

Elizabeth Street, Cheetham Hill

Phase 4 Validation Report

Curtins Ref: 080139-CUR-XX-XX-T-GE-00006

Revision: P01

Issue Date: 18 August 2025

Client Name: Kier Trade City LLP

Client Address: 2nd Floor, Optimum House, Clippers Quay, Salford, M50 3XP

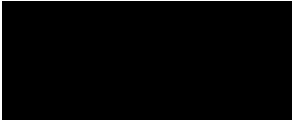
Site Address: Land off Elizabeth Street, Cheetham Hill, Manchester, M8 8BB

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Control Sheet

Rev	Description	Checked	Issued	Date
P01	First Issue	NF	LW	18/08/2025

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Author	Signature	Date
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Reviewed / Authorised	Signature	Date
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Executive Summary

Curtins were instructed by Kier to produce a Verification Report following completion of remediation activities at the new Industrial Estate located off Elizabeth Street, Cheetham Hill, Manchester, M8 8BB.

Triton Construction Ltd were the Main Contractor on site and undertook groundworks activities.

This Verification Report has been compiled to provide a descriptive and factual record of the remedial works undertaken by Triton Construction Ltd, and the subsequent verification of these works by Curtins.

It is envisaged that this document will be used to support the discharging of planning condition number 6b of planning permission 136813/JO/2023 in line with the measures agreed with the Local Planning Authority (LPA).

Site assessment works previously determined that remedial measures were required to be incorporated into the development as follows:

- Appropriate PPE for all construction workers with suitable asbestos management measures;
- Use of a clean soil layer / planting medium (engineered capping) and a granular separation layer due to elevated concentrations of lead and the presence of asbestos fibres/containing materials identified in Made Ground and prohibitive access restrictions to be in place in areas which cannot be remediated to the specification outline (e.g. area with Japanese Knotweed);
- Provision of gas protection measures within specific buildings on site; and,
- Contaminant Resistant Water Supply Pipes to be used where buried in site soils.

To address the elevated risk, the requirements for the proposed clean soil layer / planting medium capping works, provision of gas protection measures and contaminant resistant water pipes were detailed in Curtins Remediation Strategy (Reference: 080139-CUR-00-XX-RP-GE-003 Dated 27th September 2022), together with recommendations for material reuse, health and safety management during construction, asbestos management and, measures for dealing with unexpected contamination appropriately through the use of a Watching Brief and Discovery Strategy. Remediation works have now been completed with details and records of the works undertaken at the site collated herein from information provided by Triton Construction Ltd and obtained by Curtins through 1 No. site inspection visit.

Considering the available evidence, the following conclusions are made:

- Asbestos Management Measures were in place during the groundworks, evidenced by Jacto's RAMS.
- An engineered capping layer comprising of 'Suitable for Use' clean Topsoil underlain by a granular 'no dig' break layer has been installed in areas of soft landscaping.
- Gas Protection Measures were installed beneath the commercial buildings, evidenced by UK Membranes Gas Membrane Installation Validation Report.

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- Contaminant Resistant Water Supply Pipes were installed at the site, evidenced by photographs provided by Triton Construction Ltd and a United Utilities Drawing.

Additionally, Triton Construction Ltd have confirmed:

- No unexpected contamination was identified during groundworks.

In the soft landscaping areas validated, the Potential Pollutant Linkages, identified in Section 1.3 Table 1, no longer presents an unacceptable risk to site users and visitors, and the site may be considered suitable for use. Notwithstanding, It is recommended that this report be contained within the Site's Health & Safety File to indicate to maintenance contractor's that low concentrations of asbestos may be present within the no dig layer.

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1.0 Introduction

This Verification Report has been prepared by Curtins for Kier (the Client) to provide a descriptive and factual record of the works undertaken as evidence that the requirements of the agreed upon Remediation Strategy have been met at the new Industrial Estate located off Elizabeth Street, Cheetham Hill, Manchester, M8 8BB. It is understood the development comprises a commercial/light industrial end-use with nine units of varying sizes, with associated hardstanding and some small areas of soft landscaping. The landscape architect plans are included within Appendix A of this report.

It is intended that this report is submitted to allow the discharge of Planning Condition 6b, associated with Application Ref. 136813/JO/2023.

Planning Condition 6b reads:

“When the development commences, the development shall be carried out in accordance with the agreed Remediation Strategy (as approved as part of part (a) of this planning application) and a Completion/Verification Report shall be submitted to and approved in writing by the City Council as local planning authority before the first use of the site.

In the event that ground contamination, groundwater contamination and/or ground gas, not previously identified, are found to be present on the site at any time before the development is occupied, then no development shall take place in the identified areas until a report outlining what measures, if any, are required to remediate the land (the Revised Remediation Strategy) is submitted to and approved in writing by the City Council as local planning authority and the development shall be carried out in accordance with the Revised Remediation Strategy, which shall take precedence over any Remediation Strategy or earlier Revised Remediation Strategy.

Reason – To ensure that the presence of or the potential for any contaminated land and/or groundwater is detected and appropriate remedial action is taken in the interests of public safety, pursuant to policies DM1 and EN18 of the Manchester Core Strategy.”

Details and records of remedial works undertaken at the site have been collated herein from information provided by Kier and Triton Construction Ltd, and obtained by Curtins through 1 No. site visit carried out on completion of remediation works.

1.1 Requirements of the Verification Report

- A descriptive and factual record of the remedial works (removal of unacceptable materials, provision of engineered capping layer comprising a clean soil layer and granular separation layer, provision of ground gas protection measures and provision of contaminant resistant water pipes) undertaken by the contractor and their appointed sub-contractors;

- Verification of remedial works through review and presentation of the records provided by the client/contractor:
 - Photographic record of ground works activities;
 - Records of any other significant visual or olfactory evidence of contamination encountered during site clearance and excavation;
 - Waste consignment notes for materials removed from site;
 - Photographic evidence of installed gas protection measures and their independent verification; and,
 - Photographic evidence of installed Contaminant Resistant Water Pipes and their independent verification.
- Verification of remedial works through Curtins site visit and analysis:
 - Suitable thickness of imported topsoil, underlain by a granular separation layer;
 - Imported soil quality certificates, including soil chemical analysis from samples obtained from site;

1.2 References

The Verification Report has been prepared with reference to the following reports:

- **Reference 1:** Curtins (2022) Elizabeth Street, Cheetham Hill, Phase 1 Preliminary Risk Assessment & Phase 2 Ground Investigation Report (Ref. 078695-CUR-00-XX-RP-GE-001) Dated 17th March 2022.
- **Reference 2:** Curtins (2022) Elizabeth Street, Cheetham Hill, Remediation Strategy (Ref. 080139-CUR-00-XX-RP-GE-003) Dated 27th September 2022.

1.3 Project Background

A Phase 1 Preliminary Site Assessment Desktop Study (Ref. 1) was undertaken for the site by Curtins in 2021. A Phase 2 Ground Investigation was subsequently scoped and undertaken on site by Curtins in various phases between 2021 and 2022, with the report finalised in 2022.

The above works concluded the following pollutant linkages (outlined in Table 1) were considered to present a potential risk to human health and would require specific remedial measures to enable safe redevelopment of the site for its proposed end-use.

Table 1 – Potential Pollutant Linkages

PCL	Source	Pathway	Receptor	Risk
1	Made Ground soils containing elevated concentrations of asbestos fibres/containing materials.	On-Site Construction Workers Off-Site Residents Passers-by	Direct contact, dermal uptake, soil and dust ingestion and inhalation. Inhalation of dust and fibres (off-site).	Appropriate PPE for construction staff and suitable asbestos management measures during construction.
2	Made Ground soils containing elevated concentrations of asbestos fibres/containing materials and lead in one location.	On-Site End Users Future Staff/Maintenance Workers	Direct contact, dermal uptake, soil and dust ingestion and inhalation.	Minimum of 450mm Clean capping within new soft landscaped areas, comprising topsoil/subsoil and a granular break layer of geotextile underlying. New trees will require enhanced thickness to support root growth (minimum of 900mm recommended). In root protection zones for existing trees, soils should be removed (circa 75mm) followed by deposition of circa 150mm clean topsoil. In area where development is not possible due to on-going Japanese Knotweed treatment, restrictions must be put in place as part of management operations to prevent access to site personnel.
3	Elevated concentrations of soil gas (CH4 and CO2) identified in site soils underlying all new buildings.	On-Site End Users Staff Construction Workers	Vertical and horizontal migration through the superficial and bedrock deposits.	Characteristic Situation 2 Gas Protection Measures.
4	Elevated Aliphatic and Aromatic hydrocarbons in site soils.	On-Site End Users Staff Construction Workers	Degradation of water supply pipes followed by migration of hydrocarbon contamination into water supply followed by ingestion.	Contaminant resistant water supply pipes to be incorporated in the development in line with United Utilities requirements.

To address the elevated risks the proposed remediation works were detailed in the Curtins Remediation Strategy (Ref. 2), together with recommendations for material reuse, health and safety management during construction, asbestos management and, measures for dealing with unexpected contamination appropriately through the use of a Watching Brief and Discovery Strategy.

For further background details the previous reports referenced above should be consulted. It is assumed that the Client is in receipt of these reports and that they have also been submitted to and accepted by Manchester City Council to discharge relevant planning conditions.

2.0 Remedial Works Undertaken

In this document the term 'remediation' is used to define specific works required to address the potential issues arising from asbestos fibres, and contaminated soils, with due account taken for the proposed end-user.

In order to address the risk from elevated concentrations of non-volatile contamination in soils including asbestos containing materials the following remedial measures were outlined to be required.

- **Remedial Action 1:** Appropriate PPE for all construction workers and suitable asbestos management measures;
- **Remedial Action 2:** Engineered capping to serve as a physical barrier between Made Ground and site surface in soft landscaped areas preventing direct contact, dermal uptake and limiting the derivation of dust. Prohibitive access restrictions to be in place in areas which cannot be remediated to the specification outlined;
- **Remedial Action 3:** Provision of gas protection measures within specific proposed buildings on site; and
- **Remedial Action 4:** Contaminant Resistant Water Supply Pipes to be utilised where buried in site soils.

Measures were also provided for dealing appropriately with unexpected contamination encountered on site, through the use of a Watching Brief and Discovery Strategy.

The development was constructed by Triton Construction Ltd, the Principal Contractor on the project.

Ebsford Environmental were the groundworks contractor during the Japanese Knotweed removal, before Jacto completed the remainder of the groundworks.

Required remedial works have been undertaken as part of the buildings construction as detailed below.

2.1 Asbestos Management Measures

Curtins were not present on-site during groundworks activities and were only instructed to attend site during completion of the construction. The following details have been provided by Triton Construction Ltd.

Jacto's RAMS were provided for the demolition and site works. Asbestos was considered with 'appropriate PPE' recommended, methodology provided for hand picking and removal of ACM where encountered was also provided. This is enclosed in Appendix E.

2.2 Engineered Capping

The locations of soft landscaping installed are highlighted in TPM Landscape Drawing Ref. 4018-101 Rev B included in *Appendix A*. Soft landscaping is relatively limited in extent with the majority of the site covered by hardstanding or building cover.

Engineered soft landscaping areas have been installed on site, which have been planted with various ornamental shrubs and grasses. The engineered capping layer was specified in the Curtins Remediation Strategy (Ref. 2). The landscape architect is TPM Landscape.

Hardstanding areas are considered sufficient to break the potential contaminant linkage and therefore no specific remediation measures were required.

Verification of the engineered capping measures to soft landscaped areas was undertaken by Curtins in August 2025 to ensure remediation has been undertaken as specified and demonstrate the effectiveness of the remediation. It was undertaken in general accordance with the verification plan set out in Curtins Remediation Strategy (Ref. 2).

2.2.1 Validation of Imported Soil Quality

Topsoil was understood to have been imported from a single source, known as '*Astley, Greater Manchester*'. The Topsoil was stored in a stockpile and is understood to be a natural topsoil.

Source chemical analysis testing was undertaken by the supplier, and laboratory testing certificates have been provided to Curtins for review and are enclosed in *Appendix C* (Freeland Horticulture Ltd, Report Ref. SLC-1253-SA). The topsoil was described as dark brown, slightly moist and friable with a well-developed, fine to medium granular structure with a low fraction of small stones and no deleterious materials (e.g. building waste materials, glass, roots or rhizomes of pernicious weeds) or unusual odours (e.g. hydrocarbons) were recorded. The soil is shown to be compliant with BS3882:2015 specification for topsoil multipurpose grade. The soil was therefore considered to be suitable for import.

Imported topsoil inspected on-site comprised a dark brown clayey sand as anticipated.

Curtins Strategy states that 1 sample per 200m³ (or a minimum of 3 No. samples) of greenfield or manufactured topsoil is required. Approximately 800m³ of topsoil has been imported to site. 4no. samples were obtained accordingly.

Curtins also sampled the granular break layer material placed beneath the topsoil in line with the strategy which states 1 sample per 100m³ or a minimum of 4 samples. 4 no. of samples were obtained accordingly.

Curtins obtaining 8 No. total samples detailed below:

- TP0A
 - Topsoil sample at 0.20m bgl.
 - Granular Break Layer sample at 0.50m bgl.
 - TP0B
 - Topsoil sample at 0.10m bgl.
 - Granular Break Layer sample at 0.45m bgl.
- TP0C
 - Topsoil sample at 0.15m bgl.
 - Granular Break Layer sample at 0.50m bgl.
 - TP0D
 - Topsoil sample at 0.05m bgl.
 - Granular Break Layer sample at 0.40m bgl.

The above samples have been analysed for a contamination suite in accordance with the Curtins Remediation Strategy. No exceedances were recorded above the “maximum permissible concentrations” and no asbestos containing materials or fibres were identified within topsoil.

Asbestos fibres were encountered within 1 No. sample of the granular ‘no dig’ break layer, taken from TP0B. This asbestos was quantified at <0.001%.

Testing was undertaken by Envirolab, a United Kingdom Accreditation Service (UKAS) and Monitoring Certification Scheme (MCERTS) accredited laboratory, and schedule for the suite of analytes described in *Table 2.1a*.

Table 2 – Environmental Chemical Analysis Suite

Suite Ref.	Analyte	LOD
Soils Suite A	Asbestos Screen, pH, and Soil Organic Matter (SOM)	0.01 pH and % w/w
	Arsenic, Chromium, Chromium VI, Copper, Lead, Selenium, Zinc, Nickel	1 mg/kg
	Boron (water soluble)	1 mg/kg
	Cadmium	1 mg/kg
	Mercury	0.17 mg/kg
	Cyanide (total)	1 mg/kg
	Phenols (screen)	0.2 mg/kg

Suite Ref.	Analyte	LOD
	Poly Aromatic Hydrocarbons (PAHs, USEPA 16 Suite)	0.01 – 0.08 mg/kg
	Total Petroleum Hydrocarbons (TPH) Criteria Working Group (CWG) Aromatic / Aliphatic Split	0.01 to 1 mg/kg

Copies of the environmental chemistry testing certificates are presented in *Appendix C*. The screening criteria for which soil chemical testing results are to be assessed against, Curtins Remediation Strategy and Curtins GACs: *Residential with Home Grown Produce with SOM of 2.5%*, are presented in *Appendix D*.

No visual contaminants were evident on sampling and inspection.

2.2.2 Validation of Engineered Capping Layer

On the 30th of July 2025, Curtins visited site to carry out independent inspections of depth and quality of imported topsoil and confirm the presence of a granular break layer at the base.

With reference to Curtins Drawing in Appendix A, the following works have been completed:

Trial holes were undertaken in the areas detailed in Table 3, confirming the required thickness of topsoil underlain by a granular break layer in 3 No. locations and a black plastic membrane in 1 No. location which was expected due to this area containing a Rain Garden and not regular soft landscaping. This area was also in close proximity to the tree root protection zones where a reduction in capping thickness was indicated to be required in the Remediation Strategy, in order to ensure the tree roots are not damage through surcharging.

Table 3 – Recorded Capping Thickness

Location	Area	Topsoil Thickness	Granular Break Layer encountered
TP0A	Soft Landscaping	450mm	Yes
TP0B	Soft Landscaping	450mm	Yes
TP0C	Soft Landscaping	460mm	Yes
TP0D	Rain Garden	340mm	No – Plastic Membrane encountered.

The locations are shown in Curtins Drawing Ref. 080139-CUR-00-XX-D-GE-010-P01 presented in *Appendix A* and a photographic log of each verified area is presented in *Appendix B*.

Triton Construction Ltd and Curtins records demonstrate a granular 'no-dig' break layer has been installed beneath all proposed soft landscaped areas at formation with topsoil placed above, and a black plastic membrane has been installed within the Rain Garden (TP0D) beneath topsoil, breaking PPL 2 in these areas.

Additionally, Ebsford Environmental installed a membrane below capping and no dig layer in parts of the site as part of their knotweed removal and treatment works. This further minimises the likelihood of end users coming into contact with existing made ground soils. Ebsford Environmental completion report is enclosed for ease of reference in *Appendix F*.

Photographs detailing this site visit can be found within *Appendix B*.

2.2.3 Laboratory Analysis

The granular material in the 'no dig' layer in TP0B tested positive for asbestos, quantified at <0.001%. The soft landscaping installed above this is still considered 'suitable for use' and of a suitable thickness. Given the capping thickness overlying and the low concentrations recorded, the risk to end user is considered to be Low.

Notwithstanding, It is recommended that this report be contained within the Site's Health & Safety File to indicate to maintenance contractor's that low concentrations of asbestos may be present within the no dig layer.

Asbestos was not identified in the clean capping layer (topsoil) in TP0A, TP0B, TP0C or TP0D.

Each of the four topsoil and four granular samples did not record any chemical concentrations which exceeded the nominated screening criteria (Residential without Plant Uptake). The imported topsoil is therefore deemed 'suitable for use'.

2.2.4 Prohibitive Access Restrictions

Along the north-western site boundary, a prohibitive access restriction is in place, evidenced by a large fence and visqueen, witnessed during the Curtins site visit on the 30th July 2025, see photographic record in *Appendix B*.

Evidence for the installation of a root barrier membrane has been provided by Ebsford Environmental Ltd, separating the ground contaminated with rhizome (Japanese Knotweed) from the clean fill on-site, see *Appendix F*.

2.3 Gas Protection Measures

Remedial Action 3 required the installation of Ground Gas Protection Measures to a Characteristic 2 Situation, namely a cast in-situ ground bearing floor slab and a gas resistant membrane.

UK Membranes were responsible for installing the gas protection membrane at the site. Curtins were not present on-site during gas membrane installation.

MEC Environmental produced a Gas Membrane Installation Validation Report for the Commercial Units at Elizabeth Street, report provided in Appendix G.

2.4 Contaminant Resistant Water Supply Pipes

Remedial Action 4 required the installation of contaminant resistant water supply pipes, due to the elevated concentrations of EC5-10, EC10-16 and EC16-40 Aliphatic and Aromatic Hydrocarbons identified in the Curtins Phase 2 Site Investigation (Ref. 1).

Curtins were not present on-site during groundworks activities and were only instructed to attend site during completion of the engineered capping phase. The groundworks have been carried out by Triton Construction Ltd, who provided evidence of the barrier pipes installation.

Photographs taken during groundworks have been provided by Triton Construction Ltd and are appended within the photographic log provided in Appendix B.

A United Utilities drawing is provided in Appendix A, evidencing the services on site as 'Barrier Pipe'.

2.5 Unexpected Contamination

Triton Construction Ltd provided a statement to confirm that during groundworks at Elizabeth Street, no unexpected contamination was encountered (Appendix H). The statement also provides further discussion on materials used.

3.0 Conclusion

Considering the available evidence, the following conclusions are made:

- Asbestos Management Measures were in place during the groundworks, evidenced by Jacto's RAMS.
- An engineered capping layer comprising of 'Suitable for Use' clean Topsoil underlain by a granular 'no dig' break layer has been installed in areas of soft landscaping.
- Gas Protection Measures were installed beneath the commercial buildings, evidenced by UK Membranes Gas Membrane Installation Validation Report.
- Contaminant Resistant Water Supply Pipes were installed at the site, evidenced by photographs provided by Triton Construction Ltd and a United Utilities Drawing.

Additionally, Triton Construction Ltd have confirmed:

- No unexpected contamination was identified during groundworks.

