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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

M4CHESTER ONE LIMITED

Spear Street, Manchester

Piling Risk Assessment

JEM/C5230/12328

August 2023

PROJECT QUALITY CONTROL DATA SHEET

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DRAWINGS

Drawing Number	Rev	Title
P16081-FCH-BA-00-DR-A-2001	P02	Site Plan – Ground Floor Plan
C5230/01	-	Site Location Plan
C5230/02	-	Site Features Plan
C5230/03	A	Exploratory Hole Location Plan

1.0 INTRODUCTION

1.1 Context and Objective

This report describes a Piling Risk Assessment produced by Brownfield Solutions Limited (BSL) for M4CHESTER ONE LIMITED on a site off Spear Street, Manchester.

This assessment has been completed in general accordance with the following guidance:

- Environment Agency (EA) Document NC/99/73, "Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention".
- Environment Agency (EA) Document, National Groundwater and Contaminated Land Centre, Piling into Contaminated Sites, February 2002.

The objective of this assessment is to determine the suitability of pile foundations for the proposed development.

The proposed piling solution has the potential to create a pathway for contamination to migrate through the made ground and into the natural strata and groundwater. As such, these activities are carried forward only after an assessment of the impact of works in this report have been undertaken.

1.2 Proposed Development

The proposed development is for a five-storey structure containing 6 No. apartments and a ground floor commercial unit, as shown on the Site Plan- Ground Floor Plan, drawing No. P16081-FCH-BA-00-DR-A-2001 provided to BSL by the client.

Condition 12 of the Planning Application 117280/FO/2017 States:

Piling or any other foundation designs using penetrative methods shall not be permitted other than with the express written consent of the Local Planning Authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to groundwater. The development shall be carried out in accordance with the approved details. Reason: To ensure a safe form of development that poses no unacceptable risk of contamination to controlled waters pursuant to section 10 of the National Planning Policy Framework Core Strategy policy EN14 and EN17.

This document has been produced to address the above condition.

1.3 Previous Reports

This risk assessment follows the completion of the following reports, which should be read in conjunction with this assessment:

- Curtins, Phase I Preliminary Site Assessment Report, reference B063129.003/MH/8160, dated May 2017.
- Alpha Associates, Detailed Unexploded Ordnance (UXO) Threat and Risk Assessment, reference 10197, dated November 2022.
- BSL, Phase II Geo-Environmental Assessment Report, reference JEM/C5230/11723, dated January 2023.
- BSL, Verification Plan for Ground Gas Protection Systems Report, reference LC/C5230/11820, dated April 2023.

1.4 Limitations

The findings and opinions conveyed via this assessment are based on information obtained from a number of sources as detailed within this report, BSL have assumed this information is correct and reliable. Nevertheless, BSL cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

BSL have used all reasonable care and skill in the production of this report. There may be other conditions prevailing on the site which are outside the scope of work and have not been highlighted by this assessment and therefore have not been taken into account by this report. Responsibility cannot be accepted for such site conditions not revealed by the assessment.

This report has been prepared for the sole use and reliance of the Client, M4CHESTER ONE LIMITED. No other third parties may rely upon or reproduce the contents of this report without the written permission of Brownfield Solutions Ltd (BSL). If any unauthorised third party comes into possession of this report, they rely on it at their own risk and BSL do not owe them any Duty of Care.

Any recommendations made in this report should be confirmed with the Regulatory Authorities prior to implementation to ensure compliance.

This assessment has been based on the proposed planning layouts provided. Any subsequent change to the planning layout may have an impact on the validity of recommendations made within this report. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

2.0 GROUND MODEL SUMMARY

2.1 Description of Site

The site is located off Spear Street, Manchester, M1 1EJ. It is situated within the Northern Quarter of Manchester City Centre, centred on National Grid Reference 384640, 398610 as shown on the Site Location Plan, Drawing No. C5230/01.

The main site features and potential issues identified prior to construction commencing at the site are detailed below.

Feature	Description
Site Area	The site covers approximately 0.02 hectares.
Site Access	Access to the site is gained off Spear Street to the northeast of the site.
Current Land Use and Site Features	The site comprises an open area to the rear of the Koffee Pot café. The site has recently been used as an al fresco dining area, surfaced with limestone gravel. The outdoor furniture from this space has been removed, however the southwest of the site is occupied by the bins for the café and the back door which is used for staff access as well as a fire escape.
Potential Sources of Gross Contamination	No potential sources of gross contamination were observed during the walkover, nor the previous phases of intrusive investigation.
Vegetation	The site was generally devoid of any vegetation with the exception of some small weeds present at the boundary.
Topography	The site is generally flat however there is a retaining wall circa 2.0m high of masonry construction that comprises the southwestern boundary. The retaining wall appears to have bowing brickwork and is currently supported by steel posts.
Site Boundaries	The walls of the Koffee Pot Café and the Chinese health information centre make up the northwest and northeast site boundaries. The southeast boundary is comprised of wooden hoarding which was removed for the purposes of the site investigation works. The southwest boundary is comprised wooden hoarding above the aforementioned retaining wall
Surrounding Area	The site is set within a mixed commercial and residential area, bordered by office buildings and paper works to the north. The surrounding uses of the site are as follows; to the northwest of the site there is a café named the Koffee Pot, to the northeast is a Chinese health information centre, to the southeast and southwest are completed, and under construction residential apartment buildings.

