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FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

122-VDG-XX-XX-RP-C-5000 RevP1

47 SPEAR STREET

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CONTROL SHEET

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Report Limitation

All comments and proposals contained in this report are based on information available to VDG during recent investigations.

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GLOSSORY

Term	Definition
AP	Annual Probability is the probability of a rainfall or tidal event occurring within any one year. For example, an event of a 1 in 100 year return period has an AP of 1:100 or 1%.
Flood Defences	Artificial structures maintained to a set operational level designed to protect land people and property from tidal and fluvial flood sources to an established chance of happening in any year threshold.
Flood Source: Fluvial (River)	When flows within watercourses exceed the capacity of the watercourse causing out of bank flows.
Flood Source: Groundwater	Groundwater flooding is usually the result of prolonged wet weather causing groundwater levels to rise sufficiently to either emerge at surface or to cause flooding of below ground infrastructure, such as basements.
Flood Source: Surface Water	When rainfall causes overland flows which exceed the capacity of the drainage network, causing flooding to land that is normally dry.
Flood Source: Tidal	When high tide events overtop the shoreline to cause flooding to land behind.
Flood Zone 1	Low Probability. Land having a less than 0.1% annual probability of river or sea flooding
Flood Zone 2	Medium Probability. Land having between a 1.0% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding.
Flood Zone 3 (A)	High Probability. Land having a 1.0% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea.
Flood Zone 3 (B)	Functional Floodplain. According to the Planning Practice Guidance (2022) this zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: - land having a 3.3% or greater annual probability of flooding, with any existing floodrisk management infrastructure operating effectively; or - land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).
Flood Zone Map	The Environment Agency has produced a mapping data set which covers England and provides the general extents of Flood Zones 1, 2, and 3. However the national data set available online does not differentiate between Flood Zone 3 (A) and 3 (B).
Freeboard	In flood risk management Freeboard is a term used to identify the vertical difference between the design flood level, and the design height of any flood mitigation measures. For instance, if a pond had bank heights of 9.0m and the water level was at 8.6m the freeboard would be 0.4m (9.0-8.6). For river flooding, a freeboard of 0.3m is usually applied, for tidal 0.6m, and for surface water 0.15m.
LiDAR	Light Detection and Ranging (LiDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground. Up to 500,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at spatial resolutions of between 25cm and 2 metres.



FWEP	Flood Warning and Emergency Plan. This is a document that should set out the steps that shall be taken by those on site, to arrive at a point safe from flood risk.
Term	Definition
Non-Major Development	'Non major development' is any development falling below the above thresholds but excluding minor development. For example, a planning application for 8 dwellings an office building creating 750 square metres of floor space, or a development with a site area of 0.4 hectares.
Major Development	Means development involving any one or more of the following: a) the winning and working of minerals or the use of land for mineral-working deposits b) waste development c) the provision of dwellinghouses where – i. the number of dwellinghouses to be provided is 10 or more; or ii. the development is to be carried out on a site having an area of 0.5 hectares or more and it is not known whether the development falls within sub- paragraph (c) (i) d) the provision of a building or buildings where the floor space to be created by the development is 1,000 square metres or more; or e) development carried out on a site having an area of 1 hectare or more. As defined by the Town and Country Planning (Development Management Procedure) (England) Order 2015 (Article 2) https://www.legislation.gov.uk/uksi/2015/595/article/2/made
Main River	Defined on the Main River map and relate to rivers where the Environment Agency has the powers to carry out flood defence works.
Minor Development	Minor development means: • minor non-residential extensions (industrial/commercial/leisure etc): extensions with a floorspace not more than 250 square metres. • alterations: development that does not increase the size of buildings, e.g. alterations to external appearance. • householder development: for example, sheds, garages, games rooms etc. within the curtilage of the existing dwelling, in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling (e.g. subdivision of houses into flats) or any other development with a purpose not incidental to the enjoyment of the dwelling. Paragraph: 051 Reference ID: 7-051-20220825 Revision date: 25 08 2022 https://www.gov.uk/guidance/flood-risk-and-coastal-change
m AOD	Metres Above Ordnance Datum
OS	Ordnance Survey



Ordinary Watercourse	A watercourse which does not form part of a Main River. Works on Ordinary Watercourses usually require consent from either the Lead Local Flood Authority or the Internal Drainage Board.
QBAR	QBAR is the mean annual maximum flow rate, for a catchment which has an equivalent return period of 1 in 2.3 years
Return Period	The return period of a flood might be 100 years; otherwise expressed as its probability of occurring being 1 in 100, or 1% in any one year. If a flood with such a return period occurs, then this does not mean the next will occur in about one hundred years' time - instead, it means that, in any given year, there is a 1% chance that it will happen, regardless of when the last similar event was. Or, put differently, it is 10 times less likely to occur than a flood with a return period of 10 years (or a probability of 10%).
SuDS	Sustainable Drainage Systems, which are designed to manage surface water flows and mimic the Greenfield runoff from an undeveloped site.
Urban Creep	Urban creep is the conversion of permeable surfaces to impermeable over time e.g. surfacing of front gardens to provide additional parking spaces, extensions to existing buildings, creation of large patio areas.

1 EXECUTIVE SUMMARY

Providing the recommendations made in this Flood Risk Assessment (FRA) are instigated, flood risk from all sources would be minimised, the consequences of flooding are acceptable, and the development would be in accordance with the requirements of the National Planning Policy Framework (NPPF).

This FRA demonstrates that the proposed development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of the NPPF. The development should not therefore be precluded on the grounds of flood risk.

The site area is 0.016 hectares and following scrutiny of the Environment Agency flood maps it has been identified that the existing site lies within an area classified as Flood Zone 1 indicating that the risk of flooding from rivers and sea is low.

The site is located within the Conurbation Core Critical Drainage Area, however based on Environment Agency guidance for development with a site area of 0.5 hectare or less within Critical Drainage Areas; an FRA was not required to support a planning application however this document will support the drainage strategy for the development.

2 INTRODUCTION

This report has been prepared by VDG Limited on behalf of PEARL HUB LTD to support a full planning application for a 6 storey mixed use development with a basement consisting of individual residential apartments and two floors of commercial office spaces.

This FRA has been carried out in accordance with guidance contained in the National Planning Policy Framework (NPPF)¹, associated National Planning Practice Guidance (PPG)² and the PPG 'Site-specific flood risk assessment checklist.

2.1 Scope of Works

This FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

2.2 National Planning Policy Framework (NPPF)

One of the key aims of the NPPF is to ensure that flood risk is taken into account at all stages of the planning process; to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk. It advises that where new development is exceptionally necessary in areas of higher risk, this should be safe, without increasing flood risk elsewhere, and where possible, reduce flood risk overall.

A risk-based approach is adopted at stages of the planning process, applying a source pathway receptor model to planning and flood risk. To demonstrate this, an FRA is required and should include:

- whether a proposed development is likely to be affected by current or future flooding from all sources;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate;
- if necessary, provide the evidence to the Local Planning Authority (LPA) that the Sequential Test can be applied; and
- whether the development will be safe and pass part c) of the Exception Test if this is appropriate.

2.3 Sources of Data

In accordance with the PPS25 practice guide, the report is based on the following information:

- Site Layout Plan.
- OS Explorer Series mapping.
- Site visit undertaken by VDG.

- British Geological Survey Drift & Geology Maps.
- Phase 2 site investigation report by Ground Projects Ref- 70539-1 Rev1
- United utilities public sewer record.
- Topographic survey.

3 LOCATION & DESCRIPTION

3.1 Site Location

The site is located in Manchester City Centre at Grid Reference SJ 84568 98532. The site address is 47 Spear Street, Manchester, M1 1DF. The site lies at an elevation of approximately 45m AOD on a relatively flat area of land.

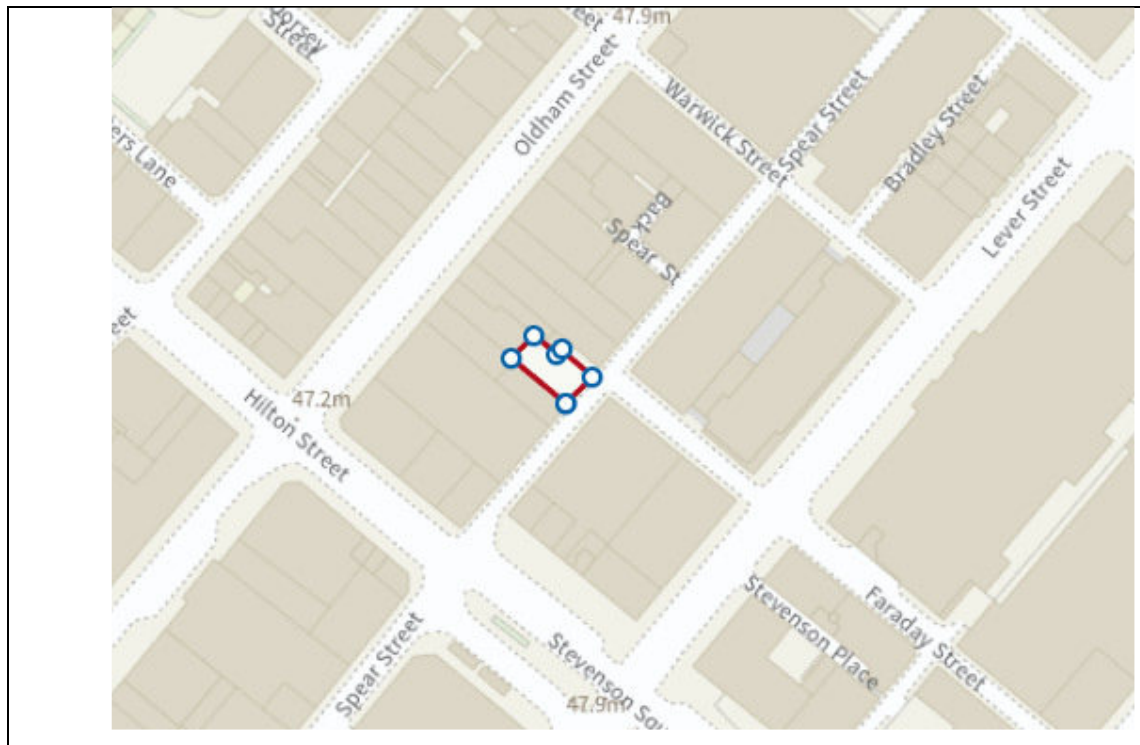


Figure 1-Site Location

3.2 Existing Development

The site comprises of a rectangular piece of land with dimensions of approximately 16m by 7m and a total area of 0.016ha. Access to the site is gained via Spear street to the southeast and the surrounding three boundaries are enclosed by multi-storey residential and commercial developments. The site currently lies undeveloped, covered in gravel hardstanding and is secured by a 2m high metal fence.

The wider area is occupied by further commercial, retail and residential buildings.

3.3 Proposed Development

The proposals for the site comprise the construction of a six-storey mixed-use residential and office building with a basement. The proposed basement and ground floor will comprise of office and utility room space, with two lightwells proposed along the north side of the property. The basement will be founded at a depth of 2.7m bgl. The remaining floors (1st Floor to 5th Floor) will comprise of 5No. residential apartments.

The proposals development of residential apartments and offices are within Appendix A.

3.4 Topography

A topographical survey of the site has been completed (see Appendix B).

The topo indicates the site to be relatively flat. Following the topo survey being commissioned the site levels have been reduced to the existing basement level. The existing basement concrete floor slab is present with masonry walls continuing down below ground.

3.5 Catchment Hydrology / Drainage

The public sewer records have been obtained for the development site.

The records indicate that there are no public sewers located within the site, however the following public sewers are located within the vicinity of the site:

- There is a 300 x 406 combined public sewer in Spear Street, flowing in a south west direction.
- There is 225 diameter combined public sewer within Warwick Street which flows in a north west direction.
- There is a 300 diameter combined public sewer within Oldham Street which flows in a south west direction.
- There is a 300 diameter combined public sewer within Houldsworth Street which flows in a north west direction.

The public sewer records are enclosed in Appendix B.

The existing site has been surveyed and no private drainage is visible on site.

Survey levels suggest that surface water runs off site onto the public highway and is collected via gullies before discharging into the public sewer in Spear Street.

3.6 Ground Conditions

The British Geological Survey (BGS) Map³ shows comprises of superficial deposits of Glacial Till overlying sandstone forming part of the Chester Formation.

It was noted by the client that prior to demolition, the previous development on-site included a basement, which was subsequently infilled with the resulting building rubble. Therefore, it is expected that at least 2.0m of demolition waste is present below the site. No groundwater was recorded on the historical borehole records.

The general ground conditions beneath the proposed footprint comprise Made Ground to 3.6m and 3.7m bgl, overlying firm to stiff Glacial Till. Perched groundwater may be encountered within the Made Ground.

³ https://mapapps2.bgs.ac.uk/geindex/home.html?_ga=2.41604902.543517422.1681983105-2011341896.1681983105

Table 2: Summary of Ground Conditions

Strata	Description	Depth to base of strata (m bgl)	SPT N Values
Made Ground	Limestone gravel over geomembrane	0.1	N/A
	Slightly clayey slightly silty sandy fine to coarse gravel of brick, stone, metal, wood, plastic and clinker. Frequent brick cobbles.	2.4 – 3.0	N/A
	Slightly gravelly slightly sandy silty clay. Gravel is fine to coarse brick and stone.	3.6 - 3.7	12 - 14
Glacial Till Deposits	Firm to stiff slightly sandy silty clay with some lenses of sandy silt and bands of sand.	6.0 – 7.0	18 - 19
	Firm to stiff thinly laminated slightly gravelly slightly sandy silty clay. Gravel is fine to coarse sandstone, siltstone and quartz. Becoming very stiff and sandy from 12.4m bgl	>15.25	16 - >50

4 FLOOD RISK

4.1 Sources of Flooding

All sources of flooding have been considered, these are; fluvial (river) flooding, tidal (coastal) flooding, groundwater flooding, surface water (pluvial) flooding, sewer flooding and flooding from artificial drainage systems/infrastructure failure.

4.2 Historic Flooding

There are no records of anecdotal information of flooding at the site including within the British Hydrological Society "Chronology of British Hydrological Events"⁴. No other historical records of flooding for the site have been recorded.

4.3 Existing and Planned Flood Defence Measures

It is understood that there are no defences in this area. Further risk management measures will be used to protect the site from flooding these are discussed in Section 6.0.

4.4 Environment Agency Flood Zones

A review of the Environment Agency's flood map indicates that the site is located within Flood Zone 1. Flood Zone 1 is Less than a 1 in 1000 between 1:100 to a 1 in 1000 annual probability of river or sea flooding in any year (0.1%).

The Flood Zones are the current best information on the extent of the extremes of flooding from rivers or the sea that would occur without the presence of flood defences, because these can be breached, overtopped and may not be in existence for the lifetime of the development. The Environment Agency Flood Zones and acceptable development types are explained in Table 1. Table 1 shows that all development types are most developments are generally acceptable in Flood Zone 1.

⁴ <https://cbhe.hydrology.org.uk/>

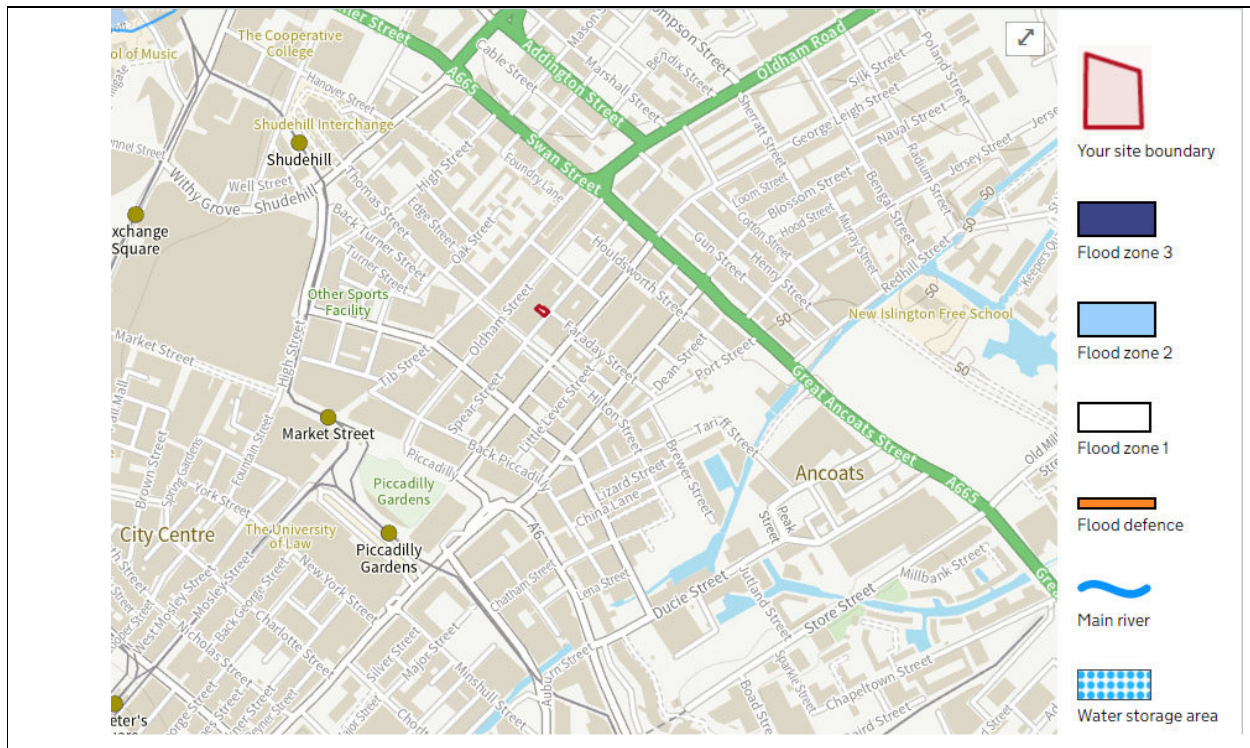


Figure 2- Environment Agency Flood Zones

Table 1 – Environment Agency Flood Zones and Appropriate Land Use

Flood Zone	Probability	Explanation	Appropriate Land Use
Zone 1	Low	Less than a 1 in 1000 annual probability of river or sea flooding in any year (<0.1%)	All development types generally acceptable
Zone 2	Medium	Between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%) in any year	Most development types are generally acceptable
Zone 3a	High	A 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year	Some development types not acceptable
Zone 3b	'Functional Floodplain'	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:	Some development types not acceptable

		land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)	
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4.5 Flood Vulnerability

In the Planning Practice Guidance to the NPPF (Table 1) appropriate uses have been identified for the Flood Zones. Applying the Flood Risk Vulnerability Classification in Table 2 and 3 of the PPG, the proposed development is classified as 'more vulnerable'. Table 2 of this report and Table 3 of the PPG states that 'more vulnerable' uses are appropriate within Flood Zone 1.

Table 2 – Flood Risk Vulnerability and Flood Zone 'Compatibility' as identified in Table 3 of the PPG

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception test required	✓	✓
Zone 3a	Exception test required	✓	✗	Exception test required	✓
Zone 3b 'Functional Floodplain'	Exception test required	✓	✗	✗	✗

Key: ✓: Development is appropriate, ✗: Development should not be permitted.

Climate Change

Projections of future climate change, in the UK, indicate more frequent, short-duration, high intensity rainfall and more frequent periods of long duration rainfall. Guidance included within the NPPF recommends that the effects of climate change are incorporated into FRA. Recommended precautionary sensitivity ranges for peak rainfall intensities and peak river flows are outlined in the associated Planning Practice Guidance to the NPPF⁵.

⁵ <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#high-allowances>

Table 3 shows the peak rainfall intensity allowance.

