

Heyrod Street

Remediation Strategy

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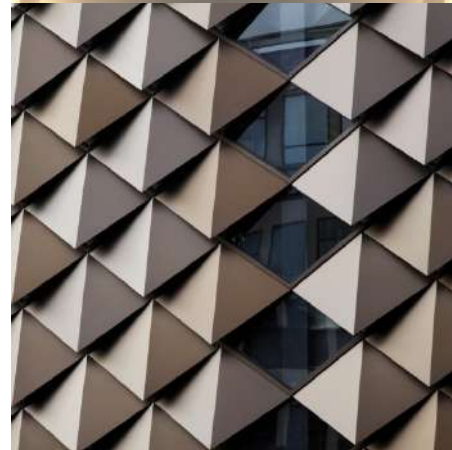
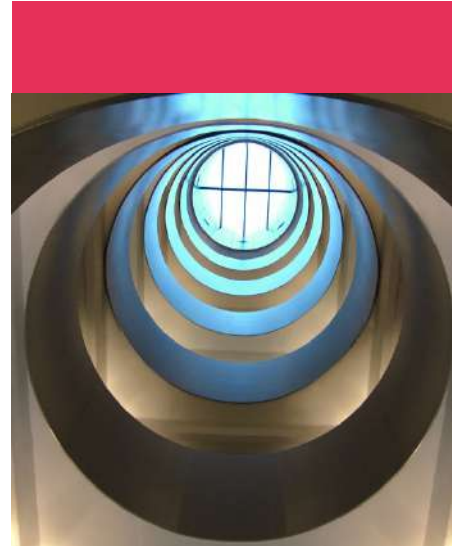
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1.0 Introduction

This Remediation Strategy has been prepared by Curtins for Packaged Living Limited (the Client) to provide guidance with respect to land remediation requirements for a site known as land at 2 Heyrod Street, Manchester. The site is centred on NGR SJ 852 980 and covers an area of 0.22Ha.

It is understood the development proposals include the construction of a 25-storey, part 21-storey, part 14-storey and part 7 storey residential apartment block. The block comprises 352No. build-to-rent apartments with associated amenities, ground floor commercial units, amenity spaces, car and bicycle parking and small areas of soft landscaping within the public realm.

It is understood that development proposals for the site comprise an industrial processing warehouse with a car park and hardstanding areas.

The report has been compiled following the completion of Phase 2 Intrusive Investigation works undertaken across the site between 30th April and 5th May 2021. Post-demolition works were undertaken between 15th-22nd September and October 12th (Ref. 1).

1.1 Particular Requirements of the Remediation Strategy

The Remediation Strategy is to account for the following;

- A description of the materials likely to be encountered by the developer and their sub-contractors;
- Proposals for excavations with respect to the materials likely to be encountered;
- Any action required to reduce the risk from contaminants on the development site (soil, liquid and gas);
- Advice on the verification and if required, validation of the gas protection measures;
- Recommendations for dealing with unexpected contamination and contaminative incidents on site; and
- Requirements for validation reporting.

Reference should also be made to Curtins Phase 2 Site Investigation Reports (Ref. 1).

1.2 Definitions

In this document the following definitions apply,

Contractor Refers to the appointed contractor responsible for undertaking the remediation works.

Site Manager Refers to a representative of the appointed contractor resident on site.

Engineer Refers to a suitably qualified representative from Curtins, who would not normally be resident on site.

2.0 Ground Conditions

Ground conditions have been summarised based on the findings from the following reports:

- Curtins (2021) Heyrod Street Phase 2 Ground Investigation, Report ref. 075424-CUR-00-XX-RP-GE-002-P02 (Ref. 1)

Borehole locations are shown on drawing ref. B075424-CUR-00-XX-DR-GE-003-V02 contained within *Appendix A*. The investigation generally revealed the following:

2.1 Made Ground

2.1.1 External Areas

Due to high variability in the Made Ground, specific details of the material encountered in the exploratory holes on site is noted below within this section.

The surface covering of the site comprised tarmacadam or concrete overlying a granular sub-base of gravelly sand. The gravel fraction comprises fine to coarse angular to subangular sandstone and concrete.

WS01 recorded brown gravelly fine to coarse sand beneath the sub-base, including fragments of brick, concrete, ceramic fragments, rare ash and coal, with occasional cobbles of brick, from 0.16m to 1.60m bgl.

WS02 comprised brown sandy gravelly clay and clayey gravelly fine to coarse sand. The gravel fraction comprised fine to coarse angular to subangular brick, concrete, slate, sandstone and coal, with rare to occasional cobbles of brick and concrete. These soils were underlain by very soft brown sandy gravelly clay and very loose black slightly clayey slightly gravelly fine and medium sand. A strong hydrocarbon odour was recorded in this material. Gravels comprise fine to coarse angular to subangular sandstone, brick, timber and coal.

WS03 recorded brown sandy cobbles of brick and concrete below the granular sub-base, underlain by dark brown and dark greyish brown gravelly fine to coarse sand. The gravel fraction comprises fine to coarse angular to subangular brick, concrete, ash, wood fragments and rare coal. A slight organic odour was noted in these soils.

BH101 was undertaken within a previously excavated archaeological trial pit. The made ground was recorded as a brownish grey very gravelly fine to coarse sand with low cobble content. The gravel comprised sandstone, brick tarmacadam and concrete, and the cobbles were of brick.

In TP01, below the granular sub-base a dark brown sand and gravel with whole and fragments bricks was recorded. This overlays a soft organic dark brownish black clay with sand and gravel of brick, concrete and sandstone between 1.60m and 2.20m bgl (46.98m to 46.38m AOD). An organic odour was noted in these soils.

2.1.2 Internal Areas

WS04, WS05, WS06, BH102, TP02 and TP03 were all undertaken through ground floor slabs of the existing structure, with slab thicknesses ranging between 0.15m and 0.20m. In BH101, TP02 and TP03 the overlying slab was removed by a sub-contractor prior to site works.

The material underlying the slab in WS04 comprised a thin layer of light brown gravelly fine to coarse sand. The gravel fraction comprises fine to coarse angular to subangular sandstone and concrete. This overlies brown slightly clayey gravelly fine to coarse sand, with fragments of brick, concrete and sandstone, with cobbles of brick, and loose brown clayey slightly gravelly fine and medium sand, with fragments of sandstone, brick and coal.

Beneath the slab in WS05, soils comprise brown gravelly fine to coarse sand with fragments of brick, concrete and ceramic piping, with frequent brick cobbles, and loose dark greyish dark brown slightly clayey slightly silty fine and medium sand.

A sub-base similar to that encountered in WS04 was recorded beneath the slab in WS06, underlain by brown slightly clayey gravelly fine to coarse sand with fragments, and cobbles, of brick and concrete, and loose brown clayey slightly gravelly fine and medium sand, with fragments of sandstone brick and coal.

BH102 was undertaken within a previously excavated archaeological trial pit. The made ground was recorded as a brownish grey very gravelly fine to coarse sand with moderate cobble content. The gravel comprised sandstone, brick tarmacadam and concrete, and the cobbles were of brick.

In TP02 and TP03 no sub-base was noted. Instead made ground was recorded in both locations as a dark brown sand and gravel of whole and fragmented brick, sandstone slabs, concrete, plastic and clay pipes. Intact wall structures were identified in both trial pits.

2.2 Superficial Deposits (Glacial Till)

The soils indicative of cohesive glacial till were encountered in all exploratory holes underlying the made ground. Soils comprise stiff to very brown, with rare grey mottling, slightly sandy to very sandy slightly gravelly to gravelly Clay. The gravel fraction comprises fine to coarse subangular to rounded sandstone, mudstone and rare coal.

In BH01 the cohesive deposits were recorded as a slightly sandy slightly gravelly slightly silty Clay.

In TP01 to TP03, a firm brown and grey mottled sandy Clay was encountered.

The base of the clay was proven in BH01, BH101 and BH102 to maximum depths between 10.60m and 15.50m bgl (36.71m to 32.10m AOD).

In BH101 a granular layer was encountered between 11.00m and 14.00m bgl (36.60m to 33.60m AOD), comprising a grey and brown angular to subangular fine to coarse Gravel of sandstone. The majority of this layer was not recovered due to the water flush used during drilling.

In BH01 a sand layer was noted, however this has been classed as weathered of the Chester Formation and is therefore detailed in *Section 5.4* below.

2.3 Weathered Bedrock

Weathered bedrock of the Chester Formation was encountered in BH01 and BH102, underlying the cohesive glacial till from depths between 10.60m and 10.90m bgl (36.70m and 37.12m AOD).

In BH01 deposits comprise very dense light orange medium and coarse Sand with pockets of reddish-brown sandy clay, while in BH101 deposits were recorded as an extremely weak highly weathered reddish-brown fine to medium grained Sandstone, recovered as a fine to medium sand.

The base of these soils was identified between 12.80m and 13.50m bgl (34.52m and 34.51m AOD), overlying the Chester Formation.

2.4 Chester Formation

The Chester Formation was encountered in BH01, BH101 and BH102 from between 12.80m and 15.50m bgl (34.52m to 32.10m AOD).

The bedrock typically comprised interbedded extremely weak to medium strong fine to coarse grained Sandstone. Fractures are extremely closely spaced to medium spaced, frequently with extremely to very closely spacing noted. Fractures are generally 0-20 degrees, planar, rough, clean, however stepped and undulating fractures were also recorded. On occasion, steeper fractures angled at 30 – 40 degrees and 70-90 degrees (sub-vertical to vertical fractures) were also recorded. Clay infill was recorded on rare occasions.

Where bedrock was recorded to be non-intact in BH01, deposits comprise very dense light brown gravelly fine to coarse sand. The gravel fraction typically comprises fine and medium angular to subangular sandstone.

In BH01 where bedrock was recorded as non-intact, deposits were recorded as light brown medium and coarse sand (24.45m to 25.49m bgl) and as brown sandy clay (29.05m to 29.90m bgl).

In BH01 rare coarse clasts of sandstone and mudstone were noted within the sandstone between 25.00m and 29.22m bgl (22.30m and 18.08m AOD).

In BH01 thin layers of extremely weak to very weak reddish-brown mudstone are noted between 31.50m and 31.60m bgl (15.81m to 15.71m AOD), 32.52m and 32.55m bgl (14.79m to 14.76m AOD) and 39.30m and 39.32m bgl (8.01m to 7.99m AOD). In BH102 a thin layer of extremely weak brown mudstone is noted 17.00m to 17.10m bgl (31.02m to 30.92m AOD).

2.5 Groundwater

No groundwater strikes were recorded during the investigation.

Due to the use of water flush during the progression of the Geobore-S borehole, it was not possible to determine any water strikes during the investigation for BH01, BH101 or BH102.

Five rounds of groundwater level monitoring have been undertaken between 18th May 2021 and 25th June 2021 in relation to the initial March 2021 ground investigation. Three rounds of groundwater level monitoring have been undertaken been 14th October and 28th October 2021 for the additional September 2021 ground investigation undertaken. The results for all monitoring visits are presented in *Table 2.6a* and *Table 2.6b*.

Table 2.6a – March SI Groundwater Monitoring Results

Borehole Ref.	Installation Strata	Response Zone m bgl (m AOD)	Depth, m bgl (m AOD)				
			18/05/21	24/05/21	10/06/21	17/06/21	25/06/21
WS01	Glacial Till	2.00 – 5.00 (45.70 – 42.70)	1.42 (46.28)	3.12 (44.58)	2.83 (44.87)	2.73 (44.97)	2.56 (45.14)
WS02	Granular Made Ground.	1.60 – 2.00 (46.99 – 46.59)	1.46 (47.13)	1.58 (47.01)	1.76 (46.83)	1.81 (46.78)	1.92 (46.67)
WS05	Glacial Till	2.00 – 5.00 (51.78 – 48.78)	4.96	4.61	4.60	4.44	4.44
WS06	Granular Made Ground.	0.50 – 1.00 (47.52 – 47.02)	Dry	Dry	Dry	Dry	Dry
BH01	Sandstone (Chester Formation)	18.00 – 35.00 (29.31 – 12.31)	20.64 (26.67)	20.60 (26.71)	20.67 (26.64)	20.65 (26.66)	20.67 (26.64)

Table 2.6b – September SI Groundwater Monitoring Results

Borehole Ref.	Installation Strata	Response Zone m bgl (m AOD)	Depth, m bgl (m AOD)		
			14/10/21	21/10/21	28/10/21
BH101	Sandstone (Chester Formation)	17.00 – 25.00 (30.60 – 22.60)	21.18 (26.42)	21.03 (26.57)	21.05 (26.55)
BH102	Sandstone (Chester Formation)	15.00 – 25.00 (33.02 – 23.02)	20.70 (27.32)	20.48 (27.54)	20.52 (27.50)

Based upon groundwater elevations and the underlying geology, the following considerations are given to the underlying groundwater regime:

- Although no groundwater strikes were recorded within the exploratory borehole logs, perched water is likely to be encountered in shallow made ground deposits, resting above the cohesive glacial till.
- The hydrostatic head level within the Chester Formation is in the region of 20.60m to 21.18m bgl (27.54m to 26.42m AOD).

2.6 Ground and Groundwater Contamination

As part of the Phase 2 Ground Investigation, a Generic Qualitative Risk Assessment (GQRA) was undertaken. The development is to comprise residential apartment blocks with associated amenities, commercial units, amenity spaces, car and bicycle parking and small areas of soft landscaping. The soft landscaping at ground level is part of the public realm and will not form garden areas for the occupants. Considering this, the site has been compared against *Commercial* Tier 1 thresholds protective of human health.

No exceedances above GAC thresholds were recorded in made ground soil samples obtained.

No suspected asbestos containing materials (ACMs) were identified on site however, laboratory screening identified asbestos fibres in a samples obtained from WS05 (0.50m bgl) and TP03 (1.50m bgl) detailed in *Table 2.6*

Table 2.6 *Positive Asbestos ID*

Exploratory Hole	Depth (m bgl)	Stratum	Asbestos Type	Concentration in soil (% w/w)
WS05	0.50	Made Ground	Chrysotile loose fibres	<0.001%
TP03	1.50	Made Ground	Chrysotile loose fibres	0.001%

Olfactory contamination was encountered in two exploratory hole locations in made ground soils. A strong hydrocarbon odour was noted in WS02 between 1.60m – 2.20m bgl and a slight organic odour in WS03 between 0.67m – 2.00m bgl. An organic odour was noted in TP01 from 1.60m to 2.20m bgl, associated with the organic clay encountered. A soil sample was obtained from these soils.

A **Moderate / Low** risk rating is identified to site users. This assessment considers no exceedances being identified in any soils samples above 'Commercial' GACs and the chrysotile loose fibres (<0.001%) at 0.50m bgl in WS05 and (0.001%) at 1.50m bgl in TP03. Proposals indicated the sample is located in WS05 is in an area proposed to be covered by the building footprint. The building footprint will act as a barrier between site soils and the end users, breaking the source pathway receptor linkage however, the linkage remains in proposed soft landscaped areas (TP03) and thus a suitable thickness of clean and inert engineered capping layer is recommended. Alternatively, if the full thickness of made ground is removed in areas of proposed landscaping, no further action will be required.

A **Moderate/Low** to construction and maintenance workers is identified from direct contact, inhalation and ingestion of contaminants within made ground soils. Considering the asbestos identified in WS05, the risk should be suitably managed during construction with input from a specialist where appropriate, suitable Health and Safety precautions including appropriate PPE should be provided to all construction and maintenance staff.

A **Low** risk rating is identified to controlled waters (groundwater) from vertical and horizontal migration of contamination. Marginally elevated concentrations were recorded in BH01 and 20.70m bgl however, there is no indicating that elevated concentrations are a results of soils leaching to the underlying aquifer, particularly given the significant thickness of low permeability soils between the made ground and bedrock.

2.7 Ground Gas Assessment

To characterise the site's ground gas regime, ground gas monitoring was undertaken on six occasions over a period of two months with barometric pressure recorded between 997mb and 1017mb. It is considered that sufficient ground gas data has been obtained to provide a representative data set, considering a range of temporal conditions.

Methane was recorded below the instruments limit of detection through the monitoring period, with the exception of WS05 on the sixth visit recording a concentration of 0.9% v/v.

Hydrogen sulphide and carbon monoxide concentrations were recorded in BH01 on the first visit of 12ppm and 68ppm.

A maximum carbon dioxide concentration ranged between 0.1% v/v in WS01 and 16.3% v/v in BH01. A maximum flow of -4.3l/hr in BH01, reducing to -3.6l/hr after 5 minutes. All other monitoring wells recorded peak and steady state flow rates below the limit of detection of the monitoring instruments.

Methane and hydrogen sulphide were recorded below the instruments limit of detection. A maximum carbon dioxide concentration of 13.7% v/v was recorded in WS04. A maximum flow of 3.2l/hr was recorded in BH02.

Consideration of the recorded soil gas flow rates, presented above, enables hazardous gas flow rates to be evaluated. Q_{hg} can be derived for both 'borehole' and 'worst possible' scenarios and a comparison made in support of an appropriate assessment of ground gas risk. For a 'borehole' scenario steady state flow rates are adopted, whilst for a 'worst possible' scenario peak flows are adopted.

2.7.1 Carbon Dioxide

Evaluation of the 'borehole' scenario (highest hazardous gas flow rate that is realistically possible, i.e. in a single borehole) records a maximum Q_{hg} of 0.1440l/hr for carbon dioxide where maximum steady state air flow rate of -3.6 l/hr was recorded, and maximum gas concentrations of 4.0% v/v on the second monitoring visit.

Evaluation of the 'worst-case' scenario (highest hazardous gas flow rate at any time) records a maximum Q_{hg} of 0.5868l/hr for carbon dioxide where maximum steady state air flow rate of -3.6 l/hr was recorded on the second monitoring visit, and maximum gas concentrations of 16.3% v/v on the fifth monitoring visit.

2.7.2 Methane

Evaluation of the 'borehole' scenario and 'worst case' scenario records a maximum Q_{hg} of 0.0009l/hr for methane where maximum steady state air flow rate of 0.1 l/hr was used, and maximum gas concentration of 0.9% v/v on the final monitoring visit.

2.7.3 Conclusion

The calculated Q_{hg} for both the 'borehole' and 'worst case' scenarios would account for a Gas Screening Value (GSV) indicative of a Characteristic Situation 2 (CS2) gas regime. Therefore, gas protection measures will be required for the proposed development.

The potential risks from ground gases to the excavations are to be dealt with by the Contractor, in accordance with the Confined Space Regulations, during construction. Appropriate ground gas monitoring and safety measures should be in place during the works, as the potential presence of ground gases could pose a risk in any confined spaces of deep excavations.

2.8 Radon

The BGS Radon Mapping confirms the site is situated in a lower probability radon area where <1% of homes at or above the radon action level. On this basis, radon protection measures are not considered necessary in the construction or new dwellings. Where the new development incorporates a basement the advice of a specialist Radon assessor must be obtained.

3.0 Relevant Pollutant Linkages

A conceptual site model (CSM) for the site has been developed based on the ground investigations undertaken as detailed in Curtins Ground Investigation reporting (Ref.1).

The CSM details several pollutant linkages at the site, however, based on the risk assessments undertaken, the potential pollutant linkage (PPL) listed in *Table 3.0* was identified as requiring remediation to enable the safe re-development of the site.

Table 3.0 Potential Pollutant Linkages (Existing)

PPL	Sources	Receptor	Potential Pathway	Remediation Recommended
1	Made Ground soils know to and/or potentially containing asbestos.	Construction Workers and Adjacent Residents	Inhalation and ingestion of asbestos within soil-derived dust from on site Made Ground.	An asbestos management plan is recommended with input from asbestos management specialists outlining measures to be put in place, this should include inspection of excavations for asbestos containing materials by suitably qualified person.
2	Import clean and inert layer for growing medium within soft landscaped areas	End Users/Maintenance Workers	Inhalation, ingestion and dermal contact with contaminants in soil and soil-derived dust from imported soils.	There are currently no soils suitable for soft landscaping on site. Clean capping within soft landscaped areas will be required to be imported.
3	Elevated carbon dioxide recorded >5% in site soils.	End Users	Migration and inhalation of ground gas and vapour.	Provide CS-2 ground gas protection measures to all new buildings.

The risks to groundwater and surface waters from contamination on site were identified as Low and Very Low within previous ground investigation reporting (Ref. 1).

4.0 Remedial Works

With reference to the Conceptual Site Model and the potential contaminant linkages detailed in *Table 3.0* remedial actions are recommended in order for the site to be brought up to a condition that is deemed 'suitable for use'.

- **Remedial Action 1:** Suitable PPE for all construction workers and suitable asbestos management measures.
- **Remedial Action 2:** Engineering capping to serve as clean layer to facilitate soft landscaped areas construction.
- **Remedial Action 3:** CS2 Ground gas protection measures.

It is further recommended that Curtins Engineer is contacted if any unexpected contamination/contaminative incidents are encountered during construction works or should ground conditions vary from those outlined in Section 2.0. Further advice on handling such incidents is enclosed within Section 5.0.

4.1 Remedial Action 1 – Asbestos Management During Construction

Under current health and safety legislation, employers are required to carry out their own appropriate risk assessments and mitigation to protect themselves and their employees, other human receptors and the environment from potential contamination. Such risks must be adequately mitigated by law, specifically the Construction Design Management (CDM) Regulation, 2015 which require the potential risk to human health and the environment from construction activities are appropriately identified and all the necessary steps taken to eliminate / manage the risk.

It has been assumed that any future construction works on site will be undertaken in compliance with these requirements to address PPL 1 (*Table 3.0*)

CL:AIRE have published guidance to aid in the classification of remediation works on Asbestos Containing Soils (ACS) compliant with Control of Asbestos Regulations 2012 (CAR). This is detailed in CL:AIRE (2016) 'Control of Asbestos Regulations 2012 – Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials: Industry Guidance.

Any works with asbestos containing soils are required to determine their classification in accordance with Control of Asbestos Regulations 2012. The specialist groundworks contractor is therefore to designate the works based on the investigation results but utilizing their own additional testing and delineation if they deem it to be required.

Where, from the site investigations, material are known to contain asbestos fibres good practice (JIWG Car-Soil and CAR 2012) prescribes such material to be segregated to ensure materials would not cross-contaminate other soils and to reduce the risk of further fiber release to site workers.

No suspected asbestos containing materials (ACMs) were identified within the exploratory holes however, one samples from WS05 at 0.50m bgl identified loose chrysotile fibres at a concentration of <0.001%.

Table 2.6 in Section 2.6 above should be consulted together with Curtins Exploratory Hole Plan drawing in Appendix A for the locations, depths and concentrations of asbestos identified during Curtins ground investigation.

Good practice prescribes that any fragments or asbestos containing materials where identified should be picked where possible and to be kept separated in line with those from any soil arisings. This is typically carried out by picking visible fragments at the point of excavation. Such operations are carried out by suitably qualified staff, wearing disposable overalls (type 5/6), gloves and fine dust (FPP3) masks in combination with adoption of dust suppression techniques and monitoring or other applicable methods as recommended by an Asbestos Management Specialist. The qualified staff are to be trained in the identification of asbestos at source. The qualification and competencies of all operatives undertaking monitoring and calibration documentation of equipment should be provided to the Engineer.

Existing made ground should not be crushed or in any way treated due to risk of asbestos fiber release.

4.2 Remedial Action 2 – Engineered Capping

The PCL at site related to the direct contact, dermal uptake, soil and dust ingestion and inhalation of imported soils to facilitate soft landscaping. (PCL2, Table 3.0).

It is recommended that verified imported clean capping is installed in proposed soft landscaped areas.

Remedial measures are detailed in table 4.2 below.

Table 4.2 Engineered Capping Details for Soft Landscaping Areas

Location	Remedial Measures Required	Rationale
Soft Landscaped Areas	Provision of a minimum 300mm clean capping . The capping layer may comprise a combination of topsoil and subsoil with a minimum of 150mm topsoil.	Ensure the quality of soils imported for soft landscaping are suitable for use.

The engineered capping must meet the specification outlined in Section 5.0.

4.3 Remedial Action 3 – Gas Protection Measures

PPL2 in *Table 3.0* relates to the inhalation exposure to site end users from elevated concentrations of carbon dioxide beneath the site.

The intrusive investigation has identified the site with an assessment by BS8485 (Ref. 6), as Characteristic Situation 2 (CS-2) requiring 3.5 points of gas protection measure, for a building type B, using a combination of two or more of the following three types of protection measures:

- The Structural Barrier or Floor Slab
- Ventilation Measures
- Gas Resistant Membrane

These gas protection measures are to be designed, verified and validated by a specialist designer/supplier/installer. For example to achieve the required protection measures could incorporate:

- Reinforced cast in-situ suspended slab with minimal penetrations – 1.5 points;
- Visqueen Low Permeability Gas Membrane – Yellow (or alternative performance) – 2 points, installed in line with Table 7 of BS8485 (Ref. 2)
- Passive sub-floor dispersal layer (very good performance) – 2.5 points; or Passive sub-floor dispersal layer (good performance) – 1.5 points.
- Appropriately and adequately sealed service entries; and
- All to membrane manufactures instructions and details.