2.2 Environmental Setting

History

Historically, the site was originally host to a building which appears to have been used for bedding/clothes. By 2016 this had been demolished, with the site used as a car park. The surrounding land uses through time have included a gas works (over 650m away), canal 100m away, residential/commercial properties, tram lines, schools, mills, printing works (100m away), warehouses and a bus station south of the site.

Ground Conditions

Made ground was encountered within all the exploratory holes across the site and was observed from ground level to depths between 1.50m and 4.00m bgl. The base of the made ground was only proven at 4.00m bgl within the cable percussive borehole.

Gravel surfacing of cream fine to coarse limestone was present across the site recorded to be 0.10m thick, directly underlain by a blue plastic membrane.

The composition of the made ground beneath the blue plastic membrane was fairly consistent across the site and represented demolition material comprising gravelly sand with varying amounts of ash as a minor constituent. Cobbles and boulders of asphalt, brick and concrete ranged from low to medium content.

The natural strata underlying the site was generally firm to hard clay with varying amounts of sand and gravel as minor constituents. This is interpreted to represent glacial Till and was proven to 18.91m bgl.

An isolated band of slightly gravelly sand was encountered from 17.40-18.00m bgl, below very stiff slightly gravelly sandy clay, and above hard slightly gravelly sandy clay.

The solid geology of the Chester Formation was not encountered during investigation, with at least 14.90m of superficial deposits above this stratum. Records held by BSL from boreholes on an adjacent site also confirm at least circa 16m of superficial deposits. BGS boreholes in the surrounding area suggest bedrock is present at circa. 26.00-28.00m bgl, providing a considerable thickness of low permeability material above the underlying aquifer.

Hydrogeology

The superficial deposits (glacial Till) in this area are classified by the Environment Agency as a Secondary Aquifer (Undifferentiated). The classification is assigned where it is not possible to attribute either category A or B to the aquifer.

The bedrock (Chester Formation) is classified as a Principal Aquifer. These are defined as layers of rock that have high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

There are no source protection zones indicated to lie within 500m of the site.

During site investigation, groundwater was not encountered within any of the holes.

Hydrology

The closest surface water feature is located 328m southeast of the site. This is the Rochdale Canal which is orientated northeast to southwest.

Information obtained from the Environment Agency indicates that a small portion of the site along the eastern border lies within a Zone 1 Floodplain.

There are no surface water abstractions within 1000m of the site.

UXO

The site is located in the UXO moderate risk zone and further consideration is required; a detailed UXO assessment was commissioned by the client.

2.3 Summary of Risk Assessments

Samples taken during the ground investigation were tested for an assessment of the chemical contamination that may pose a risk to human health. The results were examined with reference to a selection of guidance documents as detailed in Appendix A. In this case the LQM/CIEH S4ULs and DEFRA C4SLs for a commercial end use have been adopted as Tier 1 generic screening values as the ground floor of this development is to be used as a commercial unit. No viable pathways are considered to exist to the residents on the first floor from soils contamination.

The ground investigations have confirmed the following:

-
- *Metals*: No metals have been detected above the adopted screening criteria.
 - *Asbestos*: No asbestos fibres have been detected in any of the samples screened.
 - *Poly Aromatic Hydrocarbons (PAHs)*: No PAHs have been detected above the adopted screening criteria.
 - *Ground Gas*: The site has been characterised as CS2 using the CL:AIRE RB17 approach and ground gas protection measures are required.
-

Human Health Risks

Testing of the made ground at the site did not reveal any exceedances of heavy metals, PAHs or asbestos. Based on the testing and assessment undertaken, there are no determinands above the relevant assessment criteria and mitigation measures will not be required in respect to soils.

Ground Gas

In accordance with CIRIA C665, the ground gas generation potential is considered to be **very low to low** (made ground). The sensitivity of the development is **low** on account of the proposed ground floor commercial unit. Based on this, and in agreement with the Manchester City Council, the CL:AIRE RB17 approach was used to assess the risk of ground gas onsite.

Chemical testing indicates that the made ground soils encountered to 4.0m bgl have total organic carbon (TOC) contents ranging from 1.3% to a maximum of 1.8%. Taking this into consideration, based on Table 1 in RB17, this indicates that where sites have a maximum 5.00m thickness of made ground, with materials in place for more than 20 years with TOC contents of up to 3%, that a Characteristic Situation of CS2 should be considered appropriate.

