BROWNFIELD SOLUTIONS LTD

GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

DOMIS CONSTRUCTION LTD

BRWRY, Manchester

Remediation Validation Report

JEM/C5313/12304

March 2025

PROJECT QUALITY CONTROL DATA SHEET

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C5313/03	-	Exploratory Hole Location Plan
C5313/08	O	UXO Probe Location Plan
C5313/10	H	Asbestos Work Area
C5313/11		Tank Excavation Plan
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1.0 INTRODUCTION

1.1 Context

This Remediation Validation Report has been produced by Brownfield Solutions Limited (BSL) on behalf of Domis Construction Ltd for a site off Dutton Street, Manchester, M3 1LD (known as BRWRY or Waterhouse Gardens).

As of March 2025, remedial works are ongoing, and this report will be updated upon satisfactory completion of the remediation.

1.2 Objectives

The objective of the validation works is to provide evidence demonstrating implementation of appropriate remediation measures. The remedial works were carried out in order to make the site suitable for the proposed mixed residential and commercial end use, as per the BSL Remedial Strategy, reference JEM/C5313/12035 Rev B, dated July 2023, which is understood to have been accepted by the Local Planning Authority (Manchester Council).

1.3 Proposed Development

The proposed development is the erection of two buildings (a part 17, part 12 storey building and a part 26, part 23 storey building) to form 556 residential units (Use Class C3a) together with the creation of 3490 sqm of commercial floor space (Use Classes A1, A2, A3, B1 and D1) with associated landscaping, access and other associated works, as shown on drawing refs. A2943 200 and BRW-REN-ZZ-00-DR-S-01100-P01 provided to BSL by the client.

1.4 Previous Reports and Correspondence

The following reports and correspondence with regulators are applicable to the site and should be read in conjunction with this validation report:

- Wardell Armstrong - Phase 1 Contaminated Land Assessment (ref. LO10517 R006.01) issued in January 2018.
- 1st Line Defence Limited Express Preliminary UXO Risk Assessment (ref. EP7634-00) issued in November 2018.
- Geotechnical & Environmental Associates (GEA) – Desk Study and Ground Investigation Report (ref. J18242) issued in June 2019.
- EOD Contracts Ltd Explosive Ordnance Desk Top Study (ref. EOD/23/23040/DTS) issued in February 2023.
- Brownfield Solutions Ltd (BSL) Site Investigation Proposal (ref. NHA/C5313/11937) issued in March 2023.
- BSL, Phase II Geo-Environmental Assessment Report (ref. JEM/C5313/12029) issued in April 2023.
- BSL, Addendum Ground Gas Risk Assessment (ref. AJS/C5313/12123) issued in June 2023.
- BSL, Remedial Strategy (ref. JEM/C5313-12035 Rev B) issued in June 2023.

It is assumed that the Local Planning Authority will have provided the above reports to the appropriate statutory consultees and the recommendations therein have been accepted.

1.5 Limitations

This report has been carried out based on information obtained from a number of areas, BSL have assumed that this information is correct.

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

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

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

The site plans enclosed in this report should not be scaled off. Any site boundary line depicted on plans does not imply legal ownership of land.

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

2.0 GROUND MODEL SUMMARY

2.1 Description of Site

The site is located off Dutton Street, Manchester, M3 1LD. It is located within Manchester City Centre, approximately 200m northwest of Manchester Victoria Railway Station, centred on National Grid Reference 383870, 399260 as shown on the Site Location Plan, Drawing No. C5313/01.

The main site features and potential issues identified during the time of the intrusive investigation are detailed below:

Feature	Description
Site Area	The total area of the site is approximately 1.4 hectares. The site comprises three distinct areas, with the difference in levels formed by remnant retaining walls or built slopes., with the upper/ highest level being along the eastern edge (Area A), the middle level being in the centre of the site (Area B) and the lowest level at the west of the site (Area C). A plan showing the areas of the site is shown on drawing ref. C5313/04.
Site Access	Access to Area A can be gained off Dutton Street along the eastern edge of the site via three locked gates. Access to Area B is via a locked pedestrian gate in the hoarding off New Bridge Street to the south of the site. Access to Area C is gained through the adjacent Great Ducie Street car park to the west of the site accessed off Francis Street.
Current Land Use and Site Features	Area A is predominantly surfaced with either tarmac or concrete and at the time of investigation was being used as a commercial car park. Further to the north of Area A is an area of disused soft landscaping which had recently been cleared of vegetation with a steep embankment which slops down towards the north-western boundary of that area of the site. Beyond the area of soft landscaping was a small two storey building of masonry construction with associated hardstanding/yard to the rear. Area A is separated from Area B and Area C by retaining walls and steep embankments. Area B is enclosed on the north, east and partially at the south by circa 5m high retaining walls that support the upper section of the site and is surfaced with either tarmac or concrete that had been previously used as a car park however was inaccessible to vehicles during the time of investigation. Area C comprises a section of the Great Ducie Street car park, surfaced with tarmac or gravel which at the time of investigation was being used as a commercial car park.
Potential Sources of Gross Contamination	No obvious sources of gross contamination were observed.
Vegetation	The site is generally devoid of vegetation given the site is predominantly hard surfaced and vegetation clearance had already been undertaken. The remaining mature trees were being felled whilst BSL site works were progressing. Following the vegetation clearance, some smaller shrubs and brambles remain in areas of soft landscaping including suspected Japanese Knotweed.
Topography	As discussed above, the site is spread over three levels connected by either retaining wall features or steep slopes of soft landscaping. The level of Area A ranges from 38.46m AOD at the northwest to 40.20m AOD at the southeast and has the exploratory holes in this area had an average level of 39.77m AOD. The level of Area B ranges from 35.56m AOD at the northwest to 35.63m AOD at the southeast and has the exploratory holes in this area had an average level of 35.69m AOD. The level of Area C ranges from 29.49m AOD at the northwest to 30.48m AOD at the southeast and has the exploratory holes in this area had an average level of 30.57m AOD.

Feature	Description
Site Boundaries	Area A is bounded to the northeast by Dutton Street and to the southeast by New Bridge Street, its boundary was formed of a combination of remnant brick walls, galvanised palisade fencing or heras fencing. The southwestern and northwestern boundaries lie within the Great Ducie Street car park, but there is no distinct physical feature that marks these boundaries. Area B of the site is encapsulated by the above.
Surrounding Area	The site is set within Manchester City Centre and is predominantly bordered with commercial developments. To the north and east of the site there are commercial buildings including warehouses, mechanics and second-hand car sales as well as restaurants. To the southeast of the site there are large car parks. To the south of the site is New Bridge Street and beyond this is the Manchester AO Events Arena Complex. To the west of the site is the Manchester College City campus and Great Ducie Street car park.

2.2 Environmental Setting

Site History

The site has had a significant industrial past, including a brewery and print works, smithy, timber yard, iron works, hat works, box works, eight chimneys, a carriage works, waterproof clothing factory, engineering works, cotton works, garage, motor repair works and car parking. A number of tanks have been recorded within the site boundary historically.

Historical mapping from 1787 and 1794 suggests the potential presence of a spring in the middle of the site which flowed towards a brewery directly to the south of the site, whilst mapping from 1850 shows lakes and a canal to the north of the site which were later infilled and built upon. Two large reservoirs were originally present in the middle of the site during this period.

Manchester bomb mapping indicates at least one bombing incident recorded within the site boundary and several other incidents recorded in the immediate vicinity of the site during WWII.

Published Geology and Hydrogeology

From the Phase 1 Assessment and published geology, it was anticipated that ground conditions would comprise the following sequence of strata (top down):

- Made Ground; over
- Devensian Till (clays, sands and gravels); over
- Chester Formation (Sandstone. Previously known as the Chester Pebble Beds Formation).

Hydrogeology

Based on the inferred geology, a summary of the Environment Agency aquifer designations is presented in the table below:

Stratum	Coverage	Aquifer Designation
Devensian Till	Full Site	Secondary Aquifer (Undifferentiated). The classification is assigned where it is not possible to attribute either category A or B to the aquifer.
Chester Formation	Full Site	Principal Aquifer. This is Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.

The site does not lie within 500m of a Source Protection Zone.

A now historical groundwater abstraction license was recorded onsite (SJ89NW3264) operated by Interbrew UK Ltd for drinking, cooking, sanitary and washing purposes as well as brewery processes. There are no active potable abstractions within 2000m.

Hydrology
The nearest named watercourse is the River Irk circa 171m east of the site, which flows into the Irwell over 200m to the west.

Potential Environmental Constraints
There are no landfill sites recorded within 250m.

Radon
Information from the environmental database report and the updated online UK maps of radon indicates the property is not in a radon affected area and therefore no radon protective measures are necessary in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings' 2015 Edition.

UXO Risk
EOD Contracts Ltd Explosive Ordnance Desk Top Study (ref. EOD/23/23040/DTS) issued in February 2023 indicates the site is at moderate risk of UXO, primary due to historical recorded bomb strikes and bomb damage on the site. It was recommended an Explosive Ordinance Disposal Engineer is required to over watch ground investigations and any future construction works.

2.3 Ground Conditions

Observed Geology
From the investigations carried out, the ground conditions can be summarised as below (top down):

Area A

- Made ground generally comprising Asphalt, concrete, gravelly sand and sandy gravelly clay from ground level to between 0.45m and 3.80m bgl.
- Natural superficial deposits comprising interbedded granular and cohesive stratum proven to depths between 0.50m and 22.00m bgl.
- Solid geology comprising sandstone proven to depths ranging between 23.00m and 37.40m bgl.

Area B

- Made ground generally comprising Asphalt, concrete, gravelly sand and sandy gravelly clay from ground level to between 0.55m and 1.50m bgl.
- Natural superficial deposits comprising slightly gravelly slightly sandy clay proven to depths between 0.95m and 5.38m bgl.
- Solid Geology of the Chester Formation not encountered in this area.

Area C

- Made ground generally comprising Asphalt and gravelly sand from ground level to between 2.10m and 4.60m bgl.
- Natural superficial deposits comprising sand and gravel proven to depths between 3.00m and 11.50m bgl.
- Solid geology comprising sandstone proven to depths ranging between 16.00m and 22.00m bgl.

Plans showing the thickness of made ground across the site (ref. C5313/06) and the depth to bedrock against ordnance datum (ref. C5313/05) are presented to the rear of the report.

2.4 Groundwater

The depths to groundwater and locations present during site works are shown in the table below:

Location	Depth During Site Works (m)	Comments
BH102	20.00 (19.94m AOD)	
BH108	7.50 (22.36m AOD)	
BH109	6.00 (24.48m AOD)	
TP103	0.30 (30.15m AOD)	Small seepage
TP105	0.60 (39.64m AOD)	Small seepage
TT101	1.70 (28.82m AOD)	Medium seepage
TT102	1.70 (28.77m AOD)	Medium seepage

Within installed standpipes, post site works monitoring has revealed the following depths to groundwater:

Location	Depth During Monitoring Period (range) (m)	
	Min	Max
Overall min/max	1.10	14.70
BH03 (GEA)	6.30	7.40
BH102	14.06 (25.63m AOD)	14.70 (24.99m AOD)
BH103	1.97 (37.97m AOD)	2.00 (37.94m AOD)
BH106 (Shallow)	NGW	2.05 (38.27m AOD)
BH106 (Deep)	12.67 (27.55m AOD)	13.00 (27.22m AOD)
BH108	NGW	1.97 (27.89m AOD)
WS101	2.34 (37.21m AOD)	2.60 (36.7m AOD)
WS102	NGW	NGW
WS105	1.10 (34.57m AOD)	1.66 (34.01m AOD)

2.5 Evidence of Contamination

During the works undertaken by BSL, observations for both visual and olfactory evidence of contamination were undertaken.

In WS105 a localised mild hydrocarbon odour and staining were noted in made ground soils between 0.30m and 0.60m bgl (area underlain by cohesive natural strata).

In TT101 a mild hydrocarbon odour and staining was noted in made ground soils between 1.90m and 2.10m bgl. The associated PID reading for those soils was 0.0ppm, indicating a likely very low residual/nuisance odour as opposed to significant or gross contamination. No sheen was noted on groundwater. BSL note that that no visual/olfactory evidence of this was recorded in the several attempts to drill BH07 immediately to the north by GEA), suggesting that this is highly localised.

In addition to the above, BSL maintained a watching brief during the excavations undertaken by the archaeologists, no visual or olfactory evidence of contamination was observed during these excavations.

3.0 SUMMARY OF RISK ASSESSMENTS

3.1 General

The previous site investigation has confirmed the following:

- Pervasive heavy metal and PAH contamination within the made ground.
- Asbestos (loose fibres) within the made ground soils at 7 No. locations.
- Possible presence of Japanese Knotweed.
- Moderate risk of UXO.

3.2 Human Health Risks

As part of the risks assessment, chemical test results were screened against the LQM/CIEH S4ULs and DEFRA C4SLs for a residential end use without homegrown produce. A summary of this assessment is provided below.

Metals
The following elevated metals were detected:

Exploratory Hole	Depth (m)	Stratum	Metal	Concentration (mg/kg)	Adopted Screening Value (mg/kg)
TP102	0.50-0.60	Made Ground	Arsenic	93	40
			Lead	1300	310
BH102	0.00-0.20	Made Ground	Lead	390	310
BH102	0.50-1.00	Made Ground	Mercury	2.4	1.2
			Lead	740	310
BH103	0.70-1.00	Made Ground	Lead	2900	310
BH104	0.80-1.20	Made Ground	Arsenic	95	40
BH106	0.50-1.00	Made Ground	Lead	490	310
WS104A	0.30-0.40	Made Ground	Lead	950	310
			Mercury	1.4	1.2

Asbestos
The locations where asbestos has been detected in the made ground, alongside the results of quantification are summarised in the table below:

Exploratory Hole	Depth (m)	Asbestos ID	Concentration by Weight (%)
BH102	0.00-0.20	Chrysotile & Amosite	0.097
BH103	0.70-1.00	Chrysotile	0.001
WS104a	0.30-0.40	Chrysotile	0.017

In addition to the above, asbestos was also detected in 4 No. samples tested by GEA in the form of loose fibres / fibre bundles with concentrations ranging between <0.001% and 0.021%.

Poly *Aromatic Hydrocarbons (PAHs)*
The locations, depth and concentrations of elevated species of PAHs are summarised in the table below:

Exploratory Hole	Depth (m)	Stratum	Species	Concentration (mg/kg)	Adopted Screening Value (mg/kg)
BH101	0.30-0.70	Made ground	Dibenz(a,h)anthracene	0.33	0.32
BH102	0.00-0.20	Made ground	Dibenz(a,h)anthracene	0.34	0.32
BH103	0.70-1.00	Made ground	Benzo(b)fluoranthene	12	4
			Benzo(a)pyrene	9	3.2
			Dibenz(a,h)anthracene	1.4	0.32
BH105	0.20-0.50	Made ground	Dibenz(a,h)anthracene	0.51	0.32
BH106	0.50-1.00	Made ground	Benzo(a)anthracene	19	14
			Benzo(b)fluoranthene	19	4
			Benzo(a)pyrene	16	3.2
			Dibenz(a,h)anthracene	2.2	0.32
TP102	0.50-0.60	Made ground	Benzo(b)fluoranthene	5.6	4
			Benzo(a)pyrene	7.3	3.2
			Dibenz(a,h)anthracene	1.4	0.32
TP103	0.20-0.30	Made ground	Benzo(a)anthracene	19	14
			Benzo(b)fluoranthene	28	4
			Benzo(a)pyrene	26	3.2
			Dibenz(a,h)anthracene	3.9	0.32
TP105	0.40-0.50	Made ground	Benzo(a)anthracene	18	14
			Benzo(b)fluoranthene	15	4
			Benzo(a)pyrene	13	3.2
			Dibenz(a,h)anthracene	1.7	0.32
TT102	0.20-0.30	Made ground	Benzo(b)fluoranthene	6.5	4
			Benzo(a)pyrene	5.8	3.2
			Dibenz(a,h)anthracene	0.79	0.32
WS104A	0.30-0.40	Made ground	Benzo(a)anthracene	18	14
			Benzo(b)fluoranthene	17	4
			Benzo(a)pyrene	15	3.2
			Dibenz(a,h)anthracene	2.2	0.32
WS105	0.30-0.50	Made ground	Benzo(a)anthracene	68	14
			Chrysene	61	31
			Benzo(b)fluoranthene	81	4
			Benzo(a)pyrene	67	3.2
			Dibenz(a,h)anthracene	9.4	0.32

Total Petroleum Hydrocarbons (TPH CWG), BTEX, VOCS and SVOCs

No petroleum hydrocarbons have been identified above the adopted screening criteria, including at WS105 where mild visual/olfactory evidence of potential impaction was noted in soils alongside photo-ionisation detection (PID) readings of 39.2ppm in the shallow made ground.

No BTEX or MTBE, VOCs or SVOCs compounds have been identified above the adopted screening criteria.

Other Data Sources

During the GEA investigation, elevated concentrations of arsenic, lead, naphthalene and petroleum hydrocarbons (one location BH4 – limited to low mobility and non-volatile long chain >EC35-EC40) were noted above human health screening criteria for a residential end use without homegrown produce. The findings of the GEA investigation generally corroborate with the findings of the recent BSL site investigation.

3.3 Ground Gas and Vapours

A summary of the ground gas monitoring carried out by GEA and BSL is presented below:

- A total of 11 No. spot monitoring visits have been carried out with 5 between December 2018 and May 2019 by GEA and 6 No. visits during April 2023 by BSL.
- Continuous monitoring was utilised in 3 No. boreholes for circa 3 weeks.
- The comprehensive available dataset was considered to be suitable for assessment, including numerous falling pressure events to demonstrate monitoring under worse case conditions had been met.
- The highest methane concentrations were recorded within the shallow installation of BH106, with a maximum concentration of 7.4% v/v recorded on the fifth monitoring visit.
- The highest carbon dioxide concentrations were recorded in the deep installation of BH106 (1.9% v/v) on the third visit.
- The maximum peak flow of 28.9 l/hr was recorded in WS105 on the first visit (considered to be due to groundwater piston effects Steady flows were generally less than 1.0l/hr, but a maximum steady flow of 7.8 l/hr was detected on a single occasion.
- Methane was consistently above 1% within BH106 and BH03.
- Carbon dioxide was consistently well below 5%.
- There is a clear separation based on the CSM, ground conditions and data that no gas is present below the north of the site (Block A).
- Methane detected under Blocks B to E is likely attributable to the made ground and organic strata.
- With liaison with Manchester City Council (MCC) and further assessment within the addendum letter report, it was considered the above was not a significant risk to the development.

On the basis of the above and the assessments carried out, the entire site is classified to fall within Characteristic Situation 1 and therefore no specific mitigation measures are required; it is also considered that due to the nature of the construction of the Blocks with substantial reinforced concrete floor slabs, there will be an inherent level of gas resistance incorporated, which will further reduce the low assessed level of risk.

3.4 Risks to Controlled Waters

Two rounds of groundwater monitoring were undertaken at the site in 2019 by GEA and samples were recovered from installations.

During the first round of monitoring, samples of groundwater measured elevated concentrations of total organic carbon, ammoniacal nitrogen and extractable petroleum hydrocarbons. The samples were obtained using a simple bailer and the marginally elevated concentrations were therefore assessed as likely attributable to the sediment and turbation during sampling. A low flow pump was utilised upon the second visit which revealed marginally elevated concentrations of PAHs within the groundwater from BH11 in the south of the site.

It was concluded that given the site had been utilised as a brewery for many years and groundwater has been abstracted from the sandstone beneath the site for decades, the values are considered likely to arise from localised shallow groundwater conditions rather than site derived contamination affecting the aquifers below the site.

Further groundwater testing has not been carried out by BSL based on the above assessment and the site is not considered to pose a significant risk to controlled water for the following reasons:

- No significant gross or mobile contamination has been identified on site in soils based on the results obtained as a potential indicator of groundwater contamination.
- There is no indication under present conditions of significant pollution of controlled waters and conditions following development of the site will not be any worse, indeed they may improve with increased hard cover and water retaining imported soft landscaping soils.
- The nearest watercourse is approximately 170m away at its nearest point and is considered to represent a culverted section of the River Irk, which is not considered to be in hydraulic continuity with the site.
- The River Irwell is located >250 south of the site.
- Area A and Area B of the site is underlain by low permeability clays which will inhibit lateral and vertical contaminant migration. A considerable concrete slab is present at depth across 80% of Area C, which will inhibit migration of contamination within the shallow made ground into the underlying soils.
- The site does not lie within 500m of an SPZ.
- There are no active groundwater abstractions within 400m. The nearest active abstractions are upgradient away from the River Irwell, the remainder within 2km of the site are for low sensitivity uses.
- There are no potable (sensitive) water abstractions within 2000m.
- It would be technically challenging and probably disproportionately costly to remove contaminants at the identified concentrations from the water to the pre-input stage.
- The site will be subject to extensive earthworks to address the significant differences in site levels. As such any evidence of mobile contamination will be accounted for and appropriately removed from the site, further reducing the risk.

3.5 Summary

A summary of the findings of the previous investigations and assessments where a risk is present (i.e. an unacceptable source-pathway-receptor linkage) which requires mitigation is presented in the table below.

Source	Receptor
<- Poses an unacceptable risk to ->	
Pervasive elevated concentrations of heavy metals, PAH, and asbestos present within the made ground	Human health / construction workers (Residential with homegrown produce)
UXO	Human Health and Property
Japanese Knotweed	Property

4.0 REMEDIATION STRATEGY

4.1 Outline

Based on the site investigations undertaken at the site and the contaminant sources identified within the CSM, the following require appraisal to determine the most suitable remedial options:

- General Made Ground – Pervasive contamination in the form of arsenic, lead and PAHs has been identified within the made ground, presenting a risk to human health (site end users).
- Made Ground – Asbestos containing materials, fibrous debris and free fibres within the made ground in areas of the site, presenting a risk to human health (site end users).
- UXO – Medium risk., presented a risk to human health and property.

4.2 Site Remediation Requirements.

Following an options appraisal in the Remedial Strategy (JEM/C5313/12035 Rev C), remedial measures were selected for each of the identified sources. Full details are available within the Remedial Strategy, with the key requirements summarised in the table below.

Source	Contaminants of Concern	Remediation Method	Further Details / Remedial Requirements
1 – Made ground	Metals, PAHs	Combination of Materials re-use/disposal and Installation of Clean Cover System	Excavation and re-use of materials in suitable areas. Unsuitable materials to be removed from site. In soft landscaping areas, a cover system comprising "clean" validated topsoil/subsoil should be installed. A warning geo-membrane should also be installed at the base of the clean cover system due to the presence of asbestos.
1A – Made ground	Asbestos	Combination of Materials re-use/disposal, adopt hand picking of ACM (if encountered) and Installation of Clean Cover System	
2 – Made ground	PAHs	Barrier Pipe	Utilise barrier pipe for water feed unless risk assessment determines PE is suitable.
Additional Items			
3 – Unforeseen Contamination	TBC	TBC	TBC
UXO	Unexploded Ordnance	Magnetometer Survey	Magnetometer Survey of Piles.
Abstraction Well	N/A	Capping	-

In addition to the specific remedial requirements listed in the tables above which are intended to mitigate the risks from known sources, it was recommended that a watching brief be maintained during the groundworks and construction for any evidence of contamination and BSL consulted for advice.

With reference to the remedial requirements, "clean" soils are defined by the site-specific Human Health Remediation Targets which are derived from C4SLs/S4ULs for a residential without plant uptake end use.

The human health remediation targets are enclosed in Appendix A.

Materials Management Plan

In order to enable the excavation and re-use of materials on site as part of the enabling works and in order to build up site levels under the current regulatory regime and waste regulations, a Materials Management Plan was produced and declared to CL:AIRE. The Materials Management Plan is presented in Appendix B.

5.0 SITE REMEDIATION AND VALIDATION

5.1 General

The remediation process was undertaken over several stages. Site visits commenced on 5th July 2023 and are currently ongoing at the time of the report.

A summary of the site works undertaken in accordance with the Remedial Strategy (report ref. JEM/C5313/12035) is detailed below.

5.2 Source 1A: Made ground

At the time of writing, the clean cover system for the site has not yet been installed and subsequently validated. Supporting information will be presented in Appendix C.

5.3 Source 1B: Asbestos

The intrusive investigation undertaken by BSL and the previous investigation by GEA has identified asbestos within seven exploratory hole locations, quantification has revealed these ranged from trace levels (<0.001%) to 0.097%. The laboratory analysis identified the asbestos as loose fibrous debris and fibrous bundles. However, no evidence of visible asbestos has been recorded during any of the site investigations carried out at this stage.

Further asbestos sampling was undertaken by BSL between 5th July and 18th August 2023 to assist in delineating or further establishing suitable asbestos work areas and to help provide a better understanding of the least impactful place to re-use asbestos-impacted soils onsite.

In line with the Remedial Strategy for the site (report ref. JEM/C5313/12035), a dynamic Asbestos Management Plan was developed for the site (final revision ref. PH/C5313/12260 Rev D), which detailed asbestos sampling exercises and excavation works undertaken.

Chemical Testing Certificates for the below work is presented in Appendix D.

GL1 – GL2 ***– Element Test Results 23/109228***
On 5th July 2023, BSL attended site to obtain samples of suspected asbestos insulating board which had been fly-tipped in the southern area of the site. Two samples of the material were collected and sent to the laboratory for identification testing. Both samples were confirmed to contain no asbestos.