5.0 Engineered Capping Specification

5.1 Sourcing of Materials

5.1.1 Off-Site Sources

It is anticipated that materials are to be imported to the site for use in constructing the growing medium in soft landscaping areas. It is strongly recommended that materials are sourced from reputable suppliers and comprise materials that have been suitably processed to produce standardised materials. It is not recommended that materials are imported directly from 'donor' development sites. Imported material will also require verification testing to ensure suitability for reuse, and it is strongly advised that the Contractor undertake their own independent verification testing if accepting material from a third party, rather than relying on supplier reports.

5.1.2 On-site Sources

Based on the findings of the Site Investigation, it is considered highly unlikely that the general shallow Made Ground could be considered 'uncontaminated' or 'clean' material for re-use as a subsoil due to the presence of asbestos fibres and other contaminants at a number of locations across the site.

5.2 Imported Topsoil

Imported Topsoil will invariably be required and should be supplied and placed in accordance with the Architects' specification but generally, all topsoil will be a minimum of 150mm thick in soft landscaped areas (as part of the 300mm overall layer thicknesses as detailed in Section 4.0).

Where topsoil is imported, it is to be 'Multipurpose' in accordance with BS 3882:2015 'Specification for Topsoil and Requirements for Use'.

The topsoil should also be confirmed to be 'suitable for use' as per the analysis outlined in *Section 5.4*.

5.3 Imported Subsoil

Where imported subsoil is required as part of the growing medium this can be cohesive or granular but should be free-draining and confirmed to be 'suitable for use' as per the analysis outlined in *Section 5.4* and compliant with the British Standard for Subsoil BS 8601:2013.

5.4 Chemical Composition of Soils

Site won and imported subsoil and topsoil should not contain concentrations of contaminants that present an unacceptable risk to the health of future site occupants.

The Contractor shall be responsible for demonstrating that both site won and imported material is 'clean' and therefore suitable for use in soft landscaping areas. This will include the recovery of samples for laboratory testing from both the material source and verification testing of material following delivery to site. The required testing frequencies for materials source types are detailed below. Other sources may be applicable, however testing frequencies shall be confirmed with the Engineer prior to acceptance.

Table 5.4a Environmental chemistry testing frequency for imported and re-used soils

Source	Testing Frequency
Imported Topsoil/Subsoil (Greenfield)	Verification: One sample every 200m ³ used (or a minimum of 3 No. samples whichever is greater) in accordance with Table 3 of Clause 5.5.3 of Planning Guidance in Relation to Ground Contamination: Guidance Note for Applicants, Developers, Land Owners and Consultants, Manchester City Council (2016). To include on site sampling not just sampling at source.
Imported Topsoil/Subsoil (Remediated/ Brownfield/Unknown)	Verification: One sample every 150m ³ used (or a minimum of 3 No. samples whichever is greater) in accordance with Table 3 of Clause 5.5.3 of Planning Guidance in Relation to Ground Contamination: Guidance Note for Applicants, Developers, Land Owners and Consultants, Manchester City Council (2016). To include on site sampling not just sampling at source.
Re-used/ Site Won Natural Soils	Verification: one sample every 150m ³ used (or a minimum of 3 No. samples whichever is greater).

The environmental chemistry testing requirements are as *Table 5.4b*. Additions to the suite and frequency of sampling maybe required based on the source of the imported materials. For example, if the imported Topsoil is not naturally sourced, e.g. recycled soil, further chemical determinants may be added to the chemical analysis suite at the discretion of the Engineer.

Table 5.4b Environmental chemistry analysis suite for imported soils.

Suite Reference	Environmental Chemistry Analysis
Greenfield or Manufactured Soils Imported to Site and Site Won Soils for Use as Clean Capping	Total metals: Arsenic, cadmium, chromium, chromium VI, lead, mercury, selenium, copper, nickel, zinc, water soluble boron; pH Soil Organic Matter Asbestos Screening Polycyclic Aromatic Hydrocarbons by GC-MS (Detection Limit 0.1mg/kg for each compound - 16 USEPA speciation)

Suite Reference	Environmental Chemistry Analysis
	Total Petrol Hydrocarbons (Full TPHCWG analysis – aromatic/aliphatic split, Detection Limit 0.01mg/kg for each banding C5 to C10 and 1mg/kg for bandings above C10)

Assessment criteria: Concentrations of the above determinants shall not exceed the '*Residential without Home Grown Produce*' screening criteria; refer to *Appendix B*.

Definition of 'clean': Where ALL concentrations are less than these values the soils shall be defined as 'clean'.

Soil organic matter (SOM): A review of the thresholds outlined may be made for specific soil sources whereby the Soil Organic Matter is proving to be routinely above 6%.

5.5 Verification and Validation of Capping/Growing Media

Confirmatory analysis outlined previously is required to verify the suitability of any imported and site won topsoil, and where required, subsoil.

Evidence that the specified depth of capping/growing media has been provided will be required including evidence of the underlying geotextile/anti-dig break layer.

Evidence should include hand excavated trial pits advanced in areas where material has been placed to prove a sufficient depth is provided and geotextile/anti-dig layer is present.

The pits shall be excavated to the base of the interface between the imported material and the geotextile/ anti dig layer.

A photographic record of the hand excavated trial pits would also be required.

6.0 Strategy for Handling Potentially Contaminated Soils and Contaminative Incidents on Site

6.1 Unexpected Contamination

In the event that material is revealed on the site of a nature that does not accord with the previously observed and recorded descriptions the following procedure is to be complied with:

- a) Cease and make safe all excavations in this location and report observations to the Site Manager.
- b) The Site Manager is to notify the Engineer.
- c) Under guidance of the Engineer take representative samples of the suspect materials and forward to a suitably accredited laboratory for analysis.
- d) Await Engineers instructions with respect to re-commencement of the works and or removal of suspect material to a suitably licensed disposal facility (following guidance outlined in *Section 5.1* above).
- e) Local Authority and if relevant the Environment Agency are to be kept fully informed of any site such occurrences.

6.2 Contaminative Incidents

The site has previously been occupied by terraced housing. The terraced housing was partially demolished by 1933 and the remaining houses demolished by 1978. The warehouse structures currently present on site were constructed in 1981 with an extension added by 1991.

No obstructions were noted during the ground investigation however, it is possible that some below ground features / structures exist that have not been recorded on plans and have not been encountered during the ground investigation works. It is possible that unknown/unrecorded substructures may exist which if ruptured may release materials that could contaminate the surrounding soils and groundwater in the unlikely event that this occurs an outline strategy is detailed below.

Where such a tank/pipework is damaged during excavation and the contents are released into the surrounding soil, the tank/pipework should be immediately pumped dry into another suitable container and a trench with a low permeability base formed around the tank/pipework to prevent seepage laterally and to collect the contaminant. Where groundwater is encountered in the trench, it should be pumped into a suitable container and tested for the contaminant. All soils affected shall then be tested and removed from site as appropriate.

Where the damage is caused to the underside of a tank and seepage is vertical, the contaminants may present a risk of polluting the groundwater. In this instance and subject to the findings of a risk assessment boreholes may be required to probe and intercept the contaminant. The contaminant will then be pumped into suitable containers.

7.0 Verification and Validation

7.1 Verification of Clean Capping

Validation visits shall be undertaken by an appropriately qualified and experienced person throughout the construction phase to ensure that the requirements of this Remediation Strategy have been implemented at the site. It is anticipated records will be taken during the work as identified below:

- Placement of the requisite depths of clean capping soft landscaping soils (areas without hardstanding).

Documentation of general works including asbestos management procedures during the works and records of contaminative incidents and any unexpected contamination.

Confirmatory analysis is required to confirm the suitability of any imported material, the results of which will be included within the Completion Report. Any additional confirmatory testing will also be included herein.

Verification through either hand excavated trial pits or comparison of reduced and final level surveys will all be included within the Completion report to confirm the provision of requisite depth of clean capping.

7.2 Verification of Gas Protection Measures

The installed protection measures are to be verified as having been installed in accordance with the approved mitigation measure design details. The verification of the satisfactory installation forms part of the overall system of mitigation and should be in accordance with CIRIA C735 (Ref. 3). CIRIA C735 (Ref. 3) provides formal guidance of the procedures for verification of the gas risk, design, construction and verification as interconnected assessment of the site-specific gas risk assessment.

CIRIA C735 (Ref. 3) provides a summary of the requirements for inspections and reporting, similar in detail to previous guidance. The aspects for verification and timing of inspection are subject to the specific slab design.

The aspect that must be confirmed on each plot inspection are as detailed, but not limited to the below:

- Development of a Validation Plan by specialist;
- Product Verification: Confirmation that suitable products have been installed to consist of photographs of products types, labels on packaging and delivery tickets;

- General Conditions: The membrane is to be inspected to ensure there are no tears, punctures or rips;
- Jointing: Checking the overlaps between membranes are correctly sealed, with correct tapes and sufficient overlaps;
- Wall Cavity Inspection: Confirming the propriety gas membranes or gas DPC spans the external walls; and
- Service Entry Points: Verification of the presence of preformed top hats sealed to the pipe and membrane.

An inspection statement form is to be completed for each area of the building with a photographic record.

To verify the gas protection measures, it is assumed that the following will be undertaken:

- An appropriately experienced and qualified workforce is employed to install gas protection systems. Installers should hold relevant qualifications such as Cskills Awards L2 NVQ diploma for the installation of gas membranes.

Based on this assumption, the relatively low risk categorisation of the site (Characteristic Situation 2) and given only a single building is to be installed with protection measures, in accordance with CIRIA C735 (Ref. 3) much of the verification may be carried out by on site staff (appropriately trained and experienced) with independent inspection from a third party/Curtins to review and compile all records.

The following verification records should therefore be obtained by the specialist installer contractor/on site staff:

- Photographic log of installation and testing if undertaken, of gas protection measures (floor slab and gas membrane); and
- Internal inspection and verification records including any discrepancies and non-conformities in accordance with CIRIA C735 (Ref. 3).

The above records should be reviewed by an independent third party/Curtins which should include visits to site to provide a secondary visual verification.

The frequency and timing of visits by Curtins shall be determined following confirmation of the construction phase programme; however, it is anticipated that visits will be undertaken:

- During the placement of the floor slab (structural barrier to gases); and
- During placement of the gas membrane (membrane barrier to gases).

Where alternate protection measures are adopted as outlined in *Section 4.3* or specialised installation staff are not used a revision to this plan/schedule will likely be required and validation visits potentially increased.

Upon completion of the development a final statement confirming the installation of gas membranes will be provided for discharge for any contamination land conditions.

8.0 Reporting

A Completion Report will be required upon completion of the works confirming that the remedial works have been completed satisfactorily. The report will contain the following:

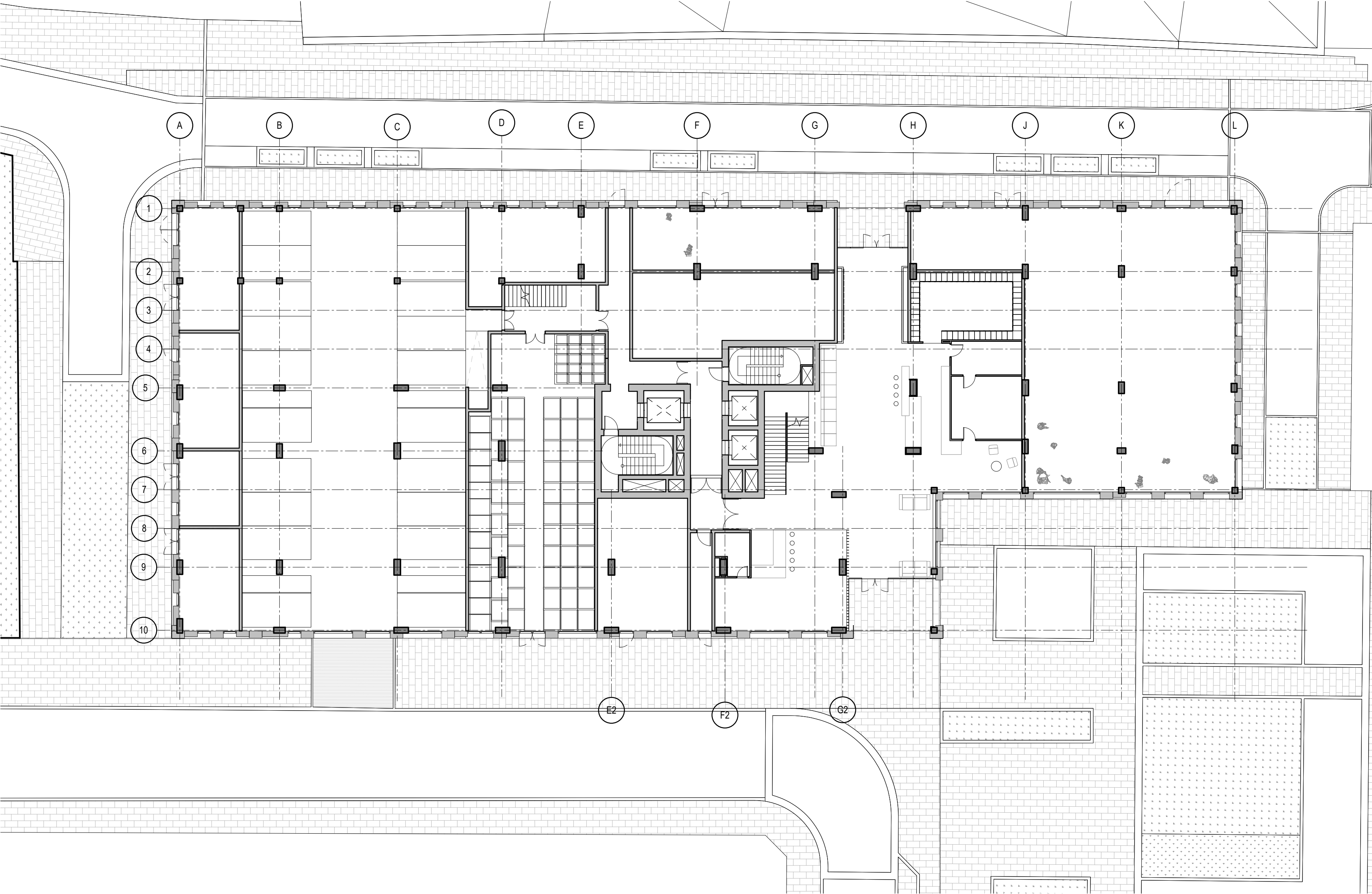
- Confirmation that the clean soils have been installed as specified within soft landscaped areas including capping thickness validation records and photographs;
- Confirmation of imported capping materials suitability including environmental chemistry testing results;
- Detail and documentation of asbestos management measures utilised during the works;
- Photographic log of installation and testing if undertaken for gas protection measures (floor slab and gas membrane);
- Internal inspection and verification records including any discrepancies and non-conformities in accordance with CIRIA C735
- Confirmation that the remediation has been undertaken satisfactorily and in accordance with the Remediation Statement;
- Confirmation that the remediation objective has been achieved (*see Section 4.0*);
- Details of any unexpected contamination encountered on site and appropriate measures taken to respond; and
- Revised conceptual model showing no potentially significant contaminant linkages remain on site.

References

1. Curtins, *Phase 2 Site Investigation for Heyrod Street*, ref. 075424-CUR-00-XX-RP-GE-0002-P03, October 2021.
2. British Standards Institution (2015) *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings* (report no. BS8485).
3. CIRIA (2014) *Good Practice on the Testing and Verification of Protection Systems for Buildings Against Hazardous Gases* (report C735).

Appendix A – Drawings

- Proposed Development Plans
- Post-Demolition Investigation Plan Curtins drawing ref. B075424-CUR-00-XX-DR-GE-003-V01



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KEY PLAN

PROJECT

Heyrod Street
Heyrod St, Manchester M1 2NQ

CLIENT



CALLISON RTKL
Suite 12A, Manchester One, Portland Street
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SHEET IDENTIFICATION

TITLE
PLAN LAYOUT - Lv 00

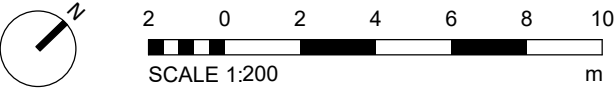
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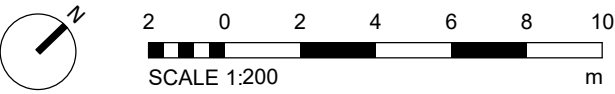
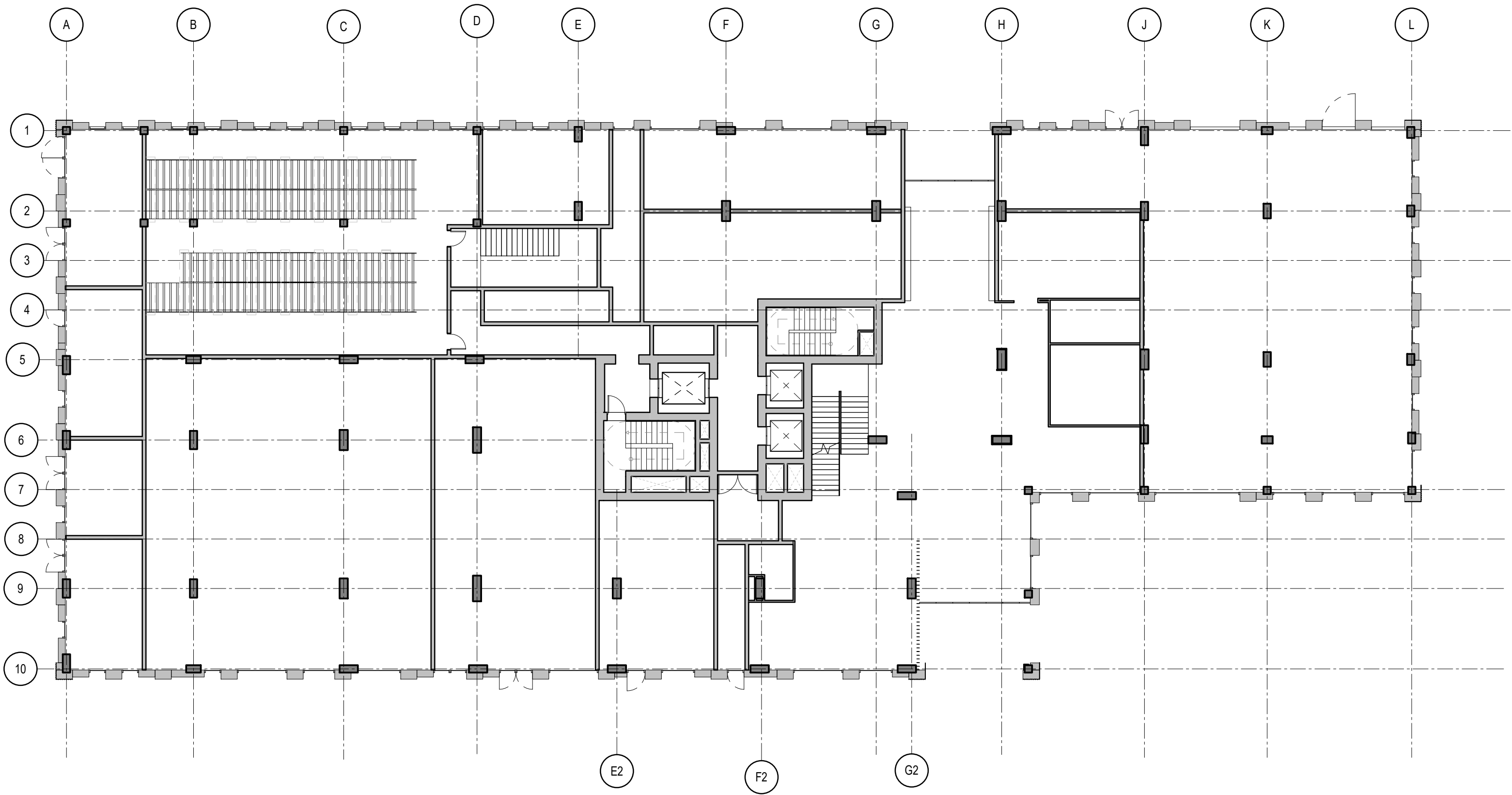
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PLAN LAYOUT - Lv 01