Risk to Controlled Waters

No significant contamination has been identified on site in soils based on the results obtained as a potential indicator of groundwater contamination. As discussed above, the presence of cohesive Till would limit the migration potential of any contamination present. There are no groundwater abstraction licences within 800m of the site, and no potable water abstractions within 1km of the site. In addition, the site will be developed with an increased amount of hardstanding and a new surface water drainage system installed which will further reduce the risk to controlled waters. By virtue of the development taking place, this should contribute to an overall “betterment” of groundwater quality.

The overall risk to controlled waters is therefore considered to be low and no further action is required.

UXO

A summary of the relevant points from the detailed UXO Desk Study completed by Alpha Associates (Ref: 10197) is presented below:

-
- The most probable UXO threat is posed by WWII-era German HE bombs, whilst IBs and British AAA projectiles (which were used to defend against German bombing raids) pose a residual threat.
 - Whilst there is a residual UXO risk within this Study Site, Alpha Associates do not believe that the proposed intrusive works will generate a significant risk pathway.
 - The overall risk is medium.
-

Outcome of Risk Assessments

With the exception of the site being characterised as CS2, no further risks to human health, nor controlled waters were identified and ergo a remedial strategy not required. In respect to the risk posed by ground gas, a Verification Plan for Ground Gas Protection Systems Report was produced.

For UXO, proposed intrusive works are not considered to generate a significant risk pathway by Alpha Associates. Site Specific Unexploded Ordnance Awareness Briefings to all personnel conducting intrusive works as well as a UXO emergency response plan and on-call EOD engineer were recommended.

2.4 Summary of Remedial Recommendations

Based on the previous investigations at the site, the most appropriate approach to the identified residual risks are listed below:

- Utilise ground gas protection measures as detailed in BSL Verification Plan for Ground Gas Protection Systems Report.
- Site Specific Unexploded Ordnance Awareness Briefings to all personnel conducting intrusive works as well as a UXO emergency response plan and on-call EOD engineer were recommended

Ground Gas

To comply with the required level of protection and in accordance with BS8485:2015 for a Type B building placed within CS2, a minimum of 3.5 points is required. The gas protection system should consist of at least 2 separate elements including a structural barrier, ventilation systems and/or a gas resistant membrane.

For a Type B building falling within CS2 the following gas protection systems are proposed in line with BS 8485:2015:

- A gas resistant membrane which is suitably impervious to carbon dioxide and methane and verified in accordance with CIRIA C735 - 2.0 score.
- A cast in-situ monolithic reinforced suspended floor slab with minimal penetrations (1.5 score depending on construction quality).

2.5 Proposed Works and Foundation Options

Due to the thickness of made ground and likely magnitude of the column loads expected to be imposed by the proposed development, from a geotechnical perspective, it is considered that piled foundations will be the most suitable foundation solution for the development.

The piled foundations should be founded within the stiff clays encountered from approximately 4.00m bgl. Piles should be extended through the made ground and into the superficial deposits. Depending on the structural loadings and design requirements, piles will likely utilise a combination of skin friction and end-bearing resistance, transferring the majority of the loads to the surrounding glacial Till deposits through skin friction.

It is understood that a replacement type pile will be required and CFA piles are the preferred method of emplacement for the site to minimise disturbance to existing structures and residents in close proximity to the site. These are considered to be penetrative works for the purpose of this Risk Assessment.

These piles consist of drilling of an annulus which is infilled with wet concrete and reinforcement cages added to the required depths. The existing ground materials will be removed from the shaft of the pile position and either be re-used on site or disposed off site.

As stated previously, the majority of the development will comprise either building footprint or hardstanding, with a new surface water drainage system installed which will further reduce the risk to controlled waters.

Given the small footprint of the site, the available information is considered to be suitable for foundation design and for the purposes of this assessment; there is little space for the drilling of an additional borehole, which would essentially only be metres away from the existing borehole. Furthermore, BSL

have extensive knowledge of the geology of the immediate area from historical investigation, which are generally in line with the findings of this investigation. It is not anticipated that site conditions will vary across the site significantly or impact assessments.

3.0 PILING RISK ASSESSMENT

3.1 Introduction

The risks associated with piling and ground improvement works must be considered on a site-specific basis and the potential receptors are defined by the hydrogeological properties of the strata underlying the site, the proximity of other receptors along with the site history, current use and surroundings. The Environment Agency indicate that concerns about water protection are likely to be most severe when:

- Contaminants are present on the site and ground works could allow them to migrate.
- Piling would breach an aquitard or connect two previously discrete aquifers.
- The site overlies a Principal or a Secondary A Aquifer.
- The site is located within a Source Protection Zone (SPZ).
- Groundwater is currently of good quality.
- The water table is shallow or likely to be intersected by piles.
- The geological strata are fractured or fissured.
- Works are close to a surface water body and run-off from arisings could pollute those waters.

