-C

⚠ Existing structure assumptions based on assumptions. Existing structure to be verified on site. Contractor to notify engineer if the existing arrangements vary from that shown.

⚠ Extent of demolition TBC by Architect, extent shown is indicative. Refer to Architects drawings for exact demolition extent

⚠ All temporary works to Contractor design. To be submitted and reviewed by Baker Chatterton prior to installation

BAKER CHATTERTON STRUCTURAL DESIGN

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Project:
126 St Pancras Way, NW1

Drawing Title:
Demolition Section C

Drawing Number:
J460-BC-SK-2202

Issued:
03.24

Rev:
P1

Drawn by:
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10. All setting out to Architects information

BASEMENT CONSTRUCTION MONITORING NOTES
Movement monitoring to existing retaining walls required during construction to minimise risk of damage to neighbouring properties.

Contractor to undertake a condition survey of the property and the adjacent neighbouring walls prior to commencing site.

The Contractor is to notify the engineer if any changes to the walls condition occur during the works.

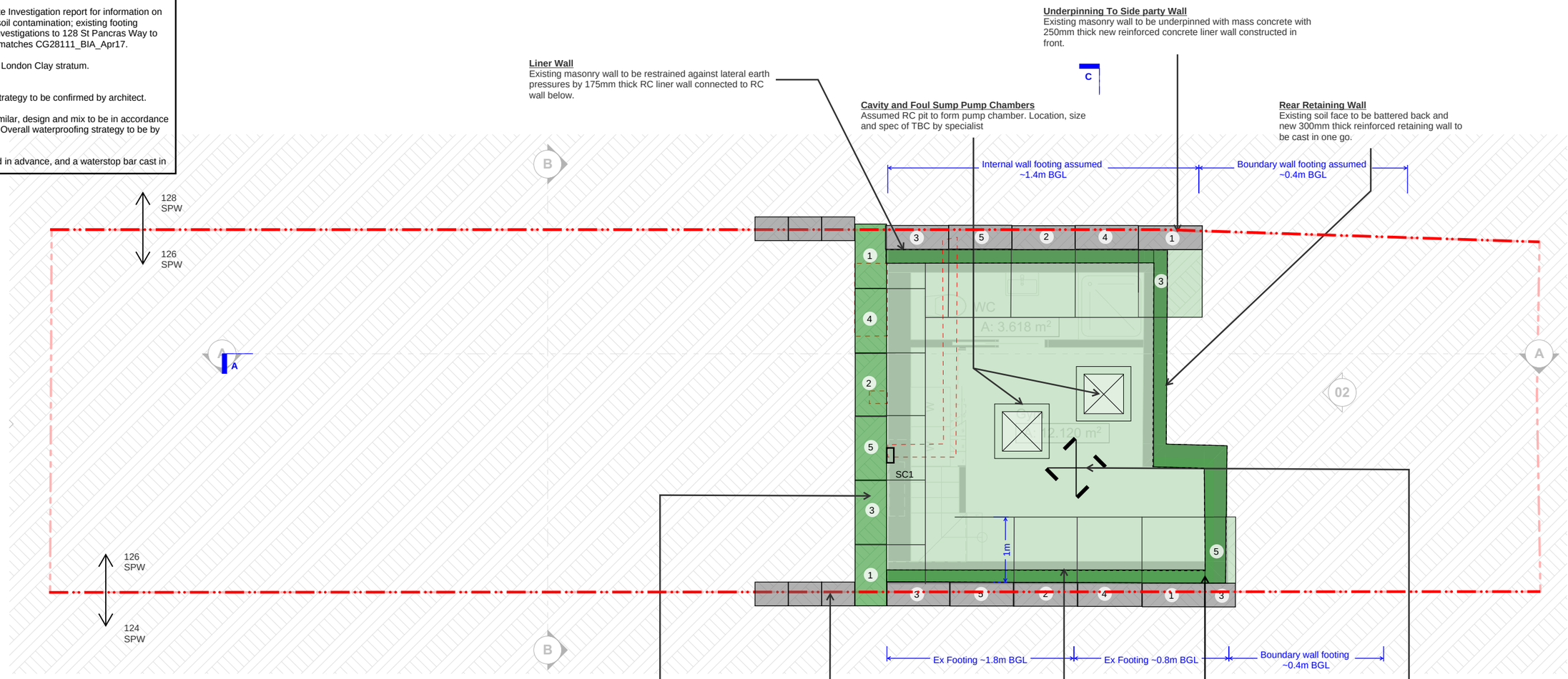
SITE GROUND INFORMATION
Contractor should refer to CGL Site Investigation report for information on the; site geology and hydrology; soil contamination; existing footing depths. Contractor to undertake investigations to 128 St Pancras Way to confirm footing depths and strata matches CG28111_BIA_Apr17.

Basement to be formed within the London Clay stratum.

WATERPROOFING NOTES
Overall basement waterproofing strategy to be confirmed by architect.

Waterproof concrete by Sika or similar, design and mix to be in accordance with manufacturers requirements. Overall waterproofing strategy to be by architect.

All construction joints to be agreed in advance, and a waterstop bar cast in



UNDERPINNING NOTES
New underpins assumed to be cast in typical underpin sequence: 1-3-5-2-4 - as indicated on plan

Concrete underpinning to be carried out in maximum 1m bay lengths, as shown on plan.

Any reinforcing bars required to tie into top or bottom slabs are to be installed and left projecting into the soil until such time that they can be cast in.

All pins are to be tied together with horizontal B12 lapping bars. Bars are to be left projecting a minimum of 500mm into soil until adjacent pin can be cast.

Contractor to allow a minimum of 3 days days after casting pin before moving onto the adjacent. Min 7 days between adjacent pins.

The Engineer and Building Inspector are to be notified when excavations are ready to receive concrete and their approval obtained before concrete is place

The excavations are to be kept dry at all times and the bottom is to be bottomed out immediately before concrete is placed.

Pins to be temporarily propped until Basement and Lower Ground floor has been cast and sufficiently cured.

The concrete is to be placed within 75mm of the underside of the existing foundations. After 24 hours the gap is to be packed with Fosroc Conbextra GP flowable grout and left for 48 hours before commencing the excavation on the next bay in the sequence.

Proposed Member Reference Table:

Beam Schedule
SB1 - 203UC S355
SB2 - 203UC S355
SB3 - 254UC or 203UC with plate over
DJ1 - 2x170x47 C24 timbers bolted

Lintel & Padstone Schedule
L1 - Catnic CN71A External solid wall lintel
L2 - 140x100mm wd R6 Hi-Spec Naylor Lintel

Column and Wall Schedule
SC1 - 200x100 RHS
SC2 - 203UC
SC3 - 160x80 RHS

Floor Schedule
TJ - 150x47 C24 timber joists

Proposed Basement Plan

BAKER STRUCTURAL DESIGN CHATTERTON

INSTAGRAM:
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WEB:
www.BCStructural.co.uk

Project:
126 St Pancras Way, NW1

Drawing Title:
Proposed Basement Plan

Drawing Number:
J460-BC-SK-3080

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03.24

Drawn by:
AB

Rev:
P1

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TrJ - Triple Joists bolted together
TB"x" - Timber Beam
TC"x" - Timber Column
W"x" - Wall type
SB"x" - Steel Beam
SC"x" - Steel Column
L"x" - Lintel over
PS"x" - Concrete padstone
CU - Column Under

Notes:
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9. All foundations assumed to be founded a minimum of 1.0m BGL on natural undisturbed ground – to be checked by Building Control or an Approved Inspector – assumed bearing capacity – 100kN/m2. If adjacent to existing foundation, excavation to be stepped at 45degrees to avoid undermining. Foundations to be 450mm deep MC and a minimum of 450mm wide UNO.
10. All setting out to Architects information

BASEMENT CONSTRUCTION MONITORING NOTES
Movement monitoring to existing retaining walls required during construction to minimise risk of damage to neighbouring properties.

Contractor to undertake a condition survey of the property and the adjacent neighbouring walls prior to commencing site.

The Contractor is to notify the engineer if any changes to the walls condition occur during the works.

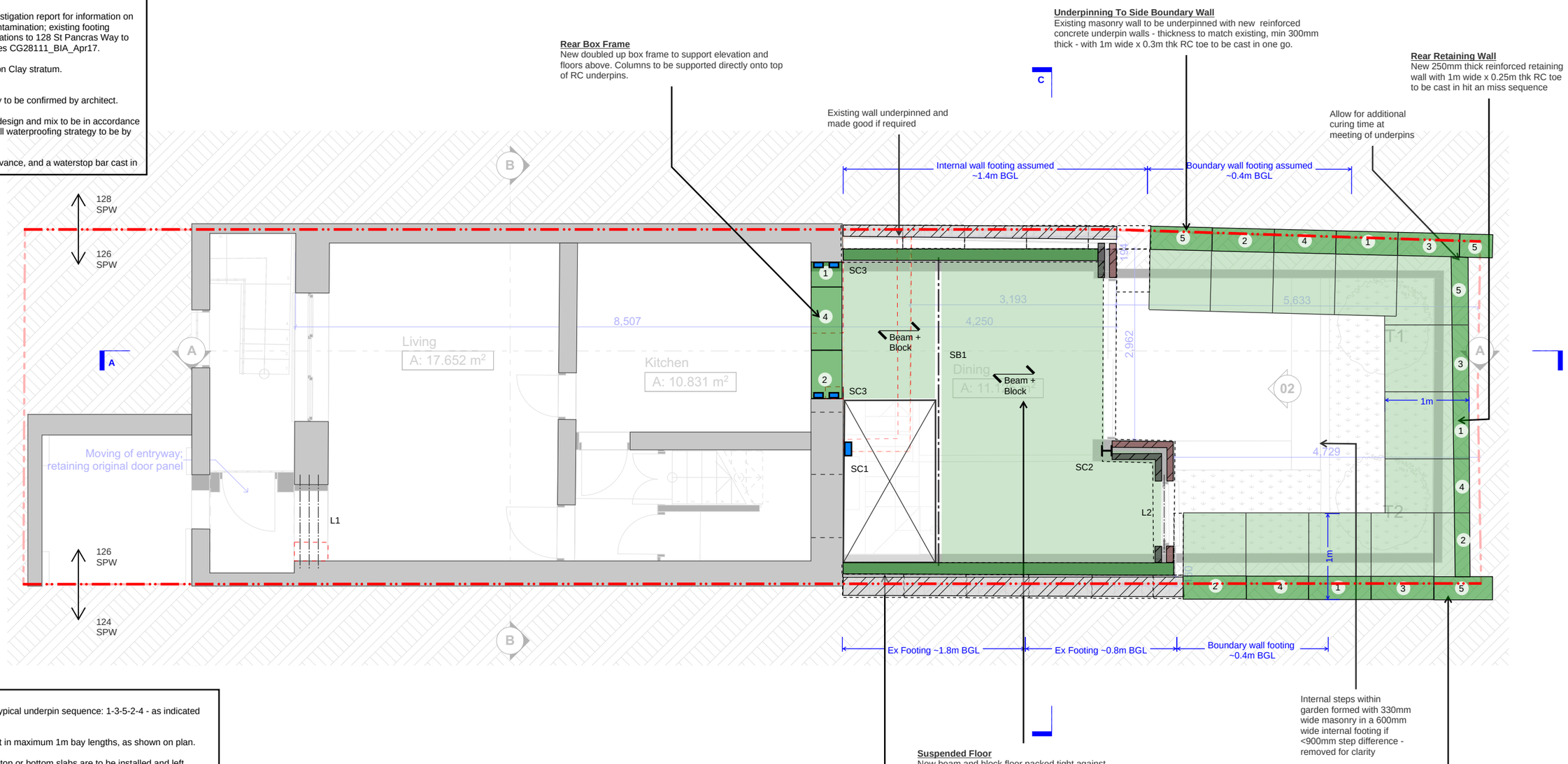
SITE GROUND INFORMATION
Contractor should refer to CGL Site Investigation report for information on the; site geology and hydrology; soil contamination; existing footing depths. Contractor to undertake investigations to 128 St Pancras Way to confirm footing depths and strata matches CG28111_BIA_Apr17.

Basement to be formed within the London Clay stratum.

WATERPROOFING NOTES
Overall basement waterproofing strategy to be confirmed by architect.

Waterproof concrete by Sika or similar, design and mix to be in accordance with manufacturers requirements. Overall waterproofing strategy to be by architect.

All construction joints to be agreed in advance, and a waterstop bar cast in



UNDERPINNING NOTES
New underpins assumed to be cast in typical underpin sequence: 1-3-5-2-4 - as indicated on plan

Concrete underpinning to be carried out in maximum 1m bay lengths, as shown on plan.

Any reinforcing bars required to tie into top or bottom slabs are to be installed and left projecting into the soil until such time that they can be cast in.

All pins are to be tied together with horizontal B12 lapping bars. Bars are to be left projecting a minimum of 500mm into soil until adjacent pin can be cast.

Contractor to allow a minimum of 3 days days after casting pin before moving onto the adjacent. Min 7 days between adjacent pins.

The Engineer and Building Inspector are to be notified when excavations are ready to receive concrete and their approval obtained before concrete is place

The excavations are to be kept dry at all times and the bottom is to be bottomed out immediately before concrete is placed.

Pins to be temporarily propped until Basement and Lower Ground floor has been cast and sufficiently cured.

The concrete is to be placed within 75mm of the underside of the existing foundations. After 24 hours the gap is to be packed with Fosroc Conbextra GP flowable grout and left for 48 hours before commencing the excavation on the next bay in the sequence.

Proposed Member Reference Table:

Beam Schedule
SB1 - 203UC S355
SB2 - 203UC S355
SB3 - 254UC or 203UC with plate over
DJ1 - 2x170x47 C24 timbers bolted

Lintel & Padstone Schedule
L1 - Catnic CN71A External solid wall lintel
L2 - 140x100mm wd R6 Hi-Spec Naylor Lintel

Column and Wall Schedule
SC1 - 200x100 RHS
SC2 - 203UC
SC3 - 160x80 RHS

Floor Schedule
TJ - 150x47 C24 timber joists

Proposed Lower Ground Floor Plan

Symbols Key
- Denotes moment connection
- Denotes floor span
- Denotes rafter span
- Denotes cranked beam

Abbreviations
J"x" - Timber Joists
DJ - Double Joists bolted together
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10. All setting out to Architects information

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@BakerChatterton
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Project:
126 St Pancras Way, NW1

Drawing Title:
Proposed Lower Ground Floor Plan

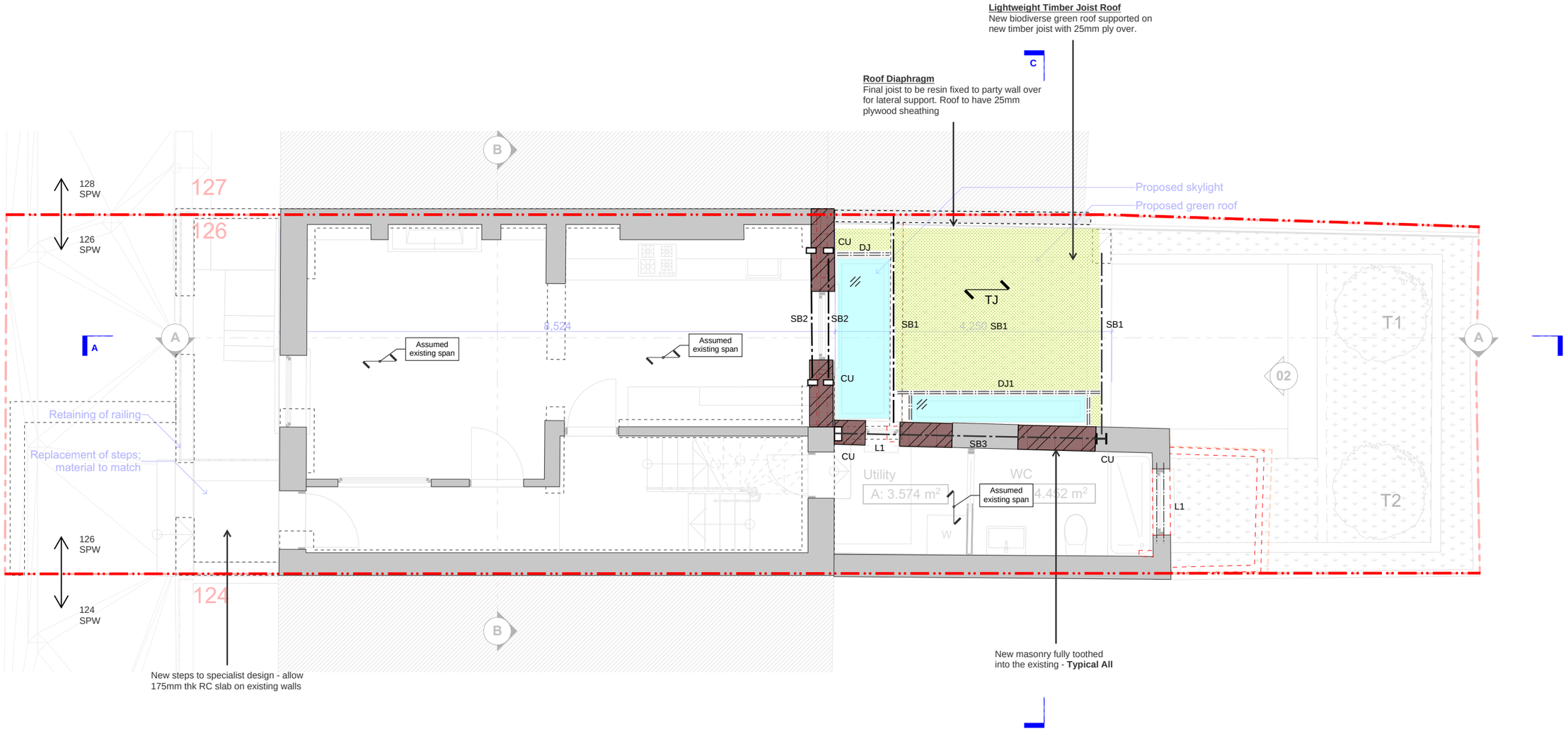
Drawing Number:
J460-BC-SK-3090

Issued:
03.24

Drawn by:
AB

Rev:
P1

Scale:
NTS



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Column and Wall Schedule
SC1 - 200x100 RHS
SC2 - 203UC
SC3 - 160x80 RHS

Floor Schedule
TJ - 150x47 C24 timber joists

Proposed Ground Floor Plan

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Project:
126 St Pancras Way, NW1

Drawing Title:
Proposed Ground Floor Plan

Issued:
03.24

Drawn by:
AB

Drawing Number:
J460-BC-SK-3100

Rev:
P1

Scale:
NTS

Symbols Key
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- Denotes rafter span
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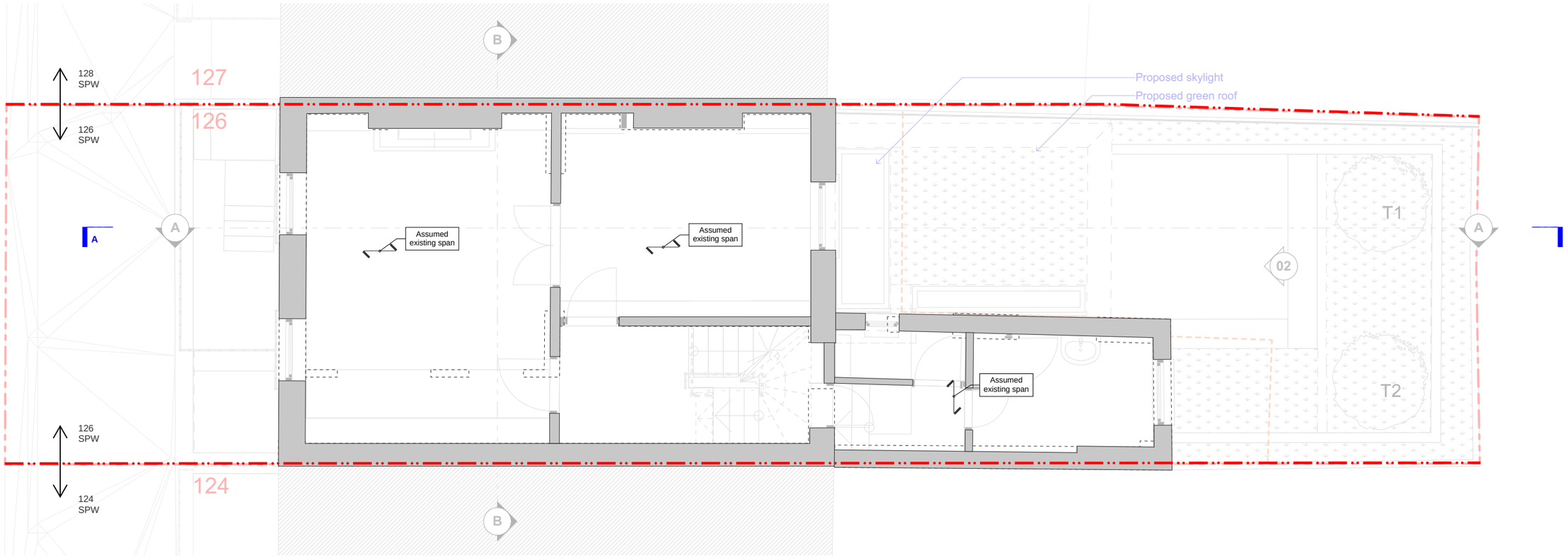
10. All setting out to Architects information

NO DEMOLITION WORKS PROPOSED AT THIS LEVEL



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Column and Wall Schedule
SC1 - 200x100 RHS
SC2 - 203UC
SC3 - 160x80 RHS

Floor Schedule
TJ - 150x47 C24 timber joists

Proposed First Floor Plan

BAKER STRUCTURAL DESIGN CHATTERTON

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Project:
126 St Pancras Way, NW1