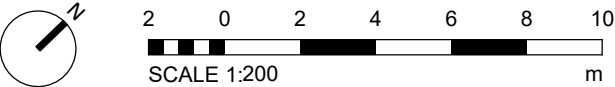
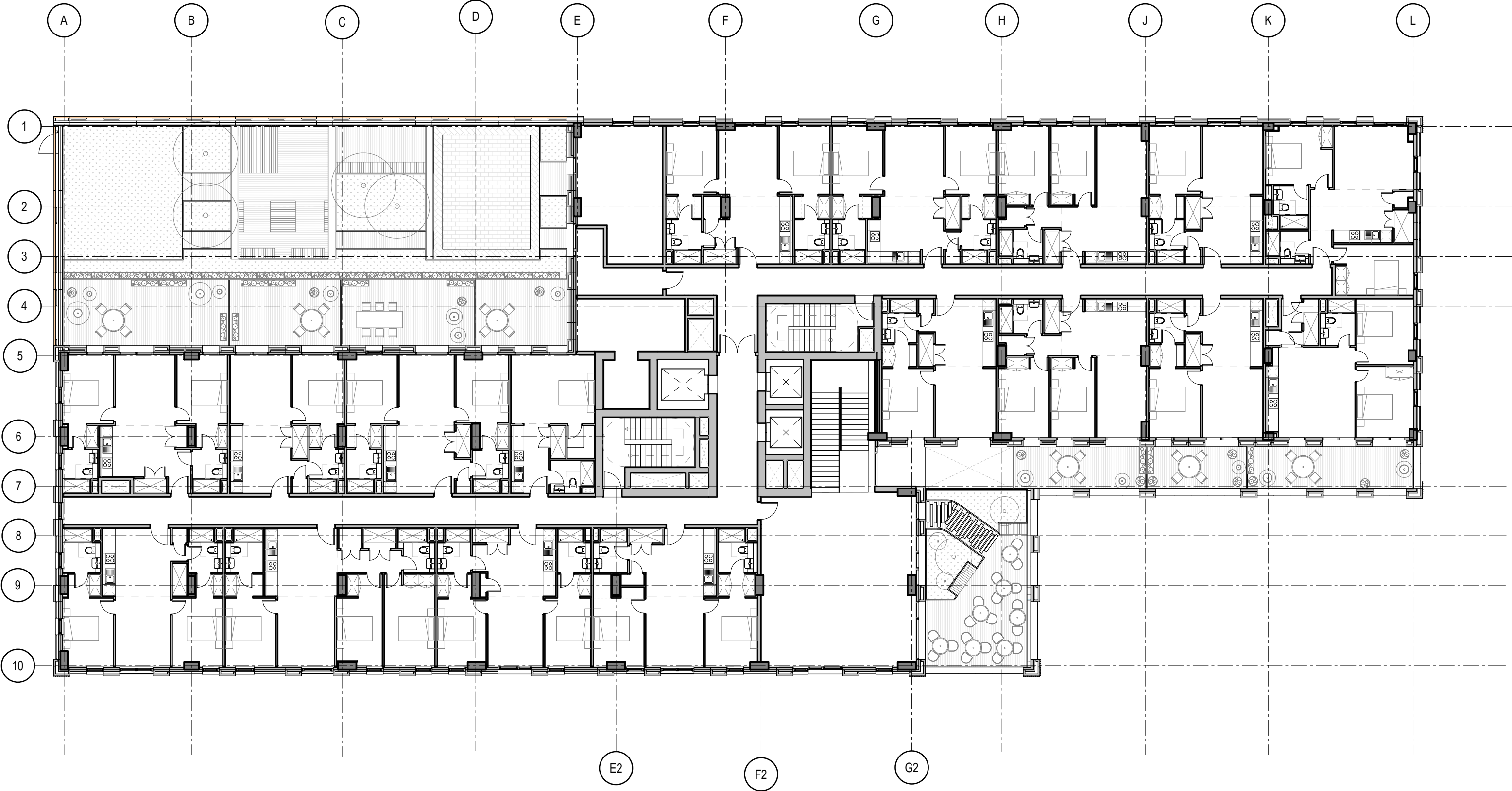
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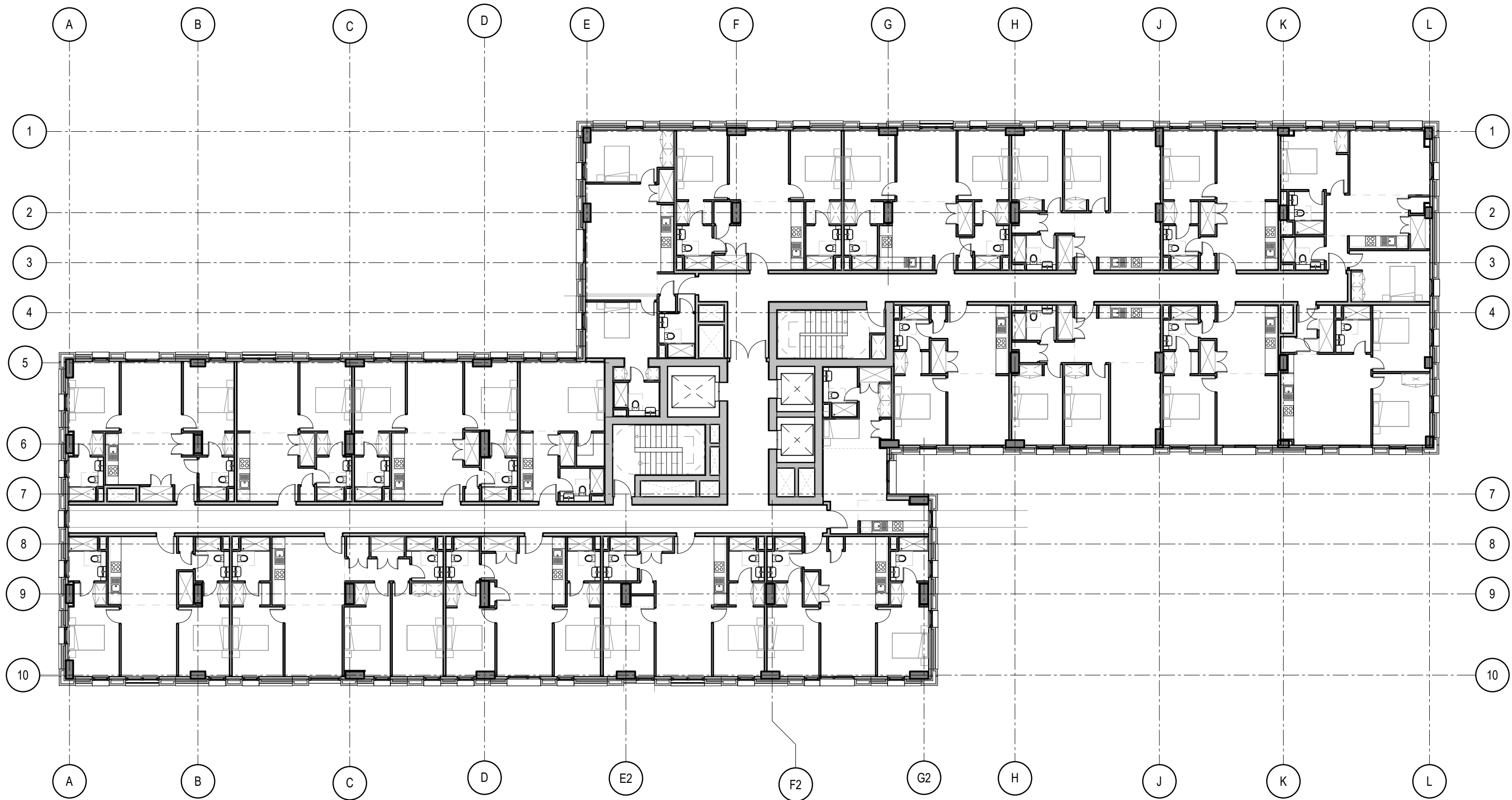
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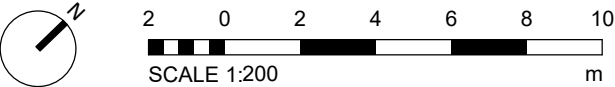
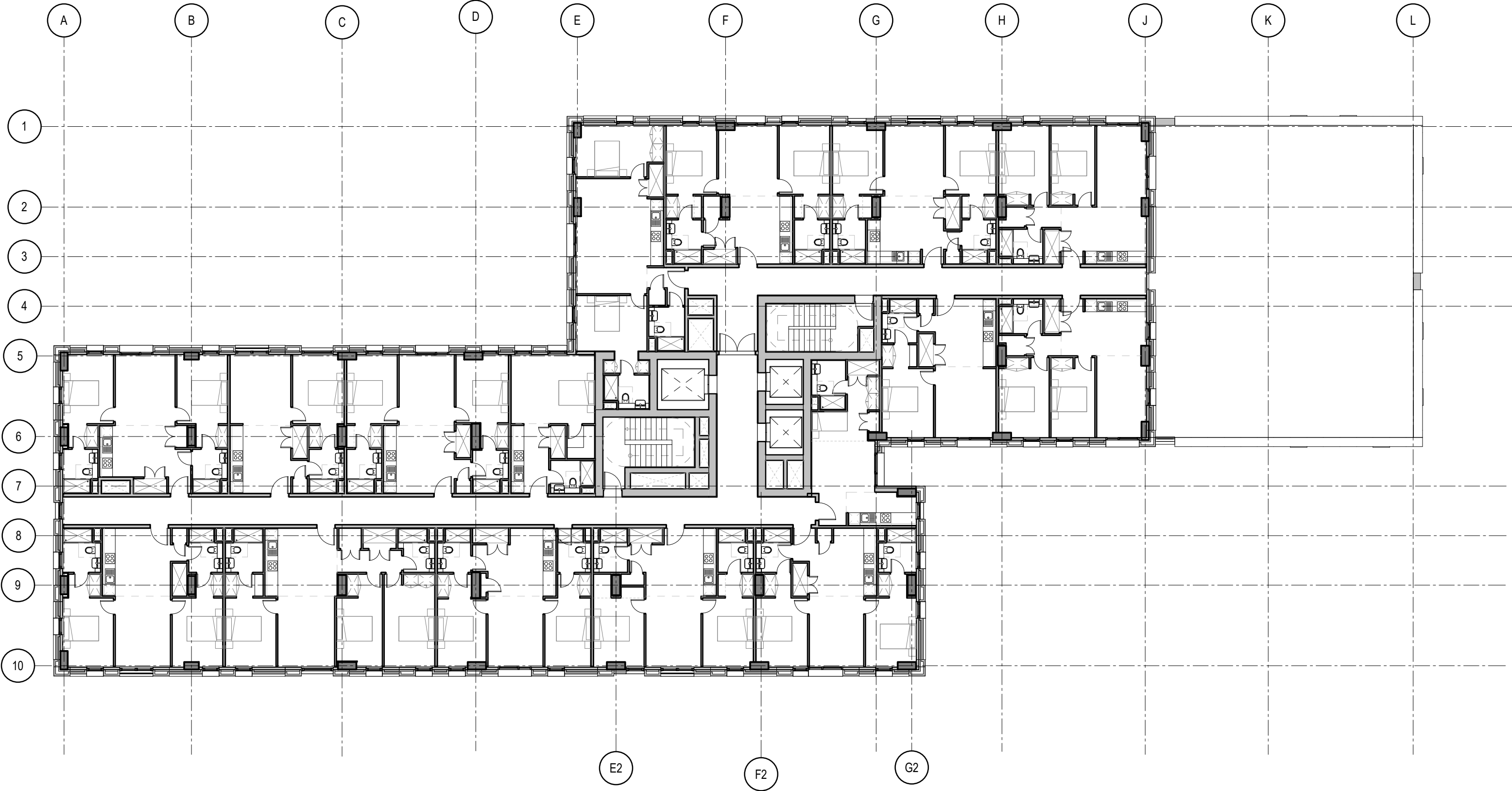
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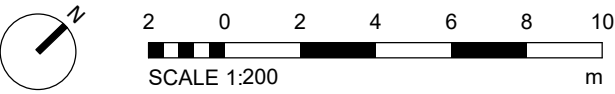
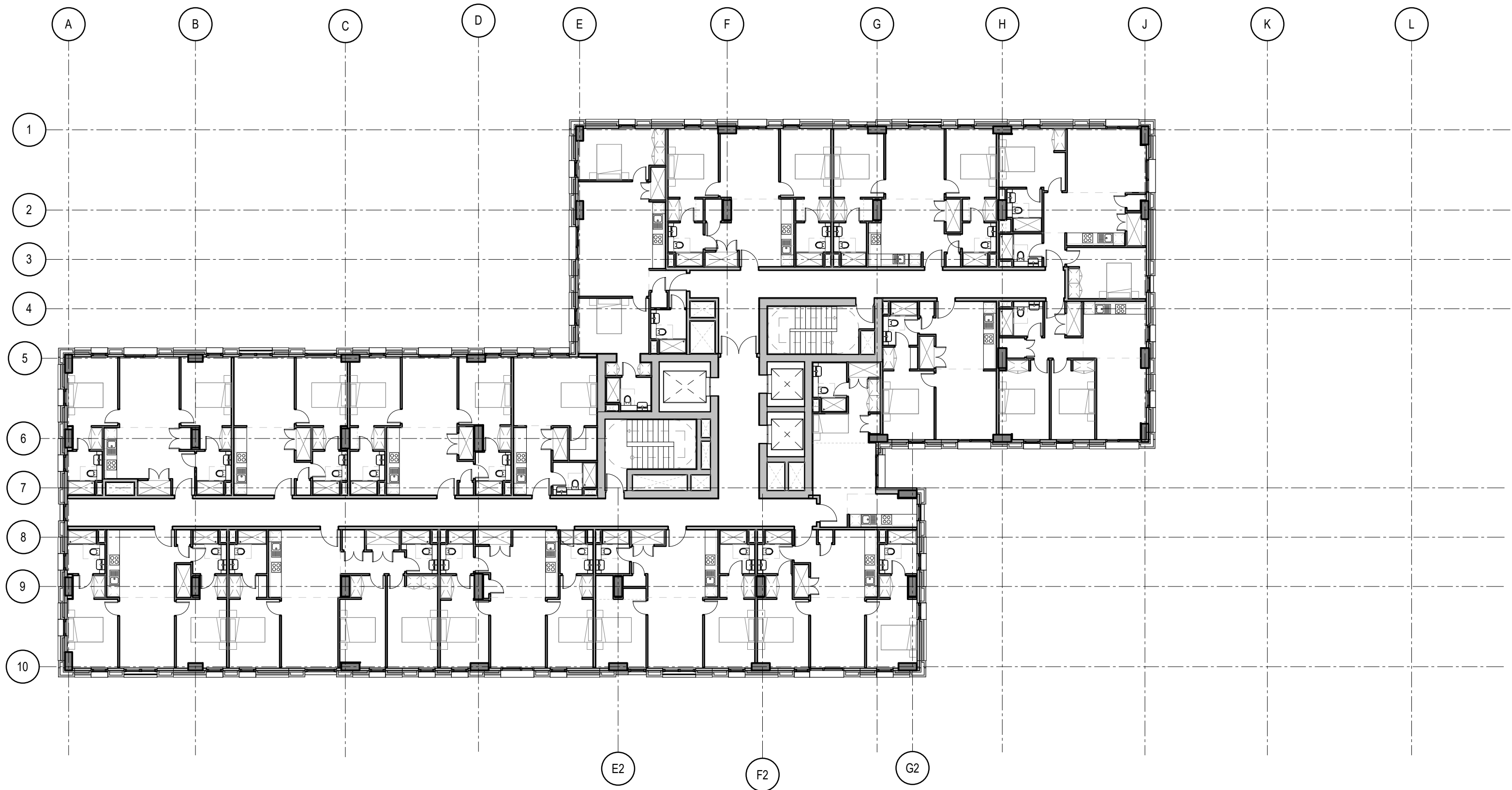
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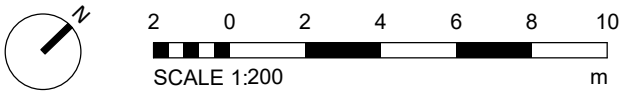
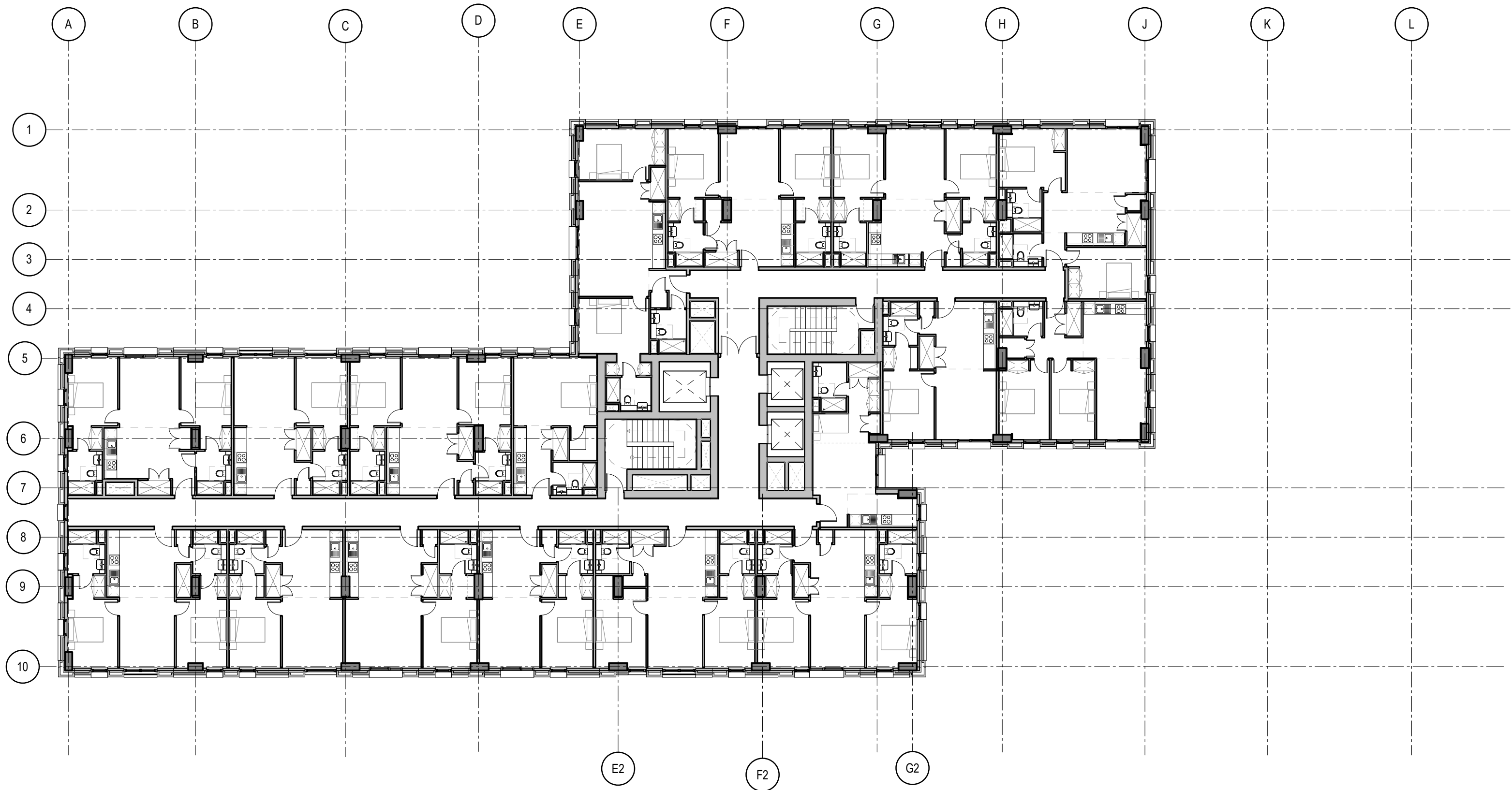
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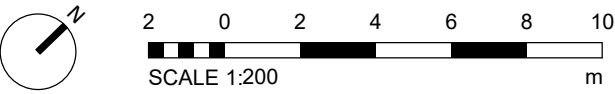
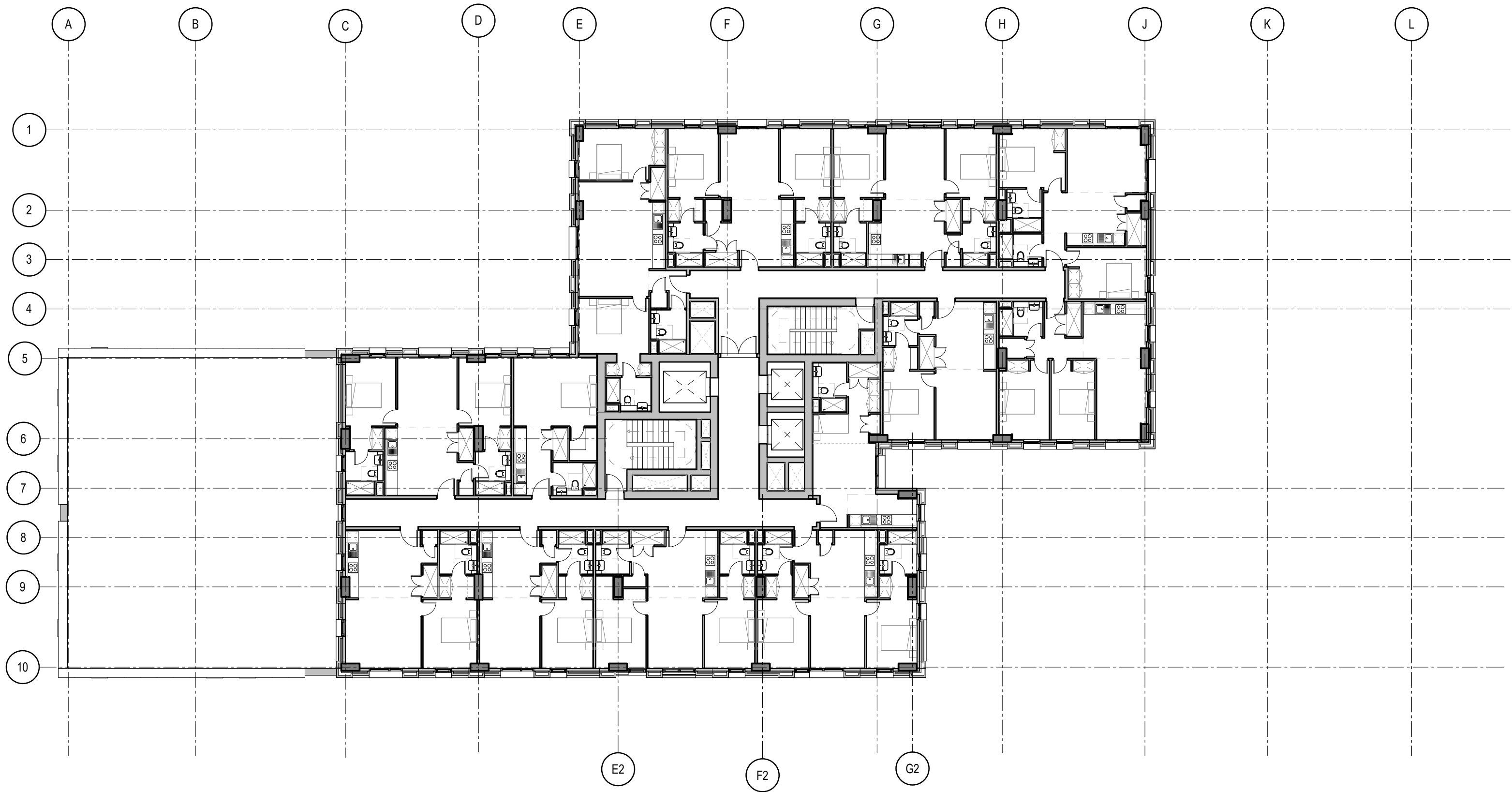
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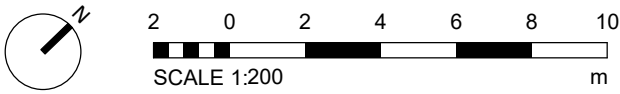
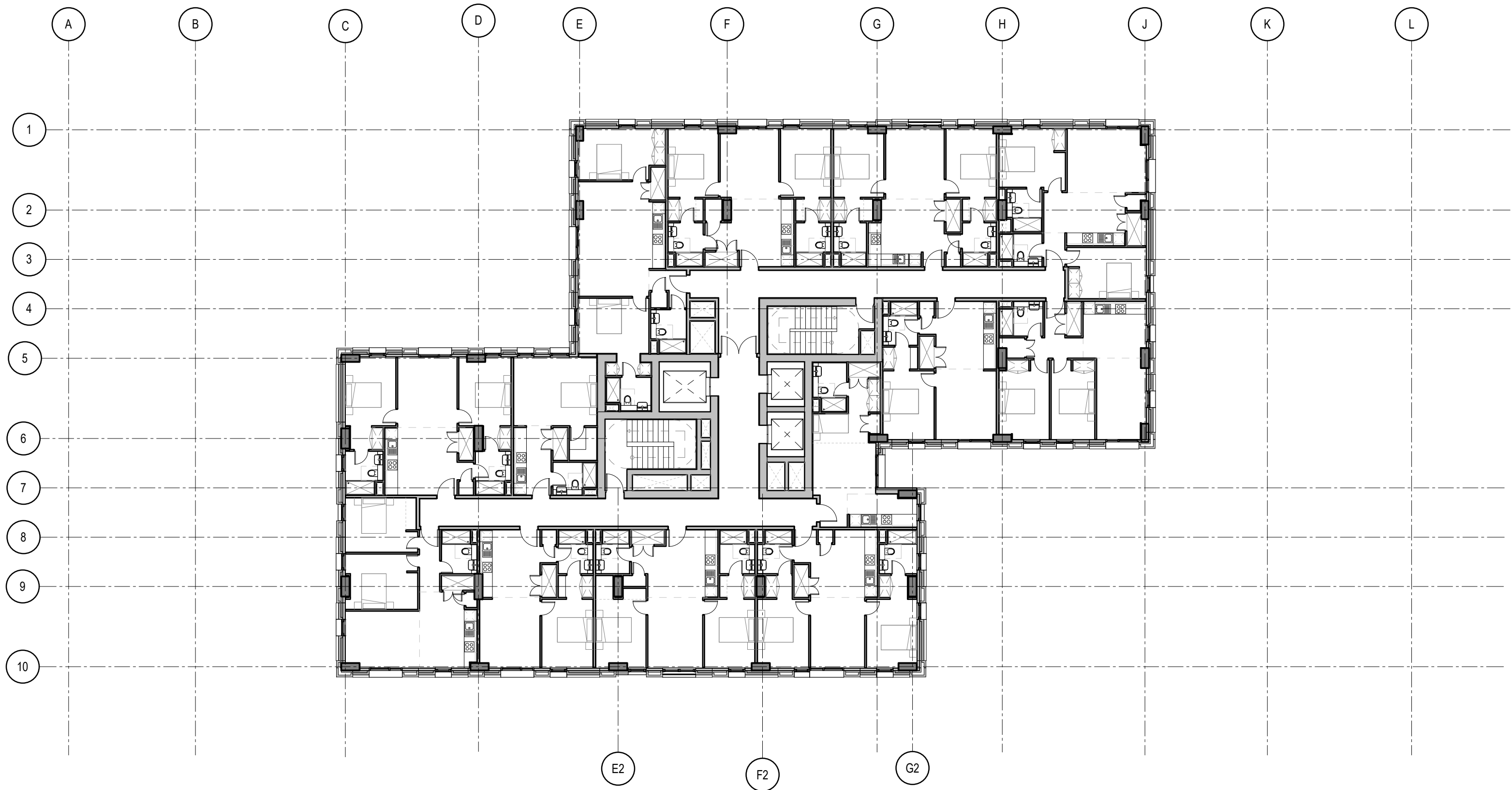
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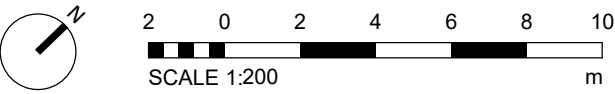
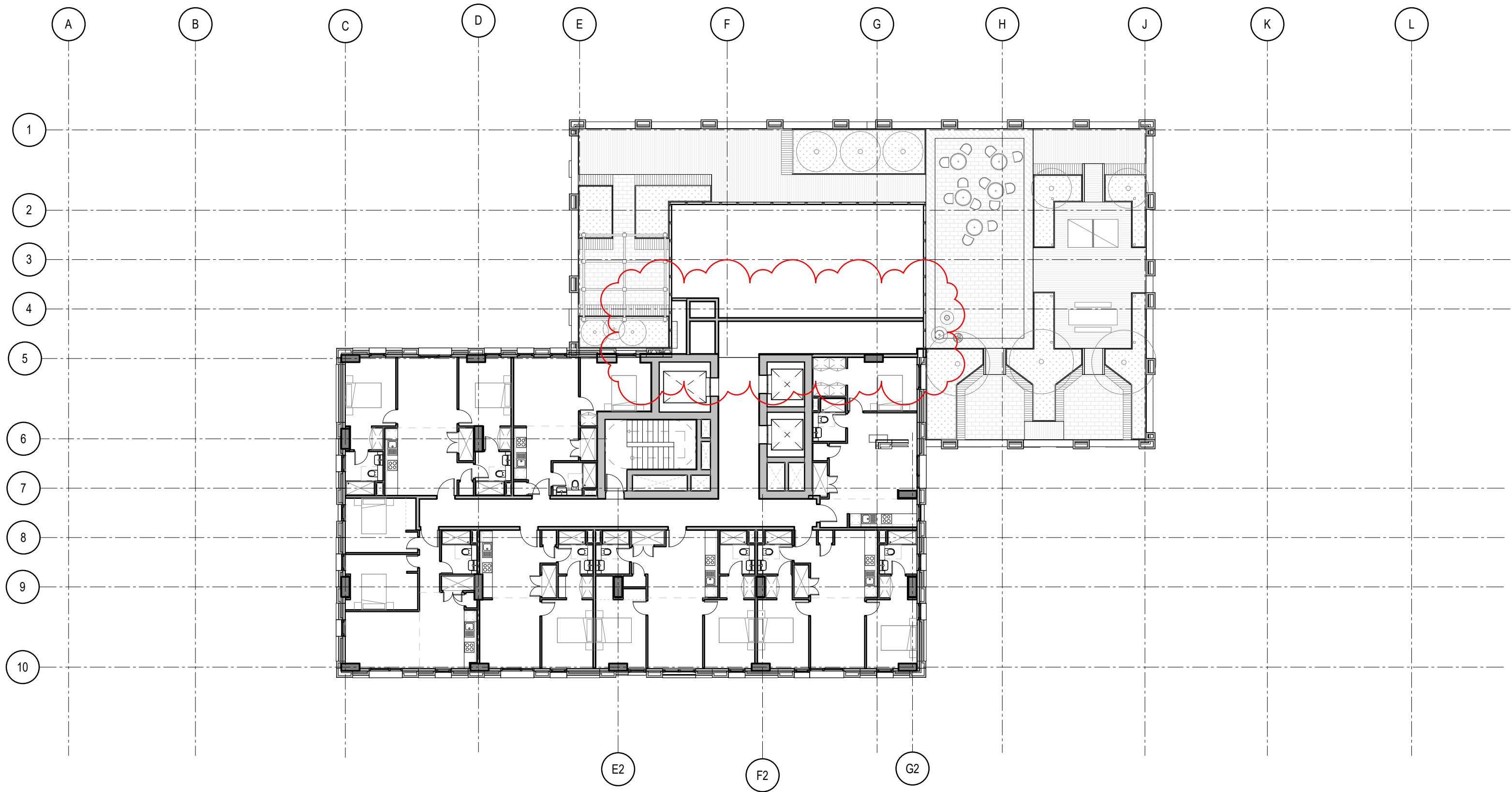
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STATUS