This risk assessment takes into consideration the current guidance on Pollution Prevention and the source-pathway-receptor (S-P-R) approach. There are six possible generic pollution linkages considered by the Environment Agency to be created by piling and these are:

1. Creation of permeable pathways through a low permeability layer to allow potential contamination of an underlying aquifer.
2. Creation of preferential pathways, through a low permeability surface layer, to allow upward migration of land gas, soil gas or contaminant vapours to the surface.
3. Direct contact of site workers or others with contaminated soil arisings which have been brought to the surface.
4. Direct contact of the piles or engineered structures with contaminated soil or leachate causing degradation of pile materials (where the secondary effects are to increase the potential for contaminant migration).
5. The driving down of contaminants down into the aquifer during pile driving.
6. Contamination of groundwater, and subsequently surface waters, by concrete, cement paste or grout.

An additional seventh scenario has been added, which is contact with UXO during piling

3.2 Sources of Contamination – Soils and Groundwater

With relevance to pile installation and this assessment, the made ground encountered onsite is not considered to be contaminative as no elevated concentrations of heavy metals, PAHs or asbestos have been identified.

No specific remedial action was deemed necessary in respect to human health or controlled waters, based on the rationale summarised in Section 2.3.

3.3 Sources of Contamination – Ground Gas

Based on the CL:AIRE RB17 approach, the assessment classified the site as requiring ground gas protection measures in line with Characteristic Situation 2.

3.4 Pathways

The following pathways potentially exist:

- The installation of piles resulting in the creation of a preferential pathway.
- Potential migration of ground gas through pathways caused by pile installation.

3.5 Receptors

The relevant sensitive receptors include:

- Site end-users and property.

3.6 Risk Assessment

Each of the relationships described above are qualitatively assessed with relation to the six specific scenarios detailed in the table overleaf. Any assessed risk that is above moderate/low will possibly require further action.

Pollution Scenario	Activity	Source	Pathway	Receptor	Likelihood	Consequence	Risk	Justification
Scenario 1 Creation of permeable pathways through a low permeability layer to allow potential contamination of an underlying aquifer	Installation of deep foundations (piles)	Heavy metals and PAHs within made ground	Migration via disturbed zone adjacent to installed piles	Groundwater beneath the site	Unlikely	Medium	Low	There are not considered to be any elevated contaminants within the made ground onsite. In addition, the migration of any minor contaminants from the made ground is also considered to be largely restricted by the impermeable nature of the superficial deposits and therefore not pose a risk to the other water bodies. The creation of a pathway through the clays by the piles is not considered likely provided the piles are installed correctly, where the wet concrete will provide an excellent seal against the surrounding geology. If the creation of pathways was occurring, then the pile would not be working correctly from a geotechnical perspective, causing potential structural issues, since the piles will rely on skin friction in combination with end bearing resistance. It is unlikely piles would be of a length that would extend down to bedrock as sufficient capacity would be generated from emplacement into the clays; several metres of clay is still likely to exist between the toe of the pile and the underlying bedrock. Furthermore, the location of the piles will be within the footprint of the proposed building, with a large concrete slab which will also benefit from newly installed drainage, drastically reducing

Pollution Scenario	Activity	Source	Pathway	Receptor	Likelihood	Consequence	Risk	Justification
								the amount of water infiltrating the made ground and reducing the possibility of any contaminated water reaching the piles.
Scenario 2 Migration of gases / vapours	Replacement Piles (CFA)	Ground gas generated from the made ground	Migration via disturbed zone adjacent to installed piles	Site end-users / Confined spaces within buildings	Unlikely	Medium to Severe	Low	Ground gas poses a risk to site end users and structures, as identified within the BSL Phase II Geo-Environmental Report. Latest research suggests that even if a preferential pathway could develop, the influence on the gas risk will depend on the number of piles, gas pressure and horizontal permeability. A significant effect is possible only where gas is under pressure and/or the piles are very closely spaced. However, in this case, ground gas protective measures in line with Characteristic Situation 2 (CIRIA C665 and BS8485) will be installed to mitigate against the risk, therefore the overall risk is considered to be low. Continuous gas monitoring may be required next to piling rigs during emplacement to warn construction workers, although based on the quantities of gas likely being generated this risk is considered to be low.
Scenario 3 Contact (dermal contact, dust inhalation, accidental ingestion) between Site Workers and contaminants in pile arisings	Replacement Piles (CFA)	Heavy metals and PAHs within made ground	Potential contact via dermal pathways	Construction Workers	Unlikely	Medium	Low	In regard to risks to human health and construction workers, no elevated contaminants have been identified in respect to a commercial end use, indeed concentrations of determinands are relatively low in the soils. Any residual risks from made ground will be mitigated by standard PPE including gloves.