Drawing Title:
Proposed First Floor Plan

Drawing Number:
J460-BC-SK-3110

Issued:
03.24

Drawn by:
AB

Rev:
P1

Scale:
NTS

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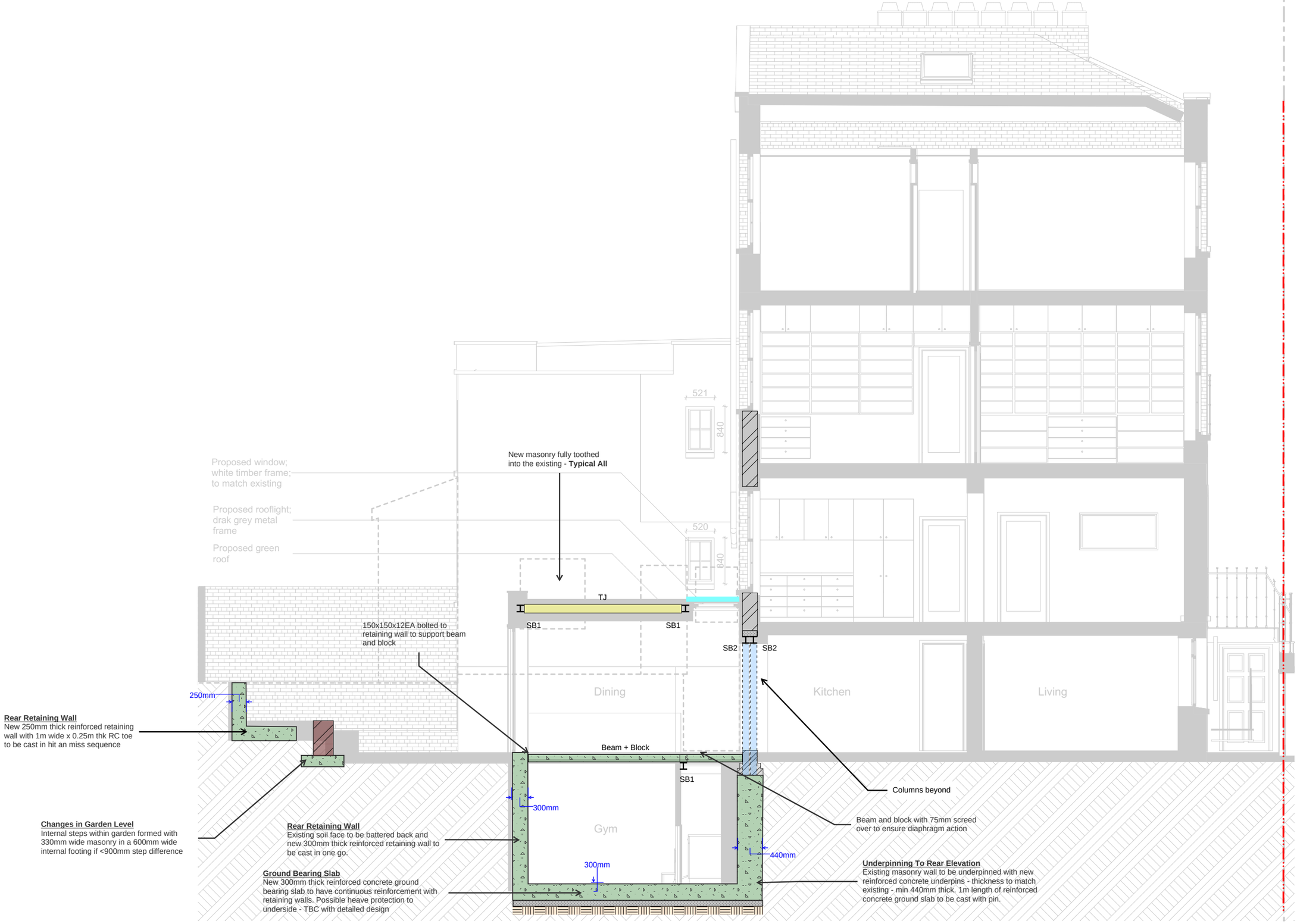

Proposed Section A-A

BAKER STRUCTURAL DESIGN CHATTERTON

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Project:
126 St Pancras Way, NW1

Drawing Title:
Proposed Section A

Issued:
03.24

Drawn by:
AB

Drawing Number:
J460-BC-SK-3201

Rev:
P1

Scale:
NTS

Symbols Key

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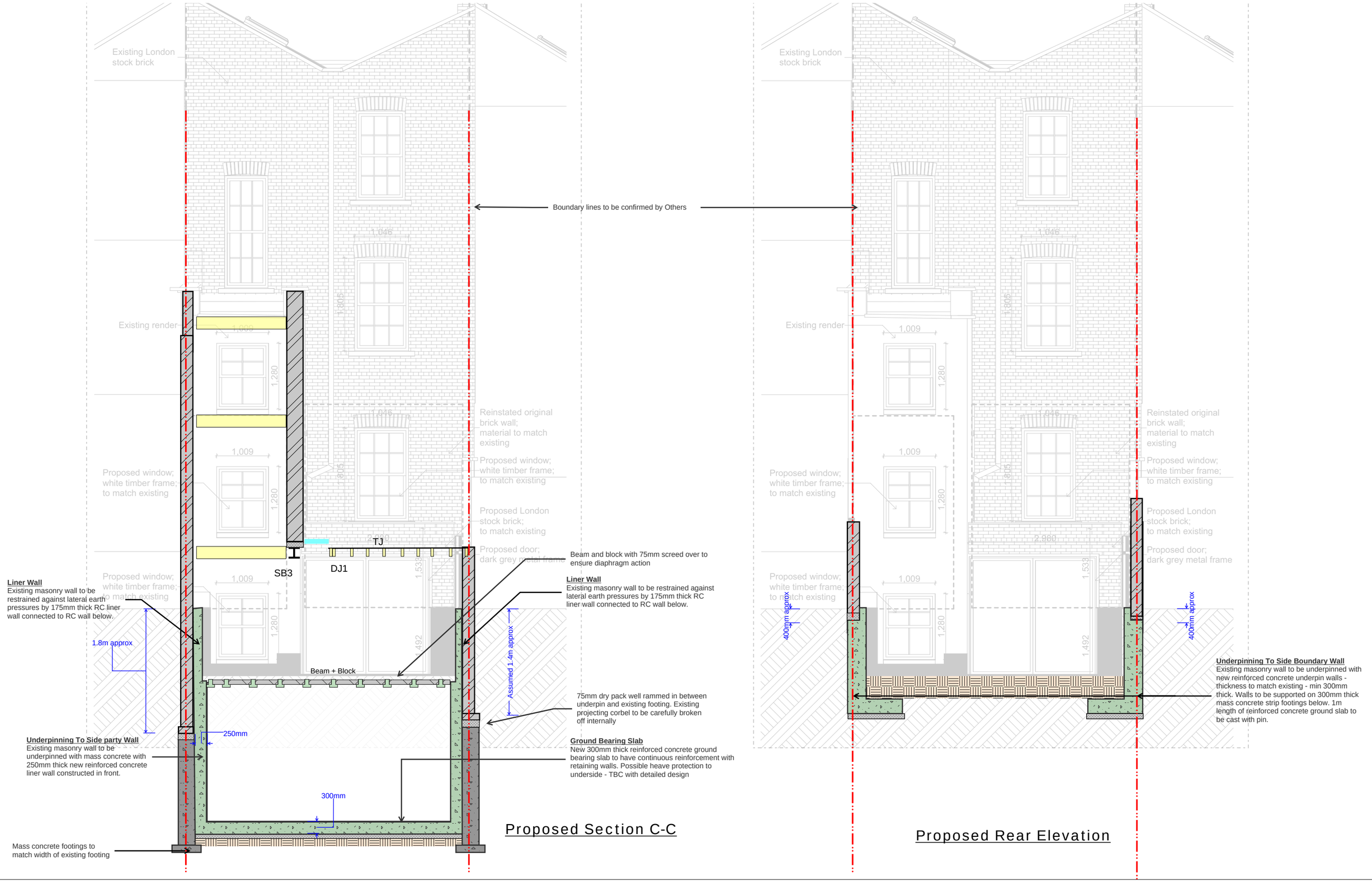

Proposed Section C-C

Proposed Rear Elevation

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INSTAGRAM:
@BakerChatterton

WEB:
www.BCStructural.co.uk

Project:
126 St Pancras Way, NW1

Drawing Title:
Proposed Sections

Drawing Number:
J460-BC-SK-3202

Issued:
03.24

Drawn by:
AB

Rev:
P1

Scale:
NTS

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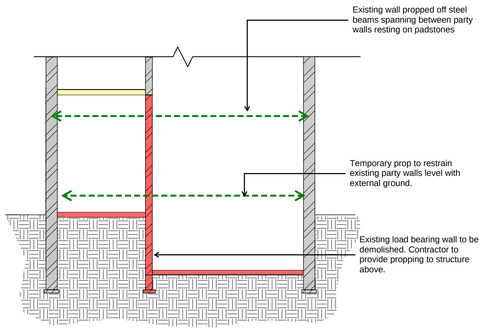
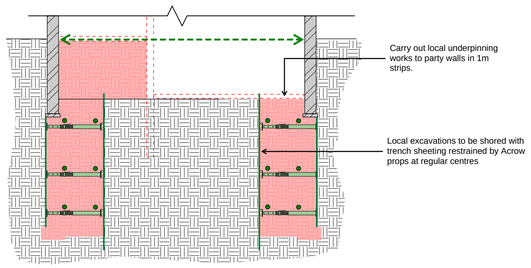
Appendix B – Outline Temporary Works Proposals



Stage 1



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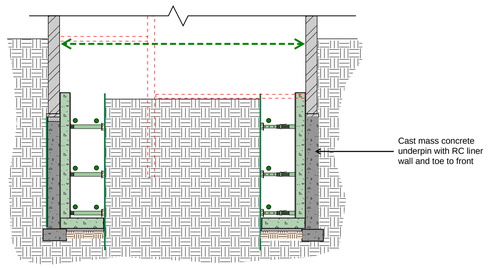

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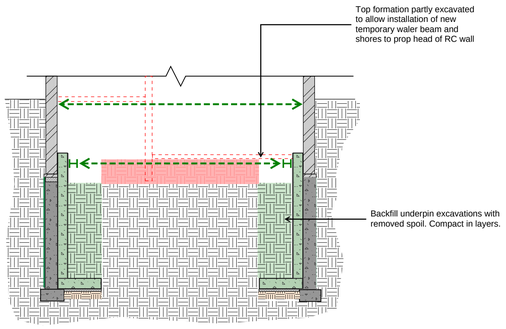

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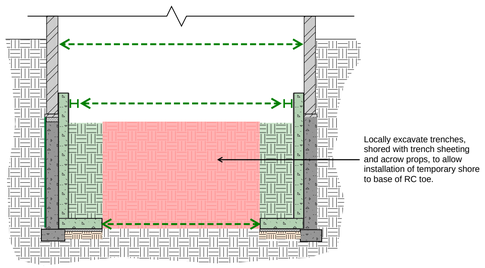
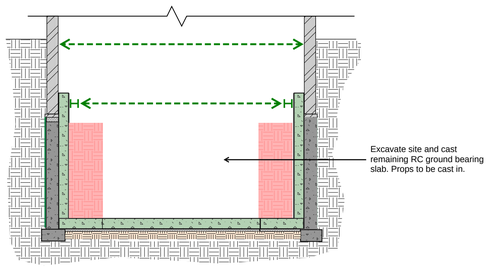
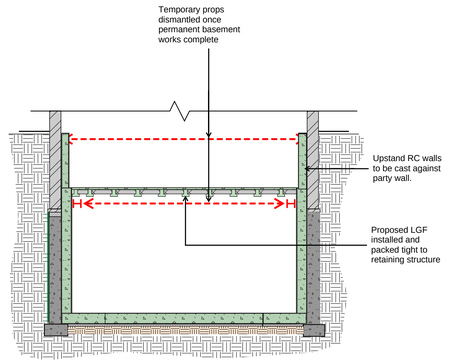


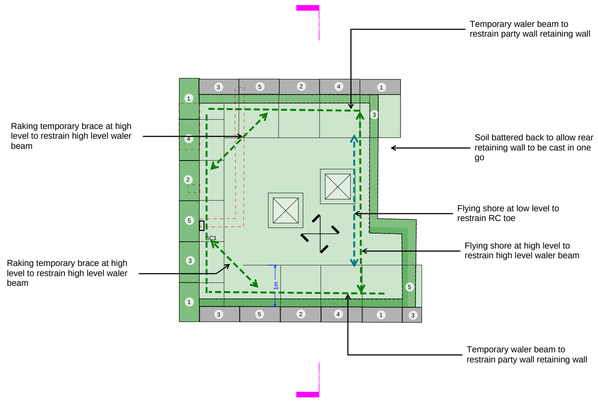
Stage 5



Stage 6



Stage 7



Basement Plan - Temporary Works Arrangement

Notes:

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10. All setting out to Architects information

BAKER CHATTERTON STRUCTURAL DESIGN

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Project:
126 St Pancras Way

Drawing Title:
Temporary Works

Drawing Number:
J460-BC-SK-4000

Issued: **03.24** Drawn by: **AB**

Rev: **P1** Scale: **NTS**

Work in Progress

Appendix C – Site Visit Report

BAKER STRUCTURAL DESIGN CHATTERTON

Site Visit Report

J460 – 126 St Pancras Way, NW1 9NB

Ref: J460-RP-001
Date: 05.03.2024
Status: Issued for information
Revision: 00
Prepared By: Alexander Baker

Baker Chatterton Structural Design
Company Address: 8 Marsden Road, London, England, SE15 4EE
Company Number: 13004780

1.0 Introduction

The following report summarises the findings of an initial site visit completed on 04.03.24 by Alexander Baker of Baker Chatterton Structural Design.

2.0 Site Visit Report

REF:	IMAGE	NOTES
01		126 St Pancras way is a mid-terraced four storey Victorian era property comprising lower ground to second floor with a London Valley roof over. The property is of traditional construction with solid masonry external walls and timber joisted floor spanning front to back. To the rear, there is a two storey outrigger which is founded at Upper Ground level and extends to first floor.

The front lightwell is accessed via a metal staircase. Stucco plaster extends to high level upper ground floor and is in reasonable condition with minor cracking.

No basement vents or lightwells can be seen in the adjacent 128 or 124 St Pancras Way.

To the rear, the adjacent 128 St Pancras way appears to have a lower ground which is approximately the same level as 126 St Pancras Way.

The walls of the two storey outrigger to 126 St Pancras Way is constructed from 330mm thick masonry.

To the rear of the garden is a Bay tree which is approximately 11m in height.

There is also a Cherry Tree which is approximately 9m in height but has recently been cut back.

Internally at second floor the floorboards are exposed so the joists are known to span front to back and are supported on the central spine wall.

The London Valley roof is inaccessible as there is no ladder.

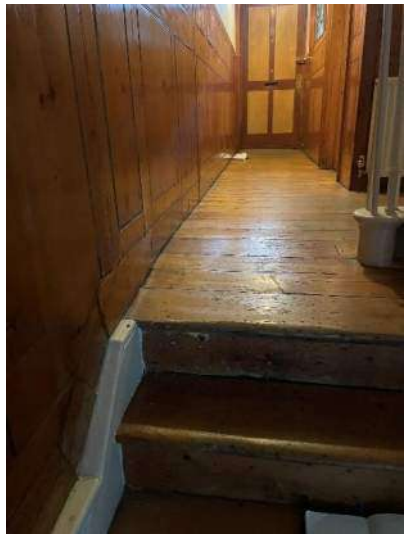
The external masonry walls are 380mm thick at second floor.

Throughout the building, the loadbearing walls are of masonry construction, including the stair support wall and the central spine wall. All non-loadbearing walls are of timber construction. The demise is in good condition throughout with no signs of major cracking or excessive movement.

At upper ground floor the spine wall changes from 100mm blockwork above to 225mm thick masonry.

The ground floor floorboards are exposed and the joists span front to back.

The upper ground floor in the outrigger is founded on a concrete slab. The joist span is not known above.



The party wall steps at low level upper ground floor by 50mm.

Lower ground is constructed on a concrete slab with a 225mm wide masonry wall for the stair support. The lower ground is in reasonable condition with no major cracking. The property has not been decorated recently and is in need of refurbishment.

The rear garden has a wooden temporary structure to the rear of the outrigger.

The rear façade is in good condition with no signs of excessive cracking or movement.

Appendix D – Retaining Wall Calculations

It is proposed to extend the existing Lower Ground Floor below part of the rear garden and construct a basement level beneath the new extension.

The new extension will require the rear elevation, the party walls and the boundary wall to be underpinned with new reinforced concrete walls.

There will also be a new earth retaining wall to the rear garden elevation, not positioned on a boundary line.

On site soil investigations undertaken in the adjacent property for the same owner have been undertaken by CGL in 2017 who provided an interpretive report with findings. The main findings are in the table to the right.

The basement structure will be located within London Clay strata

The depth of the existing footings to the outrigger at 126 and 126 St Pancras Way are known but the footings to 128 St Pancras Way are assumed based on the trial pits from next door and the knowledge that all the properties on the terrace were built at the same time and are similar in style. The footings will be verified pre-construction.

The new reinforced concrete retaining walls to the basement will be designed to act as propped cantilevers with a fixed connection to the basement ground floor reinforced concrete slab. For the design at scheme, these footings will be assumed to be pinned, with fixity added at the next stage.

Restraint at the head of the wall to the LGF will be provided by the LGF beam and block floor. Therefore, at rest earth pressures to be assumed for the basement structure as movements are limited.

The rear flank wall will be resupported on an underpin and the underpin will act as a cantilever.

The basement slab structure will be stiff enough to spread loads from retaining walls across the extent of the floor to avoid peak bearing stresses

Retaining walls will not slide as they are all tied together at their base

The basement slab will resist heave pressures and accidental hydrostatic uplift pressures

No water was recorded in window sample to depth of 8m.

Design Parameters

Water will be taken at 500mm below top of basement level, above this, the water will pass between the corbelled masonry and flow internally.

The basement is between the clay head deposits and the London Clay. This will be taken as a uniform 20Mpa density with a Ka of 0.49 and a K0 of 0.64 .

Surcharge will be taken as 10kN/m2 for the loading in the garden and adjacent properties

7.5 Characteristic values of geotechnical parameters

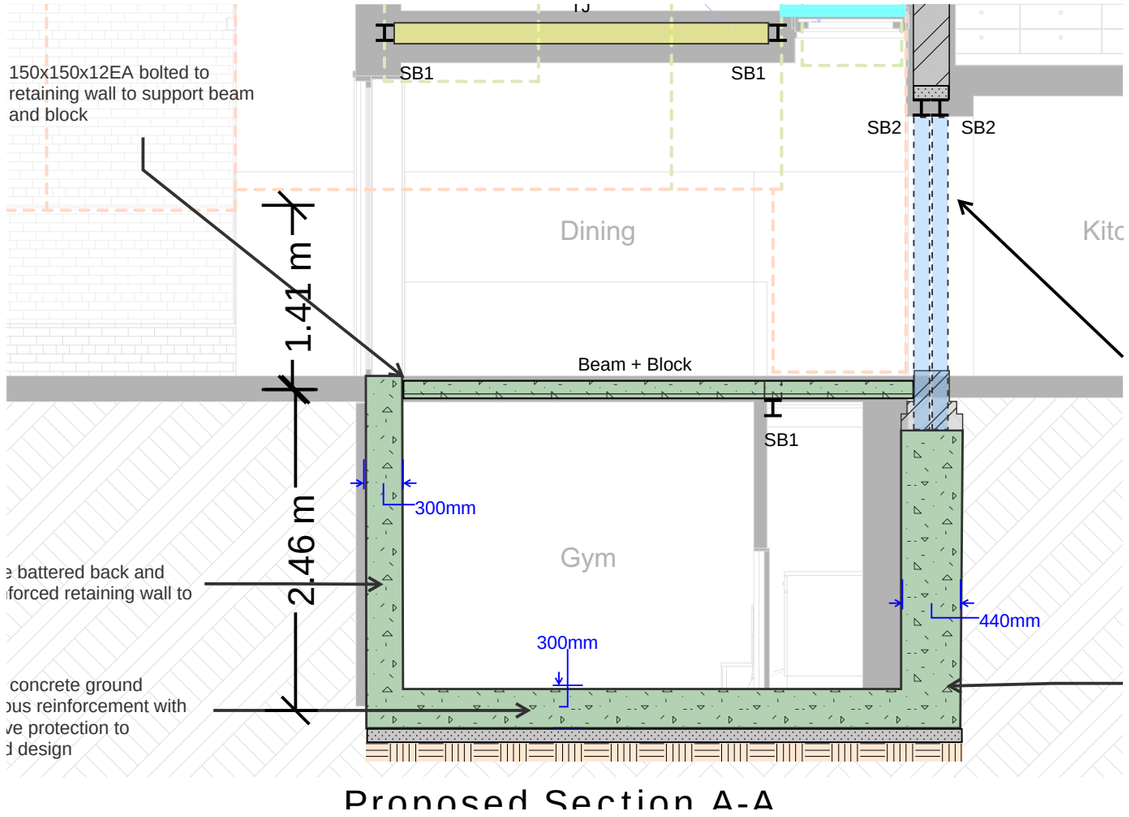
The parameters used for purposes of settlement / heave modelling in Section 7 previously adopted by GCL and accepted by LBC are shown in Table 7.2.

Table 7.2 Geotechnical Design Parameters

Strata	Design Level m bgl	Class	Undrained Cohesion Cu (kPa)	Effective angle of shearing resistance MPa	Bulk unit weight kN/m³	Deformation Modulus E_{u} / E' MPa	K_a	K_p
Made Ground	0	n/a	n/a	30**	18**	(10)*	0.35	2.9
Possible Head Deposits	1.0	CM	30 + 9z	21**	19**	20 + 6z (15 + 4.5z)*	0.49	2.1
London Clay Formation	2.1	CM	45 + 9z	21**	20**	26 + 6z (21 + 4.5z)**	0.49	2.1

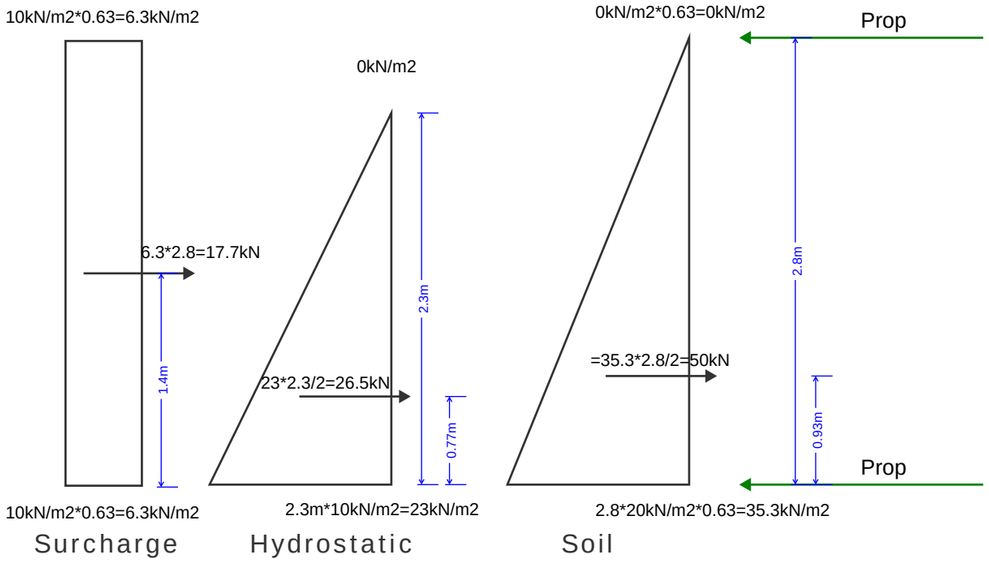
Notes:
* Look 2014
**BS8004 2015
a. z = depth below upper surface of the stratum
b. Based on 600 Cu - Burland, Standing J.R., and Jardine F.M. (eds) (2001), Building response to tunnelling, case studies from construction of the Jubilee Line Extension London, CIRIA Special Publication 200.
c. Based on 0.75Eu - Burland, Standing J.R., and Jardine F.M. (eds) (2001), Building response to tunnelling, case studies from construction of the Jubilee Line Extension London, CIRIA Special Publication 200.