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1	Date 1	Revision 1		
REV No.	DATE	DESCRIPTION	DWN	CHK

KEY PLAN

PROJECT

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Heyrod St, Manchester M1 2NQ

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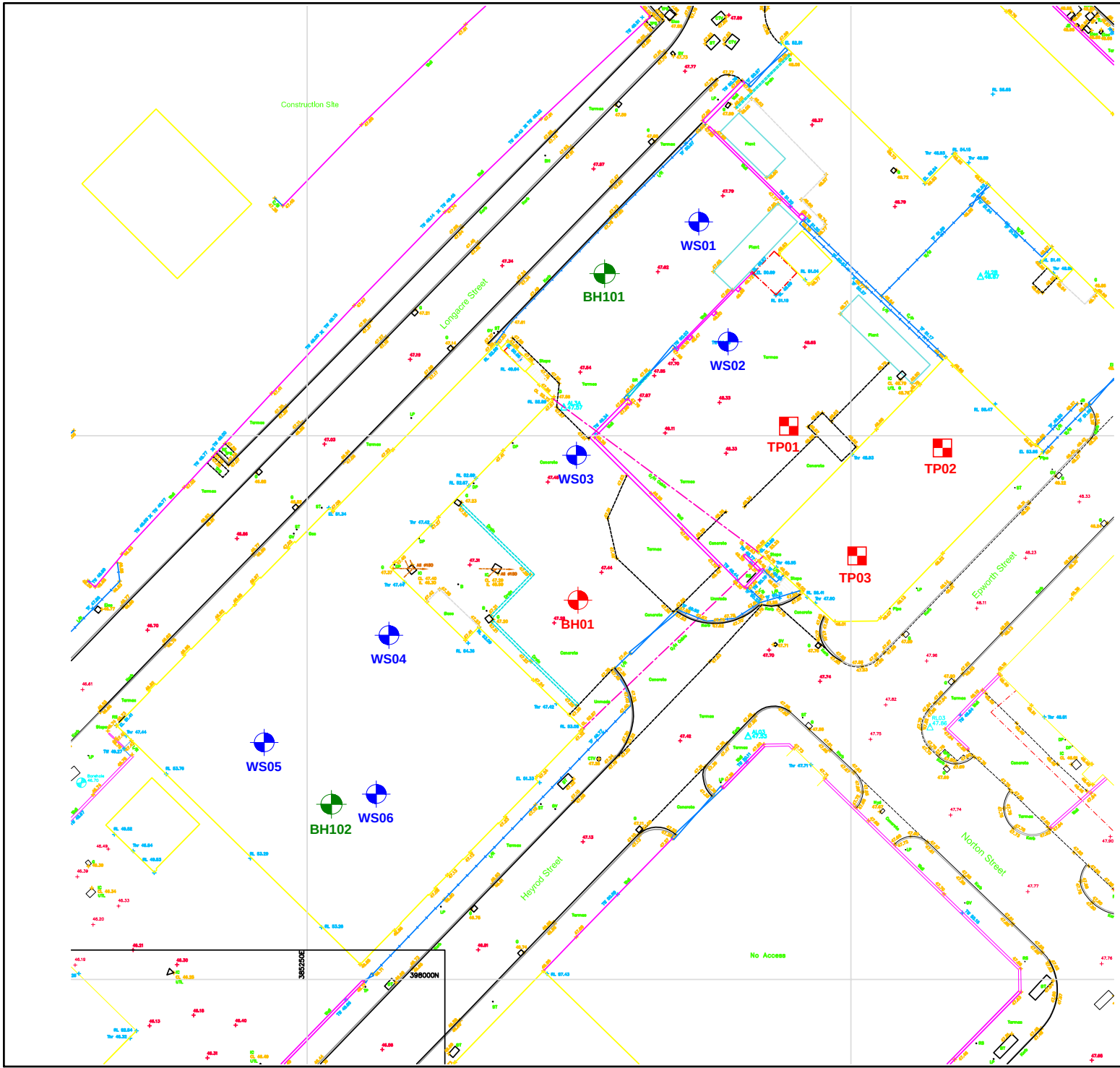
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STATUS

Employers Requirements

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-  GEOBORE S ROTARY BOREHOLE LOCATION
-  WINDOW SAMPLE BOREHOLE LOCATION
- PROPOSED POST-DEMOLITION POSITIONS:**
-  MACHINE EXCAVATED TRIAL PIT LOCATION
-  GEOBORE S ROTARY BOREHOLE LOCATION

Rev:	Description:	Date:	By:	Chkd:
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www.curtins.com

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Status:				
INFORMATION				
Project:				
HEYROD STREET				
Drg Title:				
POST-DEMOLITION INVESTIGATION PLAN				
Scale:	Size:	First Issue:	Drawn:	Checked:
NTS	A3	27/09/21	ZH	RA
Drg No:				Rev:
B075424-CUR-00-XX-DR-GE-003				V02
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Appendix B – Exploratory Hole Logs



Rotary Core Log

Borehole No.

BH01

Sheet 1 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Depth (m)	Type / Fl	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
							1.27	46.04		MADE GROUND: Brown gravelly fine to coarse sand. Occasional cobbles of brick and concrete. Gravel is fine to coarse angular to subangular brick, concrete and rare clinker.	1
										Stiff brown with rare grey mottling slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded sandstone and mudstone.	2
											3
											4
											5
											6

Continued on next sheet

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Rotary Core Log

Borehole No.

BH01

Sheet 2 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Depth (m)	Type / Fl	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
							10.60	36.70			
											7
											8
											9
											10
											11
											12

Continued on next sheet

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Rotary Core Log

Borehole No.

BH01

Sheet 3 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FEOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
							12.80	34.51			
		12.80 - 14.00	14.2	93	91	43				Extremely weak light brown fine to coarse grained SANDSTONE. 12.80m to 14.00m Fractures extremely closely spaced to closely spaced 0-10 degrees planar, rough, sand infill on fracture surfaces. 13.05m Brown clay infill on fracture surface. 13.28m 1 No. Fracture, 0-10 degrees, undulating, rough, clean.	13
										13.74m 1 No. Fracture, 0-10 degrees, stepped, rough, clean.	
		14.00 - 15.50	15.2	100	58	33				14.00m to 14.05m Non-intact. Recovered as light brown gravelly fine to coarse sand. Gravel is fine and medium angular to subrounded sandstone. 14.05m to 15.00m Fractures extremely closely spaced to medium spaced 0-10 degrees planar, rough, clean. 14.30m 1 No. Fracture 30 degrees, planar, rough, clean.	14
			NI							15.00m to 16.00m Non-intact. Recovered as light brown gravelly fine to coarse sand. Gravel is fine and medium angular to subangular sandstone.	15
		15.50 - 17.00	13	100	64	54	16.24	31.06		16.00m to 16.55m Fractures 0-10 degrees, very closely spaced to closely spaced, planar, rough, clean. 16.15m 1 No. Fracture, 90 degrees, 7 cm length planar, rough, clean.	16
			NI							Very weak light brown fine to coarse grained SANDSTONE. 16.55m to 17.62m Fractures extremely closely spaced to closely spaced 30 to 45 degrees, planar, rough, clean. 16.73m 1 No. Fracture 0-10 degrees, planar, rough, clean.	
		17.00 - 18.50	7.9	100	91	53				17.00m to 17.24m Extremely weak.	17
			NI							17.62m to 17.67m Non-intact. Recovered as light brown gravelly fine to coarse sand. Gravel is fine and medium angular to subangular sandstone. 17.67m to 18.30m Fractures very closely spaced to closely spaced, planar, rough, sand infill on fracture surfaces.	18

Continued on next sheet

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Rotary Core Log

Borehole No.

BH01

Sheet 4 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description			
				TCR	SCR	RQD							
										18.15m to 18.37m Extremely weak.	19		
			NI							18.3m to 18.35m Non-intact. Recovered as light brown gravelly fine to coarse sand. Gravel is fine and medium angular to subangular sandstone. 18.35m to 21.84m Fractures extremely closely spaced to medium spaced, 0-10 degrees, planar, rough, clean.			
		18.50 - 20.00	14										
				100	95	49				19.30m to 19.33m Extremely weak. 19.55m to 19.60m Extremely weak.			
		20.00 - 21.50											
				100	100	40				20.15m 1 No. Fracture undulating, rough, clean. 20.46m 2 No. Fractures, 30 degrees, cross-cutting, planar rough, clean. 20.98m 1 No. Fracture, 90 degrees, planar, rough, clean.			
										21.42m 1 No. Fracture, 30 degrees, planar, rough, clean. 21.60m to 22.00m Extremely weak.			
		21.50 - 23.00											
				NI						21.84m to 21.91m Non-intact. Recovered as light brown sandy gravel. Gravel is fine to coarse angular to subangular sandstone. 21.91m to 22.80m Fractures 0-10 degrees closely spaced, planar, rough, clean.			
				6.7									
			100		85	50							
			NI						22.80m to 22.95m Non-intact. Recovered as light brown medium and coarse gravel and cobbles of fine to coarse grained sandstone. 22.95m to 23.60m Extremely weak. 22.95m to 24.87m Fractures 0-10 degrees extremely closely spaced to closely spaced, planar, rough, clean.				
		23.00 - 24.50	19.3										
				100	100	13							

Continued on next sheet

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





BH01

Sheet 5 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description			
				TCR	SCR	RQD							
							25.00	22.30		<u>24.19m to 24.84m Extremely weak.</u>	25		
		24.50 - 26.00										<u>24.87m to 24.93m Non-intact. Recovered as light brown medium ang coarse angular to subangular gravel of fine to coarse grained sandstone.</u>	
			NI									<u>24.93m to 25.45m Fractures 0-10 degrees, closely spaced to medium spaced, planar, rough, sand infill on fracture surfaces.</u>	
			5.8	100	93	75				<u>Weak light brown fine and medium grained SANDSTONE. Rare coarse clasts of sandstone and mudstone.</u>			
			NI							<u>25.45m to 25.49m Non-intact. Recovered as light brown medium and coarse sand.</u>			
										<u>25.49m to 29.05m Fractures 0-10 degrees very closely spaced to medium spaced planar, rough, clean.</u>	26		
		26.00 - 27.50										<u>26.00m to 27.37m Medium strong.</u>	
												<u>26.20m Sand infill on fracture surface.</u>	
				100	100	82							27
			6.2										
											<u>27.41m to 27.48m Weak reddish brown medium and coarse grained sandstone. Fresh.</u>		
		27.50 - 29.00										28	
				93	93	85							
								29					
29.00 - 30.50	NI					<u>29.05m to 29.22m Non-intact. Recovered as brown sandy clay.</u>							
						<u>Very weak light brown medium and coarse grained SANDSTONE. Generally fresh.</u>							
	8.8	100	82	50	<u>29.22m to 29.90m Fracture set 1: 0-10 degrees, closely spaced to medium spaced, planar, rough, sand infill on fracture surfaces. Fracture set 2: 0-30 degrees, closely spaced, planar, rough, clean, sand infill on fracture surfaces.</u>								
	NI												
						<u>29.90m to 30.00m Non-intact. Recovered as medium and</u>	30						
						Continued on next sheet							

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Rotary Core Log

Borehole No.

BH01

Sheet 6 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
			6.5							<u>coarse sand.</u> 30.00m to 35.07m Fractures 0-10 degrees, very closely spaced to medium spaced, planar, rough, clean. 30.04m to 30.48m Closely spaced thinly bedded weak fine and medium grained sandstone.	31
		30.50 - 32.00		100	100	79				<u>31.00m to 31.50m Weak fine to coarse grained sandstone.</u>	
										<u>31.50m to 31.60m Very weak reddish brown mudstone.</u>	
										<u>31.90m 1 No. Fracture, undulating, rough, clean.</u>	
										<u>32.10m to 32.64m Weak light brown fine to coarse sandstone. Fresh.</u>	
		32.00 - 33.50	6.5	100	100	67				<u>32.52m to 32.55m Extremely weak reddish brown mudstone.</u>	32
		33.50 - 35.00	6.5	100	100	71				<u>33.50m 1 No. Fracture 60 degrees, planar, rough, clean.</u> <u>33.50m to 33.90m Medium strong</u>	33
		35.00 - 36.50	7.3	100	91	73				<u>35.00m to 35.50m Extremely weak.</u> <u>35.07m to 35.13m Non-intact. Recovered as gravelly medium and coarse sand. Gravel is medium and coarse angular to subangular sandstone.</u> <u>35.13m to 36.50m Fractures 0-10 degrees, very closely spaced to medium spaced, planar, rough, clean.</u>	34
Continued on next sheet										35	

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Rotary Core Log

Borehole No.

BH01

Sheet 7 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description		
				TCR	SCR	RQD						
		36.50 - 38.00	NI	87	87	85	38.12	9.18		<u>36.50m to 36.70m No recovery.</u>	37	
			3.1							<u>36.70m to 37.98m Fractures 0-10 degrees, medium spaced, planar, rough, clean.</u>		
		38.00 - 39.50	NI	93	65	47				<u>37.98m to 38.12m Non-intact. Recovered as sandy gravel. Gravel is fine to coarse angular to subangular sandstone.</u>	38	
			12.1							<u>Weak reddish brown fine to coarse grained SANDSTONE. Fresh.</u>		
			>25							<u>38.12m to 38.78m Fractures 0-10 degrees, very closely spaced to closely spaced planar, rough, clean.</u>		
			12.5							<u>38.48m 1 No. Fracture 20 degrees, planar, rough, clean.</u>		
			NI							<u>38.78m to 39.00m Fractures extremely closely spaced to very closely spaced 0-10 degrees, rough, sand infill.</u>		
										<u>38.78m to 39.00m Very weak.</u>		
		39.50 - 41.00	5.7	100	96	83				<u>39.00m to 39.32m Fractures 0-10 degrees very closely spaced to closely spaced planar, rough, clean.</u>	39	
												<u>39.30m to 39.32m Reddish brown mudstone.</u>
												<u>39.32m to 39.40m Non-intact. Recovered as gravelly fine to coarse sand. Gravel is fine and medium angular to subrounded sandstone.</u>
		41.00 - 42.50		11	11	7				<u>39.40m to 41.16m Fractures 0-10 degrees extremely closely spaced to medium spaced planar, rough, clean,</u>	40	
											<u>41.16m to 44.00m No recovery.</u>	41
					</							

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Rotary Core Log

Borehole No.

BH01

Sheet 8 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description					
				TCR	SCR	RQD									
			NR				45.50	1.80			43				
		42.50 - 44.00		0	0	0									
		44.00 - 45.50	NI	100	67	59					44				
			5.9												
			NI												
			8.2												
														45	

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Borehole Log

Borehole No.

BH01

Sheet 1 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					1.27	46.04		MADE GROUND: Brown gravelly fine to coarse sand. Occasional cobbles of brick and concrete. Gravel is fine to coarse angular to subangular brick, concrete and rare clinker.	1
		2.00		N=20 (1,3/4,4,5,7)				Stiff brown with rare grey mottling slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded sandstone and mudstone.	2
		3.50		N=31 (5,8/7,7,7,10)					3
		5.00		N=26 (1,2/4,6,8,8)					4
									5
									6

Continued on next sheet

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Borehole Log

Borehole No.

BH01

Sheet 2 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FEOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		8.00		50 (8,14/50 for 125mm)					7
					10.60	36.70			8
		11.00		50 (25 for 120mm/50 for 95mm)					9
									10
									11
									12

Very dense light orange medium and coarse SAND. Pockets of reddish brown sandy clay.

Continued on next sheet

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Borehole Log

Borehole No.

BH01

Sheet 3 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FROF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		12.50		50 (25 for 90mm/50 for 80mm)	12.80	34.51			
								Extremely weak light brown fine to coarse grained SANDSTONE. 12.80m to 14.00m Fractures extremely closely spaced to closely spaced 0-10 degrees planar, rough, sand infill on fracture surfaces. 13.05m Brown clay infill on fracture surface. 13.28m 1 No. Fracture, 0-10 degrees, undulating, rough, clean.	13
								13.74m 1 No. Fracture, 0-10 degrees, stepped, rough, clean.	
								14.00m to 14.05m Non-intact. Recovered as light brown gravelly fine to coarse sand. Gravel is fine and medium angular to subrounded sandstone. 14.05m to 15.00m Fractures extremely closely spaced to medium spaced 0-10 degrees planar, rough, clean. 14.30m 1 No. Fracture 30 degrees, planar, rough, clean.	14
								15.00m to 16.00m Non-intact. Recovered as light brown gravelly fine to coarse sand. Gravel is fine and medium angular to subangular sandstone.	15
					16.24	31.06		16.00m to 16.55m Fractures 0-10 degrees, very closely spaced to closely spaced, planar, rough, clean. 16.15m 1 No. Fracture, 90 degrees, 7 cm length planar, rough, clean.	16
								Very weak light brown fine to coarse grained SANDSTONE. 16.55m to 17.62m Fractures extremely closely spaced to closely spaced 30 to 45 degrees, planar, rough, clean. 16.73m 1 No. Fracture 0-10 degrees, planar, rough, clean.	
								17.00m to 17.24m Extremely weak.	17
								17.62m to 17.67m Non-intact. Recovered as light brown gravelly fine to coarse sand. Gravel is fine and medium angular to subangular sandstone. 17.67m to 18.30m Fractures very closely spaced to closely spaced, planar, rough, sand infill on fracture surfaces.	18
								Continued on next sheet	

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Borehole Log

Borehole No.

BH01

Sheet 4 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								18.15m to 18.37m <i>Extremely weak.</i> 18.3m to 18.35m <i>Non-intact. Recovered as light brown gravelly fine to coarse sand. Gravel is fine and medium angular to subangular sandstone.</i> 18.35m to 21.84m <i>Fractures extremely closely spaced to medium spaced, 0-10 degrees, planar, rough, clean.</i>	19
								19.30m to 19.33m <i>Extremely weak.</i> 19.55m to 19.60m <i>Extremely weak.</i>	20
								20.15m 1 No. <i>Fracture undulating, rough, clean.</i> 20.46m 2 No. <i>Fractures, 30 degrees, cross-cutting, planar rough, clean.</i>	21
								20.98m 1 No. <i>Fracture, 90 degrees, planar, rough, clean.</i> 21.42m 1 No. <i>Fracture, 30 degrees, planar, rough, clean.</i> 21.60m to 22.00m <i>Extremely weak.</i>	22
								21.84m to 21.91m <i>Non-intact. Recovered as light brown sandy gravel. Gravel is fine to coarse angular to subangular sandstone.</i> 21.91m to 22.80m <i>Fractures 0-10 degrees closely spaced, planar, rough, clean.</i>	23
								22.80m to 22.95m <i>Non-intact. Recovered as light brown medium and coarse gravel and cobbles of fine to coarse grained sandstone.</i> 22.95m to 23.60m <i>Extremely weak.</i> 22.95m to 24.87m <i>Fractures 0-10 degrees extremely closely spaced to closely spaced, planar, rough, clean.</i>	24

Continued on next sheet

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Borehole Log

Borehole No.

BH01

Sheet 5 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					25.00	22.30		24.19m to 24.84m <i>Extremely weak.</i> 24.87m to 24.93m <i>Non-intact. Recovered as light brown medium and coarse angular to subangular gravel of fine to coarse grained sandstone.</i> 24.93m to 25.45m <i>Fractures 0-10 degrees, closely spaced to medium spaced, planar, rough, sand infill on fracture surfaces.</i> Weak light brown fine and medium grained SANDSTONE. Rare coarse clasts of sandstone and mudstone. 25.45m to 25.49m <i>Non-intact. Recovered as light brown medium and coarse sand.</i> 25.49m to 29.05m <i>Fractures 0-10 degrees very closely spaced to medium spaced planar, rough, clean.</i> 26.00m to 27.37m <i>Medium strong.</i> 26.20m <i>Sand infill on fracture surface.</i> 27.41m to 27.48m <i>Weak reddish brown medium and coarse grained sandstone. Fresh.</i> 29.05m to 29.22m <i>Non-intact. Recovered as brown sandy clay.</i> Very weak light brown medium and coarse grained SANDSTONE. Generally fresh. 29.22m to 29.90m <i>Fracture set 1: 0-10 degrees, closely spaced to medium spaced, planar, rough, sand infill on fracture surfaces. Fracture set 2: 0-30 degrees, closely spaced, planar, rough, clean, sand infill on fracture surfaces.</i> 29.90m to 30.00m <i>Non-intact. Recovered as medium and</i>	25
					29.22	18.08			26
									27
									28
									29
									30

Continued on next sheet

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Borehole Log

Borehole No.

BH01

Sheet 6 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FEOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								<i>coarse sand.</i> <i>30.00m to 35.07m Fractures 0-10 degrees, very closely spaced to medium spaced, planar, rough, clean.</i> <i>30.04m to 30.48m Closely spaced thinly bedded weak fine and medium grained sandstone.</i>	
								<i>31.00m to 31.50m Weak fine to coarse grained sandstone.</i>	31
								<i>31.50m to 31.60m Very weak reddish brown mudstone.</i>	
								<i>31.90m 1 No. Fracture, undulating, rough, clean.</i>	32
								<i>32.10m to 32.64m Weak light brown fine to coarse sandstone. Fresh.</i>	
								<i>32.52m to 32.55m Extremely weak reddish brown mudstone.</i>	33
								<i>33.50m 1 No. Fracture 60 degrees, planar, rough, clean.</i> <i>33.50m to 33.90m Medium strong</i>	
								<i>33.90m to 35.00m Weak.</i>	34
								<i>35.00m to 35.50m Extremely weak.</i> <i>35.07m to 35.13m Non-intact. Recovered as gravelly medium and coarse sand. Gravel is medium and coarse angular to subangular sandstone.</i> <i>35.13m to 36.50m Fractures 0-10 degrees, very closely spaced to medium spaced, planar, rough, clean.</i>	35
								Continued on next sheet	36

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Borehole Log

Borehole No.

BH01

Sheet 7 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					38.12	9.18		36.50m to 36.70m No recovery. 36.70m to 37.98m Fractures 0-10 degrees, medium spaced, planar, rough, clean. 37.98m to 38.12m Non-intact. Recovered as sandy gravel. Gravel is fine to coarse angular to subangular sandstone. Weak reddish brown fine to coarse grained SANDSTONE. Fresh. 38.12m to 38.78m Fractures 0-10 degrees, very closely spaced to closely spaced planar, rough, clean. 38.48m 1 No. Fracture 20 degrees, planar, rough, clean. 38.78m to 39.00m Fractures extremely closely spaced to very closely spaced 0-10 degrees, rough, sand infill. 38.78m to 39.00m Very weak. 39.00m to 39.32m Fractures 0-10 degrees very closely spaced to closely spaced planar, rough, clean. 39.30m to 39.32m Reddish brown mudstone. 39.32m to 39.40m Non-intact. Recovered as gravelly fine to coarse sand. Gravel is fine and medium angular to subrounded sandstone. 39.40m to 41.16m Fractures 0-10 degrees extremely closely spaced to medium spaced planar, rough, clean, 41.16m to 44.00m No recovery.	37 38 39 40 41 42

Continued on next sheet

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.





Borehole Log

Borehole No.

BH01

Sheet 8 of 8

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385271.30 - 398034.90

Hole Type
RC

Location: Heyrod Street, Manchester

Level: 47.31

Scale
1:30

Client: Packaged Living (FREOF V Heyrod) LLP

Dates: 30/04/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		44.00		50 (25 for 50mm/50 for 40mm)					43
									44
									45
					45.50	1.80			46
									47
									48

Remarks

Borehole undertaken within previously undertaken archaeological trial trench. No groundwater strikes recorded during progression of exploratory hole due to use of water flush.



Client Name: Packaged Living		Project Name: Heyrod Street	Project No: B075424
No. 1	Date: 30/04/2021 to 04/05/2021	Description: BH01 Logging Photographs 0.40m to 8.00m bgl.	



Client Name: Packaged Living		Project Name: Heyrod Street	Project No: B075424
No. 2	Date: 04/05/2021	Description: BH01 Logging Photographs 8.00m to 14.00m bgl.	