Pollution Scenario	Activity	Source	Pathway	Receptor	Likelihood	Consequence	Risk	Justification
								Welfare facilities should be made available to wash before hand to mouth activities. General guidance on these matters is given in the Health and Safety Executive (HSE) document "Protection of Workers and the General Public during the Redevelopment of Contaminated Land".
Scenario 4 Degradation of pile materials via sulphate attack thereby increasing contaminant mobility	Installation of deep foundations (piles)	Heavy metals, PAHS, and sulphates within made ground and sulphates within natural strata	Via zone of degradation next to pile	Groundwater beneath the site	Unlikely	Medium	Low	Degradation of pile materials via sulphate attack would likely increase contaminant mobility, leading to increased contaminant migration. However, the appropriate design concrete class will be adopted in accordance with BRE Special Digest 1 to mitigate against this, minimising the risk of degradation of pile materials.
Scenario 5 Driving down solid Contaminants	Replacement Piles (CFA)	Heavy metals and PAHs within made ground	Leaching of contaminants in soils driven down during installation of piles	Groundwater beneath the site	Unlikely	Medium	Low	Highly unlikely that this would occur given soils are being removed from the pile shaft during installation, with all arisings brought to the surface.
Scenario 6 Contamination of groundwater by concrete, cement paste or grout	Replacement Piles (CFA)	Wet concrete used to from the pile	Contact with groundwater and off-site flow in aquifer	Groundwater beneath the site	Unlikely	Medium	Low	These techniques employ the use of wet concrete; however, this will likely go off within a very short duration of time, thereafter inhibiting groundwater flow. In addition to this, concrete will likely be poured within casing which reduces the ability for concrete to migrate and

Pollution Scenario	Activity	Source	Pathway	Receptor	Likelihood	Consequence	Risk	Justification
								therefore not considered to pose a significant risk to controlled waters.
Scenario 6 Contact with UXO	Replacement Piles (CFA)	UXO	Contact with the auger of a piling rig	Property/ construction workers	Unlikely	Severe	Moderate /low	For UXO, proposed intrusive works are not considered to generate a significant risk pathway by Alpha Associates. Site Specific Unexploded Ordnance Awareness Briefings to all personnel conducting intrusive works as well as a UXO emergency response plan and on-call EOD engineer are recommended. The plan would detail what would happen in the event of a piling rig or groundworks encountering UXO. A UXO specialist should be consulted for advice during construction activities.