Active and Passive pressure coefficients k_a and k_p from BS EN 1997-1 Annex C
The parameters in Table 7.2 are unfactored (Serviceability Limit State) and considered to be 'a cautious estimate.'
Groundwater is assumed to be at 1.2 m bgl or ~28.20 m AOD.

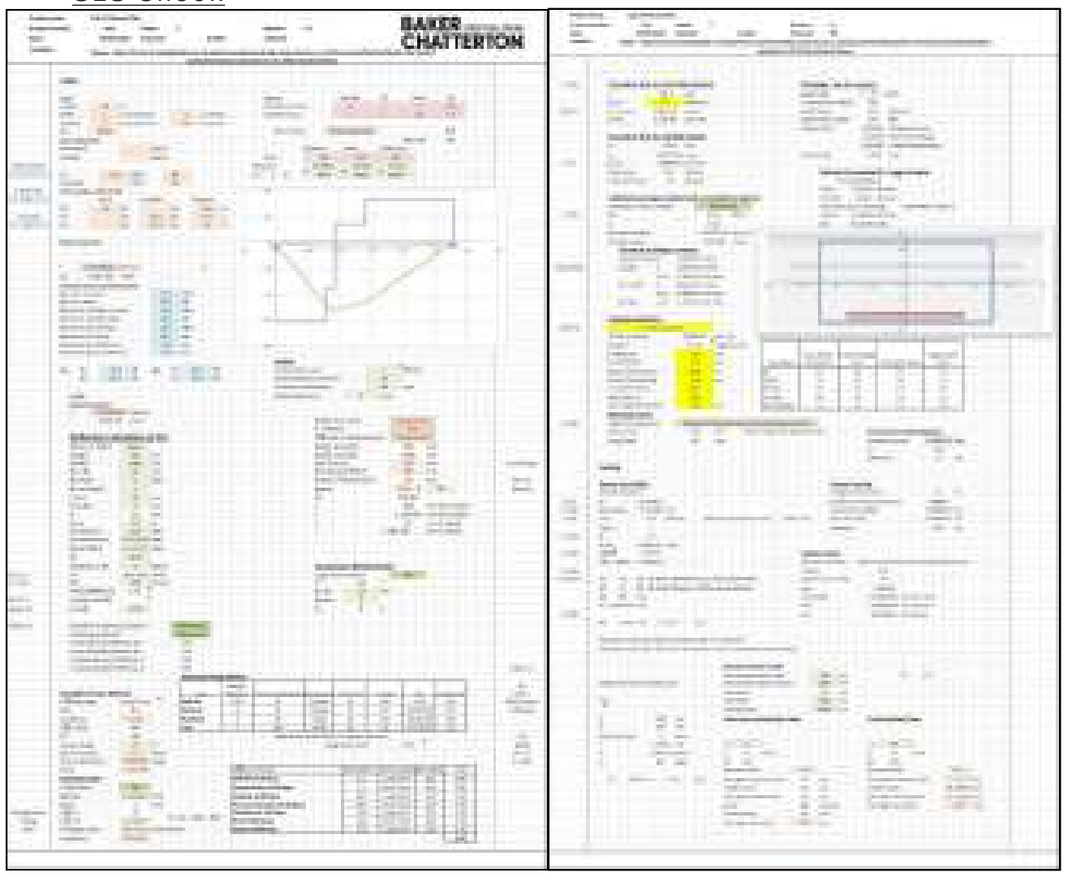


Proposed Section A-A

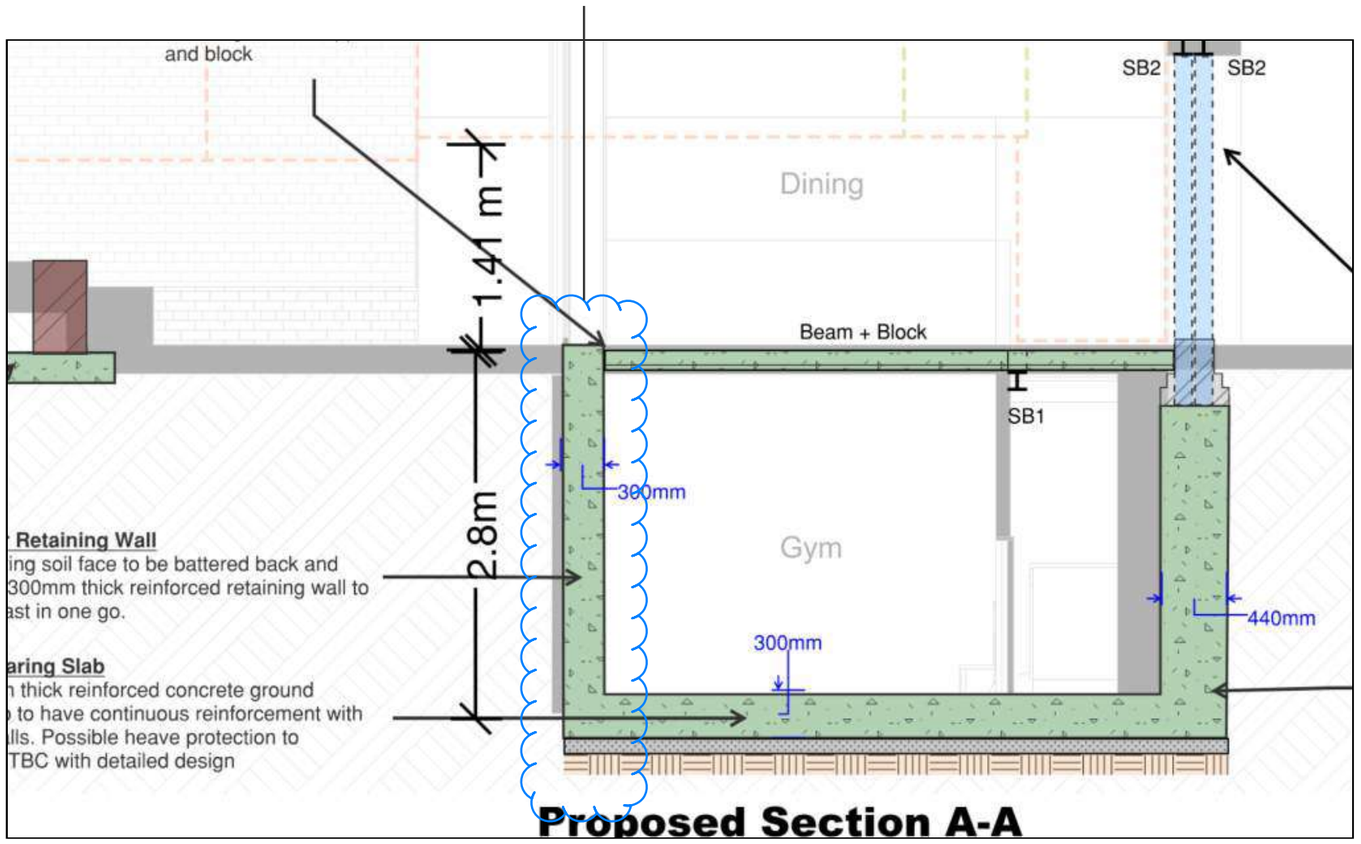
Design of the Rear Retaining Wall



SLS Check

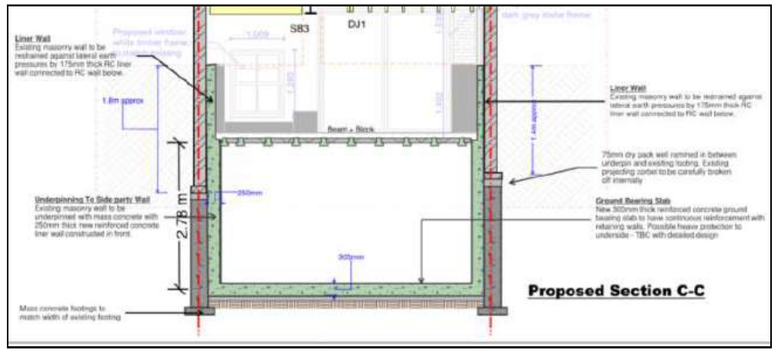


Design of this section

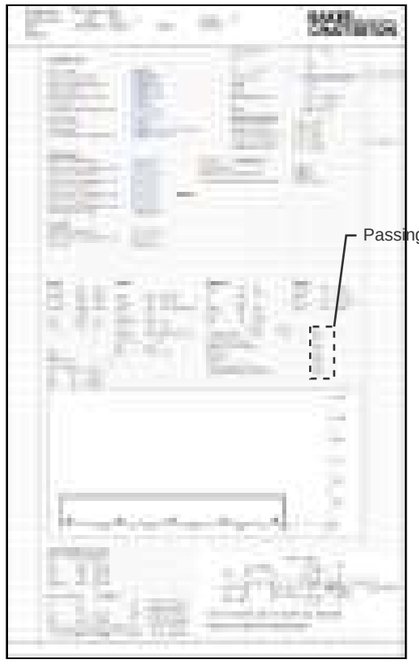


ULS moment - 75kNm/m with a shear of 93kN/m. This works with B16's at 200mm c-c in the front face.

Using C30/37 concrete there will be a long term deflection of around 5.3mm with 0.11mm cracks assuming the wall is 250mm thick. The allowable deflection is height /250 = 11.2mm and therefore passing. A 300mm thick wall will be assumed for planning to reduce this reinforcement with detailed design at the next stage.

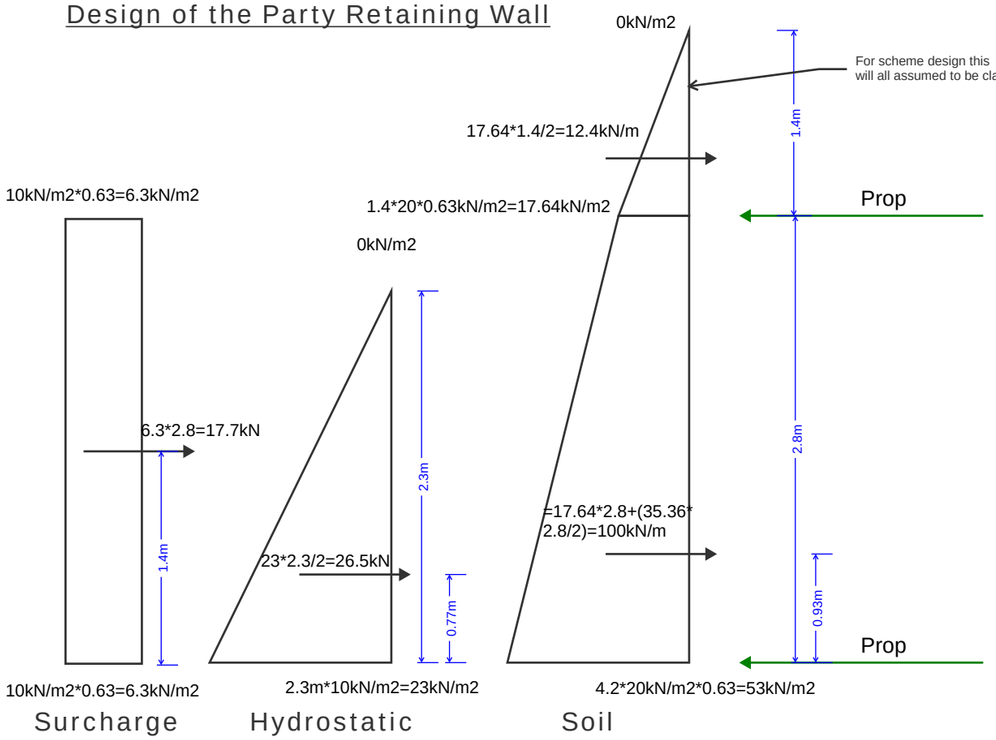


ULS Check

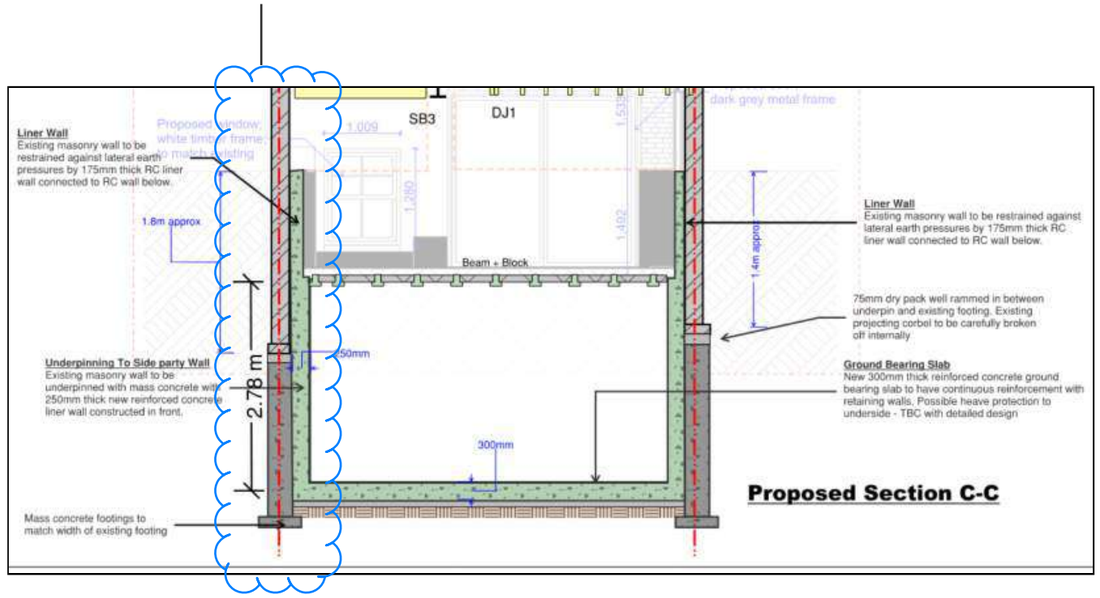


Passing to 85% at ULS

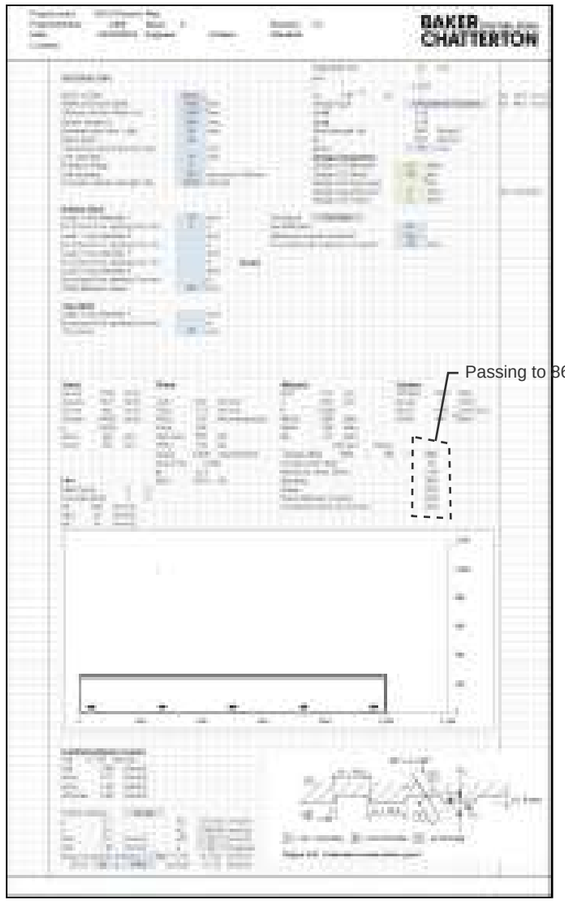
Design of the Party Retaining Wall



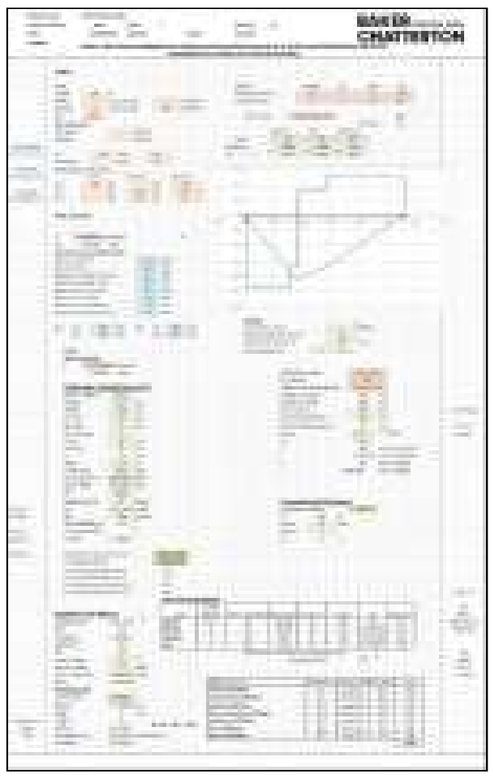
Design of this section

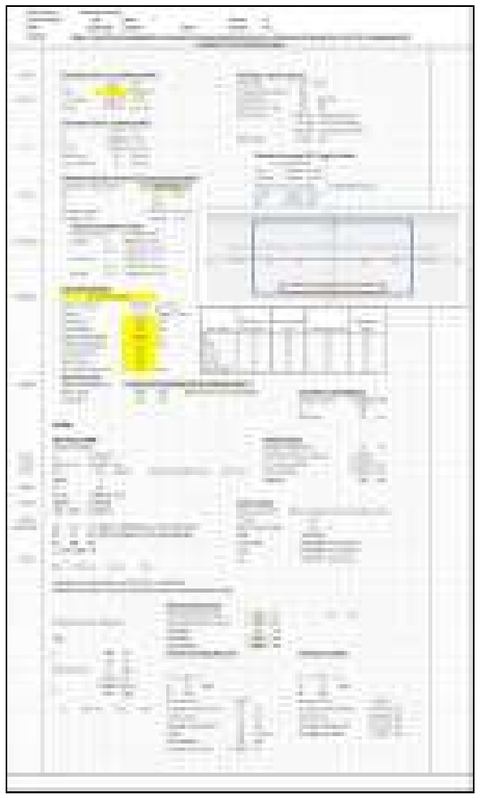


ULS Check



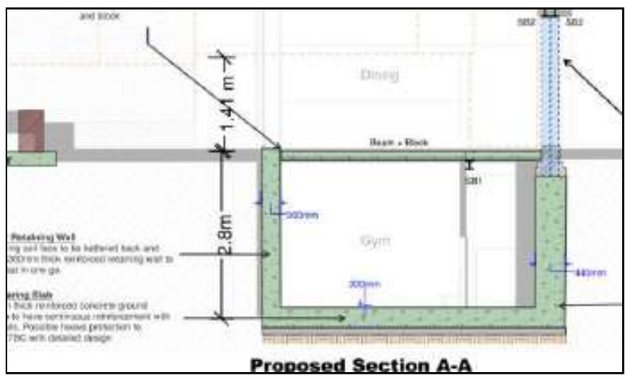
SLS Check





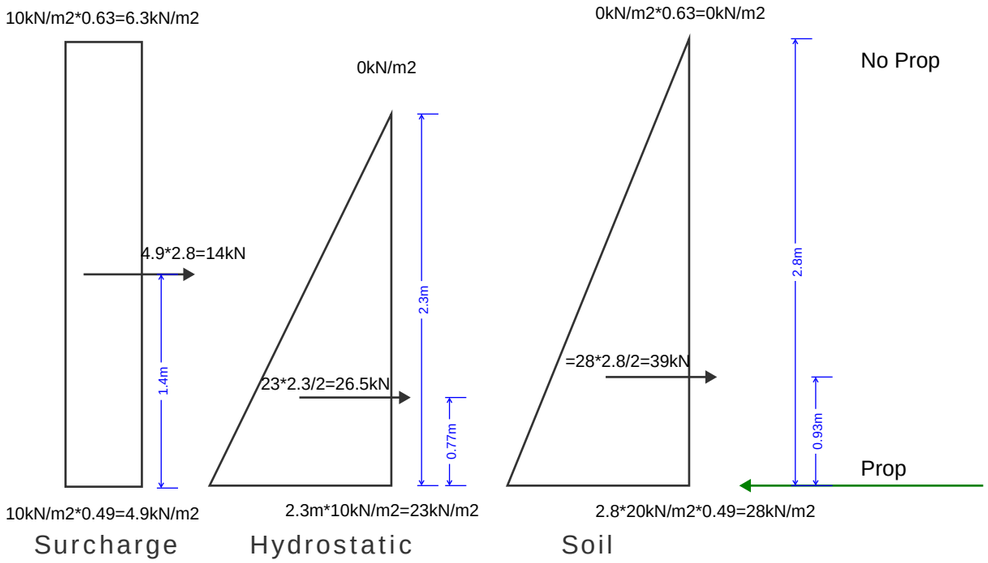
ULS moment - 117kNm/m with a shear of 132kN/m. This works with B20's at 200mm c-c in the front face.

Using C30/37 concrete there will be a long term deflection of around 9.2mm with 0.21mm cracks assuming the wall is 250mm thick. The allowable deflection is height /250 = 11.2mm and therefore passing.