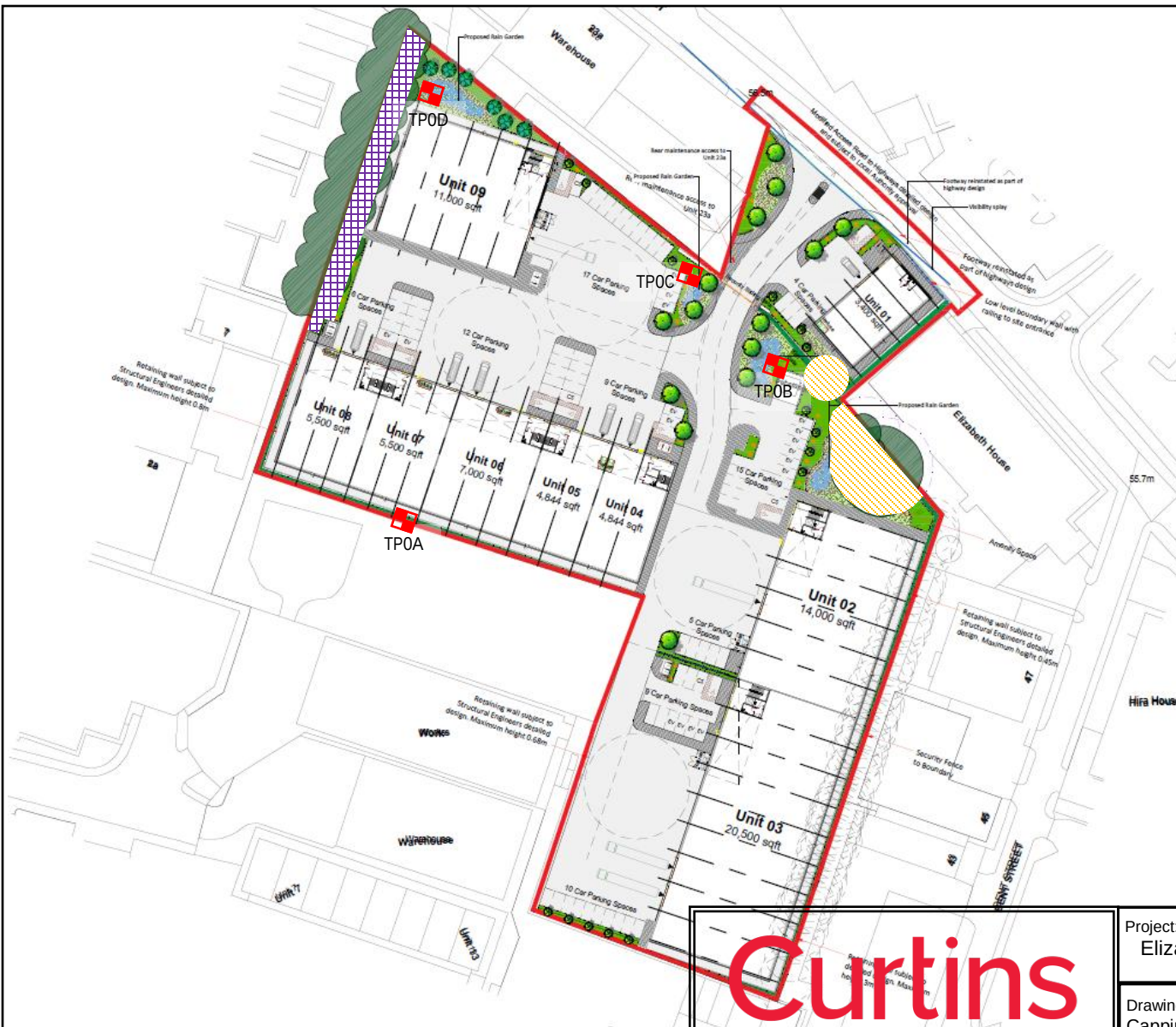
In the soft landscaping areas validated, the Potential Pollutant Linkages, identified in Section 1.3 Table 1, no longer presents an unacceptable risk to site users and visitors, and the site may be considered suitable for use. Notwithstanding, It is recommended that this report be contained within the Site's Health & Safety File to indicate to maintenance contractor's that low concentrations of asbestos may be present within the no dig layer.

4.0 References

1. Curtins (2022) Elizabeth Street, Cheetham Hill, Phase 1 Preliminary Risk Assessment & Phase 2 Ground Investigation Report (Ref. 078695-CUR-00-XX-RP-GE-001) Dated 17th March 2022.
2. Curtins (2022) Elizabeth Street, Cheetham Hill, Remediation Strategy (Ref. 080139-CUR-00-XX-RP-GE-003) Dated 27th September 2022.

Appendices

Appendix A – Drawings



Key:



Engineered capping in this area to comprise strip and removal of existing soils followed by placement of circa 150mm clean soils.



Area not currently developable due to on going Japanese Knotweed treatment/spraying. Barkwood mulch to be placed at surface and restrictions to be put in place as part of management operations to permanently prohibit access by site personnel.



Hand excavated pit for Remediation Verification.

Notes:

- For further detail on proposals for tree root protection zones consult Curtins Remediation Strategy report.
- All other soft landscaped areas should include engineered capping layer in compliance with Curtins Remediation Strategy.

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Project:
Elizabeth Street, Cheetham Hill

Status:
DRAFT

Drawing Title: Proposals for Engineered Capping & Locations of Hand Pits for Remediation Verification

Drawn By: LW

Checked By: RA

Designed By: NF

Date: 04/08/2025

Scale: NTS

Project No: Originator: Zone: Level: Type: Discipline: Category/Number: Rev:

080139-CUR-00-XX-D-GE-010-P01

GENERAL NOTES:

Rev:	Description:	Date:	By:
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Schedule of Areas				
	GIA		GEA	
Unit 1	3,400 sqft	316 sqm	3,824 sqft	355 sqm
Total	3,400 sqft	316 sqm	3,824 sqft	355 sqm
Unit 2	14,000 sqft	1,301 sqm	14,680 sqft	1,364 sqm
FF Office @10%	1,400 sqft	130 sqm	1,532 sqft	142 sqm
Total	15,400 sqft	1,431 sqm	16,212 sqft	1,506 sqm
Unit 3	20,500 sqft	1,904 sqm	21,463 sqft	1,994 sqm
FF Office @10%	2,050 sqft	190 sqm	2,181 sqft	203 sqm
Total	22,550 sqft	2,094 sqm	23,644 sqft	2,197 sqm
Unit 4	4,844 sqft	450 sqm	5,206 sqft	484 sqm
Intermediate Landing	277 sqft	26 sqm	319.6 sqft	30 sqm
Mezzanine	1,086 sqft	101 sqm	1,214 sqft	113 sqm
Total	6,207 sqft	577 sqm	6,740 sqft	626 sqm
Unit 5	4,844 sqft	450 sqm	5,080 sqft	472 sqm
Intermediate Landing	226.8 sqft	21 sqm	248.6 sqft	23 sqm
Mezzanine	1,086 sqft	101 sqm	1,185 sqft	110 sqm
Total	6,157 sqft	572 sqm	6,514 sqft	605 sqm
Unit 6	7,000 sqft	650 sqm	7,311 sqft	679 sqm
Intermediate Landing	226.8 sqft	21 sqm	247.4 sqft	23 sqm
Mezzanine	1,569 sqft	146 sqm	1,705 sqft	158 sqm
Total	8,796 sqft	817 sqm	9,264 sqft	861 sqm
Unit 7	5,500 sqft	511 sqm	5,813 sqft	540 sqm
Intermediate Landing	226.8 sqft	21 sqm	247.4 sqft	23 sqm
Mezzanine	1,249 sqft	116 sqm	1,357 sqft	126 sqm
Total	6,976 sqft	648 sqm	7,417 sqft	689 sqm
Unit 8	5,500 sqft	511 sqm	5,974 sqft	555 sqm
Intermediate Landing	226.8 sqft	21 sqm	247.4 sqft	23 sqm
Mezzanine	1,249 sqft	116 sqm	1,395 sqft	130 sqm
Total	6,976 sqft	648 sqm	7,617 sqft	708 sqm
Unit 9	11,000 sqft	1,022 sqm	11,743 sqft	1,091 sqm
FF Office@10%	1,100 sqft	102 sqm	1,231 sqft	114 sqm
Total	12,100 sqft	1,124 sqm	12,974 sqft	1,205 sqm
TOTAL	88,558 SQFT	8,227 SQM	94,205 SQFT	8,752 SQM
SITE AREA	4.9 ACRES	20,000 SQM		
DENSITY		41.1%		

Parking Allocation						
	Cycle Spaces	Sheffield Hoops	EV	Car Parking DDA	Standard	Car Share
Unit 1	6	3	/	1	3	-
Unit 2	10	5	6	1	13	1
Unit 3	10	5	4	1	14	1
Unit 4	2	1	2	1	-	1
Unit 5	2	1	2	1	2	1
Unit 6	4	2	2	1	2	1
Unit 7	4	2	2	1	2	1
Unit 8	4	2	2	1	2	1
Unit 9	8	4	4	1	12	1
Total	50	25	24	9	50	8
Parking Spaces (inc EV,DDA & CS)					TOTAL 88	

Proposed Site Plan

1 : 500



General Notes

Do not scale from this drawing. Only work to written dimensions.

All site dimensions shall be verified by the Contractor on site prior to commencing any works.

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Development Site Boundary
(Site Area: 4.9 Acres)

- Tree to be removed
- Tree Root Protection Area/ Tree to be retained
- Paladin Fencing
- Low Boundary Wall
- Concrete finish in Service Yard
- Tarmac Finish - Road
- Tarmac Finish - Parking
- Tarmac Finish - Pavements
- Soft Landscaping

PARKING:

EV - Electric Vehicle space
CS - Car Share space

For further details, also refer to:
• Landscape Architect's Design for Soft Landscaping
• Civil Engineer's Design for Hard Landscaping

C3	Parking numbers amended	10.01.24	ME	BB
C2	Car Share spaces added / amended. Parking allocation table amended.	11.12.23	ME	BB
C1	First Construction Issue	25.05.23	ME	ME
P5	Flag paving omitted. Footpath finishes changed to tarmac	06.04.23	ME	BB
P4	Acoustic & timber fence to west boundary	13.10.22	NP	MC
P3	Addition of retaining walls and updated area schedule	20.06.22	NP	BB
P2	Low boundary wall to entrance	16.05.22	NP	BB
P1	Tender Issue	15.06.22	NP	MC
Rev.	Description	Date	ISS	APP

Scale: As indicated @ A1
Status: A - Construction
Drawn By: NP
Checked By: MC
Date: May 2022

Kier Property

Project: Elizabeth Street, Cheetham Hill
Manchester

Sheet Name:

Proposed Site Plan

Project No. Orig. Zone Level Type Role Cls Dwg No. Rev
21039-FRA-XX-XX-DR-A-10-0003 C3

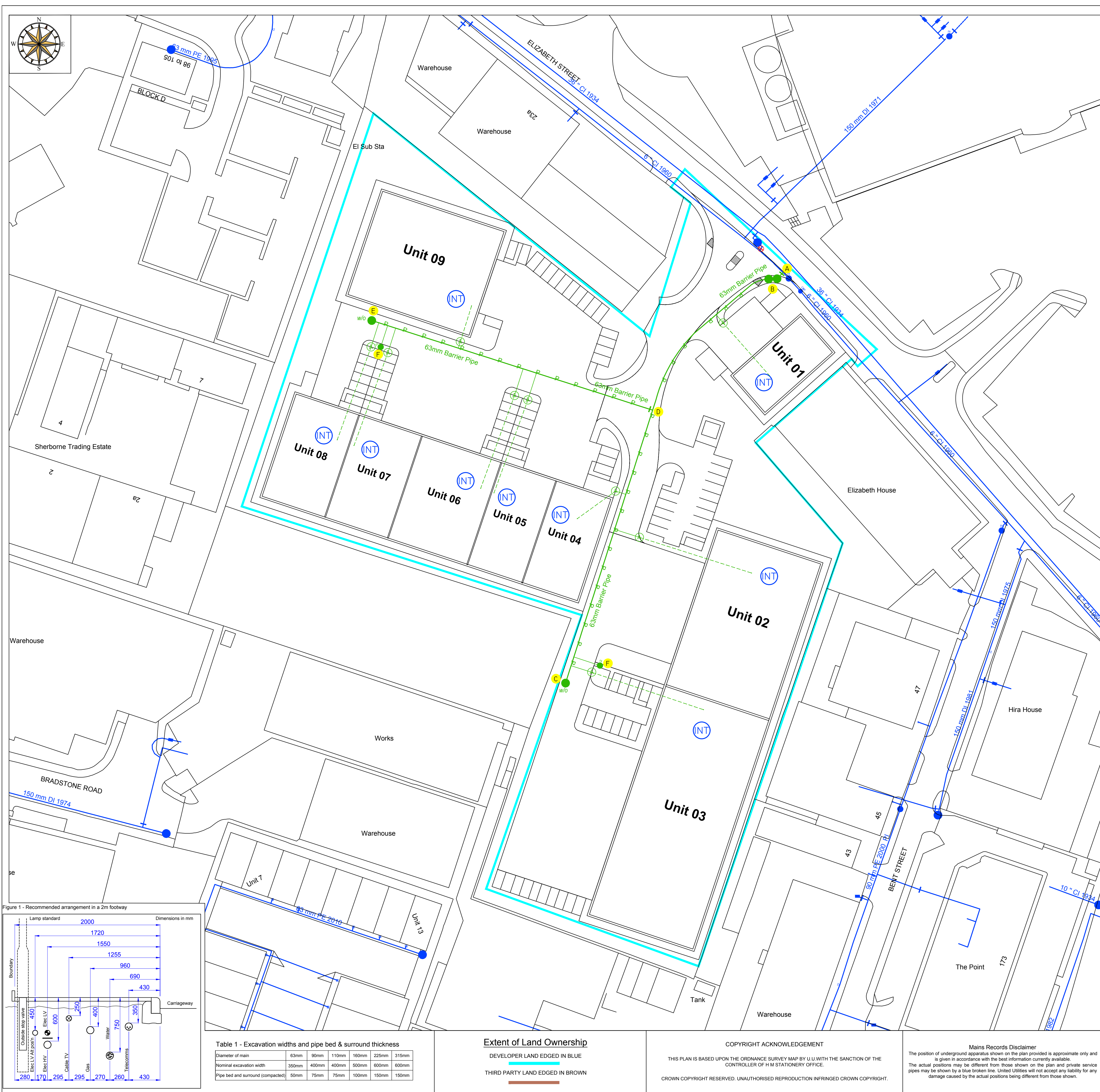
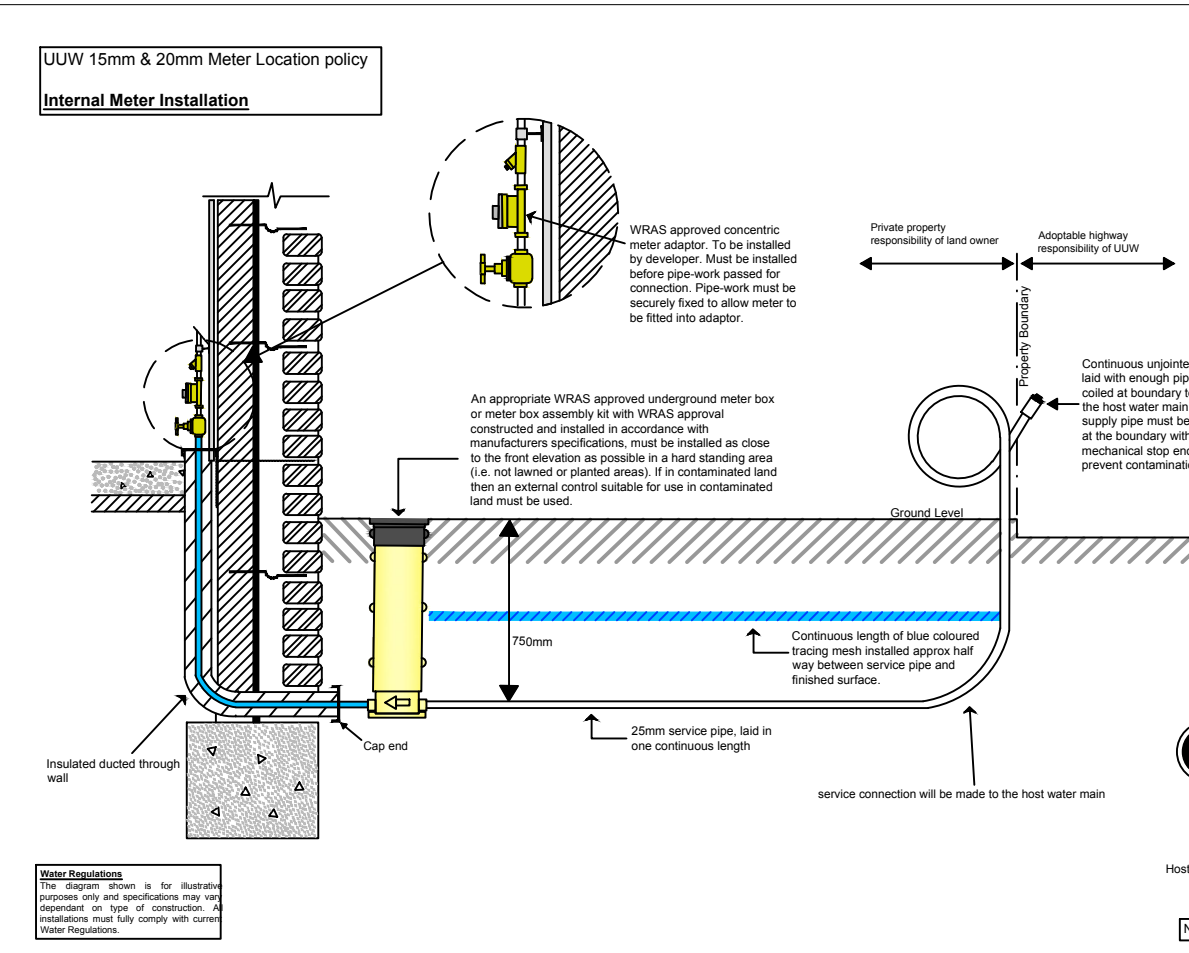
HORIZON

fletcher-rae

Level 12, Tower 12, 18-22 Bridge Street, Manchester, M3 3BZ

t +44 (0) 161 242 1140
w www.fletcher-rae.com
e info@fletcher-rae.com

AG 300725



NETWORK ASSEMBLIES	
Point	Description
A	Install 63mm 1 Valve Branch from existing 6" CI main in Elizabeth Street with 2m x 63mm BP Mains (Surf)
B	Install 63mm x 63mm BP Piece Up
B - C	Lay approx 125m x 63mm BP mains (Unsurf)
C	Install End Wash Out
D	Install 63mm 2 Valve Branch on newly installed 63mm BP Mains on site (Unsurf)
D - E	Lay approx 88m x 63mm BP mains (Unsurf)
E	Install End Wash Out
F	Fire Hydrant(s) being installed by developer
Number of Commercial Plots: 9	
Which Plots are Commercial: Units 1-9inc.	
Number of Domestic Plots: 0	
Which Plots are Domestic: N/A	
Total Number of Plots: 9	

Laying your new water pipe	
*If you are laying more than one service pipe please leave a minimum of 350mm between each pipe laid.	
*Pipes of all sizes must remain intact and sealed off at boundary with a mechanical watertight stop end and clearly marked or labelled with the number of the property which they serve.	
*All work carried out should comply with 'Water Regulations'	
*All underground services must be flushed in accordance with BS EN 806. An approved stop valve and drain tap should be fitted internally at the point of entry to the building and remain closed after any flushing, testing and disinfection.	
All services and meters from new and existing mains to be installed by United Utilities Water plc.	
All Service pipes to be 25mm with 15mm AMR meters unless stated otherwise.	

Metering (AMR)	
Your new connections will have Internal AMR meters fitted (Automated Meter Reader), please refer to the AMR meter diagram on your drawing which provides details on how to configure your pipe work for an AMR meter installation.	
Please refer to our web page for information on sourcing the materials required	

Service Pipe inspections (25mm & 32mm)	
We have to approve your pipe work before the connection can be carried out or alternatively for 25mm & 32mm connections you may submit a 'water industry approved plumber' (WIAFIS) certificate. To avoid delays, please phone us when your pipe work is ready to be inspected. You usually need to give us 5 days' notice.	
If we have to re-inspect pipework following a failed inspection a re-inspection charge will apply as per our current charges.	

Contaminated land	
As the site has been shown to have a degree of contamination present, our proposals involve the laying of mains and/or services using an approved barrier pipe system which will protect water supplies from ingress of any contaminants.	
All pipes and fittings to be installed by UJW and the Developer must be installed in accordance with the manufacturer's specification to form a complete approved barrier pipe system	
Liquid free phase product (e.g. oil or free solvent layers) shall not remain in the ground or groundwater in the vicinity of water pipes, whether barrier pipe or any other pipe materials are used.	