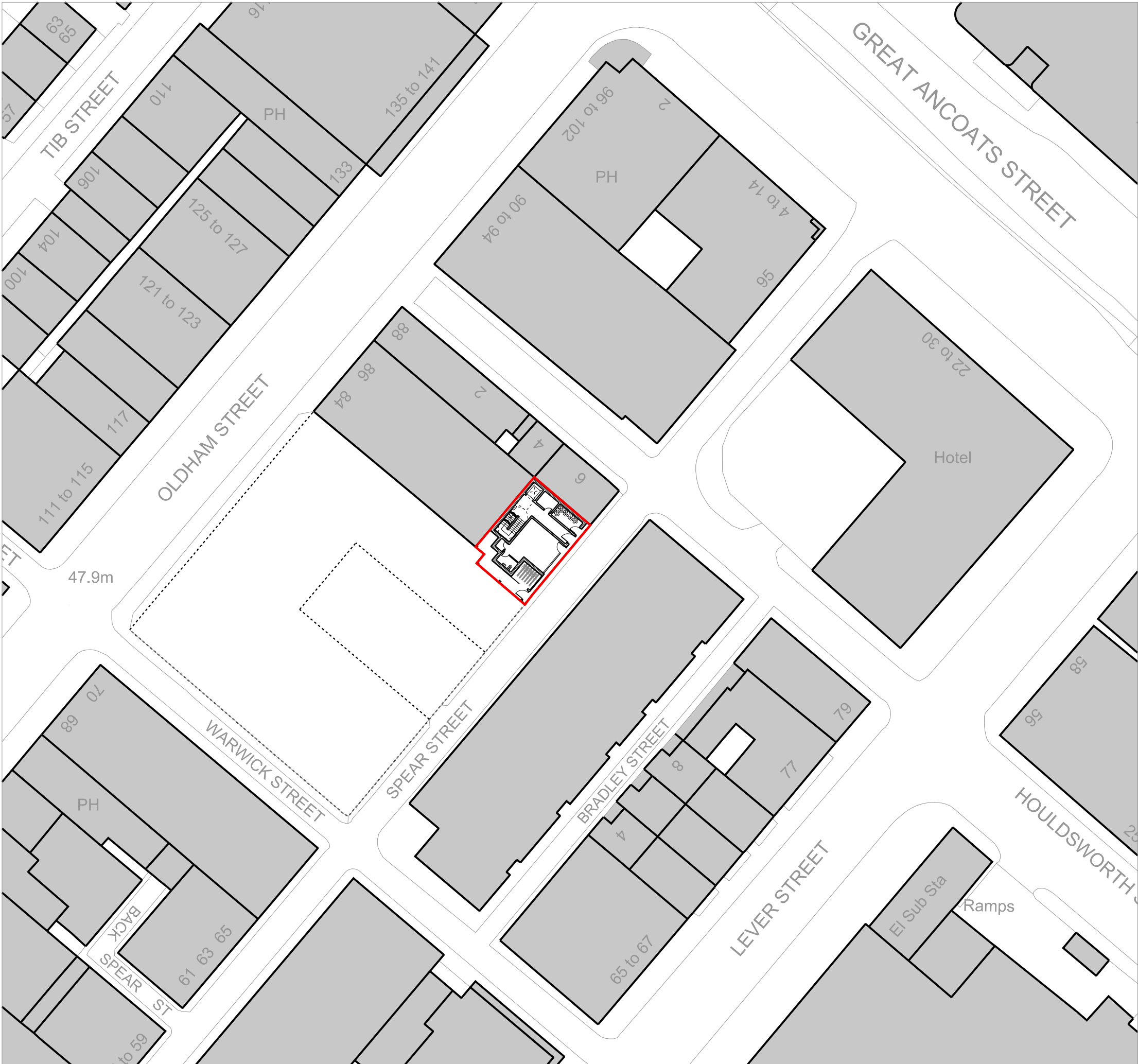
4.0 CONCLUSIONS

The proposed piling method at the site is a replacement type pile (e.g. CFA). The risk assessment carried out demonstrates overall risks to the identified receptors associated with the chosen piling methods are considered to be low/moderate to low in accordance with the Environment Agency's Piling Risk Assessment methodology.

Pollution Scenario	Level of Risk
Scenario 1	Low
Scenario 2	Low
Scenario 3	Low
Scenario 4	Low
Scenario 5	Low
Scenario 6	Low
Scenario 7	Moderate/Low

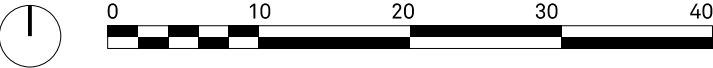
Due to the low to moderate/ low risk at the site, the use of specific mitigation measures (aside from UXO awareness briefings) are not considered necessary in respect of controlled waters, site end users and construction workers.

The evidence in this assessment should be provided to satisfy the regulatory authorities. Should a change in piling methodology be proposed then this risk assessment would need to be revised accordingly.



Notes

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All drawing measurements shall not be obtained by scaling. Any discrepancies on this document to be immediately reported to the Architect. Verify all dimensions and levels prior to construction. This Document shall be read in conjunction with related documents, specifications and associated models.



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P01	28.07.22	RD	GJ	First issue.
Rev:	Date:	By:	Chk By:	Rev Note:

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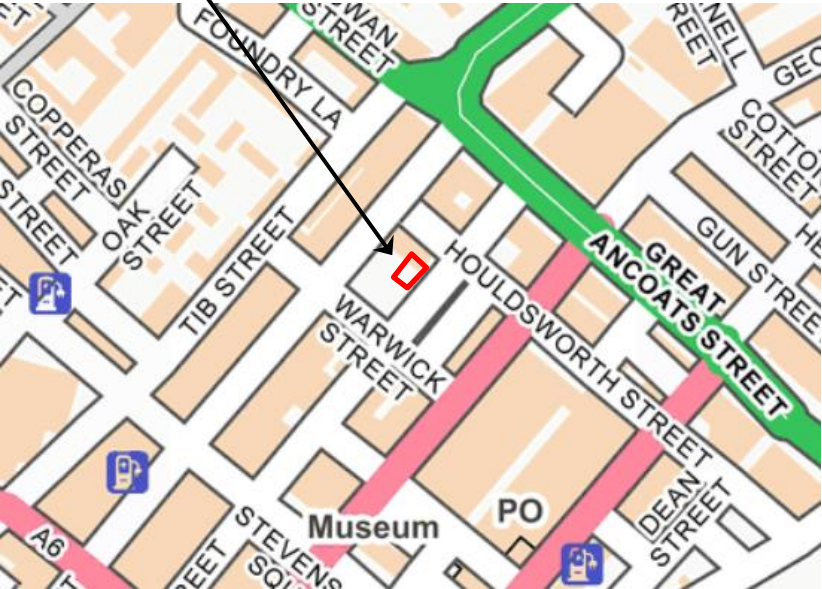
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Spear Street, Manchester				
Client				P02
Northern Group				
Drawing Title				Drawn By
Site Plan - Ground Floor Plan				
Drawing No.				Checked By
P16081-FCH-BA-00-DR-A-2001				
Status	Issue suitable for:	Date	Drawn By	
S2	Information	28.07.22	RD	
Job No.	Drawing Stage	Scale	Checked By	
P16-081	Planning	1:500 @ A3	GJ	