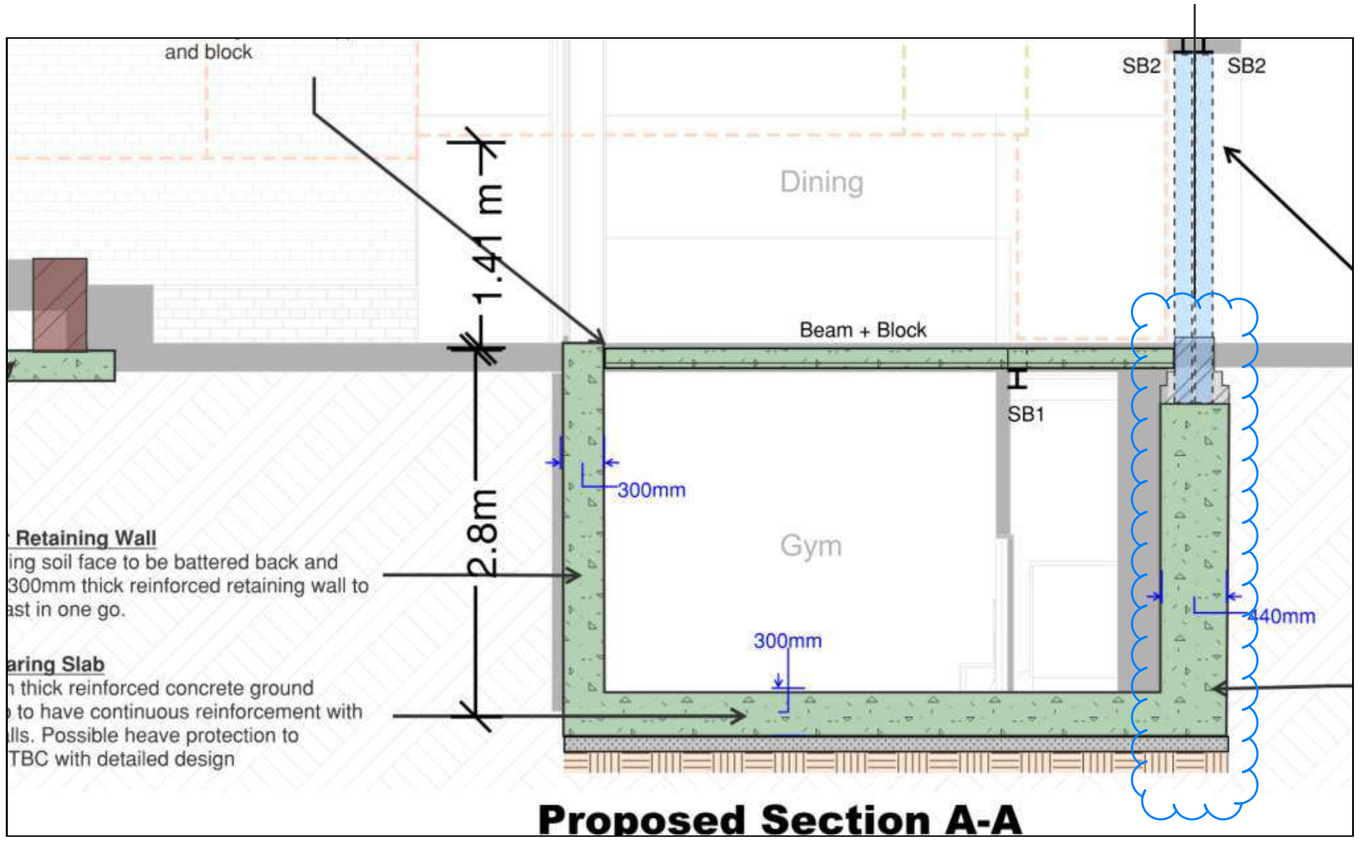


Design of the Rear Facade Wall

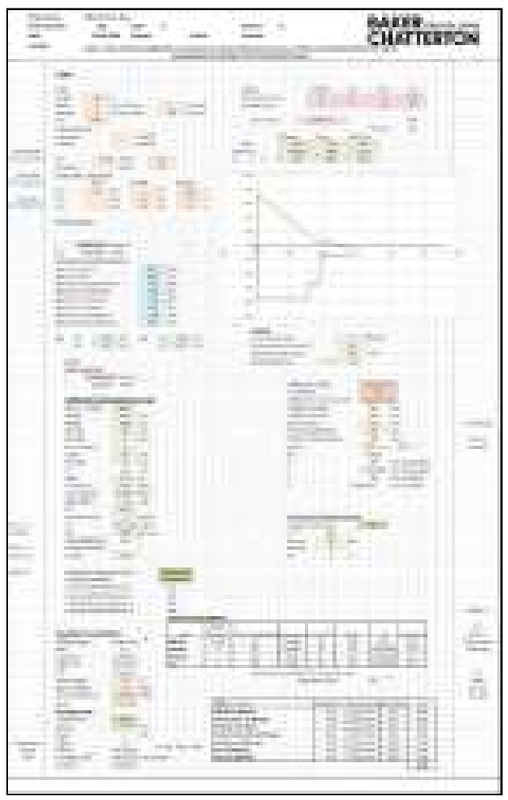
As this section is cantilevering - a Ka of 0.49 will be taken from the SI. The masonry will be retained but to be conservative, the masonry will be as high as possible, with minimal footing and maximum canitlever

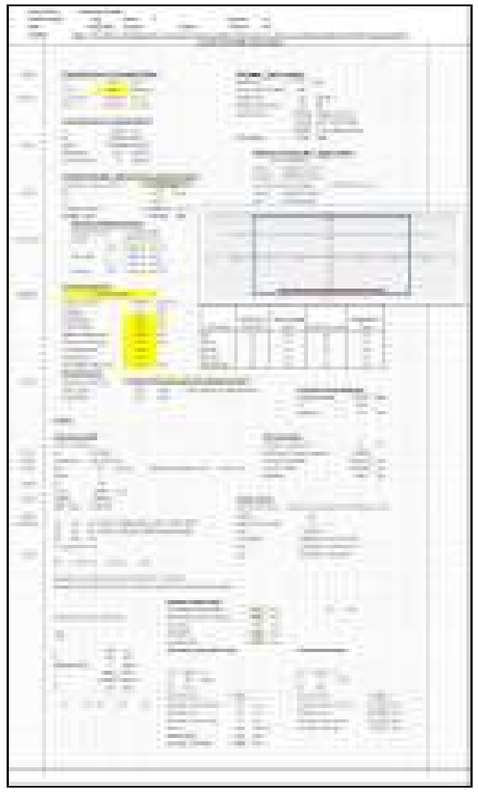


Design of this section



SLS Check





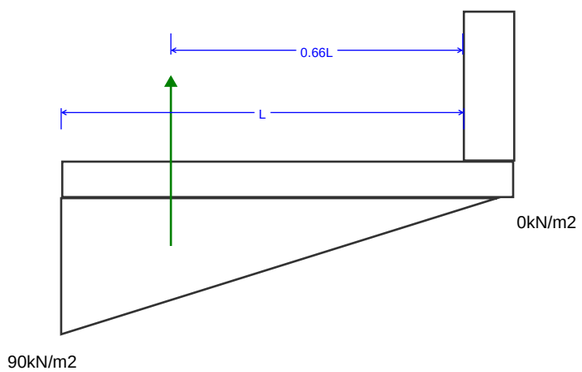
ULS moment - 105kNm/m with a shear of 110kN/m. This works with B16's at 200mm c-c in the front face with a 440mm thick wall.

Using C30/37 concrete there will be a long term deflection of around 2.0mm with 0.10mm cracks assuming the wall is 440mm thick. The allowable deflection is height /250 = 11.2mm and therefore passing. A 300mm thick wall will be assumed for planning to reduce this reinforcement with detailed design at the next stage.

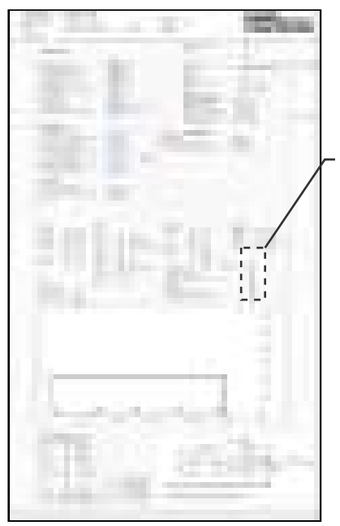
Lateral reinforcement will be designed at the next stage to resist overturning which will put the loads into the return walls.

The wall above is 330mm thick and weighs approximately 50kN/m from earlier load take-down calculations. The friction with this and bending in the wide masonry can be used to minimise over-turning.

At SLS the maximum overturning moment at the base is 74kNm/m, ignoring and restraint from the return walls. Assuming a slab bearing of 90kN/m2 - length required = 90*L^2/2=74/(0.66*L)
L=1.4m. The slab is constant thickness but the toe needs to be 1.4m wide maximum.



ULS Check



Design of the Heave on the Basement Slab

Heave and hydrostatic pressures will act seperatley

The have pressures at the bottom of the basement will assume that 50% relaxation of the soil has occured.

Maximum heave = (2.8+1.4)*20=84kN/m2

Half of this will occur - 42kN/m2

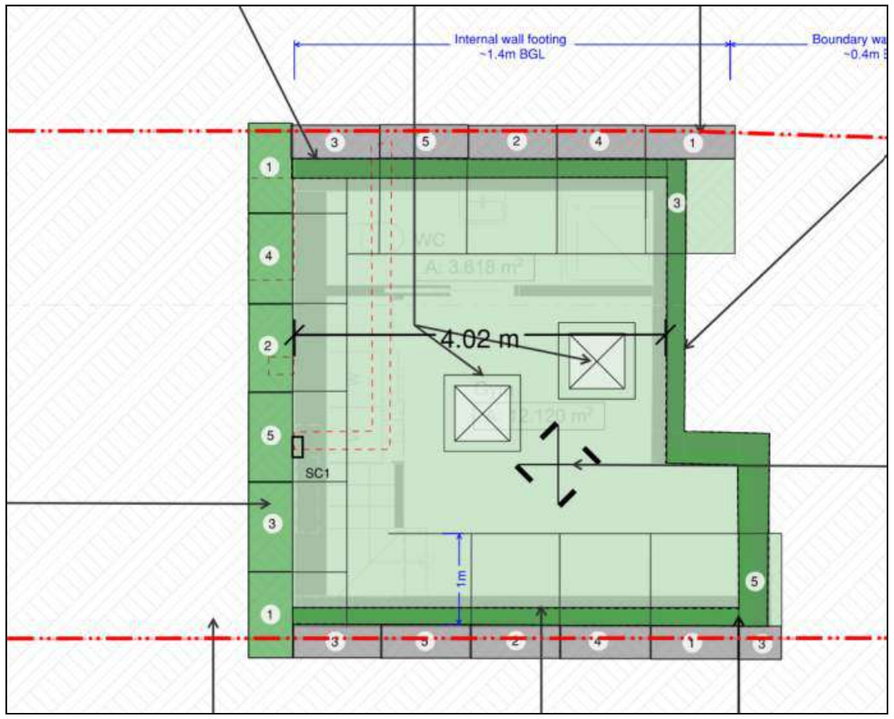
The self weight of the slabs - assuming 300mm thick is - 0.3*25=7.5kN/m2
Weight of finishes - 1kN/m2

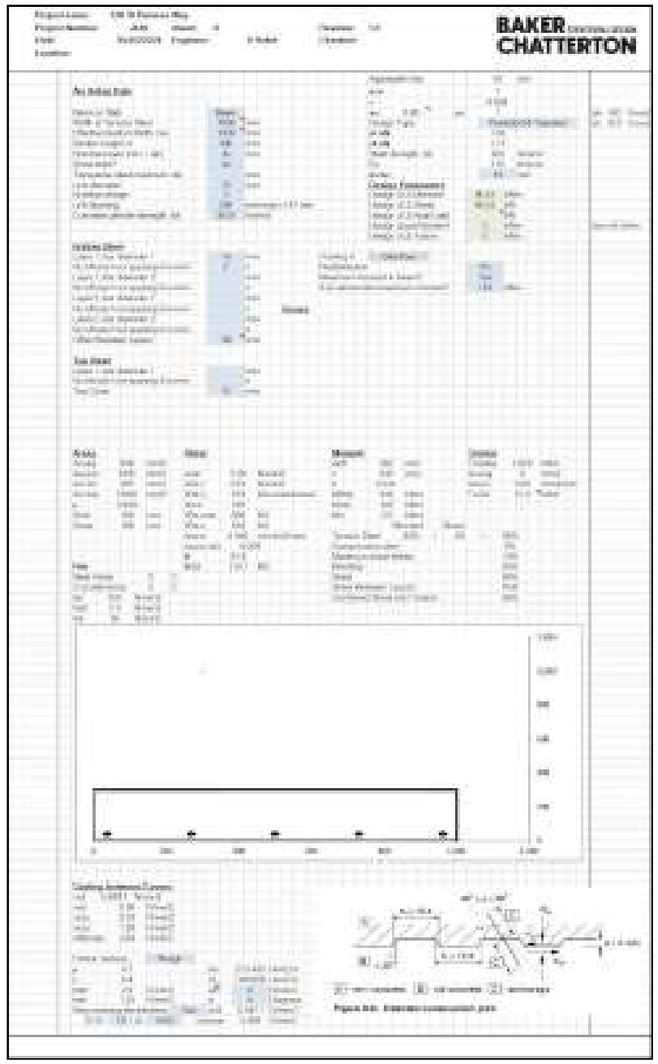
Overall weight of uplift = 42-7.5-1=33.5kN/m2

The maximum length of slab is 4m, assuming simply supported to begin with.

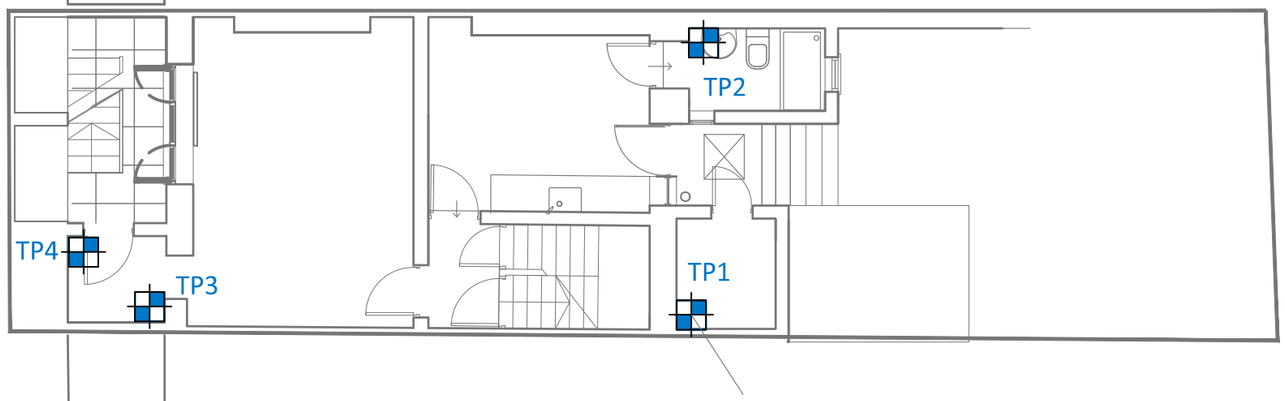
Med (SLS) = 33.5*4^2/8=67kNm/m
Med (ULS) = 67*1.35=90.45kNm/m
Ved (ULS) = 33.5*4/2*1.35=90.45kNm/m

A 300mm thick slab with B16's at 200mm c-c in top and bottom works to 83% utilisation



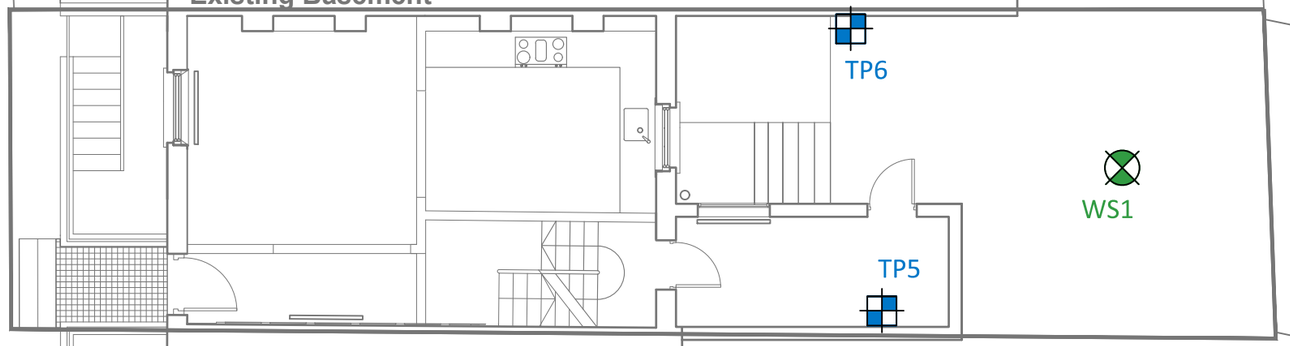


Appendix C: Ground Investigation Factual Information and Historical Boreholes



Unable to excavate TP1 due to limited headroom (1.1m) and suspected Asbestos Insulation Board in ceiling.

Existing Basement



Existing Ground Floor

KEY

- Trial pit
- Window sample

Rev	Date	Comments
0	17/03/17	

Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW
T: 01483 310600

Project
124 St Pancras Way, Camden

Client
Dr Shanthi Thomas

Drawing title
Exploratory hole location plan

Scale(s)
NTS

Job No.
CG/28111

Drawn	TSB	17/03/17
Checked		DRAFT
Approved		DRAFT

Dwg No.
Figure 2

Rev.
0

WINDOW SAMPLE LOG

Project				HOLE No
124 St Pancras Way, Camden				WS1
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/28111	09-03-17			
Client				Sheet
Dr Shanthi Thomas				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth (m)	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (m) (Thick-ness)	DESCRIPTION	
						0.05	Paving slab	
						0.10	[MADE GROUND]	
0.30-0.50	ES						Pale orange brown fine to coarse sand.	
0.50-0.80	ES					(0.90)	[MADE GROUND]	
						1.00	Loose dark brown silty gravelly fine to coarse sand. Gravel is angular to subrounded, fine to medium, occasionally coarse of flint, brick and rare concrete. Slightly ashy.	
1.00	SPT	N6					[MADE GROUND]	
						(0.90)	0.50 Becoming clayey. No ash noted.	
1.50	D						Firm dark brown with occasional orange brown mottling silty CLAY with	
1.50	ES						rare subangular to subrounded fine to medium flint gravel.	
1.80	HSV	56				1.90	[POSSIBLE HEAD DEPOSITS]	
2.00	D					2.15	Medium dense dark brown slightly sandy clayey subangular to	
2.00	SPT	N6					subrounded, fine to coarse GRAVEL of flint. Sand is fine to coarse.	
2.50	D						[POSSIBLE HEAD DEPOSITS]	
2.50	ES						Firm brown with occasional blue grey mottling silty CLAY.	
2.50	HSV	54				(1.35)	[WEATHERED LONDON CLAY FORMATION]	
2.80	HSV	58						
3.00	D							
3.00	SPT	N7				3.50		
3.50	D						Firm extremely closely to very closely fissured dark brown with blue grey	
3.50	HSV	70					and occasional orange brown mottling silty CLAY. Fissures are closed,	
3.80	HSV	86					planar and unpolished with a 'blocky' fabric. Fine to coarse sand sized	
4.00	D						selenite crystals noted.	
4.00	SPT	N12					[WEATHERED LONDON CLAY FORMATION]	
4.50	D							
4.50	HSV	77						
4.80	HSV	95						
5.00	D							
5.00	SPT	N12						
5.50	D							
5.50	HSV	108						
5.80	HSV	96				(4.95)		
6.00	D							
6.00	SPT	N13						
6.50	D							
6.50	HSV	106						
6.80	HSV	99						
7.00	D						7.00 Becoming firm to stiff.	
7.00	SPT	N16						
7.50	D							
7.50	HSV	93						
8.00	D							
8.00	SPT	N15				8.45		
							(Window sample terminated at 8.45m)	

Boring Progress and Water Observations

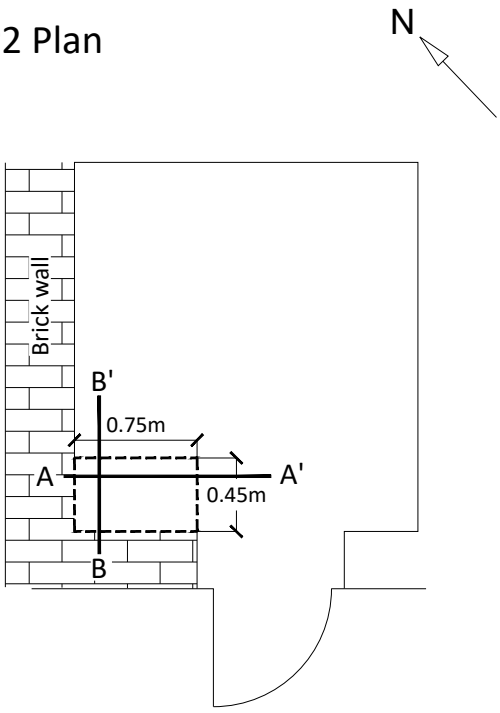
Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth

General Remarks

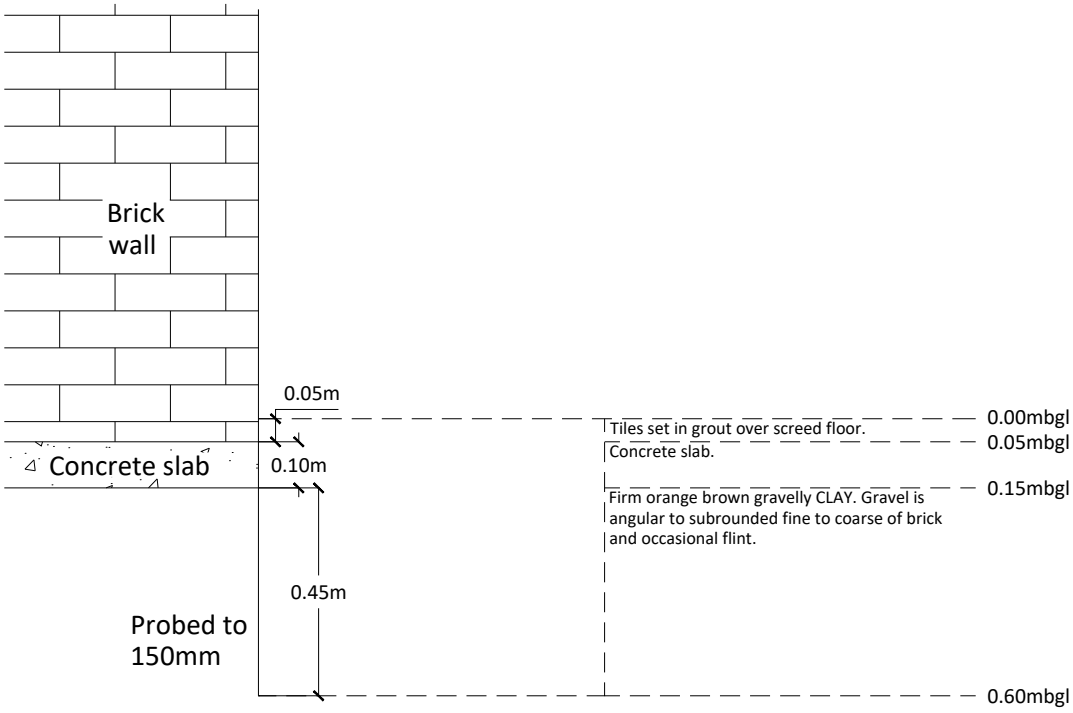
1. Position scanned with CAT and signal generator
2. Hand dug inspection pit to 1.2m bgl
3. Samples: D = small disturbed sample; ES = environmental sample
4. HSV = hand shear vane
5. SPT = standard penetration test with sample retrieved from sample spoon
6. No groundwater strike noted during drilling
7. Monitoring standpipe = 0.0m to 1.8m plain pipe with bentonite seal, 1.8m to 2.3m slotted pipe with gravel pack, 2.3m to 8.0m backfill with arisings. Bung, gas tap and flush cover. Backfill around cover to ground level with pea gravel.