Infrastructure Allowances	
An allowance of 0 infrastructure credits have been applied to this site. Please note this allowance may expire if the quotation for the new mains is not accepted.	

Rev A: 09/01/2024(SB/AW) Fire hydrants added as developer is installing them.

LEGEND	
MAIN EXISTING	—
MAINS TO BE ABANDONED	— A — A — A —
MAINS PROPOSED	— P — P — P —
PROPOSED COMMUNICATION PIPE	—
PROPOSED SUPPLY PIPE	—
DUCT PROPOSED	—
VALVE	—
FIRE HYDRANT/WASHOUT	— FH/WO —
DIAMETER CHANGE	—
POINT OF DELIVERY FOR SERVICE - BOUNDARY METER	—
POINT OF DELIVERY FOR SERVICE - AMR METER	—
AMR Internal Meters in Multi occupancy premise	—
AMR Internal meter	—
AMR Wall mounted meter box	—
AMR In wall meter box	—
ABANDONED MAINS	—

Break Tank and Pumped System/Storage	
If your development is above 2 storeys high we suggest that, in order to provide a suitable water supply to this development you should include a break tank and pumped system. You are also recommended to install storage facilities equivalent to half day's normal usage	

Foul Sewerage Details.	
Please note that ALL plots are to be connected to a United Utilities sewer for foul sewerage.	
Surface Water Details.	
Please note that ALL plots are to be connected to a United Utilities sewer for surface water.	

Zone of Interest	
Please be aware: This work may be in a "Zone of Interest". United Utilities may need to obtain information from the National Grid on things such as: other utilities in the area, possible underground cables and gas lines. It may result in delays with the work, however you will be advised if this is the case from our field operatives once they receive the work pack from our office team.	

Abortive visit charges:	
If we are unable to start/complete work due to site not being ready due to obstruction preventing work i.e. scaffolding, skips etc or we are asked to re-attend we will apply an abortive visit charge as per our current charges.	

Backflow Protection	
Please note it is the responsibility of the installer, user, owner, or occupier, to ensure the plumbing system complies with The Water Supply (Water Fittings) Regulations 1999. This will usually involve the installation of backflow protection at various points within the premises. In addition, for non-domestic water use or where the use of the building is unclear at the time of application extra backflow protection is required. Typically, a double check valve is required in a suitable chamber at the boundary, or immediately after the main stop valve inside the premises (risk assessment required). Higher Level protection than that mentioned here may be required if the ultimate use of any premises presents a higher risk. This also applies to domestic premises with high risk systems such as rain water harvesting. Again, a double check valve should be installed immediately after the incoming stop tap in addition to the other associated requirements for those systems. Additional servicing valves and drain off points should be installed within the property where applicable and as required by the Water Supply (Water Fittings) Regulations 1999. Please Note: was approved or equivalent as a backflow prevention device	

Project Code:

Site Contact :	Simon De Wett: 07572 433173
Developer :	Triton Construction Limited
Development :	Elizabeth Street, Manchester, M8 8JJ
CASE NO:	04805926
Designer :	Alison Webster
Drawn By :	Stephen Blackburn
Date :	30/11/2023
Scales :	1:500 @ A1
O.S. Grid Ref :	384214, 400235. (SD 84214 00235)

UNITED UTILITIES WATER LTD
DEVELOPER SERVICES
2nd Floor Grasmere House,
Lingley Mere Business Park,
Lingley Green Avenue,
Great Sankey,
Warrington,
WA5 3LP.



Appendix B – Photographic Record

Page Number:	1
Location:	TP0A
Notes:	Wider location of TP0A



Page Number:	2
Location:	TP0A
Notes:	Soil depth of TP0A



Page Number:	3
Location:	TP0B
Notes:	Wider location of TP0B



Page Number:	4
Location:	TP0B
Notes:	Soil depth of TP0B



Page Number:	5
Location:	TP0C
Notes:	Wider location of TP0C



Page Number:	6
Location:	TP0C
Notes:	Soil depth of TP0C



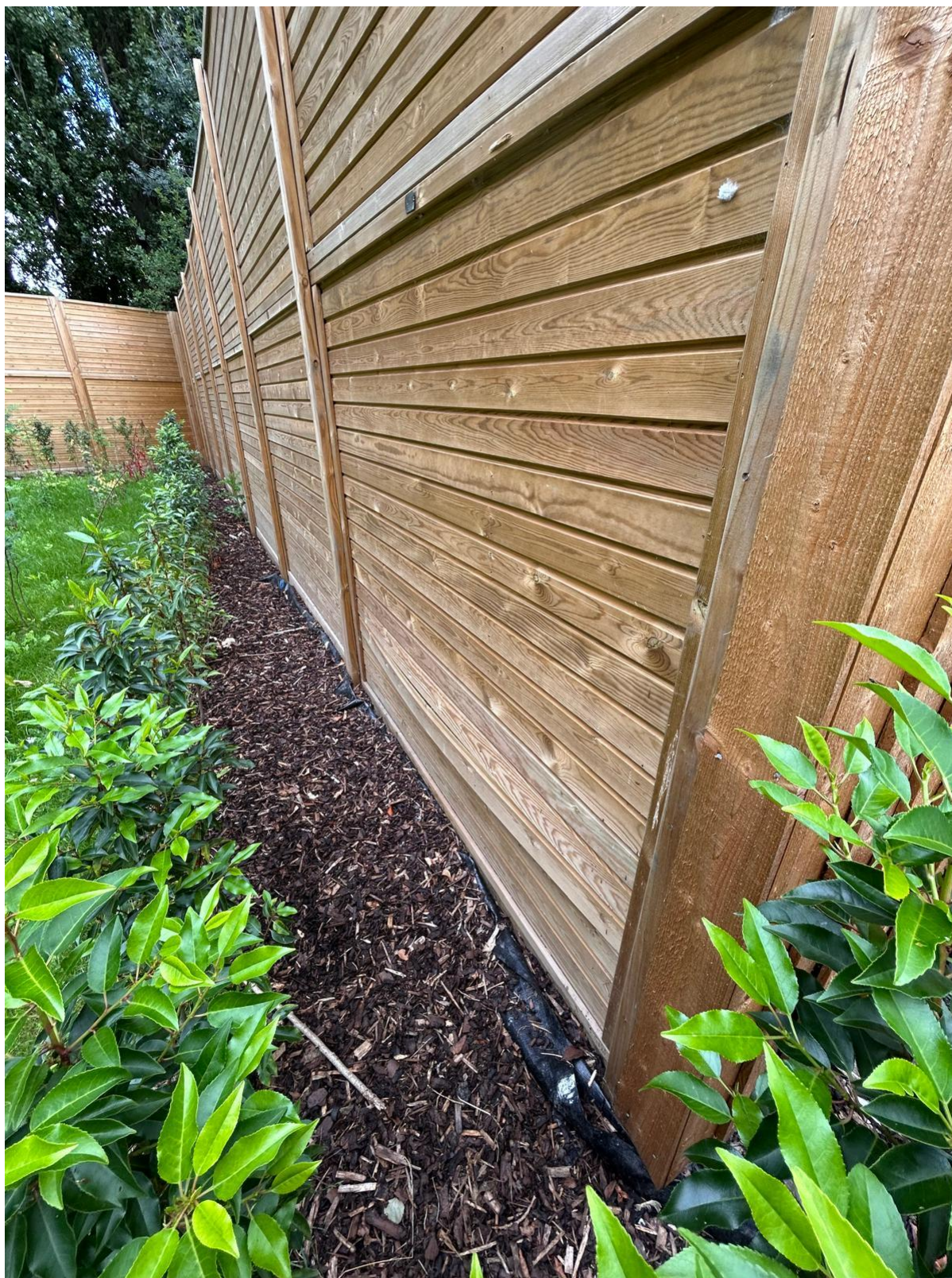
Page Number:	7
Location:	TP0D
Notes:	Wider location of TP0D



Page Number:	8
Location:	TP0D
Notes:	Soil depth of TP0D



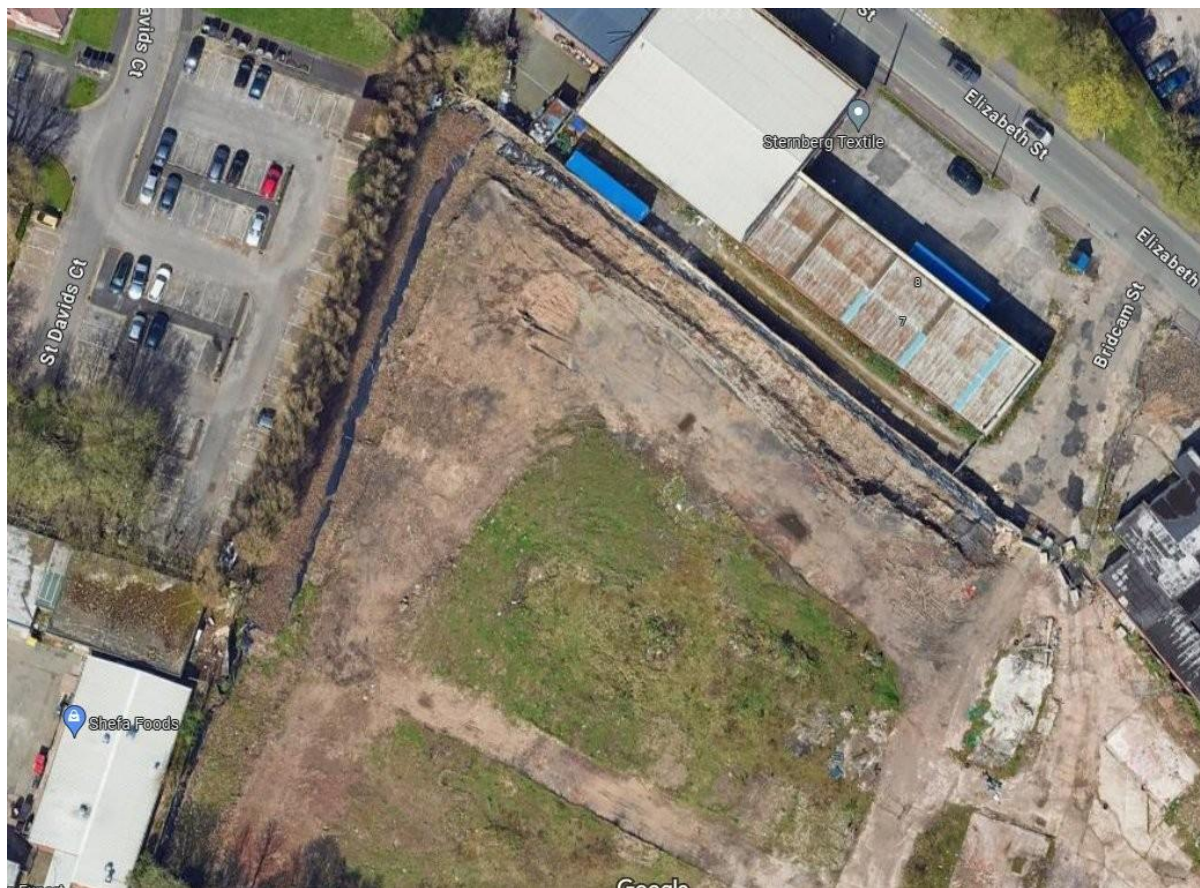
Page Number:	9
Location:	North-west of the site
Notes:	Photo of the Prohibitive Access Fence barrier with black visqueen



Page Number:	10
Location:	
Notes:	Photos of the Wider Site



Page Number:	1
Location:	Unit 9 Area
Notes:	Knotweed Barrier



Page Number:	2
Location:	
Notes:	Ground Remediated to Lower Areas



Page Number:	3
Location:	
Notes:	Capping taken over Planter Bed to left side



Page Number:	4
Location:	
Notes:	Planting bed Unit 2-3



Page Number:	5
Location:	
Notes:	Rear Planting Bed Units 2 – 3



Thu 14 Mar 2024 11:54

Page Number:	6
Location:	
Notes:	Unit 4 – 8 Planter Dig



Page Number:	7
Location:	
Notes:	Unit 9 Planter Depth



Page Number:	8
Location:	
Notes:	Rain Garden installation



Page Number:	9
Location:	
Notes:	Rain Garden installation



Page Number:	10
Location:	
Notes:	Remediated Ground at the Retaining Walls



Page Number:	11
Location:	
Notes:	Remediated Ground taken to Boundary



Page Number:	12
Location:	
Notes:	Non-developable Area (Exclusion Zone) Installation of membrane and Installation of barrier fence.



Page Number:	13
Location:	
Notes:	Installation of Protectaline Barrier Pipe



Page Number:	14
Location:	
Notes:	Installation of Protectaline Barrier Pipe (United Utilities)



080139-CUR-XX-XX-T-GE-00006

Elizabeth Street, Cheetham Hill

Phase 4 Validation Report

Curtins

Appendix C – Imported Soil Analysis



Freeland Horticulture Ltd
Rosedale Nursery
College Road
Hextable
Kent BR8 7LT

Attention: Philippa Lambourne

Our Ref: SLC-1253-SA

19 March 2024

Dear Philippa

Topsoil Analysis Report: Astley, Greater Manchester Topsoil March 2024

We have completed the analysis of the topsoil sample recently taken from the above site and it has been forwarded to an approved laboratory for analysis and have the pleasure of reporting our findings. The purpose of the analysis was to determine the suitability of the topsoil for general landscaping purposes and its compliance with the current British Standard for topsoil (BS3882).

SOIL SAMPLING & EXAMINATION

At the time of our sampling visit the topsoil was stored in a stockpile. A series of 10 hand augered trial holes were constructed across the stockpile for the purpose of soil examination and sample collection. As the soil examination confirmed a consistent topsoil composition, the ten samples were combined together to form one composite sample for analysis purposes. The soil was described as dark brown, slightly moist and friable with a well-developed, fine to medium granular structure. The soil contained a low fraction of small stones and no deleterious materials (eg. building waste materials, glass, roots or rhizomes of pernicious weeds) or unusual odours (eg. hydrocarbons) were recorded.

LABORATORY ANALYSIS

The topsoil sample was submitted to a UKAS and MCERTS accredited laboratory for routine physical and chemical parameters to confirm the composition and fertility of the soil. The following parameters were determined:

- ⊕ pH & electrical conductivity values;
- ⊕ major plant nutrients (N, P, K, Mg) & organic matter content;
- ⊕ particle size distribution and stone content;
- ⊕ heavy metals & potentially toxic elements (As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn, B);
- ⊕ sulphate, sulphur, sulphide;
- ⊕ total cyanide and total (mono) phenols;
- ⊕ speciated PAHs (US EPA16)
- ⊕ banded aromatic and aliphatic petroleum hydrocarbons (C₅-C₃₅).
- ⊕ Asbestos

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

Phone: 01322 619161;

Freeland horticulture Ltd, Registered in England: Rosedale Nursery, College Road, Hextable, Kent BR8 7LT
Company Registration No: 04015968

COMMENTS**pH & Electrical Conductivity (salinity) Values**

The sample was alkaline in nature (pH 8.5) with a pH value that would be considered suitable for general landscaping purposes.

The electrical conductivity (salinity) value using the soil:water extract was (812 μ S/cm) indicating that soluble salts are not present at levels that would be harmful to plants.

The electrical conductivity values by CaSO₄ extract (BS3882 requirement) fell below the maximum specified value (3300 μ S/cm) given in BS3882:2015.

Organic Matter & Nutrient Status

The sample was rich in organic matter and all major plant nutrients. No further additions of compost or fertiliser are required, or indeed recommended, for at least the first growing season.

The C:N ratio of the sample was acceptable for general landscape purposes.

Particle Size Distribution & Stone Content

The sample contained 79% sand and fell into the sandy loam texture class. This particle size distribution is considered suitable for a broad range of landscape applications, including tree and shrub planting, turfing and seeding.

The sample was Virtually free from stones of 50 mm and upwards in diameter and only contained a slight fraction of smaller stones (0.2%). As such, stones will not restrict the use of the soil for landscaping purposes.

Potential Contaminants

We are not aware of any specified contaminant levels set for the proposed end-use of this topsoil. This includes human health, environmental protection and metals considered toxic to plants. In the absence of any site-specific assessment criteria, the concentrations that affect human health have been compared with the 'residential with homegrown produce' land use in the Suitable For Use Levels presented in 'The LQM/CIEH S4UIs' for Human Health Risk Assessment (2015) and DEFRA SP1010: 'Development of Category 4 Screening Levels' for Assessment of Land Affected by Contamination – Policy Companion Document (2014).

Of the potential contaminants determined, none was found at levels that would exceed their respective guideline values.

CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil for general landscaping purposes. From the soil examination and laboratory analysis, the soil is described as an alkaline, non-saline, sandy loam. The organic matter and nutrient levels are acceptable, and no significant contamination was found with respect to the parameters determined. This soil would adhere to the current BS3882 specification for 'multipurpose grade'.

To conclude, based on our findings, the topsoil would be considered well-suited to general landscaping purposes provided the physical condition of the soil is maintained.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if you have any queries or comments.

George Longmuir MSc Soil Sci. M.I Soil Sci.

Client	Freeland Horticulture Ltd
Job Name	Topsoil Analysis
Site	Astley, Greater Manchester
Month/Year	March 24
Our Ref	1253-SA
Date	19 March 2024

pH Value & Salinity

pH value (1:2.5 soil/water ext)	units
Electrical Conductivity (1:2.5 soil/water ext)	µS/cm
Electrical Conductivity (1:2.5 soil/CaSO4 ext)	µS/cm

Composite sample

8.5
812
2829

Organic Matter & Nutrient Status

Organic Matter (LOI)	%
Organic Carbon (Derived)	%
Total Nitrogen	%
Carbon:Nitrogen Ratio	:1
Available Phosphorus	mg/l
Available Potassium	mg/l
Available Magnesium	mg/l

5.9
3.4
0.528
6.5
40.4
980
139

Particle Size Analysis & Stones

Clay (<0.002mm)	%
Silt (0.063-0.002mm)	%
Sand (2.0-0.063mm)	%
Texture Class	UK Class

7
14
79
SandyLoam

Stones 2-20mm	% by DW
Stones 20-50mm	% by DW
Stones >50mm	% by DW

0.2
0.0
0.0

Potential Contaminants

Total Arsenic (As)	mg/kg	4.6
Total Cadmium (Cd)	mg/kg	0.85
Total Chromium (Cr)	mg/kg	17.7
Hexavalent Chromium (Cr ^{VI})	mg/kg	0.8
Total Copper (Cu)	mg/kg	20.3
Total Lead (Pb)	mg/kg	29.3
Total Mercury (Hg)	mg/kg	<0.2
Total Nickel (Ni)	mg/kg	13.8
Total Selenium (Se)	mg/kg	0.09
Total Zinc (Zn)	mg/kg	106
Total Beryllium (Be)	mg/kg	<1
Total Barium (Ba)	mg/kg	69.7
Total Vanadium (V)	mg/kg	10.4
Hot Water Soluble Boron (B)	mg/kg	1.5
Total Cyanide (CN)	mg/kg	<1
Elemental Sulphur (S)	mg/kg	15.5
Easily Liberated Sulphide (S ²⁻)	mg/kg	1.0
Water Soluble Sulphate (SO ₄ ²⁻)	mg/l	102
Total Phenols Index	mg/kg	<1
Asbestos Screen	-	N.D.