SP01 – SP06 ***– Element Test Results 23/11630***
On 14th July 2023, BSL attended the site to obtain samples of stockpiled 6F5 generated during the earthworks at the site for asbestos which was being crushed and screened ready for re-use across the site. Based on an approximate volume of 4,000m^3 and a sample frequency of 1 per 1,000m^3, a total of 4No. samples were collected and named SP01, SP02, SP05 and SP06. It was noted onsite, that a smaller stockpile of approximately 2,000m^3 was present which comprised material excavated and stockpiled from the area around and including BH102. Two samples of this material were obtained and named SP03 and SP04. The location of these samples and the materials stockpiled is shown on drawing ref. C5313/12 Rev A. The results recorded trace asbestos in SP01 and SP02, and asbestos at 0.001% in SP03.

ASB101 – ASB110 ***– i2 Analytical Test Results 23-47861***
On 19th July 2023, BSL attended the site to obtain samples of material formally associated with BH102 which had been re-used as documented in the remedial strategy and placed at depths between ~5m and 1m bgl in an area of the site local to Blocks C/D/E equating to a footprint of 25m x 5m. Following placement of this material at depth, it was determined that further testing of the material should be

done to reduce the Asbestos Work Area to as small as reasonably practicable to facilitate piling in this area with minimal additional measures required. As such, BSL undertook a grid sampling exercise across the area where 10 samples were taken on a ~3.5m x ~3.5m square grid. The samples were named ASB101 to ASB110 and were noted to be taken of made ground comprising brown slightly gravelly sandy clay with moderate cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of asphalt, brick, concrete, mudstone and sandstone. Cobbles are subrounded of brick and concrete up to 200mm in diameter. Of the samples taken, nine were reported to contain chrysotile asbestos at trace amounts and one location, ASB105, was recorded to contain chrysotile loose fibrous debris at 0.019%. As such, a conservative Asbestos Work Area was defined up to the nearest areas of trace asbestos surrounding this sample location.

ASB201 – ASB204 ***– i2 Analytical Test Results 23-47861***
On 2nd August 2023, BSL attended the site to undertake a grid sampling exercise local to BH06 in order to inform appropriate Asbestos Work Area boundaries for earthworks and piling exercises. A total of 4No. samples were obtained, ASB201 to ASB204, from made ground comprising brown slightly clayey gravelly sand with low cobble content. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of brick and concrete. Cobbles are up to 120mm diameter of subangular brick. Of the four samples, one samples, ASB203, recorded as containing 0.098% asbestos, no asbestos was identified in the remaining three samples.

ASB205 – ASB20 ***– i2 Analytical Test Results 23-52516***
On 18th August 2023, BSL attended the site to undertake four additional sample points to further delineate the asbestos identified in ASB203 and BH06. The samples, named ASB205 to ASB208, revealed trace asbestos in ASB205, and asbestos at 0.035% in ASB208. No asbestos was detected in ASB206 or ASB207. The information from this exercise local to Block B was utilised to determine defined Asbestos Work Areas to allow the successful and safe removal of asbestos impacted made ground in this area. The areas to be excavated were determined based on coordinates provided by BSL. On 5th and 6th October asbestos impacted soils were loaded directly onto wagons supported by perimeter and personal asbestos air monitoring by Acorn Analytical Services which did not record any respirable fibre concentrations above the limit of detection (<0.001 fibres/ml). Asbestos air monitoring results are presented in Appendix E. Waste Transfer Notes are presented in Appendix F.

ASB301, ASB303 – ASB304 and ASB401 ***– i2 Analytical Test Results 23-52516***
On 18th August 2023, BSL attended the site to obtain additional samples local to BH07 and TP08 in the west of the site on the Lower Level to assist in delineating and providing defined Asbestos Work Areas for these areas of the site. The samples names, ASB301, ASB303 and ASB304 taken local to BH07, recorded one sample with a positive identification of asbestos, recorded to be at trace levels. ASB401 taken in proximity to TP08 did not identify asbestos.

The report highlights the following locations where asbestos has been identified by laboratory testing:

Position	Depth (m bgl)	Nature	Type	Quantity (total mass%)
TP08	1.00	Fibrous bundles	Chrysotile	0.007
TP10	1.00	Fibrous bundles	Chrysotile	<0.001
BH06	0.50	Fibrous bundles	Chrysotile & Amosite	0.022
BH07	0.80	Fibrous bundles	Chrysotile & Amosite	0.001
BH102	0.00 – 0.20	Loose fibrous debris	Chrysotile & Amosite	0.097
BH103	0.70 – 1.00	Loose fibrous debris	Chrysotile	<0.001
WS104A	0.30 – 0.40	Loose fibrous debris	Chrysotile	0.017
SP01	-	Fibre Bundles	Chrysotile & Amosite	<0.001
SP02	-	Fibre Bundles	Chrysotile & Amosite	<0.001
SP03	-	Fibre Bundles	Chrysotile	0.001

Position	Depth (m bgl)	Nature	Type	Quantity (total mass%)
ASB101 – ASB103, ASB106 – ASB107, ASB109 – ASB110	0.50	Loose fibres	Chrysotile	<0.001
ASB104, ASB108	0.50	Loose fibrous debris	Chrysotile	<0.001
ASB105	0.50	Loose fibrous debris	Chrysotile	0.019
ASB106	0.50	Asbestos Cement	Chrysotile	-
ASB203	0 – 1.90	Loose fibrous debris & asbestos cement	Chrysotile	0.098
ASB205	0.10 – 1.00	Loose fibres	Amosite	<0.01
ASB208	0.10 – 1.80	Loose fibrous debris	Chrysotile	0.0353
ASB301	0.07 – 1.40	Loose fibres	Chrysotile	<0.001

Supporting chemical laboratory results are presented in Appendix D with the above illustrated on the Asbestos Work Area Plan (ref. C5313/10 Rev H). Associated Logs for ASB2XX, ASB3XX and ASB4XX are presented in Appendix D.

Visible ACMs

No visual evidence of asbestos was observed during the site investigations. Asbestos cement was noted within a sample from soils associated with ASB106. The removal and sampling of this ACM is considered to have remediated these soils and no further visual evidence of asbestos was observed during subsequent asbestos sampling.

Summary of Site Activities

The redevelopment of the site involved the following activities associated with the asbestos impacted made ground:

Hazard	Status
Excavation of asbestos impacted soils from the site-wide proof dig down to natural strata and subsequent stockpiling of material.	Completed.
Material will be sorted and re-engineered to 6F5 to be utilised as general fill and a piling mat across the majority of the development, in accordance with a declared MMP.	Completed.
Materials from BH102 where asbestos was encountered at 0.097% will be treated as anomalous from the general made ground and re-used as general fill below 1.00m bgl as one of the initial stages of works, in accordance with a declared MMP.	Completed. Movement demonstrated between Asbestos Work Area Plan Revision B and C (ref. C5313/10 Rev B and C5313/10 Rev C. HSE Notification Number: EEB31128E9. Submitted Date: 27/07/2023.
Materials from ASB203 where asbestos was encountered at 0.098% will also be treated as anomalous from the general made ground. Additional testing was undertaken in proximity to ASB203 to assist in confirming an appropriate work area and volume for notifiable asbestos concentrations in the soil. This material will re-used as general fill below pile cap level (~1500mm bgl) as one of the initial stages of works within Block B to ensure the soils lie outside of the building core and have minimal future disturbance, in accordance with a declared MMP.	Completed. Movement demonstrated between Asbestos Work Area Plan Revision H and I (ref. C5313/10 Rev H and C5313/10 Rev I. HSE Notification Number: 13FC7ED176. Submitted Date: 11/09/2023.
Other asbestos impacted soils will be delineated and where possible, placed as general fill below 1.00m bgl, in accordance with a declared MMP.	Completed.
Following placement of material below a piling mat, CFA piling will be undertaken through the piling mat, engineered fill below, through natural strata and socketed into bedrock.	Aborted - Block B. HSE Notification Number: 14FADD1E68 Submitted Date: 22/09/2023

Hazard	Status
Materials from ASB203 where asbestos was encountered at 0.098% has been placed within a defined asbestos work area at depths below 1500mm. It is proposed to excavate this material with excavators and load on to wagons for removal from site.	Completed – Block B. HSE Notification Number: 12CFD105DE Submitted Date: 04/10/2023

5.4 Source 2: Made Ground – Potable Water Supply

In line with BSL's, United Utilities Risk Assessment (ref. NS/C5313/12267). Barrier pipe was utilised for potable water supply at the site, laid into clean service trenches with a gravel bedding and sand side fill and backfill. Associated photos are included in Appendix G.

A plan detailing the location of the pipeline is presented in Appendix G.

5.5 Source 3: Unforeseen Contamination

5th July 2023 – Previously Unrecorded UST (Excavation 1)
BSL attended site on 5th July 2023 to validate the removal of a tank found in Block C & D. BSL were not requested to attend site during the removal of the unrecorded UST. The area surrounding the UST was subsequently reduced in level to the same level of the base of the excavation with the excavated material re-used elsewhere onsite. No contamination was reported to BSL from the material excavated from this area. The locations and dimensions of the tank excavations and sampling locations are shown on the Tank Excavation Plan, drawing C5313/11.

Five samples were taken from the area where the tank was encountered. The samples were scheduled for TPH-CWG analysis and BTEX/MTBE analysis at a UKAS accredited laboratory. All samples were screened onsite with a Photo-Ionisation Detector (PID). Sampling and chemical testing was undertaken at a minimum frequency of one test per 10m of linear sidewall with a minimum of four tests (i.e. one per side) and one test per 50m^2 on the base, as dictated by the approved remedial strategy. Given that the area did not possess any side walls, the four side wall samples were also taken from the base in corresponding positions. The ground condition in this area was noted to be made ground comprising brown slightly sandy gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick and mudstone.

A summary of the sample information, chemical testing, and results is presented in the table below:

Sample Reference	Sample depth (m bgl)	VOCs by PID (ppm)	Chemical Testing Scheduled	TPH Concentration (mg/kg)
VS01	0.1	<0.1	TPH-CWG, BTEX/MTBE	260
VS02	0.1	<0.1	TPH-CWG, BTEX/MTBE	750
VS03	0.1	<0.1	TPH-CWG, BTEX/MTBE	1,900
VS04	0.1	<0.1	TPH-CWG, BTEX/MTBE	650
VS05	0.1	<0.1	TPH-CWG, BTEX/MTBE	340

The samples were screened against a residential without plant uptake screening criteria which did not reveal any associated elevations. Results are presented within Laboratory Report 23-43537 presented in Appendix H. A series of photographs are also presented in Appendix H.

31st July 2023 – Previously Unrecorded Hotspot

BSL were asked to attend site to sample a suspected petroleum hydrocarbon hotspot which was identified by the earthwork's contractor during general site clearance / earthworks, the soils were darker in nature than the surrounding area and possessed a slight hydrocarbon odour. The suspected hotspot was located in the south of the site, in the location of the proposed Block E. BSL attended site on the 31st July 2023 to obtain one sample from the material which was noted to be made ground comprising greyish brown slightly clayey gravelly sand with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded of slag, brick, sandstone, mudstone and quartz, cobbles were subangular to subrounded up to 125mm of brick.

The sample, HS1, was tested for a comprehensive suite of determinands including heavy metals, asbestos, PAHs, TPH CWG and BTEX and screened against a residential without plant uptake screening criteria. The Suspected Hotspot Sampling drawing, reference C5313/13, shows the location of the suspected hydrocarbon hotspot.

Chemical testing did not reveal any elevated hydrocarbon contamination. Elevated concentrations of lead and PAHs were noted, and therefore, it was noted to not be dissimilar to the general made ground across the site and was not representative of a hydrocarbon hotspot. Associated chemical testing results are presented in Appendix H. This material was therefore re-used as general made ground across the site.

Watching Brief

A watching was maintained by the Groundworks Contractor throughout the remediation and redevelopment of the site. To the best of BSL's knowledge, no unexpected sources of contamination were identified, except for the previously unrecorded tank previously covered within this report. The ground conditions encountered during the redevelopment phase were understood to be consistent with those encountered during the earlier ground investigations.

Therefore, no additional remedial measures with respect to petroleum hydrocarbons or other forms of gross contamination were considered necessary at the site over and above those already stipulated within the approved Remedial Strategy and within this Verification report.

5.6 UXO

BSL attended the site between 17th July 2023 and 1st March 2024 with Brimstone Site Investigation and In-situ Site Investigation for an intrusive investigation using a CPT rig with a magnetometer probe in order to safely clear pile locations and a small buffer area around each pile location in advance of piling at the site.

The clearance investigation comprised of 377 individual probe locations as shown on drawing C5313/08 Rev O. Where outstanding probes are shown, this related to areas where bedrock was exposed onsite during earthworks and subsequent probing was not required. The test locations were surveyed in using coordinates provided by BSL. All UXO Clearance Reports are presented in Appendix I.

5.7 Abstraction Well

An historical abstraction well was recorded in the south of the site which was uncovered during earthworks. Given the depth the well was encountered (29.728m AOD) and the final depth the underside of the ground beam was to be placed (29.05m AOD), it was agreed that the steel cased abstraction well be cut to the underside of the slab and then concrete be poured over and around it, therefore

encapsulating it and suitably decommissioning the borehole. The ground beam was then installed above the capping, providing additional cover. Associated dialogue, photographic evidence and sign off sheets are presented in Appendix J.

5.8 MMP Verification Reporting

In accordance with the requirements of Section 3.4 of the CL:AIRE DoWCoP, this section of the report will outline how the materials management planning has been carried out over the course of the project. The report will compare the works carried out with the original Materials Management Plan (MMP) and any changes to the works.

To date, no materials have been required to be imported to the site under the MMP, which has predominantly comprised the re-use of site won soils and importation of first generation quarried aggregates. All other unsuitable soils and materials have been removed and disposed off-site to a suitable facility.

All site won materials were re-used in accordance with the BSL Remedial Strategy

A summary of the requirements of the MMP Verification and location of the information is presented in the table below:

Item	Comments
Appropriate site plans	See drawings section of this report.
Description of how the use of materials links with the Remediation Strategy	In accordance with the approved Remedial Strategy, and MMP, enabling earthworks were carried out to create altered platforms to facilitate development on three levels. Unsuitable soils and materials were removed off site.
Reference to site investigation data	Wardell Armstrong - Phase 1 Contaminated Land Assessment (ref. LO10517 R006.01) issued in January 2018. Geotechnical & Environmental Associates (GEA) – Desk Study and Ground Investigation Report (ref. J18242) issued in June 2019. Brownfield Solutions Ltd (BSL) Site Investigation Proposal (ref. NHA/C5313/11937) issued in March 2023. BSL, Geo-Environmental Assessment Report, reference JEM/C5313/12029 Rev B, dated July 2023. BSL, Remediation Strategy Report, reference JEM/C5313/12035 Rev C, dated August 2023. Summaries provided in Section 2.0 of this report.
Reference to risk assessments	As above. Summaries provided in Section 3.0 of this report.
Reference to the MMP and associated tracking system, including any deviations and why	BSL, Materials Management Plan, reference JEM/C5313/12230, dated September 2023. See volumes table and accompanying paragraphs below and in Appendix B.
The suitable for use criteria adopted	See Appendix A.
Any treatment records	N/A
Reference to waste transfer documentation, including return loads	Waste transfer notes provided in Appendix F.
Signed delivery tickets	N/A
Record of contingency arrangement(s) that had to be implemented (if any)	None specifically. Out of specification materials removed from site and disposed of. See Section 5.3 and 5.4 above.
Record of quantity of materials used	See table below.
Copies of signed Declaration(s) by Qualified Person(s)	See MMP in Appendix B.

The volumes of materials re-use provided by the contractor to BSL is summarised in the table below:

Materials Type	Description / Comments / Area of Use	Estimated Volume Re-Used (m^3)
Class 6F5	Re-use of material to general development levels	15,707

6.0 CONCLUSIONS

6.1 General

The remedial works described within this report were carried out from the 5th July 2023 and are currently ongoing under the supervision of experienced BSL geo-environmental engineers.

6.2 Cover System Validation

At the time of writing soft landscaping is yet to be installed. As such, validation of this item is ongoing and will be updated in subsequent versions of this report.

6.3 Asbestos Impacted Made Ground

Asbestos was managed onsite in line with an Asbestos Management Plan. Asbestos impacted made ground above trace levels was removed from site and suitably reducing the risk for construction workers. The risk from any residual asbestos impacted made ground will be mitigated through a cover system which is yet to be installed and validated.

6.4 Potable Water Supply

Clean service trenches were installed where barrier pipe has been laid, thus mitigating any risk to water supply pipelines.

6.5 Unforeseen Contamination

A previously unrecorded below ground storage tank was removed from site, with the area underlying the tank successfully validated and demonstrating no residual risk.

6.6 UXO

UXO probing prior to piling at the site was undertaken, thus mitigating any associated risk.

6.7 Abstraction Well Decommissioning

A previously recorded abstraction well was uncovered during earthworks, which was adequately capped and therefore suitably decommissioned.

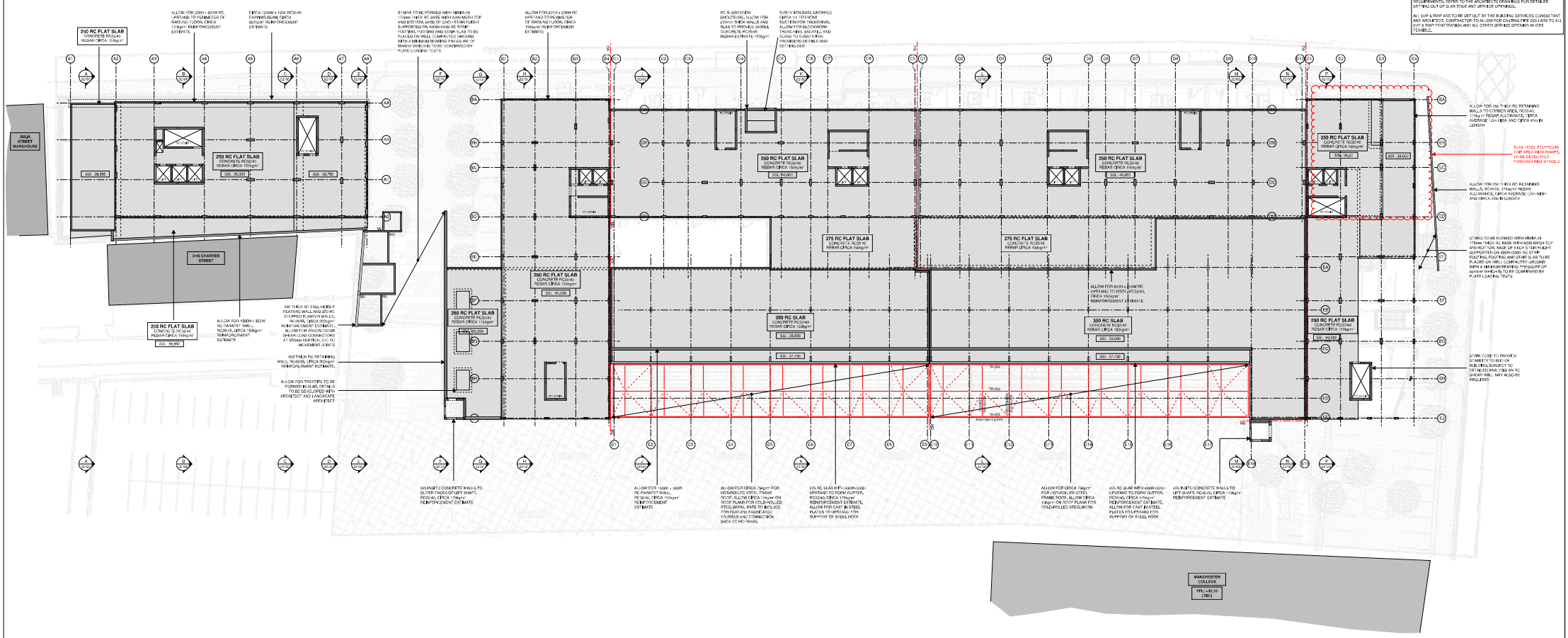
6.8 Watching Brief

A watching brief was maintained by the Principal Contractor throughout the remediation and redevelopment of the site. To the best of BSL's knowledge, gross contamination was not identified, and the ground conditions were understood to be broadly consistent with those encountered during the earlier ground investigations. Therefore, no additional remedial measures were considered necessary at the site over and above those already stipulated within the approved Remedial Strategy

6.9 Long Term Monitoring and Other Requirements

BSL can confirm that there are no long-term monitoring requirements at the site and that there are no further requirements in respect to remediation and validation.

DRAWINGS



GENERAL NOTES:

1. REFER TO DRAWING BRW-REN-ZZ-XX-DR-A-90010 AND S-90011 FOR GENERAL NOTES.

COLUMN SETTING OUT
ALL COLUMNS TO BE LOCATED CONCENTRICALLY ON GRIDLINES UNLESS NOTED OTHERWISE

FAÇADE SUPPORT
FOR FAÇADE PRINCIPLES, INCLUDING BRICKSLIP SYSTEM, MASONRY SUPPORT, SECONDARY STEEL WORK ETC., REFER TO FAÇADE CONSULTANTS INFORMATION

CAST-IN CHANNELS & FIXINGS
FOR ALL CAST-IN CHANNEL AND FIXINGS REQUIREMENTS INCLUDING SPECIFICATION AND DETAILED SETTING OUT, REFER TO CLADDING CONTRACTORS, LIFT MANUFACTURERS AND SHUTTRADE DRAWINGS.

WHERE CAST-IN CHANNEL AND FIXINGS ARE INDICATED ON THE REMAISSANCE DRAWINGS, THESE ARE INDICATIVE AND FOR COORDINATION PURPOSES ONLY, REFERENCE SHOULD BE MADE TO THE RELEVANT CONTRACTOR DRAWINGS FOR DETAILED REQUIREMENTS.

FLOOR LEVEL - TOLERANCE & SURFACE REGULARITY
THE CONCRETE FRAME IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE NATION STRUCTURAL CONCRETE SPECIFICATION TOLERANCES. IN ADDITION FLOOR SLABS WILL DEFLECT AT MID-SPAN UP TO SPAN/360. WHERE FLOOR FINISHES REQUIRE AN ENHANCED SURFACE REGULARITY (EF, SR1, SR2 OR SR3) ALLOW FOR SELF-LEVELLING SCREED OR COMPOUND.

ROOF & TERRACE LEVEL SLAB DEFLECTION
THE REINFORCED CONCRETE FRAME WILL DEFLECT UNDER IT'S OWN SELF-WEIGHT, FINISHES AND PLANT LOADING. COMPOUND SLAB DEFLECTIONS AT MIDSPAN BETWEEN COLUMNS WILL BE UP TO SPAN/250, FOR THE ARRANGEMENT SHOWN MIDSPAN DEFLECTION COULD IN THE RANGE OF 35-40mm.

IF THE ARCHITECT, ROOFING CONTRACTOR, OR ROOFING SUPPLIER REQUIRE A FLAT ROOF WITH NO NEGATIVE FALLS THEN THIS SHOULD BE FORMED WITH THE TAPERED ROOF INSULATION AND AGREED BETWEEN THE ABOVE PARTIES AND THE MAIN CONTRACTOR, ALTERNATIVELY THE SLAB CAN BE LAID TO FALLS, FALLS TO BE AGREED WITH THE ARCHITECT

TOWNHOUSE STAIRS
ALLOW FOR FEATURE STAIRS TO TOWNHOUSES, TO ARCHITECTS DESIGN INTENT, TO BE DEVELOPED BY SUPPLIERS DESIGN AND DETAIL, INCLUDING FIXINGS BACK TO PRIMARY RC FRAME

SERVICE PENETRATIONS & RISER
ALL SERVICE OPENING TO THE BUILDING SERVICES CONSULTANTS REQUIREMENTS, REFER TO THE ARCHITECTS DRAWINGS FOR DETAILED SETTING OUT OF SLAB EDGE AND SERVICE OPENINGS.

ALL SVP & RWP ARE TO BE SET OUT BY THE BUILDING SERVICES CONSULTANT AND ARCHITECT. CONTRACTOR TO ALLOW FOR CASTING FIRE COLLARS TO ALL SVP & RWP PENETRATION AND ALL OTHER SERVICE OPENING WHERE ENABLED.

BLOCK A

TYP INTERNAL COLUMN	TYP EDGE COLUMN	SHEAR & CORE WALLS
RC60/60 (95% GGBS) 350kg/m³ REBAR ESTIMATE	RC50/50 (95% GGBS) 180kg/m³ REBAR ESTIMATE	RC40/50 (40% GGBS) - SLOW SLIP WALLS RC40/50 (95% GGBS) - JUMPED WALLS 250kg/m³ REBAR ESTIMATE

BLOCK B, C, D & E

TYP INTERNAL COLUMN	TYP EDGE COLUMN	SHEAR & CORE WALLS
RC60/60 (95% GGBS) 350kg/m³ REBAR ESTIMATE	RC50/50 (95% GGBS) 350kg/m³ REBAR ESTIMATE	RC40/50 (40% GGBS) - SLOW SLIP WALLS RC40/50 (95% GGBS) - JUMPED WALLS 250kg/m³ REBAR ESTIMATE

RC COLUMNS
REFER TO PLANS FOR SIZES THROUGHOUT THE BUILDING.
ALLOW RC60/50 CONCRETE GRADE FOR ALL COLUMNS WITH CIRCA 350 kg/m³ REINFORCEMENT ESTIMATE.
SIZES TO BE REVIEWED AT STAGE 2/3 AND 4 AND SUBJECT TO ADJUSTMENT TO SUIT STAGE/ CONSTRUCTION, AXIAL SHORTENING ASSESSMENT AND INPUT FROM FACADE CONSULTANT ON ALLOWABLE MOVEMENTS.