Method/ Plant Used	Field Crew	Logged By	Checked By
Modular window sample rig	Topdrill	OJR	JJM

TP2 Plan



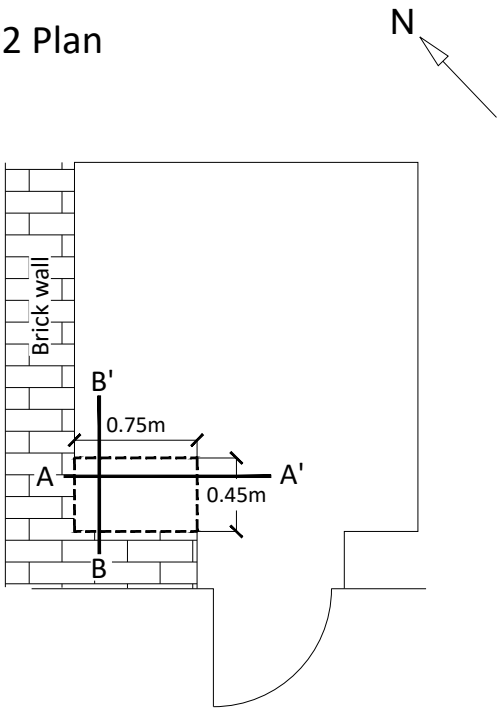
TP2
Section A-A'



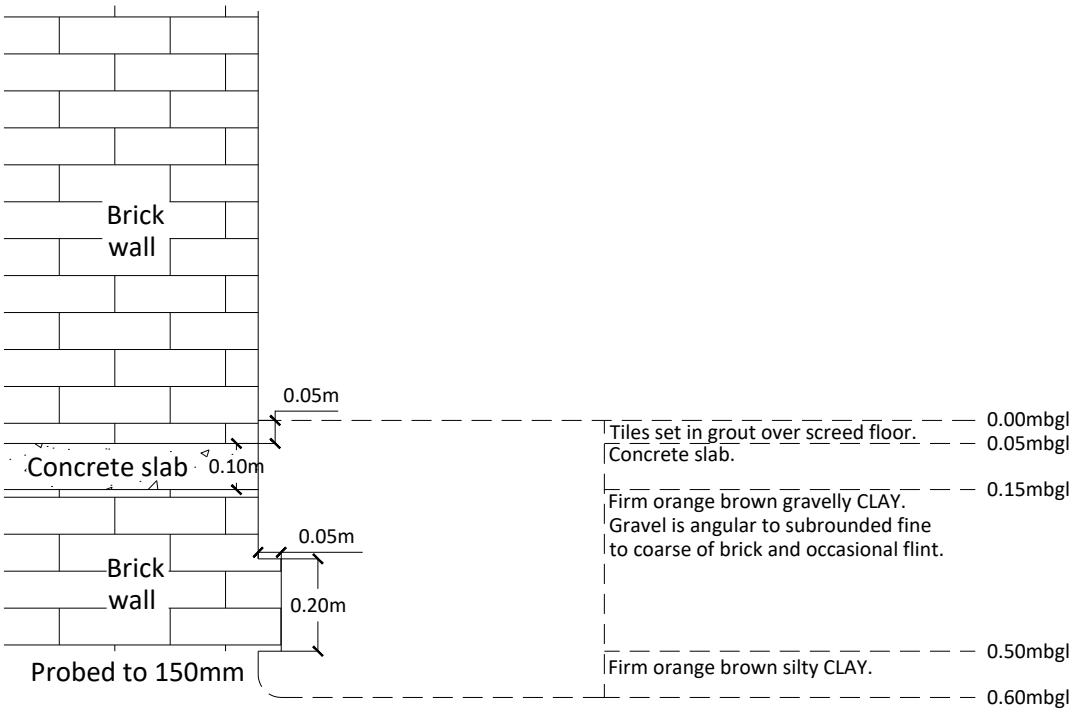
Client	Project	Job No
Dr Shanthi Thomas	**124 St Pancras Way, Camden**	**CG/18111**

	Title		
CGL	**Foundation Inspection Pit TP2 Plan & Section A-A'**	Drawn by	OJR
		Checked by	DRAFT
		Approved by	DRAFT
		DRAFT	

TP2 Plan



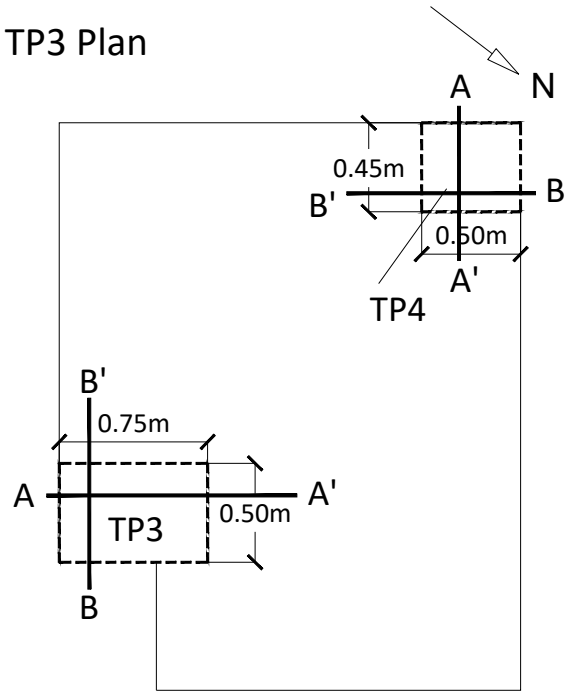
TP2
Section A-A'



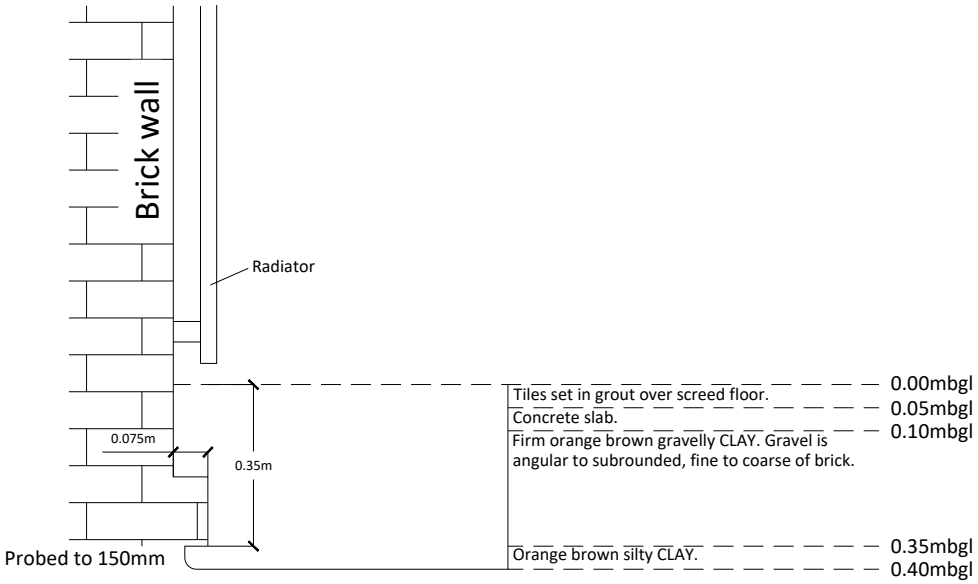
Client	Project	Job No
Dr Shanthi Thomas	**124 St Pancras Way, Camden**	**CG/18111**

	Title		
CGL	**Foundation Inspection Pit** **TP2 Plan & Section B-B'**	Drawn by	OJR
		Checked by	DRAFT
		Approved by	DRAFT
		DRAFT	

TP3 Plan



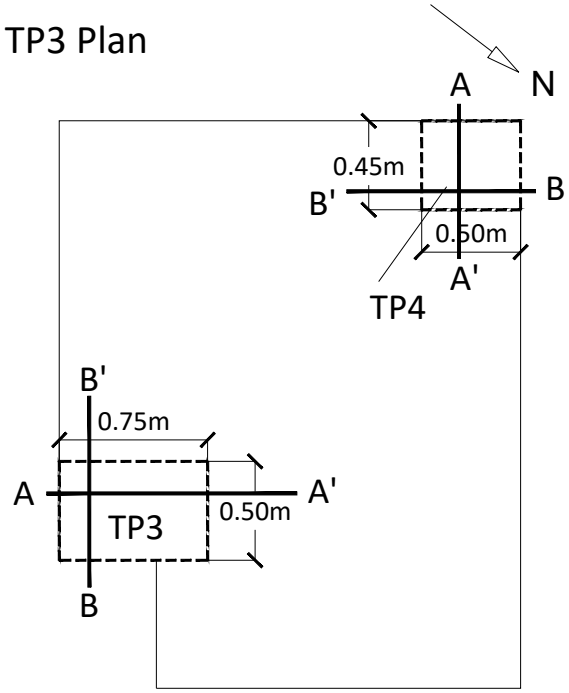
TP3
Section A-A'



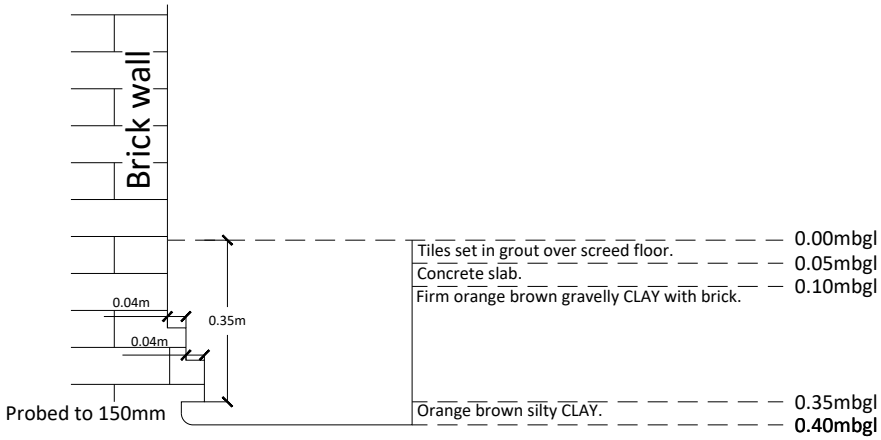
Client	Project	Job No
Dr Shanthi Thomas	**124 St Pancras Way, Camden**	**CG/18111**

	Title		
CGL	**Foundation Inspection Pit TP3 Plan & Section A-A'**	Drawn by	OJR
		Checked by	DRAFT
		Approved by	DRAFT
		DRAFT	

TP3 Plan

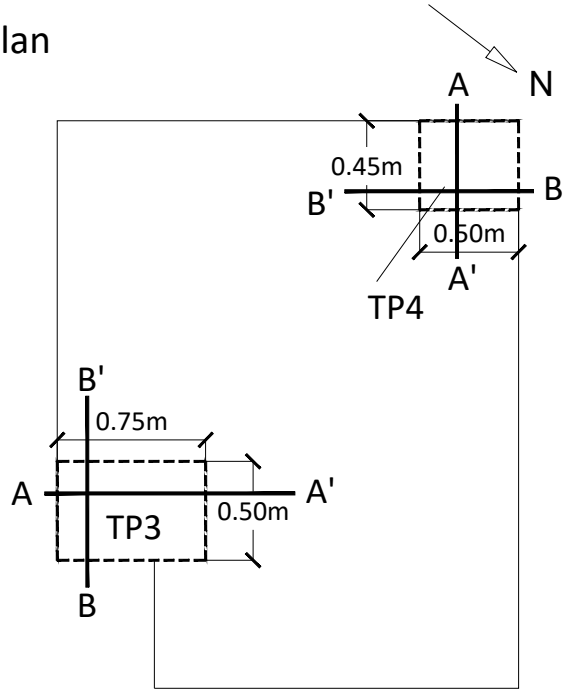


TP3
Section A-A'

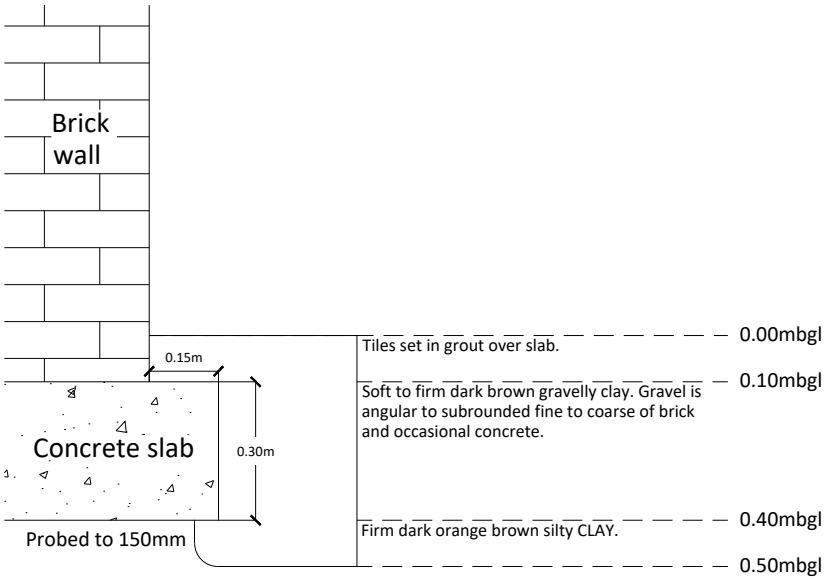


Client **Dr Shanthi Thomas**	Project **124 St Pancras Way, Camden**	Job No **CG/18111**
CGL	Title **Foundation Inspection Pit** **TP3 Plan & Section B-B'**	Drawn by: OJR Checked by: DRAFT Approved by: DRAFT **DRAFT**

TP4 Plan



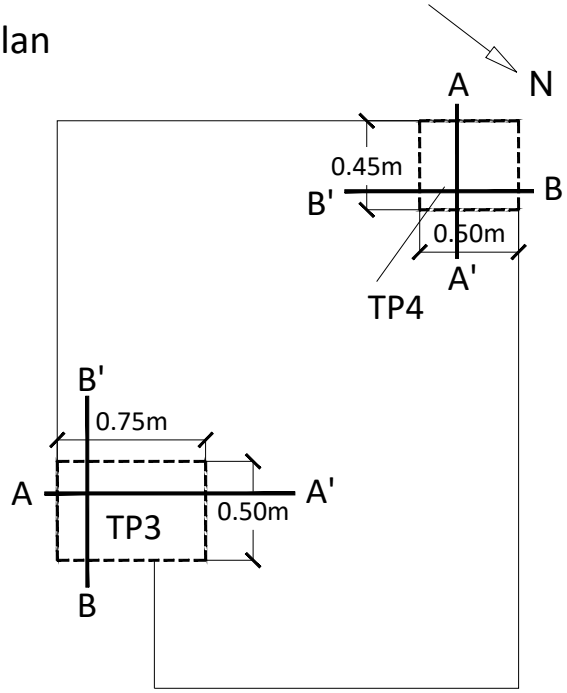
TP4
Section A-A'



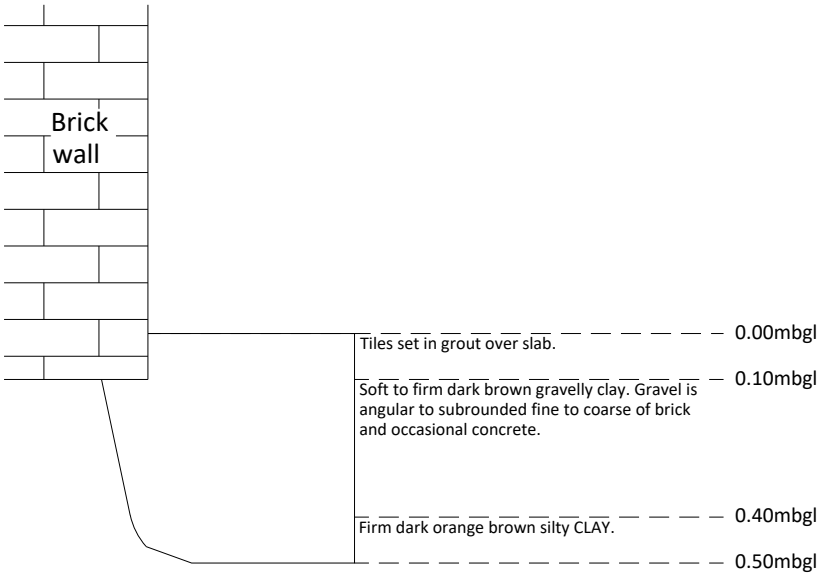
Client	Project	Job No
Dr Shanthi Thomas	**124 St Pancras Way, Camden**	**CG/18111**

	Title		
CGL	**Foundation Inspection Pit TP4 Plan & Section A-A'**	Drawn by	OJR
		Checked by	DRAFT
		Approved by	DRAFT
		DRAFT	

TP4 Plan

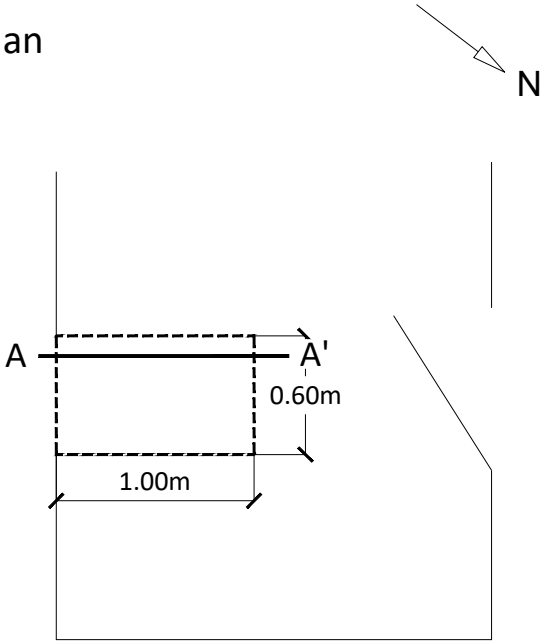


TP4
Section B-B'

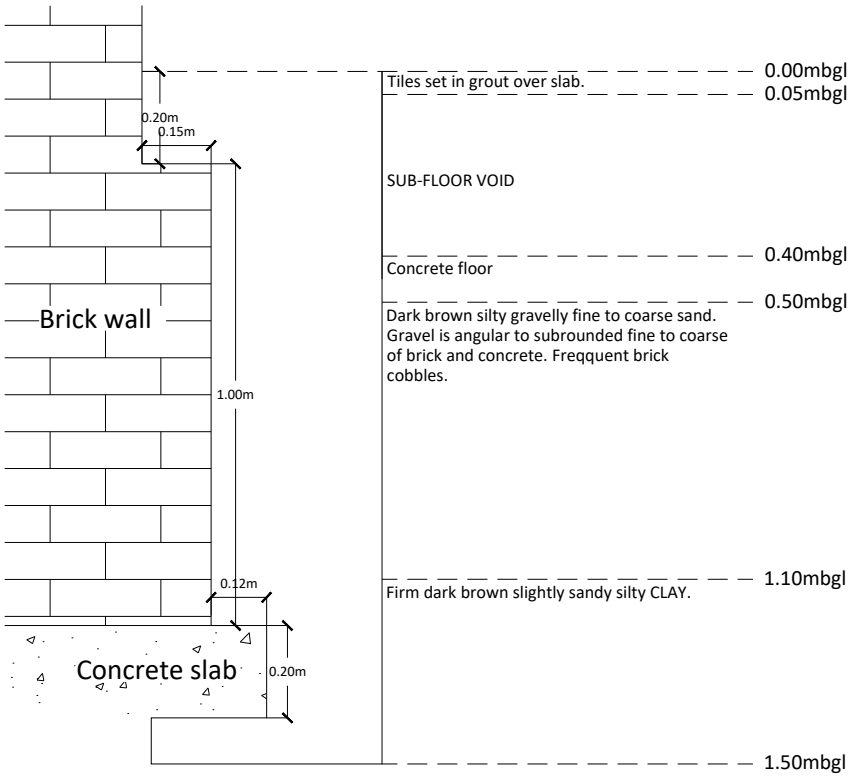


Client **Dr Shanthi Thomas**	Project **124 St Pancras Way**	Job No **CG/18111**
CGL	Title **Foundation Inspection Pit TP4 Plan & Section B-B'**	Drawn by: OJR Checked by: DRAFT Approved by: DRAFT **DRAFT**

