Phase 1 Geoenvironmental Report November 2020 Card Geotechnics Limited



17-37 WILLIAM ROAD





Euston One Limited

Euston One, 17-37 William Road, London

Phase I Desk Study Report – Revision 1

November, 2020

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1. INTRODUCTION

Card Geotechnics Limited (CGL) has been commissioned by Euston One Limited to complete a Phase I geoenvironmental and geotechnical desk study for a site located at 17-37 William Road, Euston NW1. The site currently comprises a part two-storey, part six-storey office building with basement level at 35-37 William Road and a seven-storey building with ancillary office accommodation at ground floor level and residential units above at No. 17-33. It is understood that the Phase I report is required to support the proposed redevelopment of the site for mixed-use commercial and student accommodation.

The purpose of this report is to review records relating to the historical, environmental, geological, hydrogeological and hydrological setting of the site to establish a preliminary conceptual site model, undertake a preliminary risk assessment for potential contamination and identify potential geoenvironmental and geotechnical constraints to development, along with recommendations for further investigation and assessment, if appropriate.

This report may be submitted as part of the planning application to demonstrate the viability of the development with regards to contamination.



2. SITE CONTEXT

2.1 Site Location

The site is located at 17-37 William Road, Euston, London, NW1 3ER. The site is situated at the intersection between William Road and Stanhope Street. The National Grid Reference for the approximate centre of the site is 529128, 182539.

A site location plan is included as Figure 1.

2.2 Site Description and Walkover

A site walkover was undertaken by CGL on 17 June 2019 and selected photographs are presented in Appendix A – access was not gained to internal spaces. A site layout plan presented as Figure 2.

The site is rectangular in shape, covers an area of approximately 0.19ha (1941m2) and is currently entirely occupied by two buildings separated by a small access way with hardstanding ground cover. No. 33-37 comprises a dated part two-storey, part six-storey office building with basement level, situated on the corner of William Road and Stanhope Street. No. 17-33 comprises a sevenstorey building with ancillary office accommodation at ground floor level and residential units above.

The site is bounded to the north by William Road, the west by Stanhope Street, and to the south by surrounding buildings.

No evidence fly tipping/waste material or potential sources of significant contamination was observed during the site walkover, although an electricity box (415 volts) was noted on the western side of the building.

No vegetation is present within the site footprint or within the nearest pedestrian pavements of William Road and Stanhope Street, with limited vegetation in the wider area.

No service/utility plans have been provided, however, evidence of drainage and water mains were noted in the surrounding pavements during the walk over. In addition several tunnels are noted in the wider area, including the Royal Mail Underground Railway 1 located approximately 90m to the south-east of the site, the Regent Street Sewer located approximately 130m to the west of the site and the Northern and Victoria underground lines located between approximately 150m and 180m to the south-east of the site.



There was no evidence for surface water, flooding, high water table, springs/ponds/wells or steams/rivers or ditches noticed during the walkover.

2.3 Topography

The site and surrounding area are relatively flat, with a very gentle slope towards the east; 35-37 William Road is at an elevation of approximately 27.4mOD and 17-33 William Road is at approximately 26.9mOD.

2.4 Proposed Development

The proposed development comprises the redevelopment of no. 35-37 to provide a 15 storey building with basement level for use as student accommodation, with affordable workspace at ground floor level of no. 17-37 and improvements to ground floor façade of no. 17-33, together with public realm improvements, servicing, cycle storage and facilities, refuse storage and other ancillary and associated works.'

The proposed development plans are included as Appendix B.



3. DESK STUDY

3.1 Sources of Information

The historical, environmental, geological and hydrogeological/hydrological setting of the site has been established based on a review of historical Ordnance Survey maps (1:1,056 and 1:10,560 scales) dating between 1866 and 2014 (included in Appendix C), a Geo Insight report (Appendix D) and Enviro Insight report (Appendix E) obtained from Groundsure and supplemented with published and unpublished records. The distances quoted are taken from the approximate centre of the site.

3.2 Historical development

The earliest historical map dated 1870 indicates that the site was occupied by terraced housing, fronting onto *Frederick Street* (the existing William Road) and *Stanhope Street*, with a *Public House* and part of the *Eagle Brewery* in the south-eastern corner and possibly across the southern area of the site (occupied by long buildings to the rear of the terraced housing); the brewery extended towards the south-east of the site. The wider area was predominantly residential, with possible commercial land uses in the courtyard mews.

The site and surrounding area remained relatively unchanged until the post-war maps, when a *ruin* is noted on the site (former public house) and the surrounding residential properties to the south and east were replaced by commercial/light industrial properties (including *Furniture Works, Printing Works, Timber Yard*).

The site was redeveloped in the 1960s, with the construction of two buildings, one similar with a similar configuration to the existing 35-37 William Road and a rectangular building across the footprint of the existing 17-33 William Road.

With reference to the London County Council Bomb Damage maps, the properties in eastern side of the site were seriously damaged (doubtful if repairable or repairable at cost) or damaged beyond repair and these are potential the source of mapped ruin. No bomb damage was recorded for the residential properties in the western side of the site.

A summary of the nearby off-site historical industrial land uses is presented in Table 1, with approximate distances taken from the centre of the site.