Client Name: Packaged Living		Project Name: Heyrod Street	Project No: B075424
No. 3	Date: 04/05/2021	Description: BH01 Logging Photographs 14.00m to 20.00m bgl.	



Client Name: Packaged Living		Project Name: Heyrod Street	Project No: B075424
No. 4	Date: 04/05/2021	Description: BH01 Logging Photographs 14.00m to 20.00m bgl.	



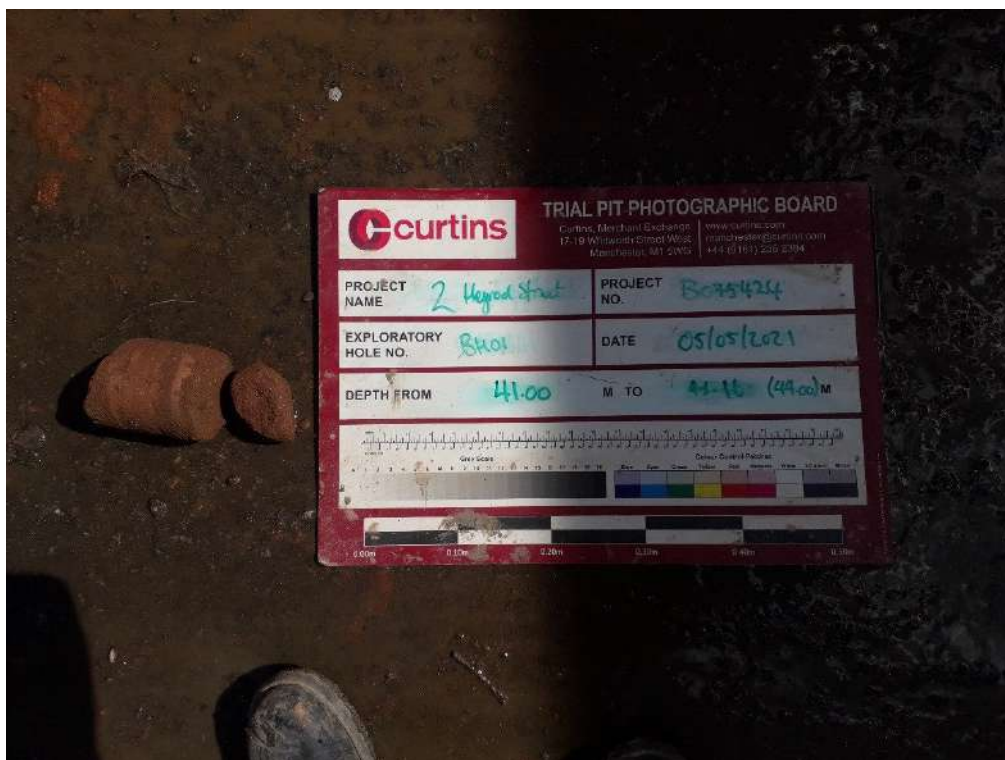
Client Name: Packaged Living		Project Name: Heyrod Street	Project No: B075424
No. 5	Date: 04/05/2021	Description: BH01 Logging Photographs 14.00m to 20.00m bgl.	



Client Name: Packaged Living		Project Name: Heyrod Street	Project No: B075424
No. 6	Date: 05/05/2021	Description: BH01 Logging Photographs 32.00m to 38.00m bgl.	



Client Name: Packaged Living		Project Name: Heyrod Street	Project No: B075424
No. 7	Date: 05/05/2021	Description: BH01 Logging Photographs 38.00m to 41.16m bgl.	



Client Name: Packaged Living		Project Name: Heyrod Street	Project No: B075424
No. 7	Date: 05/05/2021	Description: BH01 Logging Photographs 44.00m to 45.50m bgl.	





Borehole Log

Borehole No.

WS01

Sheet 1 of 1

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385285.40 - 398066.80

Hole Type
WS

Location: Heyrod Street, Manchester

Level: 47.70

Scale
1:40

Client: Midgard Ltd

Dates: 04/05/2021 - 04/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.05			0.05	47.65		MADE GROUND: Black tarmacadam. MADE GROUND: Light brown gravelly medium and coarse sand. Gravel is fine to coarse angular to subangular sandstone and concrete. MADE GROUND: Brown gravelly fine to coarse sand. Gravel is fine to coarse angular to subangular brick, concrete, ceramic fragments, rare ash, and coal. Occasional cobbles of brick.	1
		0.16			0.16	47.54			
		1.20		N=4 (1,1/1,1,1,1)					
					1.60	46.10			
		2.00		N=18 (2,3/4,6,4,4)					
		3.00		N=28 (5,5/6,6,7,9)				Stiff brown with grey mottling slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular to subrounded sandstone, mudstone and rare coal.	2
		4.00		N=27 (4,6/5,5,7,10)					
		5.00		N=26 (5,7/5,8,6,7)					
					5.45	42.25		End of borehole at 5.45 m	3
									4
									5
									6
									7
									8

Remarks

Hand excavated service clearance pit to 1.20m bgl. No groundwater strikes recorded during progression of exploratory hole.





Borehole Log

Borehole No.

WS02

Sheet 1 of 1

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385288.10 - 398059.20

Hole Type
WS

Location: Heyrod Street, Manchester

Level: 48.59

Scale
1:40

Client: Midgard Ltd

Dates: 04/05/2021 - 04/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10	48.49		MADE GROUND: Black tarmacadam.	1
					0.30	48.29			
		1.20		N=4 (1,1/1,1,1,1)	1.20	47.39			
					1.60	46.99			
		2.00		N=6 (1,2/1,2,2,1)	2.00	46.39			
					2.20	46.39			
		3.00		N=27 (4,4/6,7,7,7)	3.00				
		4.00		N=30 (5,6/6,7,7,10)	4.00				
		5.00		N=32 (4,6/6,7,8,11)	5.00				
					5.45	43.14			
						End of borehole at 5.45 m			6
									7
									8

Remarks

Hand excavated service clearance pit to 1.20m bgl. No groundwater strikes recorded during progression of exploratory hole.





Borehole Log

Borehole No.

WS03

Sheet 1 of 1

Project Name: Heyrod Street

Project No.
B075424

Co-ords: 385276.10 - 398047.30

Hole Type
WS

Location: Heyrod Street, Manchester

Level: 47.61

Scale
1:40

Client: Midgard Ltd

Dates: 04/05/2021 - 04/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.16			0.16	47.45		MADE GROUND: Concrete.	
		0.28			0.28	47.33		MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is fine to coarse angular to subangular sandstone and concrete.	
		0.67			0.67	46.94		MADE GROUND: Brown sandy cobbles of brick and concrete.	
		1.20		N=4 (1,1/1,1,1,1)				MADE GROUND: Dark brown and dark greyish brown gravelly fine to coarse sand. Gravel is fine to coarse angular to subangular brick, concrete, ash, wood fragments and rare coal. Slight organic odour.	1
		2.00		N=19 (3,3/5,4,4,6)	2.00	45.61		Stiff brown with grey mottling slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular to subrounded sandstone, mudstone and rare coal.	2
		3.00		N=23 (3,4/4,5,7,7)					3
		4.00		N=28 (4,6/6,6,7,9)					4
		5.00		N=21 (5,5/4,6,5,6)					5
		5.45			5.45	42.16		End of borehole at 5.45 m	6
									7
									8

Remarks

Hand excavated service clearance pit to 1.20m bgl. No groundwater strikes recorded during progression of exploratory hole.





Borehole Log

Borehole No.

WS04

Sheet 1 of 1

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
WS

Location: Heyrod Street, Manchester

Level: 47.47

Scale
1:40

Client: Midgard Ltd

Dates: 05/05/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20	47.27		MADE GROUND: Concrete.	
					0.30	47.17		MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is fine to coarse angular to subangular sandstone and concrete.	
					0.80	46.67		MADE GROUND: Brown slightly clayey gravelly fine to coarse sand. Gravel is fine to coarse angular to subangular brick, concrete and sandstone. Frequent cobbles of brick.	1
		1.20		N=7 (1,2/1,2,2,2)	1.50	45.97		MADE GROUND: Loose brown clayey slightly gravelly fine and medium sand. Gravel is fine and medium angular to subrounded sandstone, brick and coal.	2
		2.00		N=20 (3,4/4,4,5,7)				Stiff brown with grey mottling slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular to subrounded sandstone, mudstone and rare coal.	3
		3.00		N=20 (4,3/4,5,7,4)					4
		4.00		N=23 (3,4/5,5,5,8)					5
		5.00		N=20 (3,5/4,4,7,5)					6
					5.45	42.02		End of borehole at 5.45 m	7
									8

Remarks

Hand excavated service clearance pit to 1.20m bgl. No groundwater strikes recorded during progression of exploratory hole.





Borehole Log

Borehole No.

WS05

Sheet 1 of 1

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
WS

Location: Heyrod Street, Manchester

Level: 53.78

Scale
1:40

Client: Midgard Ltd

Dates: 04/05/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15			0.15	53.63		MADE GROUND: Concrete.	1
								MADE GROUND: Brown gravelly fine to coarse sand. Gravel is fine to coarse angular to subangular brick, concrete and ceramic pipe fragments. Frequent brick cobbles.	
		1.20		N=17 (5,5/4,2,6,5)	1.05	52.73		MADE GROUND: Loose dark greyish dark brown slightly clayey slightly silty fine and medium sand.	
					1.40	52.38		Stiff brown with grey mottling slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular to subrounded sandstone, mudstone and rare coal.	2
		2.00		N=23 (4,5/5,6,6,6)					3
		3.00		N=25 (6,6/6,7,7,5)					4
		4.00		N=31 (5,6/6,8,9,8)					5
		5.00		N=29 (5,5/4,7,9,9)					6
					5.45	48.33		End of borehole at 5.45 m	7
									8

Remarks

Hand excavated service clearance pit to 1.20m bgl. No groundwater strikes recorded during progression of exploratory hole.





Borehole Log

Borehole No.

WS06

Sheet 1 of 1

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
WS

Location: Heyrod Street, Manchester

Level: 48.02

Scale
1:40

Client: Midgard Ltd

Dates: 05/05/2021 - 05/05/2021

Logged By
MH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15			0.15	47.87		MADE GROUND: Concrete.	
		0.22			0.22	47.80		MADE GROUND: Light brown gravelly fine to coarse sand. Gravel is fine to coarse angular to subangular sandstone and concrete.	
		0.70			0.70	47.32		MADE GROUND: Brown slightly clayey gravelly fine to coarse sand. Gravel is fine to coarse angular to subangular brick and concrete. Occasional cobbles of brick and concrete.	
		1.20		N=3 (1,1/1,1,0,1)	1.20			MADE GROUND: Loose brown clayey slightly gravelly fine and medium sand. Gravel is fine and medium angular to subrounded sandstone, brick and coal.	
		1.50			1.50	46.52		Stiff brown with grey mottling slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular to subrounded sandstone, mudstone and rare coal.	
		2.00		N=20 (4,4/5,4,6,5)	2.00				
		3.00		N=25 (4,4/6,6,6,7)	3.00				3
		4.00		N=27 (5,4/4,6,7,10)	4.00				4
		5.00		N=25 (6,6/4,4,8,9)	5.00				5
		5.45			5.45	42.57		End of borehole at 5.45 m	6
									7
									8

Remarks

Hand excavated service clearance pit to 1.20m bgl. No groundwater strikes recorded during progression of exploratory hole.





Rotary Core Log

Borehole No.

BH101

Sheet 1 of 5

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

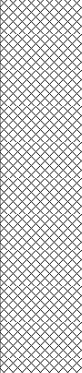
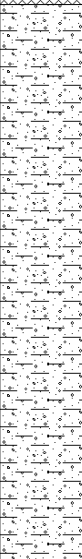
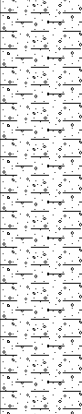
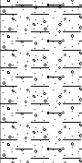
Level: 47.60

Scale
1:40

Client: Midgard Ltd

Dates: 15/09/2021 - 17/09/2021

Logged By
ZH

Well	Water Strikes	Depth (m)	Type / Fl	Coring			Depth (m)	Level (m)	Legend	Stratum Description										
				TCR	SCR	RQD														
W1		3.00 - 3.50	U				2.00	45.60		MADE GROUND: Brownish grey very gravelly fine to coarse sand with low cobble content. Gravel is angular to subangular fine to coarse of sandstone, brick, tarmacadam and concrete. Cobbles are angular to subangular of brick.	1									
										Stiff greyish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to medium of sandstone and mudstone.	2									
		5.00	D									<u>From 5.00 to 7.15m firm.</u>		3						
												<u>From 5.30 to 7.15m no recovery.</u>		4						
												7.55 - 8.00	U						Stiff greyish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and mudstone.	5
		8.00	D											7						
														8						
									Continued on next sheet.											

*From 5.00 to 7.15m firm.**From 5.30 to 7.15m no recovery.*

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m. Borehole undertaken within previously undertaken archaeological trial trench. No groundwater recorded due to use of water flush.





Rotary Core Log

Borehole No.

BH101

Sheet 2 of 5

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 47.60

Scale
1:40

Client: Midgard Ltd

Dates: 15/09/2021 - 17/09/2021

Logged By
ZH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		9.05 - 9.50	U								9
										From 9.70 to 11.00m no recovery.	10
		11.00	D				11.00	36.60		Grey and brown angular to subrounded fine to coarse GRAVEL of sandstone. From 11.15 to 12.50m no recovery.	11
										From 12.70 to 14.00m no recovery.	12
											13
		14.00 - 14.50	U				14.00	33.60		Very stiff brown slightly gravelly very sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone.	14
											15
			17				15.50	32.10		Extremely weak reddish brown medium to coarse grained SANDSTONE. 15.50 to 15.80m 0 - 10 degrees very closely spaced to closely spaced, undulating rough.	16
			NI								

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m. Borehole undertaken within previously undertaken archaeological trial trench. No groundwater recorded due to use of water flush.





Rotary Core Log

Borehole No.

BH101

Sheet 3 of 5

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 47.60

Scale
1:40

Client: Midgard Ltd

Dates: 15/09/2021 - 17/09/2021

Logged By
ZH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description			
				TCR	SCR	RQD							
		15.50 - 17.00	15	95	44	23	17.00	30.60		From 15.50 to 15.86m highly weathered. 15.56 to 15.80m 1 No. discontinuity 80 - 90 degrees, undulating rough. From 15.80 to 15.86m recovered as non-intact core of fine to coarse sand. 15.86 to 16.77m 0 - 10 degrees very closely spaced to closely spaced, locally extremely closely spaced, planar rough. From 16.77 to 16.88m recovered as non-intact core of very sandy angular to subangular medium to coarse gravel. 16.88 to 16.92m 1 No. discontinuity 5 - 10 degrees, undulating smooth. From 16.88 to 16.93m reddish brown mudstone. From 16.92 to 17.00m no recovery.	17		
			NI										
			NR										
		17.00 - 18.50	10	90	88	66				Very weak reddish brown fine to medium grained SANDSTONE. 17.00 to 18.32m 5 - 10 degrees very closely spaced to closely spaced, locally extremely closely spaced, planar rough.	18		
			NR										
			NI										
		18.50 - 20.00	12	100	74	50				From 18.32 to 18.35m recovered as non-intact core of sandy angular to subangular fine to coarse gravel. From 18.35 to 18.5m no recovery. From 18.50 to 18.78m extremely weak highly weathered. 18.78 to 19.60m 0 - 10 degrees closely spaced to medium spaced, locally very closely spaced, planar rough.	19		
			NI										
			NI										
		20.00 - 21.50	16	100	96	48				From 19.60 to 19.81m extremely weak highly weathered. 19.81 to 21.34m 5 - 10 degrees very closely spaced to closely spaced, locally extremely closely spaced, planar rough.	20		
			NI										
			10										
		21.50 - 23.00	10	85	75	41	From 20.76 to 20.79m 1 No. discontinuity 80 - 90 degrees, planar rough. From 21.34 to 21.40m recovered as non-intact core of fine to coarse sand. 21.40 to 21.50m 1 No. discontinuity 0 - 5 degrees, planar rough. From 21.50 to 21.55m recovered as non-intact core of slightly sandy angular fine to coarse gravel. 21.55 to 22.15m 5 - 15 degrees closely spaced, planar rough.	21					
			NI										
			>25										
		21.50 - 23.00	12	85	75	41	From 22.15 to 22.21m recovered as non-intact core of slightly sandy angular fine to coarse gravel. 22.21 to 22.32m 0 - 10 degrees extremely closely spaced to very closely spaced, planar or stepped rough. From 22.32 to 22.36m recovered as non-intact core of slightly sandy angular fine to coarse gravel. 22.36 to 22.78m 0 - 10 degrees closely spaced, locally extremely closely spaced, planar rough.	22					
			NR										
			NI										
		23.00 - 24.50	10	100	87	57	Weak reddish brown fine to coarse grained SANDSTONE. From 22.78 to 23.00m no recovery. From 23.00 to 23.19m recovered as non-intact core of fine to coarse sand. 23.19 to 23.35m 1 No. discontinuity 70 - 80 degrees, planar rough. 23.19 to 24.57m 0 - 10 degrees very closely spaced to medium spaced, planar rough.	23					
			NI										
			NI										
												Continued on next sheet	24

Remarks

Service inspection pit hand excavated from GL to 1.20m. Borehole undertaken within previously undertaken archaeological trial trench. No groundwater recorded due to use of water flush.





Rotary Core Log

Borehole No.

BH101

Sheet 4 of 5

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 47.60

Scale
1:40

Client: Midgard Ltd

Dates: 15/09/2021 - 17/09/2021

Logged By
ZH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		24.50 - 26.00	NI	100	87	45	25.00	22.60		From 24.57 to 24.64m recovered as non-intact core of slightly sandy angular to subangular fine to medium gravel. 24.64 to 24.90m 10 - 20 degrees very closely spaced to closely spaced, planar or stepped rough.	25
			15							From 24.90 to 25.00m recovered as non-intact core of fine to coarse sand.	
			NI							Very weak reddish brown coarse grained SANDSTONE.	
			8							25.00 to 25.51m 0 - 10 degrees closely spaced, planar rough.	
		26.00 - 27.50	NI	100	93	52				From 25.51 to 25.56m recovered as non-intact core of coarse sand.	26
			7							25.56 to 27.20m 0 - 5 degrees closely spaced to medium spaced, locally extremely closely spaced, planar rough.	
			NI								
			20							27.00 to 27.20m 1 No. discontinuity 80 - 90 degrees, planar rough.	
		27.50 - 29.00	NI	100	77	67				From 27.20 to 27.40m recovered as non-intact core of sand and gravel.	27
			8							27.40 to 27.55m 5 - 10 degrees very closely spaced, planar rough.	
			>25							From 27.55 to 27.60m recovered as non-intact core of angular to subangular sandy gravel.	
			7							27.60 to 28.00m 5 - 15 degrees closely spaced to medium spaced, planar rough and smooth.	
		29.00 - 30.50	NI	100	85	49				From 27.60 to 28.01m weak fine grained.	28
			8							From 28.00 to 28.20m highly fractured.	
			NI							28.20 to 28.47m 5 - 10 degrees closely spaced, planar rough.	
			11							From 28.47 to 28.56m recovered as non-intact core of sand and gravel.	
		30.50 - 32.00	NI	100	100	85	30.10	17.50		28.56 to 30.00m 5 - 20 degrees closely spaced, locally very closely spaced, planar rough.	29
			8							From 28.65 to 29.00m weak fine grained.	
			NI								
			4							From 29.73 to 30.00m dark grey subangular fine to medium mudstone gravel present.	
			NI							From 30.00 to 30.10m recovered as non-intact core medium to coarse sand.	30
			11							Weak reddish brown fine to coarse grained SANDSTONE.	
			NI							30.10 to 30.28m 5 - 10 degrees closely spaced, planar rough.	
			4							From 30.28 to 30.40m recovered of fine to coarse sand.	
			NI							30.40 to 32.00m 0 - 10 degrees medium spaced, locally very closely spaced, planar rough.	31
			11								
			NI								
			4							From 31.38 to 31.62m coarse grained.	
											32

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m. Borehole undertaken within previously undertaken archaeological trial trench. No groundwater recorded due to use of water flush.





Rotary Core Log

Borehole No.

BH101

Sheet 5 of 5

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 47.60

Scale
1:40

Client: Midgard Ltd

Dates: 15/09/2021 - 17/09/2021

Logged By
ZH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		32.00 - 33.50	7	100	100	79	33.28	14.32		32.00 to 34.65m 0 - 5 degrees medium spaced, locally extremely closely spaced to very closely spaced, planar rough.	33
		33.50 - 35.00		90	77	56	34.00	13.60		Very weak reddish brown coarse grained SANDSTONE with subangular medium to coarse gravel of mudstone.	34
			NR							Weak reddish brown fine to medium grained SANDSTONE.	
										From 34.40 to 34.65m coarse grained.	
										From 34.65 to 35.00m no recovery.	
							35.00	12.60		End of borehole at 35.00 m	35
											36
											37
											38
											39
											40

Remarks

Service inspection pit hand excavated from GL to 1.20m. Borehole undertaken within previously undertaken archaeological trial trench. No groundwater recorded due to use of water flush.





Rotary Core Log

Borehole No.

BH102

Sheet 1 of 5

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 48.02

Scale
1:40

Client: Midgard Ltd

Dates: 20/09/2021 - 22/09/2021

Logged By
ZH

Well	Water Strikes	Depth (m)	Type / Fl	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
							1.60	46.42		MADE GROUND: Dark brownish grey very gravelly fine to coarse sand with moderate cobble content. Gravel is angular to subrounded fine to coarse of brick, sandstone, concrete and scrap metal. Cobbles are subangular of brick. <i>From 1.20 to 1.40m clayey angular to subangular fine to coarse gravel.</i>	1
		3.50	D							Stiff brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to medium of sandstone and mudstone. <i>From 1.60 to 2.50m stiff.</i> <i>From 1.60 to 3.50m slightly sandy.</i>	2
										<i>From 3.50 to 6.50m firm.</i>	3
		5.00	D								4
											5
											6
							6.50	41.52		Very stiff brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and mudstone.	7
		7.50	U								8

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m. Concrete removed prior to arriving to site. No groundwater recorded due to use of water flush.





Rotary Core Log

Borehole No.

BH102

Sheet 2 of 5

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 48.02

Scale
1:40

Client: Midgard Ltd

Dates: 20/09/2021 - 22/09/2021

Logged By
ZH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description		
				TCR	SCR	RQD						
		9.50	D				10.90	37.12		Extremely weak highly weathered reddish brown medium to coarse grained SANDSTONE recovered as a medium to coarse sand.	9	
		10.50	U								10	
	11.00 - 12.50	NI	100	27	27						11	
		7									12	
		NI									13	
	12.50 - 14.00	10	100	60	26	13.50	34.52		12.50 to 12.70m 0 - 10 degrees closely spaced, undulating rough. From 12.50 to 12.71m very weak coarse grained intact core.	14		
		NI								15		
		11								16		
		NI								17		
	14.00 - 15.50	9	85	83	50				Very weak reddish brown fine to coarse grained SANDSTONE. 13.50 to 14.80m 0 - 15 degrees closely spaced to medium spaced, locally very closely spaced, planar rough.	18		
		11								19		
		NR								20		
		NI							From 15.50 to 15.57m recovered as non-intact core of fine to coarse sand. 15.57 to 18.50m 5 - 15 degrees closely spaced to medium spaced, locally very closely spaced, planar and undulating	21		
										22		
										23		
										24		
										25		
										26		
										27		
										28		

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m. Concrete removed prior to arriving to site. No groundwater recorded due to use of water flush.





Rotary Core Log

Borehole No.

BH102

Sheet 3 of 5

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 48.02

Scale
1:40

Client: Midgard Ltd

Dates: 20/09/2021 - 22/09/2021

Logged By
ZH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		15.50 - 17.00	7	100	95	77				rough.	17
		17.00 - 18.50		100	100	88				From 16.86 to 17.00m weak From 17.00 to 17.10m extremely weak brown mudstone.	
		18.50 - 20.00	>25	92	82	53	18.80	29.22		From 16.60 to 18.65m highly fractured. 18.65 to 19.88m 5 - 10 degrees very closely spaced to closely spaced, planar rough.	19
			10							Weak reddish brown medium grained SANDSTONE.	
		20.00 - 21.50	NR	100	86	0	20.09	27.93		From 19.88 to 20.00m no recovery. 20.00 to 20.74m 5 - 10 degrees extremely closely spaced, planar rough.	20
			19							Very weak reddish brown medium to coarse grained SANDSTONE.	
			NI							From 20.61 to 20.74m weathered.	
			>25							From 20.74 to 20.88m recovered as non-intact core of gravelly medium to coarse sand. 20.88 to 21.20m 10 - 20 degrees very closely spaced to closely spaced, locally extremely closely spaced, planar rough.	
		21.50 - 23.00	NI	97	86	23	21.96	26.06		From 21.20 to 21.27m recovered as non-intact core of medium to coarse sand. 21.27 to 21.96m 15 - 20 degrees extremely closely spaced to closely spaced, planar rough.	21
			>25							Weak reddish brown fine to medium grained SANDSTONE. 21.96 to 22.34m 30 to 40 degrees closely spaced, planar rough.	
			11							From 22.34 to 22.50m recovered as non-intact core of gravelly fine to medium sand.	
			9							22.50 to 22.95m 10 - 2 degrees closely spaced to medium spaced, locally very closely spaced, planar rough.	
		23.00 - 24.50	NR	100	100	73	23.20	24.82		From 22.95 to 23.00m no recovery. 23.00 to 25.37m 5 - 10 degrees closely spaced to medium spaced, locally very closely spaced, planar rough.	23
										Very weak reddish brown medium to coarse grained SANDSTONE.	
										Continued on next sheet	24

Remarks

Service inspection pit hand excavated from GL to 1.20m. Concrete removed prior to arriving to site. No groundwater recorded due to use of water flush.