Chain of Custody requires Freeland Ticket 01322 619161

Client	Freeland Horticulture Ltd
Job Name	Topsoil Analysis
Site	Astley, Greater Manchester
Month/Year	March 24
Our Ref	1253-SA
Date	19 March 2024

Polyaromatic Hydrocarbons

Naphthalene	mg/kg	<0.05
Acenaphthylene	mg/kg	<0.05
Acenaphthene	mg/kg	<0.05
Fluorene	mg/kg	<0.05
Phenanthrene	mg/kg	0.3
Anthracene	mg/kg	<0.05
Fluoranthene	mg/kg	0.4
Pyrene	mg/kg	0.4
Benzo[a]anthracene	mg/kg	0.2
Chrysene	mg/kg	0.2
Benzo[b]fluoranthene	mg/kg	0.2
Benzo[k]fluoranthene	mg/kg	<0.1
Benzo[a]pyrene	mg/kg	0.1
Indeno[1,2,3-cd]pyrene	mg/kg	<0.1
Dibenzo[a,h]anthracene	mg/kg	<0.1
Benzo[g,h,i]perylene	mg/kg	<0.1
Total PAHs sum US EPA 16	mg/kg	1.7

Banded Petroleum Hydrocarbons

Aliphatic TPH >C ₅ -C ₈	mg/kg	<0.05
Aliphatic TPH >C ₈ -C ₉	mg/kg	<0.05
Aliphatic TPH >C ₈ -C ₁₀	mg/kg	<0.05
Aliphatic TPH >C ₁₀ -C ₁₂	mg/kg	<10
Aliphatic TPH >C ₁₂ -C ₁₈	mg/kg	<10
Aliphatic TPH >C ₁₆ -C ₂₁	mg/kg	<10
Aliphatic TPH >C ₂₁ -C ₃₅	mg/kg	39.0
Aliphatic TPH >C ₃₅ -C ₄₄	mg/kg	<12

Aromatic TPH >C ₅ -C ₇	mg/kg	<0.05
Aromatic TPH >C ₇ -C ₈	mg/kg	<0.05
Aromatic TPH >C ₈ -C ₁₀	mg/kg	<0.05
Aromatic TPH >C ₁₀ -C ₁₂	mg/kg	<10
Aromatic TPH >C ₁₂ -C ₁₈	mg/kg	<10
Aromatic TPH >C ₁₆ -C ₂₁	mg/kg	<10
Aromatic TPH >C ₂₁ -C ₃₅	mg/kg	61.0
Aromatic TPH >C ₃₅ -C ₄₄	mg/kg	47.0

Total Petroleum Hydrocarbons (C ₅ -C ₄₄)	mg/kg	147
---	-------	-----

BTEX

Benzene	mg/kg	<0.02
Toluene	mg/kg	<0.2
Ethyl Benzene	mg/kg	<0.04
m- & p- Xylene	mg/kg	<0.2
o-Xylene	mg/kg	<0.1

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 25/08417
Issue Number: 1

Date: 11 August, 2025

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

Project Manager: EBMA/Lucy Woods/Niall Farnworth
Project Name: Elizabeth Street
Project Ref: B080139
Order No: 25414
Date Samples Received: 31/07/25
Date Instructions Received: 01/08/25
Date Analysis Completed: 11/08/25

Approved by:



Danielle Brierley
Client Services Supervisor

Envirolab Job Number: 25/08417

Client Project Name: Elizabeth Street

Client Project Ref: B080139

Lab Sample ID	25/08417/1	25/08417/2	25/08417/3	25/08417/4	25/08417/5	25/08417/6	25/08417/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP0A	TP0A	TP0B	TP0B	TP0C	TP0C	TP0D			
Depth to Top	0.20	0.50	0.10	0.45	0.15	0.50	0.05			
Depth To Bottom										
Date Sampled	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AE	4ABE	4AE	4A	4ABE	4AE	4AE			
% Moisture at <40C _A	20.4	11.5	11.4	9.5	8.2	12.1	17.1	% w/w	0.1	A-T-044
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	19.4	<0.1	<0.1	% w/w	0.1	A-T-044
pH _D ^{M#}	8.06	10.41	6.95	9.47	11.27	7.88	8.14	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.47	0.56	0.07	0.28	0.08	0.04	0.14	g/l	0.01	A-T-026s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Organic Matter _D ^{M#}	5.02	6.60	1.97	4.22	4.19	4.06	5.03	% w/w	0.14	A-T-032s
Arsenic _D ^{M#}	3	4	3	7	3	2	3	mg/kg	1	A-T-024s
Boron (water soluble) _D ^{M#}	3.2	3.9	<1.0	1.5	<1.0	1.1	1.7	mg/kg	1	A-T-027s
Cadmium _D	<1.0	1.6	<1.0	<1.0	1.1	<1.0	<1.0	mg/kg	1	A-T-024s
Copper _D ^{M#}	55	197	17	88	69	15	17	mg/kg	1	A-T-024s
Chromium _D ^{M#}	13	31	10	15	13	7	7	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead _D ^{M#}	47	118	31	101	80	33	27	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	14	34	8	14	15	7	8	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	143	435	29	202	161	37	51	mg/kg	1	A-T-024s

Envirolab Job Number: 25/08417

Client Project Name: Elizabeth Street

Client Project Ref: B080139

Lab Sample ID	25/08417/1	25/08417/2	25/08417/3	25/08417/4	25/08417/5	25/08417/6	25/08417/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP0A	TP0A	TP0B	TP0B	TP0C	TP0C	TP0D			
Depth to Top	0.20	0.50	0.10	0.45	0.15	0.50	0.05			
Depth To Bottom										
Date Sampled	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AE	4ABE	4AE	4A	4ABE	4AE	4AE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	Chrysotile	NAD	NAD	NAD			A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope) _D	-	-	-	Loose Fibres	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing) _D	-	-	-	<0.001	-	-	-	% w/w	0.001	A-T-054

Envirolab Job Number: 25/08417

Client Project Name: Elizabeth Street

Client Project Ref: B080139

Lab Sample ID	25/08417/1	25/08417/2	25/08417/3	25/08417/4	25/08417/5	25/08417/6	25/08417/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP0A	TP0A	TP0B	TP0B	TP0C	TP0C	TP0D			
Depth to Top	0.20	0.50	0.10	0.45	0.15	0.50	0.05			
Depth To Bottom										
Date Sampled	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AE	4ABE	4AE	4A	4ABE	4AE	4AE			
PAH-16MS										
Acenaphthene _A ^{M#}	0.05	0.08	0.02	0.36	0.05	0.01	0.19	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.08	0.14	0.05	0.54	0.09	<0.02	0.30	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.20	0.35	0.16	1.51	0.34	0.14	0.47	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.16	0.29	0.16	1.49	0.44	0.14	0.37	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.18	0.32	0.18	1.47	0.46	0.19	0.36	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.10	0.17	0.10	0.86	0.32	0.13	0.18	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	0.11	<0.07	0.54	0.16	<0.07	0.13	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.21	0.42	0.20	1.68	0.39	0.18	0.49	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	0.21	0.07	<0.04	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.48	0.86	0.34	3.39	0.64	0.15	1.27	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.04	0.06	0.02	0.32	0.04	<0.01	0.16	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.11	0.18	0.11	0.87	0.32	0.14	0.23	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	0.15	0.08	<0.03	0.13	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.38	0.59	0.20	2.50	0.37	0.09	1.30	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.43	0.80	0.34	3.48	0.65	0.15	1.09	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	2.42	4.37	1.88	19.4	4.42	1.32	6.67	mg/kg	0.01	A-T-019s

Envirolab Job Number: 25/08417

Client Project Name: Elizabeth Street

Client Project Ref: B080139

Lab Sample ID	25/08417/1	25/08417/2	25/08417/3	25/08417/4	25/08417/5	25/08417/6	25/08417/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP0A	TP0A	TP0B	TP0B	TP0C	TP0C	TP0D			
Depth to Top	0.20	0.50	0.10	0.45	0.15	0.50	0.05			
Depth To Bottom										
Date Sampled	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25	30-Jul-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AE	4ABE	4AE	4A	4ABE	4AE	4AE			
TPH CWG with Clean Up										
Ali >C5-C6 _A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	1	<1	2	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	4	3	<1	4	2	2	2	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	31	28	7	31	18	14	19	mg/kg	1	A-T-055s
Total Aliphatics _A	35	33	7	38	20	16	22	mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	2	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	5	3	<1	10	2	1	2	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	14	10	2	42	4	7	10	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	26	24	8	107	15	13	22	mg/kg	1	A-T-055s
Total Aromatics _A	45	37	10	162	21	20	34	mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	80	70	17	200	41	36	55	mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 25/08417

Client Project Name: Elizabeth Street

Client Project Ref: B080139

Lab Sample ID	25/08417/8							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP0D									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	30-Jul-25									
Sample Type	SOIL									
Sample Matrix Code	4AE									
% Moisture at <40C _A	14.8							% w/w	0.1	A-T-044
% Stones >10mm _A	13.2							% w/w	0.1	A-T-044
pH _D ^{M#}	8.78							pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.21							g/l	0.01	A-T-026s
Cyanide (total) _A ^{M#}	<1							mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2							mg/kg	0.2	A-T-050s
Organic Matter _D ^{M#}	4.10							% w/w	0.14	A-T-032s
Arsenic _D ^{M#}	8							mg/kg	1	A-T-024s
Boron (water soluble) _D ^{M#}	2.4							mg/kg	1	A-T-027s
Cadmium _D	1.7							mg/kg	1	A-T-024s
Copper _D ^{M#}	194							mg/kg	1	A-T-024s
Chromium _D ^{M#}	18							mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1							mg/kg	1	A-T-040s
Lead _D ^{M#}	205							mg/kg	1	A-T-024s
Mercury _D	<0.17							mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	26							mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1							mg/kg	1	A-T-024s
Zinc _D ^{M#}	443							mg/kg	1	A-T-024s

Envirolab Job Number: 25/08417

Client Project Name: Elizabeth Street

Client Project Ref: B080139

Lab Sample ID	25/08417/8							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP0D									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	30-Jul-25									
Sample Type	SOIL									
Sample Matrix Code	4AE									
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD									A-T-045
Asbestos Matrix (visual) _D	-									A-T-045
Asbestos Matrix (microscope) _D	-									A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A									A-T-045

Envirolab Job Number: 25/08417

Client Project Name: Elizabeth Street

Client Project Ref: B080139

Lab Sample ID	25/08417/8							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP0D									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	30-Jul-25									
Sample Type	SOIL									
Sample Matrix Code	4AE									
PAH-16MS										
Acenaphthene _A ^{M#}	0.97							mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	0.04							mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	1.46							mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	2.03							mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	1.52							mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	1.51							mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.73							mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.58							mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	2.01							mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	0.20							mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	5.65							mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.84							mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.80							mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	0.57							mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	6.42							mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	5.20							mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	30.5							mg/kg	0.01	A-T-019s

Envirolab Job Number: 25/08417

Client Project Name: Elizabeth Street

Client Project Ref: B080139

Lab Sample ID	25/08417/8									
Client Sample No										
Client Sample ID	TP0D									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	30-Jul-25									
Sample Type	SOIL									
Sample Matrix Code	4AE									
TPH CWG with Clean Up										
Ali >C5-C6 _A	<0.01							mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	<0.02							mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1							mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1							mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	2							mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	4							mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	41							mg/kg	1	A-T-055s
Total Aliphatics _A	47							mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01							mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01							mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1							mg/kg	1	A-T-055s
Aro >C10-C12 _A	1							mg/kg	1	A-T-055s
Aro >C12-C16 _A	8							mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	38							mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	86							mg/kg	1	A-T-055s
Total Aromatics _A	132							mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	179							mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01							mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01							mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01							mg/kg	0.01	A-T-022s

Report Notes

General

- This report shall not be reproduced, except in full, without written approval from Envirolab.
- The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
- The results reported herein relate only to the material supplied to the laboratory.
- The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
- Analytical results reflect the quality of the sample at the time of analysis only.
- Opinions and Interpretations expressed are outside our scope of accreditation.
- A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
- If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
- Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript “#”	Accredited to ISO 17025
Superscript “M”	Accredited to MCertS
Superscript “U”	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript “A”	Analysis performed on as-received Sample
Subscript “D”	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript “D” on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript “A”	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

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

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

“Trace Asbestos Identified” will be reported if there is not enough present to verify the type.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

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

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

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

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

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.

Results “with Clean up” indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.

Where these humic substances have been identified in any IDs from “TPH CWG with clean up” please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

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

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

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client:	Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG	Project No:	25/08417
Project:	Elizabeth Street	Date Received:	01/08/2025 (am)
Clients Project No:	B080139	Cool Box Temperatures (°C):	15.3, 15.2

NO DEVIATIONS IDENTIFIED

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

Envirolab Analysis Dates

Lab Sample ID	25/08417/1	25/08417/2	25/08417/3	25/08417/4	25/08417/5	25/08417/6	25/08417/7	25/08417/8
Client Sample No								
Client Sample ID/Depth	TP0A 0.20m	TP0A 0.50m	TP0B 0.10m	TP0B 0.45m	TP0C 0.15m	TP0C 0.50m	TP0D 0.05m	TP0D 0.40m
Date Sampled	30/07/25	30/07/25	30/07/25	30/07/25	30/07/25	30/07/25	30/07/25	30/07/25
A-T-019s	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025
A-T-022s	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025
A-T-024s	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025
A-T-026s	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025
A-T-027s	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025
A-T-031s	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025
A-T-032s	07/08/2025	07/08/2025	07/08/2025	07/08/2025	11/08/2025	11/08/2025	11/08/2025	11/08/2025
A-T-040s	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025
A-T-042sTCN	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025
A-T-044	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025
A-T-045	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025
A-T-050s	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025
A-T-054				06/08/2025				
A-T-055s	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	07/08/2025	07/08/2025
Calc-As Recd	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025	07/08/2025

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

End of Report

080139-CUR-XX-XX-T-GE-00006

Elizabeth Street, Cheetham Hill

Phase 4 Validation Report

Curtins

Appendix D – Generic Assessment Criteria

Human Health GQRA Rationale and Hierarchy

Background

Detailed guidance on human health risk assessment is available within several documents, published by both the Environment Agency, Defra, CL:AIRE, LQM/CIEH and Public Health England as referenced below (references a-h).

A Generic Quantitative Risk Assessment (GQRA) is carried out for the Potential Contaminant Linkages (PCLs) investigated by screening of soil contamination data against relevant Generic Assessment Criteria where available.

Generic Assessment Criteria are available for a range of different land use scenarios, soil organic matter (SOM) and soil types. Curtins have adopted available GACs for a sandy loam soil at 1%, 2.5% and 6% SOM using various sources.

GAC Hierarchy

A summary of and hierarchy for adopted GACs is identified below:

- i) **Category 4 Screening Levels (C4SLs):** In March 2014 Defra published C4SLs for arsenic, benzene, benzo(a)pyrene, cadmium, hexavalent chromium, and lead as part of the 'Phase 1 Project'. These values were derived to support the revised Part 2A Statutory Guidance issued in 2012 in which four categories of contaminated land are included, ranging from Category 1 (significant/high risk) to Category 4 (low risk). In 2018 the 'Phase 2 Project' commenced which aims to develop C4SLs for a range of further contaminants. Currently available Phase 2 C4SLs include vinyl chloride, trichloroethene, tetrachloroethene, naphthalene, cis-1,2 dichloroethene, trans 1, 2 dichloroethene and per / polyfluoroalkyl substances (PFAS). Where contaminant concentrations do not exceed C4SLs, there is no risk that the land poses a significant possibility of significant harm (SPoSH) or the level of risk is low, as such land can be demonstrated to be in Category 4 and cannot be determined as contaminated land. The C4SLs are proposed to be more pragmatic (whilst still strongly precautionary) in comparison with SGVs and S4UL's outlined below.
- ii) **Suitable for Use Levels (S4ULs):** In 2015 LQM and the Chartered Institute of Environmental Health published generic assessment criteria for 89 substances including metals, BTEX, TPH, polycyclic aromatic hydrocarbons, phenols, chlorinated solvents and other volatile organic compounds. The S4ULs represent a minimal risk to long term human health, derived using health criteria values. The methodology for deriving the S4ULs is based on the Environment Agency CLEA model with consideration of developments in UK human health exposure assessment, in particular the additional land uses and exposure assumptions.
- iii) **Other Supplementary Screening Criteria:** In addition to those developed by LQM/CIEH (outlined above), other third party organisations have derived SSVs for a wider range of contaminants and land uses using the CLEA Model. Curtins have adopted these numbers where applicable, including those developed EIC/AGS/CL:AIRE and SoBRA published thresholds.

Alternative Assessment Approaches

PAH – Benzo(a)pyrene Surrogate Marker Assessment

In September 2017 Public Health England (PHE) (Ref. h) published guidance for the use of a surrogate marker approach to assess the risk posed by soil contamination with the genotoxic polycyclic aromatic hydrocarbons (PAHs). The guidance indicates that the use of a marker compound, such as Benzo(a)pyrene, provides a consistent indicator of the amount of 7 other genotoxic PAHs commonly tested for in soil including benz(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, indeno(123cd)pyrene and benzo(ghi)perylene.

Where PAH concentrations of these 8 no. PAHs are present within pre-determined ratios in soil, provided in the guidance, this approach is used, comparing soil concentrations of the marker compound with a Category 4 Screening Level, or site specific assessment criteria. An individual compound assessment is carried out for other PAH compounds not considered in the PHE guidance.

An individual compound assessment is carried out for all PAH compounds where pre-determined ratios are not met for the surrogate marker approach.

Notes

Curtins Generic Assessment Criteria provide further information and notes to be read in conjunction with this assessment rationale.

Human Health GQRA Rationale and Hierarchy



References

- a) Environmental Agency. (2009) Contaminated Land Exposure Assessment (CLEA) v1.071 model.
- b) Environment Agency. (2009) Human Health Toxicological Assessment of Contaminants in Soil (report no. SC050021/SR2).
- c) Environment Agency. (2009) Updated Technical Background to the CLEA Model (report no.SC050021/SR3).
- d) Environment Agency (2005) The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils Science Report P5-080/TR3.
- e) Department of Environment Food and Rural Affairs (DEFRA). (2012) Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (report no. PB13735).
- f) CL:AIRE (2014) Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, SP1010 Rev 2.
- g) LQM & CIEH (2015) S4ULs for Human Health Risk Assessment.
- h) Public Health England (2017) Contaminated Land Information Sheet: Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)

Contaminants	Residential with Home Grown Produce	Residential Without Home Grown Produce	Allotments	Commercial	Public open space (Residential)	Public park POS _{park}	Solubility Saturation Limit (mg/kg)	Vapour Satuation Limit (mg/kg)
Metals, Semi-Metals & non-metals								
Antimony		550		7500				
Arsenic	37	40	49	640	79	170		
Beryllium	1.7	1.7	35	12	2.2	63		
Boron	290	11000	45	240000	21000	46000		
Cadmium	22	150	3.9	410	220	880		
Chromium III	910	910	18000	8600	1500	33000		
Chromium VI	21	21	170	49	21	250		
Copper	2400	7100	520	68000	12000	44000		
Lead	200	310	80	2300	630	1300		
Mercury (elemental)	1.2	1.2	21	58	16	30		25.8
Mercury (inorganic)	40	56	19	1100	120	240		
Methylmercury	11	15	6	320	40	68		
Nickel	130	180	53	980	230	800		
Selenium	250	430	88	12000	1100	1800		
Vanadium	410	1200	91	9000	2000	5000		
Zinc	3700	40000	620	730000	81000	170000		
Inorganic Compounds								
Cyanide	24	24	24	1400	24	24		
Organic contaminants								
Aliphatic Risk Banded Hydrocarbons - TPH CWG method								
Aliphatic EC5 - EC6 TPHs	78	78	1700	5900	590000	130000	558	
Aliphatic EC>6 - EC8 TPHs	230	230	5600	17000	610000	220000	322	
Aliphatic EC>8 - EC10 TPHs	65	65	770	4800	13000	18000		190
Aliphatic EC>10-EC12 TPHs	330	330	4400	23000	13000	23000		118
Aliphatic EC>12-EC16 TPHs	2400	2400	13000	82000	13000	25000	59	
Aliphatic EC>16 - EC35 TPHs	92000	92000	270000	1700000	250000	480000	21	
Aliphatic EC>35 - EC44 TPHs	92000	92000	270000	1700000	250000	480000	21	
Aromatic Risk Banded Hydrocarbons - TPH CWG method								
Aromatic EC5 - EC7 TPHs	140	690	27	46000	56000	84000	2260	
Aromatic EC>7 - EC8 TPHs	290	1800	51	110000	56000	95000	1920	
Aromatic EC>8 - EC10 TPHs	83	110	21	8100	5000	8500		1500
Aromatic EC10 - EC12 TPHs	180	590	31	28000	5000	9700	899	
Aromatic EC12 - EC16 TPHs	330	2300	57	37000	5100	10000	419	
Aromatic EC>16 - EC21 TPHs	540	1900	110	28000	3800	7700		
Aromatic EC>21 - EC35 TPHs	1500	1900	820	28000	3800	7800		
Aromatic EC>35 - EC44 TPHs	1500	1900	820	28000	3800	7800		
Long Chain Aliphatic and Aromatic Hydrocarbons								
Aliphatic and Aromatic EC >44-70	1800	1900	2100	28000	3800	7800		
Aromatic Hydrocarbons								
Benzene	0.17	0.7	0.034	47	72	100		
Ethyl benzene	110	190	39	13000	24000	22000		1220
Toluene	290	1900	51	110000	56000	95000		1920
Xylene	130	180	67	14000	42000	23000	1120	1470
MTBE	84	120	44	13000			33100	
Phenol	550	1300	140	1500	1500	1500		
Polycyclic Aromatic Hydrocarbons (PAH) - Benzo(a)pyrene Surrogate Marker Approach, with reference to C4SL PAH Surrogate Marker Check Sheet where appropriate								
Benzo(a)Pyrene (C4SL Surrogate Marker Approach)	5	5.3	5.7	77	10	21		
Naphthalene	36	36	130	3700	15000	1200	183	
Acenaphthylene	420	4600	69	97000	15000	30000	212	
Acenaphthene	510	4700	85	97000	15000	30000	141	
Fluorene	400	3800	67	68000	9900	20000	76.5	
Phenanthrene	220	1500	38	22000	3100	6200		
Anthracene	5400	35000	950	540000	74000	150000		
Fluoranthene	560	1600	130	23000	3100	6300		
Pyrene	1200	3800	270	54000	7400	15000		
Polycyclic Aromatic Hydrocarbons (PAH) - Individual Compound Assessment								
Naphthalene	36	36	130	3700	15000	1200	183	
Acenaphthylene	420	4600	69	97000	15000	30000	212	
Acenaphthene	510	4700	85	97000	15000	30000	141	
Fluorene	400	3800	67	68000	9900	20000	76.5	
Phenanthrene	220	1500	38	22000	3100	6200		
Anthracene	5400	35000	950	540000	74000	150000		
Fluoranthene	560	1600	130	23000	3100	6300		
Pyrene	1200	3800	270	54000	7400	15000		
Benzo(a)anthracene	11	14	6.5	170	29	56		
Chrysene	22	31	9.4	350	57	110		
Benzo(b)fluoranthene	3.3	4	2.1	44	7.2	15		
Benzo(k)fluoranthene	93	110	75	1200	190	410		
Benzo(a)pyrene (only)	2.7	3.2	2	35	5.7	12		
Indeno(123cd)pyrene	36	46	21	510	82	170		
Dibenzo(ah)anthracene	0.28	0.32	0.27	3.6	0.57	1.3		
Benzo(ghi)perylene	340	360	470	4000	640	1500		
Chlorinated Aliphatic Hydrocarbons								
Chloroethene (Vinyl chloride)	0.01	0.019	0.0031	1.4	7.8	19		
1,1-Dichloroethene (DCE)	0.4	0.41	5.6	46			3940	
Cis 1,2, Dichloroethene (DCE)	0.78	0.84	1.7	64	3800	2400	6610	
Trans 1,2, Dichloroethene (DCE)	1.6	1.7	0.75	120	13000	7000	6170	
Trichloroethene (TCE)	0.02	0.02	0.072	1.5	78	54		
Tetrachlorethene (PCE)	0.7	0.71	4.8	55	3300	1900		
1,1,1,2 Tetrachlorethane	2.8	3.5	1.9	250	1400	1800		
1,1,1 Trichlorethane	18	18	110	1300	140000	76000		2915
1,2-Dichloroethane (Ethylene Dichloride)	0.18	0.24	0.1	17	210	330		
Tetrachloromethane	0.056	0.056	1	6.3	920	270		
Trichloromethane	1.7	2.1	0.83	170	2500	2800		
PFAS								
Perfluorooctanoic Acid (PFOA)	0.0076	0.041	0.0014	0.6	0.079	0.17		
Perfluorononanoic Acid (PFNA)	0.013	0.041	0.0027	0.6	0.079	0.17		
Perfluorohexane Sulfonic Acid (PFHxS)	0.0081	0.041	0.0015	0.6	0.079	0.17		
Perfluorooctane Sulfonic Acid (PFOS)	0.0073	0.041	0.0013	0.6	0.079	0.17		