Historical Feature	Distance/Direction from Site	First Date Mapped	Last Date Mapped	Comments
Eagle Brewery	17 metres SE	1870	1876	-
Cotton Mill	125 metres S	1870	1876	-
Euston Station	314 metres NE	1896	Present	A busy train station even today.
Printing works	296 metres NE	1916	1959	The building is still there in 1959 but it has become unspecified works.
Engineering works	157 metres SW	1951	1959	Become unspecified works and in 1965 downsized to make way for Trinton Square
Chemical works	97 metres N	1951	1959	Unspecified what chemicals were used but the factory had a short life span
Warehouses (unspecified)	186 metres SW	1951	1965	Large complex of warehouses,
X ray apparatus factory	200 metres S	1951	1959	Became unspecified works, now the Stanhope centre.
Works	Immediately south of the site	1951	Present	Unspecified works and deport. Separated from the site by a courtyard.

Table 1. Summary of pertinent offsite development.

3.3 Anticipated Ground Conditions

3.3.1 Published Geology

With reference to the British Geological Survey (BGS) geological sheet¹ and digital maps² for the area and the Groundsure Geo Insight report (Appendix D), the site is underlain by superficial deposits of the Langley Silt Member and Lynch Hill Gravel over the London Clay Formation. Worked Ground (void) is mapped to the north of the site – it is unclear (due to the scale of the geology map) if the Work Ground extends to the southern side of William Road, but it is possible that it does and may have resulted in removal of soils in the northern area of the site.

The Langley Silt Member is a brickearth deposit and typically comprises firm to stiff, brown to orange brown, very fine sand, silt and clayey silt which may contain sporadic flints; the deposits are either wind-blown (loessic) in origin or transported by solifluction where gravel is present or by fluvial deposition where laminated. The Langley Silt Member is usually present above the Lynch Hill Gravel.

The Lynch Hill Gravel is a River Terrace Deposit and are typically medium dense to dense gravel with sand, silt and occasional bands or lenses of clay.

The London Clay Formation is an overconsolidated, firm to stiff, becoming stiff to very stiff with depth, fissured, dark grey silt clay with occasional siltstone/claystone inclusions and selenite crystals. Based on the contours on the BGS geological sheet¹, the base of the London Clay is

¹ BGS. (2006). North London. England and Wales Sheet 256. 1:50,000.

² http://mapapps2.bgs.ac.uk/geoindex/home.html (accessed June 2019)



anticipated at around 0mOD to -10mOD, corresponding to a depth of approximately 27m to 37m bgl – the London Clay is underlain by Lambeth Group, Thanet Sand and Upper Chalk at depth.

3.3.2 Unpublished Geology

A summary of selected historical BGS borehole records² in the area of the site are presented in Table 2 and the records are presented in Appendix F.Table 2

nce				evel		Depth	to top of	stratum (r	nbgl)	
BH record refere	Distance (m)	Direction	Base of BH (mbgl)	Ground water le (mbgl)	Made Ground	Langley Silt Member	Lynch Hill Gravel	London Clay Formation	Lambeth Group	Thanet Sand
TQ28SE1500 (B)	25	E	56	45	0.0	-	2.1	6.7	37	47
TQ28SE692	40	SW	18.6	4.6	0.0	-	3.0	4.9	-	-
TQ28SE693	59	SW	15.24	5.2	0.0	-	2.4	5.5	-	-
TQ28SE694	74	SW	15.7	6.4	-	0.0	2.1	6.1	-	-
TQ28SE563	56	N	12.20	2.15	0.3	1.8	2.2	3.7	-	-

Table 2. Summary of BGS borehole records

The borehole records indicate that the London Clay is present at depths between approximately 3.7m and 6.7m bgl, overlain by a variable thickness of Made Ground, locally the Langley Silt and the Lynch Hill Gravel. Groundwater was generally recorded at the base of the Lynch Hill Gravel, resting above the London Clay. Deeper groundwater was recorded at 45m bgl in the Lambeth Group (although it is noted that this record dates from 1910 and will not reflect current water levels in the deep aquifers beneath the London Clay. More recent research conducted in the 1980's suggests some rises in London groundwater but it remains unclear if the assumptions made have been realised through the last two decades.

3.4 Hydrogeology and hydrology

The Environment Agency (EA) has produced an aquifer designation system consistent with the requirements of the Water Framework Directive. The designations have been set for superficial and bedrock geology and are based on the importance of aquifers for portable water supply, and their role in supporting surface water bodies and wetland ecosystems.

The Langley Silt Member is classified as an Unproductive Aquifer, The Lynch Hill Gravel Member is classified as a Secondary A Aquifer and the London Clay Formation is classified as Unproductive Strata.

The site is not located in a groundwater Source Protection Zone (SPZ) and there are no recorded ground water abstractions within 500m of the site.



Shallow groundwater in the Lynch Hill Gravel aquifer is inferred to flow in a general south-easterly direction towards the River Thames.

The nearest surface water feature are the ponds in Regent's Park, located 800m to the west of the site.

With reference to the Environment Agency and BGS records, the site is in an area of very low risk from flooding from rivers and sea, low risk from surface water and moderate risk from groundwater flooding.

3.5 Environmental setting

The pertinent information from the Groundsure Geo Insight report is summarised as follows:

- There are no records of historical industrial sites on site, with two within 50m relating to garage/motor vehicle repair (closest 32m west of the site) and a further 52 within 250m relating to a hospital, railway station, police stations, unspecific tanks (closest 166m west) and electricity substations (closes 66m to the north-west)
- There are no records of potentially infilled land within 250m of the site or landfill or other waste sites within 1km of the site
- There are not records of environmental permits, incidents or registers within 50m of the site, with 10 records within 250m of the site:
 - one Part IIA and Part B Activities and Enforcements record (the closest 232m to the north of the site relating to a petrol filling station)
 - nine Category 3 or 4 Radioactive Substances Authorisations (the nearest 210m north-east of the site at University College London relating to disposal of radioactive waste)
- There are no current industrial land uses or petrol/fuel sites on site, the closest being 12m east of the site relating to industrial products
- There are no designated environmentally sensitive sites within 1km of the site

Based on the above, given the relative distances and nature of the surrounding historical and current activities, no on-site or off-site sources of significant contamination have been identified.