PERIMETER COLUMN SIZES AT GROUND FLOOR ADJACENT TO HIGHWAYS, MAY HAVE TO INCREASE IN SIZE TO RESIST ACCIDENTAL VEHICLE IMPACT LOAD, TBC AT STAGE 3

KEY

MJ — STRUCTURAL MOVEMENT JOINT TO BE CONTINUOUS THROUGH FRAME INCLUDING ALL ARCHITECTURAL FINISHES AND BUILDING ELEMENTS WITHIN THAT ENSURE THE MOVEMENT JOINT IS AT RISK OF FAILURE. ALLOW FOR +/-__mm HORIZONTAL MOVEMENT (OPENING & CLOSING), +/-5mm HORIZONTAL MOVEMENT (BUILDING) AND +/-5mm VERTICAL MOVEMENT (SETTLEMENT & DEFLECTIONS)

RIBA STAGE 2-

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED BUILDINGS AND ARE APPROPRIATE FOR RIBA STAGE 2- (CONCEPT), DUE TO CLIENTS PROGRAMME THESE PROPOSALS HAVE BEEN PRODUCED WITH LIMITED INPUT FROM THE WIDER DESIGN TEAM AND ARE BASED ON WORK IN PROGRESS ARCHITECTURAL FLOOR PLANS AND PLANNING DRAWINGS.

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGES 2 (CONCEPT DESIGN), STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 2A- 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

0m 5m 10m 20m
SCALE 1:200

Rev	Description	Date	By	Chkd
P01	RIBA STAGE 2 - INITIAL CONCEPT	21.04.23	PC	KG

Renaissance Architects Ltd
Canvas Warehouse
77 Dale Street
Manchester
M1 2HG

Client
BRWRY
MANCHESTER

Drawing Title
SITE WIDE
GROUND FLOOR PLAN

Status
RIBA STAGE 2-

Size	Date	Drawn by	Designed by	Checked by
A0	FEB 23	PC	-	KG

Scale 1:200 | Project No. 2211-T-1

Project	Originator	Volume	Level	Type	Role	Category/Number	Rev
BRW	REN	ZZ	00	DR	S	01100	P01



NOTES:

1. DO NOT SCALE FROM THIS DRAWING. ALWAYS WORK TO NOTED DIMENSIONS.
2. ALL SETTING OUT, LEVELS AND DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE INSTALLATION OF MATERIALS AND ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR IMMEDIATELY.
3. THIS DRAWING MUST BE READ WITH THE RELEVANT SPECIFICATION DOCUMENTS AND DETAIL DRAWINGS. ANY DISCREPANCIES MUST BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR IMMEDIATELY.
4. THIS DRAWING IS COPYRIGHT PROTECTED AND MAY NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN AUTHORITY.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
6. NOTE DRAWING SUITABILITY CODE SHOWN BELOW. DRAWING NOT TO BE USED FOR CONTRACTUAL AGREEMENT WITHOUT A1 STATUS.

THIS DRAWING WAS PLOTTED ON:
30/06/2023

REVISION HISTORY

DATE	REV	ZONE	DESCRIPTION	CHK
16/06/2023	P01		Draft Issue	OK
23/06/2023	P02		Preliminary Issue	OK
30/06/2023	P03		Stage 03 Revised Issue	OK

KEY

GENERAL INFORMATION

APPLICATION SITE BOUNDARY

HARDWORKS

S1.0 **PAVING TYPE A - KILSARAN INISH BLOCK**
TO MAIN SURFACE RUST RED COLOUR TBC

S2.0 **PAVING TYPE B - KELLEN**
TO MATCH EXISTING/ COLLEGE ENTRANCE

S3.0 **PAVING TYPE C - KILSARAN INISH BLOCK 2**
AS SHOWN RUST RED COLOUR TBC

S4.0 **PAVING TYPE D - GREENGAP PAVING**
TO PRIMARY ROUTES (AS SHOWN)

S5.0 **PAVING TYPE E - PORCELAIN TILE**
TO PODIUM AS SHOWN

S5.1 **PAVING TYPE F - PORCELAIN TILE 2**
TO DEFENSIBLE SPACES ON PODIUM

S5.2 **PAVING TYPE G - PORCELAIN TILE 3**
TO PRIVATE ACCESS ON PODIUM

S6.0 **HAZARD WARNING PAVING**
TO TOP AND BOTTOM OF STEPS

S7.0 **MACADAM**
TO VEHICULAR AREAS
TO ENGINEER'S DETAIL & SPECIFICATION

S7.1 **MACADAM**
TO PEDESTRIAN AREAS
TO ENGINEER'S DETAIL & SPECIFICATION

S8.0 **PAVING TYPE F - NATURAL STONE SETT**
AS SHOWN

S8.1 **PAVING TYPE I - NATURAL STONE UNIT**
TO SPILL OUT SPACE AS SHOWN

STONE STEPS
SOLID STONE STEP UNIT WITH CONTRASTING INLAY STRIP

CORTEN ETCHED INLAY STRIP
SITE TIMELINE DETAIL RIBBON AS SHOWN

SOFTWORKS

CLEAR-STEM TREE PLANTING

MULTI-STEM TREE PLANTING

POTTED MULTI-STEM TREE
REFER TO DRAWING SERIES 2000 FOR POT DETAILS

ORNAMENTAL SHRUBS AND GRASSES MIX 1
SUBJECT TO PLANTING SCHEDULE

THYME/SEDUM MATTING
SUBJECT TO FUTURE DETAIL

NOTES:
01. Refer to wider Stage 03 Pack for further details regarding hardworks, softworks, edging, furniture, levels and details.
02. Refer to drawings 351-LYR-XX-B2-DWG-L-1000 for level B2.
03. Works outside the red line are subject to future agreement.

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SK9 1DR
NEWCASTLE
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Stocksfield
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Newcastle upon Tyne
NE43 7HW

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Artal. Ltd

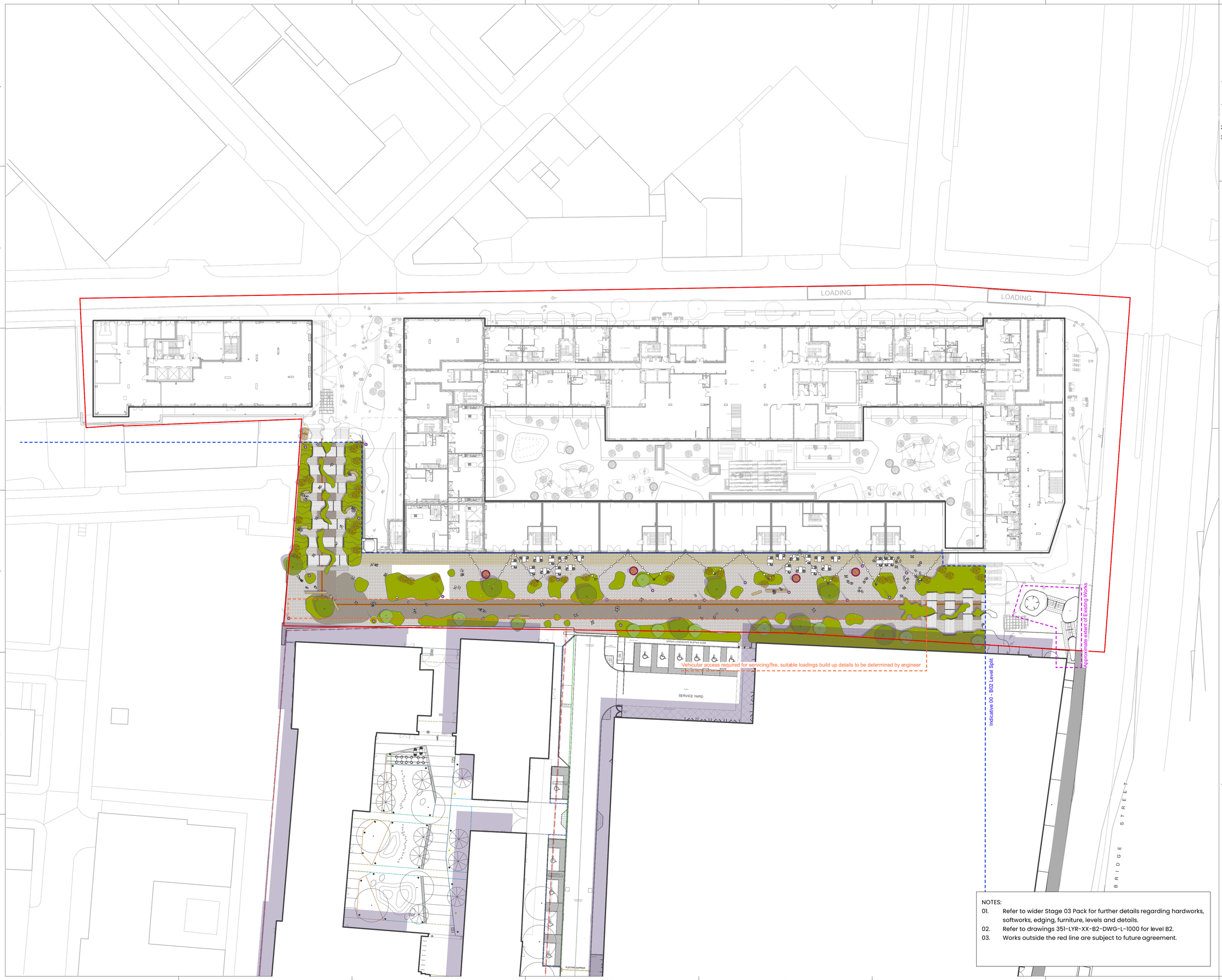
Project
Waterhouse Gardens
Manchester

Drawing Title
General Arrangement

Created By	Checked By	Scale	Sheet Size
MI	ST	1:350 @ A1	A1

Project Number	Originator	Volume	Level	File Type	Discipline	Number
351	LYR	XX	00	DWG	L	1000

Work Stage	Status	Revision
Stage 03	S3 Review & Comment	P03



NOTES:

1. DO NOT SCALE FROM THIS DRAWING. ALWAYS WORK TO NOTED DIMENSIONS.
2. ALL SETTING OUT, LEVELS AND DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE INSTALLATION OF MATERIALS AND ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR IMMEDIATELY.
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4. THIS DRAWING IS COPYRIGHT PROTECTED AND MAY NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN AUTHORITY.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
6. NOTE DRAWING SUITABILITY CODE SHOWN BELOW. DRAWING NOT TO BE USED FOR CONTRACTUAL AGREEMENT WITHOUT AI STATUS.

THIS DRAWING WAS PLOTTED ON:
30/06/2023

REVISION HISTORY

DATE	REV	ZONE	DESCRIPTION	CHK
23/06/2023	P01		Preliminary Issue	OK
30/06/2023	P02		Stage 03 Revised Issue	OK

KEY

GENERAL INFORMATION

APPLICATION SITE BOUNDARY

HARDWORKS

S1.0 **PAVING TYPE A - KILSARAN INISH BLOCK**
TO MAIN SURFACE RUST RED COLOUR TBC

S2.0 **PAVING TYPE B - KELLEN**
TO MATCH EXISTING/ COLLEGE ENTRANCE

S3.0 **PAVING TYPE C - KILSARAN INISH BLOCK 2**
AS SHOWN RUST RED COLOUR TBC

S4.0 **PAVING TYPE D - GREENGAP PAVING**
TO PRIMARY ROUTES (AS SHOWN)

S5.0 **PAVING TYPE E - PORCELAIN TILE**
TO PODIUM AS SHOWN

S5.1 **PAVING TYPE F - PORCELAIN TILE 2**
TO DEFENSIBLE SPACES ON PODIUM

S5.2 **PAVING TYPE G - PORCELAIN TILE 3**
TO PRIVATE ACCESS ON PODIUM

S6.0 **HAZARD WARNING PAVING**
TO TOP AND BOTTOM OF STEPS

S7.0 **MACADAM**
TO VEHICULAR AREAS
TO ENGINEER'S DETAIL & SPECIFICATION

S7.1 **MACADAM**
TO PEDESTRIAN AREAS
TO ENGINEER'S DETAIL & SPECIFICATION

S8.0 **PAVING TYPE F - NATURAL STONE SETT**
AS SHOWN

S8.1 **PAVING TYPE I - NATURAL STONE UNIT**
TO SPILL OUT SPACE AS SHOWN

STONE STEPS
SOLID STONE STEP UNIT WITH CONTRASTING INLAY STRIP

CORTEN ETCHED INLAY STRIP
SITE TIMELINE DETAIL RIBBON AS SHOWN

SOFTWORKS

CLEAR-STEM TREE PLANTING

MULTI-STEM TREE PLANTING

POTTED MULTI-STEM TREE
REFER TO DRAWING SERIES 2000 FOR POT DETAILS

ORNAMENTAL SHRUBS AND GRASSES MIX 1
SUBJECT TO PLANTING SCHEDULE

THYME/SEDUM MATTING
SUBJECT TO FUTURE DETAIL

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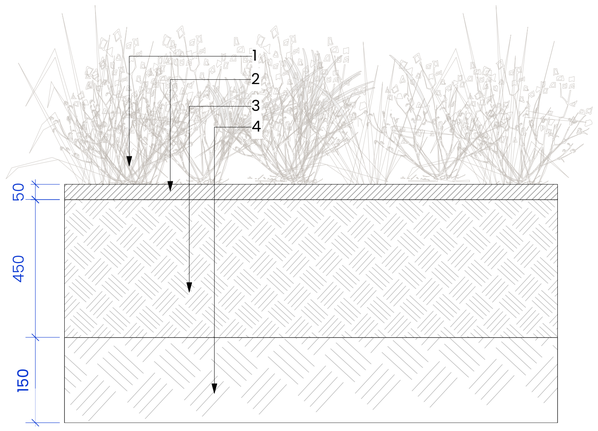
Project
Waterhouse Gardens
Manchester

Drawing Title
General Arrangement

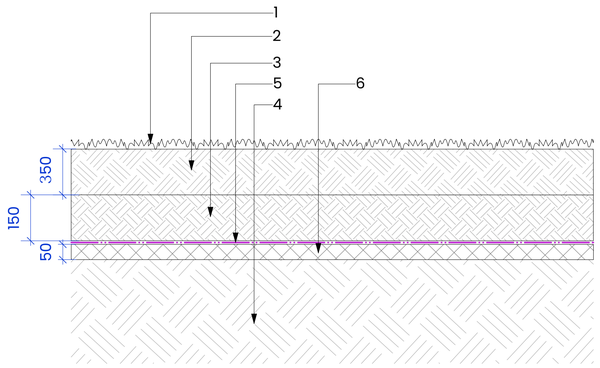
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MI	ST	1:350 @ A1	A1

Project Number	Originator	Volume	Level	File Type	Discipline	Number
351	LYR	XX	B2	DWG	L	1000

Work Stage	Status	Revision
Stage 03	S3 Review & Comment	P02



D01 Typical Planting
Scale: 1:10 @ A1



D02 Typical Podium Lawn Planting
Scale: 1:10 @ A1

NOTES:

1. DO NOT SCALE FROM THIS DRAWING. ALWAYS WORK TO NOTED DIMENSIONS.
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THIS DRAWING WAS PLOTTED ON:
30/06/2023

REVISION HISTORY

DATE	REV	ZONE	DESCRIPTION	CHK
23/06/2023	P01		Preliminary Issue	OK
30/06/2023	P02		Stage 03 Revised Issue	OK

KEY

1. Planting - Refer to drawing Series 3000 Softworks
2. 50mm Layer Bark Mulch
3. Imported Topsoil
4. Imported Subsoil
5. Geotextile Membrane
6. Drainage Board on top of slab waterproofing subject to engineers specification & detail.

LOCATION PLAN

BIM Suitability codes
Work in Progress
S0. Initial status of WIP
Shared non Contractural
S1. Suitible for coordination
S2. Suitible for information
S3. Suitable for review & comment
S4. Suitable for approval
S5. Withdrawn
S6. Suitable for authorisation

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NE43 7HW

Client
Artal. Ltd

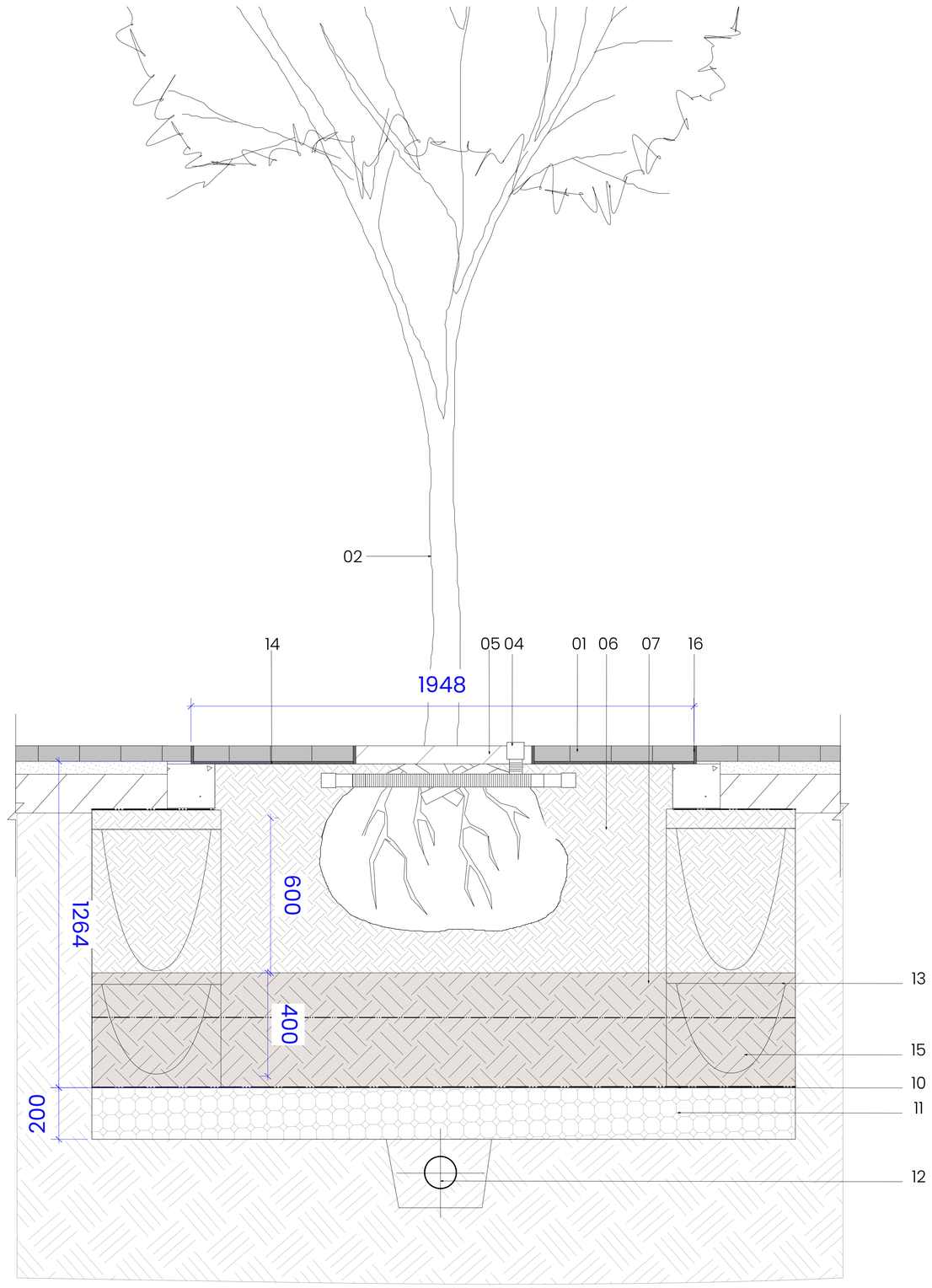
Project
Waterhouse Gardens
Manchester

Drawing Title
Softworks | Typical Details 01

Created By	Checked By	Scale	Sheet Size
MI	ST	250	A1

Project Number	Originator	Volume	Level	File Type	Discipline	Number
351	LYR	XX	ZZ	DWG	L	6006

Work Stage	Status	Revision
Stage 03	S3 Review & Comment	P02



D01 Typical Tree in Hard
Scale: 1:10 @ A1

NOTES:

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THIS DRAWING WAS PLOTTED ON:
03/07/2023

REVISION HISTORY

DATE	REV	ZONE	DESCRIPTION	CHK
23/06/2023	P01		Preliminary Issue	OK
30/06/2023	P02		Stage 03 Revised Issue	OK
03/07/2023	P03		Publishing error. Re-issued.	OK

KEY

1. Adjacent Surfacing - Refer to drawing Series 2000 Hardworks
2. Tree - Refer to drawing Series 3000 Softworks
3. Tree Anchor Cables As Per Maufacturer's Detail. Refer To '**9.** Platipus...'
4. Tree Irrigation & Aeration System
5. 50mm Layer Bark Mulch
6. Imported Topsoil
7. Compacted Subsoil - (trodden)
8. Imported Subsoil
9. Platipus Rootball Fixing System (OAE) : Alternative To Triple Stake
10. Geotextile Membrane
11. Clean Stone To Base Of Tree Pits
12. 125mm Perforated Plastic Pipe Within 300x300mm Channel. 10-15mm Clear Stone Backfill (permeability Of Existing Ground To Be Determined Prior To Commencement Of Work On Site) - To Engineer's Detail
13. Root barrier where adjacent to hard surfaces and underground services.
14. Green Blue Urban, Castle Tree Grille (OAE)
15. Root Structure by Green Blue Urban (OAE) Subject to location of existing services etc
16. Steel Edge/ Tree pit tray by Green Blue Urban (OAE) Subject to future detail

LOCATION PLAN

BIM Suitability codes
Work in Progress
S0. Initial status of WIP
Shared non Contractural
S1. Suitble for coordination
S2. Suitble for information
S3. Suitable for review & comment
S4. Suitable for approval
S5. *Withdrawn*
S6. Suitable for authorisation

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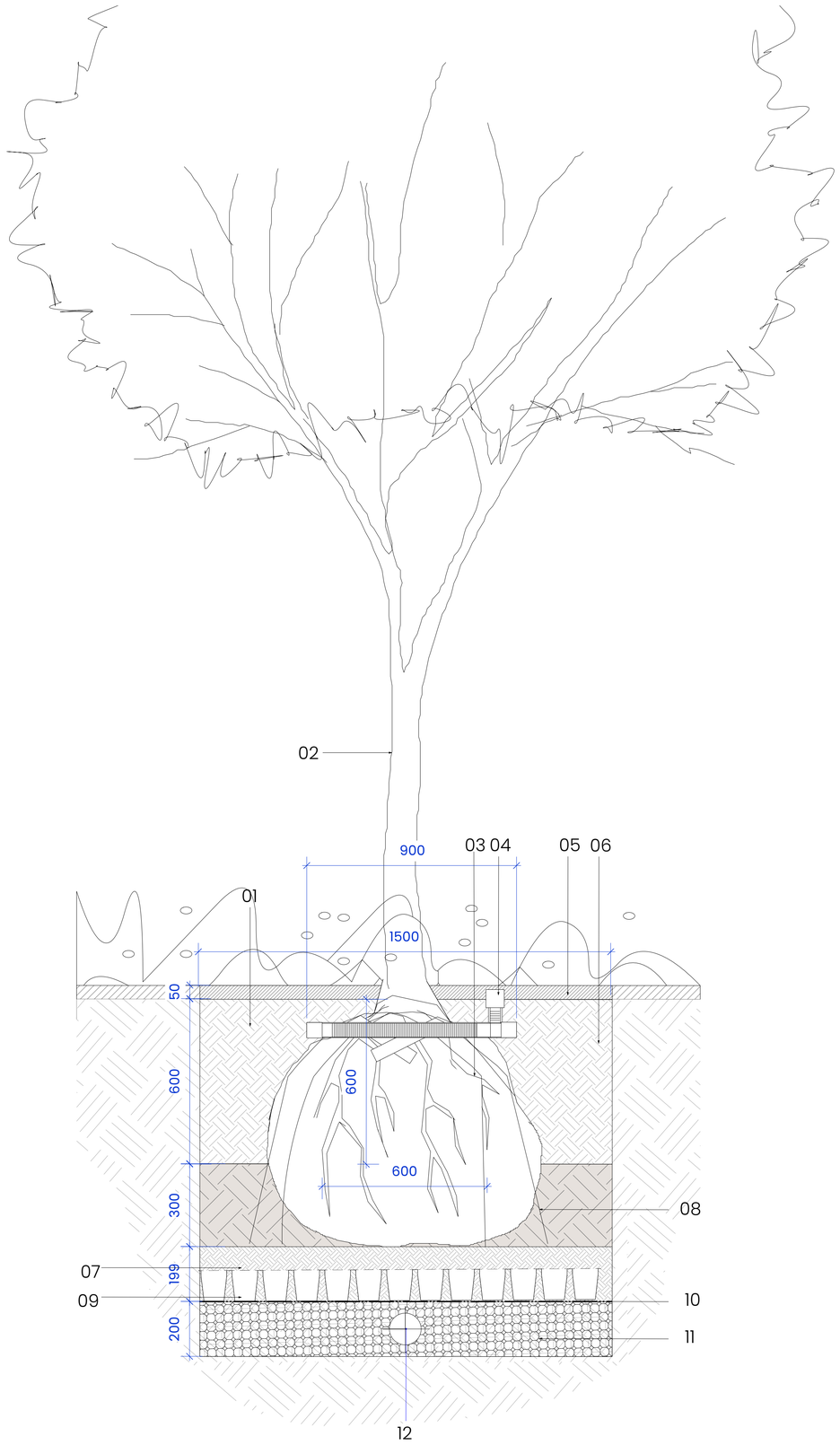
Project
Waterhouse Gardens
Manchester