- 1) All Values are in mg/kg, reported to 2 significant figures.
- 2) Numbers in bold are C4SLs, Numbers in italics are S4ULs, Numbers underlined are EIC/AGS/CL:AIRE GACs, Numbers in red are SoBRA Acute Generic Assessment Criteria.
- 3) Assumptions and key notes made when deriving the Generic Assessment Criteria are contained within the relevant guidance documents, references:
 - a) Contaminated Land: Applications in Real Environments (2014) SP1010 - Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, Final Project Report (Revision 2b)
 - b) Land Quality Management Ltd. (2015) The LQM/CIEH S4ULs for Human Health Risk Assessment.
 - c) CL:AIRE, EIC, AGS (2010) Soil Generic Assessment Criteria for Human Health Risk Assessment.
 - d) Society of Brownfield Risk Assessment (2020) Development of Acute Generic Assessment Criteria for Assessing Risks to Human Health from Contaminants in Soil.
 - e) Environment Agency (2009) Human Health Toxicological Assessment of Contaminants in Soil, Science Report - SC050021/SR2.
- 4) Generic Assessment Criteria listed in the following order of preference: C4SLs, S4ULs, CL:AIRE/AGS/EIC Generic Assessment Criteria, Other relevant Generic Assessment Criteria where GACS associated with the prioritised GACs are not available as outlined further in Curtins Rationale and Hierarchy notes.
- 5) To use Benzo(a)pyrene as a surrogate marker for PAH contamination, the assumptions set out in the relevant C4SL documentation must be met. A C4SL PAH surrogate marker checklist is appended.
- 6) Naphthalene is a volatile PAH. The C4SL values are derived on the basis of chronic exposure and risks to human health, and do not explicitly account for acute risks (e.g. a one off ingestion of a significant amount of soil by a young child) where the inhalation pathway is the main risk driver. Further consideration of the acute risk may be required in external settings (POS_{park} and POS_{resi}) where the GAC is substantially greater than the residential equivalent, to account for the possibility of acute exposure to the ingestion of naphthalene. The theoretical solubility saturation limit of naphthalene in soil is substantially lower than the GAC value, and therefore it is likely that free phase contamination would be present where the GAC is exceeded. In such a situation, it is unlikely that the product would remain in-situ untreated, and consideration of remediation / mitigation methods would be required.
- 7) Where the C4SL surrogate marker checklist indicates the PAH ratios are not suitable, individual PAH compounds must be assessed individually against the relevant contaminant specific assessment criteria.
- 8) Risk associated with additive effects of TPH contamination needs to be assessed in addition to the individual bandings, using the following equation:

$$HI = \sum HQ_i = \sum \frac{\text{Measured concentration, } Fi \text{ (mg/kg)}}{\text{Relevant GAC (mg/kg)}} Fi$$

Where:

HI = Hazard Index

HQ = Hazard Quotient

Fi = Fraction i

Where the HI > 1, there may be a risk to human health.

- 9) Exposure to all xylene isomers to be considered together. Values detailed in this table are the lowest (most conservative) of o-, m- and p- xylene isomers.
- 10) PFAS assessment also uses a hazard index approach to ensure the total exposure from all four PFAS compounds combined does not exceed the LLTC_{oral}. Where the hazard index exceeds 1, further consideration or assessment of the risk is required, even where none of the individual C4SL values are exceeded.
- 11) PFAS C4SL values are interim. The C4SL has been derived using the sum of the four PFAS compounds as the basis of the low level of toxicological concern. The term interim reflects concerns raised by the Committee on Toxicity (COT) and the fact that further work by the COT and others may result in the need for the LLTC to be updated.
- 12) Generic Assessment Criteria assume no free phase contamination is present. Where free phase contamination is present, further assessment may be required.
- 13) Solubility Saturation Limit and Vapour Saturation Limit are provided in accordance with relevant guidance documents. Where these values are exceeded, and the vapour pathway is an important contributing pathway to exposure, then the following should be considered:
 - Free phase contamination may be present
 - Exposure from vapour pathways will be over predicted.
 - Where the vapour pathway is >90% of exposure then it is unlikely that the relevant HCV will be exceeded at soil concentrations at least a factor of ten higher than the relevant HCV.

Additional assessment should be undertaken where this is the case, with consideration that:

- Exposure is unlikely to reach the relevant HCV and the risk based on the assumed conceptual model is likely to be negligible.
- Vapour pathway exposure should be calculated using algorithms suitable for free phase or NAPL sources
- Screening could be considered using the lower saturation limit, which is the approach adopted by the USEPA. However, this may not be practical in many cases because of very low limits and is in any case highly conservative.

Where the vapour pathway is the only exposure pathway considered then effective assessment criteria should be derived manually in accordance with guidance outlined in CLEA Science Report SC050021/SR4

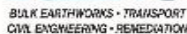
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Elizabeth Street, Cheetham Hill

Phase 4 Validation Report

Curtins

Appendix E – Jacto RAMS



Jakto Transport Ltd Oaks Lane, Stalfoot, Barnsley, S71 1HT
Tel: 01226 248090 Fax: 01226 370164 Web: www.jakto.co.uk Email: info@jakto.co.uk

PROJECT: Demolition & Siteworks

LOCATION: Elizabeth Street, Cheetham Hill

CLIENT: Triton Construction

START DATE: 30th March 2023

DURATION: 8 weeks

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1.0	SCOPE OF THE WORKS
	<p>Works will consist of the following:-</p> <ul style="list-style-type: none"> • Site Clearance • Asbestos Removal • Demolition • Breaking out and crushing on site • Formation of site roads and compound • Removal of excess spoil
2.0	PERSONNEL
	<p>All the activities carried out on site by Jakto Ltd will be supervised through our visiting manager.</p> <p><u>JAKTO Site Operatives</u> All of our site operatives are CSCS/CPCS Trained. Our operators are also trained in the operation of quick hitches, Plant Vehicle Marshalling, Slinger Signalling, and are all competent in carrying out Pre-start Plant Checks and for carrying out the weekly plant inspections for which they complete the appropriate Jakto inspection check list.</p> <p><u>JAKTO Contracts Manager</u> Mr. John Kissane – Telephone: 07976 250283 (Mobile)</p>
3.0	SITE WELFARE ARRANGEMENTS
	All site welfare arrangements are to be provided by Triton Construction Ltd.
4.0	EQUIPMENT
	20-30t Excavators 25t Articulated Dumptrucks D5 / D6 Dozers 13T ride on roller Spill Kits Drip Trays
5.0	MATERIALS
	Fuels Oils & Greases Lubricants
6.0	PERSONAL PROTECTIVE EQUIPMENT
	Safety Helmets Hi-visibility clothing Fire retardant overalls / gloves Gloves Safety boots – Toe and midsole protection Safety Glasses / Goggles Dusk masks (as required) min FF P3 Disposable overalls Ear defenders NOTE: All Hi-Visibility Clothing to be clean and un-obstructed.
7.0	PLANNING

	<p>Start date – 30th March 2023</p> <p>Duration: 8 Weeks</p> <p>Working hours - 07.30am – 17:00pm Monday – Friday</p>
8.0	TEMPORARY WORKS
	None envisaged.
9.0	WORK AREA AND ACCESS
	<p>Access to site is via the existing access situated off Elizabeth Street.</p> <p>Haul routes will be formed within the boundary of the site, these will be formed to provide safe access both for mobile plant and pedestrians.</p> <p>All lorries to site will follow a pre-determined route to the site working areas which they will be advised of at the site induction.</p> <p>All site mobile plant will operate at a reduced speed limit when travelling across the site and all mobile plant and lorries will be equipped with an Amber Flashing light which will be operational whilst operating on site.</p> <p>All lorry / delivery vehicle operators will prior to leaving the site ensure that their vehicles are clean (especially their wheels).</p>
10.0	PUBLIC INTERFACE
	All our proposed work operations are contained within site boundary fence and as such we do not envisage any public interaction.
11.0	SUB-CONTRACTORS
	John Alderson & Sons (Notifiable Asbestos) RAMS under separate cover to follow.
12.0	SAFETY PROCEDURES
	<p>Prior to the commencement of earthworks all Jakto operatives shall undergo a site induction where they will be informed of the clients rules and the site restrictions.</p> <p>Operatives will also receive a briefing by a supervisor prior to commencing works on the contents of this Method Statement and the associated Risk Assessment and all Jakto site operatives will sign the JAK/227/1 Method Statement Acknowledgement Form.</p> <p>All mobile plant will be operated by competent persons who are in receipt of the C.P.C.S. plant operators card</p> <p>All plant to have 360° visibility by use of cameras and mirrors.</p> <p>Safe working zones (slewing area) will be established around our mobile plant and only designated personnel are to work within the safe working zone (slewing area) i.e. Banksman / Engineer and only if the mobile plant is turned off with the key removed.</p> <p>Plant to be unloaded by operator with relevant CPCS certificate.</p> <p>All personnel will hold relevant, current CSCS / CPCS cards, copies of which will be available on site throughout the proposed works.</p> <p>Mobile Plant certification will be available on site for each item of plant and all plant and equipment will be inspected on a regular basis by means of a daily check sheet.</p>

13.0	ENVIRONMENTAL RISK ASSESSMENT & ARRANGEMENTS
	Please Refer to our Environmental Risk Assessment



BULK EARTHWORKS • TRANSPORT
CIVIL ENGINEERING • REMEDIATION

Jakto Transport Ltd • Oaks Lane • Stairfoot • Barnsley S71 1HT
Tel: 01226 248050 Fax: 01226 770164 Web: www.jakto.co.uk Email: jaktodg@aol.com

Jakto Transport Ltd		Environmental Management System Manual	
Form Name:	Environmental Risk Assessment	Form Number:	JAK-109-1

ASSESSMENT BY: Mark Thompson		DATE ASSESSED: 24th May 2023		OPERATION: Siteworks			
Hazard Guidance Checklist			Risk Rating Matrix				
<p>The risk factor rating for each hazard is found via a simple multiplication of the probable SEVERITY (S) of any injury / injuries that may be caused by the probable FREQUENCY (F) of the occurrence. The resulting figure (S x F) is then used to prioritise action and to develop control measures to reduce the risk i.e. Deal with the highest risk first.</p>							
<ul style="list-style-type: none"> Fuel spillage Lighting & Visibility Welfare Hazardous Substances - Use of Fuels, greases, oils, lubricants Noise Dust Fumes/gas/asphyxiation Dust Contamination 			LIKELIHOOD (L)				
		CONSEQUENCE (C)	LOW 1	MEDIUM 2	HIGH 3		
		LOW - 1	1	2	3		
		MEDIUM - 2	2	4	6		
		HIGH - 3	3	6	9		
1-2 = LOW RISK ACCEPTABLE		3-4 = MEDIUM RISK ACCEPTABLE WITH CONTROL MEASURES		6-9 = HIGH RISK STOP! REQUIRES IMMEDIATE ACTION			
<p>Brief description of the operation involved: This Risk Assessment details the significant Environmental Risks and the proposed "Control Measures" when undertaking our proposed site work operations.</p>							

HAZARD	RISK RATING (NO CONTROLS)			CONTROL MEASURES	RESIDUAL RISK		
	L	C	R		L	C	R
SITE WORKS	2	2	4	<p>Prior to undertaking any site work operations, JTL will review the site Geotechnical Appraisal Report to identify if the existing land is/or has previously been contaminated and if so will prepare and adopt control measures to protect against further cross contamination of the ground.</p> <p>Water courses that are identified to be in close proximity of the site shall be prevented from contamination through the formation of perimeter earth bunds, silt protection measures and also through a filtration system involving pumps and segregation tanks and also through the use of straw and terram placed within any existing manhole / drainage chambers so as to avoid any potential contamination.</p>	1	2	2
FUEL SPILLAGES	2	3	6	<p>Ensure all fuels are stored within a purpose designed fuel container / cabinet.</p> <p>Fuel on site will be stored within a double bunded tanks with the outer skin being not less than 110% by volume of the inner tank.</p> <p>Drip trays will available at all refuelling areas of the site which were practical be at a central designated area of the sit</p> <p>Drip trays will also be used during the operation of small fuel operated plant I.e. disc saws, generators etc. so as to capture any spillages.</p> <p>Spill kits will be readily available at the at our designated site refuelling and site mobile plant maintenance areas along with a supply of inert material sand, earth etc.</p>	1	3	3
VENTILATION / TEMPERATURE AND SITE WELFARE / W/C	2	3	6	<p>All site operatives will be provided with the appropriate PPE / PPC to accommodate the various site temperatures and weather conditions.</p> <p>All mobile plants heating facilities will be well maintained and all defects will be reported to the Plant Manager.</p> <p>Site welfare facilities will be provided to accommodate the designated number of operatives that we will employ on site. Each welfare facility will contain the following facilities seats, tables, hot and cold water, means to heat food / water, changing facilities and means for drying these facilities are to be maintained hygienically clean.</p>	1	3	3

HAZARDOUS SUBSTANCES (C.O.S.H.H.)	3	3	9	<p>Drip tray will be used when decanting products to prevent contaminating the local ground area.</p> <p>Spill kits will also be available at the C.O.S.H.H. store.</p> <p>C.O.S.H.H. stores will not be located adjacent to any site water courses which may include sewers, drains, gullies, streams etc. Due to possible contamination should a spillage occur?</p> <p>When purchasing chemicals etc. for use on site Jakto will were possible purchase the least hazardous product so that the safety and health of our operatives using the product are not put at risk and also ensuring that the products will not affect the environment..</p> <p>To avoid any potential skin contact, inhalation of dust, vapours, fumes, and to avoid any potential chemical splashes to the eyes , with the COSHH products that we use within the workshop all persons who are to use the product will be issued with the appropriate P.P.E. I.E. Respiratory protection, gloves, overalls, eye protection etc.</p> <p>Wearing of P.P.E. will be policed by the site manager who wall discipline persons for not wearing the appropriate P.P.E.</p>	1	3	3
NOISE	2	3	6	<p>Jakto Transport Ltd will ensure that their fleet of plant/machinery/equipment including compressors are well maintained and operate in accordance with the manufacturers guidance for Noise Pollution</p> <p>All plant/equipment and machinery will be turned off when not in use (and keys removed) and not left idling.</p> <p>Operatives to wear suitable ear protection when working in the vicinity of Noisy operations.</p>	1	3	3
DUST	3	3	9	<p>A water bowser or other similar method of dust suppression will be operated across the site to prevent nuisance / airborne dust from being blown across the site during hot/dry / windy days.</p> <p>All plant/equipment and machinery will be turned off when not in use (and keys removed) and not left idling.</p> <p>Operatives to wear suitable respiratory protection when working outside the cab in dusty operations.</p>	1	3	3
STANDING WATER	2	3	6	<p>Jakto will ensure that protective measures are put in place to prevent the surface run off water from the site from entering (polluting) any existing water courses that may be within the boundary of the site. This will be achieved through the forming of earth bunds and through the installation of silt protection measures installed along the route of the water course.</p>	1	3	3

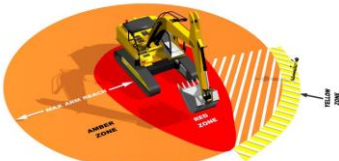
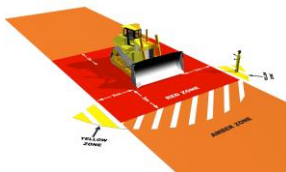
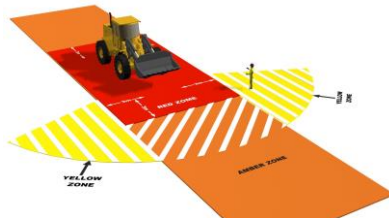
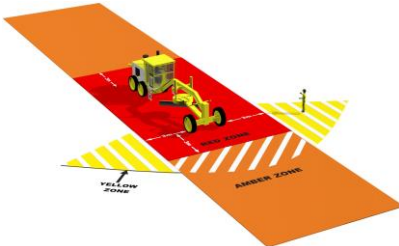
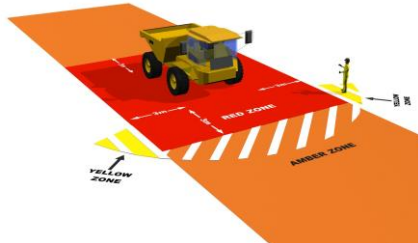
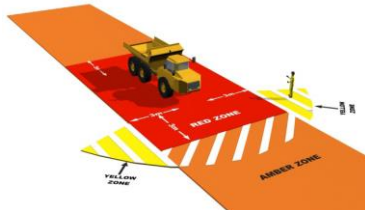
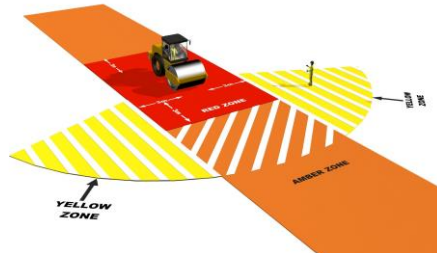
SURPLUS MATERIALS	2	3	6	<p>All surplus excavated materials will be removed from site using 8 wheeled tipper Lorries. Which will be sheeted once full and prior to leaving site. All waste will be taken to an appropriately licensed local facility. Jakto Transport Limited are registered Carriers under the Control of Pollution (Amendment) Act 1989 Waste carrier Licence Number CBDU 93250 and Expiry Date 16TH March 2025.</p> <p>Copies of all waste certification – waste transfer notes, special waste consignment notes, tip licence, and waste transfer licences will be retained on file.</p>	1	3	3
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14.0	HAZARDS IDENTIFIED
	<p>We have identified the following potential hazards has being present during the proposed Earthworks and as such we have addressed each of these hazards within our site-specific risk assessment.</p> <ul style="list-style-type: none"> • Slips, trips and falls. • Manual Handling • Movement and slewing of plant • Dust • Unauthorised access to site • Access / egress • General working on site • Falls from Height (accessing plant) • Falling objects • Fuel spillage • Overturning / overloading of plant • Noise • Loading / unloading of plant and materials
15.0	COSHH ASSESSMENTS
	<p>Diesel Hydraulic Oil Engine Oil Grease</p> <p>All materials and products identified will be used in accordance with the control measures identified on the manufacturers data contained on the product label, data sheet, and COSHH Assessment.</p> <p>All of the fuels, oils etc. will be used by our plant operators and maintenance fitters.</p>
16.0	RISK ASSESSMENTS
	Refer to the following: Task Specific Risk Assessment for the Dismantling Process