Rotary Core Log

Borehole No.

BH102

Sheet 4 of 5

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 48.02

Scale
1:40

Client: Midgard Ltd

Dates: 20/09/2021 - 22/09/2021

Logged By
ZH

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description					
				TCR	SCR	RQD									
			9				26.15	21.87		From 25.37 to 25.50m recovered as non-intact core of clayey angular to subangular fine to medium gravel. 25.50 to 26.15m 0 - 10 degrees closely spaced, planar rough.	25				
		24.50 - 26.00			100	91					61		26		
				NI											
			6												
		26.00 - 27.50		4	71	71			71	Medium strong reddish brown fine to medium grained SANDSTONE. 26.15 to 27.07m 5 - 15 degrees closely spaced to medium spaced, planar rough. From 26.15 to 27.08m interbedded weak and medium strong.	27				
			NR												
			27.50 - 29.00	7							100	100	90	27.50 to 30.50m 0 - 15 degrees closely spaced to medium spaced, locally very closely spaced, planar rough.	28
		29.00 - 30.50				100			100	90					
		30.50 - 32.00		100	100	100			30.50 to 33.50m 10 - 20 degrees closely spaced to medium spaced, locally very closely spaced, planar rough and smooth.	30					
														31	
															32
										Continued on next sheet					

Remarks

Service inspection pit hand excavated from GL to 1.20m. Concrete removed prior to arriving to site. No groundwater recorded due to use of water flush.





Rotary Core Log

Borehole No.

BH102

Sheet 5 of 5

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 48.02

Scale
1:40

Client: Midgard Ltd

Dates: 20/09/2021 - 22/09/2021

Logged By
ZH

Well	Water Strikes	Depth (m)	Type / Fl	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		32.00 - 33.50	4	100	100	99	35.00	13.02		33.50 to 35.00m 0 - 10 degrees closely to medium spaced, planar rough.	33
		33.50 - 35.00	7	100	100	94					34
										End of borehole at 35.00 m	35
											36
											37
											38
											39
											40

Remarks

Service inspection pit hand excavated from GL to 1.20m. Concrete removed prior to arriving to site. No groundwater recorded due to use of water flush.





Borehole Log

Borehole No.

BH101

Sheet 1 of 4

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 47.60

Scale
1:50

Client: Midgard Ltd

Dates: 15/09/2021 - 17/09/2021

Logged By
ZH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		2.00		N=17 (2,1/1,4,4,8)	2.00	45.60		MADE GROUND: Brownish grey very gravelly fine to coarse sand with low cobble content. Gravel is angular to subangular fine to coarse of sandstone, brick, tarmacadam and concrete. Cobbles are angular to subangular of brick.	1
		3.00 - 3.50	U					Stiff greyish brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to medium of sandstone and mudstone.	2
		5.00	D	N=11 (1,1/1,3,4,3)				From 5.00 to 7.15m firm.	5
		5.00						From 5.30 to 7.15m no recovery.	6
		7.55 - 8.00	U		7.15	40.45		Stiff greyish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and mudstone.	7
		8.00	D	N=24 (5,6/6,5,6,7)					8
		8.00							
		9.05 - 9.50	U						9
									10

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m. Borehole undertaken within previously undertaken archaeological trial trench. No groundwater recorded due to use of water flush.





Borehole Log

Borehole No.

BH101

Sheet 2 of 4

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 47.60

Scale
1:50

Client: Midgard Ltd

Dates: 15/09/2021 - 17/09/2021

Logged By
ZH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		11.00 11.00	D	50 (6,19/50 for 45mm)	11.00	36.60		Grey and brown angular to subrounded fine to coarse GRAVEL of sandstone. <i>From 11.15 to 12.50m no recovery.</i>	11
		12.50		46 (6,6/46 for 160mm)				<i>From 12.70 to 14.00m no recovery.</i>	12
		14.00 14.00 - 14.50	U	50 (1,9/50 for 180mm)	14.00	33.60		Very stiff brown slightly gravelly very sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone.	14
					15.50	32.10		Extremely weak reddish brown medium to coarse grained SANDSTONE. <i>15.50 to 15.80m 0 - 10 degrees very closely spaced to closely spaced, undulating rough.</i> <i>From 15.50 to 15.86m highly weathered.</i> <i>15.56 to 15.80m 1 No. discontinuity 80 - 90 degrees, undulating rough.</i> <i>From 15.80 to 15.86m recovered as non-intact core of fine to coarse sand.</i> <i>15.86 to 16.77m 0 - 10 degrees very closely spaced to closely spaced, locally extremely closely spaced, planar rough.</i> <i>From 16.77 to 16.88m recovered as non-intact core of very sandy angular to subangular medium to coarse gravel.</i> <i>16.88 to 16.92m 1 No. discontinuity 5 - 10 degrees, undulating smooth.</i> <i>From 16.88 to 16.93m reddish brown mudstone.</i> <i>From 16.92 to 17.00m no recovery.</i>	16
					17.00	30.60		Very weak reddish brown fine to medium grained SANDSTONE. <i>17.00 to 18.32m 5 - 10 degrees very closely spaced to closely spaced, locally extremely closely spaced, planar rough.</i> <i>From 18.32 to 18.35m recovered as non-intact core of sandy angular to subangular fine to coarse gravel.</i> <i>From 18.35 to 18.5m no recovery.</i> <i>From 18.50 to 18.78m extremely weak highly weathered.</i> <i>18.78 to 19.60m 0 - 10 degrees closely spaced to medium spaced, locally very closely spaced, planar rough.</i> <i>From 19.60 to 19.81m extremely weak highly weathered.</i> <i>19.81 to 21.34m 5 - 10 degrees very closely spaced to</i>	17
									18
									19
									20

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m. Borehole undertaken within previously undertaken archaeological trial trench. No groundwater recorded due to use of water flush.





Borehole Log

Borehole No.

BH101

Sheet 3 of 4

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 47.60

Scale
1:50

Client: Midgard Ltd

Dates: 15/09/2021 - 17/09/2021

Logged By
ZH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								<i>closely spaced, locally extremely closely spaced, planar rough.</i>	
								<i>20.76 to 20.79m 1 No. discontinuity 80 - 90 degrees, planar rough.</i>	21
								<i>From 21.34 to 21.40m recovered as non-intact core of fine to coarse sand.</i>	
								<i>21.40 to 21.50m 1 No. discontinuity 0 - 5 degrees, planar rough.</i>	
								<i>From 21.50 to 21.55m recovered as non-intact core of slightly sandy angular fine to coarse gravel.</i>	22
								<i>21.55 to 22.15m 5 - 15 degrees closely spaced, planar rough.</i>	
					22.52	25.08		<i>From 22.15 to 22.21m recovered as non-intact core of slightly sandy angular fine to coarse gravel.</i>	
								<i>22.21 to 22.32m 0 - 10 degrees extremely closely spaced to very closely spaced, planar or stepped rough.</i>	
								<i>From 22.32 to 22.36m recovered as non-intact core of slightly sandy angular fine to coarse gravel.</i>	23
								<i>22.36 to 22.78m 0 - 10 degrees closely spaced, locally extremely closely spaced, planar rough.</i>	
								Weak reddish brown fine to coarse grained SANDSTONE.	
								<i>From 22.78 to 23.00m no recovery.</i>	
								<i>From 23.00 to 23.19m recovered as non-intact core of fine to coarse sand.</i>	24
								<i>23.19 to 23.35m 1 No. discontinuity 70 - 80 degrees, planar rough.</i>	
								<i>23.19 to 24.57m 0 - 10 degrees very closely spaced to medium spaced, planar rough.</i>	
								<i>From 24.57 to 24.64m recovered as non-intact core of slightly sandy angular to subangular fine to medium gravel.</i>	
					25.00	22.60		<i>24.64 to 24.90m 10 - 20 degrees very closely spaced to closely spaced, planar or stepped rough.</i>	25
								<i>From 24.90 to 25.00m recovered as non-intact core of fine to coarse sand.</i>	
								Very weak reddish brown coarse grained SANDSTONE.	
								<i>25.00 to 25.51m 0 - 10 degrees closely spaced, planar rough.</i>	
								<i>From 25.51 to 25.56m recovered as non-intact core of coarse sand.</i>	26
								<i>25.56 to 27.20m 0 - 5 degrees closely spaced to medium spaced, locally extremely closely spaced, planar rough.</i>	
								<i>27.00 to 27.20m 1 No. discontinuity 80 - 90 degrees, planar rough.</i>	27
								<i>From 27.20 to 27.40m recovered as non-intact core of sand and gravel.</i>	
								<i>27.40 to 27.55m 5 - 10 degrees very closely spaced, planar rough.</i>	
								<i>From 27.55 to 27.60m recovered as non-intact core of angular to subangular sandy gravel.</i>	
								<i>27.60 to 28.00m 5 - 15 degrees closely spaced to medium spaced, planar rough and smooth.</i>	28
								<i>From 27.60 to 28.01m weak fine grained.</i>	
								<i>From 28.00 to 28.20m highly fractured.</i>	
								<i>28.20 to 28.47m 5 - 10 degrees closely spaced, planar rough.</i>	
								<i>From 28.47 to 28.56m recovered as non-intact core of sand and gravel.</i>	29
								<i>28.56 to 30.00m 5 - 20 degrees closely spaced, locally very closely spaced, planar rough.</i>	
								<i>From 28.65 to 29.00m weak fine grained.</i>	
								<i>From 29.73 to 30.00m dark grey subangular fine to medium mudstone gravel present.</i>	30

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m. Borehole undertaken within previously undertaken archaeological trial trench. No groundwater recorded due to use of water flush.





Borehole Log

Borehole No.

BH101

Sheet 4 of 4

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 47.60

Scale
1:50

Client: Midgard Ltd

Dates: 15/09/2021 - 17/09/2021

Logged By
ZH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					30.10	17.50		From 30.00 to 30.10m recovered as non-intact core medium to coarse sand. Weak reddish brown fine to coarse grained SANDSTONE. 30.10 to 30.28m 5 - 10 degrees closely spaced, planar rough. From 30.28 to 30.40m recovered of fine to coarse sand. 30.40 to 32.00m 0 - 10 degrees medium spaced, locally very closely spaced, planar rough. From 31.38 to 31.62m coarse grained.	31
								32.00 to 34.65m 0 - 5 degrees medium spaced, locally extremely closely spaced to very closely spaced, planar rough.	32
					33.28	14.32		Very weak reddish brown coarse grained SANDSTONE with subangular medium to coarse gravel of mudstone.	33
					34.00	13.60		Weak reddish brown fine to medium grained SANDSTONE. From 34.40 to 34.65m coarse grained. From 34.65 to 35.00m no recovery.	34
					35.00	12.60		End of borehole at 35.00 m	35
									36
									37
									38
									39
									40

Remarks

Service inspection pit hand excavated from GL to 1.20m. Borehole undertaken within previously undertaken archaeological trial trench. No groundwater recorded due to use of water flush.





Borehole Log

Borehole No.

BH102

Sheet 1 of 4

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 48.02

Scale
1:50

Client: Midgard Ltd

Dates: 20/09/2021 - 22/09/2021

Logged By
ZH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		1.20		N=8 (1,1/1,2,2,3)	1.60	46.42		MADE GROUND: Dark brownish grey very gravelly fine to coarse sand with moderate cobble content. Gravel is angular to subrounded fine to coarse of brick, sandstone, concrete and scrap metal. Cobbles are subangular of brick.	1
		2.00		N=19 (2,3/3,4,5,7)				<i>From 1.20 to 1.40m clayey angular to subangular fine to coarse gravel.</i>	2
		3.50	D	N=14 (1,2/2,3,4,5)	6.50	41.52		<i>From 1.60 to 2.50m stiff.</i> <i>From 1.60 to 3.50m slightly sandy.</i>	3
		3.50						<i>From 3.50 to 6.50m firm.</i>	4
		4.80	D	N=14 (1,2/3,3,3,5)					5
		5.00							6
		6.50		N=38 (8,7/8,11,9,10)					7
		7.50	U						8
		9.50							9
		9.50	D	50 (8,13/50 for 160mm)					10

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m. Concrete removed prior to arriving to site. No groundwater recorded due to use of water flush.





Borehole Log

Borehole No.

BH102

Sheet 2 of 4

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 48.02

Scale
1:50

Client: Midgard Ltd

Dates: 20/09/2021 - 22/09/2021

Logged By
ZH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50	U		10.90	37.12			11
		12.50		50 (4,7/50 for 50mm)	13.50	34.52		Extremely weak highly weathered reddish brown medium to coarse grained SANDSTONE recovered as a medium to coarse sand. <u>11.85 to 12.26m 0 - 10 degrees closely spaced, planar rough.</u> <u>From 11.85 to 12.27m very weak intact core.</u> <u>12.50 to 12.70m 0 - 10 degrees closely spaced, undulating rough.</u> <u>From 12.50 to 12.71m very weak coarse grained intact core.</u> <u>13.06 to 13.15m 1 No. discontinuity 0 - 10 degrees, undulating rough.</u> <u>From 13.06 to 13.16m very weak intact core.</u> Very weak reddish brown fine to coarse grained SANDSTONE. <u>13.50 to 14.80m 0 - 15 degrees closely spaced to medium spaced, locally very closely spaced, planar rough.</u> <u>From 14.80 to 14.83m recovered as non-intact core of angular medium to coarse gravel.</u> <u>14.83 to 15.27m 10 - 20 degrees very closely spaced to closely spaced, planar rough.</u> <u>From 15.27 to 15.50m no recovery.</u> <u>From 15.50 to 15.57m recovered as non-intact core of fine to coarse sand.</u> <u>15.57 to 18.50m 5 - 15 degrees closely spaced to medium spaced, locally very closely spaced, planar and undulating rough.</u> <u>From 16.86 to 17.00m weak</u> <u>From 17.00 to 17.10m extremely weak brown mudstone.</u> <u>From 16.60 to 18.65m highly fractured.</u> <u>18.65 to 19.88m 5 - 10 degrees very closely spaced to closely spaced, planar rough.</u> Weak reddish brown medium grained SANDSTONE.	12 13 14 15 16 17 18 19
								Continued on next sheet	20

Remarks

Service inspection pit hand excavated from GL to 1.20m. Concrete removed prior to arriving to site. No groundwater recorded due to use of water flush.





Borehole Log

Borehole No.

BH102

Sheet 3 of 4

Project Name: Heyrod Street

Project No.
B075424

Co-ords: -

Hole Type
CP+RC

Location: Heyrod Street, Manchester

Level: 48.02

Scale
1:50

Client: Midgard Ltd

Dates: 20/09/2021 - 22/09/2021

Logged By
ZH

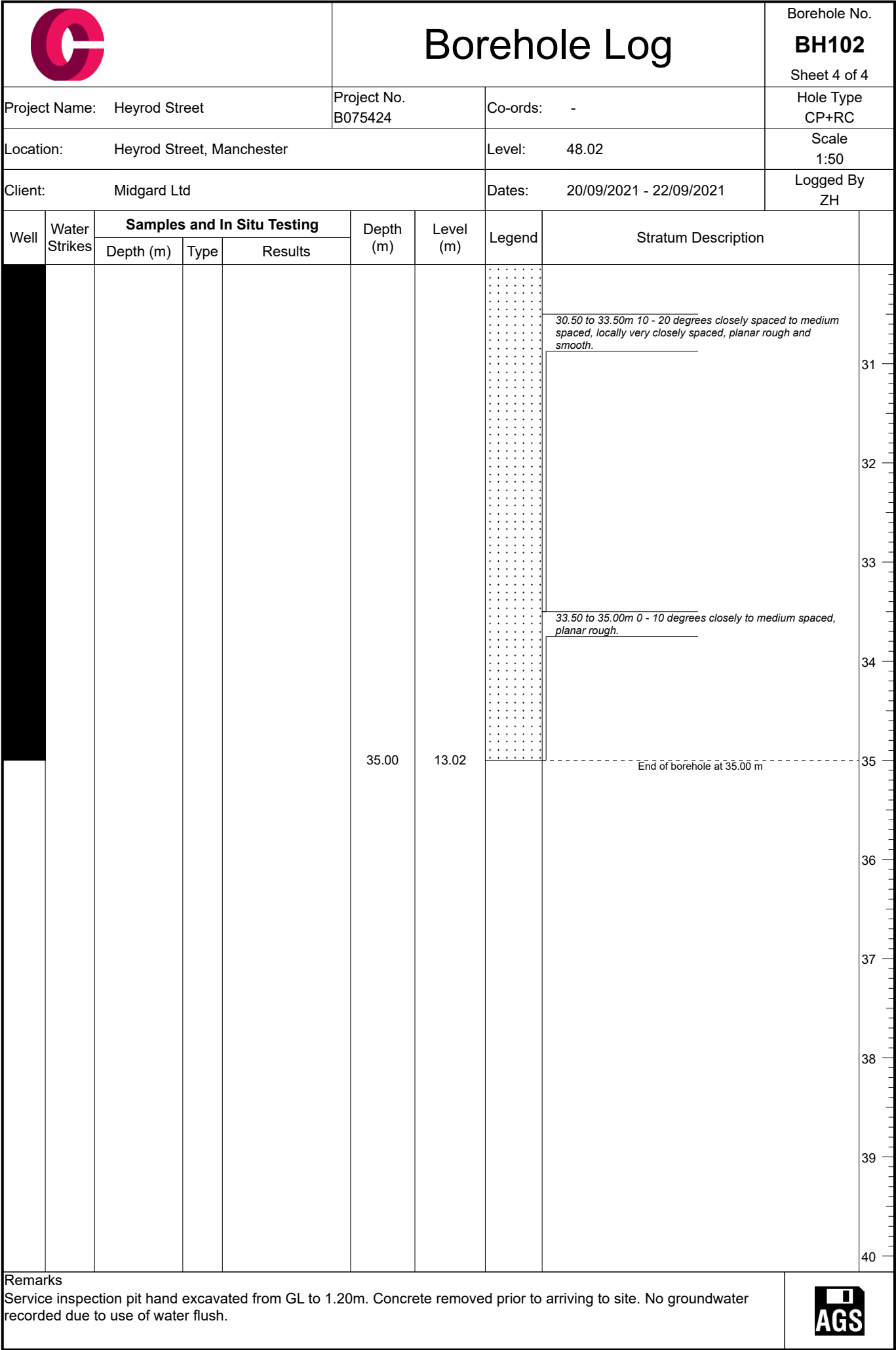
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					20.09	27.93		<i>From 19.88 to 20.00m no recovery.</i> <i>20.00 to 20.74m 5 - 10 degrees extremely closely spaced, planar rough.</i> Very weak reddish brown medium to coarse grained SANDSTONE. <i>From 20.61 to 20.74m weathered.</i> <i>From 20.74 to 20.88m recovered as non-intact core of gravelly medium to coarse sand.</i> <i>20.88 to 21.20m 10 - 20 degrees very closely spaced to closely spaced, locally extremely closely spaced, planar rough.</i> <i>From 21.20 to 21.27m recovered as non-intact core of medium to coarse sand.</i> <i>21.27 to 21.96m 15 - 20 degrees extremely closely spaced to closely spaced, planar rough.</i>	21
					21.96	26.06		Weak reddish brown fine to medium grained SANDSTONE. <i>21.96 to 22.34m 30 to 40 degrees closely spaced, planar rough.</i> <i>From 22.34 to 22.50m recovered as non-intact core of gravelly fine to medium sand.</i> <i>22.50 to 22.95m 10 - 2- degrees closely spaced to medium spaced, locally very closely spaced, planar rough.</i> <i>From 22.95 to 23.00m no recovery.</i>	22
					23.20	24.82		<i>23.00 to 25.37m 5 - 10 degrees closely spaced to medium spaced, locally very closely spaced, planar rough.</i> Very weak reddish brown medium to coarse grained SANDSTONE.	23
									24
									25
					26.15	21.87		<i>From 25.37 to 25.50m recovered as non-intact core of clayey angular to subangular fine to medium gravel.</i> <i>25.50 to 26.15m 0 - 10 degrees closely spaced, planar rough.</i> Medium strong reddish brown fine to medium grained SANDSTONE. <i>26.15 to 27.07m 5 - 15 degrees closely spaced to medium spaced, planar rough.</i> <i>From 26.15 to 27.08m interbedded weak and medium strong.</i> <i>From 27.07 to 27.50m no recovery.</i> <i>27.50 to 30.50m 0 - 15 degrees closely spaced to medium spaced, locally very closely spaced, planar rough.</i>	26
									27
									28
									29
									30

Continued on next sheet

Remarks

Service inspection pit hand excavated from GL to 1.20m. Concrete removed prior to arriving to site. No groundwater recorded due to use of water flush.





Client Name: Midgard Ltd		Project Name: Heyrod St	Project No: B075424
No. 1	Date: 16/09/2021	Description: BH101 Rock Logging Photographs 14.00m to 20.00m bgl.	



Client Name: Midgard Ltd		Project Name: Heyrod St	Project No: B075424
No. 2	Date: 01/02/2021	Description: RH101 Rock Logging Photographs 20.00m to 26.00m bgl	



Client Name: Midgard Ltd		Project Name: Heyrod St	Project No: B075424
No. 3	Date: 16/09/2021	Description: RH101 Rock Logging Photographs 26.00m to 32.00m bgl	



Client Name: Midgard Ltd		Project Name: Heyrod St	Project No: B075424
No. 4	Date: 20/09/2021	Description: R-A2 Rock Logging Photographs 32.00m to 35.00m bgl	



Client Name: Midgard Ltd		Project Name: Heyrod St	Project No: B075424
No. 5	Date: 21/09/2021	Description: RH102 Rock Logging Photographs 9.50m to 15.50m bgl	



Client Name: Midgard Ltd		Project Name: Heyrod St	Project No: B075424
No. 6	Date: 21/09/2021	Description: RH102 Rock Logging Photographs 15.50m to 21.50m bgl	



Client Name: Midgard Ltd		Project Name: Heyrod St	Project No: B075424
No. 7	Date: 21/09/2021	Description: RH102 Rock Logging Photographs 21.50m to 27.50m bgl	



Client Name: Midgard Ltd		Project Name: Heyrod St	Project No: B075424
No. 8	Date: 22/09/2021	Description: RH102 Rock Logging Photographs 27.50m to 33.50m bgl	



Client Name: Midgard Ltd		Project Name: Heyrod St	Project No: B075424
No. 9	Date: 22/09/2021	Description: RH102 Rock Logging Photographs 33.50m to 35.00m bgl	





Trial Pit Log

Trialpit No

TP01

Sheet 1 of 1

Project Name:	Heyrod Street
---------------	---------------

Project No.
B075424

Co-ords:	-
Level:	48.58

Date
12/10/2021

Location: Heyrod Street, Manchester

Dimensions
(m):

2

1.2

Depth
2.40

Scale
1:20

Logged
SH

Client: Midgard Ltd

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	2.00	ES		0.10	48.48		MADE GROUND: Dark grey asphalt.
							MADE GROUND: Yellow brown grey sub-base of sandy coarse angular gravel
				0.35	48.23		MADE GROUND: Dark brown sand and gravel with whole and fragmented bricks. Clay pipe at 0.80m
				1.60	46.98		MADE GROUND: Soft organic dark brown / black clay with sand and gravel of brick, concrete and sandstone (reworked clay). Organic odour observed
				2.20	46.38		Firm brown and grey mottled sandy CLAY
				2.40	46.18		End of pit at 2.40 m

Remarks:	No groundwater was encountered.
----------	---------------------------------

Stability: Stable





Trial Pit Log

Trialpit No

TP02

Sheet 1 of 1

Project Name: Heyrod Street

Project No.
B075424Co-ords: -
Level: 53.47Date
12/10/2021

Location: Heyrod Street, Manchester

Dimensions
(m):

2.5

Depth
2.60

1.25

Scale
1:20Logged
SH

Client: Midgard Ltd

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	2.00	ES					MADE GROUND: Dark brown sand and gravel of whole and fragmentsed brick, sandstone slabs, intact brick wall on one side. Clay pipes at 0.80m	1
				2.40	51.07		Stiff brown and grey mottled sandy CLAY	2
	2.60	ES		2.60	50.87		End of pit at 2.60 m	3
								4

Remarks: No groundwater was encountered.

Stability: Unstable on western side





Trial Pit Log

Trialpit No

TP03

Sheet 1 of 1

Project Name: Heyrod Street

Project No.
B075424Co-ords: -
Level: 53.41Date
12/10/2021

Location: Heyrod Street, Manchester

Dimensions
(m):

2.1

Depth
2.40

1.3

Scale
1:20Logged
SH

Client: Midgard Ltd

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	1.50	ES					MADE GROUND: Black slightly clayey sand and gravel with sandstone slabs, intact brick wall structures, old clay pipes, concrete, intact and fragmented bricks and plastic
				2.00	51.41		MADE GROUND: Soft dark brown clay with sand and gravel of brick, concrete and sandstone (reworked clay).
				2.20	51.21		Firm brown and grey mottled sandy CLAY
				2.40	51.01		End of pit at 2.40 m

Remarks: No groundwater was encountered.