Drawing Title
Typical Tree Pits in Hard

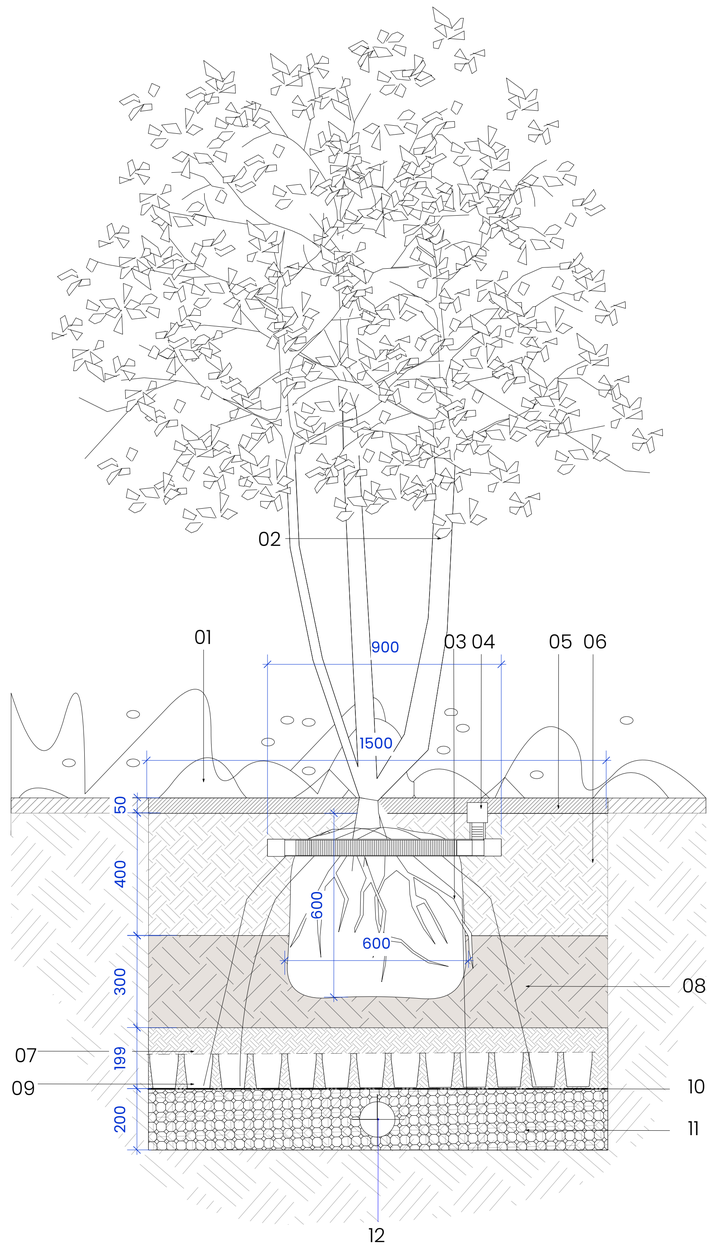
Created By	Checked By	Scale	Sheet Size
MI	ST	250	A1

Project Number	Originator	Volume	Level	File Type	Discipline	Number
351	LYR	XX	ZZ	DWG	L	6009

Work Stage	Status	Revision
Stage 03	S3 Review & Comment	P03



D01 Typical Clear Stem Tree
Scale: 1:10 @ A1



D02 Typical Multi-stem Tree
Scale: 1:10 @ A1

NOTES:

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THIS DRAWING WAS PLOTTED ON:
03/07/2023

REVISION HISTORY

DATE	REV	ZONE	DESCRIPTION	CHK
23/06/2023	P01		Preliminary Issue	OK
30/06/2023	P02		Stage 03 Revised Issue	OK
03/07/2023	P03		Publishing error. Re-issued.	OK

KEY

1. Planting - Refer to drawing Series 3000 Softworks
2. Tree - Refer to drawing Series 3000 Softworks
3. Tree Anchor Cables As Per Maufacturer's Detail. Refer To '**9.** Platipus...'
4. Tree Irrigation & Aeration System
5. 50mm Layer Bark Mulch
6. Imported Topsoil
7. Compacted Subsoil - (trodden)
8. Imported Subsoil
9. Platipus Rootball Fixing System (OAE) : Alternative To Triple Stake
10. Geotextile Membrane
11. Clean Stone To Base Of Tree Pits
12. 125mm Perforated Plastic Pipe Within 300x300mm Channel. 10-15mm Clear Stone Backfill (permeability Of Existing Ground To Be Determined Prior To Commencement Of Work On Site) - To Engineer's Detail

LOCATION PLAN

BIM Suitability codes
Work In Progress
S0. Initial status of WIP
Shared non Contractural
S1. Suitble for coordination
S2. Suitble for information
S3. Suitable for review & comment
S4. Suitable for approval
S5. Withdrawn
S6. Suitable for authorisation

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Newcastle upon Tyne
NE43 7HW

Client
Artal. Ltd

Project
Waterhouse Gardens
Manchester

Drawing Title
Typical Tree Pits in Soft

Created By	Checked By	Scale	Sheet Size
MI	ST	250	A1

Project Number	Originator	Volume	Level	File Type	Discipline	Number
351	LYR	XX	ZZ	DWG	L	6007

Work Stage	Status	Revision
Stage 03	S3 Review & Comment	P03



SITE LOCATION

NEAREST POSTCODE: M3 1LD

SITE ENTRANCE WHAT3WORDS: ///TITLE.MILE.SPAN



REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT

DOMIS CONSTRUCTION LTD

PROJECT TITLE

BRWRY SITE, NEW BRIDGE STREET, MANCHESTER

DRAWING TITLE

SITE LOCATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C5313/01	-	NTS	22/03/23

DRAWN BY	CHECKED BY
SD	NS



KEY	
	APPROXIMATE SITE BOUNDARY
	AREA A
	AREA B
	AREA C
TPXXX	TRIAL PIT
TTXXX	TRIAL TRENCH
WSXXX	WINDOW SAMPLE BOREHOLE
BHXXX	CABLE PERCUSSIVE / ROTARY BOREHOLE
DPXX	DYNAMIC PROBE
BHXX	GEA CABLE PERCUSSIVE / ROTARY BOREHOLE (2018)
TPXX	GEA TRIAL PITS (2018)
	BOREHOLE INSTALLATION

NOTES

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REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT

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PROJECT TITLE

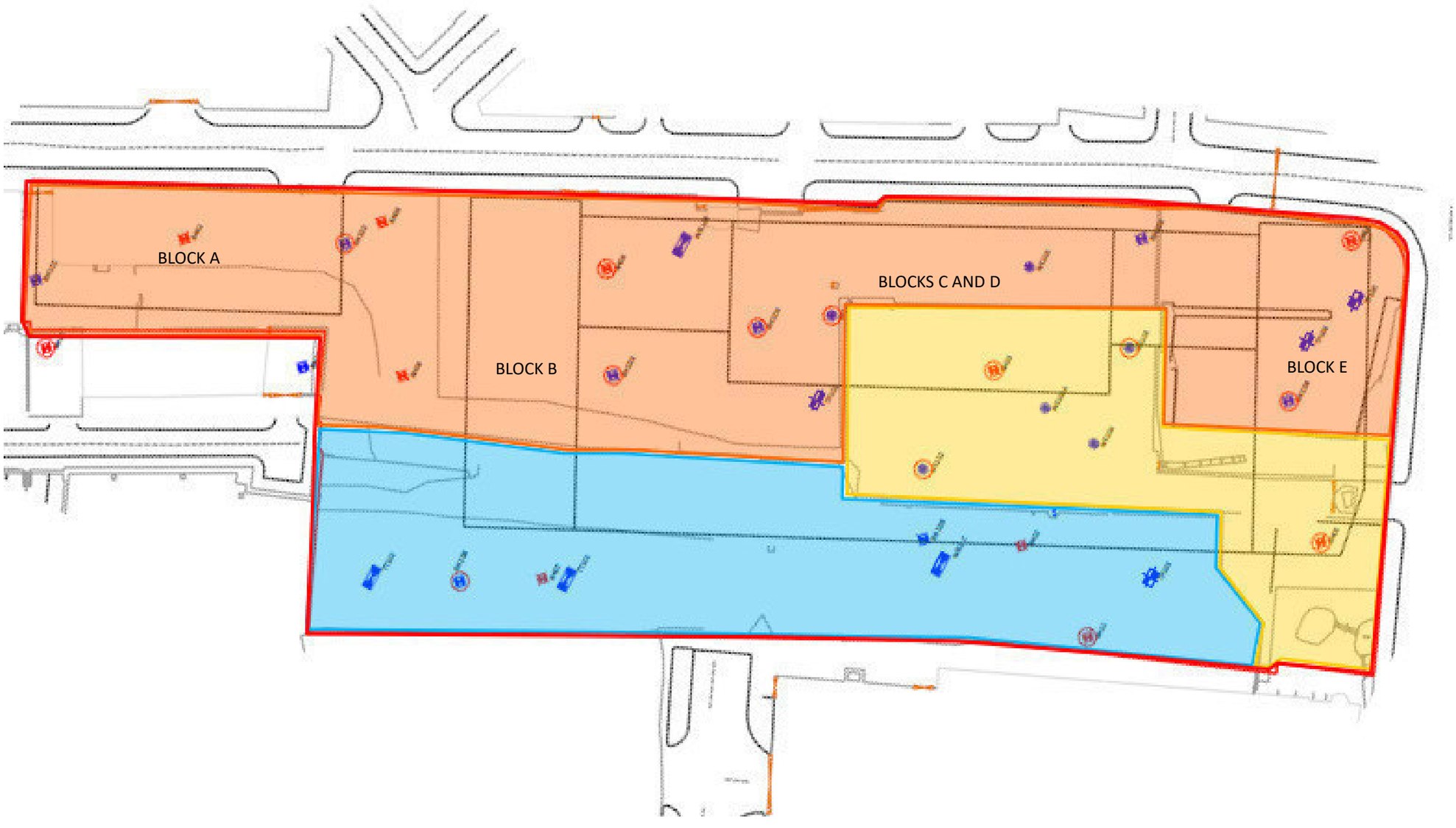
BRWRY, MANCHESTER

DRAWING TITLE

EXPLORATORY HOLE LOCATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C5313/03	-	NTS	27.04.2023

DRAWN BY	CHECKED BY
MB	NS



KEY

APPROXIMATE SITE BOUNDARY

AREA A

AREA B

AREA C

NOTES

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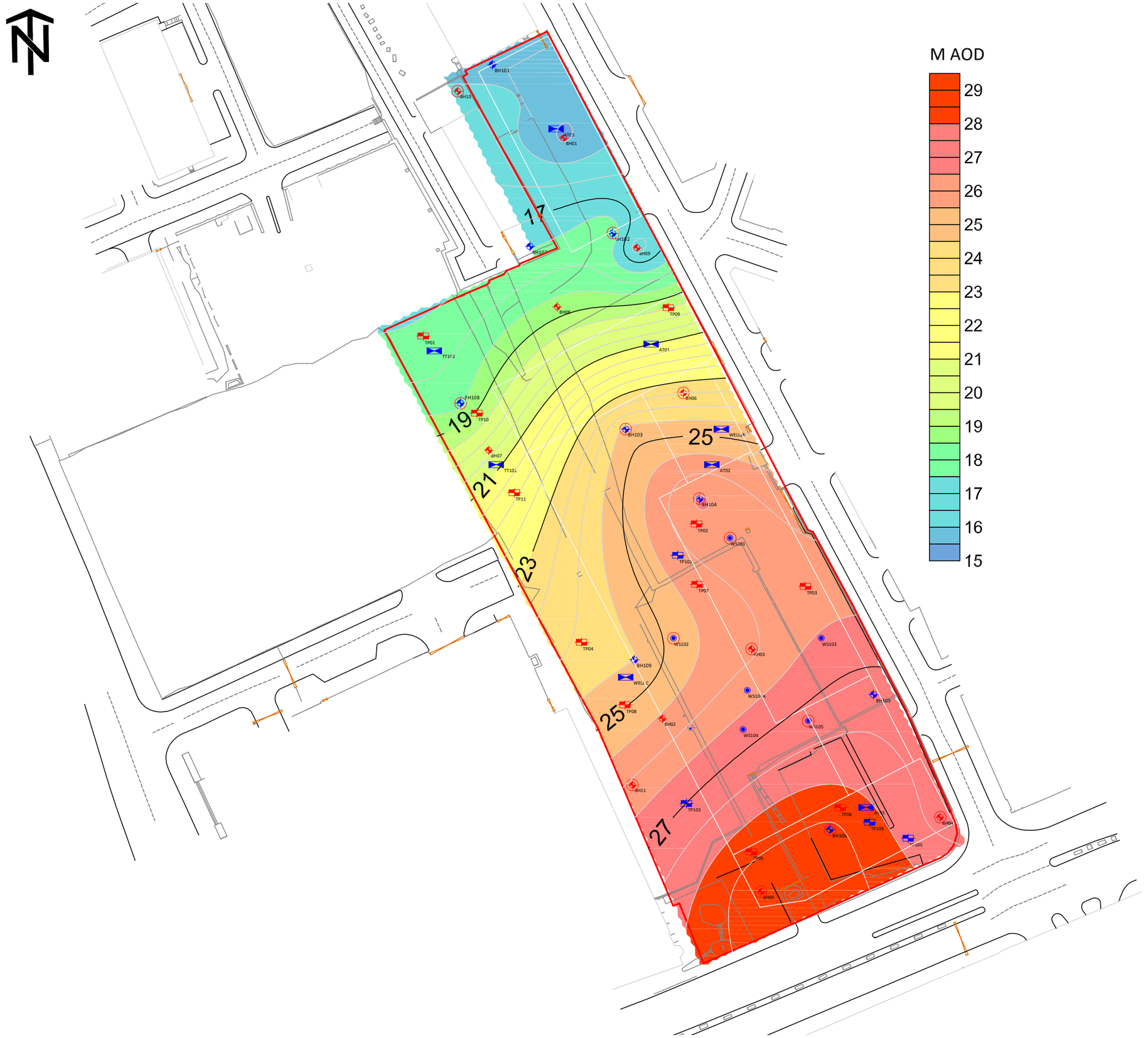
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DOMIS CONSTRUCTION LTD

PROJECT TITLE
BRWRY, MANCHESTER

DRAWING TITLE
SITE AREA PLAN

DRAWING No.	REVISION	SCALE	DATE
C5313/04	-	NTS	25/04/23

DRAWN BY	CHECKED BY
SD	NS



KEY	
	APPROXIMATE SITE BOUNDARY
	AREA A
	AREA B
	AREA C
TPXXX	TRIAL PIT
TTXXX	TRIAL TRENCH
WSXXX	WINDOW SAMPLE BOREHOLE
BHXXX	CABLE PERCUSSIVE / ROTARY BOREHOLE
DPXX	DYNAMIC PROBE
BHXX	GEA CABLE PERCUSSIVE / ROTARY BOREHOLE (2018)
TPXX	GEA TRIAL PITS (2018)
	BOREHOLE INSTALLATION

NOTES

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PROJECT TITLE

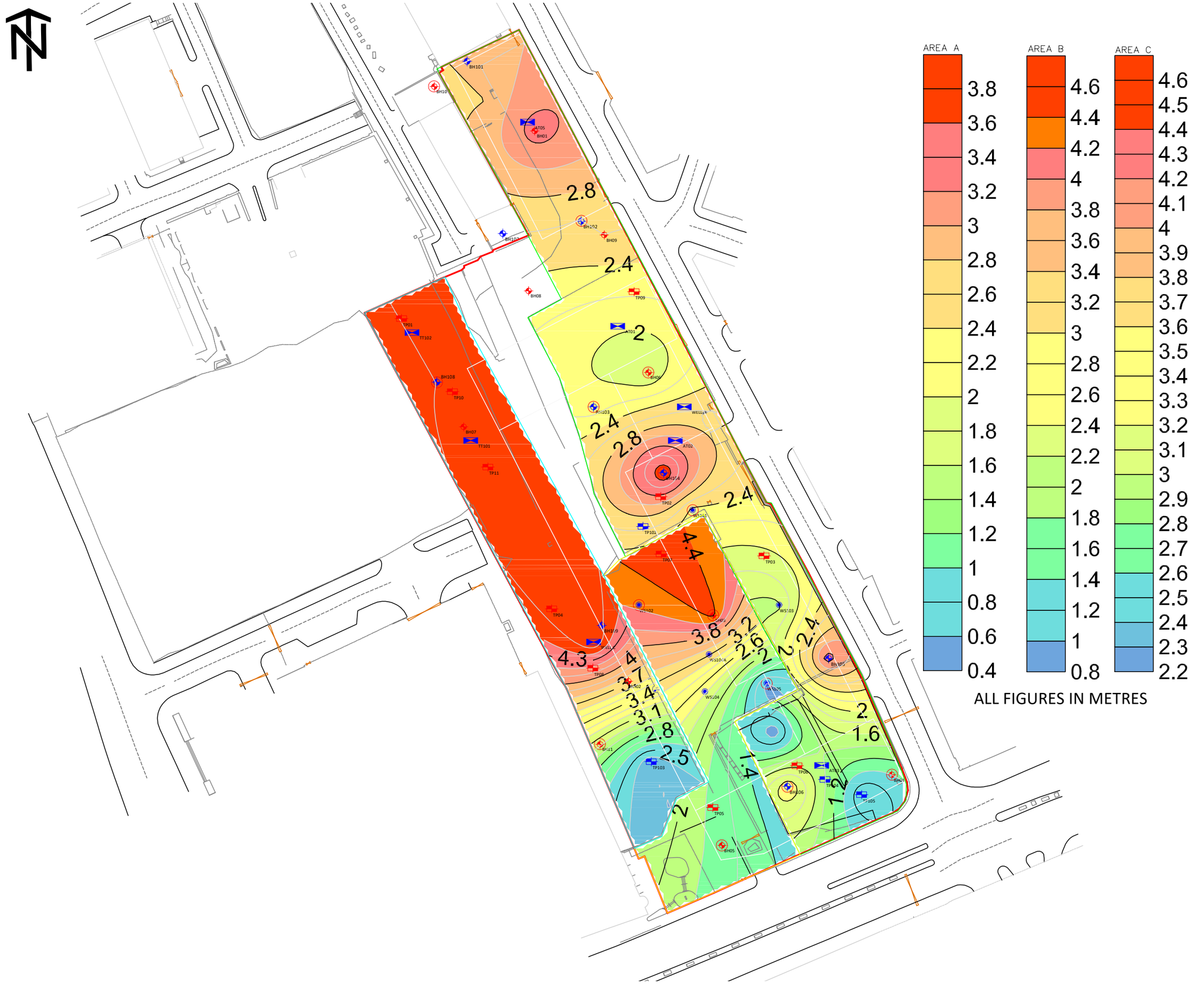
BRWRY, MANCHESTER

DRAWING TITLE

DEPTH TO BEDROCK (MAOD)

DRAWING No.	REVISION	SCALE	DATE
C5313/05	-	NTS	25.04.2023

DRAWN BY	CHECKED BY
JM	NS



KEY	
	APPROXIMATE SITE BOUNDARY
	AREA A
	AREA B
	AREA C
TPXXX	TRIAL PIT
TTXXX	TRIAL TRENCH
WSXXX	WINDOW SAMPLE BOREHOLE
BHXXX	CABLE PERCUSSIVE / ROTARY BOREHOLE
DPXX	DYNAMIC PROBE
BHXX	GEA CABLE PERCUSSIVE / ROTARY BOREHOLE (2018)
TPXX	GEA TRIAL PITS (2018)
	BOREHOLE INSTALLATION

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REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT

DOMIS CONSTRUCTION LTD

PROJECT TITLE

BRWRY, MANCHESTER

DRAWING TITLE

MADE GROUND THICKNESS PLAN (M)

DRAWING No.	REVISION	SCALE	DATE
C5313/06	-	NTS	27.04.2023

DRAWN BY	CHECKED BY
JM	NS



WORK WITHIN RED BLOCK B WORK AREA (MG 0-1.90m bgl) IS DEFINED AS NNLW & HSE SHOULD BE NOTIFIED PRIOR TO WORKS COMMENCING IN THIS AREA.

AREA	X	Y
NW CORNER (RED)	383858.2021	399296.5889
NE CORNER (RED)	383863.7985	399299.4506
SW CORNER (RED)	383863.7985	399285.7141
SE CORNER (RED)	383868.7589	399290.1022
NW CORNER	383863.7985	399285.7141
NE CORNER	383872.5746	399292.8367
SW CORNER	383868.2501	399276.6200
SE CORNER	383878.6161	399282.7251

Location	Sample Depth (m bgl) (Strata)	Asbestos Concentration (%)
TP08	1.00	0.007
TP10	1.00	<0.001
BH06	0.50 (0.00-1.80)	0.022
BH07	0.80 (0.20-1.20)	0.001
BH102	0.00-0.20 (0.00-0.20)	0.097
BH103	0.70-1.00 (0.60-2.10)	<0.001
WS104A	0.30-0.40 (0.25->1.20)	0.017
SP01	-	<0.001
SP02	-	<0.001
SP03	-	0.001
ASB101 - ASB104 ASB106 - ASB110	-	<0.001
ASB105	-	0.019
ASB106	-	ASBESTOS SHEET CEMENT (ACM)
ASB203	0-1.90 (0-1.90)	0.098
ASB205	0.10-1.00	<0.001
ASB208	0.10-1.80	0.0353
ASB301	0.07-1.40	<0.001

NB:THE EXTENTS OF THE ASBESTOS WORK AREA (SOILS PLACEMENT AREA) HAS BEEN SURVEYED AND THE COORDINATES ARE REFLECTED ON THIS DRAWING.