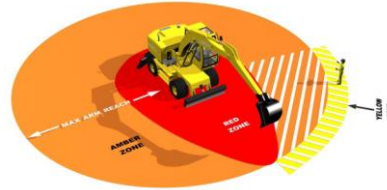
ASSESSMENT BY: Mr. Mark Thompson		DATE ASSESSED: 24th May 2023		OPERATION: Siteworks				
Hazard Guidance Checklist		Risk Rating Matrix						
<p>The risk factor rating for each hazard is found via a simple multiplication of the probable SEVERITY (S) of any injury / injuries that may be caused by the probable FREQUENCY (F) of the occurrence.</p> <p>The resulting figure (S x F) is then used to prioritise action and to develop control measures to reduce the risk i.e. Deal with the highest risk first.</p>								
<ul style="list-style-type: none"> Falls from height Falling objects Slips, trips and falls Manual handling Fuel spillage Collision with moving plant, operatives or structures Overturning/overloading plant Electrocution Live traffic Adverse weather Noise/vibration Access / Egress Use of Fuels, greases, oils, lubricants Lifting operations 		<ul style="list-style-type: none"> Underground or overhead service damage Cuts and abrasions Fumes/gas/asphyxiation Dust Contamination Hazardous substances Excavations Fire/explosion Flying particles Lighting levels/visibility Trapping/crushing injuries Unauthorised access/use Collapse of temporary/permanent structure Use of Tools/Equipment 	FREQUENCY (F)					
			SEVERITY (S)	1 = Insignificant	2 = Unlikely	3 = Likely	4 = Very Likely	5 = Definitely
			1 = No Injury	1	2	3	4	5
			2 = Minor Injury	2	4	6	8	10
			3 = Major Injury (R.I.D.D.O.R.)	3	6	9	12	15
			4 = Time Loss Injury	4	8	12	16	20
			5 = Fatality	5	10	15	20	25
1-6 = LOW RISK ACCEPTABLE		8-15 = MEDIUM RISK ACCEPTABLE WITH CONTROL MEASURES		16-25 = HIGH RISK STOP! REQUIRES IMMEDIATE ACTION				
Key to Persons at Risk								
1- Operatives carrying out the work		2- Other operatives in close proximity		3- Other contractors				
4- Visitors		5- Public		6- Young Persons				
7- Trainees		8- Other (State)						
<p>Brief description of the operation involved: This Risk Assessment details the significant risks and the proposed "Control Measures" when undertaking the Earthworks.</p>								

Key: F- Frequency S= Severity R= Risk Rating (from table)									
ACTIVITY	HAZARD	PERSONS AT RISK	RISK RATING (NO CONTROLS)			CONTROL MEASURES	RESIDUAL RISK		
			F	S	R		F	S	R
Siteworks	Slips, trips and falls	ALL	3	3	9	Ensure all working areas are maintained clean, tidy and well lit. PPE to be worn at all times	1	3	3
	Manual handling	1,2,3	3	2	6	All items greater than 25kg in weight are to be team lifted by two or more persons. All manual lifting to be kept to a minimum. Mechanical means of lifting to be used where practicable.	1	2	2
	Dust	ALL	3	2	6	FF P3 Type Dust Masks to be worn when dealing with dry materials.	1	2	2

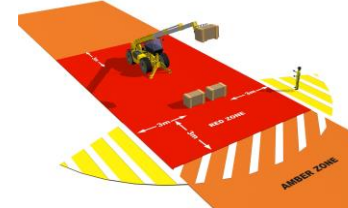
	Unauthorised access	ALL	4	5	20	Personnel to courteously request removal of unauthorised personnel. Any problems report to site manager.	1	5	5
	Access/egress	1,2,3,4	3	3	9	All vehicles entering or exiting site are to give way to pedestrians. Site access and egress points to be agreed. All pedestrian access routes to be demarcated away from site traffic	1	3	3
	General working on site	1,2,3,4	3	3	9	All operatives to attend a site induction in order to be briefed on the site rules, site restrictions, emergency site procedure, accident reporting etc.	1	3	3
	Falls from height	1	3	4	12	Ensure areas of work are clean and tidy. Harnesses and Lanyards to be worn whilst in access platform. Access platform to be operated from hard level surface at all times Edges of ramp /slopes are also to be clearly identifiable to prevent plant from operating (overturning) adjacent to the edges of the ramps/slopes Areas to be clearly defined and well lit. Steps to mobile plant to be clean PPE to be worn at all times. Safety footwear to be clean	1	4	4

	Movement and slewing of mobile plant	1,2,3,4	3	3	9	<div><div><p>360° Excavator</p></div><div><p>Dozer</p></div></div>	1	3	3
					<div><div><p>Tipping Dumper</p></div><div><p>Front Loading Shovel</p></div></div>				
					<div><div><p>Grader</p></div><div><p>Hydrema Dump Truck</p></div></div>				
					<div><div><p>Articulated Rigid Dump Truck</p></div><div><p>Roller</p></div></div>				

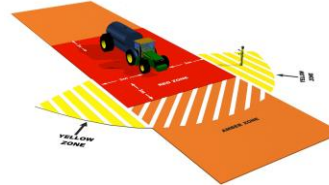
360° Wheeled Excavator



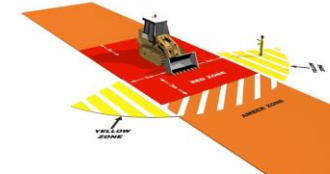
Telehandler



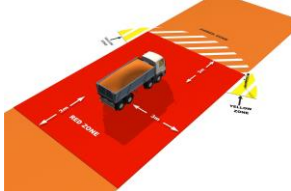
Tractor



Traxcavator



Vehicles, Vans & Lorries



Plant Interface Zones

YELLOW ZONES

All persons involved in the plant operation must remain within this zone to maintain visual contact with the plant operator

AMBER ZONE

Entry prohibited until positive visual contact is made with the plant operator and the mobile plant is immobilised.

RED ZONE

Entry prohibited unless the machine is completely isolated with the machine immobilised and the engine switched off

HATCHED ZONE

Denotes the typical sight line of the plant operator

	Falling Objects	2,3	3	3	9	Ensure that persons are not positioned under/within the plant exclusion zones as identified above. Ensure areas of work are clean and tidy. Ensure excavator bucket is not overloaded. Ensure lorries / dump trucks are not overloaded. PPE to be worn at all times. Ensure that all Lorries are Sheeted	1	3	3
	Fuel spillage	1	3	2	6	Ensure all bowsers / tanks / oil stores are double bunded with the outer skin being not less than 110% by volume of the inner tank. Ensure drip trays are used. Environmental spill kits to be made available.	1	3	3
	Overturning / overloading plant	1,2,3,4	3	5	15	Any ramps/slopes and stockpiles are to be properly constructed and maintained including use of hard-core where necessary. Where necessary the fill to be brought up evenly over areas as far as is possible. Ensure excavator bucket is not overloaded. Ensure lorries / dump trucks are not overloaded.	1	5	5
	Noise	1,2,3,5	3	3	9	All plant and machinery will be equipped with silencers to comply with BS5228 Noise Control on Construction and Open Sites. Plant operators to ensure that cab doors are kept closed Ensure all plant is turned off (and keys removed) and not left idling. Ensure noisy operations are located as far away from sensitive receptors as possible. Issue ear protection to operatives	1	3	3
	Loading / unloading of plant and materials	1	3	3	9	Plant to be unloaded by operator with relevant CPCS certificate. Materials to be unloaded by telehandler where possible. Delivery vehicles will have edge protection or bean bags will be provided around the perimeter of the trailer.	1	3	3
ADDITIONAL HAZARDS & RISKS IDENTIFIED DURING THE CONSTRUCTION WORK									
	Asbestos Cement	1,2,3,4	2	3	6	Appropriate PPE to be worn. Careful removal to avoid breakage. Enclosed skips to be used.	1	3	3
	Damage to live services	1,2,3	5	5	25	Site manager / supervisor to issue 'permit to dig' before all breaking of ground. Electrical supply company to contact to specify height and distance of Goal Post barriers. Only bulldozers will be allowed to work between the goalposts under the power lines in order to maintain a safe distance at all times. All known services to be marked on the ground and shown on sketches which will be attached to the "Permit to Dig / Break Ground". Unless verified all services are to be deemed to be "LIVE" Visual inspection to be carried out of all services found for likelihood of being redundant. Live services to be exposed by hand by Jakto. Jakto will carry out a CAT scan of the site prior to breaking ground.	1	5	5

17.0	METHOD OF WORKS
	<p>The following operations will be carried out prior to commencement of the works:-</p> <ul style="list-style-type: none"> • All operatives will be briefed on this Method Statement and will sign the JAK-227-1 Method Statement Acknowledgement Form • All relevant plant/ operator certificates will be available for inspection. • Dust suppression to be in place if required. <p><u>SITE CLEARANCE / VEG STRIP:-</u></p> <p>A 20 tonne 360° and / or CAT D6 dozer will strip the small amount of soil / vegetation and stockpile for subsequent removal from site.</p> <p><u>BREAKING OUT HARDSTANDS / FOUNDATIONS:-</u></p> <p>Concrete slabs / foundations will be broken out using a 20 tonne 360° hydraulic excavator with hydraulic breaker attachment where necessary. Broken concrete will be stockpiled in a designated area for subsequent crushing on site.</p> <p><u>NOTIFIABLE ASBESTOS:-</u></p> <p>To be undertaken by J. Alderson & Sons Ltd. Separate RAMS to follow.</p> <p><u>DEMOLITION OF FORMER COMMERCIAL BUILDING</u></p> <p>The 20 / 30t 360° hydraulic excavator be used to pull external walls in on themselves and onto the existing slab at ground level. Resultant material will be segregated at ground level and stockpiled for removal. Tipper lorries / skip lorries will access the site via a determined route to the work area. Excess hard inert materials will be stockpiled for subsequent crushing on site. Other resultant materials will be loaded into skips and removed using skip lorries again to a suitably licensed disposal facility. Jakto Transport Limited are registered waste carriers under the Control of Pollution (amendment) Act 1989, licence No. CBDU93250, expiry date 16th March 2025.</p> <p><u>PILING MAT:-</u></p> <p>6F5 for the piling mat will be imported to site on road lorries. The lorries will enter the site via the designated site access, follow a predetermined route on site and deposit material in work areas where it will be spread and levelled in layers by the CAT D5 and compacted using the 13T ride on roller. The lorries will retrace the route to egress the site. Alternatively if available, 6F5 will be taken from crusher stock and placed in the same manner.</p>

PROCESSING OF EXCAVATED / DEMOLISHED HARD MATERIALS:-

The hard material from the excavation / demolition / breaking out process will be loaded from stockpile by the 20 tonne hydraulic excavator into an Sandvik mobile jaw crusher. The material will be graded to produce a 6F5 capping layer.

Large pieces of material to be processed will be pulverised prior to crushing.

Reinforcement will be loaded into a scrap skip for its subsequent removal from site.

Processed material will then be stockpiled using a 360° hydraulic excavator.

LOCK OFF PROCEDURES (ATTACHED) MUST BE FOLLOWED AT ALL TIMES. ANY PERSON TRANSGRESSING THESE PROCEDURES WILL BE SUBJECT TO IMMEDIATE DISMISSAL.

The crusher is fitted with an internal dust suppression system which will be utilised as necessary.

EXCAVATION AND FILLING:-

Material will be loaded from any dig areas by a 360° hydraulic excavator onto 25 tonne articulated dumptrucks. Dumptrucks will follow a predetermined route on site and deposit material in fill areas where it will be spread and levelled using a CAT D6 Dozer and compacted using a HAMM ride on roller. The GPS dozer will check and trim all cut areas will be rolled subsequent to correct profile being achieved.

HAND PICKING OF BROKEN ASBESTOS CEMENT SHEET:-

●

In areas where site clearance has revealed any asbestos cement sheet debris at ground level the material will be picked by hand.

Any debris which is small enough to be bagged will be double bagged in clearly identified asbestos waste bags and sealed with tape when full. When bags are full and sealed thus they will be carefully placed in the bucket of a 30 tonne 360° hydraulic excavator, transported across the site and placed carefully in a 16 yard enclosed asbestos skip situated in a mutually agreed area.

Any pieces which are too large to be bagged will be carefully placed in the bucket of the same excavator and again transported across the site and placed carefully in the skip.

When all asbestos has been removed the skip will be taken off site for disposal to a suitably licensed facility.

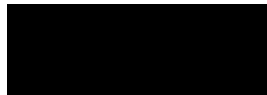
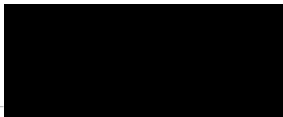
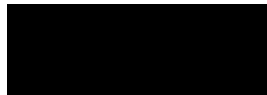
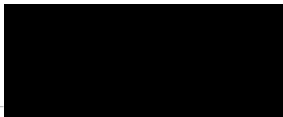
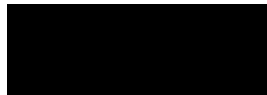
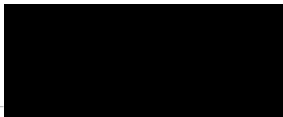
SOIL REMOVAL:-

Material will be excavated and loaded from an existing stockpile by tonne excavator onto 8 wheel tipper lorries.

Drivers will follow a predetermined route into site and will remotely sheet each load once full.

The lorries will retrace the predetermined route to egress site.

All lorries will transport the soil to a suitably licensed disposal facility.

18.0	EMERGENCY PROCEDURES						
	<p>Any person having an accident on site will inform Jakto head office immediately so that the company accident book can be completed.</p> <p>The nearest hospital with A & E facilities is:-</p> <p>In case of an emergency contact one of the people below:</p> <table><tr><td><u>JAKTO</u> John Kissane</td><td>Contracts Manager</td><td></td></tr><tr><td><u>TRITON</u> Andy Gaskell</td><td>Contracts Manager</td><td></td></tr></table>	<u>JAKTO</u> John Kissane	Contracts Manager		<u>TRITON</u> Andy Gaskell	Contracts Manager	
<u>JAKTO</u> John Kissane	Contracts Manager						
<u>TRITON</u> Andy Gaskell	Contracts Manager						

PREPARED BY: Mark Thompson
DATE: 25th May 2023

080139-CUR-XX-XX-T-GE-00006

Elizabeth Street, Cheetham Hill

Phase 4 Validation Report

Curtins

Appendix F – Ebsford Environmental Reports



Task Briefing Sheet

Project Number	4651	WP/CPP Ref:	Cheetham Hill
Revision Number	001	Principal Contractor:	Ebsford Environmental Ltd.
Activity Title	Root Barrier Installation	Responsible Contractor:	Ebsford Environmental Ltd.

Description and Sequence of Works.

1. Prior to works commencing, all staff will carry out a site induction with the PC Site manager.
2. Before works commence, a review of the utility drawings will take place and a CAT scan of the excavation areas will be carried out by the client.
3. The 3 ton excavator will then excavate a 500mm deep trench on the CLEAN SIDE along the length of the already installed root barrier to enable extension of the root barrier.
4. Extra care will be taken to prevent tearing the existing root barrier, utilising hand excavation where required.
5. Arisings from the excavations will be inspected for any sign of contamination, any contamination will be placed behind the root barrier to keep site side clean.
6. The site manager will produce a manual handling risk assessment for handling the root barrier.
7. The root barrier will be laid over the existing root barrier and secured at one side of the cleared zone, then rolled out and secured at the other side with a minimum 500mm overlap. Once in place the new root barrier will be heat sealed to the existing root barrier and allowed to extend naturally up above ground level.
8. Site won material will be used to add a capping layer to ensure the root barrier does not become damaged.
9. On the map below, the **GREEN** lines denote areas where the root barrier requires extending. **BLUE** shows the approximate area requiring repair.

Personnel	Requirements
Site manager	SMSTS, Root Barrier Installation experience
Excavator operative	CPCS (verified by SM)
Site Operative	CSCS, SSSTS, Root Barrier Installation experience

Plant and Equipment	Requirements
Excavator's	3 tonne – Daily Inspections
Heat Gun	Daily inspections
Generator	Daily Inspections, Spill Kit when fuelling, stored on plant nappy

Materials and Tools	Requirements
Root barrier	4 x 25mx2m long rolls
Knife	Retractable blade
Wooden pegs	Full Box
Hammer	Lump Hammer

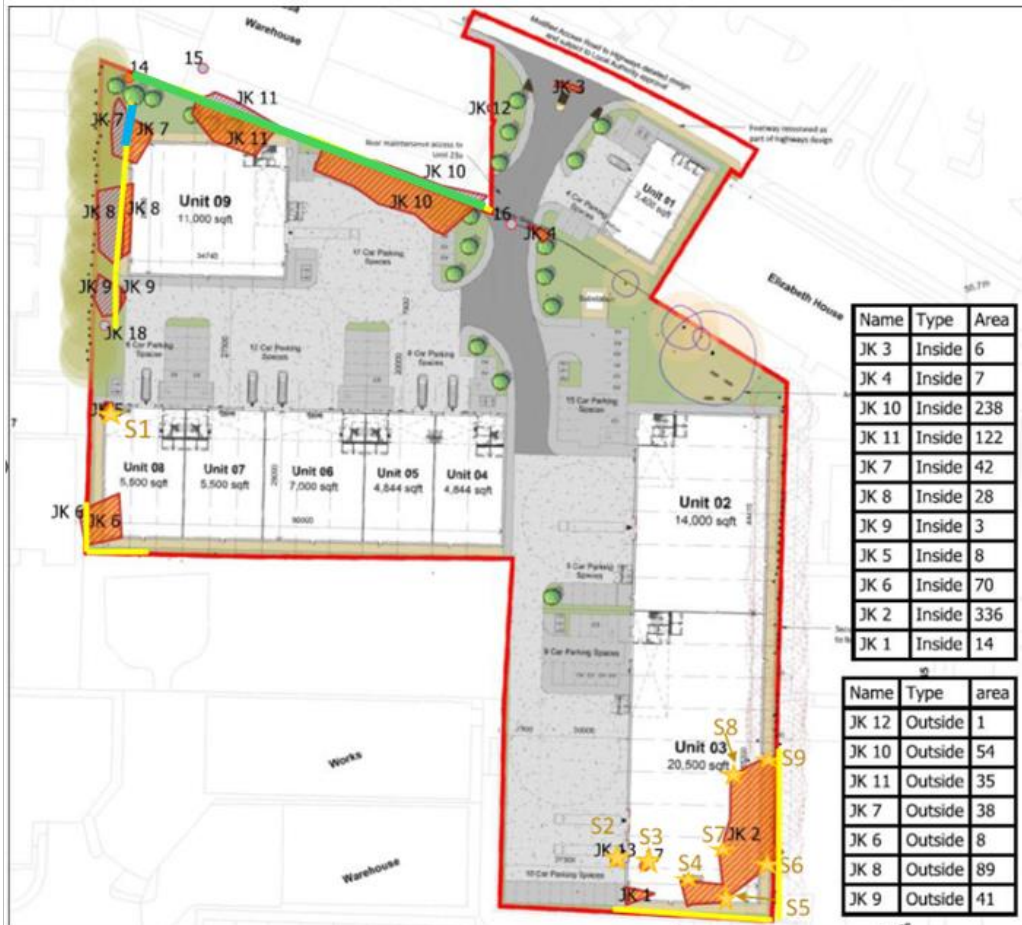
PPE	Requirements
Hard Hat	All site works
Hi viz clothing	All site works
Safety footwear	All site works
Gloves	Level 5 Cut resistant

Task Briefing Sheet



Design Documentation

The below plan shows location of root barrier along the boundaries please note these are the areas we believe will need barrier, once the works have been completed the below will be updated to show exact locations.