3.6 Radon

References to BRE³ and HPA⁴ guidance documents on radon and the radon potential classified in the Environmental Disclosure Report, indicates that the site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

³ BRE. (2015). Radon: Guidance on protective measures for new buildings. Building Research Establishment, Report BR211, 2015

⁴ HPA. (2007). Interactive atlas of radon in England and Wales. Health Protection Agency, HPA-RPD-033, 2007



4. PRELIMINARY RISK ASSESSMENT

4.1 Introduction

Historical contamination of land may present harm to human health and the environment. Current UK legislation stipulates that the risk associated with potential land contamination is assessed and remediated, if necessary. Under the Town and Country Planning Act 1990 (as amended), potential land contamination is a "material planning consideration" together with the National Planning Policy Framework (July 2018), which means that a planning authority must consider contamination when they prepare development plans or consider individual applications for planning permission. It is the responsibility of the developer to carry out the remediation where it is required and satisfy the Local Authority that the remediation has been carried out as agreed.

Additionally, Part 2A of the Environmental Protection Act 1990 requires that a significant sourcepathway-receptor linkage exists to determine a site as contaminated land. This means that there has to be a contaminant present, a receptor that could be harmed by this contaminant, and a pathway linking the two. Part 2A deals with the contamination risk from a site in its current use, however, the planning system requires that the proposed use is considered. Where remediation is carried out under the planning system, it should be ensured that the site is in such a condition that it would still not meet the definition of contaminated land under Part 2A.

4.2 Preliminary Conceptual Site Model

A preliminary conceptual model has been compiled for the site with respect to the proposed development to identify the potential sources of contamination and the associated potential pollutant linkages. For receptors to be exposed to sources of contamination, an appropriate migration pathway must be in place to complete a source – pathway – receptor linkage.

This model also informs the potential need for further investigation at the site.

4.2.1 Potential Sources

Potential contamination sources can include both current and historical activities on site and in the surrounding area. Based on the desk study, no significant potential sources of contamination have been identified on the site or in the surrounding area.

Notwithstanding this, there remains a potential for Made Ground to be present beneath the site (although this would likely have been removed where the lower ground floor is present beneath 17-33 William Road). The following potential sources has been considered:



Made Ground: Made ground is likely to be present associated with historical development which may be a source of contaminants including heavy metal, inorganic and/or organic contamination (i.e. PAHs associated within ash spread in former gardens) and may contain asbestos containing material (ACM). If the Made Ground contains an appreciable organic content, it may be a source of ground gases which could migrate through permeable soils (from on-site or off-site Made Ground)

4.2.2 Potential Pathways

The following potential pathways have been considered:

Ingestion & inhalation- contaminated soils/dust could be ingested or inhaled by site occupants. Vapours may also be inhaled.

- Direct/dermal contact- direct/dermal contact with contaminated soils or groundwater can result in the permeation of contaminants through building material or the uptake of contaminates through the skin.
- *Root uptake* uptake of phytotoxic contaminants by plants and vegetation.
- *Lateral and vertical migration* leaching from potential contamination in the soils may impact the groundwater.
- Ground gas/vapour migration lateral migration of ground gases and/or vapours through the soil matrix could lead to accumulation within buildings, posing a risk of asphyxiation or
- *M* Drainage and services can create preferential pathways for contamination to migrate

Notwithstanding these potential pathways, it is noted that the proposed development will include buildings or hardstanding across the entire site footprint – ingestion/inhalation and direct contact exposure pathways will therefore be limited to construction works, and only where the shallow soils are to be exposed (i.e. beneath 35-37 William Road), and the root uptake pathway is not relevant given the absence of proposed plant growth (no soft-landscaping proposed).

4.2.3 Potential Receptors

explosion.

The following receptors have been considered:

Future site occupiers – could be at risk from ground gas/vapour accumulations within buildings (although no sources of significant ground gases have been identified), however,



there will be no exposure pathways between contaminated soils (if present) and future site occupiers given that the site will be covered with buildings and/or hardstanding;

Construction workers – could be affected by potential contamination within soils and groundwater during ground works. Such persons are likely to be in close contact with potentially contaminated materials;

Off-site users – could be affected by potential contamination within dust generated during the ground works (for 35-37 William Road only);

Controlled waters – the underlying Lynch Hill Gravel Member aquifer may be affected by dissolved phase contamination or the leaching of contaminants from shallow soils, although the site is not within a groundwater source protection zone; no surface water features have been identified near the site that could be affected by potential contamination arising from the site (if present);

Buildings and infrastructure – could be at risk from ground gas migration, aggressive ground conditions (i.e. sulfate in the London Clay) or contaminant concentrations in the shallow soils and groundwater (if present); and

Plants and vegetation – whilst plant growth may generally be affected by phototoxic contaminants such as copper, nickel and zinc, no planting is included in the proposed development plans.