KEY

	APPROXIMATE SITE BOUNDARY
TPXXX	TRIAL PIT
TTXXX	TRIAL TRENCH
WSXXX	WINDOW SAMPLE BOREHOLE
BHXXX	CABLE PERCUSSIVE / ROTARY BOREHOLE
BHXX	GEA CP/ ROTARY BOREHOLE (2018)
TPXX	GEA TRIAL PITS (2018)
	ASBESTOS ABOVE TRACE (>= 0.001%)
NAD	NO ASBESTOS DETECTED IN STRATA SAMPLED
	TRACE LEVEL ASBESTOS (<0.001%)
	ASBESTOS WORK AREA (TO BE EXCAVATED)
	ASBESTOS WORK AREA BH102 SOILS PLACEMENT >1.00M BGL (NNLW)
	ASBESTOS WORK AREA ASB103 SOILS PLACEMENT >1.00M BGL (NNLW)
ASB1XX ASBXXX	ASBESTOS DELINEATION SAMPLE

NOTES
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REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

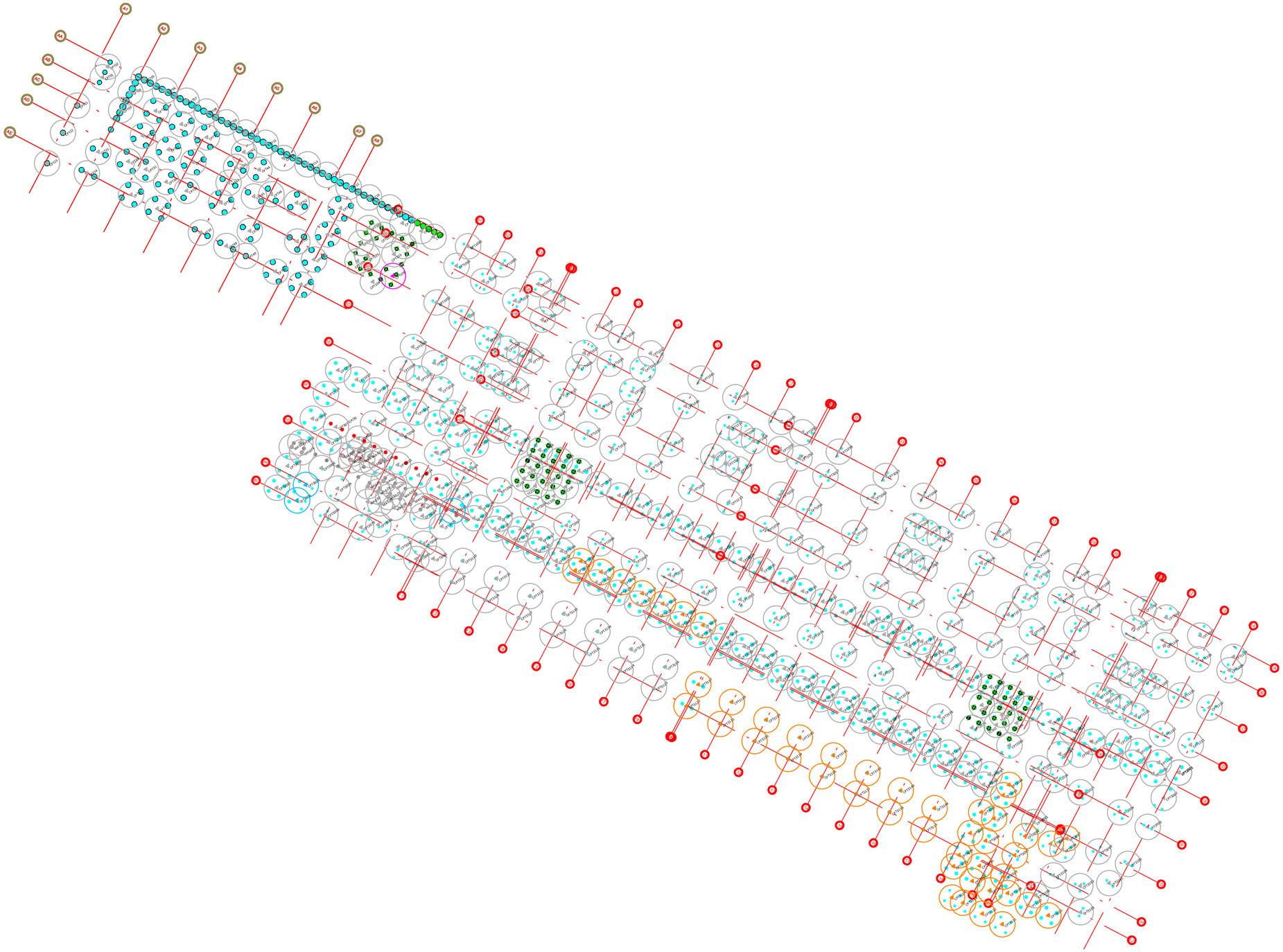
CLIENT
DOMIS CONSTRUCTION LTD

PROJECT TITLE
BRWRY, MANCHESTER

DRAWING TITLE
ASBESTOS WORK AREAS

DRAWING No.	REVISION	SCALE	DATE
C5313/10	H	NTS	12/09/23

DRAWN BY	CHECKED BY
NS	AJS



KEY	
GPXXX	PROBE LOCATION (COMPLETED)
GPOOOOX	OBSTRUCTION ENCOUNTERED (NOT CLEARED)
GPXXXX	PROBE LOCATION BLOCK B-E LOWER

NOTES

1. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
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REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT

DOMIS CONSTRUCTION LTD

PROJECT TITLE

BRWRY, MANCHESTER

DRAWING TITLE

PROPOSED UXO PROBE LOCATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C5313/08	O	NTS	11/03/24

DRAWN BY	CHECKED BY
NS	AJS



WORK WITHIN RED BLOCK B WORK AREA (MG 0-1.90m bgl) IS DEFINED AS NNLW & HSE SHOULD BE NOTIFIED PRIOR TO WORKS COMMENCING IN THIS AREA.

AREA	X	Y
NW CORNER (RED)	383858.2021	399296.5889
NE CORNER (RED)	383863.7985	399299.4506
SW CORNER (RED)	383863.7985	399285.7141
SE CORNER (RED)	383868.7589	399290.1022
NW CORNER	383863.7985	399285.7141
NE CORNER	383872.5746	399292.8367
SW CORNER	383868.2501	399276.6200
SE CORNER	383878.6161	399282.7251

Location	Sample Depth (m bgl) (Strata)	Asbestos Concentration (%)
TP08	1.00	0.007
TP10	1.00	<0.001
BH06	0.50 (0.00-1.80)	0.022
BH07	0.80 (0.20-1.20)	0.001
BH102	0.00-0.20 (0.00-0.20)	0.097
BH103	0.70-1.00 (0.60-2.10)	<0.001
WS104A	0.30-0.40 (0.25->1.20)	0.017
SP01	-	<0.001
SP02	-	<0.001
SP03	-	0.001
ASB101 - ASB104 ASB106 - ASB110	-	<0.001
ASB105	-	0.019
ASB106	-	ASBESTOS SHEET CEMENT (ACM)
ASB203	0-1.90 (0-1.90)	0.098
ASB205	0.10-1.00	<0.001
ASB208	0.10-1.80	0.0353
ASB301	0.07-1.40	<0.001

NB:THE EXTENTS OF THE ASBESTOS WORK AREA (SOILS PLACEMENT AREA) HAS BEEN SURVEYED AND THE COORDINATES ARE REFLECTED ON THIS DRAWING.

KEY

	APPROXIMATE SITE BOUNDARY
TPXXX	TRIAL PIT
TTXXX	TRIAL TRENCH
WSXXX	WINDOW SAMPLE BOREHOLE
BHXXX	CABLE PERCUSSIVE / ROTARY BOREHOLE
BHXX	GEA CP/ ROTARY BOREHOLE (2018)
TPXX	GEA TRIAL PITS (2018)
	ASBESTOS ABOVE TRACE (>= 0.001%)
NAD	NO ASBESTOS DETECTED IN STRATA SAMPLED
	TRACE LEVEL ASBESTOS (<0.001%)
	ASBESTOS WORK AREA (TO BE EXCAVATED)
	ASBESTOS WORK AREA BH102 SOILS PLACEMENT >1.00M BGL (NNLW)
	ASBESTOS WORK AREA ASB103 SOILS PLACEMENT >1.00M BGL (NNLW)
ASB1XX ASBXXX	ASBESTOS DELINEATION SAMPLE

NOTES
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REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT
DOMIS CONSTRUCTION LTD

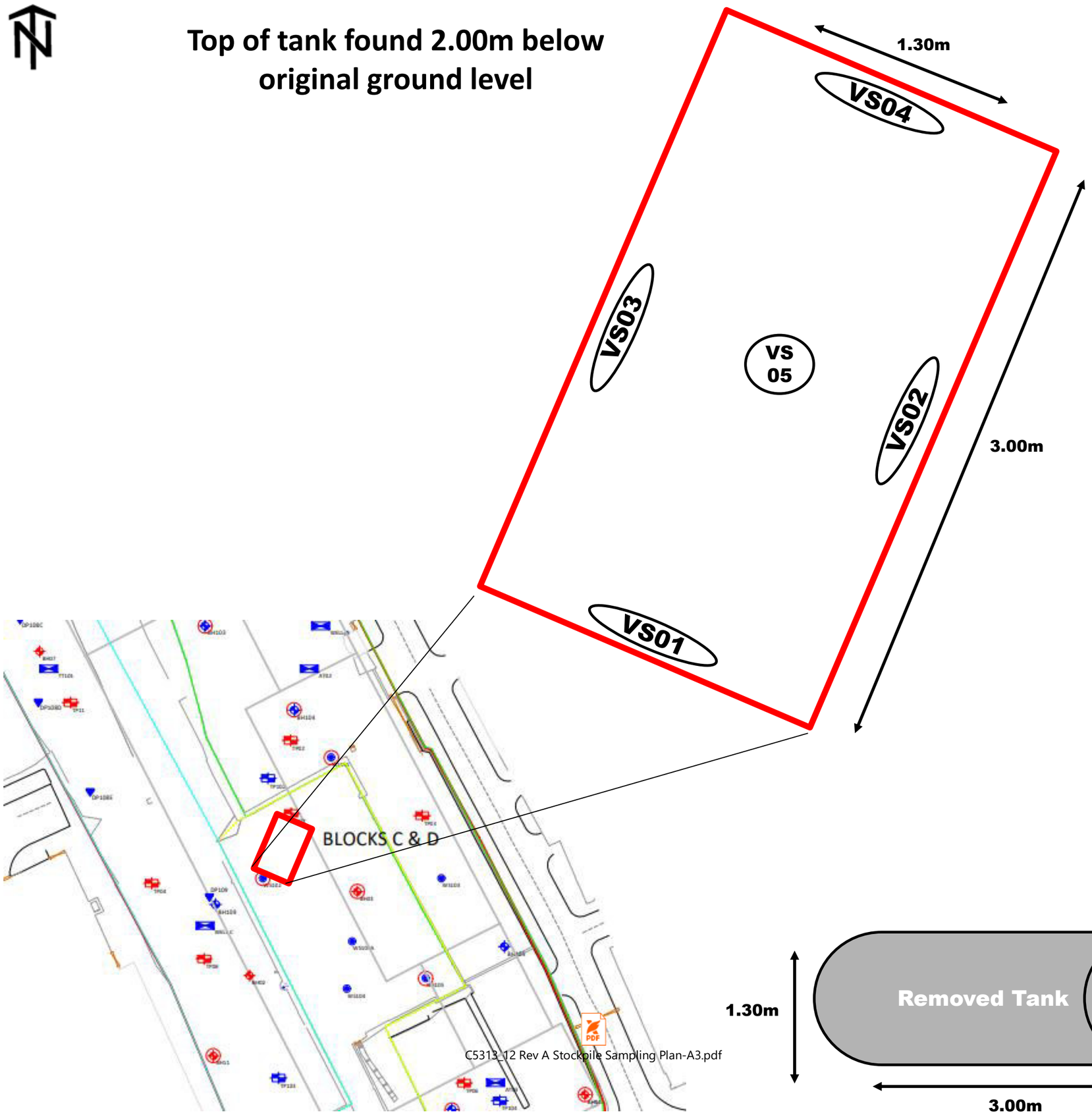
PROJECT TITLE
BRWRY, MANCHESTER

DRAWING TITLE
ASBESTOS WORK AREAS

DRAWING No.	REVISION	SCALE	DATE
C5313/10	H	NTS	12/09/23

DRAWN BY	CHECKED BY
NS	AJS

Top of tank found 2.00m below original ground level



KEY

- APPROXIMATE EXCAVATION BOUNDARY
- 1 — VALIDATION SAMPLE (VSXX) LOCATIONS
- REMOVED TANK

NOTES

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REV	DATE	DESCRIPTION	BY	CKD

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PROJECT TITLE
BRWRY, MANCHESTER

DRAWING TITLE
TANK EXCAVATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C5313/08	-	NTS	06/07/23

DRAWN BY	CHECKED BY
MB	NS



Location	Sample Depth (m bgl) (Strata)	Asbestos Concentration (%)
TP08	1.00	0.007
TP10	1.00	<0.001
BH06	0.50 (0.00-1.80)	0.022
BH07	0.80 (0.20-1.20)	0.001
BH102	0.00-0.20 (0.00-0.20)	0.097
BH103	0.70-1.00 (0.60-2.10)	<0.001
WS104A	0.30-0.40 (0.25->1.20)	0.017
SP01	-	<0.001
SP02	-	<0.001
SP03	-	0.001

KEY

	APPROXIMATE SITE BOUNDARY
TPXXX	TRIAL PIT
TTXXX	TRIAL TRENCH
WSXXX	WINDOW SAMPLE BOREHOLE
BHXXX	CABLE PERCUSSIVE / ROTARY BOREHOLE
BHXX	GEA CP/ ROTARY BOREHOLE (2018)
TPXX	GEA TRIAL PITS (2018)
	ASBESTOS ABOVE TRACE (>= 0.001%)
NAD	NO ASBESTOS DETECTED IN STRATA SAMPLED
	TRACE LEVEL ASBESTOS (<0.001%)
SPXX	STOCKPILE SAMPLE
	STOCKPILE LOCATION (6F5)
	STOCKPILE LOCATION (BH102 MG)
	STOCKPILE SAMPLE WITH ASBESTOS ABOVE TRACE (>= 0.001%)

NOTES
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REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

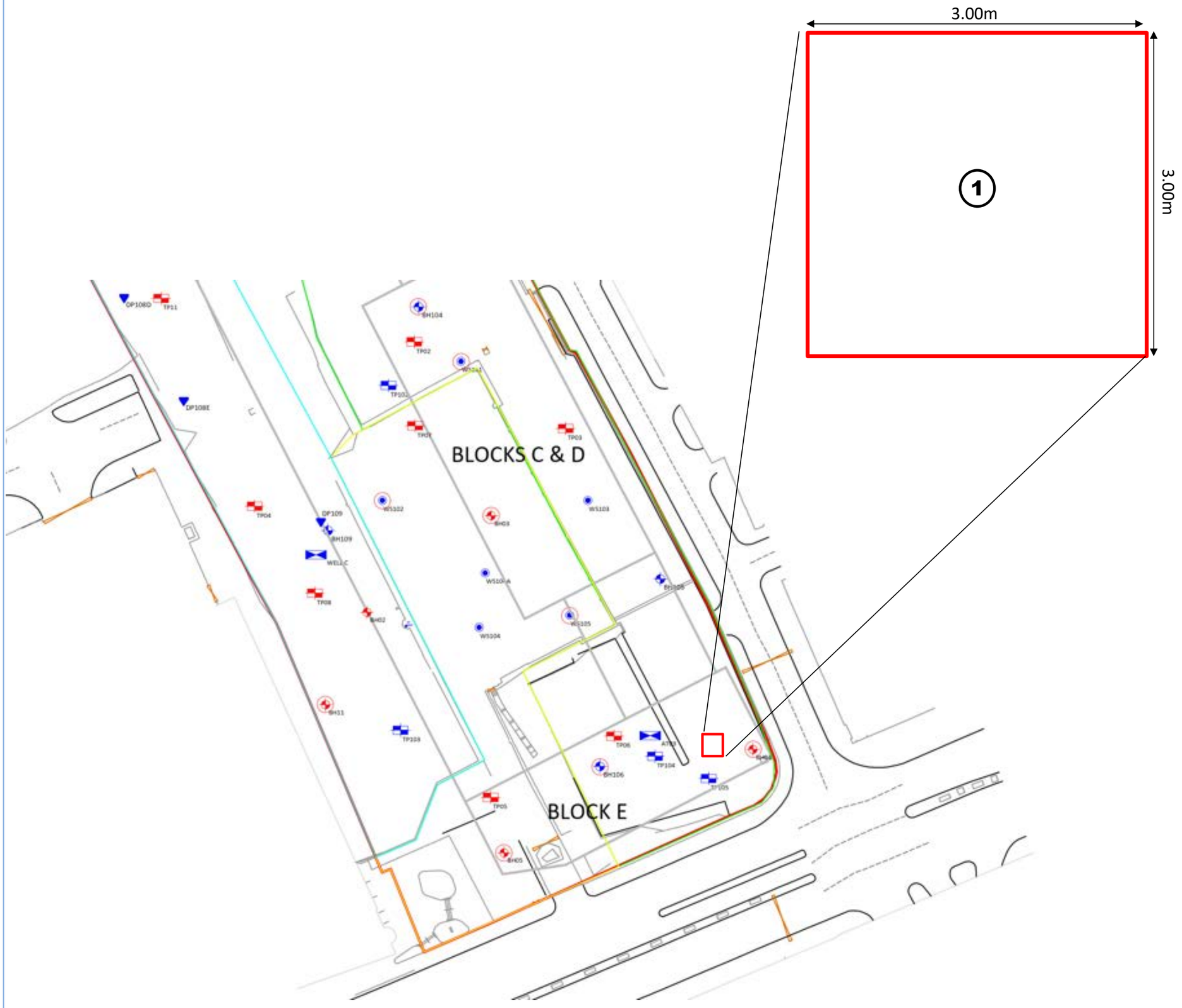
CLIENT
DOMIS CONSTRUCTION LTD

PROJECT TITLE
BRWRY, MANCHESTER

DRAWING TITLE
STOCKPILE SAMPLING PLAN

DRAWING No.	REVISION	SCALE	DATE
C5313/12	A	NTS	26/07/23

DRAWN BY	CHECKED BY
JEM	NS



KEY

APPROXIMATE EXCAVATION BOUNDARY

1 SAMPLE LOCATION

NOTES

1. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
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REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT
DOMIS CONSTRUCTION LTD

PROJECT TITLE
BRWRY, MANCHESTER

DRAWING TITLE
SUSPECTED HOTSPOT SAMPLING

DRAWING No.	REVISION	SCALE	DATE
C5313/13	-	NTS	31/07/23

DRAWN BY	CHECKED BY
JEM	NS

APPENDIX A

Quality Control for Imported / Re-use of Soils

Quality Control Methodology for Imported and Re-used Soils

Prior to Importation and Re-use

Reliable testing results should be provided, or samples should be obtained at the source and tested prior to either importation to the subject site or re-use on site of origin as early as possible.

The frequency and scope of testing will vary depending on the source, the required testing for possible sources is provided below. These rates are based on professional judgement and acceptance of similar criteria used on similar sites to the satisfaction of the local regulatory authority. Results should be compared to the acceptance criteria also with this appendix.

Material Use	Testing Frequency*	Suite of Analysis					
		1	2	3	4	5	6
Topsoil							
Greenfield Source including Site Won (Top 600mm)	*1 per 50m^3	■	■				
Brownfield/Recycled Source including Site Won (Top 600mm)	**1 per 50m^3	■	■	■			
Subsoil							
Greenfield Source (Top 600mm)	*1 per 150m^3	■	■				
Brownfield/Recycled Source (Top 600mm)	**1 per 150m^3	■	■	■			
Site Won (Top 600mm)	*1 per 150m^3	■	■	■			
First Generation (i.e. quarried sand)	No testing required. Certificate of material provenance is required.						
Physical Stone Break Layer							
First Generation (i.e. quarried stone)	No testing required. Certificate of material provenance is required.						
Site Generated / Imported 6F2	*1 per 500m^3	■	■	■			
General Fill* **							
Site Generated / Imported 6F2	*1 per 1000m^3	■	■				
Site Won Made Ground	*1 per 250m^3						■
	*1 per 1000m^3	■	■	■			
Site Won Natural Arisings on Brownfield Site	*1 per 1500m^3	■	■				■
Site Win Natural Arisings on Greenfield Site	*1 per 2000m^3	■	■				

Notes

1 – BSL Default Suite - *Arsenic, Cadmium, Chromium (total and hex), Copper, Nickel, Mercury, Lead, Zinc, Selenium, speciated polycyclic hydrocarbons (PAH 16), water soluble sulphate (2:1 Extract), soil organic matter, and pH.*

2 – Asbestos ID (and Quantification if detected).

3 – TPH Analysis - *Speciated Total Petroleum Hydrocarbons (TPH CWG) including BTEX and MTBE.*

4 – VOC Analysis - *Volatile Organic compounds (VOCs) by GC-MS (ex TIC).*

5 – SVOC Analysis - *Semi-Volatile Organic compounds (SVOCs) by GC-MS (ex TIC).*

6 – Visual Inspection & on-site screening for VOC using calibrated PID.

* - Minimum of 3 samples per source.
** Minimum of 6 samples per source.
***To be used at depths >600mm bgl or below building/hardstanding.

The testing should be undertaken at a UKAS accredited laboratory and be MCERTS accredited and all results should be below existing residential guideline values which are presented in Appendix A.

Topsoil/Subsoil

The above specification is to determine if material is chemically clean, for suitability as a growing medium reference should be made to BS3882:2015 Specification for Topsoil and BS 8601:2013 Specification for Subsoil and Requirements for Use.

In addition to the above sampling frequencies and testing, all imported topsoil/subsoil should also confirm to the following criteria:

- Have a maximum stone size of 75mm.
- Be clean and free of foreign debris including building waste materials or contaminants e.g. brick, glass, asbestos and plasterboard, etc.

For imported soils, approval should be obtained from the Local Authority prior to importing to site.

Site Won Crushed Hardcore/Concrete (for use below building/hardstanding only)

In addition to the above sampling frequencies and testing; for re-use of hardcore/concrete (Grade 6) on the site of origin, BSL proposes the following inspection criteria:

- No visual contamination (oil staining etc).
- Limited deleterious material (organics, wood, etc).
- Limited metal.
- No visible asbestos containing material (ACM).
- Quantifiable Asbestos at or <0.001 w/w%.

Production of Grade 6 materials should be done under WRAP quality protocols or similar. Inspections and sampling would need to be carried out by a qualified geo-environmental engineer. For geotechnical performance, reference should be made to Series 600 Earthworks Guidance.

If the above criteria for asbestos is exceeded, then further consideration and assessment will be required. Works would need to be undertaken in compliance with the Control of Asbestos Regulations (CAR) 2012 and an Asbestos Plan of Works may be required.

Post Importation

The imported soils should be inspected on site to confirm it is the same material inspected at source and it is suitable for use. Once imported to site, tests should also be undertaken to confirm the batch is suitable prior to use and has not been contaminated in transit.

A management plan should be in place on site for storage and transportation. The material should be stockpiled separately and well segregated on site to prevent cross contamination in accordance with good site practice.

Accurate records of movement of soils should be kept in order to be incorporated in the final verification report.

Approval should be obtained from the Local Authority prior to use on site.

Validation and Verification Report

Site
A final verification report should be issued to the Local Authority/Warranty Provider (e.g. NHBC) detailing records of the re-use and importation of soils, alongside their use on the site.

Cover Layer
Once the chemical suitability of soils used for a cover system in soft landscaping and garden areas has been confirmed, the material can be placed in these areas.

The depth of the cover layer should be recorded, and photographs taken as evidence to be issued to the Local Authority/warranty provider in the verification report.

Approval for the placement of the cover layer should be obtained from the Local Authority/Warranty Provider.

Human Health Remediation Targets			Import and Re-use in Soft Landscaped Areas <450mm; Based on human health without homegrown produce (1% SOM)	Import and Re-use in POS areas and below hardstanding >450mm Criteria based on Human health - POS resi (1%SOM)
Source	**Contaminant**	**Unit**		
LQM S4UL	Arsenic	mg/kg	40	79
LQM S4UL	Cadmium	mg/kg	85	120
LQM S4UL	Chromium (III)	mg/kg	910	1500
LQM S4UL	Chromium (VI)	mg/kg	6	7.7
LQM S4UL	Copper	mg/kg	7100	12000
C4SL	Lead	mg/kg	330	760
LQM S4UL	Mercury, Elemental	mg/kg	1.2	16
LQM S4UL	Nickel	mg/kg	180	230
LQM S4UL	Selenium	mg/kg	430	1100
LQM S4UL	Zinc	mg/kg	40000	81000
LQM S4UL	Phenol (total)	mg/kg	750	760
LQM S4UL	Acenaphthene	mg/kg	3000	15000
LQM S4UL	Acenaphthylene	mg/kg	2900	15000
LQM S4UL	Anthracene	mg/kg	31000	74000
LQM S4UL	Benz(a)anthracene	mg/kg	11	29
LQM S4UL / DEFRA C4SL	Benzo(a)pyrene	mg/kg	3.2	5.7
LQM S4UL	Benzo(b)fluoranthene	mg/kg	3.9	7.1
LQM S4UL	Benzo(ghi)perylene	mg/kg	360	640
LQM S4UL	Benzo(k)fluoranthene	mg/kg	110	190
LQM S4UL	Chrysene	mg/kg	30	57
LQM S4UL	Dibenz(a,h)anthracene	mg/kg	0.31	0.57
LQM S4UL	Fluoranthene	mg/kg	1500	3100
LQM S4UL	Fluorene	mg/kg	2800	9900
LQM S4UL	Indeno(1,2,3,cd)pyrene	mg/kg	45	82
LQM S4UL	Naphthalene	mg/kg	2.3	4900
LQM S4UL	Phenanthrene	mg/kg	1300	3100
LQM S4UL	Pyrene	mg/kg	3700	7400
LQM S4UL	TPH Aliphatic EC 5 - 6*	mg/kg	42	570000
LQM S4UL	TPH Aliphatic EC 6 - 8*	mg/kg	100	600000
LQM S4UL	TPH Aliphatic EC 8 - 10*	mg/kg	27	13000
LQM S4UL	TPH Aliphatic EC 10 - 12*	mg/kg	130	13000
LQM S4UL	TPH Aliphatic EC 12 - 16*	mg/kg	1100	13000
LQM S4UL	TPH Aliphatic EC 16 - 35*	mg/kg	65000	250000
LQM S4UL	TPH Aliphatic EC 35 - 44*	mg/kg	65000	250000
LQM S4UL	TPH Aromatic EC 5 - 7*	mg/kg	370	56000
LQM S4UL	TPH Aromatic EC 7 - 8*	mg/kg	860	56000
LQM S4UL	TPH Aromatic EC 8 - 10*	mg/kg	47	5000
LQM S4UL	TPH Aromatic EC 10 - 12*	mg/kg	250	5000
LQM S4UL	TPH Aromatic EC 12 -16*	mg/kg	1800	5100
LQM S4UL	TPH Aromatic EC 16 - 21*	mg/kg	1900	3800
LQM S4UL	TPH Aromatic EC 21 - 35*	mg/kg	1900	3800
LQM S4UL	TPH Aromatic EC 35 - 44*	mg/kg	1900	3800
LQM S4UL	Benzene	mg/kg	0.38	72
LQM S4UL	Toluene	mg/kg	880	56000
LQM S4UL	Ethyl Benzene	mg/kg	83	24000
LQM S4UL	Xylene - o	mg/kg	88	41000
LQM S4UL	Xylene - m	mg/kg	82	41000
LQM S4UL	Xylene - p	mg/kg	79	41000
CL:AIRE 2010	MTBE (methyl tert-butyl ether)	mg/kg	49	49
NA	Asbestos (No visual ACM)	% w/w	Nil	0.001% *
pH	BS3882	pH Units	NA	5 - 8.2

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See LQM/CIEH S4ULs Human Health Risk Assessment document for notes regarding derivation.