Stability: Stable



Appendix C – Chemical Analysis Results

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/04938
Issue Number: 1
Date: 19 May, 2021

Client: Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: Matthew Holroyd
Project Name: Heyrod Street
Project Ref: B075424
Order No: EBMA2866
Date Samples Received: 06/05/21
Date Instructions Received: 07/05/21
Date Analysis Completed: 19/05/21

Prepared by:


Melanie Marshall
Laboratory Coordinator

Approved by:


Richard Wong
Client Manager

Envirolab Job Number: 21/04938

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/04938/1	21/04938/2	21/04938/3	21/04938/4	21/04938/5	21/04938/6	21/04938/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS05	WS06	WS06	WS04	WS03	WS02			
Depth to Top	0.70	0.50	0.40	1.00	0.40	0.70	2.30			
Depth To Bottom										
Date Sampled	04-May-21	04-May-21	05-May-21	05-May-21	05-May-21	04-May-21	04-May-21			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6A	7	6A	6A	6A	6A	3			
% Stones >10mm _A	10.8	<0.1	2.7	1.9	5.7	37.8	<0.1	% w/w	0.1	A-T-044
pH _D ^{M#}	8.11	8.44	8.00	7.56	7.98	7.91	8.42	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.02	1.31	0.36	0.37	1.73	0.11	<0.01	g/l	0.01	A-T-026s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Organic matter _D ^{M#}	5.4	1.2	4.7	34.2	14.1	4.0	1.3	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	15	6	17	72	10	27	<1	mg/kg	1	A-T-024s
Boron (water soluble) _D	<1.0	1.5	1.8	1.4	2.3	<1.0	<1.0	mg/kg	1	A-T-027s
Cadmium _D ^{M#}	0.7	<0.5	1.4	1.2	0.8	1.6	0.9	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	55	43	154	126	61	2540	43	mg/kg	1	A-T-024s
Chromium _D ^{M#}	30	9	44	26	46	57	33	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead _D ^{M#}	161	258	708	167	181	349	15	mg/kg	1	A-T-024s
Mercury _D	1.13	0.82	0.42	0.79	0.49	0.78	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	27	10	39	36	28	28	40	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	57	72	155	67	104	246	67	mg/kg	5	A-T-024s

Envirolab Job Number: 21/04938

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/04938/1	21/04938/2	21/04938/3	21/04938/4	21/04938/5	21/04938/6	21/04938/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS05	WS06	WS06	WS04	WS03	WS02			
Depth to Top	0.70	0.50	0.40	1.00	0.40	0.70	2.30			
Depth To Bottom										
Date Sampled	04-May-21	04-May-21	05-May-21	05-May-21	05-May-21	04-May-21	04-May-21			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6A	7	6A	6A	6A	6A	3			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	Chrysotile	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos Matrix (microscope) _D	-	Loose Fibres	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing) _D	-	<0.001	-	-	-	-	-	% w/w	0.001	A-T-054

Envirolab Job Number: 21/04938

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/04938/1	21/04938/2	21/04938/3	21/04938/4	21/04938/5	21/04938/6	21/04938/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS05	WS06	WS06	WS04	WS03	WS02			
Depth to Top	0.70	0.50	0.40	1.00	0.40	0.70	2.30			
Depth To Bottom										
Date Sampled	04-May-21	04-May-21	05-May-21	05-May-21	05-May-21	04-May-21	04-May-21			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6A	7	6A	6A	6A	6A	3			
PAH-16MS (MSD order)										
Naphthalene _A ^{M#}	<0.03	0.33	<0.03	<0.03	<0.03	0.03	0.13	mg/kg	0.03	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	mg/kg	0.01	A-T-019s
Acenaphthene _A ^{M#}	<0.01	0.75	0.07	<0.01	0.05	0.02	0.08	mg/kg	0.01	A-T-019s
Fluorene _A ^{M#}	<0.01	0.45	0.04	<0.01	0.03	0.04	0.06	mg/kg	0.01	A-T-019s
Phenanthrene _A ^{M#}	0.12	4.28	0.61	<0.03	0.36	0.22	0.17	mg/kg	0.03	A-T-019s
Anthracene _A ^{M#}	0.03	0.77	0.14	<0.02	0.08	0.09	0.02	mg/kg	0.02	A-T-019s
Fluoranthene _A ^{M#}	0.21	2.54	1.01	<0.08	0.51	0.34	<0.08	mg/kg	0.08	A-T-019s
Pyrene _A ^{M#}	0.26	2.32	0.94	<0.07	0.47	0.41	<0.07	mg/kg	0.07	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.17	1.10	0.48	<0.04	0.23	0.30	<0.04	mg/kg	0.04	A-T-019s
Chrysene _A ^{M#}	0.21	1.16	0.63	<0.06	0.29	0.31	<0.06	mg/kg	0.06	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.22	0.77	0.54	<0.05	0.27	0.30	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	0.27	0.24	<0.07	0.12	0.11	<0.07	mg/kg	0.07	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.20	0.72	0.55	<0.04	0.24	0.32	<0.04	mg/kg	0.04	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.11	0.22	0.26	<0.03	0.13	0.14	<0.03	mg/kg	0.03	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	0.07	0.05	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.13	0.21	0.24	<0.05	0.13	0.14	<0.05	mg/kg	0.05	A-T-019s
Total PAH-16MS (MSD order) _A ^{M#}	1.66	16	5.80	<0.08	2.91	2.79	0.46	mg/kg	0.03	A-T-019s

Envirolab Job Number: 21/04938

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/04938/1	21/04938/2	21/04938/3	21/04938/4	21/04938/5	21/04938/6	21/04938/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS05	WS06	WS06	WS04	WS03	WS02			
Depth to Top	0.70	0.50	0.40	1.00	0.40	0.70	2.30			
Depth To Bottom										
Date Sampled	04-May-21	04-May-21	05-May-21	05-May-21	05-May-21	04-May-21	04-May-21			
Sample Type	Soil - ES	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6A	7	6A	6A	6A	6A	3			
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1	6	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	26	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	2	<1	<1	<1	2	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	1	2	<1	<1	1	11	<1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	7	36	14	2	8	72	4	mg/kg	1	A-T-055s
Total Aliphatics _A	8	40	14	2	9	118	4	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	1	1	1	<1	1	2	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	3	<1	<1	<1	9	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	2	29	2	<1	2	5	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	5	103	8	1	3	13	<1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	33	217	39	7	14	40	4	mg/kg	1	A-T-055s
Total Aromatics _A	41	353	51	9	21	70	4	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	49	393	65	11	30	188	7	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 21/04938

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/04938/8	21/04938/9	21/04938/10					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS02	WS03	WS02							
Depth to Top	0.60	1.70	1.80							
Depth To Bottom										
Date Sampled	04-May-21	04-May-21	04-May-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6A	6A	6A							
% Stones >10mm _A	17.9	3.9	2.9					% w/w	0.1	A-T-044
pH _D ^{M#}	8.04	8.15	8.09					pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.03	0.25	0.19					g/l	0.01	A-T-026s
Cyanide (total) _A ^{M#}	<1	<1	3					mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	0.4					mg/kg	0.2	A-T-050s
Organic matter _D ^{M#}	11.4	15.3	25.0					% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	31	145	36					mg/kg	1	A-T-024s
Boron (water soluble) _D	<1.0	1.7	2.2					mg/kg	1	A-T-027s
Cadmium _D ^{M#}	1.5	2.3	1.5					mg/kg	0.5	A-T-024s
Copper _D ^{M#}	126	18900	148					mg/kg	1	A-T-024s
Chromium _D ^{M#}	27	162	70					mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1					mg/kg	1	A-T-040s
Lead _D ^{M#}	300	1480	308					mg/kg	1	A-T-024s
Mercury _D	1.35	1.63	2.11					mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	34	52	39					mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{M#}	163	1570	81					mg/kg	5	A-T-024s

Envirolab Job Number: 21/04938

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/04938/8	21/04938/9	21/04938/10					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS02	WS03	WS02							
Depth to Top	0.60	1.70	1.80							
Depth To Bottom										
Date Sampled	04-May-21	04-May-21	04-May-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6A	6A	6A							
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD							A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A							A-T-045

Envirolab Job Number: 21/04938

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/04938/8	21/04938/9	21/04938/10					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS02	WS03	WS02							
Depth to Top	0.60	1.70	1.80							
Depth To Bottom										
Date Sampled	04-May-21	04-May-21	04-May-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6A	6A	6A							
PAH-16MS (MSD order)										
Naphthalene _A ^{M#}	0.50	0.06	276					mg/kg	0.03	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	0.12					mg/kg	0.01	A-T-019s
Acenaphthene _A ^{M#}	0.27	0.05	177					mg/kg	0.01	A-T-019s
Fluorene _A ^{M#}	0.19	0.06	100					mg/kg	0.01	A-T-019s
Phenanthrene _A ^{M#}	3.94	0.28	220					mg/kg	0.03	A-T-019s
Anthracene _A ^{M#}	0.67	0.09	28.3					mg/kg	0.02	A-T-019s
Fluoranthene _A ^{M#}	7.38	0.30	24.2					mg/kg	0.08	A-T-019s
Pyrene _A ^{M#}	7.92	0.26	15.1					mg/kg	0.07	A-T-019s
Benzo(a)anthracene _A ^{M#}	3.14	0.14	2.24					mg/kg	0.04	A-T-019s
Chrysene _A ^{M#}	3.84	0.13	2.04					mg/kg	0.06	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	1.88	0.13	0.96					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.67	<0.07	0.34					mg/kg	0.07	A-T-019s
Benzo(a)pyrene _A ^{M#}	1.59	0.12	0.76					mg/kg	0.04	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.56	0.06	0.32					mg/kg	0.03	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	0.13	<0.04	0.09					mg/kg	0.04	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.51	0.08	0.31					mg/kg	0.05	A-T-019s
Total PAH-16MS (MSD order) _A ^{M#}	33.2	1.76	848					mg/kg	0.03	A-T-019s

Envirolab Job Number: 21/04938

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/04938/8	21/04938/9	21/04938/10					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS02	WS03	WS02							
Depth to Top	0.60	1.70	1.80							
Depth To Bottom										
Date Sampled	04-May-21	04-May-21	04-May-21							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6A	6A	6A							
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	0.03					mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	3	<10					mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	1	36					mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	2	4	76					mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	2	6	41					mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	14	44	80					mg/kg	1	A-T-055s
Total Aliphatics _A	19	58	232					mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	0.03					mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	3	3	84					mg/kg	1	A-T-055s
Aro >C10-C12 _A	18	3	1180					mg/kg	1	A-T-055s
Aro >C12-C16 _A	28	10	2670					mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	67	43	1680					mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	249	109	307					mg/kg	1	A-T-055s
Total Aromatics _A	365	167	5920					mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	384	225	6150					mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	0.03					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	0.35					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	0.54					mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	0.62					mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s

REPORT NOTES

General

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The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client:	Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG	Project No:	21/04938
Project:	Heyrod Street	Date Received:	07/05/2021 (am)
Clients Project No:	B075424	Cool Box Temperatures (°C):	6.0

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/06459
Issue Number: 1
Date: 18 June, 2021

Client: Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: Matthew Holroyd
Project Name: Heyrod Street
Project Ref: B075424
Order No: EMBA2931
Date Samples Received: 10/06/21
Date Instructions Received: 11/06/21
Date Analysis Completed: 17/06/21

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 21/06459/1

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/06459/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH01									
Depth to Top	10.70									
Depth To Bottom										
Date Sampled										
Sample Type	Water - EW									
Sample Matrix Code	N/A									
pH (w) _A [#]	6.84							pH	0.01	A-T-031w
Hardness Total _A [#]	984							mg/l Ca CO3	2	A-T-049w
Sulphate (w) _A [#]	345							mg/l	1	A-T-026w
Cyanide (total) (w) _A [#]	<0.005							mg/l	0.005	A-T-042wTCN
Phenols - Total by HPLC (w) _A	<0.01							mg/l	0.01	A-T-050w
Sulphide (w) _A	<0.1							mg/l	0.1	A-T-S2-w
DOC (w) _A [#]	3.5							mg/l	0.2	A-T-032w
Arsenic (dissolved) _A [#]	<1							µg/l	1	A-T-025w
Boron (dissolved) _A [#]	89							µg/l	10	A-T-025w
Cadmium (dissolved) _A [#]	0.5							µg/l	0.2	A-T-025w
Calcium (dissolved) _A [#]	187							mg/l	1	A-T-049w
Copper (dissolved) _A [#]	2							µg/l	1	A-T-025w
Chromium (dissolved) _A [#]	<1							µg/l	1	A-T-025w
Lead (dissolved) _A [#]	2							µg/l	1	A-T-025w
Mercury (dissolved) _A [#]	<0.1							µg/l	0.1	A-T-025w
Nickel (dissolved) _A [#]	6							µg/l	1	A-T-025w
Selenium (dissolved) _A [#]	14							µg/l	1	A-T-025w
Zinc (dissolved) _A [#]	31							µg/l	1	A-T-025w

Envirolab Job Number: 21/06459

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/06459/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH01									
Depth to Top	10.70									
Depth To Bottom										
Date Sampled										
Sample Type	Water - EW									
Sample Matrix Code	N/A									
PAH 16MS (w)										
Acenaphthene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Acenaphthylene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Anthracene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Chrysene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Fluoranthene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Fluorene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Naphthalene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Phenanthrene (w) _A [#]	<0.01							µg/l	0.01	A-T-019w
Pyrene (w) _A [#]	0.01							µg/l	0.01	A-T-019w
Total PAH 16MS (w) _A [#]	0.01							µg/l	0.01	A-T-019w

Envirolab Job Number: 21/06459

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/06459/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH01									
Depth to Top	10.70									
Depth To Bottom										
Date Sampled										
Sample Type	Water - EW									
Sample Matrix Code	N/A									
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1							µg/l	1	A-T-022w
Ali >C6-C8 (w) _A [#]	<1							µg/l	1	A-T-022w
Ali >C8-C10 (w) _A [#]	<5							µg/l	5	A-T-055w
Ali >C10-C12 (w) _A [#]	<5							µg/l	5	A-T-055w
Ali >C12-C16 (w) _A [#]	<5							µg/l	5	A-T-055w
Ali >C16-C21 (w) _A [#]	<5							µg/l	5	A-T-055w
Ali >C21-C35 (w) _A [#]	<5							µg/l	5	A-T-055w
Total Aliphatics (w) _A [#]	<5							µg/l	5	A-T-055w
Aro >C5-C7 (w) _A [#]	<1							µg/l	1	A-T-022w
Aro >C7-C8 (w) _A [#]	<1							µg/l	1	A-T-022w
Aro >C8-C10 (w) _A	<5							µg/l	5	A-T-055w
Aro >C10-C12 (w) _A [#]	<5							µg/l	5	A-T-055w
Aro >C12-C16 (w) _A [#]	<5							µg/l	5	A-T-055w
Aro >C16-C21 (w) _A [#]	<5							µg/l	5	A-T-055w
Aro >C21-C35 (w) _A [#]	<10							µg/l	10	A-T-055w
Total Aromatics (w) _A	<10							µg/l	10	A-T-055w
TPH (Ali & Aro >C5-C35) (w) _A	<10							µg/l	10	A-T-055w
BTEX - Benzene (w) _A [#]	<1							µg/l	1	A-T-022w
BTEX - Toluene (w) _A [#]	<1							µg/l	1	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1							µg/l	1	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1							µg/l	1	A-T-022w
BTEX - o Xylene (w) _A [#]	<1							µg/l	1	A-T-022w
MTBE (w) _A [#]	<1							µg/l	1	A-T-022w

REPORT NOTES

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Analytical results reflect the quality of the sample at the time of analysis only.

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The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG
Project: Heyrod Street
Clients Project No: B075424
Project No: 21/06459
Date Received: 11/06/2021 (am)
Cool Box Temperatures (°C): 11.6

Lab Sample ID	21/06459/1
Client Sample No	
Client Sample ID/Depth	BH01 10.70m
Date Sampled	
Deviation Code	
E (no date)	✓

Key
E (no date) No sampling date provided (all results affected if not provided)

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-120:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/11295
Issue Number: 1

Date: 26 October, 2021

Client: Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

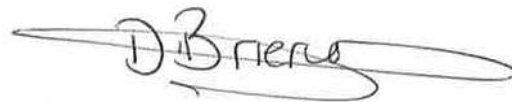
Project Manager: EBMA/Siobhán Hyde
Project Name: Heyrod Street
Project Ref: B075424
Order No: EBMA3085
Date Samples Received: 15/10/21
Date Instructions Received: 18/10/21
Date Analysis Completed: 26/10/21

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 21/11295

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/11295/1	21/11295/2	21/11295/3	21/11295/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3						
Depth to Top	2.00	2.00	2.60	1.50						
Depth To Bottom										
Date Sampled	12-Oct-21	12-Oct-21	12-Oct-21	12-Oct-21						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6A	4A	6A	4A						
% Stones >10mm _A	1.0	4.0	<0.1	<0.1				% w/w	0.1	A-T-044
pH _D ^{M#}	8.02	7.93	8.55	9.30				pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.49	1.39	0.05	0.24				g/l	0.01	A-T-026s
Cyanide (total) _A ^{M#}	6	1	<1	<1				mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2				mg/kg	0.2	A-T-050s
Organic matter _D ^{M#}	16.5	18.1	1.2	7.7				% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	51	81	3	32				mg/kg	1	A-T-024s
Boron (water soluble) _D	2.0	1.7	<1.0	1.1				mg/kg	1	A-T-027s
Cadmium _D ^{M#}	2.1	2.6	1.1	1.3				mg/kg	0.5	A-T-024s
Copper _D ^{M#}	207	260	23	136				mg/kg	1	A-T-024s
Chromium _D ^{M#}	289	93	28	67				mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1				mg/kg	1	A-T-040s
Lead _D ^{M#}	518	598	10	526				mg/kg	1	A-T-024s
Mercury _D	3.84	1.51	0.30	1.49				mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	58	55	35	30				mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1				mg/kg	1	A-T-024s
Zinc _D ^{M#}	114	318	56	145				mg/kg	5	A-T-024s

Envirolab Job Number: 21/11295

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/11295/1	21/11295/2	21/11295/3	21/11295/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3						
Depth to Top	2.00	2.00	2.60	1.50						
Depth To Bottom										
Date Sampled	12-Oct-21	12-Oct-21	12-Oct-21	12-Oct-21						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6A	4A	6A	4A						
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	Chrysotile						A-T-045
Asbestos Matrix (visual) ₀	-	-	-	-						A-T-045
Asbestos Matrix (microscope) ₀	-	-	-	Loose Fibres						A-T-045
Asbestos ACM - Suitable for Water Absorption Test? ₀	N/A	N/A	N/A	N/A						A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing) ₀	-	-	-	0.001				% w/w	0.001	A-T-054

Envirolab Job Number: 21/11295

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/11295/1	21/11295/2	21/11295/3	21/11295/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3						
Depth to Top	2.00	2.00	2.60	1.50						
Depth To Bottom										
Date Sampled	12-Oct-21	12-Oct-21	12-Oct-21	12-Oct-21						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6A	4A	6A	4A						
PAH-16MS (MSD order)										
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	0.12				mg/kg	0.03	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	0.06	<0.01	0.01				mg/kg	0.01	A-T-019s
Acenaphthene _A ^{M#}	0.04	0.06	<0.01	0.06				mg/kg	0.01	A-T-019s
Fluorene _A ^{M#}	0.10	0.05	<0.01	0.04				mg/kg	0.01	A-T-019s
Phenanthrene _A ^{M#}	0.27	0.76	<0.03	0.66				mg/kg	0.03	A-T-019s
Anthracene _A ^{M#}	0.08	0.30	<0.02	0.13				mg/kg	0.02	A-T-019s
Fluoranthene _A ^{M#}	0.17	1.62	<0.08	1.19				mg/kg	0.08	A-T-019s
Pyrene _A ^{M#}	0.15	1.61	<0.07	1.25				mg/kg	0.07	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	0.96	<0.04	0.64				mg/kg	0.04	A-T-019s
Chrysene _A ^{M#}	<0.06	1.06	<0.06	0.75				mg/kg	0.06	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	1.20	<0.05	0.64				mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	0.42	<0.07	0.24				mg/kg	0.07	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	1.01	<0.04	0.54				mg/kg	0.04	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	0.70	<0.03	0.28				mg/kg	0.03	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	0.15	<0.04	0.06				mg/kg	0.04	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	0.73	<0.05	0.27				mg/kg	0.05	A-T-019s
Total PAH-16MS (MSD order) _A ^{M#}	0.81	10.7	<0.08	6.88				mg/kg	0.03	A-T-019s

Envirolab Job Number: 21/11295

Client Project Name: Heyrod Street

Client Project Ref: B075424

Lab Sample ID	21/11295/1	21/11295/2	21/11295/3	21/11295/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP2	TP3						
Depth to Top	2.00	2.00	2.60	1.50						
Depth To Bottom										
Date Sampled	12-Oct-21	12-Oct-21	12-Oct-21	12-Oct-21						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6A	4A	6A	4A						
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	2				mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	1				mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	4	2	2	4				mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	10	7	1	4				mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	27	25	13	12				mg/kg	1	A-T-055s
Total Aliphatics _A	40	35	16	22				mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	2	<1	<1	2				mg/kg	1	A-T-055s
Aro >C10-C12 _A	4	2	<1	2				mg/kg	1	A-T-055s
Aro >C12-C16 _A	31	18	1	8				mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	117	111	2	19				mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	159	287	3	46				mg/kg	1	A-T-055s
Total Aromatics _A	313	418	7	78				mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	353	453	23	100				mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client:	Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG	Project No:	21/11295
Project:	Heyrod Street	Date Received:	18/10/2021 (am)
Clients Project No:	B075424	Cool Box Temperatures (°C):	12.0

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	21/11295/1	21/11295/2	21/11295/3	21/11295/4
Client Sample No				
Client Sample ID/Depth	TP1 2.00m	TP2 2.00m	TP2 2.60m	TP3 1.50m
Date Sampled	12/10/21	12/10/21	12/10/21	12/10/21
A-T-019s	20/10/2021	20/10/2021	20/10/2021	20/10/2021
A-T-022s	21/10/2021	21/10/2021	21/10/2021	21/10/2021
A-T-024s	22/10/2021	22/10/2021	22/10/2021	22/10/2021
A-T-026s	21/10/2021	21/10/2021	21/10/2021	21/10/2021
A-T-027s	22/10/2021	22/10/2021	22/10/2021	22/10/2021
A-T-031s	22/10/2021	22/10/2021	22/10/2021	22/10/2021
A-T-032 OM	26/10/2021	26/10/2021	26/10/2021	26/10/2021
A-T-040s	21/10/2021	21/10/2021	21/10/2021	21/10/2021
A-T-042sTCN	21/10/2021	21/10/2021	21/10/2021	21/10/2021
A-T-044	22/10/2021	22/10/2021	22/10/2021	22/10/2021
A-T-045	20/10/2021	20/10/2021	20/10/2021	20/10/2021
A-T-050s	20/10/2021	20/10/2021	20/10/2021	20/10/2021
A-T-054				22/10/2021
A-T-055s	21/10/2021	21/10/2021	21/10/2021	21/10/2021

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Appendix D – ‘Residential with Plant Uptake’ Screening Criteria for Imported Capping Materials