4.3 Preliminary Qualitative Risk Assessment

A preliminary qualitative risk assessment has been undertaken based on the findings of the conceptual site model and the potential pollutant linkages that may exist at the site in accordance with Contaminated Land Report (CLR) 11⁵. Using criteria broadly based on those presented in CIRIA Report C552⁶, the magnitude of the risk associated with potential pollutant linkages has then been assessed and is summarised below in, below. The risk assessment methodology is presented in Appendix G.

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating
Made Ground:	Ingestion & inhalation-	Future site users/occupiers	Medium	Unlikely	Low
Potential for metals, organic andcontaminated soils/dust could be ingested or	Construction workers	Medium	Likely	Moderate	

Table 3. Qualitative risk assessment

⁵ The Environment Agency (2004) Model Procedures for the Management of Land Contamination. CLR 11.

⁶ CIRIA (2001) Contaminated Land Risk Assessment. A guide to good practice. C552.



inorganic contaminants and potential asbestos.	inhaled by site occupants. Vapours may also be inhaled.	Off-site users/occupiers	Mild	Likely	Moderate/Low
	Leaching or migration in water.	Surface water Groundwater and aquifers:	Mild	Unlikely	Very low
		Groundwater: Lynch Hill Gravel Member	Mild	Low likelihood	Low
	Migration through underground structures and services	On and off-site buildings and infrastructure	Mild	Low likelihood	Low
	Root uptake	Plants and vegetation	Mild	Unlikely	Very low
	Ground gases	Occupants and buildings	Medium	Unlikely	Low

Based on the risk assessment above, the risks associated with contamination are generally considered to be low, with a moderate risk to construction workers (associated with direct contact with Made Ground, if present) and a moderate/low risk to off-site users/occupiers (due to potential generation of dust from Made Ground, if present).



5. CONCLUSIONS & RECOMMENDATIONS

5.1 Geoenvironmental constraints

Based on the desk study review, it is considered that there is potential for Made Ground at the site which may contain contaminants associated with previous site uses and phases of demolition, however, no potential sources of significant/gross contamination have been identified. It is therefore considered that potential pollutant linkages, if present, could be addressed with standard development phase remedial measures (i.e. provision of capping layers, appropriate health and safety practices and PPE during construction).

Notwithstanding this, the proposed development will maintain the 100% building/hardstanding cover across the site, which will effectively break potential direct contact/ingestion/inhalation pollutant pathways between the identified potential source (Made Ground) and future site users/occupants. No specific investigation is considered to be necessary in this regard.

Whilst the Made Ground, if present, may be a potential source of ground gas, it is unlikely to be generate gases in volumes that would require specific remedial measures – noting that no issues with ground gases have previously been reported at the site. Whilst no specific investigation is considered to be necessary, observations should be made during geotechnical ground investigation and if highly organic soils are encountered, further investigation and/or assessment should be undertaken.

It is considered that potential risks to construction workers and off-site users/occupiers during construction may be addressed with appropriate health and safety practices (including dust suppression during groundworks) and PPE during construction. The risks associated with asbestos containing materials within the existing structures is outside of the scope of this report and it is recommended that an asbestos survey is undertaken for 35-37 William Road.

Based on the above, it is considered that the residual risks may be mitigated with a contamination watching brief and discovery strategy during construction. An outline discovery strategy is presented in the section below.

5.1.1 Watching Brief and Discovery Strategy

Should areas of unexpected contamination be encountered or suspected, including asbestos, a qualified geoenvironmental engineer should be informed and the risk associated with the contamination assessed. Where necessary, an appropriate remediation strategy should be devised and implemented. The regulators should be informed of any additional areas of contamination so



identified and should be provided with the risk assessment and proposed remediation methodology for agreement before undertaking such works. Appropriate verification works to be completed, if remedial measures are required, should also be identified and agreed.

The following nominal discovery strategy is recommended:

- 1. Work to cease in that area;
- Notify a geoenvironmental engineer, to attend site and sample material. Notify Environmental Health Officer, as appropriate;
- 3. Geoenvironmental engineer to supervise the excavation of the contaminated material, which should be placed in a bunded area and covered to prevent rainwater infiltration;
- 4. Soil samples should be obtained by the geoenvironmental engineer from both the excavated material and the soils in the sides and base of the excavation to demonstrate that the full area of contamination has been excavated. If appropriate, in-situ testing should be undertaken on the sides and base of the excavation to assess the presence of residual contamination in the soils;
- 5. On receipt of the chemical tests results, the souls may be appropriately classified for treatment or disposal and dealt with accordingly;
- 6. Detailed records, including photographs and duty of case records, of the records, stockpile sizes, source and location should be kept and regularly updated to allow materials to be easily tracked from excavation until disposal off site. This information is to be added to the site verification report for later submission to the regulators for approval; and
- 7. Backfilling, if required, to be undertaken with material certified as suitable for the purpose of end land use.

5.2 Geotechnical constraints

The ground conditions beneath the site are expected to comprise Langley Silt (firm clayey silts or silts) over Lynch Hill Gravel (medium dense to dense sands and gravels) over the London Clay (stiff clays). Some Made Ground may be present above the natural soils, associated with previous phases of development. Groundwater is expected in the Lynch Hill Gravel, resting above the London Clay.



The proposed development comprises the redevelopment of no. 35-37 to provide a 15 storey building with basement level and improvements to ground floor façade of no. 17-33, together with public realm improvements, servicing, cycle storage and facilities, refuse storage and other ancillary and associated works

It is understood that that no notably structural changes are anticipated for 17-33 William Road and therefore no geotechnical constraints are identified for this building.