TP5 Plan



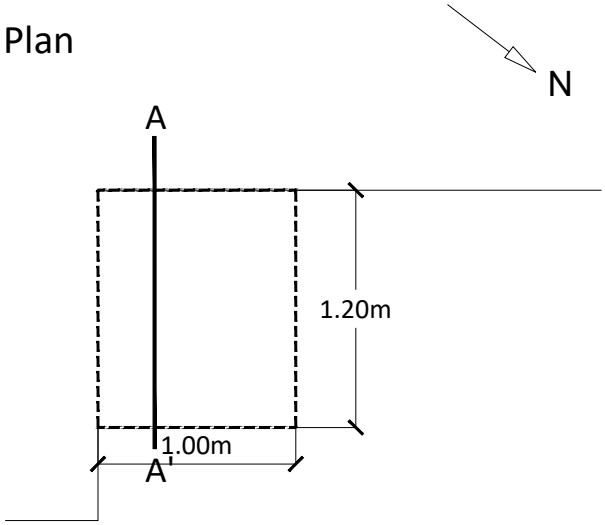
TP5
Section A-A'



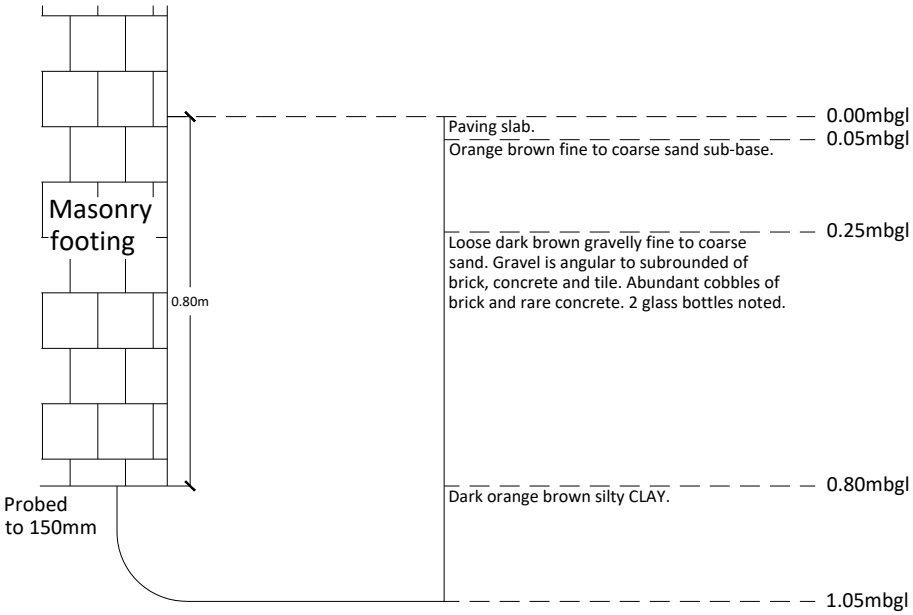
Client	Project	Job No
Dr Shanthi Thomas	**124 St Pancras Way, Camden**	**CG/18111**

	Title		
CGL	**Foundation Inspection Pit TP5 Plan & Section A-A'**	Drawn by	OJR
		Checked by	DRAFT
		Approved by	DRAFT
		DRAFT	

TP6 Plan



TP6
Section A-A'



Client **Dr Shanthi Thomas**	Project **124 St Pancras Way, Camden**	Job No **CG/18111**
CGL	Title **Foundation Inspection Pit TP6 Plan & Section A-A'**	Drawn by: OJR Checked by: DRAFT Approved by: DRAFT **DRAFT**

Record of Site Visit No. 001

Site:	124 St Pancras Way, Camden	**Job No.**	CG/28111
Client:	Dr Shanthi Thomas	**Date**	15/03/2017
Weather:	Cloudy, some sunny spells, mild		
Site visit by	OJR	**Project Manager**	JJM
On site	0730		
Off site	0830		
Visitors	0		

A CGL engineer attended site on 15 March 2017 to dip the groundwater level in the standpipe installed in WS1.

It was noted that groundwater was present at 1.86m bgl and the base of the monitoring installation was at 2.30m bgl.

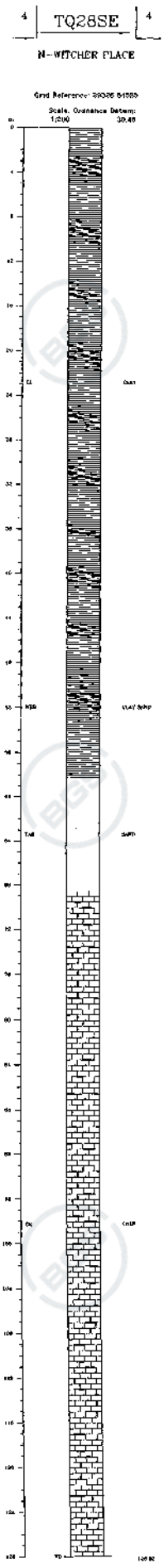
Analytical Report Number : 17-43062

Project / Site name: St Pancras Way

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.


TQ28SE
N--WITCHER PLACE

GEOLOGICAL SURVEY OF GREAT BRITAIN

RECORD OF SHAFT OR BORE FOR MINERALS

(For Survey use only)

6-inch Map Registered No. TQ28SE/4

Name of Shaft or Bore given by Geological Survey:

Name and Number given by owner: Idris and Co. Witcher Place

Nat. Grid Reference 29326·84525

For whom made

Town or Village St Pancras County London

Exact site — Attach a tracing from a map, or a sketch-map, if possible.

1" N.S.Map No.	1" O.S.Map No.	Confidential or not
256		

Purpose for which made Water

Ground Level at shaft bore relative to O.D. If not ground level give O.D. of beginning of shaft bore

Made by Date of sinking 1905

Information from Date received

Examined by

SPECIMEN NUMBERS AND ADDITIONAL NOTES

(For Survey use only) Geological Classification	DESCRIPTION OF STRATA	Thickness Ft.	Thickness In.	Depth Ft.	Depth In.
	London Wells p. 142. 2. full			420	128·02

2. Rochester Road, Witcher Place. Messrs. Idris & Co.
100 feet above Ordnance Datum. (30.48 m.)
Made by the Firm in 1905, and communicated by Mr. T. H. W. Idris.
Diameter of bore 13 inches. Water-level 100 feet below O.D. (30.48 m.) Yield 3 000 gallons an hour.
London Map 7, N.W. (b. 4).

		Thickness. Feet.	Depth. Feet.	
[London Clay.]	Yellow clay	42	42	(12.80)
	Blue clay	105	147	(44.81)
	Green sand	3	150	(45.72)
[Reading Beds.]	Yellow clay	41	191	(58.22)
	Green sand	34	225	(68.58)
	Chalk	195	420	(128.02)

(5412) Wt.12837/PS.154. 2m. 10/54. C.W.B.Ltd. Gp.363

256/425
TQ28/49

256/425

142

2. Rochester Road, Witcher Place. Messrs. Idris & Co.
100 feet above Ordnance Datum.

Made by the Firm in 1905, and communicated by Mr. T. H. W. Idris, M.P.

Diameter of bore 13 inches. Water-level 100 feet below O.D. Yield 3,000 gallons an hour.

London Map 7, N.W. (b. 4).

		Thickness. Feet.	Depth. Feet
[London Clay.]	Yellow clay ...	42	42
	Blue clay ...	105	147
	Green sand ...	3	150
[Reading Beds.]	Yellow clay ...	41	191
	Green sand ...	34	225
	Chalk	195	420

	ft.	ins
London Clay	150	0
Woolwich + Reading Beds (? Reading Type)	75	0
Thanet Sand.		
Upper Chalk	195	0

Surrendon 1976

C46 2/53 398

Survey No. 256
1" N.S.
1" O.S.

RECORD of WELL or BORING

at Camden Road (BH. No. 1.)
Town Camden Town NW St. Pancras County London Six-inch map 5 NW
Situation (unless a tracing from a map is supplied, give distance and direction from parish church, cross-roads, or other objects shown on maps). A little S of the SW from Camden Town Stn. Population Sheet of one-inch map. TQ 28/50 (Square)

Surface level of ground c 85 ft. above Ordnance Datum. Well or Bore commenced at ... ft. below surface level of ground.
Sunk 4 ft., diameter ... ft. Bored ... ft.; diameter of boring: at top ... in., at bottom ... in.
Details of lining tubes (internal diameters preferred) 34' 2" of 16 in. Top. 5' 4" b/a; 197' 6" of 12 " " 2' 6" "
Water struck at depths of (feet) 301, 315, 333, NGR TQ 2902 8412
Rest-level of water below top of well or bore 278 ft. Pumping level 278 ft. Time of recovery ... hours.
Suction at 598 ft. depth. Yield: (i) on test 7000/8000 galls. per hour (ii) normal ... galls. per ...
Quality (attach copy of analysis if available) Hardness Perm. 0° Temp 4° Total 4°
Made by LE GRAND, SUTCLIFF & GELL, LD. for Aerated Bread Co. Ltd. Date of boring Aug/Oct 1934
Information from LE GRAND, SUTCLIFF & GELL, LD. 8134/p. 673.

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA. (and any additional remarks)	THICKNESS. Feet.	Inches.	DEPTH. Feet.	Inches.
Made 2	Made ground	2		2	
L.C. 106	Brown clay	20		22	
	Blue clay	28		50	
	Blue clay & stone	25		75	
	Blue clay	33		108	
W.R.S. 50	Mottled clay	39		147	
	Conglomerate	6		153	
	Green loamy sand	5		158	
T.S. 20	Thanet Sand	19		177	
	Green flints	1		178	
CK. 474	Chalk & flints	232		410	
	Hard grey Chalk	242		652	

JB 26:10:35

Site visited 30th July 1946.
Pumping controlled by demand &
Well top in basement 10' below ground level.
Confidential Water very soft. – bar to London W.

2 July 1946
~~Rest L~~ P.W.L. 300 Yield 10,328 Nov. 1937

Geological Survey and Museum, South Kensington, London, S.W.7.

For Survey use only. Date received.	G.S.M.	M. of H. notified.	Site marked on 1" map.
Oct 1935			

(11969B) Wt 10256/0175 2,500 9/32 H, J, R & L, Ld

Appendix D: Utilities

Asset location search

Property Searches

A Zero Environmental Architects
Babel Studios Babel Studios

LONDON
SE1 0AS

Search address supplied 124
St. Pancras Way
London
NW1 9NB

Your reference St Pancras Way

Our reference ALS/ALS Standard/2017_3580502

Search date 31 May 2017

Notification of Price Changes…
From **1 September 2016** Thames Water Property Searches will be increasing the prices of its Asset Location Searches. This will be the first price rise in three years and is in line with the RPI at 1.84%. The increase follows significant capital investment in improving our systems and infrastructure.

Enquiries received with a higher payment prior to 1 September 2016 will be non-refundable. For further details on the price increase please visit our website at
www.thameswater-propertysearches.co.uk

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0845 070 9148

Asset location search

Search address supplied: 124, St. Pancras Way, London, NW1 9NB

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This searchprovides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0845 070 9148, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk
Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an ‘as constructed’ record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and pressure test to be carried out for a fee.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0845 850 2777
Email: developer.services@thameswater.co.uk

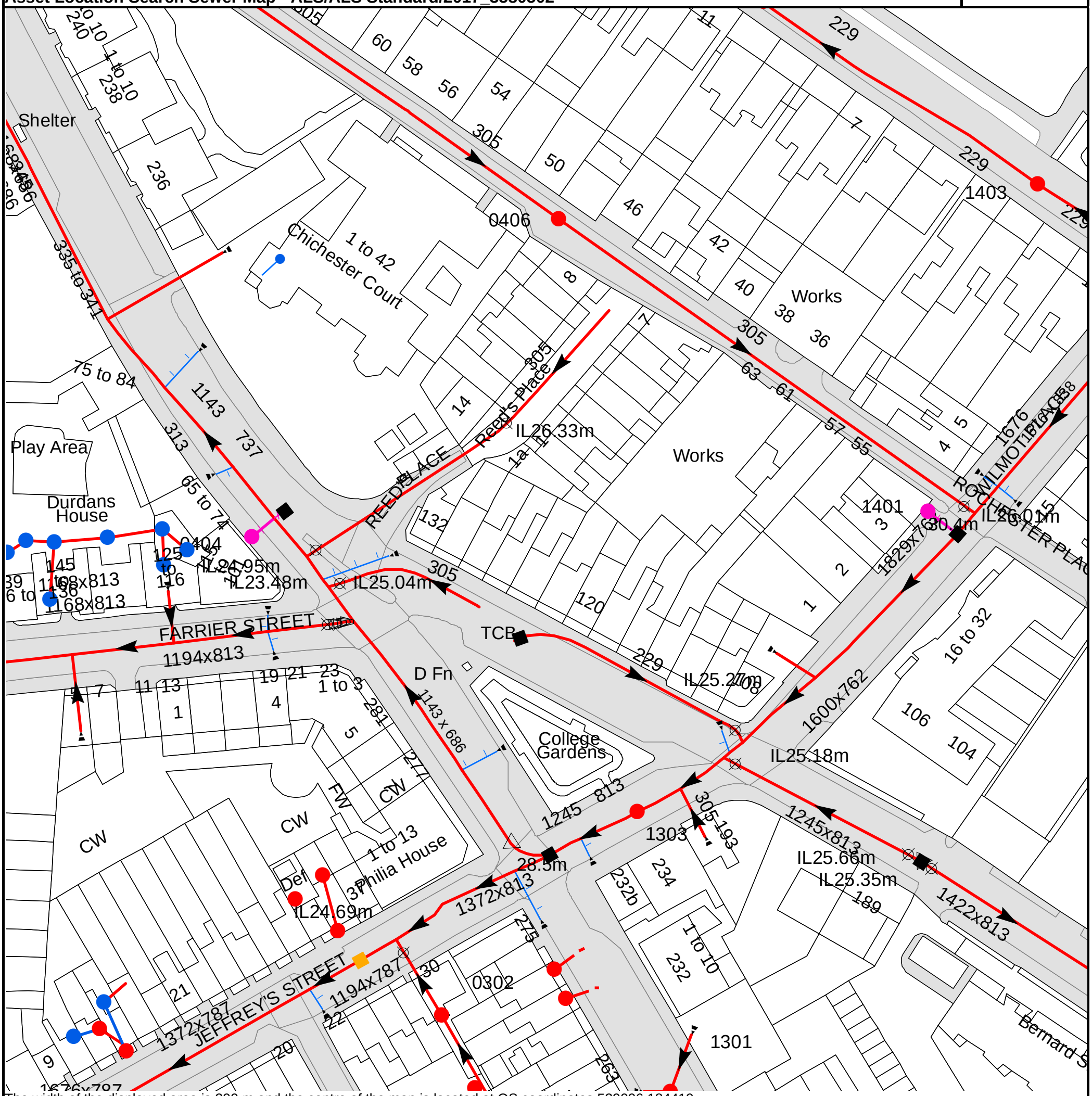
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0845 850 2777
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2017_3580502



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 529096,184419

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
041A	n/a	n/a
0406	n/a	n/a
1303	28.82	25.11
1401	n/a	n/a
1403	30.57	27.93
0301	n/a	n/a
03DH	n/a	n/a
03CI	n/a	n/a
03CE	n/a	n/a
0302	28.5	25.91
03DF	n/a	n/a
0325	n/a	n/a
0324	n/a	n/a
03FF	n/a	n/a
03FD	n/a	n/a
03FE	n/a	n/a
94AG	n/a	n/a
94AF	n/a	n/a
04ED	n/a	n/a
04EC	n/a	n/a
04EB	n/a	n/a
04CH	n/a	n/a
04EE	n/a	n/a
04AI	n/a	n/a
0404	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Dam Chase

Fitting

Meter

Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

Control Valve

Drop Pipe

Ancillary

Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Outfall

Undefined End

Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gulley

Culverted Watercourse

Proposed

Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.

2) All measurements on the plans are metric.

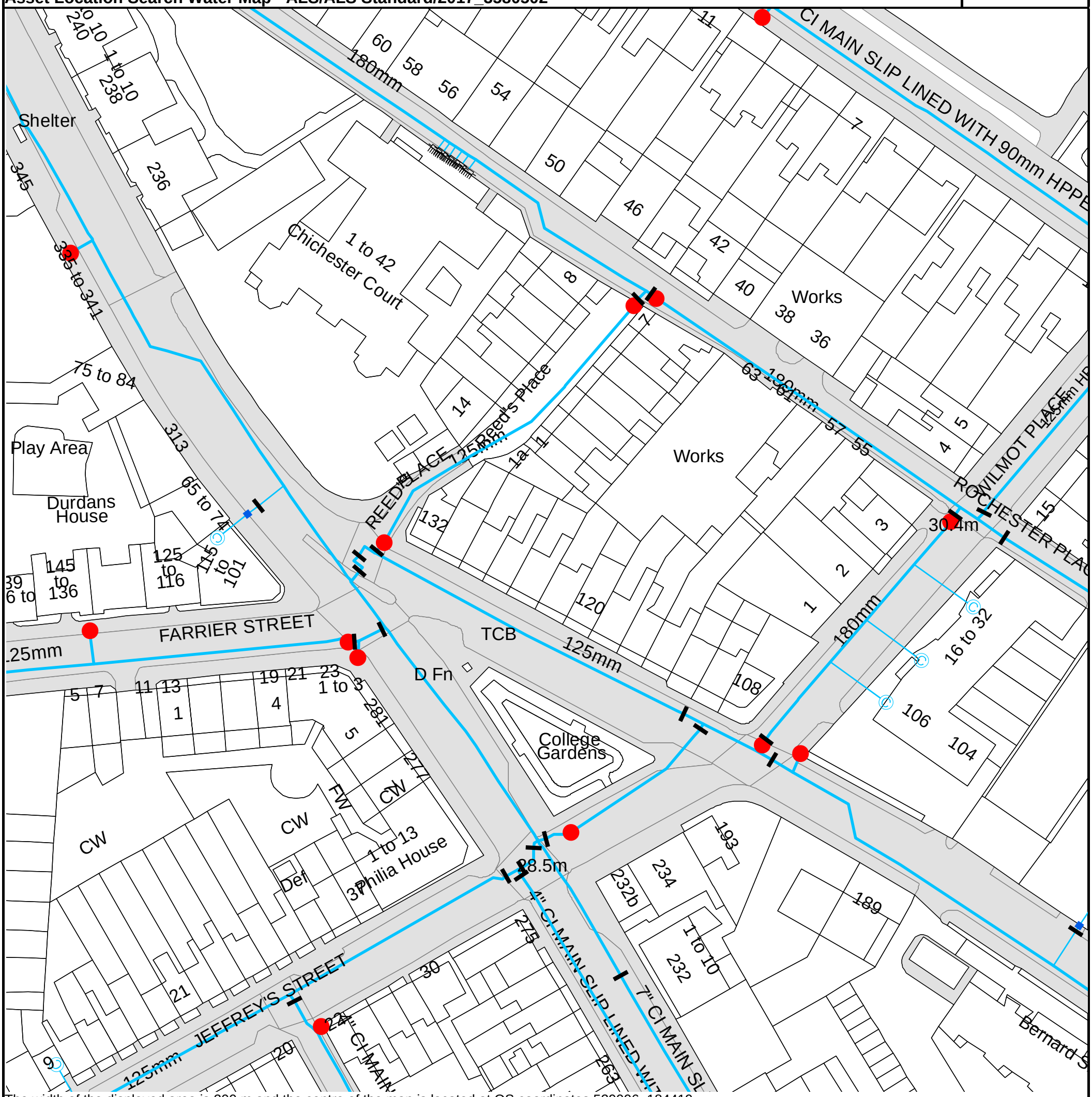
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

5) 'na' or '0' on a manhole level indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

Asset Location Search Water Map - ALS/ALS Standard/2017_3580502



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 529096, 184419.

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

4"

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

16"

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

3" FIRE

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

3" METERED

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indiates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL`s terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to him at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	**BACS Payment**	**Telephone Banking**	**Cheque**
Call **0845 070 9148** quoting your invoice number starting CBA or ADS.	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number	Made payable to '**Thames Water Utilities Ltd**' Write your Thames Water account number on the back. Send to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW** or by DX to **151280 Slough 13**

Search Code

IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Thames Water Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB, which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practise and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award compensation of up to £5,000 to you if he finds that you have suffered actual loss as a result of your search provider failing to keep to the Code.