Based on the nature of the development, a lifespan of 60 years is anticipated. Therefore, the potential climate change allowance uses the 2070 range. In spite of the fact that the site lies within Flood Zone 1 and considered to be at low risk of flooding, the proposed use is for residential and therefore 45% climate change on peak rainfall intensity will be included in calculations.

Table 3 – Climate Change Allowance

PEAK RAINFALL INTENSITY ALLOWANCE	Allowance Category	2050s	2070s
Manchester	Upper	+40%	+45%
	Central	+25%	+30%

4.6 Fluvial (river) Flooding

The Environment Agency's Flood Map shows the site to be located within Flood Zone 1 which is defined as having an annual probability of flooding from rivers less than 1 in 1000 years defined as a very low risk.

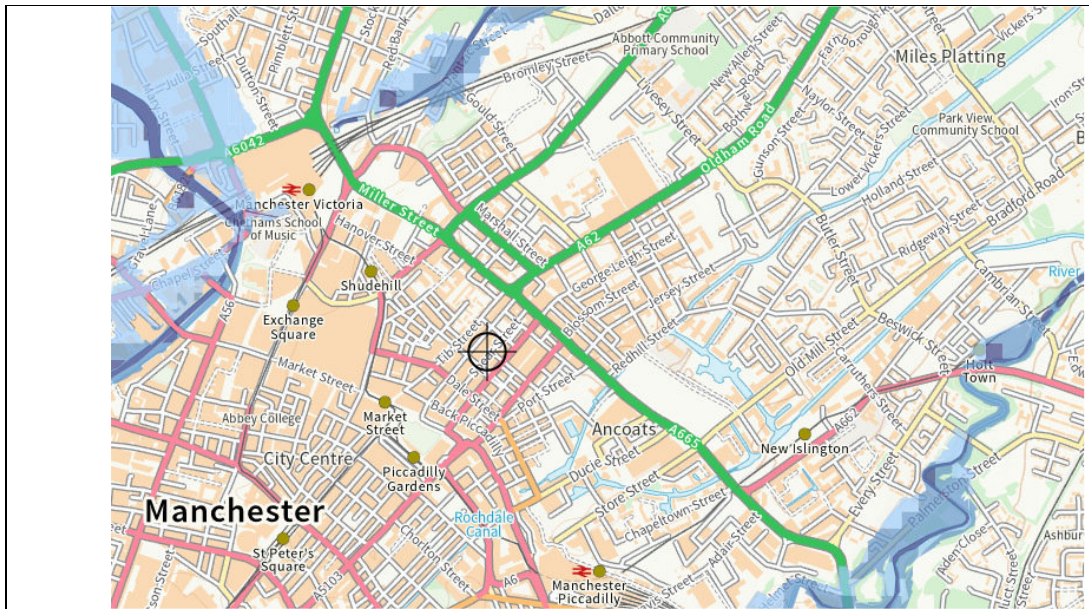


Figure 3 – Environment Agency River flooding

4.7 Tidal (coastal) Flooding

The site is not located within the vicinity of tidal flooding sources and the risk of tidal flooding is not significant.

4.8 Groundwater Flooding

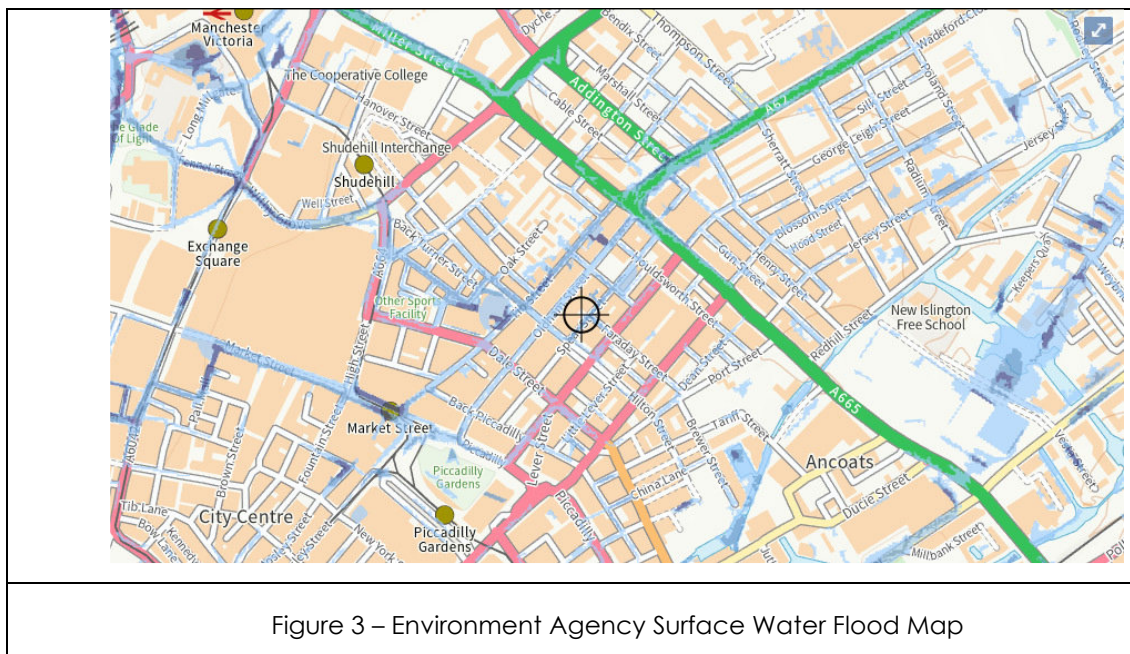
Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded. Groundwater flooding tends to occur sporadically in both location and time. When groundwater flooding does occur, it tends to mostly affect low-lying areas, below surface infrastructure and buildings (for example, tunnels, basements and car parks) underlain by permeable rocks (aquifers).

The susceptibility of the site to groundwater flooding, based on the underlying geological conditions, is low. There are no records of groundwater flooding at or near to the site. It can therefore be concluded that the risk of groundwater flooding is not significant.

4.9 Surface Water (pluvial) Flooding

The soil condition at the site and within the vicinity of the site and the topography of the site suggest that the site is relatively well drained and surface water flooding would not be expected to accumulate to any significant depths. Surface water flooding tends to occur sporadically in both location and time such surface water would tend to be confined to the streets around the development.

Figure 3 confirms that the site has a low risk of surface water flooding with a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%) and it can be seen that the site and the surrounding area is at low risk of surface water flooding. .



4.10 Sewer Flooding

Sewer flooding occurs when urban drainage networks become overwhelmed and maximum capacity is reached. This can occur if there is a blockage in the network causing water to back up behind it or if the sheer volume of water draining into the system is too great to be handled. Sewer

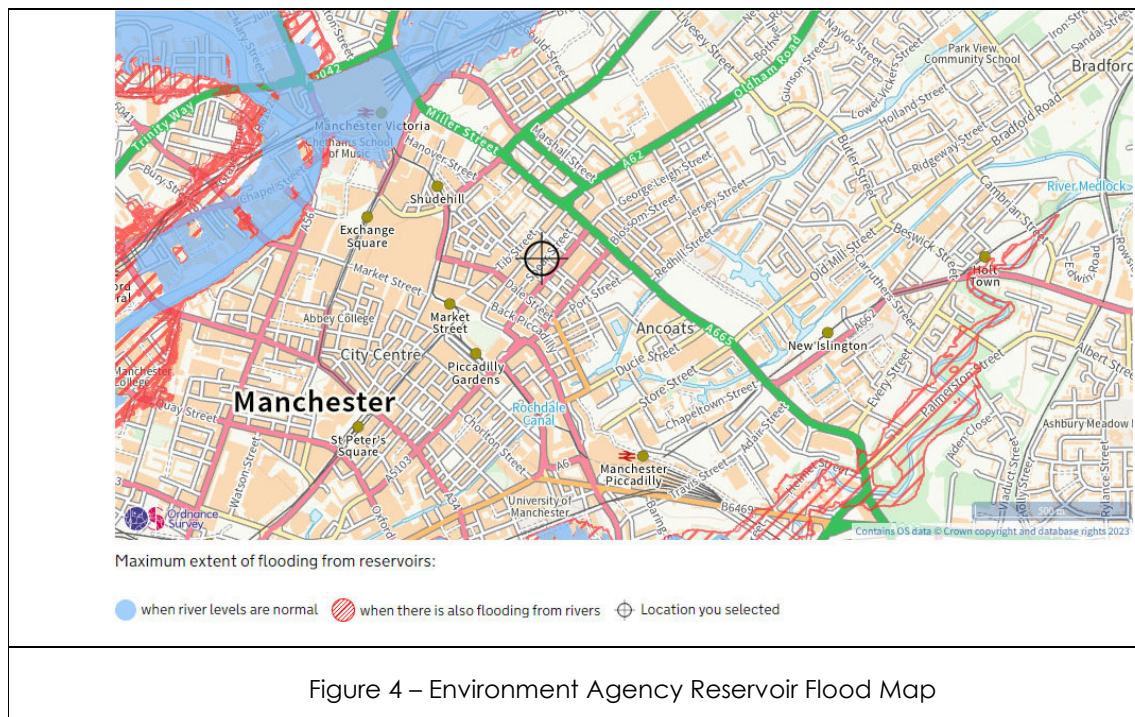
flooding tends to occur sporadically in both location and time such flood flows would tend to be confined to the streets around the development.

There are existing public sewers within roads adjacent to the site these will inevitably have a limited capacity so in extreme conditions there would be surcharges, which may in turn cause flooding. Flood flows could also be generated by burst water mains, but these would tend to be of a restricted and much lower volume than weather generated events and so can be discounted for the purposes of this assessment. Given the design parameters normally used for drainage design in recent times and allowing for some deterioration in the performance of the installed systems, which are likely to have been in place for many years, an appropriate flood risk probability from this source could be assumed to have a return period in the order of 1 in 10 to 1 in 30 years.

The provision of adequate level difference between the ground floors and adjacent ground level would reduce the annual probability of damage to property from this source to 1 in 100 years or less. Therefore, sewer flooding poses a low flood risk to the site. It can therefore be concluded that the risk of sewer flooding is of low significance. The risk from this source will be further managed and mitigated by using a number of risk management measures (see Section 6.0).

4.11 Flooding from Artificial Drainage Systems/Infrastructure Failure

Reservoirs are located within the vicinity of the site. The Environment Agency Reservoir flood map shows that the site is out side the area that could be affected by reservoir flooding therefore considered to be very low (see Figure 4).



4.12 Effects of the Development on Flood Risk

It is evident from reviewing the flood data the site is a low risk from any flooding.

4.13 Summary of Site-Specific Flood Risk

A summary of the sources of flooding and a review of the risk posed by each source at the site is shown in Table 4.

Table 4 – Risk Posed by Flooding Sources

Sources of Flooding	Potential Flood Risk	Potential Source	Probability/Significance
Fluvial (river) Flooding	No	None Reported	Not significant
Tidal (coastal) Flooding	No	None Reported	Not significant
Groundwater Flooding	No	None Reported	Not significant
Surface Water (pluvial) Flooding	No	None Reported	Low
Sewer Flooding	Yes	Local Sewers	Low
Flooding from Artificial Drainage Systems/Infrastructure Failure	No	Reservoirs	None

The site is, therefore, considered to be at a low level of risk of flooding.

5 SEQUENTIAL AND EXCEPTION TESTS

5.1 Sequential / Exception Tests

As the site is located within Flood Zone 1 (rivers and sea flooding) with areas classified as 'More Vulnerable' development the sequential and exception test are not required to be undertaken

6 RISK MANAGEMENT

6.1 Introduction

In this flood zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout, form of the development and the use of flood mitigation measures including SuDS techniques. The flooding sources will have to be mitigated on the site by using a number of techniques, and mitigation strategies to manage and reduce the overall flood risk at the site. These will be used to ensure the development will be safe and there is:

- Minimal risk to life;
- Minimal disruption to people living and working in the area;
- Minimal potential damage to property;
- Minimal impact of the proposed development on flood risk generally; and;
- Minimal disruption to natural heritage.

6.2 Minimum Floor Level

The ground floor finished floor levels will be maintained at existing levels. At the ground floor thresholds linear drains should be provided at the entrance doors.

6.3 Flood Resilience and Resistance

The development of the layout should always consider that the site is potentially at risk from an extreme event and as such the implementation of flood resilience and resistance methods should be assessed. Relatively simple measures such as raising utility entry points, using first floor or ceiling down electrical circuits and sloping landscaping away from properties can be easily and economically incorporated into the development of the site.

6.4 Access and Egress

The site and surrounding area is located within Flood Zone 1 therefore a permanently safe and dry access can be maintained.

6.5 Groundwater Flood Mitigation

Groundwater flooding tends to be more persistent than other sources of flooding, typically lasting for weeks or months rather than hours or days. Groundwater flooding does not generally pose a significant risk to life due to the slow rate at which the water level rises; however, it can cause significant risk to property. The proposed ground floor levels are proposed to tie into existing ground levels surrounding the site and therefore is considered to be at low risk of groundwater flooding.

6.6 Surface Water Flooding to the site Mitigation

The Environment Agency surface water flood maps indicate that the site and the surrounding highways are at low risk of surface water flooding. The proposals for the site extend to the back of adopted footpath. It is recommended that proposed external back of footpath should fall away from the proposed building so that it does not create low points and encourage any surface water to fall towards the proposed buildings.

6.7 Surface Water Flooding from the site Mitigation

Any new development site drainage should be designed in accordance with current best practice to provide adequate capacity not to flood for the critical 1 in 30 year storm event and flood water generated from up to the critical 1 in 100 year plus climate change storm event shall be constrained within the areas on site so not to cause damage to buildings, essential services or adjoining developments and services.

In following the standard hierarchy of drainage solutions, consideration should firstly be given to the discharge of surface water runoff by sustainable methods such as infiltration.

Due to the size and location of the proposed building, the use of an infiltration/soakaway type system is unachievable as a maximum distance of 5m from the building cannot be achieved.

Due to the proximity of the nearest watercourse to the development, it is unachievable to connect surface water into a watercourse.

Therefore, the surface water drainage is proposed to outfall into the existing surrounding combined public sewer network at a restricted discharge rate.

To minimise localised flooding within the site, the drainage design should ensure that gullies, drainage channels and drains are all suitably sized to accommodate peak storm flows. Also, all inlet features should have suitably sized sumps to catch silts and should be subject to a documented routine maintenance and cleansing regime.

6.8 Flooding Consequences

The mitigation measures detailed above show that the flood risk can be effectively managed and therefore the consequences of flooding are acceptable. In conclusion, the flood risk to the site can be considered to be limited; the site is situated in Flood Zone 1, with a low annual probability of flooding and from all sources.

7 DRAINAGE REQUIREMENTS

7.1 National Planning Policy Framework Guidance

National Planning Policy Framework Guidance states 'Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable:

1. into the ground (infiltration);
2. to a surface water body;
3. to a surface water sewer;
4. to another drainage system;
5. to a combined sewer.

Particular types of sustainable drainagesystems may not be practicable in all locations.

7.2 Statutory undertaker's requirements

The statutory undertake for the area is United Utilities, who state the following:

- Only foul sewerage will be permitted to be discharged into the public foul sewer.
- A connection agreement will be required prior to installation of the private drainage network and connection into a sewerage network.
- Surface water from new developments should not, unless there is no other option be connected to the public combined sewerage system.
- All options for SuDS must be explored prior to any application to connect to a public sewerage system.
- SuDS have the potential to be adopted.

There is no legal duty to accept highway drainage from new developments into the public seweragesystem. However, in some cases highway drainage will be considered as part of the overall attenuated surface water drainage strategy.

7.3 Use of SuDS

The SuDS philosophy for any development site is the promotion of prevention and source control techniques.

7.4 The Non-Statutory Technical Standards for SuDS

It is best practice to develop drainage strategies to the DEFRA document 'The Non-Statutory Technical Standards for SuDS'.

The DEFRA document advises the following with respect to 'Peak Flow Control' and 'Volume Control':

S3 *For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff*

rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

- **S5** Where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event, but should never exceed the runoff volume for the development site prior to redevelopment for that event.

7.5 North West SuDS Pro-Forma

The North West SuDS Pro-forma, endorsed and recommended for use by North West Regional Flood and Coastal Committee and United Utilities has been reviewed. This document states that the capacity of SuDS must provide effective drainage for the development taking account of the likely impacts of climate change.

The lifetime expectancy of the development is 100 years. Table 2 of 'Flood risk assessments: climate change allowances' indicates the following recommendations for climate change allowance:

Maximum lifetime of the development	Climate change allowance to be applied
2050s (2040 – 2069)	40%
2070s (2070-2115)	45%

7.6 Site assessment for SuDS

Current policy and best practice encourage the use of SuDS and in particular, infiltration systems. SuDS techniques are not suitable for all sites; therefore, an assessment of the site is required so that SuDS limitations can be determined. Green SuDS are particularly favoured by Local Authorities.

The below table considers the use of Green SuDS in a dense urban environment.

Consideration of SuDS within the constraints of a dense urban environment	
Element	Viability
Green roofs rather than standard roof construction.	Within the scope of the scheme, the use of green roofs is deemed not suitable due to the architectural design of the roofs and to reduce the overall construction costs.
Runoff harvesting in tanks for non-potable use.	Not suitable for the end user and management company
Landscape irrigation and	NA
Use of permeable surfaces and/or sub-bases.	N/A
Use of bioretention systems, open water amenity features and tree pits.	N/A
Soakaway options to enable the runoff to infiltrate to the underlying sub strata	N/A
Flow control devices and attenuation measures included to store water and/or provide treatment in confined spaces.	An option is to provide a flow control and head wall to restrict the discharge into the combined sewer by 2.5l/s. Below ground storage can be provided to store the 1:100 +45% climate change. No flooding to occur on site.

7.7 Existing Drainage

The public sewer records indicate that there are no public sewers located within the site, however there is a 300 x 406 combined public sewer within Spear Street, a 225 diameter combined public sewer within Warwick Street, a 300 diameter combined public sewer within Oldham Street and a 300 diameter combined public sewer within Houldworth Street.

The invert level of the public sewer in Spear Street should be confirmed as early as possible to allow co-ordination with the structure and determine adequate gravity falls into the combined public sewer.

7.8 Proposed Drainage

To both sides of the proposed building, soil vent pipes (SVP's) will be housed within the risers collecting foul water from each dwelling. The SVP's will connect direct into the proposed foul drainage network at ground level before being passed forward into the public sewer via a combined connection.

A non-return valve will be required at the outfall to ensure that the public sewer network cannot surcharge into the private drainage network which could flood the building.

The peak foul flow rate has been calculated at 4.1 l/s for the proposed development.

The existing site area (0.016ha) has been modelled to derive the run-off rates from the existing site.

The results are as follows.

- 2.0 l/s for the 1 in 1 year event;
- 5.0 l/s for the 1 in 30 year event; and
- 6 l/s for the 1 in 100 year event.

The existing volume generated from the existing site in the 100 year 6 hour event is approximately 6m³.

The proposed flow rates will be restricted to 50% of the pre-development flow rates with a climate change allowance of 45% for the proposed 100 year event. The restriction of 50% pre-development flow rates is based on the recommendations within the Manchester Strategic Flood Risk Assessment (SFRA) for brownfield sites within 'Critical Drainage Areas'.

Therefore, in accordance with the SFRA, the proposed flow rates are as follows

- 1 l/s for the 1 in 1 year event;
- 2.5 l/s for the 1 in 30 year event; and
- 3.0 l/s for the 1 in 100 year 40% change event.

Given that the above flow rates are negligible, we propose to restrict all storm events to the 1 in 100 year plus climate change rate of 2.5 l/s, using a flow control and a minimum orifice size of 33mm to reduce the risk of blockages.

The flow rates currently modelled are less than the maximum recommended and therefore comply with both the SFRA and United Utilities guidance.

The proposed volume generated from the proposed site is expected to be similar to the existing volume based on a like for like scenario as the impermeable areas are the same.