The anticipated high structural loads for 35-37 William Road will require a piled foundation approach, potentially a piled-raft (assuming the lower ground floor is present across the footprint of the proposed building). The London Clay will provide favourable conditions for piled foundations, with a Continuous Flight Auger (CFA) or bored pile approach considered to be appropriate. Depending on the depth of the lower ground floor, the Lynch Hill Gravel and/or London Clay are considered to be an appropriate founding stratum for a piled raft. Shallow foundations in the Langley Silt and/or Lynch Hill Gravel may be feasible for more lightly loaded structures (such as the glazed link structure).

The existing foundations of 35-37 William Road are unknown, but will need to be established to avoid conflicts between old and new foundations (in the event that old foundations cannot be grubbed out).

Geotechnical ground investigation will be required to provide information on the ground and groundwater conditions and allow recommendations and parameters for geotechnical design. Recommendations for investigation are presented in Section 5.3. Notwithstanding this, preliminary geotechnical design parameters are provided in Table 4. These are based on published data for the well-studied London geology. Design levels are given in meters below ground level and are based on average depths from the selected BGS boreholes detailed in Table 2.

Stratum	Design Top Level (mbgl)	Bulk Unit Weight γь (kN/m₃)	Undrained Shear Strength c _u (kPa)	Friction Angle ¢' (°)	Young's Modulus Eu [E'] (MPa)
Made Ground (cohesive)	0.0	18	30	22	15 [11]
Langley Silt Member (cohesive)	0.9	18	40	24	20 [15]
Taplow Gravel Member (granular)	2.4	19	-	34	[43]
London Clay Formation (cohesive) z = depth below surface of stratum	5.4	19	50 + 5z	24	30 + 6z [22.5+2.3z]

Table 4. Preliminary geotechnical design parameters



The parameters in Table 4 are unfactored (Serviceability Limit State) and are considered to be 'moderately conservative' design values.

The anticipated ground conditions encountered should not post difficulties for conventional excavators or earth moving equipment. Shallow excavations in the Langley Silt Member and London Clay are likely to be relatively stable in the short-term, but excavations in the Made Ground (if present) and Lynch Hill Gravel will require temporary support. Long term excavations will require retaining walls.

Groundwater may be encountered in excavations, notably from lower ground floor level, which may require groundwater control during construction – this may take the form of secant piles around the perimeter the significant excavations (i.e. for lower ground floor, or deepening of the same), sealed into the London Clay to cut-off groundwater flow within the box, or potentially sump pumping in minor excavations (i.e. for pile caps and ground beams).

No operatives should enter unshored or otherwise unprotected excavations identified as unstable by a competent person, however shallow they are, in accordance with the guidelines presented within CIRIA Report 97⁷.

The design of buried concrete within the London Clay will need to account for sulfate as these soils are potentially pyritic – this will be more onerous if open excavations are required into the London Clay, but may be minimised with selection of appropriate construction methodology (i.e. cast insitu piled which will mitigate oxidation of pyrite in the London Clay).

5.3 Ground investigation

The following objectives are recommended for ground investigation:

- Provide information on the ground conditions beneath the site this should include boreholes to a minimum depth of 35m bgl (or at least 5m below the anticipated pile toe level);
- Provide information on the groundwater conditions beneath the site this should include monitoring installation in boreholes and monitoring of the water levels in the shallow Lynch Hill Gravel aquifer or in the London Clay if strong water strikes are encountered during drilling;

⁷ CIRIA. (1992). *Trenching Practice (Second Edition)*. Construction Industry Research and Information Report 97.



- Provide information for selection of geotechnical design parameters this should include in-situ testing (Standard Penetration Tests – SPTs) and laboratory testing (moisture contents, Atterberg Limits, quick undrained triaxial tests, particle size distribution);
- 4. Provide information to allow buried concrete design to BRE Special Digest 1 (SD1) this should include laboratory testing of samples of each stratum for water soluble sulfate (2:1) and pH (as a minimum), with total sulphur and acid soluble sulfate (as SO4) for samples of the London Clay to assess total potential sulfate; and
- 5. Chemical laboratory testing to classify soils for off-site waste disposal this should include an appropriate suite of contaminants and Waste Acceptance Criteria (WAC) testing.

As noted in Section 5.1, it is anticipated that potential risks associated with contamination may be addressed with a contamination watching brief and discovery strategy during construction, however, observations should be made during the geotechnical ground investigation and if grossly contaminated soils/groundwater or highly organic soils are encountered, then further investigation, laboratory testing and/or assessment may be required. The investigation should be supervised by suitably qualified geotechnical and geoenvironmental engineers. **FIGURES**





APPENDIX A

Photo Sheets



PHOTO SHEET

Date	Job No	Made by	Checked by	Sheet No
June 2019	CG/38100	HB	ADC	01
	<image/>			

Top: Street view looking East down William Road, basement ventilation shown Bottom: Street view looking West down William Road, basements across the street





Bottom: Light wells on the pavement on 35-37 William Road



Date	Job No	Made by	Checked by	Sheet No
June 2019	CG/38100	НВ	ADC	03
	<image/>			

Notes

Top: Drainage and ventilation shown on 35-37 William Road Bottom: Alley between the two buildings, building access in the middle. Walkway to be built between the buildings



Date	Job No	Made by	Checked by	Sheet No
June 2019	CG/38100	НВ	ADC	04
<image/>				

Top: 17-33 William Road office to be refurbished below residential housing Bottom: Drainage on William street out the front of the building