Criteria for PAH and TPH assumes an SOM of 1%.

*Soil matrix should contain no free product.

All imported material to have chemical concentrations less than the above levels for the site, with the exception of pH which is a range.

Test results to be provided to the engineer prior to placing soils, where appropriate.

All tests result to be undertaken by a UKAS Laboratory holding accrediation for the relevant tests.

Also see Section 5.3 of Remedial Strategy for Asbestos Placement Depths.

APPENDIX B

Materials Management Plan

BROWNFIELD SOLUTIONS LTD

GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

DOMIS CONSTRUCTION LTD

BRWRY, Manchester

Materials Management Plan

JEM/C5313/12230

September 2023

PROJECT QUALITY CONTROL DATA SHEET

Site Name:	BRWRY, Manchester		
Document Name:	Materials Management Plan		
Reference:	JEM/C5313/12230		
Status	-	04/09/2023	Original.

Written by:	Checked by:	Approved by:
		
J E Massey BSc (Hons) AMIEnvSc Project Engineer	J Mather BSc (Hons) FGS Senior Project Engineer	J Mather BSc (Hons) FGS Senior Project Engineer

APPENDICIES	
Appendix	**Title**
Appendix A	Supporting Information

Materials Management Plan (MMP) Form – Based on CL:AIRE October 2014 Version

This form should be completed once the lines of evidence have been marshalled in relation to suitability for use, certainty of use and quantity required.

The answers to the questions posed within this form, together with the supporting information will constitute the MMP and must be provided to the Qualified Person.

A Qualified Person may comment on draft versions of this MMP, but will not complete the Declaration until all the relevant documents, demonstrating lines of evidence have been provided for each site.

The person / organisation who will pay the Declaration fee should confirm that they have read and understand the Terms and Conditions relating to the payment of the Declaration fee to CL:AIRE. These can be found on the CL:AIRE website.

The person / organisation agreeing to pay the Declaration Fee - Name, organisation and contact details inc. email address	Joel Massey Brownfield Solutions Limited William Smith House 173 – 183 Witton Street Northwich Cheshire CW9 5LP 01606 334844 j.massey@brownfield-solutions.co.uk

☑ **I confirm I have read and understood the Terms & Conditions.**

Each question must be answered. If the question is not applicable please state this and provide a brief explanation.

1. Specify the scenario to which this MMP relates, as described in the Definition of Waste: Development Industry Code of Practice (DoW CoP) (1, 2, 3 or 4):

☒ 1. Reuse on the Site of Origin

☐ 2. Direct Transfer of clean naturally occurring soil / mineral materials

☐ 3. Cluster Project

☐ 4. Combination of any of the above

In the case of a combination of reuse scenarios, please describe it below (e.g. (i) Reuse on Site of Origin and Direct Transfer of clean naturally occurring unpolluted soils, (ii) Reuse on the Site of Origin with Direct Transfer of clean naturally occurring soil to x number of development sites etc.:

Work will comprise reuse on Site of Origin of made ground and clean naturally occurring unpolluted soils.

Direct Transfer of clean naturally occurring unpolluted soil may take place under an updated MMP, to be declared as and when sources/donor sites become available in the future for topsoil in soft landscape areas. Re-use of natural materials falls under a WFD exemption Waste Framework Directive excludes certain materials from the definition of waste, including: "Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated". Materials shortfalls will be made up by import clean quarried stone, for which there is no requirement to formally declare on an MMP under the DoWCoP.

(NB: A Declaration is required for reuse on the Site of Origin and for any 2 site arrangement i.e. there is no facility for a combination Declaration)

Note - revisions to the MMP do not trigger an additional Declaration by a Qualified Person, unless an additional site is added to the project.

2. Organisation and name of person preparing this MMP	Joel Massey Brownfield Solutions Limited William Smith House 173 – 183 Witton Street Northwich Cheshire CW9 5LP 01606 334844 j.massey@brownfield-solutions.co.uk

Site Details

3. Site / Project name(s)	BRWRY, Manchester
Reuse / receiving site name including Postcode:	Land off Dutton Street, Manchester, M3 1LD.
Grid Reference:	383870, 399260
Donor site name (if Direct Transfer)	N/A

Landowners

4a. Name of Landowner(s) (full address and contact details) – where excavated materials are to be reused	Domis Construction Ltd, Unit 2 Block C, 14 Hulme St, Salford M5 4ZG	Geoff Danby Project Manager geoffdanby@domisconstruction.co.uk 07900412408
4b. Name of Landowner(s) (full address and contact	Site of Origin Domis Construction Ltd, Unit 2 Block C,	Geoff Danby Project Manager geoffdanby@domisconstruction.co.uk

details) – where excavated materials are arising from	14 Hulme St, Salford M5 4ZG	07900412408

Summary and objectives

5a. Provide a brief description of the planned project and how excavated materials are to be reused.	Re-use of site won made ground and natural soils, to reengineer the site from its existing three tiers with retaining walls to the development footprint comprising the placement of piling mats and engineered fill as shown on the site substructure works outline sequencing plan referenced below.

General Plans and Schematics

6. **Attach** a location plan for the site(s) and a plan of the site(s) which identifies where different materials are to be excavated from, stockpile locations (if applicable), where materials are to be treated (if applicable) and where materials are to be reused.	Site Location Plan (ref. C5313/01) Site Area Plan (ref. C5313/04) Site Substructure Works Outline Sequencing (ref. BRW-REN-ZZ-ZZ-DR-S-09050-P01) Dutton Street Floor Plan (ref. A2943 200 R16) Site Wide Ground Floor Plan (ref. BRW-REN-ZZ-00-DR-S-01-01100 P01)
7. **Attach** a schematic of proposed materials movement. Where there is only one source area and one placement area briefly describe it. For all other projects a schematic is required.	The intent is to conduct a site wide turnover of made ground to remove obstructions and alter the existing varying levels to create a suitable development platform within the levels set via planning as shown on the site substructure works outline sequencing plan referenced above.

Parties Involved and Consultation – if more than one party please provide additional details for them and identify the location that they will be working e.g. where a site is zoned.

8a. Main earthworks contractor(s) (full address and contact details) – Where excavated materials are to be reused.	Mayo Civils Unit D Rochdale Central Industrial Estate Norman Road OL11 4HS.
8b. Main earthworks contractor(s) (full address and contact details) - Where excavated materials are arising from (Donor Site).	N/A

9. Treatment contractor(s) (full address and contact details) – for treatment on site of origin, or at a Hub site within a fixed STF / Cluster Project	N/A

10. Where wastes and materials are to be transported between sites, provide details of the transport contractor(s) (full address,	N/A

contact details and waste carriers registration details (if applicable))	
11. Provide Local Authority contact details (full address and named contacts) where excavated materials are to be reused	Manchester City Council, Town Hall Extension Albert Square Manchester M60 2LA Tel: 01612 345004
12a. For the site where materials are to be reused and for Hub Site locations provide Environment Agency contact details (full address and named contacts):	Environment Agency, Richard Fairclough House, Knutsford Road, Latchford, Warrington, Cheshire, WA4 1HT Tel: 03708 506506
For all Cluster Projects: 12b. Attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection to the proposals (see 3.37 of DoW CoP). If the EA has not been consulted please explain why (see paragraph 3.39 of the DoW CoP).	N/A

Lines of Evidence

There is no one single factor that can be used to decide that a substance or object is waste, or when it is, at what point it ceases to be waste; as complete a picture as possible has to be created.

The following sections require completion to ensure the correct decision is made.

If a requested item is not relevant it is important to clearly state why this is so (e.g. no planning permission required because permitted development status exists).

Suitable for use criteria

13. Please describe or provide copies of the required specification(s) for the materials to be reused on each site.	The chemical specification for reuse of materials on site is set out in Appendix A of the BSL Report JEM/C5313/12035 Rev C Remedial Strategy dated August 2023. Further information is presented in Appendix A below.
Where contamination is suspected or known to be present 14a. Please provide copies of or relevant extracts from the risk assessment(s) that has been used to determine the specification for use on the site. This must relate to the place where materials are to be used. This must be in terms of (i) human health (ii) controlled waters and (iii) any other relevant receptors. If a	Desk Top Study: Wardell Armstrong report LO10517 R006.01 Phase I Contaminated Land Assessment Report dated January 2018. BSL Phase II Geo-Environmental Assessment Report JEM/C5313/12029 Rev B issued July 2023 found: Testing on soils and comparison against the relevant screening criteria has revealed: • Pervasive heavy metals. • Pervasive PAHs.

risk assessment is not relevant for a particular receptor given the site setting please explain why below:	• Asbestos fibres/debris in proven at least 7 No. locations. The above were considered to pose a risk to human health and require mitigation. The site is not considered to pose an unacceptable risk to controlled waters, therefore, no specific remedial requirements for controlled waters are deemed necessary.
14b. Please attach any relevant documentation from the LA relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP).	Planning Permission for the site including the remediation strategy issued by Manchester City Council. Application number: 118831/FO/2018. Sue Jones, Laura Miller and Rebecca Twigg of Manchester City Council were contacted on 02/05/2023 via email serving as a notification of intent to implement a materials management plan, to be declared by a qualified persons under the DoWCoP to allow re-use of soils at the site. No response to the above has been received.
14c. Please attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 and Table 2 of the CoP).	The Remediation Strategy (ref. JEM/C5313/12035 Rev C) outlines the re-use of materials, this report has been submitted and no comments have been made. In addition, an email was sent to gmmcwasteenquiries@environment-agency.gov.uk on 02/05/2023 serving as a notification of intent to implement a materials management plan, to be declared by a qualified persons under the DoWCoP to allow re-use of soils at the site. No response to the above has been received.
14d. Please attach any relevant documentation from any other regulators (if relevant) relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP).	N/A

Where contamination is not suspected 15a. Please attach copies or relevant extracts from the Desk Top Study that demonstrates that there is no suspicion of contamination.	N/A
15b. Please attach copies of or relevant extracts from the site investigation/testing reports that adequately characterise the clean materials to be used (if appropriate).	N/A
15c. Please attach copies of any other relevant information (if available) confirming that land contamination is not an issue.	N/A

NB: It is your responsibility to assess the nature of the material to be used and that it fits within the limitations of the scenario under which it is to be used.

Certainty of use

Various lines of evidence are required to demonstrate that the materials are certain to be used. This includes:

- The production of this MMP
- An appropriate planning permission (or conditions that link with the reuse of the said materials)
- An agreed Remediation Strategy(ies)
- An agreed Design Statement(s)
- Details of the contractual arrangements

Please identify in the following sections what lines of evidence relate to the site(s) **where the materials are to be used**.

16a. Planning Permission(s) relating to the site where materials are to be reused Please provide a copy of the relevant planning permission.	118831/FO/2018 Manchester City Council Planning Conditions are presented in the supporting information.
16b. Explain how the reuse of the excavated materials fits within the planning permission(s) for each site.	Condition 7 of planning notice 118831/FO/2018 details the remediation of contaminated material and the need for a Remediation Strategy, along with a Remediation Verification report to confirm the remedial works have been undertaken as approved and have been done so successfully. The RS details the reuse and/or remediation of the excavated site won material. Site levels will be engineered in line with the agreed finished floor levels submitted to planning.
16c. If planning permission is not required for any one site please explain why below e.g. permitted development, clean up of a chemical spill, surrender of an Environmental Permit, re-contouring within the existing permission.	N/A
Where contamination is suspected or is known to be present 17. Please provide a copy of any Remediation Strategy(ies) that have been agreed with relevant regulators.	Brownfield Solutions Ltd report reference '12035 Remedial Strategy' JEM/C5313/12035 Rev C dated August 2023.

Where contamination is not suspected 18. Please provide a copy of any Design Statement(s) that have been agreed (e.g. with the planning authority or in the case of permitted developments the client).	N/A

Quantity of Use

19. Please provide a breakdown of the excavated materials for each site and how much will be placed at	Block's A to E will be designed with suitable piling mats based on plate load testing results at formation level as the development evolves, with as much material to be retained onsite as possible. Piling mats may vary between 450mm with a geogrid and 1200mm utilising site won made ground crushed to specification.

each site or sub area of each site. Where this is not specific to a single readily identifiable source refer to an annotated plan, schematic or attach a tabulated summary.	Block A of the site is due to have a reduction in level with the resulting site won materials including crushed concrete to be used to regrade the site and create piling mats. Block A will then be built up with a 1250mm piling mat. Blocks B – E (Upper) will be built up with a 600mm to 1250mm piling mat. The southern extent of the current upper level will have the retaining removed, the platform will be extended ~10m to the south and the area infilled with material. Blocks B – E (Middle and Lower) will be built up using any remaining material with a piling mat up to a thickness of 1250mm above. The southern extent of the current middle level will have the retaining removed, the platform will be extended ~10m to the south and the area infilled with material. It is estimated that the piling mat thicknesses will allow for a re-use volume of 9,000m^3. Engineered fill below this in the areas where the levels are to be extended to the south equates to 7,000m^3. Volume to be declared – **16,000m^3**.

20a. How has consolidation/compaction being considered in the above mass balance calculations?	As per the remediation strategy, compaction to a general specification will be undertaken and has been taken into consideration.
20b. How has loss due to treatment being considered in the above mass balance calculations (if applicable)?	N/A
20c. How has the addition of treatment materials being considered in the above mass balance calculations (if applicable)?	N/A

Contingency arrangements

Explain what is to happen in the following situations and **identify the appropriate clauses** in the contract(s) (Such clauses must be provided to the Qualified Person, preferably as a summary document): or

21a. What is to happen to, and who is to pay for out of specification materials?	The main contractor will be responsible for resolving or removing out of specification materials. Resolution of issues may include providing for additional treatment or agreeing an alternative acceptable location for use (subject to being demonstrably suitable for use in that alternative location). *It is assumed that pollution control measures in relation to dusts, odours, spills, invasive species etc are covered in other documentation.
21b. What is to happen to, and who is to pay for any excess materials?	Significant differences in materials will be managed on site or removed from site under an MMP. Any excess materials to be disposed off site to suitable facility as per material flow chart.

21c. What happens if the project programme slips in relation to excavated materials or materials under -going treatment?	The risk of program over-run is considered low within the overall development and the potential for it to affect the development.
21d. Other identified risk scenarios for the project (relating to excavated materials)?	N/A

The Tracking System

Where contamination is suspected, or known to be present, state the procedures put in place to:

22a. For all sites please describe the tracking system to be employed to monitor materials movements.	The materials tracking form is provided via the supporting information link below and it will be the responsibility of the site manager to maintain the tracking system and other suitable records, including drawings of stockpile locations etc.
Where contamination is suspected or known to be present, state the procedures put in place to: 22b. Prevent contaminants not suitable for the treatment process being accepted.	All material which requires treatment on site will be suitable for the selected treatment process.
Where contamination is suspected or known to be present, state the procedures put in place to: 22c. Prevent cross contamination of materials not in need of treatment, wastes awaiting treatment and treated materials.	A supervising engineer will supervise the excavation and turnover to identify any unexpected contamination, determine the route of excavated material based on field screening and ensure the surveying of final excavations. The engineer will collect validation samples from the excavation where required to ensure contamination has been removed.
Where contamination is suspected or known to be present, state the procedures put in place to: 22d. Demonstrate that materials that do not require treatment and successfully treated materials reach their specific destination.	Control of materials will be via the materials tracking form, with records of tests and stockpiles as per the flow chart, presented in the supporting information.
Where contamination is suspected or known to be present, state the procedures put in place to: 22e. Ensure that waste for off-site disposal or treatment is properly characterised and goes to the correct facility.	Control of materials will be via the materials tracking form and spreadsheets.

23. Please attach a copy of the tracking forms / control sheets that are to be used to monitor materials movements. To include transfer of loads on site into stockpiles prior to treatment (if applicable), stockpiled after treatment (if applicable), stockpiled awaiting use (as appropriate) and final placement.	BSL materials tracking form and spreadsheet presented in supporting information link.

For Hub Sites within Cluster Projects & where materials need treatment before reuse: 24. Please attach a copy of the Environmental Permit covering the treatment process. Alternatively, if the treatment is covered by a Mobile Plant Permit and associated Deployment Form, attach a copy of the EA agreement to the Deployment Form.	N/A

Records

25. Where, and in what form, are records to be kept? Note – records e.g. transfer notes, delivery tickets, Desk Top Study, Site Investigation, Risk Assessment(s), Verification Report(s) need to be kept for at least 2 years after the completion of the works and production of the Verification Report.	Brownfield Solutions will collate all the records supplied by the contractor at the end of the contract and present a full electronic copy of the data to Domis Construction Ltd. A backup copy of the records will also be available from Brownfield Solutions Limited for at least 2 years.

Verification Plan

26. Provide or explain the Verification Plan which sets out how you will record the placement of materials and prove that excavated materials have been reused in the correct location and in the correct quantities within the development works (see 3.4 of the DoW CoP).	Tracking forms/excel spreadsheets and stockpile plans will monitor the movement of the material. Periodic survey records of the filling as the works progresses will be maintained by the contractor. A photographic record will also be kept as the work progresses. Outline of the verification plan is provided in the supporting information.
Estimated Date of issue of Verification Report	31/09/2024
Persons responsible for producing the Verification Report:	Joel Massey Brownfield Solutions Limited William Smith House 173 – 183 Witton Street Northwich Cheshire CW9 5LP 01606 334844 j.massey@brownfield-solutions.co.uk

APPENDIX A

Supporting Information

Supporting Information can be accessed via the link below:
https://brownfieldsolutions.sharepoint.com/:f:/s/Brownfield/EvEA8pkjHOxImdBqYhkM7kEB0yfMLXQh-yFfXhVirlmARw?e=Rq7O1H
Should you have any issues accessing the above link, please contact Brownfield Solutions.

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www.brownfield-solutions.com



APPENDIX C

Clean Cover System Validation

APPENDIX D

Asbestos – Chemical Laboratory Certificates & Exploratory Hole Logs

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W: www.element.com

Brownfield Solutions Limited
173-183 Witton Street
Northwich
Cheshire
United Kingdom
CW9 5LP

Attention :	Nicola Swallow
Date :	7th July, 2023
Your reference :	C5313
Our reference :	Test Report 23/10922 Batch 1
Location :	Brwry, Manchester
Date samples received :	5th July, 2023
Status :	Final Report
Issue :	1

Two samples were received for analysis on 5th July, 2023 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Brownfield Solutions Limited
Reference: C5313
Location: Brwry, Manchester
Contact: Nicola Swallow

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/10922	1	GL 1	GL	1	Anthony Carman	07/07/2023	**General Description (Bulk Analysis)**	Debris
					Anthony Carman	07/07/2023	**Asbestos Fibres**	NAD
					Anthony Carman	07/07/2023	**Asbestos ACM**	NAD
					Anthony Carman	07/07/2023	**Asbestos Type**	NAD
23/10922	1	GL 2	GL	2	Anthony Carman	07/07/2023	**General Description (Bulk Analysis)**	Debris
					Anthony Carman	07/07/2023	**Asbestos Fibres**	NAD
					Anthony Carman	07/07/2023	**Asbestos ACM**	NAD
					Anthony Carman	07/07/2023	**Asbestos Type**	NAD

Client Name: Brownfield Solutions Limited
Reference: C5313
Location: Brwry, Manchester
Contact: Nicola Swallow

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 23/10922						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/10922

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/10922

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	



PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4

Photo Descriptions

PHOTO NO.	DETAILS
1	View southwards at area of flytipping.
2	Suspected ACM (Testing confirmed no asbestos detected)
3	
4	

REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT
DOMIS CONSTRUCTION LTD

PROJECT TITLE
BRWRY, MANCHESTER

TITLE
PHOTOBOARD – SUSPECTED ACM

Associated Document Ref No.
JEM/C5313/12304

PAGE
1 of 1

COMPLIED BY
NS

CHECKED BY
JM

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Cheshire
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CW9 5LP

Attention :	Nicola Swallow
Date :	25th July, 2023
Your reference :	C5313
Our reference :	Test Report 23/11630 Batch 1
Location :	Brwry, Manchester
Date samples received :	17th July, 2023
Status :	Final Report
Issue :	1

Six samples were received for analysis on 17th July, 2023 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Brownfield Solutions Limited
Reference: C5313
Location: Brwry, Manchester
Contact: Nicola Swallow

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/11630	1	SP01		1	Catherine Coles	21/07/2023	**General Description (Bulk Analysis)**	brown soil,stone,brick
					Catherine Coles	21/07/2023	**Asbestos Fibres**	Fibre Bundles
					Catherine Coles	21/07/2023	**Asbestos Fibres (2)**	Fibre Bundles
					Catherine Coles	21/07/2023	**Asbestos ACM**	NAD
					Catherine Coles	21/07/2023	**Asbestos ACM (2)**	NAD
					Catherine Coles	21/07/2023	**Asbestos Type**	Chrysotile
					Catherine Coles	21/07/2023	**Asbestos Type (2)**	Amosite
					Remigiusz Blichowski	25/07/2023	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	25/07/2023	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	25/07/2023	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
23/11630	1	SP02		2	Catherine Coles	21/07/2023	**General Description (Bulk Analysis)**	brown soil,stone,brick
					Catherine Coles	21/07/2023	**Asbestos Fibres**	Fibre Bundles
					Catherine Coles	21/07/2023	**Asbestos Fibres (2)**	Fibre Bundles
					Catherine Coles	21/07/2023	**Asbestos ACM**	NAD
					Catherine Coles	21/07/2023	**Asbestos ACM (2)**	NAD
					Catherine Coles	21/07/2023	**Asbestos Type**	Chrysotile
					Catherine Coles	21/07/2023	**Asbestos Type (2)**	Amosite
					Remigiusz Blichowski	25/07/2023	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	25/07/2023	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	25/07/2023	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
23/11630	1	SP03		3	Emily Anderton	21/07/2023	**General Description (Bulk Analysis)**	Brown soil with stones
					Emily Anderton	21/07/2023	**Asbestos Fibres**	Fibre Bundles
					Emily Anderton	21/07/2023	**Asbestos ACM**	NAD
					Emily Anderton	21/07/2023	**Asbestos Type**	Chrysotile
					Remigiusz Blichowski	25/07/2023	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Remigiusz Blichowski	25/07/2023	**Total Detailed Gravimetric Quantification (% Asb)**	0.001 (mass %)
					Remigiusz Blichowski	25/07/2023	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	0.001 (mass %)
23/11630	1	SP04		4	Simon Postlewhite	21/07/2023	**General Description (Bulk Analysis)**	Brown soil/stones
					Simon Postlewhite	21/07/2023	**Asbestos Fibres**	NAD
					Simon Postlewhite	21/07/2023	**Asbestos ACM**	NAD
					Simon Postlewhite	21/07/2023	**Asbestos Type**	NAD
23/11630	1	SP05		5	Simon Postlewhite	21/07/2023	**General Description (Bulk Analysis)**	Brown soil/stones
					Simon Postlewhite	21/07/2023	**Asbestos Fibres**	NAD
					Simon Postlewhite	21/07/2023	**Asbestos ACM**	NAD
					Simon Postlewhite	21/07/2023	**Asbestos Type**	NAD

Client Name: Brownfield Solutions Limited
Reference: C5313
Location: Brwry, Manchester
Contact: Nicola Swallow

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/11630	1	SP06		6	Simon Postlewhite	21/07/2023	**General Description (Bulk Analysis)**	Brown soil/stones
					Simon Postlewhite	21/07/2023	**Asbestos Fibres**	NAD
					Simon Postlewhite	21/07/2023	**Asbestos ACM**	NAD
					Simon Postlewhite	21/07/2023	**Asbestos Type**	NAD

Client Name: Brownfield Solutions Limited
Reference: C5313
Location: Brwry, Manchester
Contact: Nicola Swallow

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 23/11630						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/11630

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/11630

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM131	Quantification of Asbestos Fibres and ACM based on HSG 248 Second edition:2021, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes

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Analytical Report Number : 23-47861

Project / Site name:	BRWRY, Manchester	**Samples received on:**	31/07/2023
Your job number:	C5313	**Samples instructed on/ Analysis started on:**	31/07/2023
Your order number:	4429	**Analysis completed by:**	04/08/2023
Report Issue Number:	1	**Report issued on:**	04/08/2023
Samples Analysed:	1 bulk sample - 10 soil samples		

Signed:

Dominika Warjan
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-47861
Project / Site name: BRWRY, Manchester
Your Order No: 4429

Lab Sample Number				2764603	2764604	2764605	2764606	2764607
Sample Reference				ASB101	ASB102	ASB103	ASB104	ASB105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	0.50	0.50	0.50
Date Sampled				19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	Chrysotile	Chrysotile	Chrysotile	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	Detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	< 0.001	< 0.001	< 0.001	0.019
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	< 0.001	< 0.001	< 0.001	0.019
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	SCA	SCA	SCA

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-47861
Project / Site name: BRWRY, Manchester
Your Order No: 4429