Detailed modelling confirms that the attenuation for the development can be located within the private surface water network.

The proposed network may require modelling with a surcharged outfall subject to confirmation out outfall levels and could be requested by United Utilities, therefore could affect attenuation volumes.

The proposed drainage drawing, network model and results are enclosed in Appendix C.

8 SUMMARY AND CONCLUSION

8.1 Introduction

This report presents an FRA in accordance with the NPPF for the proposed development at Spear Street Manchester. This FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will need to be managed so that the development remains safe throughout the lifetime, taking climate change into account.

8.2 Flood Risk

The site is not at risk of flooding from a major source (e.g. fluvial and/or tidal). The site has a 'low probability' of fluvial/tidal flooding as the site is located within Flood Zone 1 with less than a 1 in 1000 annual probability of river/tidal flooding in any year (<0.1%). A secondary flooding source has been identified which may pose a low risk to the site. This is:

- Sewer flooding

The risk of flooding from all sources is considered to be low or not significant. The flooding sources will only inundate the site to a relatively low water depth and water velocity, will only last a short period of time, in very extreme cases and will not have an impact on the whole of the proposed development site.

The proposed development is classified as 'more vulnerable', 'more vulnerable' uses are appropriate within Flood Zone 1 after the completion of a satisfactory FRA. The flood risk at the site, will be further managed and mitigated by using a number of risk management techniques, and mitigation strategies to manage and reduce the overall flood risk at the site.

In conclusion, the flood risk to the site can be considered to be limited; the site is situated in Flood Zone 1, with a low or less annual probability of flooding and from all sources. The site is unlikely to flood except in very extreme conditions.

8.3 Sequential and Exception Tests

The development proposals should be considered by the LPA to satisfy the Sequential and Exception Tests as set out in the NPPF.

8.4 Risk Management

The flooding sources will be managed on the site by using a number of mitigation strategies to manage and reduce the overall flood risk at the site and will ensure the development will be safe. Measures used:

Minimum Floor Level - The finished floor levels will be maintained at existing levels.

Flood Resilience and Resistance - The development of the layout should always consider that the site is potentially at risk from an extreme event and as such the implementation of flood resilience and resistance methods should be assessed.

Access and Egress - The site and surrounding area is located within Flood Zone 1 therefore a permanently safe and dry access can be maintained.

8.5 Post Planning Consents

Sewer Connection

Any new sewer connection to the public sewer should be agreed with the relevant water company, prior to starting work on site.

8.6 Conclusion

In conclusion, the site would be expected to remain dry in all but the most extreme conditions. Providing the recommendations made in this FRA are instigated, flood risk from all sources would be minimised, the consequences of flooding are acceptable, and the development would be in accordance with the requirements of the NPPF.

This FRA demonstrates that the proposed development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of the NPPF. The development should not therefore be precluded on the grounds of flood risk.

Any connections to the public sewer will be subject to a Section 106 Agreement with United Utilities. The final design of the drainage networks shall be in accordance with the legislation set by the Environment Agency, Manchester City Council and United Utilities. A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented. It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event. Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.

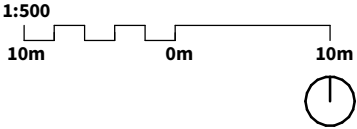
The invert level of the existing sewer required surveying to ensure the system can be drained by gravity and for the finalised design to be concluded.

APPENDIX A – Architectural Drawings



Existing Block/Site Plan 1:500 / A3

EXISTING BLOCK PLAN



Application Demise Line
Applicant's Ownership

PLANNING

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REV	DESCRIPTION	DATE
CLIENT	Zidane Projects	
PROJECT	Spear Street Forty Seven	
ADDRESS	47 Spear Street, Manchester, M1 1DF	
DRAWING TITLE	Existing Block/Site Plan	
SCALE @ A3	As indicated	DATE 12/12/22
DRAWING NO.	LP2110-3-002	REV

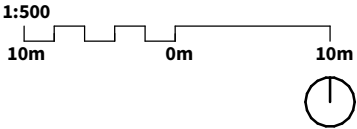
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Proposed Block/Site Plan 1:500 / A3

PROPOSED BLOCK PLAN



Application Demise Line ————
Applicant's Ownership ————

PLANNING

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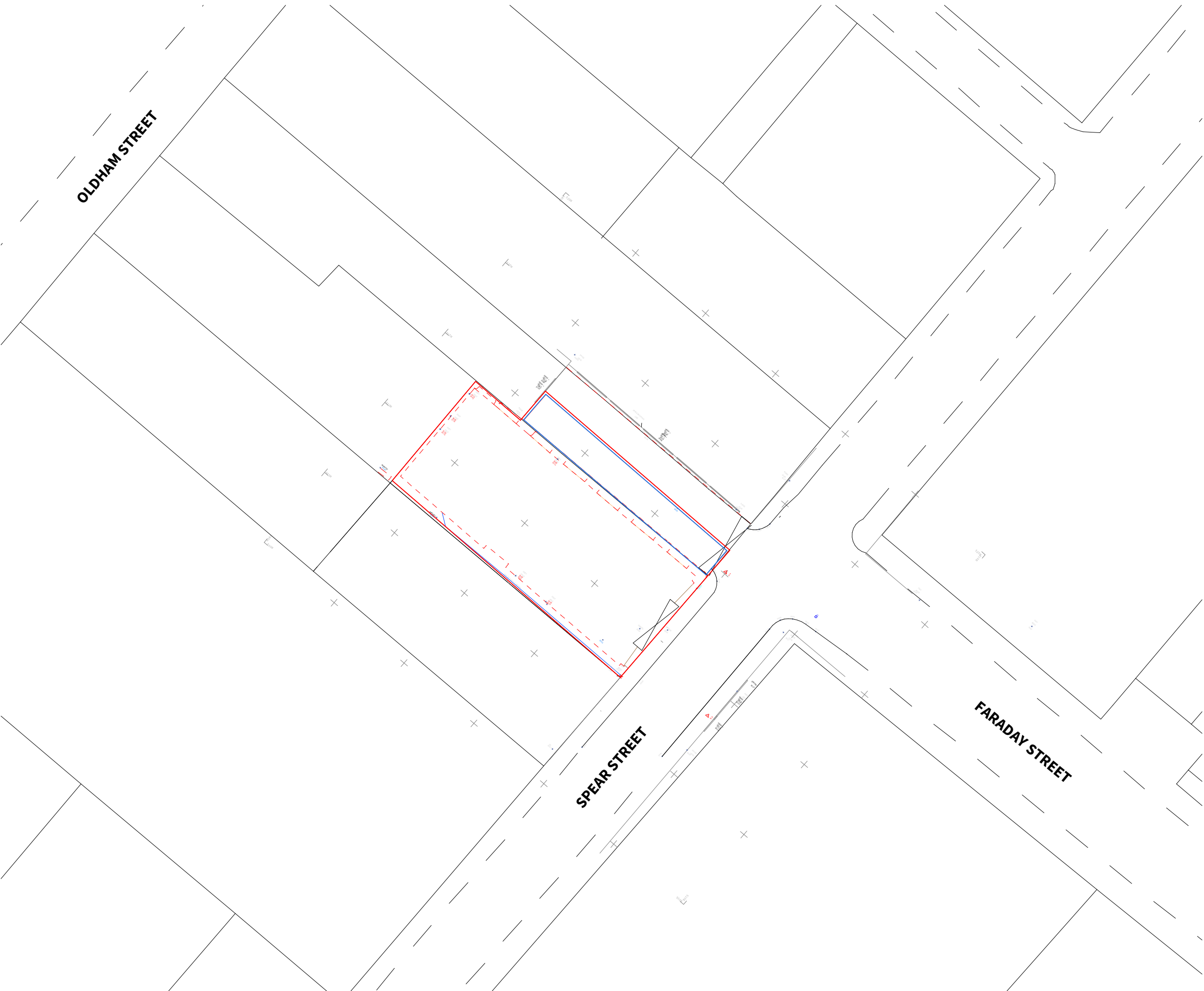
DO NOT SCALE from drawing, work to figured dimensions only. All dimensions to be checked by Contractor/Fabricator prior to construction, report all discrepancies to the Design Team.

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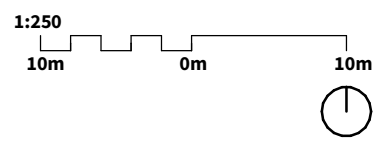
REV	DESCRIPTION	DATE
CLIENT	Zidane Projects	
PROJECT	Spear Street Fourty Seven	
ADDRESS	47 Spear Street, Manchester, M1 1DF	
DRAWING TITLE	Proposed Block/Site Plan	
SCALE @ A3	As indicated	DATE 12/12/22
DRAWING NO.	LP21110-3-003	REV

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EXISTING TOPOGRAPHICAL



- Application Demise Line
- Applicant's Ownership
- Demolished Building

PLANNING

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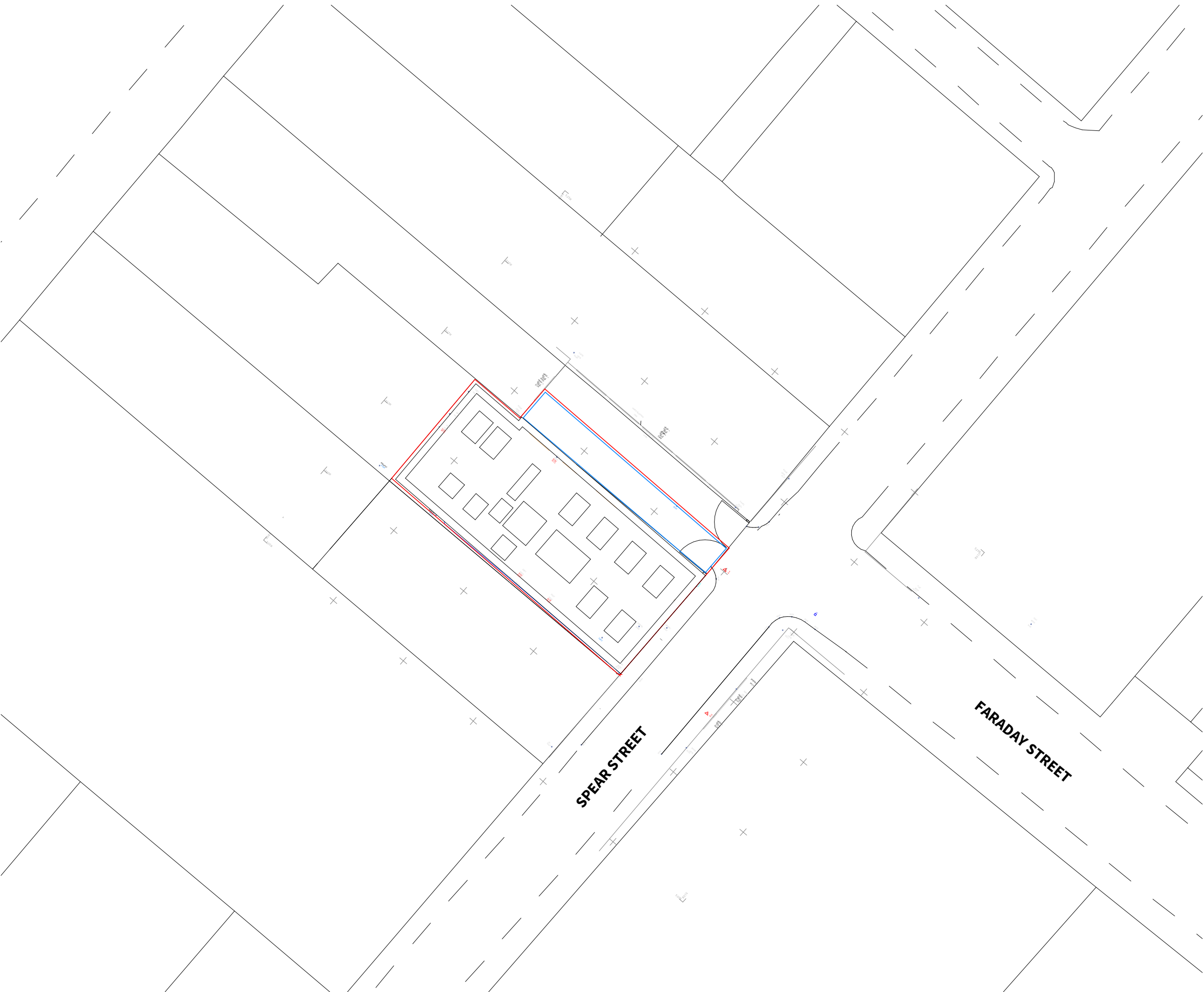
Any existing dimensions noted on the drawing are to be checked by the Contractor prior to commencement of the works.

REV	DESCRIPTION	DATE
CLIENT	Zidane Projects	
PROJECT	Spear Street Forty Seven	
ADDRESS	47 Spear Street, Manchester, M1 1DF	
DRAWING TITLE	Existing Topographical Plan	
SCALE @ A3	1 : 200	DATE 12/12/22
DRAWING NO.	LP2110-3-004	REV

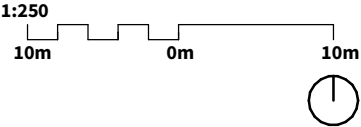
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Existing Topographical Plan 1:200 / A3



PROPOSED TOPOGRAPHICAL



Application Demise Line
Applicant's Ownership

PLANNING

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REV	DESCRIPTION	DATE
CLIENT	Zidane Projects	
PROJECT	Spear Street Forty Seven	
ADDRESS	47 Spear Street, Manchester, M1 1DF	
DRAWING TITLE	Proposed Topographical Plan	
SCALE @ A3	1 : 200	DATE 12/12/22
DRAWING NO.	LP2110_3_005	REV

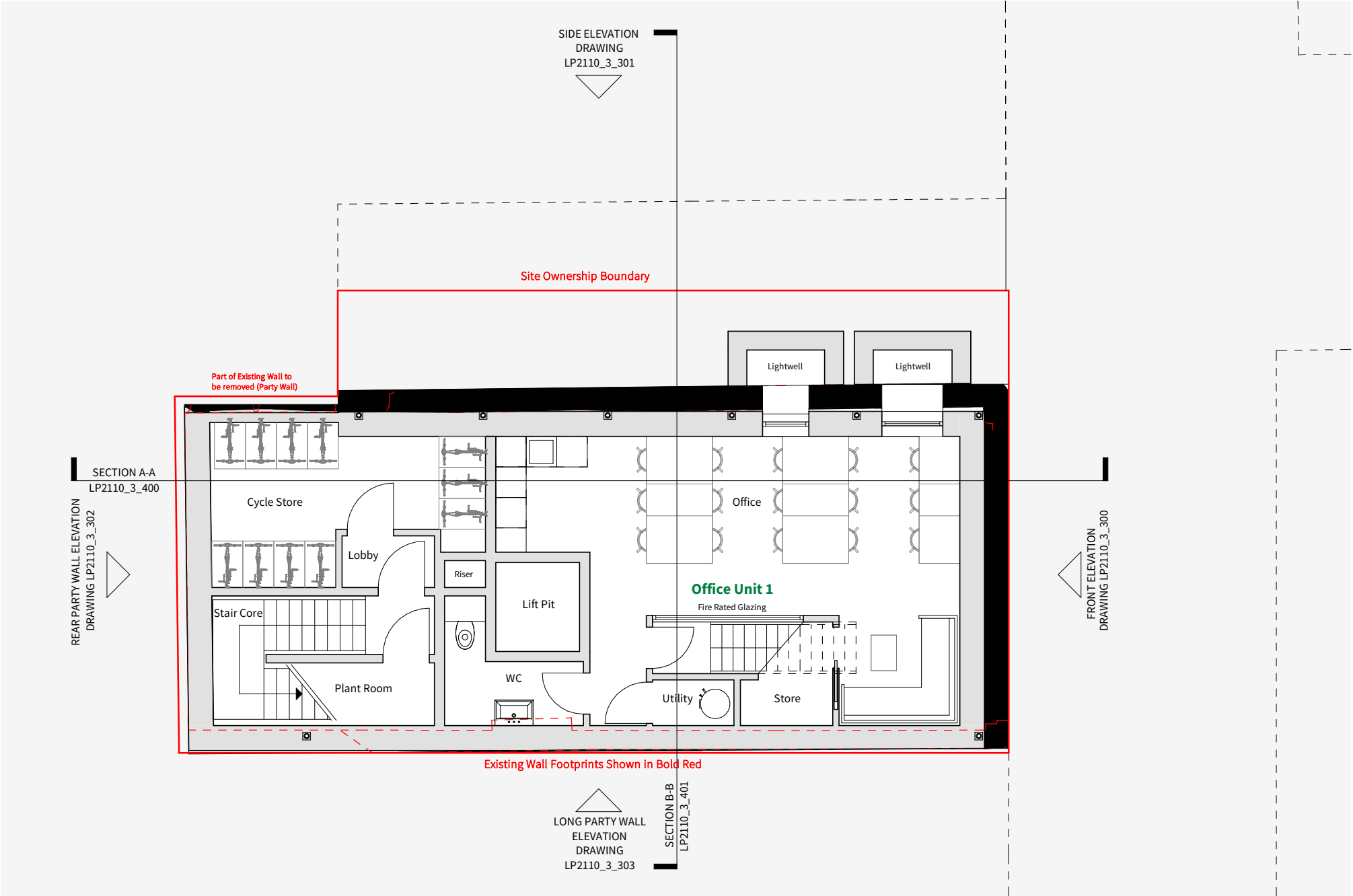
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Proposed Topographical Plan 1:200 / A3

PROPOSED BASEMENT PLAN

SEE BLOCK PLAN FOR PROPOSED BUILDING POSITION



Proposed Basement Floor Plan 1:100 / A3

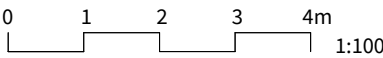
Gross Internal Area (GIA):
All areas indicated on the
LP2110_3_Spear Street
Accommodation Schedule