Date	Job No	Made by	Checked by	Sheet No
June 2019	CG/38100	НВ	ADC	05
Notes	<image/>			
Bottom: Water service	points			



Date	Job No	Made by	Checked by	Sheet No
June 2019	CG/38100	НВ	ADC	06
The second				
4				
	A Destander			
		The second		
	E. Contraction			
Notes				
Drain services found in	the alley between the two	buildings		

APPENDIX B

Development Plans





EXISTING FIRST FLOOR PLAN								
status	PLANNING							
date	12/10/20							
scale	1:100 @ A1			1:200 @ A3				
project A295	originator MCO	zone XX	level 01	^{type} DR	role A	number 00101	status - revision P01	
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<u>KEY:</u>

--- Plot Boundary

- 1. Lift
- 2. Service Riser
- 3. Circulation/Lobby 4. Stair
- 5. Storage

Unit Types:

- 01A Standard Studio
 01B Standard 'Deluxe' Studio
 01C Standard 'Deluxe' Studio_Chamfered
- 01D Medium Shoulder Studio 9.
- 10. 01E Medium Shoulder Studio_Chamfered
- 01F Shoudler 'Deluxe' Studio 01G Shoulder 'Deluxe' Studio_Chamfered 11. 12.
- 13. 02A - Standard Accessible Studio
- 14. 03A Standard 'Twodio'_North/South 15. 03B - Standard 'Twodio'_East/West/North
- 16. Courtyard/Loggia/Terrace
- 17. WC/Shower
- 18. Laundrette
- 19. Amenity
- 19.Amenity20.Plant21.Office/Meeting Room22.Reception23.Residential Entrance24.Bike Store25.Bin Store26.Gym27.Cinema28.Management Room

- 28. Management Room
- 29. Post Room
- Existing Rooflight Above
 Proposed Rooflight Above
- 32. Wheelchair Accessible Parking
- 33. Sedum Roof
- 34. Ballast Roof 35.
- Light-grey Precast reconstituted stone planter Refuge Area 36.
- 37. Roof Hatch
- 38. Llft Overrun

P01 12.10.20 Planning

- revision date
- amendment





drawing title / location PROPOSED LEVEL 01-03 FLOOR PLAN

status	PLANNING							
date	12/10/20							
scale	1:100 @ A1			1:200 @ A3				
project A295	originator MCO	^{zone} BA	level 01	^{type} DR	^{role}	number 01101	status - revision P01	



<u>KEY:</u>

--- Plot Boundary

- 1. Lift
- 2. Service Riser 3.
- Circulation/Lobby 4. Stair
- 5. Storage

Unit Types:

- 6. 01A Standard Studio
- 7. 01B - Standard 'Deluxe' Studio 01C - Standard 'Deluxe' Studio_Chamfered 8.
- 01D Medium Shoulder Studio 9.
- 10. 01E Medium Shoulder Studio_Chamfered
- 11. 01F Shoudler 'Deluxe' Studio 12. 01G - Shoulder 'Deluxe' Studio_Chamfered
- 02A Standard Accessible Studio 13.
- 03A Standard 'Twodio'_North/South 03B Standard 'Twodio'_East/West/North 14. 15.
- Courtyard/Loggia/Terrace WC/Shower 16. 17.
- 18. Laundrette
- 19. Amenity
- 20. Plant
- 21. Office/Meeting Room 22. Reception
- 23. **Residential Entrance**
- 24. Bike Store
- 25. Bin Store
- 26. 27. 28. Gym
- Cinema Management Room

- 28. Management Room
 29. Post Room
 30. Existing Rooflight Above
 31. Proposed Rooflight Above
 32. Wheelchair Accessible Parking
- 32. 33. 34. Sedum Roof Ballast Roof
- Light-grey Precast reconstituted stone planter
- 35. 36. Refuge Area
- 37. Roof Hatch
- 38. Llft Overrun

P01 12.10.20 Planning

revision date

amendment

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job title WILLIAM ROAD

drawing title / location PROPOSED LEVEL 04-05 FLOOR PLAN

status	PLANNING							
date	12/10/20							
scale	1:100 @ A1			1:200 @ A3				
project A295	originator MCO	^{zone} BA	level 04	type DR	^{role}	number 01104	status - revision P01	





KEY:

--- Plot Boundary

- 1. Lift
- 2. Service Riser 3. Circulation/Lobby
- 4. Stair
- 5. Storage

Unit Types:

- 6. 01A Standard Studio
- 7. 01B Standard 'Deluxe' Studio 01C - Standard 'Deluxe' Studio_Chamfered 8.
- 01D Medium Shoulder Studio 9.
- 10. 01E Medium Shoulder Studio_Chamfered 11. 01F - Shoudler 'Deluxe' Studio
- 12. 01G Shoulder 'Deluxe' Studio_Chamfered
- 02A Standard Accessible Studio 13.
- 03A Standard 'Twodio'_North/South 03B Standard 'Twodio'_East/West/North 14. 15.
- Courtyard/Loggia/Terrace WC/Shower 16.
- 17.
- 18. Laundrette 19. Amenity
- 20. Plant
- 21. Office/Meeting Room
- 22. Reception
- 23. **Residential Entrance** 24. Bike Store
- 25. Bin Store
- 26. 27. 28. Gym
- Cinema
- Management Room