Lab Sample Number				2764608	2764609	2764610	2764611	2764612
Sample Reference				ASB106	ASB107	ASB108	ASB109	ASB110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	0.50	0.50	0.50
Date Sampled				19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	Chrysotile	Chrysotile	Chrysotile	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	Detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	WEM	WEM	WEM

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-47861
Project / Site name: BRWRY, Manchester
Your Order No: 4429

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2764603	ASB101	0.50	159	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
2764604	ASB102	0.50	161	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
2764605	ASB103	0.50	154	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
2764606	ASB104	0.50	158	Loose Fibrous Debris	**Chrysotile**	< 0.001	**< 0.001**
2764607	ASB105	0.50	173	Loose Fibrous Debris	**Chrysotile**	0.019	**0.019**
2764608	ASB106	0.50	129	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
2764609	ASB107	0.50	134	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
2764610	ASB108	0.50	135	Loose Fibrous Debris	**Chrysotile**	< 0.001	**< 0.001**
2764611	ASB109	0.50	135	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
2764612	ASB110	0.50	136	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-47861
Project / Site name: BRWRY, Manchester

Your Order No: 4429

Lab Sample Number				2766253
Sample Reference				ASB106
Sample Number				bulk
Depth (m)				0.50
Date Sampled				19/07/2023
Time Taken				None Supplied
Analytical Parameter (Bulk Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Asbestos Identification	Type	N/A	ISO 17025	Chrysotile - Asbestos Cement
Asbestos Analyst ID	N/A	N/A	N/A	SCA

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 23-47861
Project / Site name: BRWRY, Manchester

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos identification in Bulks	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

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Analytical Report Number : 23-49126

Project / Site name:	Brwry Manchester	**Samples received on:**	02/08/2023
Your job number:	C5313	**Samples instructed on/ Analysis started on:**	02/08/2023
Your order number:	4445	**Analysis completed by:**	08/08/2023
Report Issue Number:	1	**Report issued on:**	09/08/2023
Samples Analysed:	4 soil samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-49126
Project / Site name: Brwry Manchester
Your Order No: 4445

Lab Sample Number				2771196	2771197	2771198	2771199
Sample Reference				ASB201	ASB202	ASB203	ASB204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00-1.35	0.00-1.20	0.00-1.90	0.00-1.95
Date Sampled				02/08/2023	02/08/2023	02/08/2023	02/08/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	0.098	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	0.098	-
Asbestos Analyst ID	N/A	N/A	N/A	KWB	KWB	KWB	KWB

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

UKAS TESTING
4041

Analytical Report Number: 23-49126
Project / Site name: Brwry Manchester
Your Order No: 4445

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2771198	ASB203	0.00-1.90	130	Loose Fibrous Debris & Asbestos Cement	**Chrysotile**	0.098	**0.098**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 23-49126
Project / Site name: Brwry Manchester

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Analytical Report Number : 23-52516

Project / Site name:	BRWRY	**Samples received on:**	22/08/2023
Your job number:	C5313	**Samples instructed on/ Analysis started on:**	22/08/2023
Your order number:	C5313 4498 CM	**Analysis completed by:**	28/08/2023
Report Issue Number:	1	**Report issued on:**	28/08/2023
Samples Analysed:	8 soil samples		

Signed:

Dominika Warjan
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-52516
Project / Site name: BRWRY
Your Order No: C5313 4498 CM

Lab Sample Number				2789337	2789338	2789339	2789340
Sample Reference				ASB401	ASB304	ASB303	ASB301
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.07-1.40	0.10-1.10	0.10-1.00	0.07-1.40
Date Sampled				18/08/2023	18/08/2023	18/08/2023	18/08/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	< 0.001
Asbestos Analyst ID	N/A	N/A	N/A	MLO	MLO	MLO	MLO

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-52516
Project / Site name: BRWRY
Your Order No: C5313 4498 CM

Lab Sample Number				2789341	2789342	2789343	2789344
Sample Reference				ASB205	ASB206	ASB207	ASB208
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-1.00	0.10-1.60	0.10-1.60	0.10-1.80
Date Sampled				18/08/2023	18/08/2023	18/08/2023	18/08/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Amosite	-	-	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Not-detected	Not-detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	-	-	0.035
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	-	-	0.035
Asbestos Analyst ID	N/A	N/A	N/A	MLO	MLO	MLO	MLO

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-52516
Project / Site name: BRWRY
Your Order No: C5313 4498 CM

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and S in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1 Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)
2789340	ASB301	0.07-1.40	159	Loose Fibres	**Chrysotile**	< 0.001
2789341	ASB205	0.10-1.00	157	Loose Fibres	**Amosite**	< 0.001
2789344	ASB208	0.10-1.80	164	Loose Fibrous Debris	**Chrysotile**	0.035

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Safety Executive

996:
et al, 1996) and
each fraction,

caution.

Total % Asbestos in Sample
< 0.001
< 0.001
0.035

Analytical Report Number : 23-52516
Project / Site name: BRWRY

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB201
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	**Hole Type** TP
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	**Scale** 1:25
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:** 02/08/23	**Logged** JEM / **Checked** NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00-1.35	ES					MADE GROUND: Brown slightly clayey gravelly fine to coarse sand with low cobble content. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, glass, plastic, sandstone and mudstone. Cobbles are sub-angular to sub-rounded of brick up to 200mm in diameter.
				1.35			Firm brown mottled grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is sub-rounded fine to coarse of sandstone and mudstone.
				1.50			End of Trial Pit at 1.50m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spalling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB202
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	**Hole Type** TP
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	**Scale** 1:25
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:** 02/08/23	**Logged** JEM / **Checked** NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00-1.20	ES					MADE GROUND: Brown slightly clayey gravelly fine to coarse sand with low cobble content. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, glass, plastic, clinker, slag, sandstone and mudstone. Cobbles are sub-angular to sub-rounded of brick up to 200mm in diameter.
				1.20			Firm brown mottled grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is sub-rounded fine to coarse of sandstone and mudstone.
				1.30			End of Trial Pit at 1.30m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spalling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB203
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	**Hole Type**: TP
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	**Scale**: 1:25
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	02/08/23

Logged	Checked
JEM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00-1.90	ES					MADE GROUND: Brown slightly clayey gravelly fine to coarse sand with low cobble content. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, glass, plastic, sandstone and mudstone. Cobbles are sub-angular to sub-rounded of brick up to 200mm in diameter.
				1.90			Firm brown mottled grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is sub-rounded fine to coarse of sandstone and mudstone.
				2.10			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spalling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB204
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	**Hole Type** TP
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	**Scale** 1:25
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:** 02/08/23	**Logged** JEM / **Checked** NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00-1.95	ES					MADE GROUND: Brown slightly clayey gravelly fine to coarse sand with low cobble content. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, glass, plastic, sandstone and mudstone. Cobbles are sub-angular to sub-rounded of brick up to 200mm in diameter.
				1.95			Firm brownish grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is sub-rounded fine to coarse of sandstone and mudstone.
				2.10			End of Trial Pit at 2.10m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spalling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB205
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383858E, 399301N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	Scale	Logged	Checked
TP	1:25	CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10-1.50	D ES		0.02			MADE GROUND: Grey sub-angular to sub-rounded fine to coarse concrete and brick gravels.
							MADE GROUND: Brown slightly clayey gravelly fine to coarse sand with low cobble content. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, glass, plastic, sandstone and mudstone. Cobbles are sub-angular to sub-rounded of brick up to 200mm in diameter.
				1.50			Firm brown mottled grey slightly gravelly CLAY. Gravel is sub-angular to sub-rounded of mudstone.
				2.00			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spalling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB206
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383864E, 399303N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	Scale	Logged	Checked
TP	1:25	CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10-1.60	D ES					MADE GROUND: Brown slightly sandy gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete and glass.
				1.60			Firm brown mottled grey slightly gravelly CLAY. Gravel is sub-angular to sub-rounded of mudstone.
				2.00			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spalling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB207
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383868E, 399295N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	
TP	
Scale	
1:25	
Logged	**Checked**
CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10-1.60	D ES					MADE GROUND: Brown slightly clayey gravelly fine to coarse sand with low cobble content. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, glass, plastic, sandstone and mudstone. Cobbles are sub-angular to sub-rounded of brick up to 200mm in diameter.
				1.60			Firm brown mottled grey slightly gravelly CLAY. Gravel is sub-angular to sub-rounded of mudstone.
				2.00			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spalling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB208
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383868E, 399283N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	Scale	Logged	Checked
TP	1:25	CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10-1.80	D ES					MADE GROUND: Brown slightly sandy gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, rebar, wood and glass.
				1.80			Firm brown mottled grey slightly gravelly CLAY. Gravel is sub-angular to sub-rounded of mudstone.
				2.00			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spalling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB205
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383858E, 399301N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	
TP	
Scale	
1:25	
Logged	**Checked**
CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10-1.50	D ES		0.02			MADE GROUND: Grey sub-angular to sub-rounded fine to coarse concrete and brick gravels.
							MADE GROUND: Brown slighty sandy gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick and concrete.
				1.50			Firm brown mottled grey slighty gravelly CLAY. Gravel is sub-angular to sub-rounded of mudstone.
				2.00			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spooling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB206
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383864E, 399303N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	
TP	
Scale	
1:25	
Logged	**Checked**
CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10-1.60	D ES					MADE GROUND: Brown slighty sandy gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete and glass.
				1.60			Firm brown mottled grey slighty gravelly CLAY. Gravel is sub-angular to sub-rounded of mudstone.
				2.00			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spooling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB207
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383868E, 399295N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	
TP	
Scale	
1:25	
Logged	**Checked**
CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10-1.60	D ES					MADE GROUND: Brown slighty sandy gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, plastic and glass.
				1.60			Firm brown mottled grey slighty gravelly CLAY. Gravel is sub-angular to sub-rounded of mudstone.
				2.00			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spooling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB208
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383868E, 399283N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	
TP	
Scale	
1:25	
Logged	**Checked**
CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10-1.80	D ES					MADE GROUND: Brown slighty sandy gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, rebar, wood and glass.
				1.80			Firm brown mottled grey slighty gravelly CLAY. Gravel is sub-angular to sub-rounded of mudstone.
				2.00			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spooling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB301
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383829E, 399280N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	
TP	
Scale	
1:25	
Logged	**Checked**
CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.07-1.20	D ES		0.02 0.07			MADE GROUND: Tarmacadam. MADE GROUND: Black gravelly fine to coarse sand. Gravel is sub-angular fine to coarse of tarmacadam. MADE GROUND: Brown slightly clayey gravelly fine to coarse sand. Gravel is sub-angular to sub-rounded fine to coarse of brick and concrete.
	1.20-2.00	D ES		1.20			MADE GROUND: Brown slighty sandy gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, rebar and metal.
				2.10			End of Trial Pit at 2.10m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides relatively stable; minor spooling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB303
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383836E, 399267N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	Scale	Logged	Checked
TP	1:25	CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10-1.00	D ES		0.02			MADE GROUND: Grey sub-angular to sub-rounded fine to coarse concrete and tarmacadam gravels. MADE GROUND: Brown slightly clayey gravelly fine to coarse sand. Gravel is sub-angular to sub-rounded fine to coarse of brick and concrete.
	1.00-2.00	D ES		1.00			MADE GROUND: Brown slighty sandy gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, rebar and wood.
				2.00			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny
2. Sides relatively stable; minor spooling.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB304
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383842E, 399255N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	Scale	Logged	Checked
TP	1:25	CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10-1.10	D ES		0.02			MADE GROUND: Grey sub-angular to sub-rounded fine to coarse concrete and tarmacadam gravels. MADE GROUND: Brown slightly clayey gravelly fine to coarse sand. Gravel is sub-angular to sub-rounded fine to coarse of brick and concrete.
	1.10-2.00	D ES		1.10			MADE GROUND: Brown slighty sandy gravelly clay. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, glass and rebar.
▼				2.00			End of Trial Pit at 2.00m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides becoming unstable from 1.20m bgl.
3. small to moderate groundwater seepage encountered from 2.00m bgl.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

BROWNFIELD SOLUTIONS LTD

Trial Pit Log

No.
ASB401
Sheet 1 of 1

PROJECT NO:	C5313	**CO-ORDS:**	383865E, 399203N
PROJECT NAME:	BRWRY, MANCHESTER	**LEVEL:**	
CLIENT:	DOMIS CONSTRUCTION LTD	**DATES:**	18/08/23

Hole Type	Scale	Logged	Checked
TP	1:25	CM	NS

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.07-1.40	D ES		0.02 0.07			MADE GROUND: Tarmacadam. MADE GROUND: Black gravelly fine to coarse sand. Gravel is sub-angular fine to coarse of tarmacadam. MADE GROUND: Brown slightly clayey gravelly fine to coarse sand. Gravel is sub-angular to sub-rounded fine to coarse of brick, concrete, plastic, metal, rebar, wood and glass.
				1.40			End of Trial Pit at 1.40m

1.0
2.0
3.0
4.0
5.0

Remarks

1. Service clearance undertaken by BSL Engineer using CAT and Genny.
2. Sides becoming unstable from 1.30m bgl.
3. No groundwater encountered.
4. Trial pit backfilled with arisings upon completion.

ES = Environmental Sample
D = Disturbed Sample
B = Bulk Sample
LB = Large Bulk Sample
U = Undisturbed Sample
UT = Undisturbed Thin Wall Sample
SPT = Standard Penetration Test
PID = Photoionization Detector (ppm)
PPM = Part Per Million
HSV = Hand Shear Vane

APPENDIX E

Asbestos – Air Monitoring Results

Report No:	J303987/JN01		
Nature of Work:	Near and far source monitoring during ground works		
Date of Work:	31/07/2023	**Issue Date:**	31/07/2023

Client Name & Address:

Brownfield Solutions Limited
William Smith House
173 – 183 Witton Street
Northwich
Cheshire
CW9 5LP

Site Address:

Dutton Street
Cheetham Hill
Manchester
M3 1LD

Location on Site:	Brownfield site, Dutton St		
Order Placed By:	Nicola Swallow	**Site Contact:**	Joe
Technical Manager:	D Ely	**Site Consultant(s):**	D Pinder

Authorised Signatory Name: D Pinder

Job Title / Description: Asbestos Consultant

Signature: 

Time Commenced:	08:15	**Time Ended:**	14:50

Test method is as described by the HSE in HSG248

Non accredited tests are included in this report.

Please note that this report must not be reproduced, except in full without written permission of Bradley Environmental Consultants Limited.

Northern Office
Parkway House
Wakefield Road
Ossett
West Yorkshire
WF5 9JD
Tel: 01924 274 777
Email: sales@bradley-enviro.co.uk
Web: www.bradley-enviro.co.uk

1155

Results:

Key: C = Clearance; L = Leak; B = Background; O = Occupational; R = Reassurance; NS = Near Source; FS = Far Source; FB = Field Blank.

Sample ref.	Pump ref.	Head ref.	Key	Sampling Times	Rates of Flow (l/min)		Corrected Volume (litres)	Fibres / fields	Limit of Quantification (f/ml)	Reported airborne respirable fibre concentration (f/ml)*	Calculated airborne respirable fibre concentration (f/ml)**
					Start	Stop					
JN000547	HF83532	308	FS	08:27 / 10:27	8.2	8.2	984.0	1.5 / 200	0.00	<0.010	0.000
JN000548	HF83483	309	FS	08:28 / 10:28	8.2	8.2	984.0	1.5 / 200	0.00	<0.010	0.000
JN000549	HP08	311	NS	08:33 / 09:33	8.2	8.2	492.0	3.0 / 200	0.01	<0.010	0.002
JN000550	HP010	312	NS	08:34 / 09:34	8.2	8.2	492.0	2.0 / 200	0.01	<0.010	0.001
JN000551	HF83532	079	FS	10:35 / 12:35	8.2	8.2	984.0	2.0 / 200	0.00	<0.010	0.000
JN000552	HF83483	300	FS	10:36 / 12:36	8.2	8.2	984.0	1.5 / 200	0.00	<0.010	0.000
JN000553	HP08	311	NS	10:38 / 11:38	8.2	8.2	492.0	2.5 / 200	0.01	<0.010	0.001
JN000554	HP010	312	NS	10:39 / 11:39	8.2	8.2	492.0	3.0 / 200	0.01	<0.010	0.002
JN000555	HF83532	308	FS	12:46 / 14:46	8.2	8.1	978.0	Due to heavy rain during the sampling period, the filter could not be mounted or read.			
JN000556	HF83483	309	FS	12:47 / 14:47	8.2	8.2	984.0	Due to heavy rain during the sampling period, the filter could not be mounted or read.			
JN000557	HP08	311	NS	12:50 / 13:50	8.2	8.2	492.0	4.0 / 200	0.01	<0.010	0.002
JN000558	HP010	312	NS	12:51 / 13:51	8.2	8.1	489.0	2.5 / 200	0.01	<0.010	0.001
JN000559	N/A	069	FB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Number of Samples: 13
Fibre Counting Analyst: D Pinder

Calibration Details:

Microscope serial no.	127883	Stage micrometer no.	HSM05
Flowmeter serial no.	HF05A/B	Graticule diameter (µm)	100
Timepiece serial no.	HBT05 Timepiece	HSE/NPL test slide no.	HTS05
"O" ring diameter (mm)	22	Group 5 observed on test slide	Yes
Hand Tally Serial Nos.	HH05A HH05A	Barometer serial no. Thermometer serial no.	HBT05 HBT 05

Site Conditions:

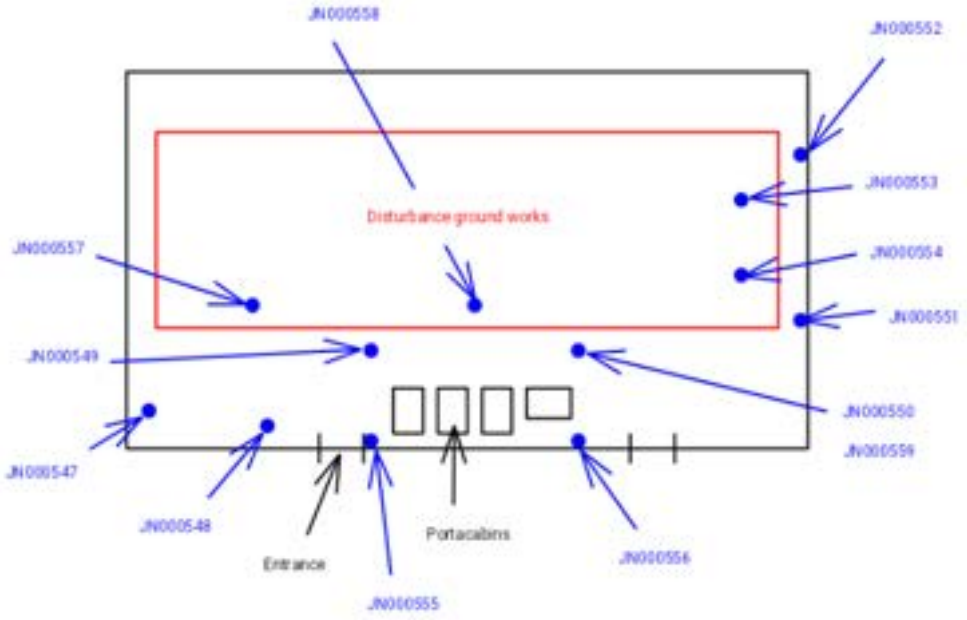
Asbestos removal contractor:	Not applicable		
Asbestos materials removed:	N/A	Filter preparation carried out in:	BX72 USO
Temperature (K) @ sample site:	290	Pressure (mb) @ sample site:	1019
Temperature (K) @ calibration site:	293	Pressure (mb) @ calibration site:	989
Were correction of sample volumes required: NO (If corrections were required see comments section)			

*Reported airborne fibre concentration; reported in accordance with the requirements of HSG248 and UKAS, to a reliable level of accuracy

**Calculated airborne fibre concentration: where this is below the reported airborne respirable fibre concentration, this implies a greater level of accuracy than can be assigned to the sampling undertaken

Report No: J303987/JN01

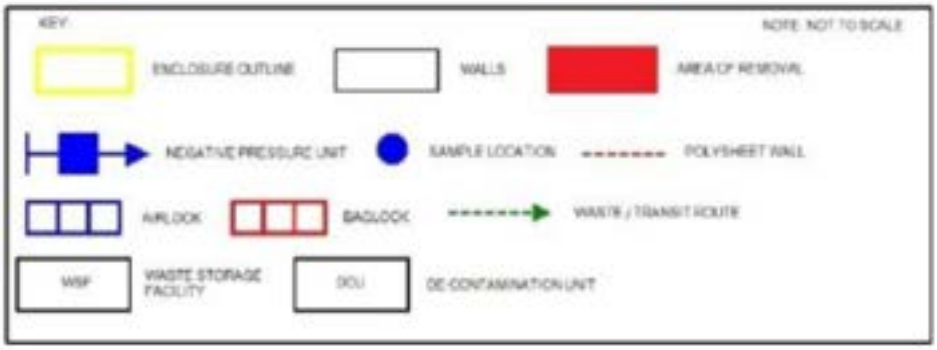
Diagram: Dutton Street, Cheetham Hill, Manchester, M3 1LD



Site diagram accurately represents situation on site.

Report No: J303987/JN01

Diagram: Dutton Street, Cheetham Hill, Manchester, M3 1LD



Site diagram accurately represents situation on site.

(Signature of client / contractor representative): Date: 31/07/2023

(Signature of analyst): Date: 31/07/2023

Report No: J303987/JN01
Comments and Summary:

TIME	COMMENTS / SITE LOG	PHOTO
08:15	Bradley Environmental Consultants Ltd (BECL) arrives on site at Dutton Street, Cheetham Hill, Manchester, M3 1LD at the request of Brownfield Solutions Limited to conduct Far and Near source air monitoring during ground works.	
08:27	Far Source air monitoring was started. Airborne fibre levels were assessed by setting 2 sampling pumps to draw in excess of 960 litres of air allowing a detection limit of 0.005f/ml of air, the flowrates of both pumps were assessed at 70 minutes into the sampling period. These were placed along the fence line of the site. Upon completion, the samples were collected and analysed. Analysis of all samples showed airborne fibre levels of <0.005 f/ml, indistinguishable from ambient airborne fibre levels.	
08:28	Photographic evidence of JN000548	

Report No: J303987/JN01
Comments and Summary:

TIME	COMMENTS / SITE LOG	PHOTO
08:33	Near Source air monitoring was started. Airborne fibre levels were assessed by setting 2 sampling pumps to draw in excess of 480 litres of air allowing a detection limit of 0.01f/ml of air. These were placed within the proximity of the disturbance taking place. Upon completion, the samples were collected and analysed. Analysis of all samples showed airborne fibre levels of <0.01 f/ml, indistinguishable from ambient airborne fibre levels.	
08:34	Photographic evidence of JN000550	
10:35	Far Source air monitoring was started. Airborne fibre levels were assessed by setting 2 sampling pumps to draw in excess of 960 litres of air allowing a detection limit of 0.005f/ml of air, the flowrates of both pumps were assessed at 70 minutes into the sampling period. These were placed along the fence line of the site. Upon completion, the samples were collected and analysed. Analysis of all samples showed airborne fibre levels of <0.005 f/ml, indistinguishable from ambient airborne fibre levels.	

Report No: J303987/JN01
Comments and Summary:

TIME	COMMENTS / SITE LOG	PHOTO
10:36	Photographic evidence of JN000552	
10:38	Near Source air monitoring was started. Airborne fibre levels were assessed by setting 2 sampling pumps to draw in excess of 480 litres of air allowing a detection limit of 0.01f/ml of air. These were placed within the proximity of the disturbance taking place. Upon completion, the samples were collected and analysed. Analysis of all samples showed airborne fibre levels of <0.01 f/ml, indistinguishable from ambient airborne fibre levels.	
10:39	Photographic evidence of JN000554	

Report No: J303987/JN01
Comments and Summary:

TIME	COMMENTS / SITE LOG	PHOTO
12:42	Please note, the far end of the site did not have any air monitoring conducted around as no physical walking access was available	
12:46	Far Source air monitoring was started. Airborne fibre levels were assessed by setting 2 sampling pumps to draw in excess of 960 litres of air allowing a detection limit of 0.005f/ml of air, the flowrates of both pumps were assessed at 70 minutes into the sampling period. These were placed along the fence line of the site. Upon completion, the samples were collected however, due to heavy rain the filters could not be mounted correctly and analysed.	
12:47	Photographic evidence of JN000556	

Report No: J303987/JN01
Comments and Summary:

TIME	COMMENTS / SITE LOG	PHOTO
12:50	Near Source air monitoring was started. Airborne fibre levels were assessed by setting 2 sampling pumps to draw in excess of 480 litres of air allowing a detection limit of 0.01f/ml of air. These were placed within the proximity of the disturbance taking place. Upon completion, the samples were collected and analysed. Analysis of all samples showed airborne fibre levels of <0.01 f/ml, indistinguishable from ambient airborne fibre levels.	
12:51	Photographic evidence of JN000558	

Daily Analytical Paperwork
Daily Site Reference Log

Project No.:	B-44204	**Report No.:**	80565	**Page**	1	**of**	4
Client Details		**Site Details**		**Start Time:**			
Client Name:	Brownfield Solutions Limited	**Site Address:**	Dutton Street Cheetham Hill Manchester M3 1LD	**Contractor:**	N/A		
Address:	Williams Smith House, 173-183 Witton Street Northwich Cheshire, CW9 5LP			**Contract Foreman:**	N/A		
				No. Additional Operatives:	N/A		
				Start Time:	0800		
Contact:	Nicola Swallow			**Finish Time:**	1500		
Tel No.:	01506 334844						
Email:	n.swallow@brownfield-solutions.co.uk						

Description of Works

Provision of reassurance and boundary/ far source Air Monitoring at Dutton Street whilst CFA is being oiled up through an area of asbestos impacted made ground.