Existing

Proposed

Site Boundary

Former Building Footprint



PLANNING

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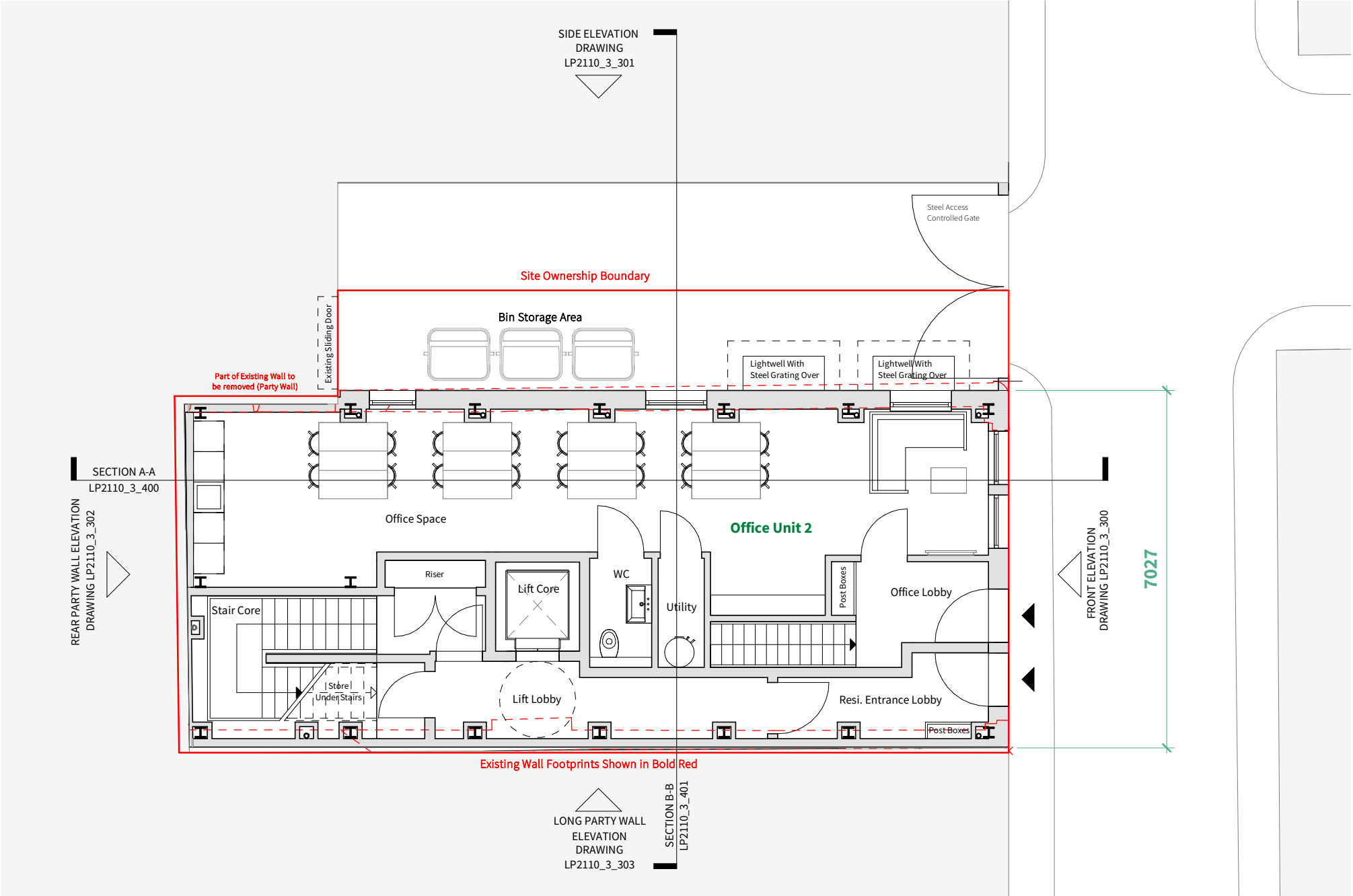
REV	DESCRIPTION	DATE
CLIENT	Zidane Projects	
PROJECT	Spear Street Fourty Seven	
ADDRESS	47 Spear Street, Manchester, M1 1DF	
DRAWING TITLE	Proposed Basement Plan	
SCALE @ A3	As indicated	DATE 12/12/22
DRAWING NO.	-LP2110_3_199	REV

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PROPOSED GROUND FLOOR PLAN

SEE BLOCK PLAN FOR PROPOSED BUILDING POSITION



Proposed Ground Floor Plan 1:100 / A3

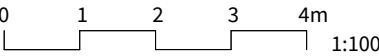
Gross Internal Area (GIA):
All areas indicated on the
LP2110_3_Spear Street
Accommodation Schedule

Existing

Proposed

Site Boundary

Former Building Footprint



PLANNING

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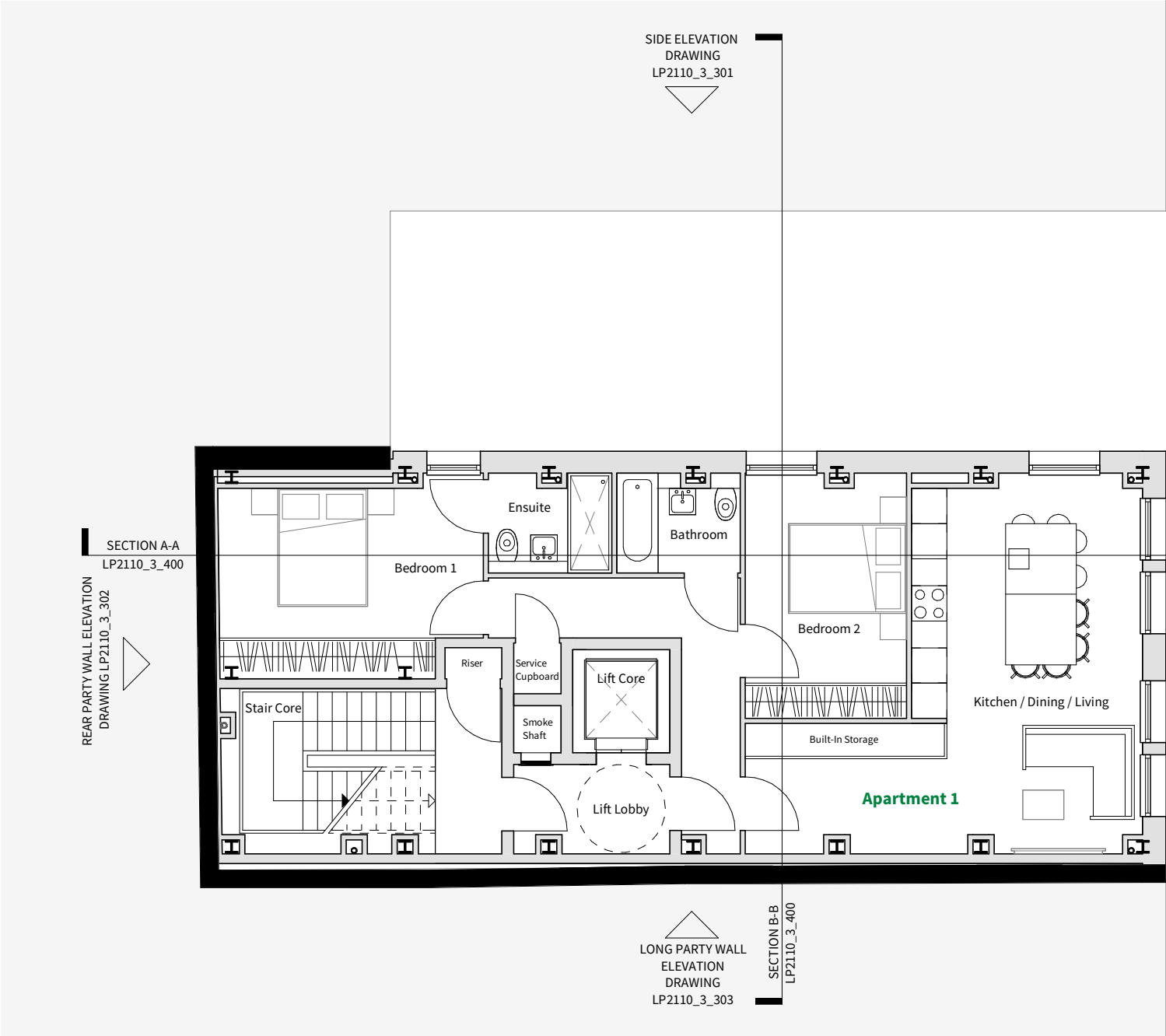
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REV	DESCRIPTION	DATE
CLIENT	Zidane Projects	
PROJECT	Spear Street Fourty Seven	
ADDRESS	47 Spear Street, Manchester, M1 1DF	
DRAWING TITLE	Proposed Ground Floor Plan	
SCALE @ A3	As indicated	DATE 12/12/22
DRAWING NO.	-LP2110_3_200	REV
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PROPOSED FIRST FLOOR PLAN

SEE BLOCK PLAN FOR PROPOSED BUILDING POSITION



Proposed First Floor Plan 1:100 / A3

Gross Internal Area (GIA):
All areas indicated on the
LP2110_3_Spear Street
Accommodation Schedule

Existing

Proposed

Site Boundary

Building Footprint

0 1 2 3 4m
1:100

PLANNING

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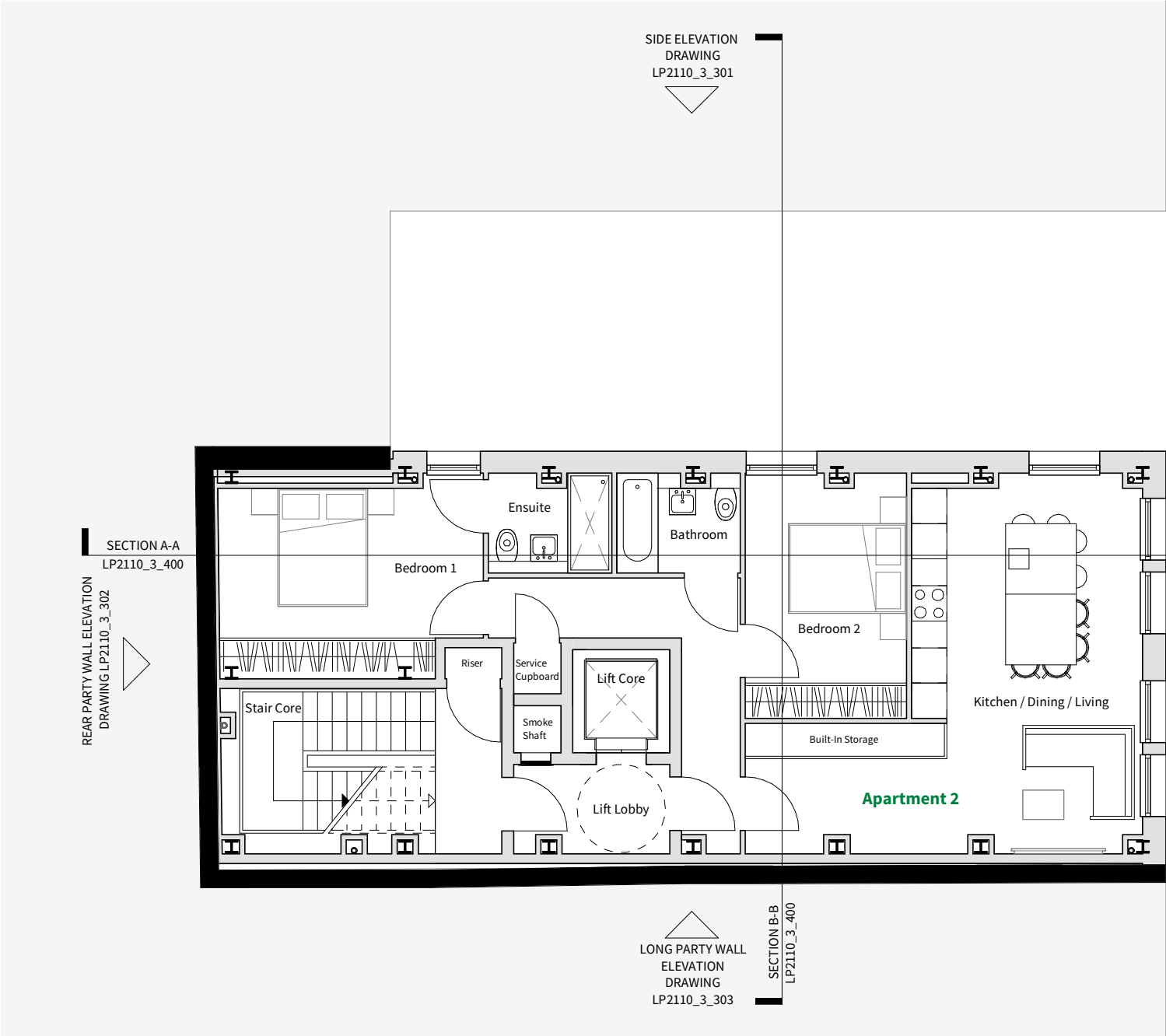
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REV	DESCRIPTION	DATE
CLIENT	Zidane Projects	
PROJECT	Spear Street Fourty Seven	
ADDRESS	47 Spear Street, Manchester, M1 1DF	
DRAWING TITLE	Proposed First Floor Plan	
SCALE @ A3	As indicated	DATE 12/12/22
DRAWING NO.	-LP2110_3_201	REV
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PROPOSED SECOND FLOOR PLAN

SEE BLOCK PLAN FOR PROPOSED BUILDING POSITION



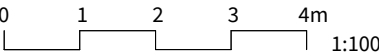
Proposed Second Floor Plan 1:100 / A3

Gross Internal Area (GIA):
All areas indicated on the
LP2110_3_Spear Street
Accommodation Schedule

Existing

Proposed

Site Boundary



PLANNING

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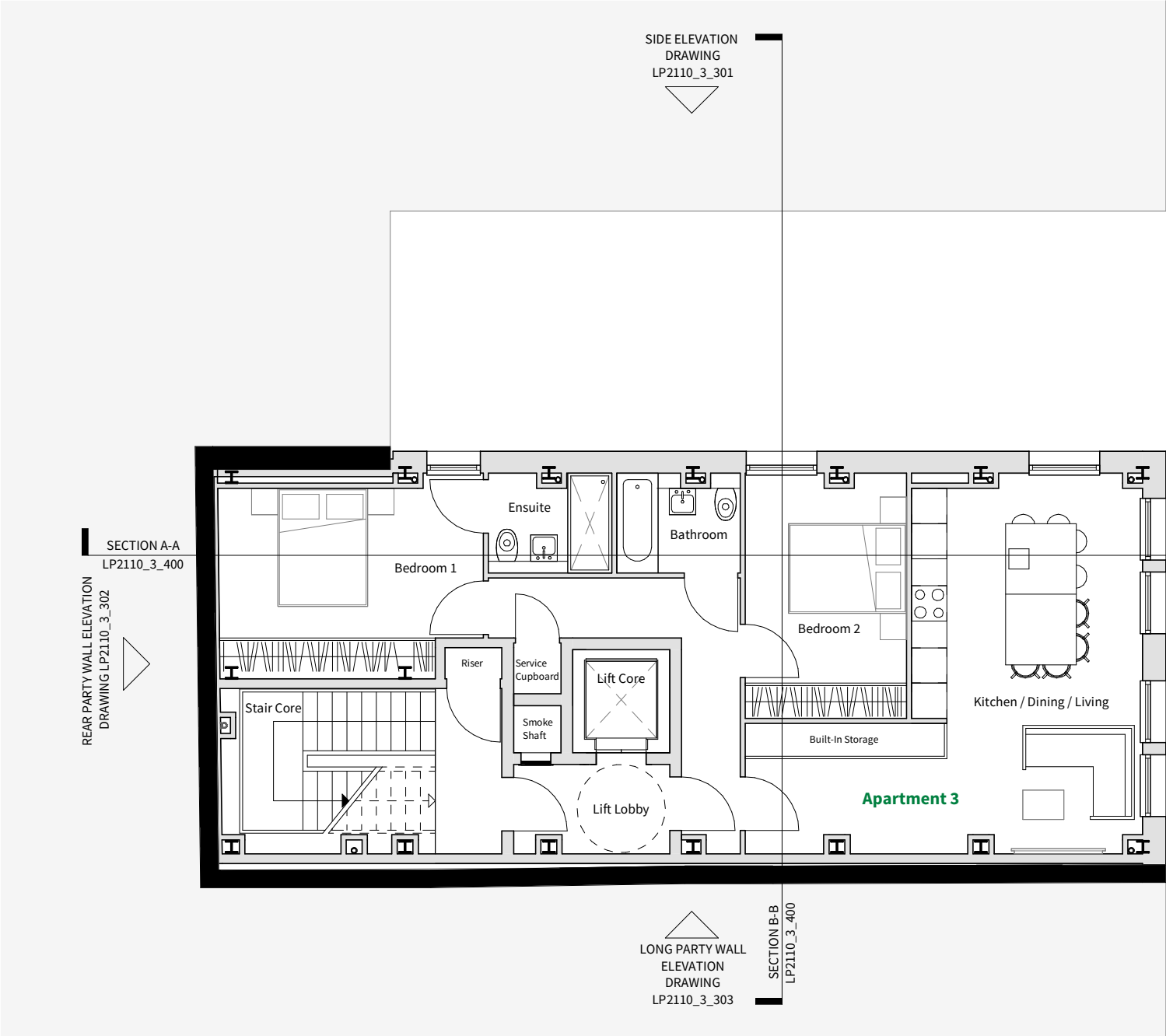
DO NOT SCALE from drawing, work to figured dimensions only. All dimensions to be checked by Contractor/Fabricator prior to construction, report all discrepancies to the Design Team.

Any existing dimensions noted on the drawing are to be checked by the Contractor prior to commencement of the works.

REV	DESCRIPTION	DATE
CLIENT Zidane Projects		
PROJECT Spear Street Fourty Seven		
ADDRESS 47 Spear Street, Manchester, M1 1DF		
DRAWING TITLE Proposed Second Floor Plan		
SCALE @ A3	As indicated	DATE 12/12/22
DRAWING NO.	-LP2110_3_202	REV
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PROPOSED THIRD FLOOR PLAN

SEE BLOCK PLAN FOR PROPOSED BUILDING POSITION



Proposed Third Floor Plan 1:100 / A3

Gross Internal Area (GIA):
All areas indicated on the
LP2110_3_Spear Street
Accommodation Schedule

Existing

Proposed

Site Boundary

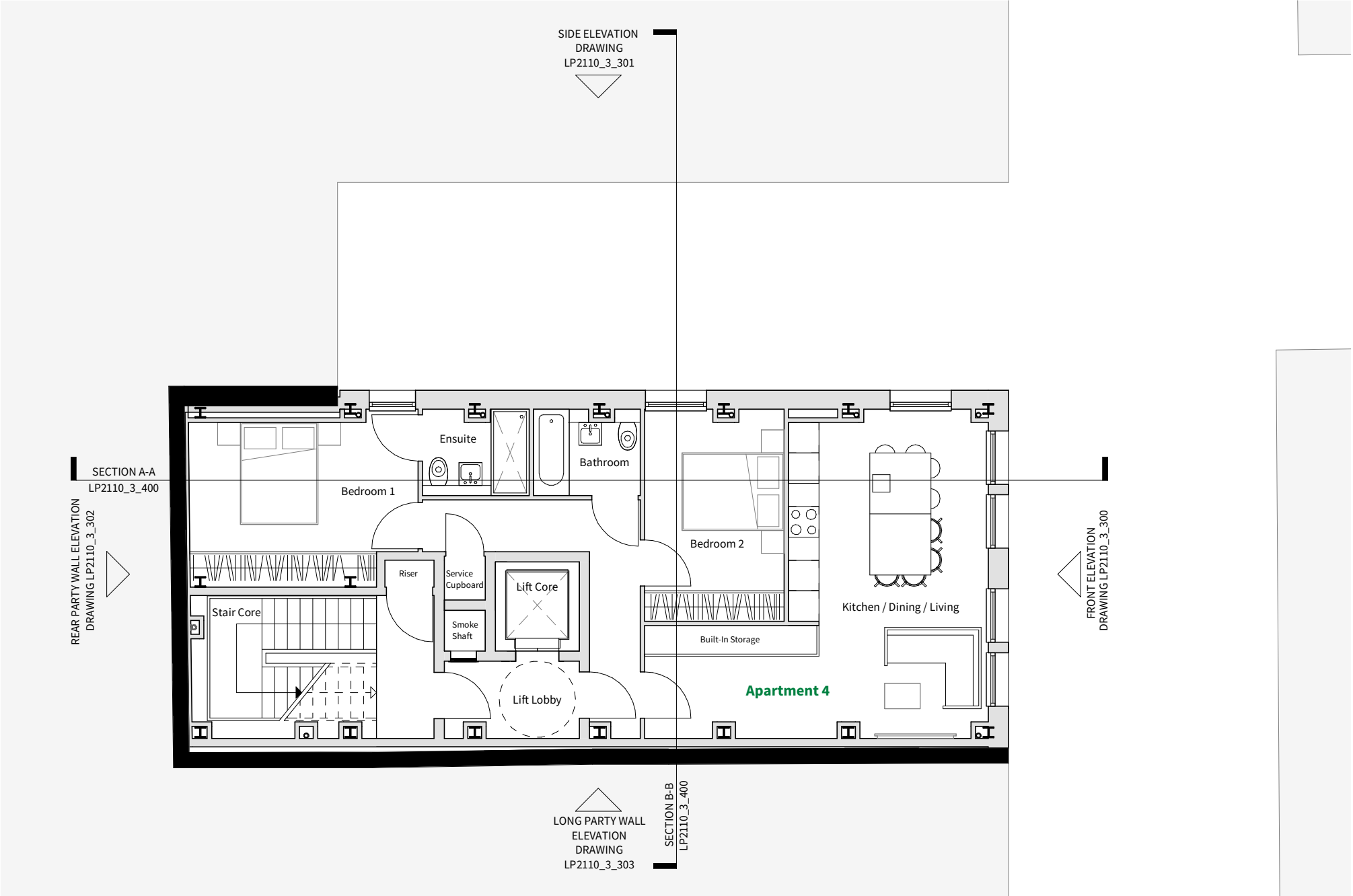
0 1 2 3 4m
1:100

PLANNING

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REV	DESCRIPTION	DATE
CLIENT	Zidane Projects	
PROJECT	Spear Street Fourty Seven	
ADDRESS	47 Spear Street, Manchester, M1 1DF	
DRAWING TITLE	Proposed Third Floor Plan	
SCALE @ A3	As indicated	DATE 12/12/22
DRAWING NO.	-LP2110_3_203	REV
material studio architects Tel: 0161 531 6203 / Web: www.materialstudio.co.uk / Address: M1 2WQ		

PROPOSED FOURTH FLOOR PLAN

SEE BLOCK PLAN FOR PROPOSED BUILDING POSITION



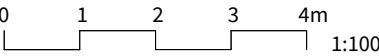
Proposed Fourth Floor Plan 1:100 / A3

Gross Internal Area (GIA):
All areas indicated on the
LP2110_3_Spear Street
Accommodation Schedule

Existing

Proposed

Site Boundary



PLANNING

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To be read in conjunction with any relevant Structural Engineer's drawings. For highway design and easements refer to highway consultant's information.