- 20. Management Room
 29. Post Room
 30. Existing Rooflight Above
 31. Proposed Rooflight Above
 32. Wheelchair Accessible Parking
 33. Proposed
- 33. Sedum Roof
- 34. Ballast Roof
- 35. 36. Light-grey Precast reconstituted stone planter
- Refuge Area
- 37. Roof Hatch 38. Llft Overrun
- P01 12.10.20 Planning

- revision date
- amendment

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job title WILLIAM ROAD

drawing title / location PROPOSED LEVEL 06-07 FLOOR PLAN

status	PLANNING								
date	12/10/2	12/10/20							
scale	1:100 @ A1			1:200 @ A3					
project A295	originator MCO	^{zone} BA	level 06	^{type} DR	^{role}	number 01106	status - revision P01		
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<u>KEY:</u>

--- Plot Boundary

- 1. Lift
- 2. Service Riser 3. Circulation/Lobby
- 4. Stair
- 5. Storage

Unit Types:

- 01A Standard Studio
 01B Standard 'Deluxe' Studio
- 8. 01C Standard 'Deluxe' Studio_Chamfered
- 9. 01D Medium Shoulder Studio
- 10. 01E Medium Shoulder Studio_Chamfered 11. 01F - Shoudler 'Deluxe' Studio
- 12. 01G Shoulder 'Deluxe' Studio_Chamfered
- 02A Standard Accessible Studio 13. 14.
- 03A Standard 'Twodio'_North/South 03B Standard 'Twodio'_East/West/North 15.
- 16. 17. Courtyard/Loggia/Terrace WC/Shower
- 18. Laundrette
- 19. Amenity
- 20. Plant
- 21. Office/Meeting Room
- 22. Reception Residential Entrance
- 23. 24. Bike Store
- 25. Bin Store
- Gym
- 26. 27. 28.

- 27. Cinema
 28. Management Room
 29. Post Room
 30. Existing Rooflight Above
 31. Proposed Rooflight Above
 32. Wheelchair Accessible Parking
 33. Sedum Roof
 '4. Ballast Roof
 Light-grey Procession 35. 36. Light-grey Precast reconstituted stone planter Refuge Area

 - 37. Roof Hatch 38. Llft Overrun

- revision date
- amendment

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job title WILLIAM ROAD									
drawing title / location PROPOSED LEVEL 08-13 FLOOR PLAN									
status	PLANNING								
date	12/10/2	12/10/20							
scale	1:100 @ A1					1:200 @ A3			
project A295	originator MCO	^{zone} BA	level 08	^{type} DR	^{role}	number 01108	status - revision P01		

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KEY:

--- Plot Boundary

- 1. Lift
- 2. Service Riser 3. Circulation/Lobby
- 4. Stair
- 5. Storage

Unit Types:

- 6. 01A Standard Studio
- 7. 01B Standard 'Deluxe' Studio 8. 01C - Standard 'Deluxe' Studio_Chamfered
- 9. 01D Medium Shoulder Studio 10. 01E - Medium Shoulder Studio_Chamfered
- 11. 01F Shoudler 'Deluxe' Studio
- 12. 01G Shoulder 'Deluxe' Studio_Chamfered 02A - Standard Accessible Studio 13.
- 03A Standard 'Twodio'_North/South 03B Standard 'Twodio'_East/West/North 14.
- 15.
- Courtyard/Loggia/Terrace WC/Shower 16.
- 17. 18. Laundrette
- 19. Amenity
- 20. Plant
- 21. Office/Meeting Room
- 22. Reception 23. **Residential Entrance**
- 24. Bike Store
- 25. Bin Store
- 26. 27. 28. Gym
- Cinema Management Room
- 29. Post Room
- 30. Existing Rooflight Above
 31. Proposed Rooflight Above
 32. Wheelchair Accessible Parking
- 33. 34. Sedum Roof Ballast Roof
- Light-grey Precast reconstituted stone planter
- 35. 36. Refuge Area
- 37. Roof Hatch
- 38. Llft Overrun

P01 12.10.20 Planning

- revision date
- amendment

WILLIAM ROAD

drawing title / location PROPOSED LEVEL 14 FLOOR PLAN

status	PLANNING								
date	12/10/20								
scale	1:100 @ A1			1:200 @ A3					
project A295	originator MCO	^{zone} BA	level 14	^{type} DR	^{role}	number 01114	status - revision P01		
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<u>KEY:</u>

--- Plot Boundary

- 1. Lift
- 2. Service Riser Circulation/Lobby 3.
- 4. Stair
- 5. Storage

Unit Types:

6.	01A - Standard Studio
7.	01B - Standard 'Deluxe' Studio
8.	01C - Standard 'Deluxe' Studio_Chamfered
9.	01D - Medium Shoulder Studio

- 01D Medium Shoulder Studio 10. 01E - Medium Shoulder Studio_Chamfered

- OTE Medium Shoulder Studio_Chamfered
 OTF Shoudler 'Deluxe' Studio
 OTG Shoulder 'Deluxe' Studio_Chamfered
 O2A Standard Accessible Studio
 O3A Standard 'Twodio'_North/South
 O3B Standard 'Twodio'_East/West/North
- Courtyard/Loggia/Terrace WC/Shower 16. 17.
- 18. Laundrette
- 19. Amenity
- 20. 21. Plant
- Office/Meeting Room
- 22. 23. Reception **Residential Entrance**