Adopted Soil Generic Assessment Criteria
Sandy loam with 6% SOM



Contaminants	Residential <u>with</u> home grown produce	Residential <u>without</u> home grown produce	Allotments	Commercial	Public open space near residential housing POS _{resi}	Public park POS _{park}
Metals						
Beryllium	1.7	1.7	35	12	2.2	63
Boron	290	11,000	45	240,000	21,000	46,000
Cadmium	10⁽¹³⁾ 22	85⁽¹³⁾ 150	1.8 3.9	230 410	120 220	560 880
Chromium III	910	910	18,000	8,600	1,500	33,000
Chromium VI	6 <u>21</u>	6 <u>21</u>	1.8 <u>170</u>	33 <u>49</u>	7.7 <u>21</u>	220 <u>250</u>
Lead	<u>200</u>	<u>310</u>	<u>80</u>	<u>2,300</u>	<u>630</u>	<u>1,300</u>
Mercury (<i>elemental</i>)	1	1	26	26	16	26⁽⁸⁾ [30]
Mercury (<i>inorganic</i>)	170	240	80	3600	120	240
Nickel	130 ⁽¹⁰⁾	180 ⁽¹⁰⁾	53 ⁽¹¹⁾	980 ⁽¹⁰⁾	230	800
Vanadium	410	1200	91	9000	2000	5000
Copper	2400	7100	520	68000	12000	44000
Zinc	3700	40000	620	730000	81000	170000
Semi-Metals and non-metals						
Arsenic	32⁽¹²⁾ 37	35⁽¹²⁾ 40	43⁽¹²⁾ 49	640⁽¹²⁾ 640	79 79	170 170
Antimony		550		7500	1500	3300
Selenium	350	600	120	13000	1100	1800
Inorganic chemicals						
Cyanide	34	34	34	34	34	34
Organic contaminants						
<i>Aliphatic risk banded hydrocarbons - TPHCWG method</i>						
EC ₃₋₅ - EC ₆	160	160	3900	12000	600000	180000
EC ₃₋₆ - EC ₈	530	530	13000	40000	620000	320000
EC ₃₋₈ - EC ₁₀	150	150	1700	11000	13000	21000
EC ₁₀ - EC ₁₂	760	770	7300	47000	13000	24000
EC ₁₂ - EC ₁₆	4300	4400	13000	90000	13000	26000
EC ₃₋₁₆ - EC ₃₅	110000	110000	270000	1800000	250000	490000
EC ₃₅ - EC ₄₄	110000	110000	270000	1800000	250000	490000
<i>Aromatic risk banded hydrocarbons - TPHCWG method</i>						
EC ₃₋₅ - EC ₇	300	1400	57	86000	56000	92000
EC ₃₋₇ - EC ₈	660	3900	120	180000	56000	100000
EC ₃₋₈ - EC ₁₀	190	270	51	17000	5000	9300
EC ₁₀ - EC ₁₂	380	1200	74	34000	5000	10000
EC ₁₂ - EC ₁₆	660	2500	130	38000	5000	10000
EC ₃₋₁₆ - EC ₂₁	930	1900	260	28000	3800	7800
EC ₂₁ - EC ₃₅	1700	1900	1600	28000	3800	7900
EC ₃₅ - EC ₄₄	1700	1900	1600	28000	3800	7900
Aliph + Arom EC >44-70	1900	1900	3000	28000	3800	7900
Aromatic						
Benzene	0.33 0.87	1.0 3.3	0.07 0.18	95 98	73 140	110 230
Ethyl benzene	350	840	90	2800⁽⁸⁾ [66000]	2800⁽⁸⁾ [25000]	2800⁽⁸⁾ [27000]
Toluene	610	2700	120	4400⁽⁸⁾ [190000]	4400⁽⁸⁾ [56000]	4400⁽⁸⁾ [100000]
Xylene ⁽⁹⁾	230	290	160	2600⁽⁸⁾ [32000]	2600⁽⁸⁾ [43000]	2600⁽⁸⁾ [31000]
Phenol	420	520	280	3200⁽¹⁴⁾ (38000)	3200⁽¹⁴⁾ (10000)	3200⁽¹⁴⁾ (9300)
Polycyclic Aromatic Hydrocarbons (PAH)						
Naphthalene	13	13	24	1100	4900	3000
Acenaphthylene	920	6000	160	100000	15000	30000
Acenaphthene	1100	6000	200	100000	15000	30000
Fluorene	860	4500	160	71000	9900	20000
Phenanthrene	440	1500	90	23000	3100	6300
Anthracene	11000	37000	2200	540000	74000	150000
Fluoranthene	890	1600	290	23000	3100	6400
Pyrene	2000	3800	620	54000	7400	15000
Benz(a)anthracene	13	15	13	180	29	62
Chrysene	27	32	19	350	57	120
Benzo(b)fluoranthene	3.7	4.0	3.9	45	7.2	16.0
Benzo(k)fluoranthene	100	110	130	1200	190	440
Benzo(a)pyrene	3.0 5.0	3.2 5.3	3.5 5.7	36 77	5.7 10	13 21
Indeno(123cd)pyrene	41	46	39	510	82	180
Dibenzo(ah)anthracene	0.3	0.32	0.43	3.6	0.58	1.4
Benzo(ghi)perylene	350	360	640	4000	640	1600
Chlorinated Aliphatic Hydrocarbons						
Vinyl chloride	0.0014	0.0015	0.0018	0.12	3.5	5.4
Trichloroethene (TCE)	0.075	0.08	0.21	5.7	120	120
1,1,1,2 Tetrachlorethane	6.4	8.2	4.4	560	1400	2100
Tetrachlorethane (PCE)	0.90	0.92	3.6	95	1400	1500
1,1,1 Trichlorethane	39	40	240	3000	140000	100000

Notes

- All values above are in mg/kg
- Numbers in bold are SGVs or GAC that are derived based on SGV report input parameters, numbers in italics are S4ULs, numbers in bold-italics are based on EIC/AGS/CL:AIRE numbers & input parameters and underlined numbers are C4SLs**
- Soil organic matter (SOM) is assumed to be 6% - DEFAULT VALUE
- Soil type is assumed to be sandy loam - DEFAULT SOIL TYPE
- For residential, the building type is conservatively assumed to be a small terrace house where the development includes bungalows change to more conservative bungalow setting in computer model
- For commercial, the building type is conservatively assumed to be a pre 1970s office building, where the proposed development comprises houses, flat with living spaces changes setting in model accordingly
- For classrooms consider increasing the dust loading factor in the 'Soil and Building Data' of the CLEA 1.04 model from 50 to 100µg m⁻³
- Based on vapour saturation limit as suggested by EA / [] model value
- Lowest of o-, m- and p-xylene
- Based on comparison of inhalation exposure with inhalation TDI
- Based on comparison of oral, dermal, and inhalation exposure with the oral TDI
- Based on a comparison of oral and dermal soil exposure with oral Index Dose only
- Averaged over and based on lifetime exposure
- Based on critical concentration for skin irritation in humans arising from contact with phenol in aqueous solution (number in brackets based on health effects following long term exposure for illustration)
- NA: Not applicable

Adopted Soil Generic Assessment Criteria
Sandy loam with 2.5% SOM



Contaminants	Residential <u>with</u> home grown produce	Residential <u>without</u> home grown produce	Allotments	Commercial	Public open space near residential housing POS _{resi}	Public park POS _{park}
Metals						
Beryllium	1.7	1.7	35	12	2.2	63
Boron	290	11,000	45	240,000	21,000	46,000
Cadmium	10⁽¹³⁾ 22	85⁽¹³⁾ 150	1.8 3.9	230 410	120 220	560 880
Chromium III	910	910	18,000	8,600	1,500	33,000
Chromium VI	6 21	6 21	1.8 170	33 49	7.7 21	220 250
Lead	200	310	80	2,300	630	1,300
Mercury (elemental)	1	1	26	26	16	26⁽⁸⁾ [30]
Mercury (inorganic)	170	240	80	3600	120	240
Nickel	130⁽¹⁰⁾	180⁽¹⁰⁾	53⁽¹¹⁾	980⁽¹⁰⁾	230	800
Vanadium	410	1200	91	9000	2000	5000
Copper	2400	7100	520	68000	12000	44000
Zinc	3700	40000	620	730000	81000	170000
Semi-Metals and non-metals						
Arsenic	32⁽¹²⁾ 37	35⁽¹²⁾ 40	43⁽¹²⁾ 49	640⁽¹²⁾ 640	79 79	170 170
Antimony		550		7500	1500	3300
Selenium	350	600	120	13000	1100	1800
Inorganic chemicals						
Cyanide	34	34	34	34	34	34
Organic contaminants						
<i>Aliphatic risk banded hydrocarbons - TPHCWG method</i>						
EC ₅ - EC ₆	78	78	1700	5900	590000	130000
EC ₆ - EC ₈	230	230	5600	17000	610000	220000
EC ₈ - EC ₁₀	65	65	770	4800	13000	18000
EC ₁₀ - EC ₁₂	330	330	4400	23000	13000	23000
EC ₁₂ - EC ₁₆	2400	2400	13000	82000	13000	25000
EC ₁₆ - EC ₃₅	92000	92000	270000	1700000	250000	480000
EC ₃₅ - EC ₄₄	92000	92000	270000	1700000	250000	480000
<i>Aromatic risk banded hydrocarbons - TPHCWG method</i>						
EC ₅ - EC ₇	140	690	27	46000	56000	84000
EC ₇ - EC ₈	290	1800	51	110000	56000	95000
EC ₈ - EC ₁₀	83	110	21	8100	5000	8500
EC ₁₀ - EC ₁₂	180	590	31	28000	5000	9700
EC ₁₂ - EC ₁₆	330	2300	57	37000	5100	10000
EC ₁₆ - EC ₂₁	540	1900	110	28000	3800	7700
EC ₂₁ - EC ₃₅	1500	1900	820	28000	3800	7800
EC ₃₅ - EC ₄₄	1500	1900	820	28000	3800	7800
Aliph + Arom EC >44-70	1800	1900	2100	28000	3800	7800
<i>Aromatic</i>						
Benzene	0.16	0.49	0.035	50	72	100
Ethyl benzene	150	380	39	1200⁽⁸⁾ [35000]	1200⁽⁸⁾ [24000]	1200⁽⁸⁾ [22000]
Toluene	270	1300	51	1900⁽⁸⁾ [110000]	1900⁽⁸⁾ [56000]	1900⁽⁸⁾ [95000]
Xylene ⁽⁹⁾	98	120	70	1200⁽⁸⁾ [14000]	1200⁽⁸⁾ [42000]	1200⁽⁸⁾ [23000]
Phenol	290	420	140	1500⁽¹⁴⁾ (35000)	1500⁽¹⁴⁾ (10000)	1500⁽¹⁴⁾ (8300)
Polycyclic Aromatic Hydrocarbons (PAH)						
Naphthalene	5.6	5.6	10	460	4900	1900
Acenaphthylene	420	4600	69	97000	15000	30000
Acenaphthene	510	4700	85	97000	15000	30000
Fluorene	400	3800	67	68000	9900	20000
Phenanthrene	220	1500	38	22000	3100	6200
Anthracene	5400	35000	950	540000	74000	150000
Fluoranthene	560	1600	130	23000	3100	6300
Pyrene	1200	3800	270	54000	7400	15000
Benz(a)anthracene	11	14	6.5	170	29	56
Chrysene	22	31	9.4	350	57	110
Benzo(b)fluoranthene	3.3	4.0	2.1	44	7.2	15
Benzo(k)fluoranthene	93	110	75	1200	190	410
Benzo(a)pyrene	2.7	3.2	2	35	5.7	12
Indeno(123cd)pyrene	36	46	21	510	82	170
Dibenzo(ah)anthracene	0.28	0.32	0.27	3.6	0.57	1.3
Benzo(ghi)perylene	340	360	470	4000	640	1500
Chlorinated Aliphatic Hydrocarbons						
Vinyl chloride	0.00087	0.001	0.001	0.077	3.5	5
Trichloroethene (TCE)	0.034	0.036	0.091	2.6	120	91
1,1,1,2 Tetrachlorethane	2.8	3.5	1.9	250	1400	1800
Tetrachlorethane (PCE)	0.39	0.4	1.5	42	1400	1100
1,1,1 Trichlorethane	18	18	110	1300	140000	76000

Notes

- All values above are in mg/kg
- Numbers in bold are SGVs or GAC that are derived based on SGV report input parameters, numbers in italics are S4ULs, numbers in bold-italics are based on EIC/AGS/CL:AIRE numbers & input parameters and underlined numbers are C4SLs**
- Soil organic matter (SOM) is assumed to be 2.5% - DEFAULT VALUE
- Soil type is assumed to be sandy loam - DEFAULT SOIL TYPE
- For residential, the building type is conservatively assumed to be a small terrace house where the development includes bungalows change to more conservative bungalow setting in computer model
- For commercial, the building type is conservatively assumed to be a pre 1970s office building, where the proposed development comprises houses, flat with living spaces changes setting in model accordingly
- For classrooms consider increasing the dust loading factor in the 'Soil and Building Data' of the CLEA 1.04 model from 50 to 100µg m⁻³
- Based on vapour saturation limit as suggested by EA / [] model value
- Lowest of o-, m- and p-xylene
- Based on comparison of inhalation exposure with inhalation TDI
- Based on comparison of oral, dermal, and inhalation exposure with the oral TDI
- Based on a comparison of oral and dermal soil exposure with oral Index Dose only
- Averaged over and based on lifetime exposure
- Based on critical concentration for skin irritation in humans arising from contact with phenol in aqueous solution (number in brackets based on health effects following long term exposure for illustration)
- NA: Not applicable

Adopted Soil Generic Assessment Criteria
Sandy loam with 1% SOM



Contaminants	Residential <u>with</u> home grown produce	Residential <u>without</u> home grown produce	Allotments	Commercial	Public open space near residential housing POS _{resi}	Public park POS _{park}
Metals						
Beryllium	1.7	1.7	35	12	2.2	63
Boron	290	11,000	45	240,000	21,000	46,000
Cadmium	10⁽¹³⁾ 22	85⁽¹³⁾ 150	1.8 3.9	230 410	120 220	560 880
Chromium III	910	910	18,000	8,600	1,500	33,000
Chromium VI	6 21	6 21	1.8 170	33 49	7.7 21	220 250
Lead	200	310	80	2,300	630	1,300
Mercury (<i>elemental</i>)	1	1	26	26	16	26⁽⁸⁾ [30]
Mercury (<i>inorganic</i>)	170	240	80	3600	120	240
Nickel	130 ⁽¹⁰⁾	180 ⁽¹⁰⁾	53 ⁽¹¹⁾	980 ⁽¹⁰⁾	230	800
Vanadium	410	1200	91	9000	2000	5000
Copper	2400	7100	520	68000	12000	44000
Zinc	3700	40000	620	730000	81000	170000
Semi-Metals and non-metals						
Arsenic	32⁽¹²⁾ 37	35⁽¹²⁾ 40	43⁽¹²⁾ 49	640⁽¹²⁾ 640	79 79	170 170
Antimony		550		7500	1500	3300
Selenium	350	600	120	13000	1100	1800
Inorganic chemicals						
Cyanide	34	34	34	34	34	34
Organic contaminants						
Aliphatic risk banded hydrocarbons - TPHCWG method						
EC ₅₋₅ - EC ₆	42	42	730	3200	570000	95000
EC ₆₋₆ - EC ₈	100	100	2300	7800	600000	150000
EC ₈₋₈ - EC ₁₀	27	27	320	2000	13000	14000
EC ₁₀₋₁₀ - EC ₁₂	130	130	2200	9700	13000	21000
EC ₁₂₋₁₂ - EC ₁₆	1100	1100	11000	59000	13000	25000
EC ₁₆₋₁₆ - EC ₃₅	65000	65000	260000	1600000	250000	450000
EC ₃₅₋₃₅ - EC ₄₄	65000	65000	260000	1600000	250000	450000
Aromatic risk banded hydrocarbons - TPHCWG method						
EC ₅₋₅ - EC ₇	70	370	13	26000	56000	76000
EC ₇₋₇ - EC ₈	130	860	22	56000	56000	87000
EC ₈₋₈ - EC ₁₀	34	47	8.6	3500	5000	7200
EC ₁₀₋₁₀ - EC ₁₂	74	250	13	16000	5000	9200
EC ₁₂₋₁₂ - EC ₁₆	140	1800	23	36000	5100	10000
EC ₁₆₋₁₆ - EC ₂₁	260	1900	46	28000	3800	7600
EC ₂₁₋₂₁ - EC ₃₅	1100	1900	370	28000	3800	7800
EC ₃₅₋₃₅ - EC ₄₄	1100	1900	370	28000	3800	7800
Aliph + Arom EC >44-70	1600	1900	1200	28000	3800	7800
Aromatic						
Benzene	0.08	0.3	0.017	28	72	90
Ethyl benzene	65	170	16	520⁽⁸⁾ [17000]	520⁽⁸⁾ [24000]	520⁽⁸⁾ [17000]
Toluene	120	610	22	860⁽⁸⁾ [59000]	860⁽⁸⁾ [56000]	860⁽⁸⁾ [87000]
Xylene ⁽⁹⁾	41	53	28	480⁽⁸⁾ [69000]	480⁽⁸⁾ [41000]	480⁽⁸⁾ [17000]
Phenol	180	310	66	760⁽¹⁴⁾ (31000)	760⁽¹⁴⁾ (10000)	760⁽¹⁴⁾ (7600)
Polycyclic Aromatic Hydrocarbons (PAH)						
Naphthalene	2.3	2.3	4.1	190	4900	1200
Acenaphthylene	170	2900	28	83000	15000	29000
Acenaphthene	210	3000	34	84000	15000	29000
Fluorene	170	2800	27	63000	9900	20000
Phenanthrene	95	1300	15	22000	3100	6200
Anthracene	2400	31000	380	520000	74000	150000
Fluoranthene	280	1500	52	23000	3100	6300
Pyrene	620	3700	110	54000	7400	15000
Benzo(a)anthracene	7.2	11	2.9	170	29	49
Chrysene	15	30	4.1	350	57	93
Benzo(b)fluoranthene	2.6	3.9	0.99	44	7.1	13
Benzo(k)fluoranthene	77	110	37	1200	190	370
Benzo(a)pyrene	2.2	3.2	0.97	35	5.7	11
Indeno(123cd)pyrene	27	45	9.5	500	82	150
Dibenzo(ah)anthracene	0.24	0.31	0.14	3.5	0.57	1.1
Benzo(ghi)perylene	320	360	290	3900	640	1400
Chlorinated Aliphatic Hydrocarbons						
Vinyl chloride	0.00064	0.00077	0.00055	0.059	3.5	4.8
Trichloroethene (TCE)	0.016	0.017	0.041	1.2	120	70
1,1,1,2 Tetrachlorethane	1.2	1.5	0.79	110	1400	1500
Tetrachlorethane (PCE)	0.18	0.18	0.65	19	1400	810
1,1,1 Trichlorethane	8.8	9	48	660	140000	57000

Notes

- All values above are in mg/kg
- Numbers in bold are SGVs or GAC that are derived based on SGV report input parameters, numbers in italics are S4ULs, numbers in bold-italics are based on EIC/AGS/CL:AIRE numbers & input parameters and underlined numbers are C4SLs**
- Soil organic matter (SOM) is assumed to be 1% - DEFAULT VALUE
- Soil type is assumed to be sandy loam - DEFAULT SOIL TYPE
- For residential, the building type is conservatively assumed to be a small terrace house where the development includes bungalows change to more conservative bungalow setting in computer model
- For commercial, the building type is conservatively assumed to be a pre 1970s office building, where the proposed development comprises houses, flat with living spaces changes setting in model accordingly
- For classrooms consider increasing the dust loading factor in the 'Soil and Building Data' of the CLEA 1.04 model from 50 to 100µg m⁻³
- Based on vapour saturation limit as suggested by EA / [] model value
- Lowest of o-, m- and p-xylene
- Based on comparison of inhalation exposure with inhalation TDI
- Based on comparison of oral, dermal, and inhalation exposure with the oral TDI
- Based on a comparison of oral and dermal soil exposure with oral Index Dose only
- Averaged over and based on lifetime exposure
- Based on critical concentration for skin irritation in humans arising from contact with phenol in aqueous solution (number in brackets based on health effects following long term exposure for illustration)
- NA: Not applicable

Appendix E – Ground Gas Monitoring Results

Curtins

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**GAS MONITORING LOG SHEET**

Project: Heyrod Street **Date:** 14/05/2021
Job Number: B075424 **Visit:** 1
Client: Packaged Living **Weather:** Overcast
Barometric State: Rising **Ground Conditions:** Dry

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Level m bgl	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS						
WS01	1006	0.0	0.0	0.0	0.0	0.1	0.1	20.4	1	1	-	3.57	1
WS02	1005	0.0	0.0	0.0	0.0	0.0	0.0	20.7	1	4	-	2.35	1
WS05	1004	0.0	0.0	0.0	0.0	3.7	3.7	17.4	0	0	-	5.09	1
WS06	1004	0.0	0.0	0.0	0.0	1.2	1.2	17.0	0	0	-	1.40	1
BH01	1004	-2.7	-2.3	0.0	0.0	5.2	5.2	12.2	12	68	-	-	1,2

Notes

- 1 - Unable to determine groundwater level due to instrument failure.
2 - Steady state air flow rate recorded after 3 minutes.

Logged by

MH

1% gas volume = 10,000 ppm

Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.

All other gases recorded at 'steady state' unless otherwise stated

Curtins

Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG

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**GAS MONITORING LOG SHEET**

Project: Heyrod Street **Date:** 18/05/2021
Job Number: B075424 **Visit:** 2
Client: Packaged Living **Weather:** Sunny/Cloudy
Barometric State: Steady **Ground Conditions:** Dry

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Level m bgl	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS						
WS01	1008	0.0	0.0	0.0	0.0	0.0	0.0	20.90	2	1	1.42	3.58	1
WS02	1008	0.0	0.0	0.0	0.0	0.0	0.0	20.80	2	1	1.46	2.38	1
WS05	1006	0.0	0.0	0.0	0.0	4.1	4.1	17.10	0	1	4.96	5.05	
WS06	1006	0.0	0.0	0.0	0.0	1.3	1.3	17.20	0	0	Dry	1.42	
BH01	1008	-4.3	-3.6	0.0	0.0	4.0	4.0	14.10	10	41	20.64	35.34	1,2

Notes

- 1 - Monitoring well developed.
2 - Steady state air flow rate recorded after 8 minutes. Steady state gas concentrations recorded after 5 minutes.

Logged by

MH

*1% gas volume = 10,000 ppm**Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.**All other gases recorded at 'steady state' unless otherwise stated*

Curtins

Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG

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**GAS MONITORING LOG SHEET**

Project: Heyrod Street **Date:** 24/05/2021
Job Number: B075424 **Visit:** 3
Client: Packaged Living **Weather:** Sunny
Barometric State: Rising **Ground Conditions:** Dry

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Level m bgl	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS						
WS01	998	0.0	0.0	0.0	0.0	0.0	0.0	20.8	1	1	3.12	3.58	
WS02	998	0.1	0.0	0.0	0.0	0.1	0.1	20.6	1	2	1.58	2.38	
WS05	998	0.0	0.0	0.0	0.0	4.8	4.8	16.2	1	2	4.61	5.04	
WS06	997	0.0	0.0	0.0	0.0	1.7	1.7	16.1	0	0	Dry	1.42	
BH01	997	0.0	0.0	0.0	0.0	0.1	0.1	21.0	0	1	20.60	35.02	1

Notes

1 - Bailer dropped into monitoring well, could not be recovered.

Logged by

MH

*1% gas volume = 10,000 ppm**Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.**All other gases recorded at 'steady state' unless otherwise stated*

Curtins

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**GAS MONITORING LOG SHEET**

Project: Heyrod Street **Date:** 10/06/2021
Job Number: B075424 **Visit:** 4
Client: Packaged Living **Weather:** Sunny
Barometric State: Falling **Ground Conditions:** Dry

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Level m bgl	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS						
WS01	1015	0.0	0.0	0.0	0.0	0.1	0.1	20.7	0	1	2.83	3.85	
WS02	1017	0.0	0.0	0.0	0.0	0.2	0.2	20.4	1	4	1.76	2.40	
WS05	1015	0.0	0.0	0.0	0.0	7.3	7.3	11.6	3	2	4.60	5.08	
WS06	1013	0.0	0.0	0.0	0.0	0.9	0.9	19.2	2	2	Dry	1.41	
BH01	1015	0.0	0.0	0.0	0.0	2.2	2.2	18.0	1	2	20.67	33.90	

Notes**Logged by**

MH

*1% gas volume = 10,000 ppm**Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.**All other gases recorded at 'steady state' unless otherwise stated*

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**GAS MONITORING LOG SHEET**

Project: Heyrod Street **Date:** 17/06/2021
Job Number: B075424 **Visit:** 5
Client: Packaged Living **Weather:** Overcast
Barometric State: Rising **Ground Conditions:** Dry

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Level m bgl	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS						
WS01	1007	0.0	0.0	0.0	0.0	0.0	0.0	20.7	1	1	2.73	3.57	
WS02	1008	0.0	0.0	0.0	0.0	0.4	0.4	20.2	0	2	1.81	2.44	
WS05	1006	0.0	0.0	0.0	0.0	8.6	8.6	9.5	2	1	4.44	5.09	
WS06	1006	0.0	0.0	0.0	0.0	0.8	0.8	19.6	2	1	Dry	1.40	
BH01	1008	0.0	0.0	0.0	0.0	16.3	16.2	7.7	1	2	20.65	34.12	1

Notes

1 - Returned 10 minutes after recording water level, CO2 concentrations recorded at 5.2% v/v after 7 minutes of monitoring. O2 concentration of 16%.

Logged by

MH

1% gas volume = 10,000 ppm

Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.

All other gases recorded at 'steady state' unless otherwise stated

Curtins

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**GAS MONITORING LOG SHEET**

Project: Heyrod Street **Date:** 25/06/2021
Job Number: B075424 **Visit:** 6
Client: Packaged Living **Weather:** Light Rain
Barometric State: Steady **Ground Conditions:** Wet

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Level m bgl	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS						
WS01	1012	0.0	0.0	0.0	0.0	0.0	0.0	20.8	2	2	-	2.56	
WS02	1012	0.0	0.0	0.9	0.9	0.7	0.7	19.5	2	2	21.4	1.92	
WS05	1012	0.0	0.0	0.0	0.0	9.3	9.3	8.7	1	2	-	4.44	
WS06	1011	0.0	0.0	0.0	0.0	1.5	1.5	17.5	0	0	-	Dry	
BH01	1012	0.5	0.5	0.0	0.0	11.6	11.6	11.0	2	1	-	20.67	

Notes

1 - Returned 10 minutes after recording water level, CO2 concentrations recorded at 5.2% v/v after 7 minutes of monitoring. O2 concentration of 16%.

Logged by

MH

1% gas volume = 10,000 ppm

Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.

All other gases recorded at 'steady state' unless otherwise stated

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