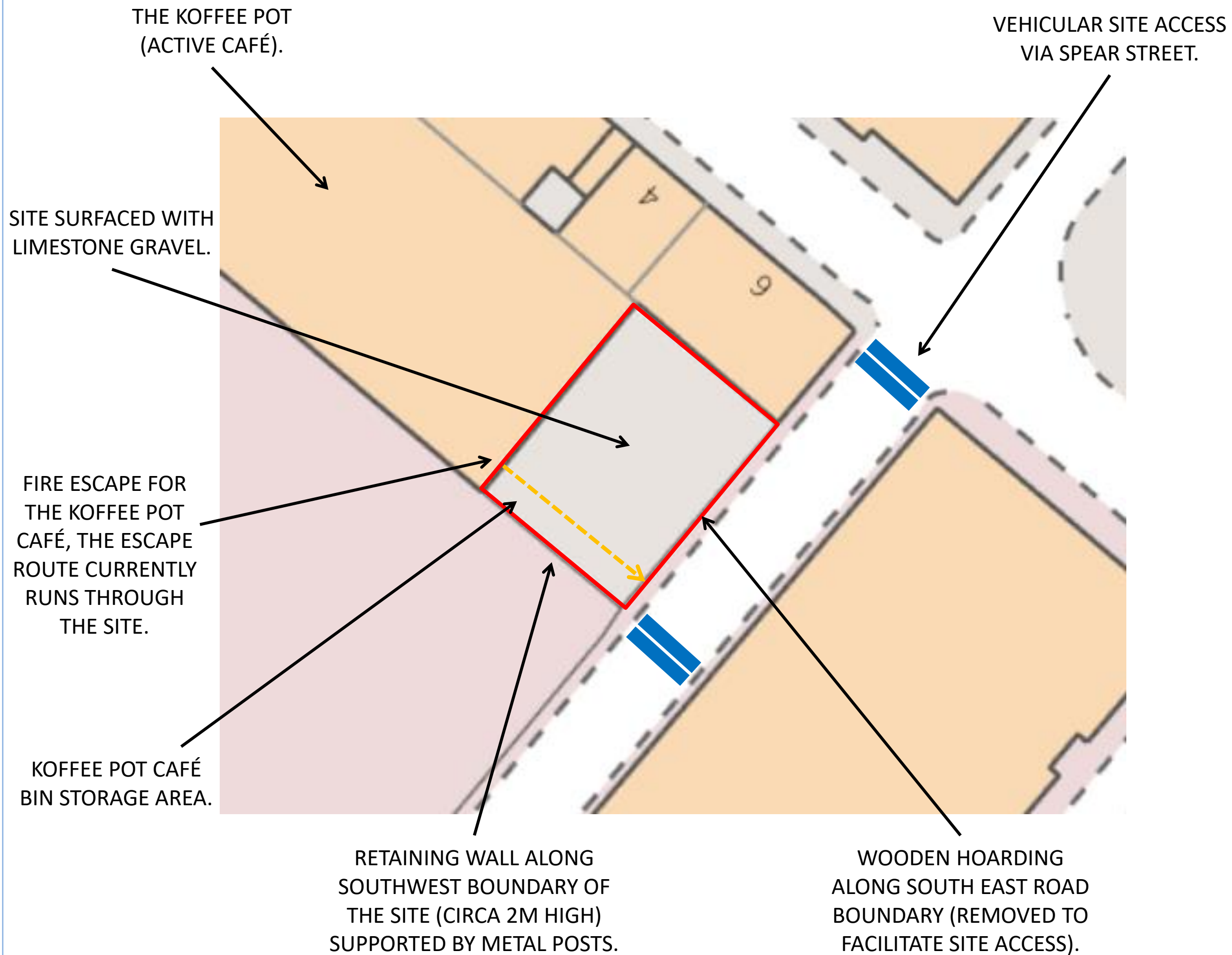
SITE LOCATION

NEAREST POSTCODE: M1 1EJ

SITE ENTRANCE WHAT3WORDS:
///BUZZ.CYCLE.TRICKS



REV	DATE	DESCRIPTION	BY	CKD
 BROWNFIELD SOLUTIONS LTD CEO ENVIRONMENTAL ENGINEERING EXCELLENCE				
CLIENT M4NCHES ^T ER ONE LIMITED				
PROJECT TITLE SPEAR STREET, MANCHESTER				
DRAWING TITLE SITE LOCATION PLAN				
DRAWING No. C5230/01	REVISION -	SCALE NTS	DATE 04/01/23	
DRAWN BY SD		CHECKED BY JEM		