- 23. Residential Ef
 24. Bike Store
 25. Bin Store
 26. Gym
 27. Cinema
 28. Management
 29. Post Room
 20. Evicting Pacef Management Room
- Existing Rooflight Above
 Proposed Rooflight Above
- Wheelchair Accessible Parking 32.
- 33. Sedum Roof
- 34. Ballast Roof
- 35. Light-grey Precast reconstituted stone planter
- 36. Refuge Area
- 37. Roof Hatch
- 38. Llft Overrun

P01 12.10.20 Planning

- revision date
- amendment

job title WILLIAM ROAD

drawing title / location PROPOSED ROOF LEVEL PLAN

status PLANNING date 12/10/20 1:100 @ A1 1:200 @ A3 scale projectoriginatorzoneleveltyperolenumberstatus - revisionA295MCOBA15DRA01115P01 © Morris+Company Ltd. 2018

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<u>KEY:</u>

--- Plot Boundary

- 1. Lift
- Service Riser 2. Circulation/Lobby 3.
- 4. Stair
- 5. Storage

Unit Types:

6. 7. 8. 9. 10. 11. 12. 13. 14. 15.	01A - Standard Studio 01B - Standard 'Deluxe' Studio 01C - Standard 'Deluxe' Studio_Chamfered 01D - Medium Shoulder Studio 01E - Medium Shoulder Studio_Chamfered 01F - Shoudler 'Deluxe' Studio 01G - Shoulder 'Deluxe' Studio_Chamfered 02A - Standard Accessible Studio 03A - Standard 'Twodio'_North/South 03B - Standard 'Twodio'_East/West/North
16.	Courtyard/Loggia/Terrace
17.	WC/Shower
18.	Laundrette
19.	Amenity
20.	Plant
21.	Office/Meeting Room
22.	Reception
23.	Residential Entrance
24.	Bike Store
25.	Bin Store
26.	Gym
27.	Cinema
28.	Management Room
29.	Post Room
30.	Existing Rooflight Above
31.	Proposed Rooflight Above
32.	Wheelchair Accessible Parking
33.	Sedum Roof
34.	Ballast Root
30. 36	Light-grey Precast reconstituted stone planter
30.	Roof Hatch
37.	

38. Llft Overrun

P01 12.10.20 Planning

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1:100 @ A1

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 number
 status - revision

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 00100
 P01

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1:200 @ A3

<u>KEY:</u>

--- Plot Boundary

- 1. Lift
- 2. Service Riser
- 3. Circulation/Lobby 4. Stair
- 5. Storage

Unit Types:

- 6.
- 7. 8.
- 01A Standard Studio 01B Standard 'Deluxe' Studio 01C Standard 'Deluxe' Studio_Chamfered 01D Medium Shoulder Studio 9.
- 01E Medium Shoulder Studio_Chamfered 10.
- 01F Shoudler 'Deluxe' Studio 01G Shoulder 'Deluxe' Studio_Chamfered 11. 12.
- 13. 02A - Standard Accessible Studio
- 14. 03A Standard 'Twodio'_North/South 15. 03B - Standard 'Twodio'_East/West/North
- 16. Courtyard/Loggia/Terrace
- 17. WC/Shower Laundrette
- 18. 19. Amenity
- 19.Amenity20.Plant21.Office/Meeting Room22.Reception23.Residential Entrance24.Bike Store25.Bin Store26.Gym27.Cinema28.Management Room

- 28. Management Room 29. Post Room
- Existing Rooflight Above Proposed Rooflight Above 30.
- 31.
- 32. Wheelchair Accessible Parking Sedum Roof
- 33. 34. Ballast Roof
- Light-grey Precast reconstituted stone planter Refuge Area 35.
- 36.
- 37. Roof Hatch 38. Llft Overrun

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PROPOSED GROUND FLOOR PLAN - PLOT B

status	PLANNI	NG							
date	12/10/20								
scale	1:100 @ A1			1:200 @ A3					
project A295	originator MCO	^{zone}	level G0	^{type} DR	^{role}	number 01099	status - revision P01		
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<u>KEY:</u>

- --- Plot Boundary
- 1. Lift
- Service Riser 2. Circulation/Lobby 3.
- 4. Stair
- 5. Storage

Unit Types:

- 6. 01A Standard Studio
- 7. 01B - Standard 'Deluxe' Studio 01C - Standard 'Deluxe' Studio_Chamfered 8.
- 01D Medium Shoulder Studio 9.
- 10. 01E - Medium Shoulder Studio_Chamfered
- 11. 01F - Shoudler 'Deluxe' Studio 01G - Shoulder 'Deluxe' Studio_Chamfered 12.
- 02A Standard Accessible Studio 13.
- 03A Standard 'Twodio'_North/South 14. 03B - Standard 'Twodio'_East/West/North 15.
- 16. 17. Courtyard/Loggia/Terrace WC/Shower
- 18. Laundrette Amenity
- 19. Plant
- 20. 21. Office/Meeting Room
- 22. 23. Reception
- **Residential Entrance**
- Bike Store Bin Store
- 24. 25. 26. 27.

-

- Gym Cinema
- 28. Management Room
- 29. Post Room 30.
- 31.
- Existing Rooflight Above Proposed Rooflight Above Wheelchair Accessible Parking 32.
- 33. Sedum Roof
- 34. Ballast Roof 35. Light-grey Precast reconstituted stone planter
- 36. Refuge Area
- 37. Roof Hatch
- 38. Llft Overrun

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project originator zone level type role number status - revision

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A295 MCO XX ZZ DR A 00210 P01

WILLIAM ROAD

PLOT A 35 - 37 WILLIAM ROAD

58 - 60 STANHOPE ST

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