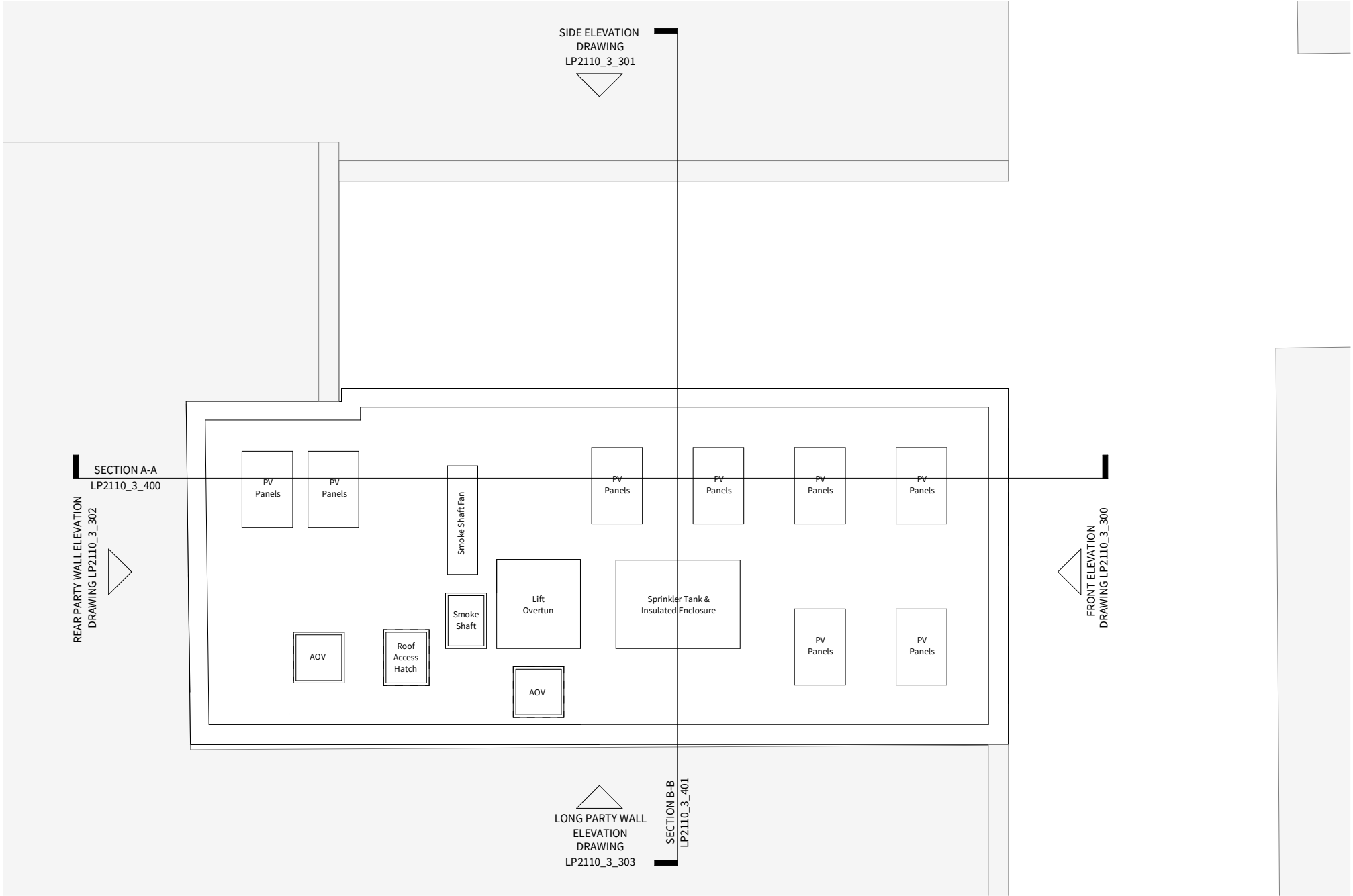
DO NOT SCALE from drawing, work to figured dimensions only. All dimensions to be checked by Contractor/Fabricator prior to construction, report all discrepancies to the Design Team.

Any existing dimensions noted on the drawing are to be checked by the Contractor prior to commencement of the works.

REV	DESCRIPTION	DATE
CLIENT Zidane Projects		
PROJECT Spear Street Fourty Seven		
ADDRESS 47 Spear Street, Manchester, M1 1DF		
DRAWING TITLE Proposed Fourth Floor Plan		
SCALE @ A3	As indicated	DATE 12/12/22
DRAWING NO.	-LP2110_3_204	REV
material studio architects Tel: 0161 531 6203 / Web: www.materialstudio.co.uk / Address: M1 2WQ		

PROPOSED ROOF PLAN

SEE BLOCK PLAN FOR PROPOSED BUILDING POSITION



Proposed Roof Plan 1:100 / A3

Gross Internal Area (GIA):
All areas indicated on the
LP2110_3_47 Spear Street
Accommodation Schedule

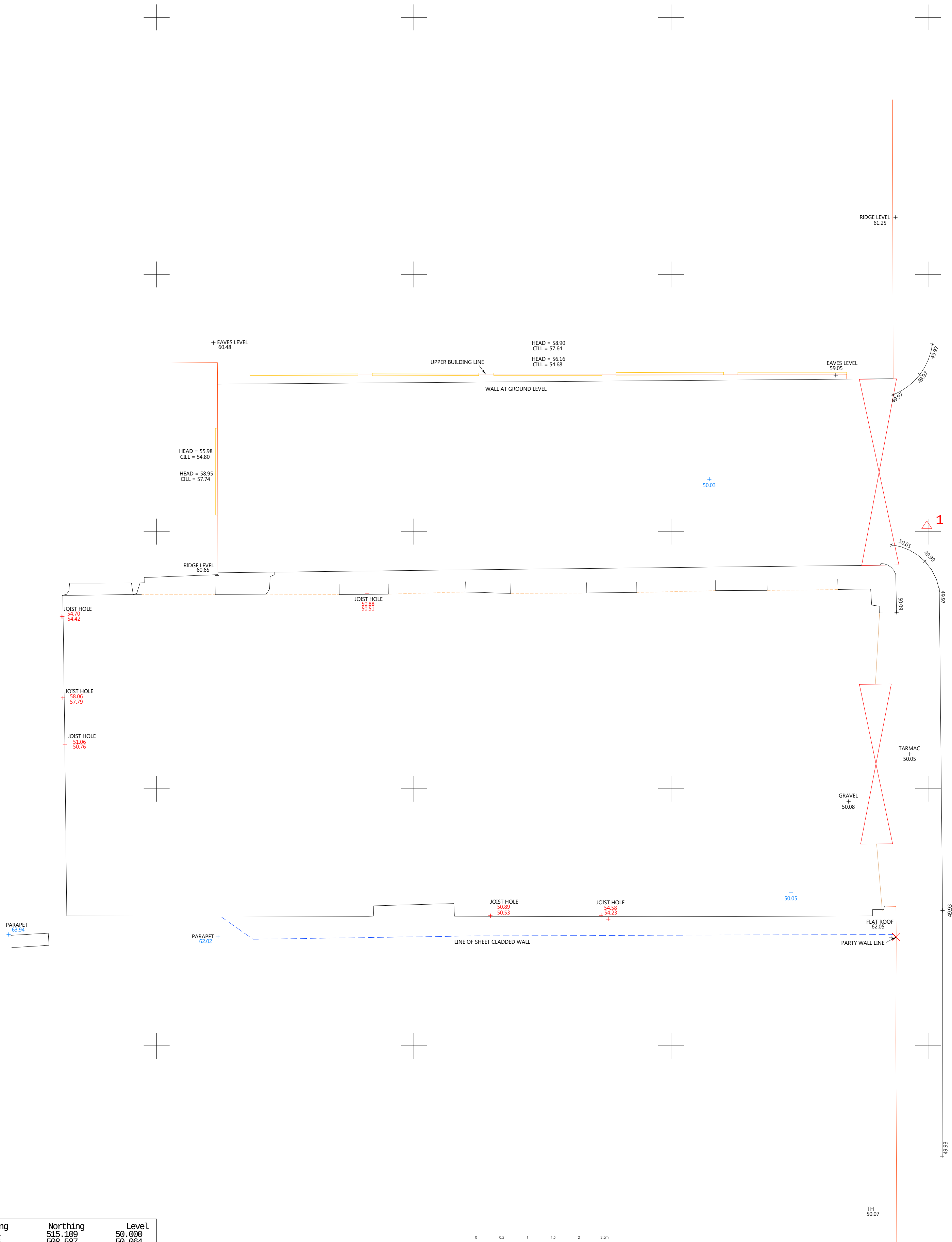
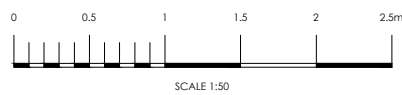
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PLANNING

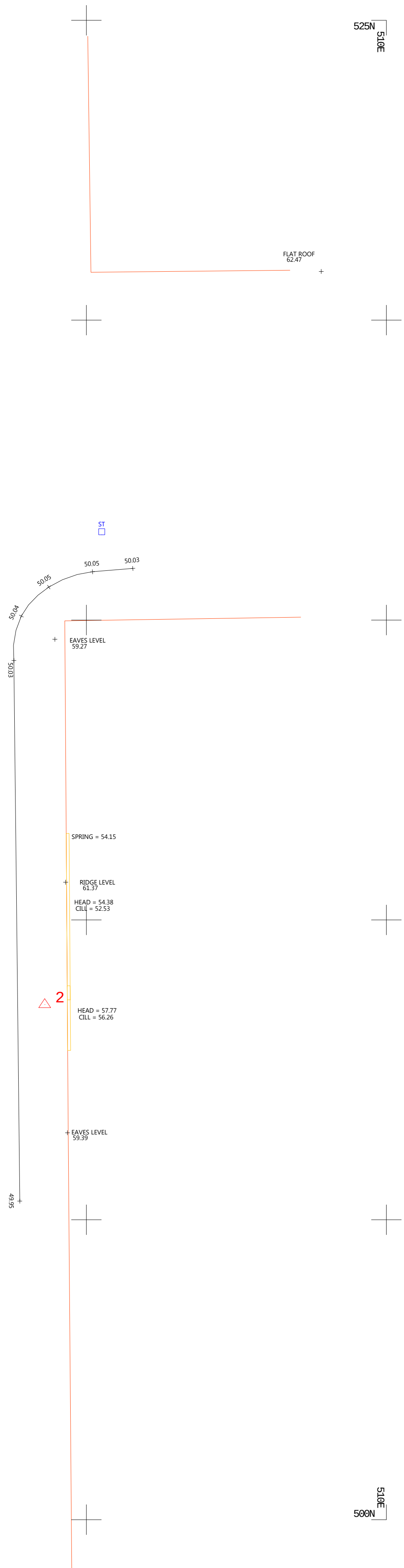
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REV	DESCRIPTION	DATE
CLIENT	Zidane Projects	
PROJECT	Spear Street Fourty Seven	
ADDRESS	47 Spear Street, Manchester, M1 1DF	
DRAWING TITLE	Proposed Roof Plan	
SCALE @ A3	1 : 100	DATE 12/12/22
DRAWING NO.	-LP2110_3_206	REV
material studio architects		
Tel: 0161 531 6203 / Web: www.materialstudio.co.uk / Address: M1 2WQ		

APPENDIX B – Topographical Survey & Utility Plans

Station	Easting	Northing	Level
1	499.974	515.199	50.000
2	504.306	508.587	50.064



SPEAR STREET



Abbreviations/Symbols (Measured Building Surveys):

- C: Window Cill Height
- H: Window Head Height
- BH: Beam Height
- DH: Door Height
- CCL: Column
- SVP: Soil Vent Pipe
- FL: Floor Level
- TH: Threshold Level
- FC: Floor to Ceiling Height
- VC: Vaulted Ceiling

Line types

- Hedge Lines
- Drainage Runs
- Overhead Electricity Cables
- Overhead Telephone Cables

Symbols

- Tree/Bush
- Control Station
- Borehole
- Trial Hole
- Glass House
- Ostium

Abbreviations (Topographic Survey):

- AH: Arch Height
- AV: Air Valve
- BB: Bellha Beacon
- BOX: Electricity Box, Cables Box, Etc.
- BOL: Bollard
- BS: British Telecom Inspection Chamber
- BS/JP: Bus Stop / Lamp Post
- CAIV: CATV Inspection Chamber
- CCIV: Closed Circuit Television
- CL: Cellar Light
- C.PIL: Catch Pit
- ER: Earth Road
- EC: Electricity Inspection Chamber
- EP: Electricity Pole
- FH: Fire Hydrant
- FP: Flag Pole
- GV: Gas Valve
- G: Gully
- IC: Inspection Chamber
- KO: Kerb Outlet
- LP: Lamp Post
- LB: Letter Box
- LC: Lighting Column
- MR: Marker
- MH: Manhole
- MP: Mooring Point
- MS: Mile Stone
- NYNEX: Nynex Inspection Chamber
- O/H: Over Hang
- P: Post
- PO/IC: Post Office Inspection Chamber
- R/S: Road Sign
- RE: Rodding Eye
- RTW: Retaining Wall
- S/P: Sign Post
- SNP: Street Name Plate
- ST: Stop Tap
- SV: Stop Valve
- T: Telecom Inspection Chamber
- TCB: Telephone Call Box
- TH: Threshold Level
- TL: Traffic Light
- TP: Telegraph Pole
- TROUGH: Trough
- WO: Water Outlet
- WM: Water Meter

Fence Descriptions:

- B/W: Barbed Wire
- C/B: Close Boarded
- C/BARRIER: Crash Barrier
- C/L: Chain Link
- C/P: Chestnut Paving
- C/I: Corrugated Iron
- I/R: Iron Rolling
- MIS: Miscellaneous
- P/R: Post & Rail
- P/W: Post & Wire
- P/C: Post & Chain
- S/PAL: Steel Palisade
- W/M: Wire Mesh

Survey Notes:

Revision	Date	Description



Chris Partington Land Surveyors

44a Green Lane
Sale
Cheshire
M33 9PP
t: 0161 976 1194
www.cpls.co.uk e:survey@cpls.co.uk



Client
David Williams

Project
Spear Street, Manchester
Site Survey

Scale 1:50	Surveyed By C G P	Date 17.10.17
Drawing No. 171017CP-01	Checked By CPLS	Date 17.10.17
	Drawn By J C	Date 17.10.17

Drainage & Water Search (Commercial)



Search Details

Prepared for: CG Professional

Matter: PEA2/1

Client address: St George's House, St George's Street, Chorley, PR7 2AA

Property:

47 & 47A, Spear Street, Manchester, M4 1LE

Water Company:

United Utilities Water Plc

Grasmere House, Lingley Mere Business Park, Warrington, WA5 3LP

Date Returned:
08/07/2020

Property type:
Commercial

This search was compiled by the Water Company above and provided by InfoTrack Ltd – t: 0207 186 8090, e: helpdesk@infotrack.co.uk. This search is subject to terms and conditions issued by InfoTrack which can be viewed at www.infotrack.co.uk or supplied on request. This search is also subject to terms and conditions issued by the Water Company, available on request. InfoTrack are registered with the Property Codes Compliance Board (PCCB) as subscribers to the Search Code. The PCCB independently monitors how registered firms maintain compliance with the Code. Visit www.propertycodes.org.uk for more information.



InfoTrack UK Limited, Level 11, 91 Waterloo Road, London, SE1 8RT
T: 0207 186 8090 E: helpdesk@infotrack.co.uk

Commercial drainage and water enquiry

Responses to a drainage and water enquiry for commercial premises or development sites.

Client:

Client ref: InfoTrack-8744473

InfoTrack Limited

91
Waterloo Road,
London,
SE1 8RT

Order number: UUPS-ORD-172571

Received date: 07/07/2020

Response date: 08/07/2020

FAO:

The following records were searched in compiling this report:

The map of public sewers
The map of waterworks
Water and sewerage billing records
Adoption of public sewers records
Building over public sewer records
Adoption of public water mains records
Water supply clarification

Property address: 47 & 47A Spear Street, Manchester, M4 1LE

Please Note - We must make you aware that due to the introduction of the open market with effect from 1st April 2017 for commercial customers, Property Searches will no longer be able to resolve issues regarding some discrepancies within the report. Due to the change in the structure of the market the retailer is now responsible for taking ownership of certain issues, particularly relating to billing/tariff charges as well as, but not limited to change of usage of a property.

Enquiries and Responses

The records were searched by Demi Ward for United Utilities who does not have, nor is likely to have, any personal or business relationship with any person involved in the sale of the property.

This search report was prepared by Demi Ward for United Utilities who does not have, nor is likely to have, any personal or business relationship with any person involved in the sale of the property.

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

What is included:

1. Summary of findings and key
2. Detailed findings of the CON29DW
3. Guidance for interpretation
4. Terms and conditions
5. Complaints policy

If you are planning works anywhere in the North West, please read our access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

To help understand the implications of the drainage and water enquiries report a summary guide to the content of the full report is provided below.

✓ This response represents the typical situation for a property.