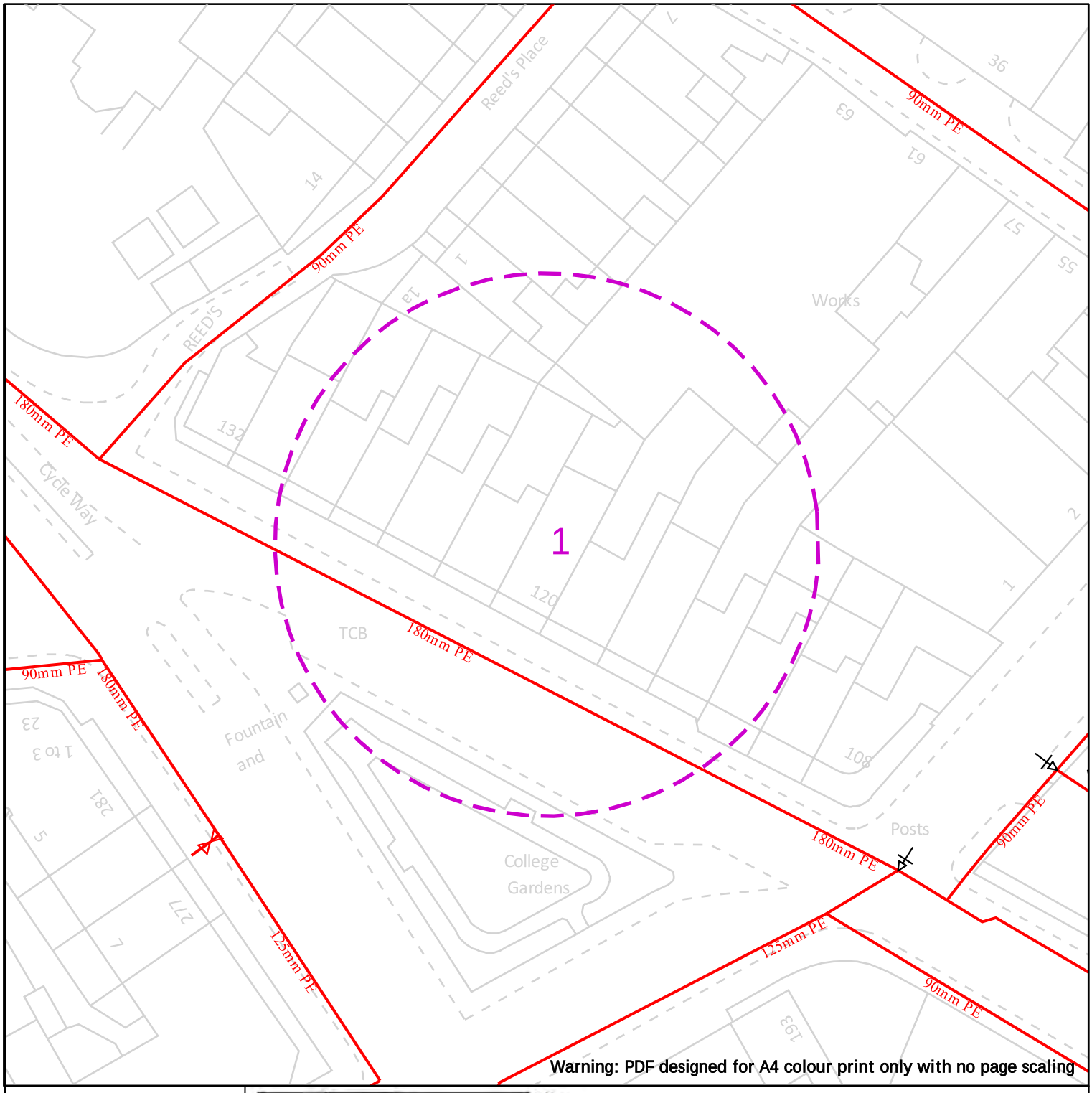
Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs Contact Details

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE



Warning: PDF designed for A4 colour print only with no page scaling

25m

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

Cadent
Your Gas Network

Date Requested: 16/07/2023
Job Reference: 30179972
Site Location: 529104 184410
Requested by: Dr Julian Maund

Your Scheme/Reference: MGC-132

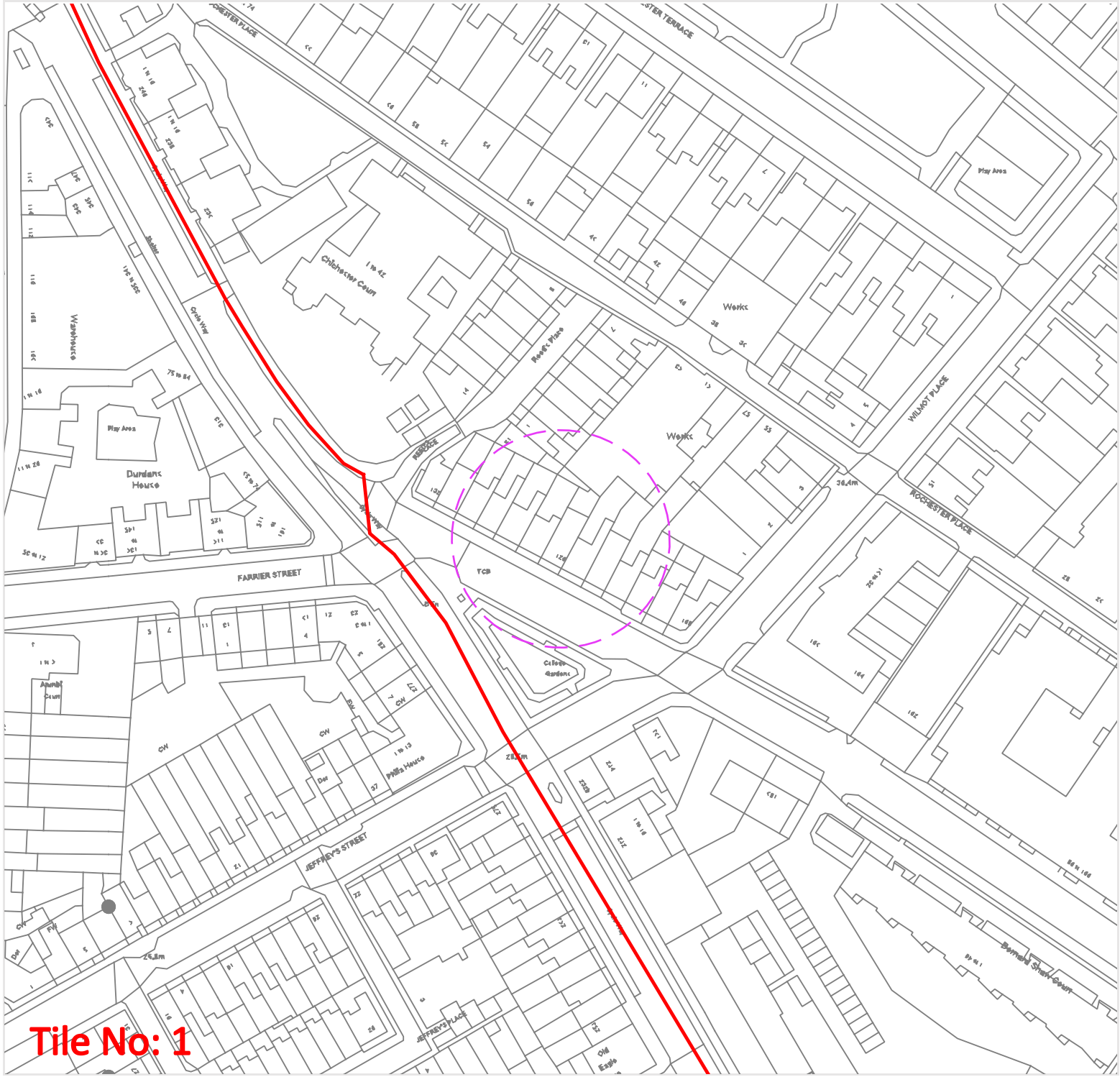
View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)

IMPORTANT NOTICES

This plan shows these pipes owned by Cadent Gas Limited in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GT's or otherwise privately owned may be present in this area. Information with regards to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any errors or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

In case of emergency call - 0800 111 999



Zayo Group UK Ltd
4th Floor Harmsworth House
13-15 Bouverie Street
London, EC4Y 8DP

JSM Group Ltd
Sterling House
Mutton Lane, Potters Bar
Hertfordshre, EN6 3AR
T: 01992 655 919
zayoplantenquiries@jsmgroup.com

Legend

Zayo Duct

Enquiry area

Date requested:	16 Jul 2023
Requested by:	Dr Julian Maund
Company:	Maund Geo Consulting Ltd
Job reference:	30179972
Your reference:	MGC-132

Scale on A4 paper: 1:1250

Warning: PDF designed for colour print only with no page scaling. This Information is given as a guide only and its accuracy cannot be guaranteed.

N

Linesearch before U dig

Protecting Lives, Cables & Pipes

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Appendix E: Radon Report

UK Health Security Agency

Report of address search for radon risk

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Address searched: 126 St. Pancras Way, London, NW1 9NB
Date of report: 7 March 2024

Guidance for existing properties

Is this property in a radon Affected Area? - No

A radon Affected Area is defined as where the radon level in at least one property in every hundred is estimated to exceed the Action Level.

The estimated probability of the property being above the Action Level for radon is: 0-1%

The probability result is only valid for properties above ground. All basement and cellar areas are considered to be at additional risk from high radon levels.
The result may not be valid for buildings larger than 25 metres.
If this site if for redevelopment, you should undertake a GeoReport provided by the British Geological Survey.

This report informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

Radon Affected Areas are designated by the UK Health Security Agency. UKHSA advises that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a currently occupied property in a Radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and the results of re-testing confirmed the effectiveness of the measures.

Further information is available from UKHSA or https://www.ukradon.org

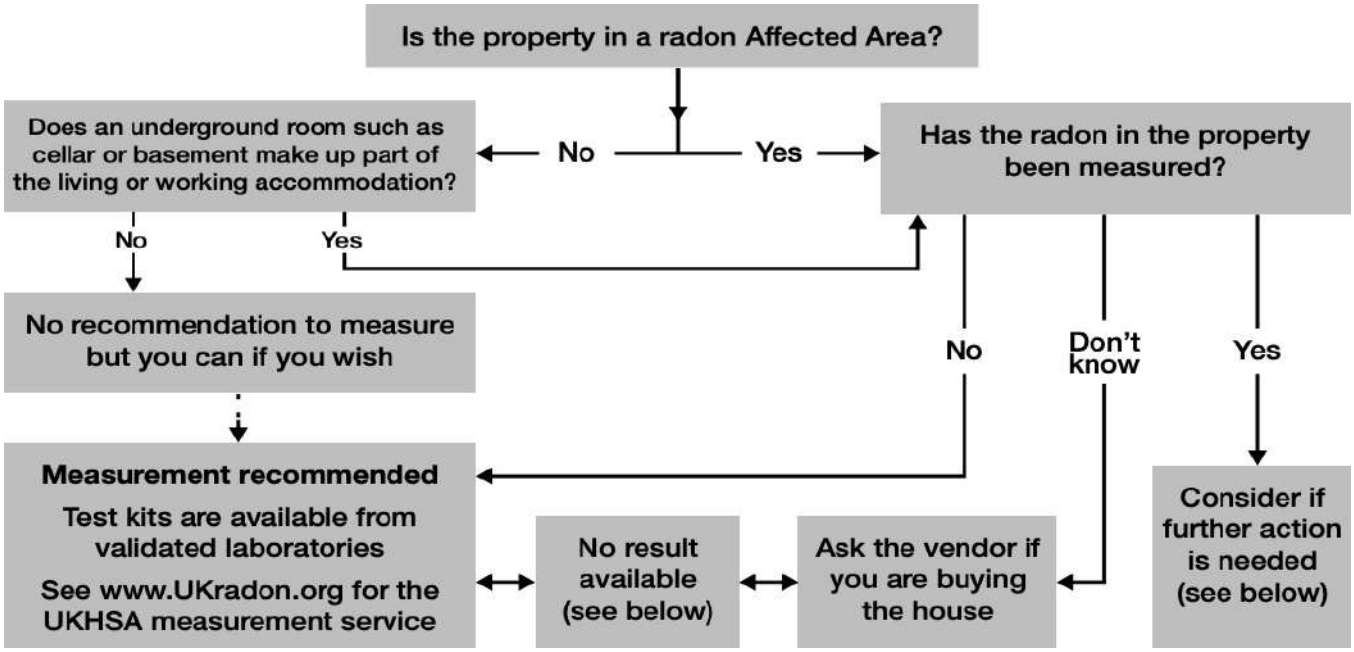
Guidance for new buildings and extensions to existing properties

What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - None

If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

UKHSA guidance for occupiers and prospective purchases



Existing radon test results: There is no public record of individual radon measurements. Results of previous tests can only be obtained from the seller. Radon levels can be significantly affected by changes to the building or its use, particularly by alterations to the heating and ventilation which can also be affected by changes in occupier. If in doubt, test again for reassurance.

Radon Bond: This is simply a retained fund, the terms of which are negotiated between the purchaser and the vendor. It allows the conveyance of the property to proceed without undue delay. The purchaser is protected against the possible cost of radon reduction work and the seller does not lose sale proceeds if the result is low. Make sure the agreement allows enough time to complete the test, get the result and arrange the work if needed.

High Results: Exposure to high levels of radon increases the risk of developing lung cancer. If a test in a home gives a result at or above the Action Level of 200 Becquerels per cubic metre of air (Bq/m3), formal advice will be given to lower the level. Radon reduction will also be recommended if the occupants include smokers or ex-smokers when the radon level is at or above the Target Level of 100 Bq/m3; these groups have a higher risk. Information on health risks and radon reduction work is available from UKHSA. Guidance about radon reduction work is also available from some Local Authorities, the Building Research Establishment and specialist contractors.

UKHSA designated radon website: https://www.ukradon.org
Building Research Establishment: http://www.bre.co.uk/page.jsp?id=3137

Appendix F: PDISP Reports

Titles

Job No.: MGC-131
Job Title: 124 St Pancras Way
Sub-title: Excavation
Calculation Heading: 01
Initials: JGM
Checker:
Date Saved:
Date Checked:
Notes:
File Name: Excavation 126 St Pancras.pdd
File Path: C:\Users\julia\OneDrive\Documents\Scenario Architecture\MGC144 126 St Pancras Way NW1 9NB\07-GIR-GDR 126 St Pancras\PDisp

History

Date	Time	By	Notes
12-Jun-2023	11:01	julia	New
12-Jun-2023	12:08	julia	
12-Jun-2023	14:27	julia	
13-Jul-2023	12:47	julia	
13-Jul-2023	23:11	julia	
16-Jul-2023	13:47	julia	
05-Jan-2024	15:44	julia	
09-Jan-2024	10:07	julia	
09-Jan-2024	15:17	julia	
01-Mar-2024	15:17	julia	
01-Mar-2024	16:01	julia	
01-Mar-2024	16:53	julia	
06-Mar-2024	17:58	julia	
07-Mar-2024	09:28	julia	Open

Analysis Options

General

Global Poisson's ratio: 0.20
Maximum allowable ratio between values of E: 1.5
Horizontal rigid boundary level: 10.00 [m OD]
Displacements at load centroids: Yes
GSA piled raft data : No

Elastic

Elastic : Yes

Soil ProfilesSoil Profile 1

Layer ref.	Name	Level at top [mOD]	Number of intermediate displacement levels	Youngs Modulus : Top [kN/m²]	Youngs Modulus : Btm. [kN/m²]	Poissons ratio	Non-linear curve
1	Made Ground	30.000	2	10000.	10000.	0.20000	None
2	Head	29.000	2	20000.	26000.	0.50000	None
3	London Clay Formation	27.900	14	26000.	146000.	0.50000	None

Layer ref.	Name	Level at top	Number of intermediate displacement levels	Youngs Modulus : Top	Youngs Modulus : Btm.	Poissons ratio	Non-linear curve

Soil Zones

Zone	Name	X min [m]	X max [m]	Y min [m]	Y max [m]	Profile
1	zone1	0.0	30.000	5.0000	22.000	Soil Profile 1

Polygonal Load Data

Load ref.	Name	Position : Level [m]	Position : Polygon : Coords. [m]	Position : Polygon : Rect. tolerance [%]	No. of Rectangles	Value : Normal (local z) [kN/m²]
1	124 outline	28.80000	(5,5) (23.6,5) (23.6,10) (5,10) (5,5)	10.000	1	0.0
2	126 outline	28.80000	(5,10) (23.6,10) (23.6,15) (5,15) (5,10)	10.000	1	0.0
3	126 basement excavation	28.80000	(14,10) (19.2,10) (19.2,12.2) (18.4,12.2) (18.4,15) (14,15) (14,10)	10.000	2	-70.000
4	126 patio excavation	28.80000	(19.2,11.5) (21.7,11.5) (21.7,14.6) (18.4,14.6) (18.4,12.2) (19.2,12.2) (19.2,11.5)	10.000	2	-28.000
5	126 Rear garden excavation	28.80000	(19.2,10.4) (23.2,10.4) (23.2,14.6) (21.7,14.6) (21.7,11.5) (19.2,11.5) (19.2,10.4)	10.000	2	-20.000
6	128 outline	28.80000	(5,15) (18,15) (18,17.7) (14,17.7) (14,20) (5,20) (5,15)	10.000	2	0.0

Polygonal Loads' Rectangles

No.	Centre : Centre x [m]	Centre : Centre y [m]	Angle of local x from global X [Degrees]	Width x [m]	Depth y [m]
Load 1 : 124 outline					
(Edge 1 optimal)					
1	14.30000	7.50000	0.0	18.600	5.0000
Load 2 : 126 outline					
(Edge 1 optimal)					
1	14.30000	12.50000	0.0	18.600	5.0000
Load 3 : 126 basement excavation					
(Edge 1 optimal)					
1	16.20000	12.50000	0.0	4.4000	5.0000
2	18.80000	11.10000	0.0	0.80000	2.2000
Load 4 : 126 patio excavation					
(Edge 1 optimal)					
1	20.45000	13.05000	0.0	2.5000	3.1000
2	18.80000	13.40000	0.0	0.80000	2.4000
Load 5 : 126 Rear garden excavation					
(Edge 1 optimal)					
1	20.45000	10.95000	0.0	2.5000	1.1000
2	22.45000	12.50000	0.0	1.5000	4.2000
Load 6 : 128 outline					
(Edge 1 optimal)					
1	9.50000	17.50000	0.0	9.0000	5.0000
2	16.00000	16.35000	0.0	4.0000	2.7000

Displacement Lines

Name	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals [No.]	Calculate Detailed Results	
SW-NE front to back of 126	0.00000	12.50000	27.90000	28.00000	12.50000	27.90000	50	Yes	Yes

Name	X1	Y1	Z1	X2	Y2	Z2	Intervals	Calculate Detailed Results
Along rear of 124,126 and 128	14.00000	5.00000	27.90000	14.00000	22.00000	27.90000	30 Yes	Yes
NW-SE below 124 and 128 extension	16.50000	5.00000	29.00000	16.50000	22.00000	29.00000	30 Yes	Yes

Displacement Grids

Name	Extrusion: Direction	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals Along Line [No.]	Extrusion: Distance [m]	Extrusion: Intervals Along [No.]	Calculate Detailed Results
Grid 1	Global X	0.00000	5.00000	27.90000	-	22.00000	27.90000	16	30.00000	30 Yes	Yes

Titles

Job No.: MGC-144
Job Title: 126 St Pancras Way
Sub-title: Construction
Calculation Heading: 01
Initials: JGM
Checker:
Date Saved:
Date Checked:
Notes:
File Name: Construction 126 St Pancras loads at 26.5.pdd
File Path: C:\Users\julia\OneDrive\Documents\Scenario Architecture\MGC144 126 St Pancras Way NW1 9NB\07-GIR-GDR 126 St Pancras\PDisp

History

Date	Time	By	Notes
12-Jun-2023	11:01	julia	New
12-Jun-2023	12:08	julia	
12-Jun-2023	14:27	julia	
13-Jul-2023	12:47	julia	
13-Jul-2023	23:11	julia	
16-Jul-2023	13:47	julia	
05-Jan-2024	15:44	julia	
09-Jan-2024	10:07	julia	
09-Jan-2024	15:17	julia	
01-Mar-2024	15:43	julia	
01-Mar-2024	15:44	julia	
01-Mar-2024	16:00	julia	
01-Mar-2024	16:53	julia	
07-Mar-2024	09:19	julia	
07-Mar-2024	10:11	julia	
07-Mar-2024	15:57	julia	

Analysis Options

General

Global Poisson's ratio: 0.20
Maximum allowable ratio between values of E: 1.5
Horizontal rigid boundary level: 10.00 [m OD]
Displacements at load centroids: Yes
GSA piled raft data : No

Elastic

Elastic : Yes

Soil ProfilesSoil Profile 1

Layer ref.	Name	Level at top [mOD]	Number of intermediate displacement levels	Youngs Modulus : Top [kN/m²]	Youngs Modulus : Btm. [kN/m²]	Poissons ratio	Non-linear curve
1	Made Ground	30.000	2	10000.	10000.	0.20000	None
2	Head	29.000	2	15000.	16000.	0.20000	None
3	London Clay Formation	27.900	14	21000.	98000.	0.20000	None

Layer ref.	Name	Level at top	Number of intermediate displacement levels	Youngs Modulus : Top	Youngs Modulus : Btm.	Poissons ratio	Non-linear curve

Soil Zones

Zone	Name	X min [m]	X max [m]	Y min [m]	Y max [m]	Profile
1	zone1	0.0	30.000	5.0000	22.000	Soil Profile 1

Polygonal Load Data

Load ref.	Name	Position : Level [m]	Position : Polygon : Coords. [m]	Position : Polygon : Rect. tolerance [%]	No. of Rectangles	Value : Normal (local z) [kN/m²]
1	124 outline	30.00000	(5,5) (23.6,5) (23.6,10) (5,10) (5,5)	10.000	1	0.0
2	126 outline	30.00000	(5,10) (23.6,10) (23.6,15) (5,15) (5,10)	10.000	1	0.0
3	126 basement excavation	26.50000	(14,10) (19.2,10) (19.2,12.2) (18.4,12.2) (18.4,15) (14,15) (14,10)	10.000	2	-70.000
4	126 patio excavation	28.40000	(19.2,11.5) (21.7,11.5) (21.7,14.6) (18.4,14.6) (18.4,12.2) (19.2,12.2) (19.2,11.5)	10.000	2	-28.000
5	126 Rear garden excavation	29.00000	(19.2,10.4) (23.2,10.4) (23.2,14.6) (21.7,14.6) (21.7,11.5) (19.2,11.5) (19.2,10.4)	10.000	2	-20.000
6	128 outline	30.00000	(5,15) (18,15) (18,17.7) (14,17.7) (14,20) (5,20) (5,15)	10.000	2	0.0
7	Basement underpins against 124	26.50000	(14,10) (19.2,10) (19.2,11.5) (14,11.5) (14,10)	10.000	1	86.000
8	Basement Underpins against 128	26.50000	(14,13.5) (19,13.5) (19,15) (14,15) (14,13.5)	10.000	1	60.000
9	Basement underpins under existing 126 rear wall	26.50000	(14,11.5) (15,11.5) (15,13.5) (14,13.5) (14,11.5)	10.000	1	135.00
10	Boundary wall footing	28.40000	(19.2,10) (23.6,10) (23.6,15) (19,15) (19,14) (22.6,14) (22.6,11) (19.2,11) (19.2,10)	10.000	3	35.000

Polygonal Loads' Rectangles

No.	Centre : Centre x [m]	Centre : Centre y [m]	Angle of local x from global X [Degrees]	Width x [m]	Depth y [m]
Load 1 : 124 outline					
(Edge 1 optimal)					
1	14.30000	7.50000	0.0	18.600	5.0000
Load 2 : 126 outline					
(Edge 1 optimal)					
1	14.30000	12.50000	0.0	18.600	5.0000
Load 3 : 126 basement excavation					
(Edge 1 optimal)					
1	16.20000	12.50000	0.0	4.4000	5.0000

No.	Centre : x	Centre : y	Angle of local x from global X	Width x	Depth y
2	18.80000	11.10000	0.0	0.80000	2.2000
Load 4 : 126 patio excavation					
(Edge 1 optimal)					
1	20.45000	13.05000	0.0	2.5000	3.1000
2	18.80000	13.40000	0.0	0.80000	2.4000
Load 5 : 126 Rear garden excavation					
(Edge 1 optimal)					
1	20.45000	10.95000	0.0	2.5000	1.1000
2	22.45000	12.50000	0.0	1.5000	4.2000
Load 6 : 128 outline					
(Edge 1 optimal)					
1	9.50000	17.50000	0.0	9.0000	5.0000
2	16.00000	16.35000	0.0	4.0000	2.7000
Load 7 : Basement underpins against 124					
(Edge 1 optimal)					
1	16.60000	10.75000	0.0	5.2000	1.5000
Load 8 : Basement Underpins against 128					
(Edge 1 optimal)					
1	16.50000	14.25000	0.0	5.0000	1.5000
Load 9 : Basement underpins under existing 126 rear wall					
(Edge 1 optimal)					
1	14.50000	12.50000	0.0	1.0000	2.0000
Load 10 : Boundary wall footing					
(Edge 1 optimal)					
1	20.90000	10.50000	0.0	3.4000	1.0000
2	23.10000	12.50000	0.0	1.0000	5.0000
3	20.80000	14.50000	0.0	3.6000	1.0000

Displacement Lines

Name	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals [No.]	Calculate Detailed Results
SW-NE front to back of 126	0.00000	12.50000	27.90000	28.00000	12.50000	27.90000	50	Yes Yes
Construction 126 St Pancras along back of 124-126-128	14.00000	5.00000	27.90000	14.00000	22.00000	27.90000	30	Yes Yes
NW-SE below 124 and 128 extension	16.50000	5.00000	29.00000	16.50000	22.00000	29.00000	30	Yes Yes

Displacement Grids

Name	Extrusion: Direction	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals Along Line [No.]	Extrusion: Distance [m]	Extrusion: Intervals Along [No.]	Calculate Detailed Results
Grid 1	Global X	0.00000	5.00000	27.90000	-	22.00000	27.90000	16	30.00000	30	Yes Yes

Appendix G: Surface Water and Flooding Assessment

March 2024

CRØFT STRUCTURAL+ CIVIL

Surface Water Report

Site:

126 St Pancras Road,
London,
NW1 9NB

Client

Julian Maund

Completed By	Alain Carini Meng MSc
Reviewed By	Philip Henry MEng CEng MICE

Rev	Date	Rev By	Comment
	08/03/2024		

Croft Structural Engineers Ltd
Rear of 60 Saxon Road, London, SE25 5EH
T: 020 8684 4744 E: enquiries@croftse.co.uk

CRØFT STRUCTURAL+ CIVIL

Contents

CRØFT STRUCTURAL+ CIVIL

Basement Impact Assessment for Site Address

1. Non Technical Summary

1.1. Drainage, Surface Water & Flooding

The BIA has identified

- The construction of the basement will not have any significant impacts on the Surface water.
- The area is not in a CDA, is not in the flooded street list, and is far from waterways therefore flooding is not a concern.
- The risk of flooding from excess surface water is not considered significant. There is a risk of flooding due to the failure of the pumping system but this can be reduced to acceptable levels with appropriate design and installation measures.