Acorn are to run Far source air monitoring during excavation works. Personal monitoring also to be conducted on driver.

Site Diary:

Acorn arrive onsite, met with site supervisor to begin induction & walk around of site before works begin.

Air monitoring begins.

Air montioring ends.

All air tests complete. Result shows a satisfactory fibre concentration level of <0.010f/ml. Personal sample also satisfactory.

Acorn leave site.

.

Analyst Name:	Kieran Halse	**Signed:**		**Date:**	05/10/2023

Daily Analytical Paperwork
Air Monitoring Certificate

Project No.:	B-44204	**Certificate No.:**	80565	**Page Number**	2	**of**	4
Client Details		**Site Details**		**Microscope No**	600945		
Name:	Brownfield Solutions Limited	**Site Address:**	Dutton Street	**Stage Micrometer**	SM036		
Address:	Williams Smith House, 173-183 Witton Street		Cheetham Hill	**NPL Test Slide Number**	8882		
	Northwich		Manchester	**Visible Bands**	5		
	Cheshire, CW9 5LP		M3 1LD	**Flow Meter**	FM070		
Contact:	Nicola Swallow			**Measured Graticule Diameter (um) - d**	100		
Tel No.:	01506 334844	**Contractor**		**Tally Counters**	38/69	**Stopwatch**	62
Email:	n.swallow@brownfield-solutions.co.uk	N/A		**Diameter of exposed filter (mm) - D**	22.4	**Batch No**	4670

This certificate is issued in accordance with the documented in-house method for carrying out air sampling and fibre analysis procedures which is accredited by UKAS and follows the guidance set out in HSG248 (Edition 2)

Test Conditions

BT Background Test **LT** Leakage Test **RT** Reassurance Test **SF** Site Field Blank **FS** Far Source Monitoring **NS** Near Source Monitoring

Sample No.	Pump No.	Cowl No.	Test	Pump Location	Time		Sample Time (T)	Flow Rate (l/m)			Volume (V) (V=T*F)	Fibres (N)	Fields (n)	Limit of Quantification	Respirable fibre concentration		Analyst
					Start	Finish		Initial Flow	Final Flow	Average Flow (F)					Calculated Result f/ml	Recorded Result f/ml	
1	N/A	313	SF	Lab Storage	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	100	SATISFACTORY			KH
2	AC54	308	FS	External, Area of works	1330	1530	120	8.2	8.2	8.2	984	1	98	0.010	0.001	<0.010	KH
3	AC108	309	FS	External, Area of works	1332	1533	121	8.2	8.0	8.1	980	0.5	98	0.010	0.000	<0.010	KH
4	AC118	310	FS	External, Area of works	1333	1534	121	8.2	8.0	8.1	980	0.5	98	0.010	0.000	<0.010	KH
5	AC289	311	FS	External, Area of works	1334	1535	121	8.2	8.2	8.2	992	2	97	0.010	0.001	<0.010	KH
6				End													
7																	
8																	
9																	
10																	
11																	
12																	

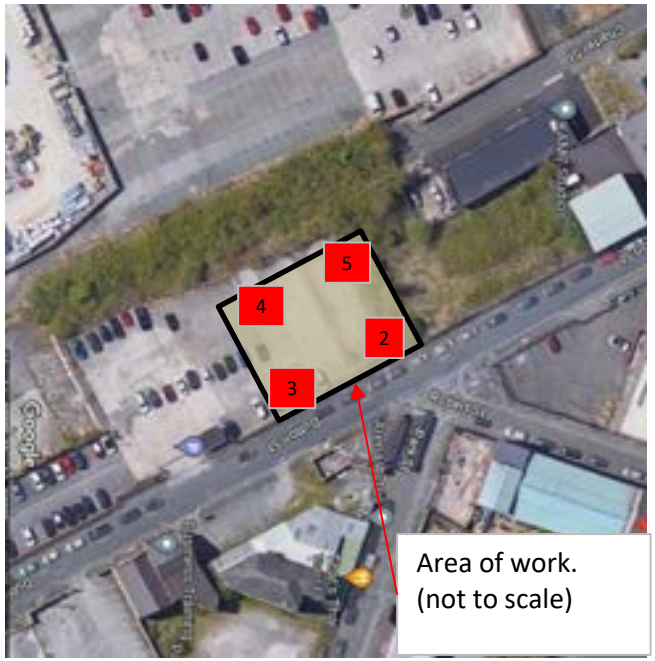
Analyst Name:	Kieran Halse	**Signed:**		**Date:**	05/10/2023

Daily Analytical Paperwork
Diagram Photo Reference Sheet

Project No.:	B-44204	Report No.:	80565	Page	3	of	4

Client Details		Site Details		Key to Diagram	
Client Name:	Brownfield Solutions Limited	Site Address:	Dutton Street Cheetham Hill Manchester M3 1LD	Airlock/Baglock Chamber	Enclosure Material
Address:	Williams Smith House, 173-183 Witton Street Northwich Cheshire, CW9 5LP			Negative Pressure Unit	2 Pump Location and Sample No.
Contact:	Nicola Swallow				
Tel No.:	01506 334844	Contractor:			
Email:	n.swallow@brownfield-solutions.co.uk	N/A			

Diagram



Analyst Name:	Kieran Halse	Signed:		Date:	05/10/2023

Daily Analytical Paperwork
Personal Air Monitoring Certificate

Project No.:	B-44204	**Certificate No.:**	80565	**Page Number**	4	**of**	4
Client Details		**Site Details**		**Microscope No**	600945		
Name:	Brownfield Solutions Limited	**Site Address:**	Dutton Street	**Stage Micrometer**	SM036		
Address:	iams Smith House, 173-183 Witton St		Cheetham Hill	**NPL Test Slide Number**	8882		
	Northwich		Manchester	**Visible Bands**	5		
	Cheshire, CW9 5LP		M3 1LD	**Flow Meter**	FM065		
Contact:	Nicola Swallow			**Measured Graticule Diameter (um) - d**	100		
Tel No.:	01506 334844	**Contractor**		**Tally Counters**	38/69	**Stopwatch**	SW062
Email:	n.swallow@brownfield-solutions.co.uk	N/A		**Diameter of exposed filter (mm) - D**	22.4	**Batch No**	4917

This certificate is issued in accordance with the documented in-house method for carrying out air sampling and fibre analysis procedures which is accredited by UKAS and follows the guidance set out in HSG248 (Edition 2)

Test Conditions
PS Personal Sample

Sample Number	Details of work being undertaken (Include method and controls in place)
Sample 15	Operative is undertaking the task of excavating contaminated soil. Operative is enclosed within cabin of vehicle during these works.
Sample 16	
Sample 17	
Sample 18	

Sample No.	Pump No.	Cowl No.	Test	Operative Name	Time		Sample Time (T)	Flow Rate (l/m)			Volume (V) (V=T*F)	Fibres (N)	Fields (n)	Limit of Quantification	Respirable fibre concentration		Analyst
					Start	Finish		Initial	Final	Avg (F)					Calculated Result f/ml	Recorded Result f/ml	
15	Ap021	314	PS	Stephen Igoe	1340	1540	120	2.0	2.0	2.0	240	3	200	0.020	0.003	<0.020	KH
16				END													
17																	
18																	
Analyst Name:				Kieran Halse	**Signed:**								**Date:**		05/10/2023		

Daily Analytical Paperwork
Daily Site Reference Log

Project No.:	B-44204	Report No.:	80566	Page	1	of	4
Client Details		**Site Details**		**Start Time:**			
Client Name:	Brownfield Solutions Limited	**Site Address:**	Dutton Street Cheetham Hill Manchester M3 1LD	**Contractor:**	N/A		
Address:	Williams Smith House, 173-183 Witton Street Northwich Cheshire, CW9 5LP			**Contract Foreman:**	N/A		
				No. Additional Operatives:	N/A		
				Start Time:	0800		
Contact:	Nicola Swallow			**Finish Time:**	1500		
Tel No.:	01506 334844						
Email:	n.swallow@brownfield-solutions.co.uk						

Description of Works

Provision of reassurance and boundary/ far source Air Monitoring at Dutton Street whilst CFA is being oiled up through an area of asbestos impacted made ground.

Acorn are to run Far source air monitoring during excavation works. Personal monitoring also to be conducted on driver.

Site Diary:

Acorn arrive onsite, met with site supervisor to dicuss todays ongoing works.

Air monitoring begins.

Air montioring ends.

All air tests complete. Result shows a satisfactory fibre concentration level of <0.010f/ml. Personal samples also satisfactory.

Acorn leave site.

.

Analyst Name:	Kieran Halse	Signed:		Date:	06/10/2023

Daily Analytical Paperwork
Air Monitoring Certificate

Project No.:	B-44204	**Certificate No.:**	80566	**Page Number**	2	**of**	4
Client Details		**Site Details**		**Microscope No**	600945		
Name:	Brownfield Solutions Limited	**Site Address:**	Dutton Street	**Stage Micrometer**	SM036		
Address:	Williams Smith House, 173-183 Witton Street		Cheetham Hill	**NPL Test Slide Number**	8882		
	Northwich		Manchester	**Visible Bands**	5		
	Cheshire, CW9 5LP		M3 1LD	**Flow Meter**	FM070		
Contact:	Nicola Swallow			**Measured Graticule Diameter (um) - d**	100		
Tel No.:	01506 334844	**Contractor**		**Tally Counters**	38/69	**Stopwatch**	62
Email:	n.swallow@brownfield-solutions.co.uk	N/A		**Diameter of exposed filter (mm) - D**	22.4	**Batch No**	4917

This certificate is issued in accordance with the documented in-house method for carrying out air sampling and fibre analysis procedures which is accredited by UKAS and follows the guidance set out in HSG248 (Edition 2)

Test Conditions

BT Background Test **LT** Leakage Test **RT** Reassurance Test **SF** Site Field Blank **FS** Far Source Monitoring **NS** Near Source Monitoring

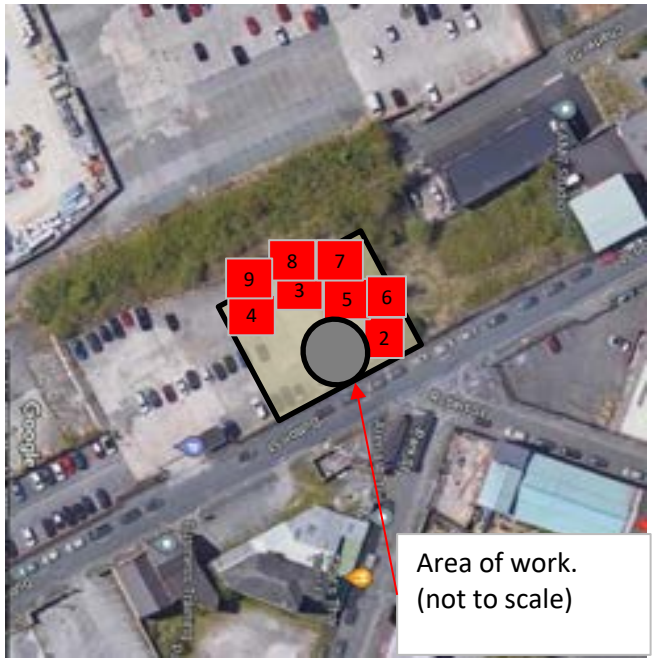
Sample No.	Pump No.	Cow No.	Test	Pump Location	Time		Sample Time (T)	Flow Rate (l/m)			Volume (V) (V=T*F)	Fibres (N)	Fields (n)	Limit of Quantification	Respirable fibre concentration		Analyst
					Start	Finish		Initial Flow	Final Flow	Average Flow (F)					Calculated Result f/ml	Recorded Result f/ml	
1	N/A	313	SF	Lab Storage	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5	100	SATISFACTORY			KH
2	AC54	308	FS	External, Area of works	0843	1045	122	8.2	8.2	8.2	1000	4	96	0.010	0.002	<0.010	KH
3	AC108	309	FS	External, Area of works	0845	1046	121	8.2	8.2	8.2	992	1	97	0.010	0.001	<0.010	KH
4	AC118	310	FS	External, Area of works	0846	1046	120	8.2	8.2	8.2	984	1.5	98	0.010	0.001	<0.010	KH
5	AC289	311	FS	External, Area of works	0847	1047	120	8.2	8.2	8.2	984	2	98	0.010	0.001	<0.010	KH
6	AC54	308	FS	External, Area of works	1115	1315	120	8.2	8.2	8.2	984	2	98	0.010	0.001	<0.010	KH
7	AC108	309	FS	External, Area of works	1116	1316	120	8.2	8.2	8.2	984	2	98	0.010	0.001	<0.010	KH
8	AC118	310	FS	External, Area of works	1117	1317	120	8.2	8.2	8.2	984	1.5	98	0.010	0.001	<0.010	KH
9	AC289	311	FS	External, Area of works	1117	1318	121	8.2	8.0	8.1	980	2	98	0.010	0.001	<0.010	KH
10				End													
11																	
12																	

Analyst Name:	Kieran Halse	**Signed:**		**Date:**	06/10/2023

Daily Analytical Paperwork
Diagram Photo Reference Sheet

Project No.:	B-44204	Report No.:	80566	Page	3	of	4
Client Details		**Site Details**		**Key to Diagram**			
Client Name:	Brownfield Solutions Limited	**Site Address:**	Dutton Street Cheetham Hill Manchester M3 1LD		Airlock/Baglock Chamber		Enclosure Material
Address:	Williams Smith House, 173-183 Witton Street Northwich Cheshire, CW9 5LP				Negative Pressure Unit	2	Pump Location and Sample No.
Contact:	Nicola Swallow						
Tel No.:	01506 334844	**Contractor:**					
Email:	n.swallow@brownfield-solutions.co.uk	N/A					

Diagram



Analyst Name:	Kieran Halse	Signed:		Date:	06/10/2023

Daily Analytical Paperwork
Personal Air Monitoring Certificate

Project No.:	B-44204	**Certificate No.:**	80566	**Page Number**	4	**of**	4
Client Details		**Site Details**		**Microscope No**	600945		
Name:	Brownfield Solutions Limited	**Site Address:**	Dutton Street	**Stage Micrometer**	SM036		
Address:	iams Smith House, 173-183 Witton St		Cheetham Hill	**NPL Test Slide Number**	8882		
	Northwich		Manchester	**Visible Bands**	5		
	Cheshire, CW9 5LP		M3 1LD	**Flow Meter**	FM065		
Contact:	Nicola Swallow			**Measured Graticule Diameter (um) - d**	100		
Tel No.:	01506 334844	**Contractor**		**Tally Counters**	38/69	**Stopwatch**	SW062
Email:	n.swallow@brownfield-solutions.co.uk	N/A		**Diameter of exposed filter (mm) - D**	22.4	**Batch No**	4917

This certificate is issued in accordance with the documented in-house method for carrying out air sampling and fibre analysis procedures which is accredited by UKAS and follows the guidance set out in HSG248 (Edition 2)

Test Conditions
PS Personal Sample

Sample Number	Details of work being undertaken (Include method and controls in place)
Sample 15	Operative is undertaking the task of excavating contaminated soil and placing into skip. Operative is enclosed within cabin of vehicle during these works.
Sample 16	Operative is undertaking the task of excavating contaminated soil and placing into skip. Operative is enclosed within cabin of vehicle during these works.
Sample 17	
Sample 18	

Sample No.	Pump No.	Cowl No.	Test	Operative Name	Time		Sample Time (T)	Flow Rate (l/m)			Volume (V) (V=T*F)	Fibres (N)	Fields (n)	Limit of Quantification	Respirable fibre concentration		Analyst
					Start	Finish		Initial	Final	Avg (F)					Calculated Result f/ml	Recorded Result f/ml	
15	AP021	314	PS	Stephen Igoe	0840	1040	120	2.0	2.0	2.0	240	2	200	0.020	0.002	<0.020	KH
16	AP021	312	PS	Stephen Igoe	1110	1310	120	2.0	2.0	2.0	240	1	200	0.020	0.001	<0.020	KH
17				End													
18																	
Analyst Name:				Kieran Halse	**Signed:**								**Date:**		06/10/2023		

APPENDIX F

Waste Transfer Notes

Waste Transfer

APPENDIX G

Potable Water Supply

Potable Water

APPENDIX H

Hydrocarbon Point Sources

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Analytical Report Number : 23-43537

Project / Site name:	BRWRY, Manchester	**Samples received on:**	06/07/2023
Your job number:	C5313	**Samples instructed on/ Analysis started on:**	06/07/2023
Your order number:	MB/C5313/4349	**Analysis completed by:**	14/07/2023
Report Issue Number:	1	**Report issued on:**	28/07/2023
Samples Analysed:	5 soil samples		

Signed:

Dominika Warjan
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-43537
Project / Site name: BRWRY, Manchester
Your Order No: MB/C5313/4349

Lab Sample Number				2738983	2738984	2738985	2738986	2738987
Sample Reference				VS01	VS02	VS03	VS04	VS05
Sample Number				ES1	ES2	ES3	ES4	ES5
Depth (m)				0.10	0.10	0.10	0.10	0.10
Date Sampled				05/07/2023	05/07/2023	05/07/2023	05/07/2023	05/07/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
Organic Matter (automated)	%	0.1	MCERTS	2.7	4.7	5.5	3.6	3.1
Monoaromatics & Oxygenates								
Total BTEX & MTBE	mg/kg	0.007	NONE	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Monoaromatics & Oxygenates								
Benzene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Ethylbenzene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
p & m-xylene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
o-xylene	mg/kg	0.005	MCERTS	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.005	NONE	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.1	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.1	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.1	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	4.2	1.1	3.1
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	4.1	5.6	19	4.8	4.2
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	9.6	17	24	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	9.1	99	79	30	31
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH_CU_1D_AL}$	mg/kg	10	MCERTS	19	120	100	30	31
TPH-CWG - Aliphatic >EC35 - EC40 $_{EH_CU_1D_AL}$	mg/kg	10	NONE	< 10	34	17	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	23	120	130	44	45
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.1	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.1	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.1	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	1.7	4.6	16	12	2.5
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	19	34	130	55	17
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	86	170	630	230	87
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	120	330	870	270	150
TPH-CWG - Aromatic >EC35 - EC40 $_{EH_CU_1D_AR}$	mg/kg	10	NONE	11	59	94	28	29
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	230	530	1600	570	260
TPH Total C5 - C40 $_{EH_CU+HS_1D_TOTAL}$	mg/kg	10	NONE	260	750	1900	650	340
TPH (C5 - C10) $_{HS_1D_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C16) $_{EH_CU_1D_TOTAL}$	mg/kg	10	NONE	24	45	170	72	27
TPH (C16 - C40) $_{EH_CU_1D_TOTAL}$	mg/kg	10	NONE	240	710	1700	570	320

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number : 23-43537
Project / Site name: BRWRY, Manchester

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2738983	VS01	ES1	0.1	Brown clay with gravel.
2738984	VS02	ES2	0.1	Brown clay and sand with gravel.
2738985	VS03	ES3	0.1	Brown clay and sand with gravel.
2738986	VS04	ES4	0.1	Brown clay and sand with gravel.
2738987	VS05	ES5	0.1	Brown clay and sand with gravel.

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Analytical Report Number : 23-43537
Project / Site name: BRWRY, Manchester

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 23-48527

Project / Site name:	BRWRY	**Samples received on:**	01/08/2023
Your job number:	C5313	**Samples instructed on/ Analysis started on:**	01/08/2023
Your order number:	4435	**Analysis completed by:**	09/08/2023
Report Issue Number:	1	**Report issued on:**	09/08/2023
Samples Analysed:	1 soil sample		

Signed:

Joanna Wawrzeczko
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
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Analytical Report Number: 23-48527
Project / Site name: BRWRY
Your Order No: 4435

Lab Sample Number				2768044
Sample Reference				HS1
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				31/07/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	15
Total mass of sample received	kg	0.001	NONE	1.2
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EC
General Inorganics				
pH - Automated	pH Units	N/A	MCERTS	7.9
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	400
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.198
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	198
Organic Matter (automated)	%	0.1	MCERTS	3.5
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	0.97
Acenaphthylene	mg/kg	0.05	MCERTS	0.48
Acenaphthene	mg/kg	0.05	MCERTS	4.4
Fluorene	mg/kg	0.05	MCERTS	3.2
Phenanthrene	mg/kg	0.05	MCERTS	45
Anthracene	mg/kg	0.05	MCERTS	12
Fluoranthene	mg/kg	0.05	MCERTS	56
Pyrene	mg/kg	0.05	MCERTS	55
Benzo(a)anthracene	mg/kg	0.05	MCERTS	25
Chrysene	mg/kg	0.05	MCERTS	28
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	28
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	7.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	22
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	12
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	4
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	14
Total PAH				
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	317
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	21
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2
Chromium (III)	mg/kg	1	NONE	28
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	130
Lead (aqua regia extractable)	mg/kg	1	MCERTS	710
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	180
Monoaromatics & Oxygenates				
Total BTEX & MTBE	mg/kg	0.007	NONE	< 0.007

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Analytical Report Number: 23-48527
Project / Site name: BRWRY
Your Order No: 4435

Lab Sample Number				2768044
Sample Reference				HS1
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				31/07/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Monoaromatics & Oxygenates				
Benzene	mg/kg	0.005	MCERTS	< 0.005
Toluene	mg/kg	0.005	MCERTS	< 0.005
Ethylbenzene	mg/kg	0.005	MCERTS	< 0.005
p & m-xylene	mg/kg	0.005	MCERTS	< 0.005
o-xylene	mg/kg	0.005	MCERTS	< 0.005
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.005	NONE	< 0.005
Petroleum Hydrocarbons				
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.1	NONE	< 0.10
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.1	NONE	< 0.10
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.1	NONE	< 0.10
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	3
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	16
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH_CU_1D_AL}$	mg/kg	10	MCERTS	16
TPH-CWG - Aliphatic >EC35 - EC40 $_{EH_CU_1D_AL}$	mg/kg	10	NONE	< 10
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	26
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.1	NONE	< 0.10
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.1	NONE	< 0.10
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.1	NONE	< 0.10
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	1.7
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	21
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	150
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	190
TPH-CWG - Aromatic >EC35 - EC40 $_{EH_CU_1D_AR}$	mg/kg	10	NONE	14
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	370
TPH Total C5 - C40 $_{EH_CU+HS_1D_TOTAL}$	mg/kg	10	NONE	410
TPH (C5 - C10) $_{HS_1D_TOTAL}$	mg/kg	1	NONE	< 1.0
TPH (C10 - C16) $_{EH_CU_1D_TOTAL}$	mg/kg	10	NONE	26
TPH (C16 - C40) $_{EH_CU_1D_TOTAL}$	mg/kg	10	NONE	380
VOCs				
Chloromethane	µg/kg	5	ISO 17025	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0
2,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0
Chloroform	µg/kg	5	NONE	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0##

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Analytical Report Number: 23-48527
Project / Site name: BRWRY
Your Order No: 4435

Lab Sample Number				2768044
Sample Reference				HS1
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				31/07/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0##
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0##
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0##
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0##
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0#
Bromoform	µg/kg	5	NONE	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0
Isopropylbenzene	µg/kg	5	NONE	< 5.0#
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0
N-Propylbenzene	µg/kg	5	NONE	< 5.0#
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0
Tert-Butylbenzene	µg/kg	5	NONE	< 5.0#
1,2,4-Trimethylbenzene	µg/kg	5	NONE	< 5.0#
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	NONE	< 5.0#
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0

Sum of the above VOCs	µg/kg	5	NONE	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2768044	HS1	None Supplied	None Supplied	Brown clay and sand with gravel.

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Project / Site name: BRWRY

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS

Analytical Report Number : 23-48527
Project / Site name: BRWRY

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.
- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.



PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4

Photo Descriptions

PHOTO NO.	DETAILS
1	View westwards showing tank unearthed.
2	View of top of tank showing that it had historically been decommissioned with concrete / grout.
3	Generalised view of ground conditions.
4	

REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT

DOMIS CONSTRUCTION LTD

PROJECT TITLE

BRWRY, MANCHESTER

TITLE

PHOTOBOARD – TANK REMOVAL

Associated Document Ref No.	PAGE
JEM/C5313/12304	1 of 2
COMPLIED BY: NS	CHECKED BY: JM



PHOTO 5



PHOTO 6



PHOTO 7



PHOTO 8

Photo Descriptions

PHOTO NO.	DETAILS
5	View westwards showing tank unearthed. Generalised view of ground conditions
6	
7	
8	

REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT

DOMIS CONSTRUCTION LTD

PROJECT TITLE

BRWRY, MANCHESTER

TITLE

PHOTOBOARD – TANK REMOVAL

Associated Document Ref No.	PAGE
JEM/C5313/12304	2 of 2
COMPLIED BY: NS	CHECKED BY: JM

APPENDIX I

UXO Clearance Reports

All Clearance Reports

APPENDIX J

Abstraction Well Decommissioning

Well Decommissioning

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