Project:
4330 Elizabeth St, Manchester

Drawing Title:
43306 - A4L- Manchester

Date:
30/6/22

Drawn:
MC

Version:
1

DO NOT SCALE
Projection: EPSG:27700
OSGB 1936 / British National Grid
OSTN15 NTV2 transformation
Basemap Google Earth:
Map data ©2015 Google



Legend

- Sporadic Japanese Knotweed outside the boundary
- Sporadic Japanese Knotweed inside the boundary
- Total Japanese Knotweed outside the boundary
- Total Japanese Knotweed
- ★ Sample location

Name	Type	Area
JK 3	Inside	6
JK 4	Inside	7
JK 10	Inside	238
JK 11	Inside	122
JK 7	Inside	42
JK 8	Inside	28
JK 9	Inside	3
JK 5	Inside	8
JK 6	Inside	70
JK 2	Inside	336
JK 1	Inside	14

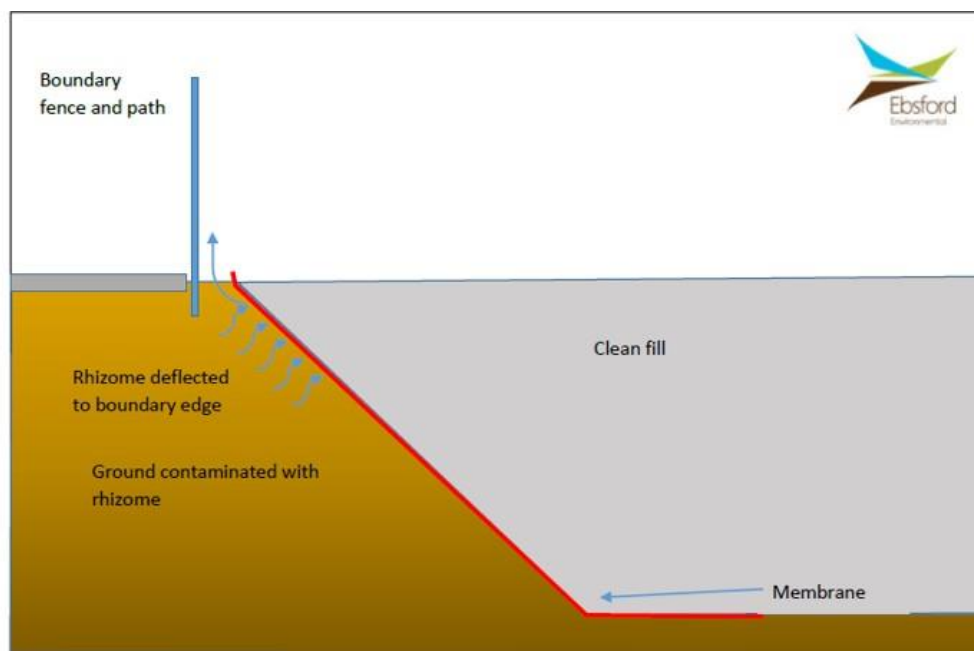
Name	Type	area
JK 12	Outside	1
JK 10	Outside	54
JK 11	Outside	35
JK 7	Outside	38
JK 6	Outside	8
JK 8	Outside	89
JK 9	Outside	41





Task Briefing Sheet

The below plan shows cross section of root barrier membrane installation



The Picture above shows a cross section of how the root barrier will look, the 45 degree angle is to ensure the integrity of the boundary is maintained. The area of contaminated material left in situ should not cause any concern as the root barrier will stop any new growth appearing on site. Any new growth within the contaminated area will naturally grow up to gain sunlight, it will achieve this by chasing the root barrier to the surface. Should any new growth appear it will do so on the site boundary behind the root barrier, any growth found will be treated as part of the warranty conditions.

Emergency Arrangements	
First aiders are	Jack Stephenson/PC Nominated First Aider
First aid box will be situated	Welfare Cabin
The fire wardens are	Jack Stephenson/ PC Nominated Fire Warden
In the event of a service strike contact	Stop Works Immediately and Inform PC Site Manager Ebsford OM & PDM Electricity Emergency Service Call free: 105 National Gas Emergency Service Call Free on: 0800 111 999



Task Briefing Sheet

Hazards	Risk	Who might be injured	Risk value: Initial risk value	Low Slightly harmful –Trivial impact/damage quickly repaired	Medium Harmful – Moderate impact / partial loss of operations	High Very harmful – Intolerable with very serious consequences	Residual risk value
				<u>Precautions / control measures required to reduce the level of risk to the lowest practicable level</u>			
Underground Services	Serious Injuries, Burns, Electrocution, Death	Employees Plant & Equipment Services	High	<ul style="list-style-type: none">The site team will review the utilities searches pack prior to commencing works and will complete a permit to dig (client responsibility).The site team will first carry out a CAT scan of the area(s) by a trained and competent operative and record their findings.If the scan results are clear, works may proceed as per the sequence of works.If the scan indicates the presence of underground services the works must not proceed and the team must contact the PDM & SHEQ.The team will carry out periodic CAT scans during the works.If at any point the team have any doubts or concerns they must stop work and seek further advice.Ebsford to mark out with spray paint known routes of services.Ebsford to Hand dig to locate depth and position, dependent on route several trial holes may need to be dug.Implement a 500mm exclusion zone around servicesDuring excavations Cat Scan every 200mm scrapeTrained plant operator CPCSTrained supervisor SMSTS EUSR			Medium
Excavations	Undermining of structures, falls from height, trapping, crushing, injuries, fatalities	Site manager	High	<ul style="list-style-type: none">Control the excavation with a Permit to digTrained plant operator CPCS , Trained supervisor SMSTS EUSRExcavating in 200mm layers until rhizome is exhaustedBatter down a gradient of 45 degreesAll excavations to be made safe at the end of each shift, once excavations are complete they will be made safe using stone ordered by Ebsford.No storage of any equipment, materials, plant beside excavationsAccess into excavation for trained site manager only. Access must be suitable and sufficient reduced gradient for pedestrian.All applicable PPE including Safety helmets will be worn in and near excavations;If, during excavation, any unrecorded services or unidentified buried objects or apparatus are uncovered, or any underground apparatus is damaged, work must be suspended immediately, and the emergency contact informedSuitable precautions are taken to prevent undermining or weakening of nearby structures;			Medium
Working Near Invasive Species	Contamination risk	All site personnel	Medium	<ul style="list-style-type: none">Work areas to be surveyed for the presence of invasive species before work commencesInvasive species are to be barriered off to prevent unauthorised access.Plant to be cleaned off before leaving the area with invasive species, along with tools and work boots.Area to be isolated with signage for stockpiling of JK.			Low

Unexpected Discovery of Asbestos/ Accidental Release of Asbestos	Mesothelioma Asbestos-related lung cancer Asbestosis Diffuse pleural thickening	All site personnel	Medium	<ul style="list-style-type: none"> Personnel must be asbestos awareness trained If during your work, you discover/disturb materials which you believe to be asbestos <ul style="list-style-type: none"> stop work immediately. Put up a warning sign, segregate and ensure nobody enters the area. Report the problem to internal/external stakeholders and arrange to have a sample of the material analysed. If it does not contain asbestos, then work can continue. If the material does contain asbestos, then decide if the work needs a licensed contractor. Do not recommence until advised by specialist. 	Low
Manual Handling	Fatigue, Musculoskeletal injuries, Lost time Incident	Employees Subcontractors Third parties	Medium	<ul style="list-style-type: none"> A Manual Handling Site Assessment must be completed before commencement of work. Mechanical aids should be used wherever possible. Operatives to have annually refreshed Manual Handling training. 	Low
Use of Plant & Machinery	Serious injuries, Fatalities	Employees Subcontractors Third Parties	High	<ul style="list-style-type: none"> During all works, pedestrians must maintain a safe distance from the operating machine as determined with the machine operator (Minimum outside of the machines reach + 2m. Banksman to be in place where required to prevent access to the work area. During attachment changes, the machine must be on firm and level ground & excluded from pedestrian access. The operator must be trained and competent in the machine & quick hitch's use. Once the attachment has been changed its attachment must be checked within the area excluded from pedestrian access before the machine moves off. 	Medium
Use of hand tools	Cuts Lacerations Broken limbs	Employees Subcontractors Third parties	Medium	<ul style="list-style-type: none"> Tools to be selected to fit the task been carried out. Suitable PPE to be worn correctly and maintained to carry out works. Non powered hand tools to be checked for wear and tear, damage visual. Powered equipment - inspection sheet (Visual) to be filled out by user.	Low
Needle stick injuries	Cuts Lacerations Diseases.	Employees Subcontractors Third parties	Medium	<ul style="list-style-type: none"> Walk the area prior to works inspecting for foreign objects. Always use hand tools and never use hands for directly handling material. Never put hands where they cannot be seen or where they may come into contact with material. Cut resistant 4 (min.) gloves will be made available to all personnel 	Low
House Keeping	Slip and trip hazards	Employees Subcontractors Third parties	Medium	<ul style="list-style-type: none"> Work area and access/egress to be kept tidy progressively – tidy as you go. Work area should be left tidy at the end of each shift. Equipment must be stored in designated stores when provided by client. Stores must be kept tidy and avoid keeping equipment on the floor to reduce slip and trip hazards 	Low
Adverse Weather	Fatigue, Hypothermia, Musculoskeletal injuries	Employees Subcontractors Third parties	Medium	<ul style="list-style-type: none"> Increased breaks during adverse weather. (Extremes in temperature). Hot and cold drinking facilities will be provided including a suitable sheltered area to rest. Appropriate PPE will be available and monitored by the site managers in all cases. Warm gloves to be worn as required. Staff to 'warm up' prior to undertaking manual handling activities. Site manager will assess ground conditions daily. The site manager must relay any adverse conditions to the SHEQ Manager and Operations Manager, a decision will then be made whether to continue working or not. Daily activities will be addressed via the daily engagement briefing which the site manager creates. This will consider climate conditions and remove daily activities accordingly.	Low

General site Activities	Slip and Trip Hazards Strains, sprains, broken limbs	Employees Subcontractors Third parties	Medium	<ul style="list-style-type: none"> Wear PPE as specified within this TBS. Complete daily walks to ensure any hazards are identified and controlled. Avoid obvious slip/trip hazards, report any flaws to the site supervisor and isolate the area. Keep alert to general light conditions and stop work if visibility is seriously reduced. Ensure walkways are maintained and suitable, maintain a clean as you go environment. 1. Prevent stockpiling waste piles 	Low
People Plant Interface	Serious Injuries Fatalities	Employees Subcontractors Visitors Public Plant & Equipment	High	<ul style="list-style-type: none"> Traffic Management Plan displayed onsite and brief to all staff during induction. Plant sourced from reputable suppliers. Competent operators sought. The operator will be responsible for ensuring the machine is not misused, is properly maintained in accordance with manufacturer's instructions and reporting of defects. Daily machine checks must be completed by the operator prior to commencement of any activities verification required by the site manager. Exclusion zones to be set out for plant as per traffic management plan. The machine operator will ensure that operations do not endanger any person. Banksmen must be trained and to stay visible to plant operator always, never to be under/within the boom/dipping arm/bucket/swing radius of excavators. Working hazards to be highlighted in induction and if necessary segregated to prevent unauthorized access All vehicles and plant will be immobilised, keys removed when not in use. Plant must not be parked upon a gradient where possible. If this isn't feasible stop blocks must be made available and used. This must be in a secured location where unauthorized personnel cannot gain access When leaving any area, the site manger must ensure the area is fully secured from unauthorised personnel. Assess working routes and access routes suitably to ensure underground/overhead services are avoided. Segregation must be in place to separate plant and people Extra vigilance and precaution if erosion/scour/slip could be present around the excavation. working hazards to be highlighted and if necessary segregated to prevent unauthorized access. 	Med

Excavators	<p>Overturning/ Materials or equipment falling from machine</p> <p>Persons being endangered by machine operations, sustaining fatal or severe crush injuries</p> <p>Death or loss of limbs</p> <p>Slips Trips and Falls</p> <p>COSHH substances</p>	<p>Employees</p> <p>Contractors</p> <p>Visitors</p> <p>Public</p>	High	<ul style="list-style-type: none"> • Plant sourced from reputable suppliers • Operators must be competent, trained and authorised to use the excavator. • The operator will be responsible for ensuring the machine is not misused, is properly maintained in accordance with manufacturer's instructions and reporting of defects. • A competent person (normally the operator) will inspect the excavator according to the manufacturer's instructions; the results of the inspections must be recorded. • Excavators will be equipped with FOPS, ROPS and seat restraint. • Operators will enter and exit cab in a safe manner, using steps and handrails. Preferably on Dry ground. • Steps should be cleared of soils regularly. • The machine operator will ensure that operations do not endanger any person. • Where members of the public may be affected, the area should be clearly cordoned off and clearly signed to prevent access. • It must always be ensured that, when the machine is being operated in confined places, or near other site personnel, there is clearance of at least 600mm for "tail swing"; the danger area must be barricaded if necessary. • Mirrors (including convex type) and/or other equipment (i.e. CCTV) must be in place to ensure maximum all round driver visibility (HSE recommends 1 metre). • No excavator bucket or load should be slewed directly over personnel or vehicle cabins: vehicles should be loaded over the side or rear, and the material should not be dropped from an unnecessary height, Operatives to be familiar with specific quick hitch, safe operation. • Bucket to be kept and changed away from all site personnel • Exclusion zones must be around all working areas. • Plant people routes must be set up by site management and communicate to all by induction, briefing and signage • Mobile phones are strictly forbidden whilst using heavy plant. • To ensure the bucket is fitted securely the operator must lift the bucket from the ground, at the correct height to roll the bucket. This is to ensure the bucket is secured. • Under no circumstances must the operator slew, track or conduct any activity until the attachment's security is verified. • Ensure buckets not in use are placed flat on ground, without risk of falling or causing damage. • Appropriate PPE to be used during fuelling and Maintenance • Those in control of sites should undertake random checks to ensure the precautions are being implemented 	Medium
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Cheetham Hill Main Works

Japanese Knotweed Management Plan and Completion Report

DATE: 05 October 2022

Ebsford Ref: 4651



Introduction

Ebsford Environmental Ltd were commissioned by Oliver Butler at Kier Property to undertake the removal and off-site disposal of excavated material containing Japanese knotweed material at the site situated in Elizabeth Street, Cheetham Hill, Manchester, M8 8JJ.

The site survey was carried out on 24 and 25th November 2021 by Ray Holderness, Senior Consultant, at Ebsford Environmental, in order to provide the client with estimated costs for the Japanese Knotweed remediation works.

Following liaison with the client and receipt of the project order, works commenced on 29th August 2022 and were completed on 23rd September 2022.

The project consisted of:

- Site enabling works: Initial site vegetation clearance to the body of site, Isolated soil sample analysis, clearance of onsite contamination and surface rubbish, 62 poplars felled, chipped and the stumps removed.
- Remediation work: excavation and off-site disposal of Japanese Knotweed contaminated material including the off-site disposal of hazardous arisings
- Installation of Japanese Knotweed membrane: ensuring the future biosecurity of the development site
- Biosecurity precautions were maintained throughout; Japanese Knotweed exclusion zones set up and marked out when necessary
- Toolbox Talk - Invasive Plants, delivered by Ebsford to operational personnel on site
- Provision of individual Insurance Backed Guarantees and warranties across the site

Project Overview	
Contracting Company:	Kier Property
Site Owner:	Kier Property
Type of works:	Excavation and removal of Japanese Knotweed. Installation of membrane.
Project Reference:	4651
Site address:	Elizabeth Street, Cheetham Hill, Manchester, M8 8JJ.
Commencement/Completion Date:	29th August 2022- 23rd September 2022
Project Value	£ 299,900.00

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1.0 Site Plan



Figure 0-1: Initial site survey plan

2.0 Site Works

The different elements of the works have been broken down into the sections below:

2.1 Site enabling works

- Upon arrival to site, Ebsford performing the CDM role of Principal Contractor inducted all operational personnel and reviewed certificates and competencies for the project.
- Ebsford's Site Manager received delivery of the welfare unit and all plant and equipment required for the job. The plant for the job comprised of a 14-ton excavator with selector grab attachment, a 30-ton excavator with riddle bucket and a 25-ton Moxy articulated dumper truck.
- Ebsford's Site Manager delivered a toolbox talk to operational personnel on site detailing biosecurity best practises and a brief overview of Japanese Knotweed.
- 120 Heras panels were utilized during set-up to secure site.
- Ebsford's site manager conducted a walkover survey of site. Identified the target excavation areas and consulted site service drawings.
- Initial clearance works were required in order to remove and separate a large amount of incidental surface rubbish and contamination, facilitating full unobtrusive access to the Japanese Knotweed for remediation work.
- Particular attention and consideration were required within area JK5, due to presence of hazardous material requiring segregation from the rest of the planned arisings.

2.2 Clearance works

- Clearance work commenced. This involved using the 14-ton excavator and selector grab to remove surplus rubbish and subsequently stockpile this material into the correct waste streams and subsequent loading into skips ready for off-site disposal.
- In total 4 40-yard RORO skips were filled, 80 tyres, 4 fridges and 8 mattresses were separated and stockpiled
- Additionally, in tandem with, and whilst Ebsford were conducting the Japanese Knotweed excavation works, Ebsford provided a watching brief of a tree clearance contractor for a total of 1 week. Supervised by Ebsford, the tree clearance contractor felled 62 poplar trees located along the eastern boundary. Where there were concerns that possibly Japanese Knotweed contamination existed within the root structure of these trees, these were riddled by Ebsford using the 30-ton excavator and thoroughly inspected before being deemed clean and ready for onwards disposal off site.
- Ebsford site manager ensured no cross contamination of Japanese Knotweed occurred during this process, the contaminated and non-contaminated waste streams were separated accordingly ready for disposal as directed by the client.

2.3 Excavation of Japanese Knotweed

- The removal of vegetation and on-site rubbish facilitated the excavation of Japanese Knotweed to progress.
- Works began by taking a scrape of the infested areas to establish the extent of the Japanese Knotweed rhizomes. Once the extent of the Japanese Knotweed was apparent the excavations began from the furthest identified plant.
- The first 400mm was bulked out and loaded directly onto the Moxo articulated dumper/cast behind the machine (Before the material was loaded into the dumper/cast the excavator operator shook the bucket of the machine to ensure no loose material spilled out during the loading process), once the first 400mm had been removed the Ebsford site manager supervised the machine excavating in 200mm layers with the sides and formation of each layer being visually inspected, each pull loaded into the dumper and transported to the stockpile area..
- The above process was repeated until the Ebsford Site Manager was satisfied all contaminated material has been removed.
- Where Japanese Knotweed was found to extend beyond the client's boundary and present within neighbouring property, a root barrier was installed to ensure the future biosecurity of the site.

2.4 Installation of Japanese Knotweed membrane

- Japanese Knotweed was present within the neighbouring boundary that could not be excavated due to permissions and access. Japanese Knotweed membrane was therefore installed to prevent any re-encroachment onto site affecting the development in the future.
- Due to the makeup of the existing material on site not being conducive to backfill with JK areas within the body of the site were made safe by battering back to create a safe angle of repose for ease of accesses and egress, these areas require backfilling once the client has decided on a method and materials to use (please note backfilling is a must to ensure the integrity of the barrier remains unaltered from the UV light)
- Due to JK area 4 being out of the body of site and the excavations bordering a public foot path this was back filled with clean imported material and levelled off accordingly to ensure no potential hazards to the public.
- 300 linear metres of root barrier membrane was installed to the boundaries where rhizome traced beyond the boundary line.
- Along the western boundary where a tree protection zone had been implemented, an additional 420 metres of root barrier was installed Horizontally over the tree protection area to encourage the new growth towards the site boundary.
- Upon laying the horizontal barrier Ebsford also imported 63m³ of amenity bark mulch to cover the barrier

2.5 Offsite disposal of Japanese Knotweed and on-site contamination

- All surplus arisings of the different classifications were separated as far as possible and stockpiled in suitable locations ready for disposal. The waste streams were divided as below:

Japanese Knotweed

- The Japanese Knotweed contaminated material was removed from site and sent to an appropriate licensed waste disposal facility in accordance with industry best practises. 270 loads in total were removed.

Hazardous Materials

- During the works, present within JK area 5, hazardous material was encountered.
- 2 loads of hazardous material mixed with Japanese Knotweed was removed from site and sent to a licensed waste disposal site in accordance with regulations.

General Mixed Waste

- General rubbish was also removed; 4 x 40 yard RORO skips in total.

Tyres

- Tyres present on site were disposed of in line with waste regulations, an estimated 80 in total were removed.

Wood waste

The arising from the popular removal were chipped and removed from site, a total 62 poplar stumps were removed and placed into skips.