KEY

- APPROXIMATE SITE BOUNDARY
- LOCKED GATE
- KOFFEE POT CAFÉ FIRE ESCAPE ROUTE

- NOTES
- ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
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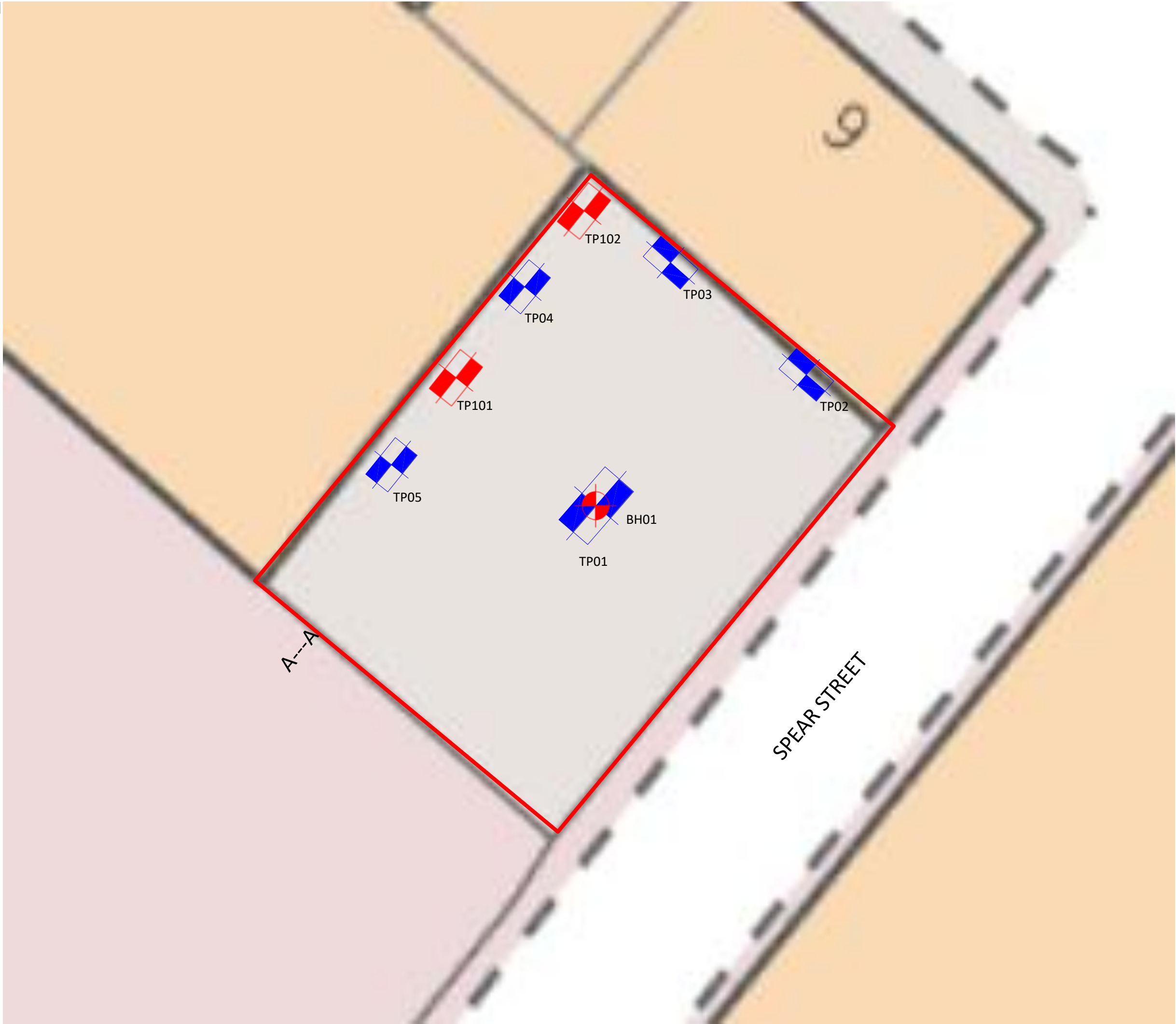


CLIENT
M4NCHESTER ONE LIMITED

PROJECT TITLE
SPEAR STREET, MANCHESTER

DRAWING TITLE
SITE FEATURES PLAN

DRAWING No. C5230/02	REVISION -	SCALE NTS	DATE 04/01/23
DRAWN BY JEM		CHECKED BY LC	



KEY

- APPROXIMATE SITE BOUNDARY
- MECHANICALLY EXCAVATED TPXX TRIAL PIT (2022)
- BHXX CABLE PERCUSSIVE BOREHOLE
- A---A CROSS SECTION OF EXPOSED FOUNDATION OF NEWLY BUILT NEIGHBOURING APARTMENT BUILDING
- MECHANICALLY EXCAVATED TPXX TRIAL PIT (2023)

- NOTES
- ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
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CLIENT M4NCHESTER ONE LIMITED			
PROJECT TITLE SPEAR STREET MANCHESTER			
DRAWING TITLE EXPLORATORY HOLE PLAN			
DRAWING No. C5230/03	REVISION A	SCALE NTS	DATE 05/05/23
DRAWN BY JEM		CHECKED BY JM	

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