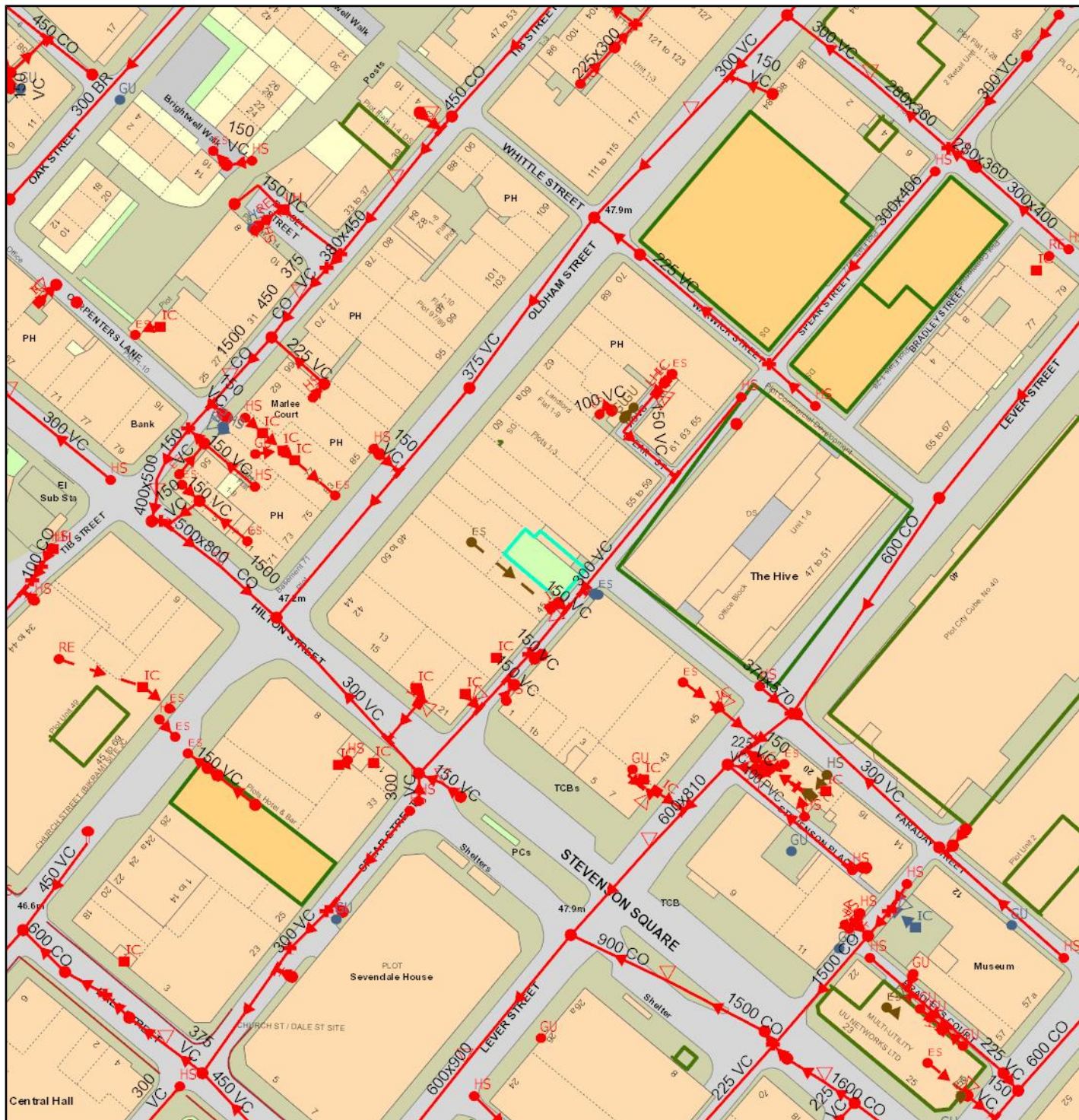
The attention of the purchaser is drawn to this response. The purchaser may wish to make further investigations into this situation.

✗ This response represents an uncommon situation for a property and the purchaser should carefully consider its implications.

Question	Report Schedule	Answer	
1	Where relevant, please include a copy of an extract from the public sewer map.	Yes & in vicinity	✓
2	Where relevant, please include a copy of an extract from the map of waterworks.	Yes & in vicinity	✓
3	Does foul water from the property drain to a public sewer?	Plot of land	⚠
4	Does surface water from the property drain to a public sewer?	Plot of land	⚠
5	Is a surface water drainage charge payable?	No	✗
6	Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?	None	✓
6.1	Does the public sewer map indicate any pumping station or any other ancillary apparatus within the boundaries of the property?	None	✓
7	Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?	None	⚠
7.1	Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?	None	✓
8.1	Are any foul sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	No	✓
8.2	Are any surface water pipes or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No	✓
9	Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?	None	✓
10	Is the building which is or forms part of the property at risk of internal flooding due to overloaded public sewers?	No	✓
11	Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.	Yes	✓
12	Is the property connected to mains water supply?	Plot of Land	⚠
13	Are there any water mains, resource mains or discharge pipes within the boundaries of the property	No	✓

Question	Report Schedule	Answer	
14	Is any water main or service pipe serving or which is proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	No	✓
15	Is the building at risk of receiving low water pressure or flow?	No	✓
16	What is the clarification of the water supply for the property?	Very Soft	✓
18	Please include details of the location of any water meter serving the property.	No meter	✓
19.1	Who is responsible for providing the sewerage services for the property?	United Utilities	✓
19.2	Who is responsible for providing the water services for the property?	United Utilities	✓
20	Who bills the property for sewerage services?	Retailer sewer	✓
21	Who bills the property for water services?	Retailer water	✓
22	Has a customer been granted a trade effluent consent at this property?	No	✓
23	Is there an easement affecting the property?	No	✓

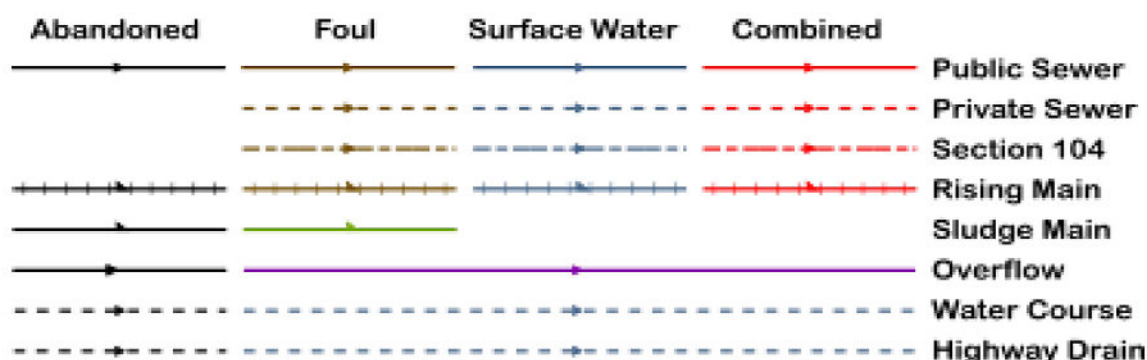
47 & 47A Spear Street, Manchester, M4 1LE



The position of underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private pipes, sewers or drains may not be recorded. United Utilities Water PLC will not accept any liability for any damage caused by the actual positions being different from those shown.

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Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul
blue – surface water **purple** - overflow

Manhole	Side Entry Manhole
Head of System	Outfall
Extent of Survey	Screen Chamber
Rodding Eye	Inspection Chamber
Inlet	Bifurcation Chamber
Discharge Point	Lamp Hole
Vortex	T Junction / Saddle
Penstock	Catchpit
Washout Chamber	Valve Chamber
Valve	Vent Column
Air Valve	Vortex Chamber
Non Return Valve	Penstock Chamber
Soakaway	Network Storage Tank
Gully	Sewer Overflow
Cascade	Ww Treatment Works
Flow Meter	Ww Pumping Station
Hatch Box	Septic Tank
Oil Interceptor	Control Kiosk
Summit	
Drop Shaft	Change of Characteristic
Orifice Plate	

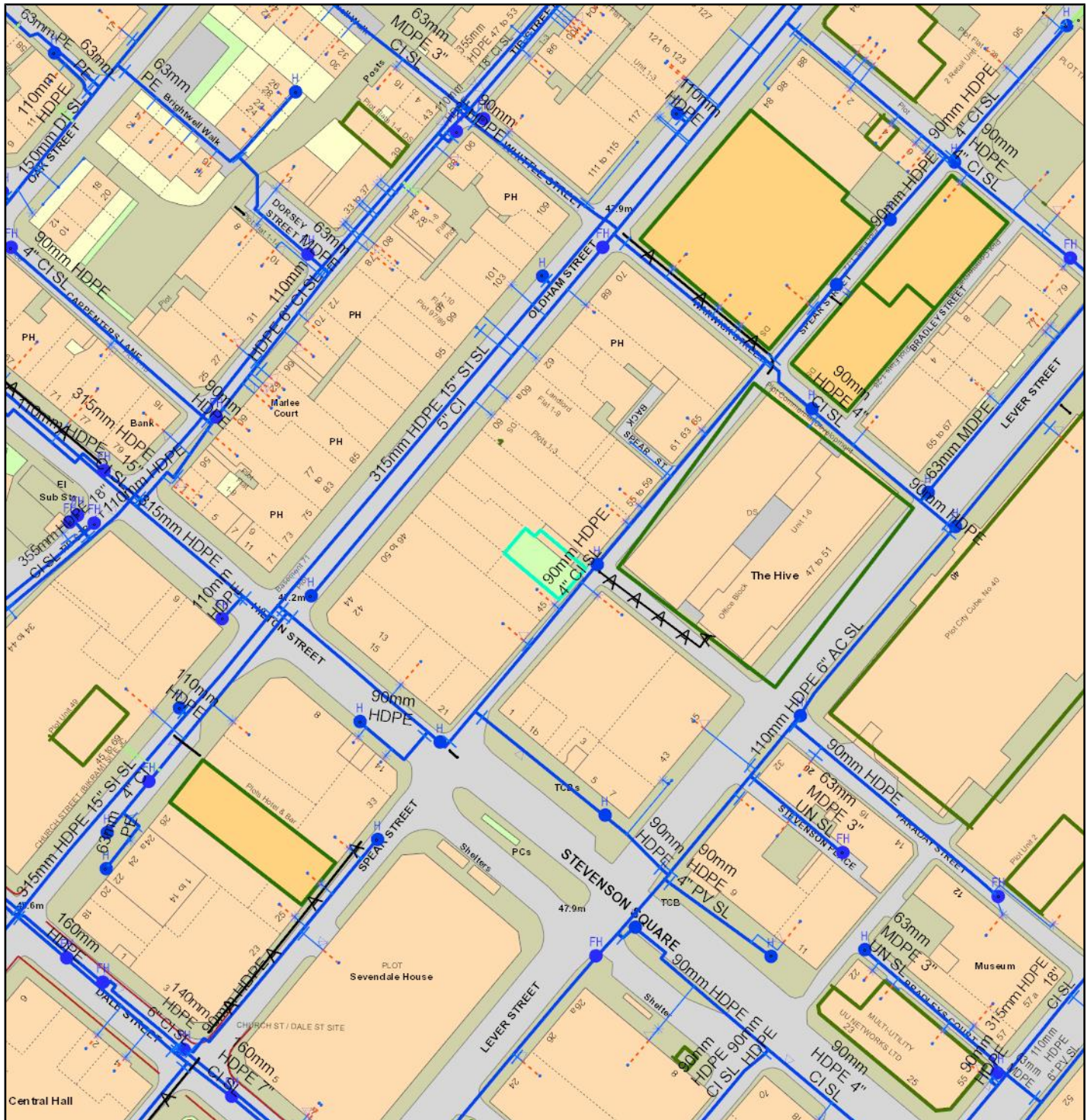
Clean Water Symbolology

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Concessionary Service
			Raw Water
			LDTM Raw Water
			LDTM Treated Water
			Air Valve
			AC Valve, open
			AC Valve, closed
			CC Valve, open
			CC Valve, closed
			Non Return Valve
			Pressure Management Valve
			OMS Valve
			Stop Tap
			Flow Meter
			Domestic Meter
			Commercial Meter
			Pump
			Hydrant
			Fire Hydrant
			Anode
			Chlorination Point
			De-chlorination Point
			Strainer Point
			Access Point
			Hatch Box
			IP Point
			Sampling Station
			Logger Box
			Bore Hole
			Inlet Point
			Bulk Supply Point
			End Cap
			Site Termination
			Change of Characteristic
			Condition Report
			<u>Property Types</u>
			Water Tower
			Valve House
			Booster Pumping Station
			Intake Pumping Station
			Water Treatment Works
			Supply Reservoir
			Service Reservoir
			Impounding Reservoir
			Pipe Bridge

Symbolology for proposed assets is the same as above, but shown in green
Symbolology for abandoned assets is the same as above, but shown in black

WATER RECORD

47 & 47A Spear Street, Manchester, M4 1LE



The position of underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private pipes, sewers or drains may not be recorded. United Utilities Water PLC will not accept any liability for any damage caused by the actual positions being different from those shown.

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Question 1 **Where relevant, please include a copy of an extract from the public sewer map.**

Answer **A copy of an extract of the public sewer map within the vicinity of the property is included.**

Guidance

1. The Water Industry Act 1991 defines Public Sewers as those which (United Utilities) have responsibility for. Other assets and rivers, water courses, ponds, culverts or highway drains may be shown for information purposes only.
2. 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.
3. The Sewerage Undertaker has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the Sewerage Undertaker or its contractors needing to enter the property to carry out work.

Question 2 **Where relevant, please include a copy of an extract from the map of waterworks.**

Answer **A copy of an extract of the map of waterworks is included, showing water mains, resource mains or discharge pipes in the vicinity of the property.**

Guidance

The "water mains" in this context are those which are vested in and maintainable by the Water Undertaker under statute.

Assets other than public water mains may be shown on the plan, for information only. Water Undertakers are not responsible for private supply pipes connecting the property to the public water main and do not hold details of these. These may pass through land outside of the control of the seller, or may be shared with adjacent properties. The buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.

If an extract of the public water main record is enclosed, it 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.

The presence of a public water main running within the boundary of the property may restrict further development within it. Water Undertakers have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the Water Undertaker or its contractors needing to enter the property to carry out work.

Question 3 **Does foul water from the property drain to a public sewer?**

Answer **This enquiry appears to relate to a plot of land or a recently built property. It is recommended that drainage proposals are checked with the developer.**

Guidance

Sewerage Undertakers are not responsible for any private drains or sewers that connect the property to the public sewerage system, and do not hold details of these.

The property owner will normally have sole responsibility for private drains serving the property and may have shared responsibility, with other users, if the property is served by a private sewer which also serves other properties. These may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.

If foul water does not drain to the public sewerage system the property may have private facilities in the form of a cesspit, septic tank or other type of treatment plant.

If an extract from the public sewer map is enclosed, this will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

Question 4 Does surface water from the property drain to a public sewer?

Answer This enquiry appears to relate to a plot of land or a recently built property. It is recommended that drainage proposals are checked with the developer. If the property was constructed after the 6th April 2015 the surface water drainage may be served by a sustainable drainage system.

Guidance Sewerage Undertakers are not responsible for any private drains or sewers that connect the property to the public sewerage system and do not hold details of these.

The property owner will normally have sole responsibility for private drains serving the property and may have shared responsibility with other users, if the property is served by a private sewer which also serves other properties. These may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.

In some cases, Sewerage Undertakers' records do not distinguish between foul and surface water connections to the public sewerage system. If on inspection the buyer finds that the property is not connected for surface water drainage, the property may be eligible for a rebate of the surface water drainage charge. Details can be obtained from the Sewerage Undertaker.

If surface water does not drain to the public sewerage system the property may have private facilities in the form of a soakaway or private connection to a watercourse. If an extract from the public sewer map is enclosed, this will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

Question 5 Is a surface water drainage charge payable?

Answer Records indicate that a surface water drainage charge is not applicable for the property.

Guidance Since 1st April 2017 commercial customers can choose their retailer for clean, waste or both services. For more information on any applicable surface water charges you will need to contact the current owner of the property to find out who the current retailer is. Details of the retailer for a property can be found on the current occupiers bill. For a list of all potential retailers of water and waste water services for the property please visit www.open-water.org.uk.

Please note if the property was constructed after 6th April 2015 the Surface Water drainage may be served by a Sustainable Drainage System. Further information may be available from the Developer.

Question 6 Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?

Answer The public sewer map included indicates that there are no public sewers, disposal mains or lateral drains within the boundary of the property. However from the 1st October 2011 there may be additional public sewers, disposal mains or lateral drains which are not recorded on the public sewer map which may further prevent or restrict development of the property. If you are considering any future development at this property which may require build over consent, please complete the enquiry form by accessing the following link <http://www.unitedutilities.com/planning-wastewater-guidance.aspx>.

Guidance The approximate boundary of the property has been determined by reference to the Ordnance Survey record. A property of this type will normally be served by a shared sewer passing through the boundaries of several properties. It is therefore likely that a public sewer or lateral drain is present within the property boundary.

Please note that from 1st October 2011 the majority of private sewers and lateral drains connected to the public network as of 1st July 2011 transferred into public ownership and therefore it is possible there may be additional public assets which may not be shown on the public sewer plan.

The presence of public assets running within the boundary of the property may restrict further development. If there are any plans to develop the property further enquiries should be made to United Utilities Build Over department.

United Utilities Water has a legal right of access to carry out work on its assets, subject to notice. This may result in employees of the Company or its contractors needing to enter the property to carry out work.

Question 6.1 Does the public sewer map indicate any pumping station or any other ancillary apparatus within the boundaries of the property?

Answer The public sewer map included indicates that there is no public pumping station or other ancillary apparatus within the boundaries of the property. However, from the 1st October 2016 private pumping stations which serve more than one property will be transferred into public ownership but may not be recorded on the public sewer map until that time

Guidance From 1 October 2016 United Utilities will be responsible for private pumping stations (though we may take ownership of some stations before this date) that either:

- * serve a single property, and are outside the property boundary or
- * serves two or more properties

Only private pumping stations installed before 1st July 2011 will be transferred into our ownership. United Utilities will be responsible for all associated costs, maintenance, repairs and any necessary upgrade work.

Where the property is part of a very recent or ongoing development and the sewers/pumping station are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains, sewers and pumping stations for which they will hold maintenance and renewal liabilities.

Question 7 Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?

Answer The public sewer map included indicates that there are no public sewers within 30.48 metres (100 feet) of a building within the boundary of the property. However from the 1st October 2011 private sewers will be transferred into public ownership and may not be recorded on the public sewer map and it is our professional opinion that there will be a public sewer within 30.48 (100 feet) of a building within the boundary of the property.

Guidance From 1st October 2011 there may be additional lateral drains and/or public sewers which are not recorded on the public sewer map but are also within 30.48 metres (100 feet) of a building within the property.

The presence of a public sewer within 30.48 metres (100 feet) of the building(s) within the property can result in the Local Authority requiring a property to be connected to the public sewer.

The measure is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public sewer.

Sewers 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 that these details are checked with the developer, if any.

Assets other than public sewers may be shown on the copy extract for information only.

Question 7.1 Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?

Answer The public sewer map included indicates that there is no public pumping station or other ancillary apparatus within 50 metres of any buildings within the property. However, from 1st October 2016 private pumping stations which serve more than one property will be transferred into public ownership but may not be recorded on the public sewer map until that time.

Guidance	From 1 October 2016 United Utilities will be responsible for private pumping stations (though we may take ownership of some stations before this date) that either: * serve a single property, and are outside the property boundary or * serves two or more properties. Only private pumping stations installed before 1st July 2011 will be transferred into our ownership. United Utilities will be responsible for all associated costs, maintenance, repairs and any necessary upgrade work. If you think there might be a private pumping station on your land or near your business property, please let us know by completing this questionnaire with as much information as possible, please visit our website http://www.unitedutilities.com/ppstransfer.aspx. Where the property is part of a very recent or ongoing development and the sewers/pumping station are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains, sewers and pumping stations for which they will hold maintenance and renewal liabilities.
Question 8.1	Are any foul sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?
Answer	Records confirm that foul sewers and/or lateral drains serving the development, of which the property forms part are not the subject of an existing adoption agreement or an application for such an agreement.
Guidance	This enquiry is of interest to purchasers of new property who will want to know whether or not the property will be linked to a public sewer. Where the property is part of a very recent or ongoing development and the sewers are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains and sewers for which they will hold maintenance and renewal liabilities. Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991.
Question 8.2	Are any surface water pipes or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?
Answer	Records confirm that the surface water sewer(s) and/or surface water lateral drain(s) are not the subject of an adoption agreement and it is recommended that responsibility for maintenance of these is checked with the developer as this may be due to a Sustainable Drainage Scheme (SUDS)
Guidance	This enquiry is of interest to purchasers of new property who will want to know whether or not the property will be linked to a public sewer. Where the property is part of a very recent or ongoing development and the sewers are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains and sewers for which they will hold maintenance and renewal liabilities. Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991.
Question 9	Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?
Answer	There are no records in relation to any approval or consultation about plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain. However, the sewerage

undertaker might not be aware of a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain.