2. Introduction

2.1. Report Authors and Qualifications

2.1.1. Hydrology, Surface Water Flooding and Sewer Flooding

The following individuals have reviewed the impacts related to Surface Water and Flooding:

Alain Carini
MEng MSc
Croft Structural + Civil

Chris Tomlin
MEng CEng MIStructE
Croft Structural + Civil

2.2. Sources of Information

The following baseline data have been referenced to complete the BIA in relation to the proposed development:

- LB Camden, Strategic Flood Risk Assessment (produced by URS, 2014);
- LB Camden, Floods in Camden, Report of the Floods Scrutiny Panel (2013);
- LB Camden, Planning Guidance (CPG) – Basements (January 2021);
- LB Camden, Camden Geological, Hydrogeological and Hydrological Study – Guidance for Subterranean Development (produced by Arup, 2010);
- LB Camden, Local Plan Policy A5 Basements (2017);
- LB Camden's Audit Process Terms of Reference;

Other sources of data are referred to within the relevant sections of this report.

3. Desk Study & Walk over Survey

3.1. Surface Water and Drainage Walk Over Survey

3.1.1. Hardstanding

The hardstading on the site is located

- The rear garden is covered with pavers along the full area. No line drain is to be found within the garden therefore it is assumed that the surface water is draining into the gulley placed at the outrigger corner.

Figure 1 Rear Garden Hardstanding

3.1.2. Front lightwell.

The front lightwell will be retained as per the original size therefore no work will be carry out at the front of the property.

- It is noted that an upstand has already been built to protect the front lightwell from water intgress.

Figure 2 Front lightwell and upstand.

3.1.3. Site Drainage

The sewer is a combined sewer. Rainwater downpipes discharge surface water from the building into the conventional drainage. One rainwater pipe is located at the rear of the house and is picking up the water from the main roof, while another rainwater pipe is located on the outrigger back wall and is picking up the water from the extension roof ending to a gulley. A small rainwater pipe is located on the side outrigger wall and connects to the same gulley as the above mentioned outrigger RWP.

The foul water drainage pipe (SVP) is running from the main house back wall down up to the first floor and back up the outrigger back wall collecting the two bathrooms and kitchen wastewater.

There is a manhole located almost at the edge of the outrigger back wall to give access to the wastewater underground pipe.

The main sewer is located at the front of the property, it is therefore assumed that all the drainpipes are running below the main house and into the sewer main.

Figure 3 Rear Drainage Pipes

3.1.4. Surface Water

No areas of surface water in the form of ponds lakes, streams or rivers were noted in the close proximity of the site. The Camden canal is approximately 300 meters away from the property while Hampstead Heath is one kilometre away.

3.1.5. Summary Surface Water and Drainage Walk

A walk over survey has confirmed that there are no surface water features, either within or close to the site. The survey has also confirmed that the site is covered with hard surfaces. Rainwater from these surfaces is likely to flow in the direction of the slope of the surrounding area, ie from north-to southwest. This will be towards Farrier Road and Kentish Town Road.

4. Screening Stage

This stage identifies any areas for concern that should be investigated further.

4.1. Surface Flow and Flooding

Question 1: Is the site within the catchment of the pond chains on Hampstead Heath?

No. The site lies outside the areas denoted by Figure 14 of the GSD (extract shown below)

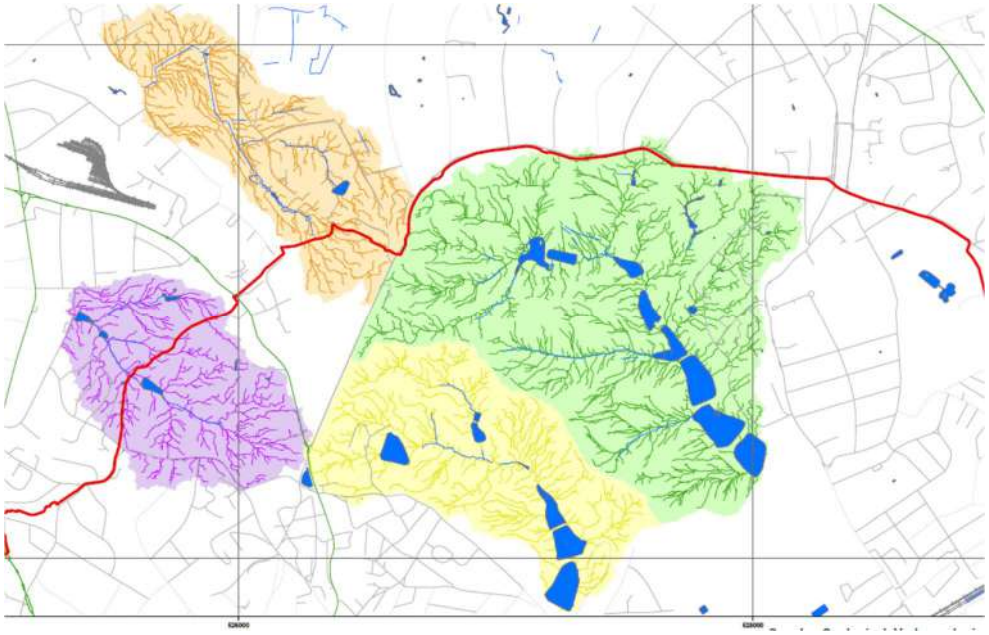


Figure 4: Extract from Figure 14 of the GSD (site lies to the south of the shaded areas)

Question 2. As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?

No – The surface water that flows from the proposed development will be routed the same way as before: water is and will be collected from hard surfaced areas and enter the existing drainage system.

Question 3. Will the proposed basement development result in a change to the hard surfaced /paved external areas?

No – Currently the site is fully occupied by buildings and hard-surfaced areas. This will remain the case with the proposed development.

Question 4. Will the proposed basement result in changes to the inflows (instantaneous and long term) of surface water being received by adjacent properties or downstream watercourses?

No. Surface water that is received by adjacent properties and downstream watercourses is not from the site. This will remain the case with the proposed development.

Question 5. Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?

No. Collected surface water will be from building roofs and paving, as before. The quality of the water received downstream will therefore not change.

Question 6: Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example because the proposed basement is below the static water level of nearby surface water feature?

No the
The potential sources of flooding are summarised below:

Potential Source	**Potential Flood Risk at site?**	**Justification**
Fluvial flooding	No	EA Flood Mapping shows Flood Zone 1. Distance from nearest surface watercourse >1km
Tidal flooding	No	Site location is 'inland' and topography > 40mAOD.
Flooding from rising / high groundwater	No	The site is located on low permeability London Clay.
Surface water (pluvial) flooding	No	126 St Pancras Way is noted on the flooded street list and maps from 1975 or 2002
Flooding from infrastructure failure	Yes	Drainage at or near the site could potentially become blocked or cracked and overflow or leak. Drainage of the basement terrace areas may rely on pumping.

Flooding from reservoirs, canals and other artificial sources	No	There are no reservoirs, canals or other artificial sources in the vicinity of the site that could give rise to a flood risk.

The answers to Questions 1-5 above indicate that the issues related to surface water flow and flooding are not significant. These questions therefore do not have to be carried forward to Scoping Stage.

Summary

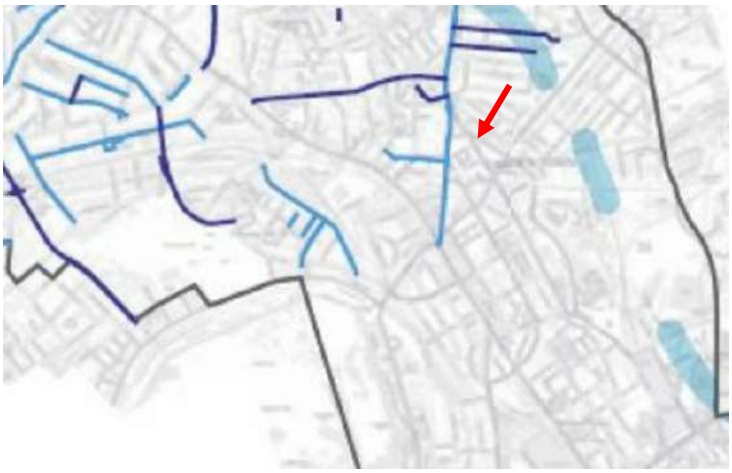


Figure 5 Extract from Camden flooded street map

In answering Question 6, a flood risk assessment is not considered necessary: the property is not on a street that has flooded in 1975 or 2002 and there are no risks to flooding that are greater than those inherent with all subterranean structures. However, the risks associated with infrastructure failure should be investigated further. The assessment, with regards to Surface Water Flow, should be carried forward to Scoping Stage.

5. Scope Stage

5.1. Surface Flow and Flooding

The site does not lie in a CDA (Critical Drainage Area). The property location is shown below.

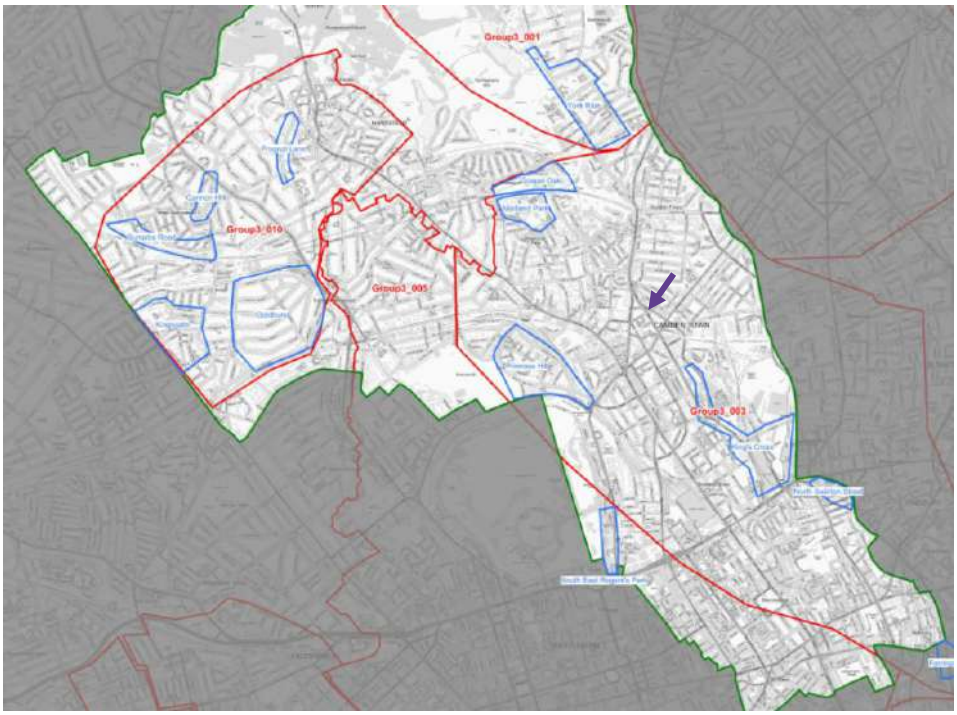


Figure 6 Extract from Camden CDA Street map

A flood risk assessment is therefore not required.

5.1.1. Conceptual Model

The garden is currently covered with pavers draining into a gulley, therefore the full footprint of the house and garden is not permeable. as shown on Figure 7.

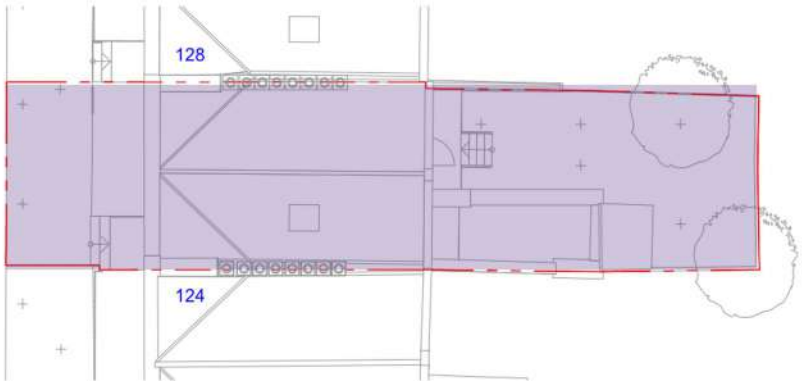


Figure 7 Footprint of the house and garden covered with pavers.

Permeable paving (darker area) is proposed in the garden as shown in Figure 8. Therefore the new basement will not change the above ground flow, it will potentially be reduced if recommendations are followed.

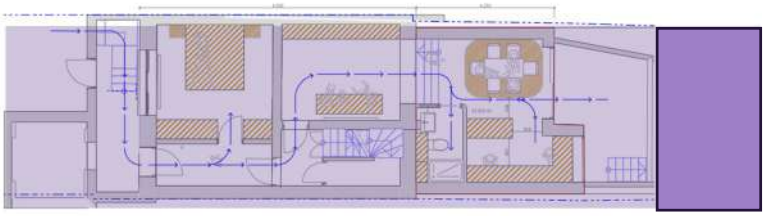


Figure 8 Footprint of the house (including new basement) and garden covered with permeable hardstanding.

6. Basement Impact Assessment

6.1. Surface Water & Flooding Assessment

The significant risk of flooding is from failure of infrastructure, such as flooding due to unexpected failure of the drainage, water mains, etc. This risk is inherent in the construction of all subterranean structures.

SUDS aims to mimic the route that rainwater would take in a natural environment. In this development, this is achieved by planting and permeable paving to the side.

There is a risk of flooding due to the failure of the pumping system but this can be reduced to acceptable levels with appropriate design and installation measures. Measures to mitigate this risk are described later.

6.1.1. Flood Hazards

The potential hazards related to flooding are as follows:

Tidal and Fluvial Flooding

Given that the site lies in Flood Risk Zone 1 (defined by the Environment Agency as having low risk of flooding from rivers and seas), the risk of flooding from fluvial and tidal sources is not significant.

Surface Water and Pluvial Flooding

The site is adequately drained, as are the surrounding roads (which are drained by gullies maintained by Thames Water). The new basement will not involve a significant removal of permeable surfaces. Rainwater will be able to infiltrate into the ground as before in the back area of the garden and will not migrate to alternative locations above ground level.

Groundwater Flooding

The presence of the new basement has the potential to affect groundwater flow. The risk of groundwater flooding is concluded as being low, both on-site and off-site

Infrastructure Flooding

There are no reservoirs nearby which could cause flooding in the event of failure. Furthermore, these items are assumed to have a high level of maintenance thus the risk of flooding from these is considered very low.

There are no known cases of flooding from sewers in the local area. There is always a risk that incoming water mains may break, causing significant flood risk to the occupants of the basement.

This risk is inherent with all basement structures. Mitigation measures are proposed in the following section.

6.1.2. Flooding Mitigation Measures

To mitigate the risks associated with flooding, it is recommended that the following mitigation measures are taken, (if not already implemented):

- A pumping mechanism should be installed for the proposed basement. There is a likelihood that this may fail and allow excess water to accumulate. If this were to occur, the build-up of water would be gradual and noticeable before it becomes a significant life-threatening hazard.

- The pumping system should be a dual mechanism to maintain operation in the event of a failure. This should include a battery backup and a suitable alarm system for warning purposes. After the planning application is concluded, the design team should seek consent from Thames Water to pump and discharge water into the sewer.

- Route all electrical wiring at high level

- Ensure that the basement structure is adequately waterproofed during construction.

- Upstand concrete edge placed at the front lightwell.

6.1.3. Surface Water and Flood Risk Assessment Summary

The risk of flooding from excess surface water is not considered significant. There is a risk of flooding due to the failure of the pumping system but this can be reduced to acceptable levels with appropriate design and installation measures.

6.2. Drainage Assessment

The design of drainage and damp-proofing is not within the scope of this assessment and would normally be expected to be part of the structural waterproofers remit at detailed design stage.

A common and anticipated detailed design stage approach is to use internal membranes (Delta or similar). These will be integral to the waterproofing of the basement. Any water from this will enter a drainage channel below the slab. This will be pumped and discharged into the existing sewer system.

It is recommended that a waterproofing specialist is employed to ensure all the water proofing requirements are met. The waterproofing specialist must name their structural waterproofer. The structural waterproofer must inspect the structural details and confirm that he is happy with the robustness.

Due to the segmental construction nature of the basement, it is not possible to water proof the joints. All waterproofing must be made by the waterproofing specialist. They should review the structural engineer's design stage details and advise if water bars and stops are necessary.

The waterproofing designer must not assume that the structure is watertight. To help reduce water flow through the joints in the segmental pins, the following measures should be applied:

- All faces should be cleaned of all debris and detritus
- Faces between pins should be needle hammered to improve key for bonding
- All pipe work and other penetrations should have puddle flanges or hydrophilic strips

6.2.1. SUDS Assessment & Mitigation Measures

To minimise the discharge to the existing sewer SuDS (Sustainable Drainage Systems) should be considered at detailed design stage. This aims to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. To achieve this, the generally accepted hierarchy of these methods are presented below:

1. store rainwater for later use
2. use infiltration techniques, such as porous surfaces in non-clay areas
3. attenuate rainwater by storing in tanks or sealed water features for gradual release.
4. discharge rainwater to a surface water sewer/drain.
5. discharge rainwater to the combined sewer.

The suitability of different SuDS features is unique to each site: some features may not be practical or not be suitable due to space constraints or soil conditions. SuDS proposals, which should be considered further at detailed design stage (after the Planning Application is concluded) should note the following:

1. There is space in the gardens for rainwater storage butts
2. There is limited scope for infiltration by means of soakaways due to the low permeability of the soil (clay is present below ground level)
3. Given the size of the site the use of open water features would not be practical
4. Given the scale of the proposal, the use of attenuation tanks would be out of proportion to the site development
5. There are no water courses traversing the site and therefore discharging into these is not possible
6. The property is understood to discharge water into a combined sewer. It is therefore not possible to discharge water into a separate surface water drain
7. There may be a minor increase in surface water discharge into the existing (combined) sewer. At detailed design stage the discharge stage should be calculated and this should be approved by the local sewerage undertaker.

At detailed design stage, if the design team consider paving areas, then permeable paving should be incorporated into the design. This will allow for a steady discharge of water into the ground and is illustrated below.

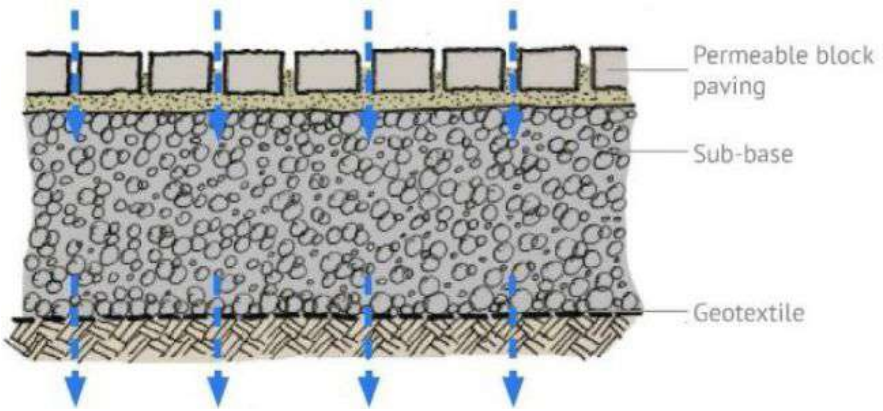


Figure 9: Typical section through permeable paving and sub-base showing infiltration

The rear lightwell will create a hard surfaced area at basement level. This will be drained via Aco channels (or similar) and the water will be pumped and discharged into the existing sewer system.

6.2.2. Drainage & SUDS Summary

There is no significant increase in the discharge of surface water into the existing sewer system. The use of complex SUDS features is therefore not considered applicable to a development of this scale. However, it is proposed the use of permeable paving to minimise the amount of surface water discharge into the sewer. This will act as a storage area for surface water allowing the water to recharge the ground water in the area.