Guidance

From the 1st October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership and the sewerage undertaker may not have granted approval or been consulted about any plans to erect a building or extension on the property over or in the vicinity of these assets.

Prior to 2003 United Utilities Water Limited had sewerage agency agreements with the local authorities therefore details of any agreements/consents or rejections may not have been forwarded on to our offices before this date.

Buildings or extensions erected over a sewer in contravention of building controls may have to be removed or altered.

Question 10

Is the building which is or forms part of the property at risk of internal flooding due to overloaded public sewers?

Answer

The building is not recorded as being at risk of internal flooding due to overloaded public sewers. From the 1st October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership it is therefore possible that a property may be at risk of internal flooding due to an overloaded public sewer which the sewerage undertaker is not aware of. For further information it is recommended that enquiries are made of the vendor.

Guidance

1. A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.

2. "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.

3. These are defined as properties that have suffered or are likely to suffer internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Sewerage Undertaker's reporting procedure.

4. Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included.

5. Properties may be at risk of flooding but not included where flooding incidents have not been reported to the Sewerage Undertaker.

6. Public sewers are defined as those for which the Sewerage Undertaker holds statutory responsibility under the Water Industry Act 1991.

7. It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Sewerage Undertaker.

8. This report excludes flooding from private sewers and drains and the Sewerage Undertaker makes no comment upon this matter. For reporting purposes buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.

Question 11

Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.

Answer

The nearest Sewage Treatment Works is 3.09 miles (4.97 km), South West of the property. The name of the Sewage treatment works is Salford WwTW. The owner is United Utilities

Guidance

The nearest sewage treatment works will not always be the sewage treatment works serving the catchment within which the property is situated i.e. the property may not necessarily drain to this works.

The Sewerage Undertaker's records were inspected to determine the nearest sewage treatment works.

It should be noted therefore that there may be a private sewage treatment works closer than the one detailed above that has not been identified. As a responsible utility operator, United Utilities Water Limited seeks to manage the impact of odour from operational sewage works on the surrounding area.

This is done in accordance with the "Code of Practice on Odour Nuisance from Sewage Treatment Works" issued via the Department of Environment, Food and Rural Affairs (DEFRA).

This Code recognises that odour from sewage treatment works can have a detrimental impact on the quality of the local environment for those living close to works.

However DEFRA also recognises that sewage treatment works provide important services to communities and are essential for maintaining standards in water quality and protecting aquatic based environments. For more information visit www.unitedutilities.com.

Question 12 **Is the property connected to mains water supply?**

Answer **This enquiry relates to a plot of land or a recently built property. It is recommended that the water supply proposals are checked with the developer.**

Guidance If the property is supplied by private water mains please note that details of private supplies are not kept by the Water Undertaker. The situation should be checked with the current owner of the property.

Question 13 **Are there any water mains, resource mains or discharge pipes within the boundaries of the property**

Answer **The map of waterworks does not indicate any water mains, resource mains or discharge pipes within the boundaries of the property.**

Guidance The boundary of the property has been determined by reference to the Ordnance Survey record.

The presence of a public water main within the boundary of the property may restrict further development within it. Water Undertakers have a statutory right of access to carry out work on their assets, subject to notice.

This may result in employees of the Water Undertaker or its contractors needing to enter the property to carry out work.

Question 14 **Is any water main or service pipe serving or which is proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?**

Answer **Records confirm that water mains or service pipes serving the property are not the subject of an existing adoption agreement or an application for such an agreement.**

Guidance This enquiry is of interest to purchasers of new premises who will want to know whether or not the property will be linked to the mains water supply.

Question 15 **Is the building at risk of receiving low water pressure or flow?**

Answer **Records confirm that the building is not recorded by the water undertaker as being at risk of receiving low water pressure or flow.**

Guidance The boundary of the property has been determined by reference to the Ordnance Survey record. "Low water pressure" means water pressure below the regulatory reference level which is the minimum pressure when demand on the system is not abnormal. Water undertakers report properties receiving pressure below the reference level, provided that allowable exclusions do not apply (i.e. events which can cause pressure to temporarily fall below the reference level). Reference level: The reference level of service is a flow of 9l/min at a pressure of 10m head on the customer's side of the main stop tap (mst). The reference level applies to a single property. The reference level of

service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap. Where a common service pipe serves more than one property, the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served. Surrogate for the reference level: Because of the difficulty in measuring pressure and flow at the mst, companies may measure against a surrogate reference level. Companies should use a surrogate of 15m head in the adjacent distribution main unless a different level can be shown to be suitable. In some circumstances companies may need to use a surrogate pressure greater than 15m to ensure that the reference level is supplied at the customer's side of the mst (for example in areas with small diameter or shared communication pipes).

There are a number of circumstances under which properties identified as receiving low pressure should be excluded from the reported figure. The aim of these exclusions is to exclude properties which receive a low pressure as a result of a one-off event and which, under normal circumstances (including normal peaks in demand), will not receive pressure or flow below the reference level. Companies must maintain verifiable, auditable records of all the exclusions that they apply in order to confirm the accuracy and validity of their information. Allowable exclusions includes Abnormal demand, Planned maintenance, One off incidents, Low pressure incidents of short duration and common supply.

Abnormal demand:

This exclusion is intended to cover abnormal peaks in demand and not the daily, weekly or monthly peaks in demand, which are normally expected. Water undertakers exclude figures from properties which are affected by low pressure only on those days with the highest peak demands. During the yearly report water undertakers may exclude, for each property, up to five days of low pressure caused by peak demand.

Planned maintenance:

Water undertakers will not report low pressures caused by planned maintenance. It is not intended that water undertakers identify the number of properties affected in each instance. However, water undertakers must maintain sufficiently accurate records to verify that low-pressure incidents that are excluded because of planned maintenance, are actually caused by maintenance.

One-off incidents:

This exclusion covers a number of causes of low pressure; mains bursts; failures of company equipment (such as pressure reducing valves or booster pumps); fire fighting and action by a third party. However, if problems of this type affect a property frequently, they cannot be classed as one-off events and further investigation will be required before they can be excluded.

Low pressure incidents of short duration:

Properties affected by low pressures that only occur for a short period, and for which there is evidence that incidents of a longer duration would not occur during the course of the year, may be excluded.

A company must maintain a minimum pressure in the communication pipe of seven metres static head (0.7 bar). If pressure falls below this on two occasions, each occasion lasting more than one hour, within a 28-day period, the company must automatically make a GSS payment to the customer. There are exceptions to the requirement to make a GSS payment if the pressure standard is not met. These are: a payment has already been made to the same customer in respect of the same financial year; it is impractical for the company to have identified the particular customer as being affected, and the customer has not made a claim within three months of the date of the latter occasion; industrial action by the company's employees makes it not feasible to maintain the pressure standard; the act or default of a person other than the company's representative make it not feasible to maintain the pressure standard; or the pressure falls below the minimum standard due to necessary works taking place or due to a drought.

It should be noted that low water pressure can occur from private water mains, private supply pipes (the pipework from the external stop cock to the property) or internal plumbing which are not the responsibility of the Water Undertaker. This report excludes low water pressure from private water mains, supply pipes and internal plumbing and the Water Undertaker makes no comment upon this matter. For reporting purposes buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.

Question 16

What is the clarification of the water supply for the property?

Answer

The water supplied to the property has an average water hardness of 31mg/l calcium carbonate, which is defined as very soft by United Utilities

Guidance

The hardness of water is due to the presence of calcium and magnesium minerals that are naturally present in the water. The usual signs of a hard water supply are scaling inside kettles, poor lathering of soaps and scum.

What is water hardness?

Hard water is formed when water passes through or over limestone or chalk areas and calcium and magnesium ions dissolve into the water. The hardness is made up of two parts: temporary (carbonate) and permanent (non-carbonate) hardness. When water is boiled, calcium carbonate scale can form, which can deposit on things like kettle elements. The scale will not stick to kettles that have a plastic polypropylene lining but will float on the surface. The permanent hardness that comprises calcium and magnesium sulphate does not go on to form scale when heated or boiled.

How is water hardness measured?

Hardness is usually expressed in terms of the equivalent quantity of calcium carbonate (CaCO_3) in milligrams per litre or parts per million. You may also see hardness expressed as degrees of hardness in Clark (English) degrees, French or German degrees. Interconversion between the different measurements can be made by using the appropriate conversion factors below. There are no standard levels as to what constitutes a hard or a soft water. Table 1 gives an indication of the equivalents of calcium and calcium carbonate and the relative degree of hardness.

Water quality standards

There are no regulatory standards for water hardness in drinking water.

Water hardness in the North West

The majority of raw water in the United Utilities region comes from upland surface water reservoirs. The water in the reservoirs has little chance of passing through rocks and to dissolve the minerals that make water hard. Therefore, the majority of water in this region is soft or very soft. We supply water from a number of boreholes in the south of the region that are reasonably hard, but these tend to be blended with softer sources to meet demand. No water supply in the North West is artificially softened.

Can hard water be softened?

Yes, water can be softened artificially by the installation of a water softener or the use of 'jug type' filters. Medical experts recommend that a non-softened supply is maintained for drinking purposes because softened water may contain high levels of sodium. Softeners should be fitted after the drinking water tap and comply with the requirements of the Water Supply (Water Fittings) Regulations 1999. They should be maintained in accordance with manufacturers' instructions.

If you're interested in finding out more about the quality of your drinking water, please visit www.unitedutilities.com/waterquality and enter your postcode.

The Drinking Water Inspectorate is responsible for ensuring the quality of public water supplies. Visit their website at: www.dwi.defra.gov.uk.

Question 18

Please include details of the location of any water meter serving the property.

Answer

Records indicate that the property is not served by a water meter.

Guidance

Where the property is not served by a meter the current occupier can contact the retailer directly to advise on the current charging method, details of the retailer can also be found on the current occupiers bill.

Question 19.1

Who is responsible for providing the sewerage services for the property?

Answer **United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP**

Guidance Not applicable

Question 19.2 **Who is responsible for providing the water services for the property?**

Answer **United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP**

Guidance Not Applicable

Question 20 **Who bills the property for sewerage services?**

Answer **Since 1st April 2017 commercial customers can choose their retailer. If you wish to know who currently bills the property for sewerage services you will need to contact the owner of the property to find out who the retailer is.**

Guidance For a list of all potential retailers of wastewater services for the property please visit www.open-water.org.uk

Question 21 **Who bills the property for water services?**

Answer **Since 1st April 2017 commercial customers can choose their retailer. If you wish to know who currently bills the property for water services you will need to contact the owner of the property to find out who the retailer is.**

Guidance For a list of all potential retailers of water services for the property please visit www.open-water.org.uk

Question 22 **Has a customer been granted a trade effluent consent at this property?**

Answer **There is no record of a Trade Effluent consent at this property. Applications for Trade Effluent consents should be submitted via your retailer for info please visit <https://www.unitedutilities.com/services/wholesale-services/trade-effluent/>**

Guidance The owner/occupiers of Trade Premises do not have the right to discharge Trade Effluent to the public wastewater network. Any Trade Effluent Discharge Consent will be issued under Section 118 of the Water Industry Act 1991 and will be subject to conditions set by the Sewerage Undertaker.

Generally these conditions are to ensure:

- a) The Health and Safety of staff working within the wastewater network and at wastewater treatment plants.
- b) The apparatus of the wastewater network is not damaged.
- c) The flow of the contents of the wastewater network is not restricted.
- d) Equipment, plant, and processes at treatment works are not disrupted or damaged.
- e) Treatment of sewage sludge is not impeded and sludges are disposed of in an environmentally friendly manner.
- f) Final effluent discharge from wastewater treatment plants has no impact on the environment or prevents the receiving waters from complying with EU Directives.
- g) Potential damage to the environment via storm water overflows is minimised.

Disputes between an occupier of a Trade Premise and the Sewerage Undertaker can be referred to the Director General of Water Services (OFWAT).

Protecting Public Sewers - Discharges Section 111 of the Water Industry Act 1991, places prohibition on the discharge of the following into a public sewer, drain or a sewer that communicates with a public sewer.

i) Any matter likely to injure the sewer or drain, to interfere with the free flow of its contents or to affect prejudicially the treatment or disposal of its contents.

ii) Any chemical refuse or waste steam or any liquid of temperature higher than 43.3 degrees Celsius (110 degrees Fahrenheit).

iii) Any petroleum spirit or carbide of calcium. On summary conviction offences under this Section carry a fine not exceeding the statutory maximum or a term of imprisonment not exceeding two years, or both.

Please note any existing consent is dependant on the business being carried out at the property and will not transfer automatically upon change of ownership.

Question 23

Is there an easement affecting the property?

Answer

There is no record of a formal easement affecting this property.

Guidance

Not Applicable

Appendix 1- General interpretation

1. (1) In this Schedule-

"the 1991 Act" means the Water Industry Act 1991(a);

"the 2000 Regulations" means the Water Supply (Water Quality) Regulations 2000(b);

"the 2001 Regulations" means the Water Supply (Water Quality) Regulations 2001(c);

"adoption agreement" means an agreement made or to be made under Section 51A(1) or 104(1) of the 1991 Act (d);

"bond" means a surety granted by a developer who is a party to an adoption agreement;

"bond waiver" means an agreement with a developer for the provision of a form of financial security as a substitute for a bond;

"calendar year" means the twelve months ending with 31st December;

"discharge pipe" means a pipe from which discharges are made or are to be made under Section 165(1) of the 1991 Act;

"disposal main" means (subject to Section 219(2) of the 1991 Act) any outfall pipe or other pipe which-

- (a) is a pipe for the conveyance of effluent to or from any sewage disposal works, whether of a sewerage undertaker or of any other person; and
- (b) is not a public sewer;

"drain" means (subject to Section 219(2) of the 1991 Act) a drain used for the drainage of one building or any buildings or yards appurtenant to buildings within the same curtilage;

"effluent" means any liquid, including particles of matter and other substances in suspension in the liquid;

"financial year" means the twelve months ending with 31st March;

"lateral drain" means-

- (a) that part of a drain which runs from the curtilage of a building (or buildings or yards within the same curtilage) to the sewer with which the drain communicates or is to communicate; or
- (b) (if different and the context so requires) the part of a drain identified in a declaration of vesting made under Section 102 of the 1991 Act or in an agreement made under Section 104 of that Act (e);

"licensed water supplier" means a company which is the holder for the time being of a water supply licence under Section 17A(1) of the 1991 Act(f);

"maintenance period" means the period so specified in an adoption agreement as a period of time-

- (a) from the date of issue of a certificate by a Sewerage Undertaker to the effect that a developer has built (or substantially built) a private sewer or lateral drain to that undertaker's satisfaction; and
- (b) until the date that private sewer or lateral drain is vested in the Sewerage Undertaker;

"map of waterworks" means the map made available under Section 198(3) of the 1991 Act (g) in relation to the information specified in subsection (1A);

"private sewer" means a pipe or pipes which drain foul or surface water, or both, from premises, and are not vested in a Sewerage Undertaker;

"public sewer" means, subject to Section 106(1A) of the 1991 Act(h), a sewer for the time being vested in a Sewerage Undertaker in its capacity as such, whether vested in that undertaker-

- (a) by virtue of a scheme under Schedule 2 to the Water Act 1989(i);
- (b) by virtue of a scheme under Schedule 2 to the 1991 Act (j);

(c) under Section 179 of the 1991 Act (k); or

(d) otherwise;

"public sewer map" means the map made available under Section 199(5) of the 1991 Act (l);

"resource main" means (subject to Section 219(2) of the 1991 Act) any pipe, not being a trunk main, which is or is to be used for the purpose of-

- (a) conveying water from one source of supply to another, from a source of supply to a regulating reservoir or from a regulating reservoir to a source of supply; or
- (b) giving or taking a supply of water in bulk;

"sewerage services" includes the collection and disposal of foul and surface water and any other services which are required to be provided by a Sewerage Undertaker for the purpose of carrying out its functions;

"Sewerage Undertaker" means the company appointed to be the Sewerage Undertaker under Section 6(1) of the 1991 Act for the area in which the property is or will be situated;

"surface water" includes water from roofs and other impermeable surfaces within the curtilage of the property;

"water main" means (subject to Section 219(2) of the 1991 Act) any pipe, not being a pipe for the time being vested in a person other than the water Undertaker, which is used or to be used by a Water Undertaker or licensed water supplier for the purpose of making a general supply of water available to customers or potential customers of the undertaker or supplier, as distinct from for the purpose of providing a supply to particular customers;

"water meter" means any apparatus for measuring or showing the volume of water supplied to, or of effluent discharged from any premises;

"water supplier" means the company supplying water in the water supply zone, whether a water undertaker or licensed water supplier;

"water supply zone" means the names and areas designated by a Water Undertaker within its area of supply that are to be its water supply zones for that year; and

"Water Undertaker" means the company appointed to be the Water Undertaker under Section 6(1) of the 1991 Act for the area in which the property is or will be situated.

(2) In this Schedule, references to a pipe, including references to a main, a drain or a sewer, shall include references to a tunnel or conduit which serves or is to serve as the pipe in question and to any accessories for the pipe.

- (a) 1991 c. 56.
- (b) S.I. 2000/3184. These Regulations apply in relation to England.
- (c) S.I. 2001/3911. These Regulations apply in relation to Wales.
- (d) Section 51A was inserted by Section 92(2) of the Water Act 2003 (c. 37). Section 104(1) was amended by Section 96(4) of that Act.
- (e) Various amendments have been made to Sections 102 and 104 by Section 96 of the Water Act 2003.
- (f) Inserted by Section 56 of and Schedule 4 to the Water Act 2003.
- (g) Subsection (1A) was inserted by Section 92(5) of the Water Act 2003.
- (h) Section 106(1A) was inserted by Section 99 of the Water Act 2003.
- (i) 1989 c. 15.
- (j) To which there are various amendments made by Section 101(1) of and Schedule 8 to the Water Act 2003.
- (k) To which there are various amendments made by Section 101(1) of and Schedule 8 to the Water Act 2003.
- (l) Section 199 was amended by Section 97(1) and (8) of the Water Act 2003.

Appendix 2 - DRAINAGE AND WATER ENQUIRY (COMMERCIAL) AGREEMENT

The Customer, the Client and the Purchaser are asked to note this Agreement which govern the basis on which this drainage and water report is supplied

Definitions

'Company' means United Utilities Water Limited who produce the Report; its registered office being at Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington WA5 3LP, company number 2366678.

'Order' means any request completed by the Customer requesting the Report.

'Report' means the drainage and water report prepared by the Company in respect of the Property.

'Property' means the address or location supplied by the Customer in the Order.

'Customer' means the person, company, firm or other legal body placing the Order, either on their own behalf as Client, or, as an agent for a Client.

'Client' means the person, company or body who is the intended recipient of the Report with an actual or potential interest in the Property.

'Purchaser' means the actual or potential purchaser of the Property including their mortgage lender.

Agreement

1.1 The Company agrees to supply the Report to the Customer and the Client subject to this Agreement. The scope and limitations of the Report are described in clause 2 of this Agreement.

Where the Customer is acting as an agent for the Client then the Customer shall be responsible for bringing this Agreement to the attention of the Client and the Purchaser.

1.2 The Customer, the Client and the Purchaser agree that the placing of an Order for a Report and the subsequent provision of a copy of the Report to the Client and/ or the Purchaser indicates their acceptance of this Agreement.

The Report

Whilst the Company will use reasonable care and skill in producing the Report, it is provided to the Customer, the Client and the Purchaser on the basis that they acknowledge and agree to the following:

2.1 The information contained in the Report can change on a regular basis so the Company cannot be responsible to the Customer, the Client and the Purchaser for any change in the information contained in the Report after the date on which the Report was produced and sent to the Client.

2.2 The Report does not give details about the actual state or condition of the Property nor should it be used or taken to indicate or exclude actual suitability or unsuitability of the Property for any particular purpose, or relied upon for determining saleability or value, or used as a substitute for any physical investigation or inspection. Further advice and information from appropriate experts and professionals should always be obtained.

2.3 The information contained in the Report is based upon the accuracy, completeness and legibility of the address and/or plans supplied by the Customer or Client or Purchaser.

2.4 The Report provides information as to the location and connection status of existing services and other information in relation to drainage and water enquiries and should not be relied on for any other purpose. The Report may contain opinions or general advice to the Customer, the Client and the Purchaser. The Company cannot ensure that any such opinion or general advice is accurate, complete or valid and therefore accepts no liability in relation thereto.

2.5 The position and depth of apparatus shown on any maps attached to the Report are approximate and are furnished as a general guide only, and no warranty as to its correctness is given or implied. The exact positions and depths should be obtained by excavation trial holes and the maps must not be relied on in the event of excavation or other works made in the vicinity of the Company's apparatus.

Liability

3.1 The Company shall not be liable to the Client or the Purchaser for any failure defect or non-performance of its obligations arising from any failure to provide or delay in providing the Report to the extent that such failure or delay is due to an event or circumstance beyond the reasonable

control of the Company including but not limited to any delay, failure of or defect in any machine, processing system or transmission link or any failure or default of a supplier or sub-contractor of the Company or any provider of any third party Information except to the extent that such failure or delay is caused by the negligence of the Company.

3.2 Where a Report is requested for an address falling within a geographical area where two different companies separately provide Water and Sewerage Services, then it shall be deemed that liability for the information given by either company will remain with that company in respect of the accuracy of the information supplied.

A company supplying information which has been provided to it by another company for the purposes outlined in this agreement will therefore not be liable in any way for the accuracy of that information and will supply that information as an agent for the company from which the information was obtained.

3.3 The Report is produced for use in relation to individual commercial property transactions where the property is used solely for carrying on a trade or business, the property is intended to be developed for commercial gain or the property is not a single residential, domestic property. The Company's entire liability (except to the extent provided by clause 3.5) in respect of all causes of action arising by reason of or in connection with the Report (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) shall be limited to £2,000,000

In any event, the Company shall not have any liability in contract, negligence or any other tort or for breach of statutory duty or otherwise in respect of any loss of profit, loss of revenue, loss of opportunity or anticipated savings, or any indirect or consequential loss or damage that may be suffered by the Customer, the Client or the Purchaser howsoever arising. The plans attached to the report are provided pursuant to the Company's statutory duty to make such plans available for inspection (notwithstanding the provisions of this clause) and attention is drawn to the notice on the plan(s) attached to the report which applies to the plan and its contents.

3.4 Where the Customer sells this Report to a Client or Purchaser under its own name or as a reseller of the Company (other than in the case of a bona fide legal adviser recharging the cost of the Report as a disbursement) the Company shall not in any circumstances (whether for breach of contract, negligence or any other tort, under statute or statutory duty, restitution or otherwise at all) be liable to the Customer for any loss (whether direct, indirect or consequential loss (all three of which terms include without limitation, pure economic loss, loss of profit, loss of business, depletion of goodwill and like loss)) or damage whatsoever caused in respect of the Report or any use of the Report or reliance placed upon it and the Customer shall indemnify and keep indemnified the Company in respect of any claim by the Client or the Purchaser that the Company may incur or suffer.

3.5 Nothing in this Agreement shall exclude the Company's liability for death or personal injury arising from its negligence or for fraud.

Copyright and Confidentiality

4.1 The Customer, the Client and the Purchaser acknowledge that the Report is confidential and is intended for the personal use of the Client and the Purchaser. The copyright and any other intellectual property rights in the Report shall remain the property of the

Company. No intellectual or other property rights are transferred or licensed to the Customer, the Client or the Purchaser except to the extent expressly provided herein.

4.2 The Customer or the Client or the Purchaser is entitled to make copies of the Report but may only copy Ordnance Survey mapping or data contained in or attached to the Report if they have an appropriate licence from the originating source of that mapping or data.

4.3 The Customer, The Client and the Purchaser agree (in respect of both the original and any copies made) to respect and not to alter any part of the Report including but not limited to the trademark, copyright notice or other property marking which appears on the Report.

4.4 The maps contained in the Report are protected by Crown Copyright and must not be used for any purpose outside the context of the Report.

4.5 The enquiries in the Report are protected by copyright by the Law Society of 113 Chancery Lane, London WC2A 1PL and must not be used for any purpose outside the context of the Report.

4.6 The Customer, the Client and the Purchaser agree to indemnify the Company against any losses, costs, claims and damage suffered by the Company as a result of any breach by either of them of the provisions of clauses 4.1 to 4.4 inclusive.

Payment

5.1 Unless otherwise stated all prices are inclusive of VAT. The Customer shall pay the price of the Report specified by the Company, without any set off, deduction or counterclaim.

5.2 Payment must be received in advance unless an account has been set up with the Company. In these cases, payment terms will be as agreed with the Company, but in any event any invoice must be paid within 30 days.

5.3 The Company reserves the right to increase fees on reasonable prior written notice at any time.

Data Protection

6.1 We will process any personal data you provide to us in accordance with applicable data protection laws and our Data Protection and Privacy Notice (<https://www.unitedutilities.com/privacy/>). In addition we will use your personal data to manage and administer the provision of the Report under this Agreement and to develop and improve the business and services we provide to our customers. We may also disclose it to other companies in the United Utilities group (being United Utilities Water Limited, its holding companies (and their subsidiary companies) and its subsidiary companies) and their sub-contractors in connection with those purposes, but it will not be processed for other purposes or disclosed to other third parties without your express permission or without lawful purpose under data protection law.

General

7.1 If any provision of this Agreement is or becomes invalid or unenforceable, it will be taken to be removed from the rest of this Agreement to the extent that it is invalid or unenforceable. No other provision of this Agreement shall be affected.

7.2 This Agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts.

7.3 Nothing in this Agreement and conditions shall in any way restrict the Customer's the Client's or the Purchaser's statutory or any other rights of access to the information contained in the Report.

7.4 This Agreement and conditions may be enforced by the Customer, the Client and the Purchaser.

7.5 Before you agree to this Agreement, please note it is your responsibility to ensure your client/customer is aware of them and that any objections are raised accordingly.

Property Searches complaints procedure

In the event of any queries relating to this Report please e-mail, write or phone our customer team quoting the United Utilities reference detailed on the Report, We will endeavor to resolve any telephone contact or complaint at the time of the call.

Whilst we always try to resolve all complaints straight away, if this is not possible and you are not happy with the course of action taken by us you can ask us to escalate the issues internally via the complaints process detailed below.

We will listen to your complaint and do our best to deal with it immediately.

If we fail to give you a written substantive response within 5 working days the Company will compensate the Customer or the Client (as applicable) the amount of the original fee paid to the Company for the Report, regardless of the outcome of your complaint.

If it is a complex issue requiring more time, we will still get back to you within 5 working days and notify you of progress and update you with the new timescales.

If we consider your complaint to be justified or we have made any errors that substantially change the outcome of the search we will:

- Refund your Report fee
- Provide you with a revised Report (if requested)
- Take the necessary action within our power to put things right which may (where appropriate) include, at our complete discretion, financial compensation or the relocation/removal/installation of our affected water or sewerage assets.
- Keep you informed of any action required

If your complaint has gone through our full internal complaints procedure and you are not satisfied with the response or you believe that we have failed to comply with our internal complaints procedure you may be able to refer your complaint for consideration under The Property Ombudsman Scheme (TPOs). You can obtain further information by visiting www.tpos.co.uk or email admin@tpos.co.uk

APPENDIX C – Drainage Strategy and Calculations

Foul Water Calculation

Basement

1 wc

1 sink

1 kitchen sink

1 sink utility

2 floor gully

Ground floor

1 wc

2 sinks

1 kitchen sink

First floor x 5

2 sinks

1 kitchen sink

Shower

Bath

2 wc

Kdu=0.5

Total Discharge Units Calculator

System System I

Appliance	Number of Appliances	Discharge Units per Appliance	Total Discharge Units
Wash basin, bidet	14	0.5	7.0
Shower without plug	5	0.6	3.0
Shower with plug	0	0.8	0.0
Single urinal with cistern	0	0.8	0.0
Urinal with flushing valve	5	0.5	2.5
Slab urinal	0	0.2	0.0
Bath	5	0.8	4.0
Kitchen sink	7	0.8	5.6
Dishwasher (household)	5	0.8	4.0
Washing machine up to 6 kg	5	0.8	4.0
Washing machine up to 12 kg	0	1.5	0.0
WC with 4.0 l cistern			
WC with 6.0 l cistern	0	2.0	0.0
WC with 7.5 l cistern	0	2.0	0.0
WC with 9.0 l cistern	12	2.5	30.0
Floor gully DN 50	5	0.8	4.0
Floor gully DN 70	2	1.5	3.0
Floor gully DN 100	0	2.0	0.0
TOTAL			67.1

OK

Cancel

0 <= Number of Appliances <= 10000

Help

Calculation Method

Discharge Unit

Total Discharge Units

67.1



Frequency Factor

0.5

Resulting Flow Rate (L/s)

4.096

47 SPEAR STREET:	Date: 06/07/2022		
	Designed by: MarkWalsh	Checked by:	Approved By:
Report Details: Type: Junctions Storm Phase: Phase (1)	Company Address:		

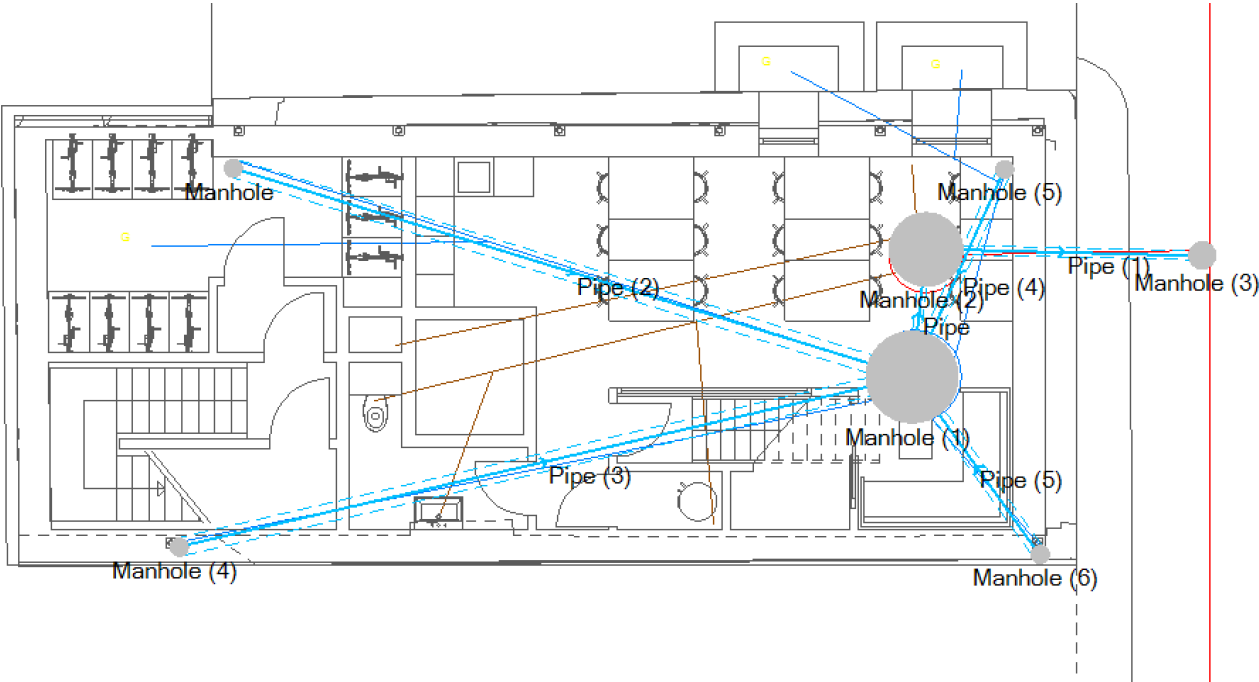


Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
Manhole (1)	Manhole	-46.417	-0.302	47.500	1.500	46.000	Circular	1.500
Manhole (2)	Manhole	-46.190	1.774	47.500	1.600	45.900	Circular	1.200
Manhole (3)	Manhole	-41.697	1.677	50.000	4.200	45.800	Circular	0.450
Manhole	Manhole	-57.459	3.095	47.500	0.500	47.000	Circular	0.300
Manhole (4)	Manhole	-58.337	-3.071	47.500	0.500	47.000	Circular	0.300
Manhole (5)	Manhole	-44.909	3.075	47.500	0.500	47.000	Circular	0.300
Manhole (6)	Manhole	-44.334	-3.190	47.500	0.500	47.000	Circular	0.300

Name	Lock
Manhole (1)	None
Manhole (2)	None
Manhole (3)	None
Manhole	None
Manhole (4)	None
Manhole (5)	None
Manhole (6)	None

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
Manhole (1)	Outlet	Pipe	Orifice
	Diameter (m)	0.033	
	Coefficient of Discharge	0.600	
	Invert Level (m)	46.000	
Manhole (2)	Outlet	Pipe (1)	Free Discharge
Manhole	Outlet	Pipe (2)	Free Discharge
Manhole (4)	Outlet	Pipe (3)	Free Discharge
Manhole (5)	Outlet	Pipe (4)	Free Discharge
Manhole (6)	Outlet	Pipe (5)	Free Discharge



47 SPEAR STREET:	Date: 06/07/2022		
	Designed by: MarkWalsh	Checked by:	Approved By:
	Company Address:		
Report Details: Type: Connections Storm Phase: Phase (1)			



Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
Pipe	2.089	Pipe	20.886		0.6	150	47.500	46.000
Pipe (1)	4.494	Pipe	44.940		0.6	150	47.500	45.900
Pipe (2)	11.553	Pipe	11.553		0.6	300	47.500	47.000
Pipe (3)	12.237	Pipe	12.237		0.6	300	47.500	47.000
Pipe (4)	3.699	Pipe	3.699		0.6	225	47.500	47.000
Pipe (5)	3.561	Pipe	3.561		0.6	225	47.500	47.000

Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock	Flow Restriction (L/s)
Pipe	47.500	45.900		None	2.8
Pipe (1)	50.000	45.800		None	
Pipe (2)	47.500	46.000		None	
Pipe (3)	47.500	46.000		None	
Pipe (4)	47.500	46.000		None	
Pipe (5)	47.500	46.000		None	

47 SPEAR STREET:	Date: 06/07/2022		
	Designed by: MarkWalsh	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase (1)	Company Address:		





1 IN 100 45%: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
Manhole (1)	1 IN 100 45%: 100 years: +45 %: 30 mins: Winter	47.500	46.000	46.988	0.988	6.0	1.746	0.000	2.2	4.667	Surcharged
Manhole (2)	1 IN 100 45%: 100 years: +45 %: 30 mins: Winter	47.500	45.900	45.931	0.031	2.2	0.035	0.000	2.2	4.621	OK
Manhole (3)	1 IN 100 45%: 100 years: +45 %: 30 mins: Winter	50.000	45.800	45.829	0.029	2.2	0.000	0.000	2.2	4.621	OK
Manhole	1 IN 100 45%: 100 years: +45 %: 15 mins: Winter	47.500	47.000	47.018	0.018	2.9	0.001	0.000	2.9	1.335	OK
Manhole (4)	1 IN 100 45%: 100 years: +45 %: 15 mins: Winter	47.500	47.000	47.015	0.015	1.9	0.001	0.000	1.8	0.867	OK
Manhole (5)	1 IN 100 45%: 100 years: +45 %: 15 mins: Winter	47.500	47.000	47.013	0.013	2.5	0.001	0.000	2.4	1.135	OK
Manhole (6)	1 IN 100 45%: 100 years: +45 %: 15 mins: Winter	47.500	47.000	47.011	0.011	1.6	0.001	0.000	1.6	0.757	OK

47 SPEAR STREET:	Date: 06/07/2022		
	Designed by: MarkWalsh	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase (1)	Company Address:		





1 IN 1: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
Manhole (1)	1 IN 1: 1 years: +0 %: 30 mins: Winter	47.50 0	46.00 0	46.112	0.112	1.3	0.198	0.000	0.7	1.171	OK
Manhole (2)	1 IN 1: 1 years: +0 %: 30 mins: Winter	47.50 0	45.90 0	45.917	0.017	0.7	0.020	0.000	0.7	1.163	OK
Manhole (3)	1 IN 1: 1 years: +0 %: 30 mins: Winter	50.00 0	45.80 0	45.817	0.017	0.7	0.000	0.000	0.7	1.163	OK
Manhole	1 IN 1: 1 years: +0 %: 15 mins: Winter	47.50 0	47.00 0	47.009	0.009	0.6	0.001	0.000	0.6	0.290	OK
Manhole (4)	1 IN 1: 1 years: +0 %: 15 mins: Winter	47.50 0	47.00 0	47.007	0.007	0.4	0.001	0.000	0.4	0.188	OK
Manhole (5)	1 IN 1: 1 years: +0 %: 15 mins: Winter	47.50 0	47.00 0	47.007	0.007	0.5	0.000	0.000	0.5	0.252	OK
Manhole (6)	1 IN 1: 1 years: +0 %: 15 mins: Winter	47.50 0	47.00 0	47.005	0.005	0.4	0.000	0.000	0.4	0.167	OK

47 SPEAR STREET:	Date: 06/07/2022		
	Designed by: MarkWalsh	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase (1)	Company Address:		





1 IN 30: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
Manhole (1)	1 IN 30: 30 years: +0 %: 30 mins: Winter	47.500	46.000	46.314	0.314	3.1	0.554	0.000	1.2	2.737	Surcharged
Manhole (2)	1 IN 30: 30 years: +0 %: 30 mins: Winter	47.500	45.900	45.923	0.023	1.2	0.026	0.000	1.2	2.707	OK
Manhole (3)	1 IN 30: 30 years: +0 %: 30 mins: Winter	50.000	45.800	45.822	0.022	1.2	0.000	0.000	1.2	2.707	OK
Manhole	1 IN 30: 30 years: +0 %: 15 mins: Winter	47.500	47.000	47.013	0.013	1.5	0.001	0.000	1.5	0.715	OK
Manhole (4)	1 IN 30: 30 years: +0 %: 15 mins: Winter	47.500	47.000	47.011	0.011	1.0	0.001	0.000	1.0	0.464	OK
Manhole (5)	1 IN 30: 30 years: +0 %: 15 mins: Winter	47.500	47.000	47.010	0.010	1.3	0.001	0.000	1.3	0.604	OK
Manhole (6)	1 IN 30: 30 years: +0 %: 15 mins: Winter	47.500	47.000	47.008	0.008	0.9	0.001	0.000	0.9	0.407	OK

APPENDIX D – CONSULTATION RESPONSE

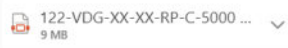


mark walsh

To: SewerAdoptions@uuplc.co.uk



Sun 22/10/2023 13:02



2 attachments (10 MB)  Save all to OneDrive - Mark Walsh  Download all

Good Afternoon,

Please find attached pre-development Enquiry.

The proposals consist of two floors of offices (basement and ground floor) and 5 floor with 1 self-contained flat on each floor.

FRA & Drainage Strategy Attached.

Thanks

Mark

Mark Walsh BEng (Hons) MSc CEng MStructE

Director

M: 07702566076

<https://www.visiondesigngroup.co.uk/>