All waste streams were disposed of in line with best practises and the Waste (England and Wales) Regulations 2011. All copies of waste transfer notes have been retained.

Off-site disposal summary

- 4 40-yard RORO skips 80 tyres,
- 4 fridges
- 8 mattresses
- 62 poplar trees
- tree root balls.

Best practice procedures

The following points were adhered to at all times throughout the works:

- Always follow the instructions of the Ebsford site manager
- Do not track any machinery into contaminated areas
- Before the material is loaded into the dump truck the excavator operator will shake the bucket of the machine to ensure no loose material can spill out during loading
- The dumper will only be loaded $\frac{3}{4}$ full to avoid spillages during transit
- A pre-agreed route for the dumper must be agreed prior to commencing which must remain free from obstructions at all times
- When the dumper deposits the material in the stockpile area it must not drive over previously tipped loads, when this becomes unavoidable the excavator will move the material and create a clean area for the dumper to use
- Upon completion, the excavation area and route of the dumper will be checked for spillages, any contaminated material found will be placed in the stockpile

3.0 Site Photographs



Figure 0-1 creation of hauls routes around site



Figure 0-2Excavtions began along the northern boundary



Figure 0-3 Utilising a selector grab attachment waste streams created



Figure 0-4 40-yard RO-RO skips removing segregated waste



Figure 0-5 Poplars along the eastern boundary felled and stacked ready for processing



Figure 0-6 tree works and stump removal complete



Figure 0-1 Northern boundary excavations



Figure 0-1 root barrier membrane installed to the northern boundary



Figure 0-2 JK area 4 Excavations and barrier install to public footpath



Figure 0-1 JK area 4 now backfilled with clean imported stone



Figure 0-1 Japanese Knotweed material being loaded in to wagons for offsite disposal

4.0 Summary

All areas of Japanese knotweed have been excavated and removed from site. Development of the site may now continue.

All waste streams were disposed of in line with best practises and the Waste (England and Wales) Regulations 2011. All copies of waste transfer notes have been retained.

Japanese Knotweed root barrier has been installed to prevent re-encroachment of Japanese Knotweed back onto the development from the neighbouring boundary ensuring the future biosecurity of the development site. The root barrier must remain intact in order to provide protection, it is therefore recommended that should any future development works impact upon the integrity of this membrane, consultation with Ebsford should be sought in advance.

A herbicidal management plan will be implemented. Monitoring of the former JK areas will take place over the duration of the warranty term of 10 years. Particular attention will be given to the development program with visits regularly undertaken during the growing seasons.

Cheetham Hill

Japanese Knotweed Further works Report

July 2024

4651



Introduction

Ebsford Environmental Ltd were initially commissioned by Oliver Butler at Kier Property to undertake removal and off-site disposal of excavated material containing Japanese knotweed material at Cheetham Hill, Manchester (M8 8JJ)

The site survey was carried out on 24th and 25th November 2021 by Ray Holderness, Senior Consultant at Ebsford Environmental, to provide the client with estimated costs for Japanese knotweed remediation works.

Following liaison with the client and receipt of the project order, initial excavation works commenced on 9th August 2022 and were completed on 23rd September 2022.

Ebsford have since completed further works on site between 17th October 2022 and May 2024, which are outlined in more detail below.

Summary of works

- Site visit and excavation 17th October 2022
- Monitoring visit 27th October 2022
- Monitoring visit 6th December 2022
- Monitoring visit 17th May 2023
- Issue of internal warranty
- Japanese knotweed removal and supervision works on 30th May 2023
- Monitoring visit 27th June 2023
- Japanese knotweed excavation and supervision works July 2023
- Monitoring visit 4th August 2023
- Monitoring visit 29th September 2023
- Japanese knotweed excavation and supervision works November 2023
- Japanese knotweed excavation and supervision works January 2024
- Japanese knotweed excavation and supervision works May 2024
- June/July spot treatment of Japanese Knotweed 2024
- August 27th Monitor/spot treatment of Japanese Knotweed 2024
- Biosecurity precautions were maintained throughout; Japanese Knotweed exclusion zones set up and marked out when necessary.
- Toolbox Talk - Invasive Plants, delivered by Ebsford to operational personnel on site as necessary.
- Treatments/monitoring will continue until the end of the 2026 spraying season.

Project Overview	
Contracting Company:	Kier Property
Site Owner:	Kier property
Type of works:	Excavation and removal of Japanese knotweed Installation of membrane Supplementary supervision works Treatment/monitoring
Project Reference:	4651
Site address:	Elizabeth Street, Cheetham Hill, Manchester, M8 8JJ
Commencement/Completion date:	17 th October 2022- on going until end 2026
Project Value	£305,900.00

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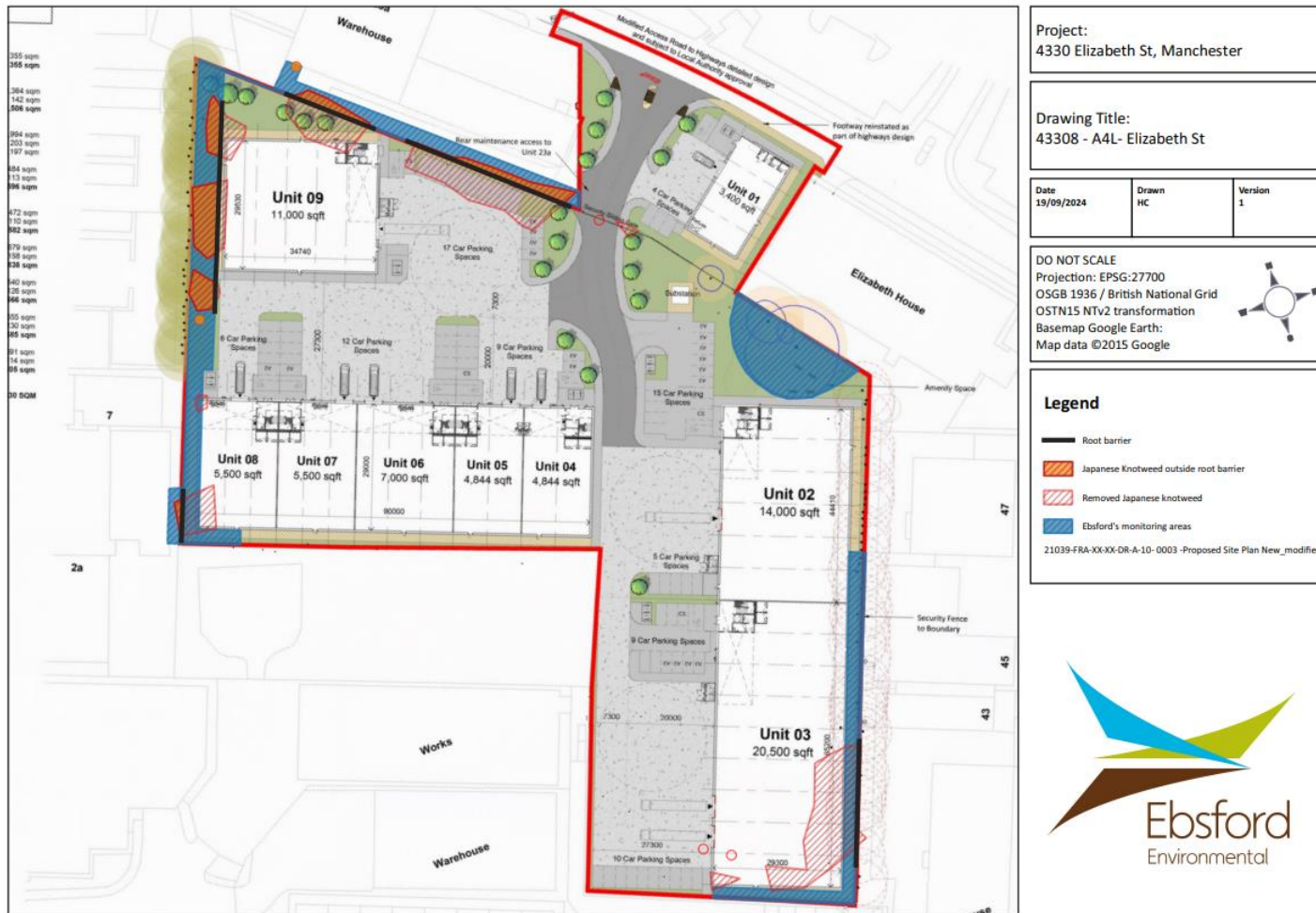
2.0 Site Works..... **Error! Bookmark not defined.**

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1.0 Site Plan and Monitoring Areas

Figure 1: Map showing the site plan and monitoring areas, with locations of Japanese knotweed areas



2.0 Site Works

The different stages of the works have been broken down into the sections below:

2.1 Monitoring visits and spot treatment

17th October 2022

- Japanese knotweed regrowth identified at site entrance, amongst rubbish and rubble, the rubble was removed, and any possible contaminated soils riddled.
- We carried out further investigation and no Japanese knotweed was identified below 400mm. The material generated was removed from site.
- Treatment of Japanese Knotweed infestations located behind root barrier, this visit including root barrier repairs and general monitoring of site.
- 1 load of contaminated material was removed from the excavation at the site entrance.

27th October 2022

- Monitoring visit, hand digging Japanese knotweed fragments and reattaching the root barrier.

6th December 2022

- Monitoring visit to assess the root barrier was still intact. Removed sporadic instances of Japanese knotweed growth and sprayed the infested area with an herbicide treatment.

17th May 2023

Monitoring visit.

27th June 2023

During this monitoring visit, the Ebsford site operative sprayed the infestation of Japanese knotweed along the root barrier with herbicide treatment.

4th August 2023

The Ebsford site operative monitored the entire site, where they identified sporadic growth of Japanese knotweed along the north and northeastern site boundaries. All growth on site was sprayed with herbicide treatment, as well as growth present adjacent to the site. The Ebsford site operative noted that previous treatments have worked well, and that Japanese knotweed growth was reducing.

29th September 2023

Upon arrival to site, the Ebsford operative monitored the site entrance and the neighbouring land, noting that previous treatments had worked well and minimal regrowth had occurred. All healthy growth present was treated accordingly. The Ebsford operative then conducted a walkover of the site, finding sporadic growth of Japanese knotweed along the western site boundary, as well as growth in the southern corner of the site, all of which was treated with herbicide.

June 2024

Spot treatment of Japanese Knotweed behind the root barrier identified on the map above.

July 2024

Spot treatment of Japanese Knotweed behind the root barrier identified on the map above.

2.2 Supervision works and offsite disposal:

- The site entrance is impacted by the position of the root barrier, we carried out exploratory excavations and moved as much JK from the edge of the footpath as we could. This material was removed from site. The excavations identified instances of JK Rhizome growing underneath the footpath, the depths varied from around 350 to 500mm.
- As much Japanese knotweed as possible was removed without undermining the footpath. The root barrier was then relayed and backfilled with clean material.
- When future works commence at this area of the site, Ebsford will supervise the works to ensure the Japanese knotweed is stockpiled separate to the other material. This again will be removed from site.
- Excavation of sporadic Japanese Knotweed and Giant Hogweed growth in newly identified areas following standard practice, the material was stockpiled with the contaminated material taken from the footpath.
- All contaminated material removed from site. 1 load in total.

July 2023

Ebsford returned to site to supervise the excavation and stockpiling of Japanese knotweed, before two loads of contaminated material were loaded onto wagons for disposal at a licensed waste facility.

November 2023

Ebsford were requested to supervise a further two days of Japanese knotweed excavation on site. During the first day on site, the root barrier membrane was uncovered before excavations commenced in the area adjacent to the root barrier. The Ebsford site manager supervised the excavations, which continued until the rhizome network was exhausted at a depth of around 2.5m. Each pull of the excavator was deposited directly into the specified stockpile.

On the second day on site, the Ebsford site manager supervised the removal of contaminated soil with a vacuum excavator. The vacuum excavator was utilised to remove the soil located above and around underground services present on site. All arisings from this process were placed on the stockpile.

January 2024

To facilitate the installation of a new boundary fence on site, Ebsford supervised the excavation of Japanese knotweed present along the northern boundary of the site. During the first and second days on site, Japanese knotweed excavations took place, with all contaminated material deposited onto the stockpile under the supervision of Ebsford. Excavations continued until the Ebsford site manager was satisfied that all Japanese knotweed material had been removed.

During the third day on site, type 1 material was received, to reinstate the impacted driveway. The first wagon arrived on site during the fourth day on site and was loaded with Japanese knotweed material to be transported at a licensed waste facility. The material was transferred from the stockpile to the wagon under the supervision of the Ebsford site manager, ensuring that no cross contamination occurred. During the fifth and sixth day on site, issues arose which delayed the wagons. A further six loads of Japanese knotweed material were loaded onto wagons once the issues were amended, and dry material was added to the stockpile in order to dry it out. Two more wagons were loaded during the last day on site, and a final scrape and clean-up of the stockpile area was conducted, with any arisings placed on the final wagon.

May 2024

Following on from a meeting with the client to discuss a new area of Japanese knotweed found on site, Ebsford attended site for one day to supervise the excavation of the knotweed. Five areas of Japanese knotweed were identified, which were covered by two excavation zones. Ebsford supervised the excavation of the contaminated material to a depth of 1.2m, when the Ebsford site manager was satisfied that all viable rhizome had been removed. The contaminated material was loaded into a wagon for disposal at a licensed waste facility, with the Ebsford site manager ensuring that no cross contamination occurred.

June 2024

Spot treatment of Japanese Knotweed behind the root barrier identified on the map above.

July 2024

Spot treatment of Japanese Knotweed behind the root barrier as identified on the above map.

June 2024

Spot treatment of Japanese Knotweed behind the root barrier identified on the map above.

3.0 Site Photographs



Figure 1: Japanese knotweed regrowth (17/10/22)



Figure 2: Excavation of regrowth (17/10/22)



Figure 3: Japanese knotweed at root barrier (12/06/22)



Figure 4: excavation of Japanese knotweed rhizome under root barrier (01/06/23)



Figure 5: Removal of material from in front of the root barrier (01/06/23)



Figure 6: Uncovering the root barrier membrane (November 2023)



Figure 7: Vacuum excavator works (November 2023)



Figures 8 and 9: Excavation of Japanese knotweed along root barrier (January 2024)



Figure 10: Excavation of Japanese knotweed (May 2024)



Figure 11: Excavation of Japanese knotweed (May 2024)



Figure 12: Loading wagons with contaminated material (May 2024)

4.0 Summary

Please note,

Ebsford excavated all of JK3 up to the original site boundary and installed a route barrier, the barrier was a temporary measure to stop the spread of Japanese Knotweed back onto site.

The material beyond the boundary and in the footpath was removed when the footpath was opened up to divert services and create a new site entrance. Unfortunately, service providers opened up the footpath several times without notifying Ebsford resulting in uncontrolled works throughout the area. Whilst we removed all material we could see we cannot be responsible for any works carried out by a third party should any growth return, the area is however being monitored as part of our ongoing warranty visits.

Any root barrier membrane must remain undisturbed to maintain its integrity for the duration of the warranty.

080139-CUR-XX-XX-T-GE-00006

Elizabeth Street, Cheetham Hill

Phase 4 Validation Report

Curtins

Appendix G – UK Membranes Report



Gas Membrane Installation
Validation Report
Triton Construction
Trade City
Elizabeth Street
Cheetham Hill
Manchester
M8 8JJ



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1. INTRODUCTION

1.1 Purpose

UK Membranes are installing a gas protection membrane to the aforementioned site. MEC Environmental Ltd (MEC) has been appointed by UK Membranes to carry out independent validation of the installation of the membrane on the site as per our terms of engagement. The frequency of independent inspections has been determined by the client, comprehensive CQA should be forwarded by the installer to cover any data gaps for areas that have not been subjected to independent inspections.

The **SOLE** purpose of the works undertaken by MEC Environmental is to provide independent inspections and a factual report as and when requested to assist the client in gaining regulatory approval with regards to the gas membrane installation. This is as per the scope of work section within our term's engagement.

1.2 Limitations

This report is limited to providing lines of evidence to the regulatory authority for the areas components inspected by MEC only in support of the discharging of the relevant planning conditions only and cannot be used or relied upon for any other purpose. No professional liability shall be extended to any other parties by MEC, the report should explicitly not be relied on by any future vendor or tenant as proof that the gas protection measures are sufficient for the site and functioning at the time of purchase or start of any tenancy. Gas protection systems are not solely reliant on the gas membrane as points are scored under BS8485 for the floor slab, membrane and venting, these components work collaboratively to provide a gas protection system. This is as per the conditions within our term's engagement.

The report has been provided on the assumption that no damage or works that may have compromised the components and integrity of the gas membrane have been made after our inspections, failure to report any such occurrences will invalidate any liability and render the report and contents invalid. This is as per the conditions within our term's engagement.

This report has been prepared in accordance with the best available practice and the relevant guidance documents listed below of which the author of the report was a contributor and member of the steering committees:

Mallett H, Wilson S, Corban M (2014) "Good practice on the testing and verification of protection systems for buildings against hazardous ground gases". CIRIA Report C735

1.3 Compliance with Regulation 7 of Building Regulations

Regulation 7 of the building regulations requires that building work shall be carried out in a workmanlike manner. Approved document 7 suggests installation can comply with the regulation if workmanship is such that, where relevant, materials are adequately mixed or prepared and applied, used or fixed so as to perform adequately the functions for which they are intended.

A reasonable standard may be demonstrated by:

Compliance with a standard and independent certification - The relevant standard for gas protection measures is BS8485:2015 +A1:2019, Table 7 of the standard requires that gas membranes are verified as per CIRIA C735.

Past experience – The installers qualifications are checked by MEC Environmental to ensure that the installation supervisor holds the NVQ Level 2 in gas membrane installations.

Integrity Testing methods. – are carried out as prescribed in CIRIA C735, unless stated elsewhere
Frequency of Visits – MEC have not been employed to prepare a validation plan for this project, the frequency of visits is as per the instructions of the client, in essence MEC inspected the available membrane that could be inspected each time an inspection visit was requested. The area inspected on each visit is noted on the survey sheets in appendix 1. This report should be read in conjunction with the installers CQA report.

1.4 Method of Inspection (Per Visit)

All seams and non-seam areas of the available gas membrane were inspected/tested by the Validation Surveyor for identification of defects, protruding and penetrating objects, lack of subgrade support, overheating, holes, blisters, undispersed raw materials, scratches and gouges, and any sign of contamination by foreign matter.

Any portion of the gas membrane exhibiting a flaw or failing a visual inspection/testing was repaired. Several procedures exist for the repair of these areas. The final decision as to the appropriate repair procedure was agreed upon between the Validation Consultant and the Installer at the time of the repair and is noted in the survey sheets.

Major repairs are visually inspected/tested, repairs passing the inspection/testing were considered acceptable. In some cases minor repairs may be carried out under contractor CQA and photographic evidence supplied to the verifier for inclusion in the report.

1.5 MEC Staff Competency

All site inspections have been carried out by suitably qualified staff as defined in CIRIA C735, the qualification held by all MEC inspection surveyors is either the NVQ Level 4 in gas protection verification or the NVQ Level 2 in gas membrane installation

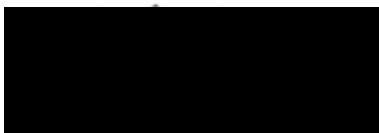
The author of this report is also a CL:AIRE accredited Specialist in Gas Protection Verification (SGPV) and holds both the NVQ Level 2 in gas membrane installation and the NVQ Level 4 in gas protection verification.

1.6 Conclusion

During our inspections to the areas denoted in Appendix 1 (Site Surveys Sheets) we witnessed the installer carrying out the installation in a workmanlike manner, the materials were adequately prepared and applied, used and fixed so as to perform adequately the functions for which they are intended as per Regulation 7 of the building regulations. In instances where 100% of the installation has not been independently inspected/tested then this report should be read in conjunction with the gas membrane installers CQA records.

The installers all hold the NVQ Level 2 "Gas membrane Installations" qualification and as such are classed as a qualified and experienced installer. MEC Environmental have checked the CSCS Trade Cards of the installers, which confirms the holder has attained the qualification.

Signed



Date: 30/01/2024

Michael Corban S.G.P.V.

Director

MEC Environmental Ltd

Appendix 1 – Site Survey Sheets

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 2 & 3 core area line outs			
Postcode: M8 8JJ					
Installers Name: UK Membranes					
Date: 07/11/2023					
Inspection by: Dan Squire		Weather: 10°C Wet			
	Item	Comments			
	Sub-floor void	N/A			
	Ventilation Inlets and Outlets	N/A			
	Number Of Vents	N/A			
	Materials used:	Membrane – Juta GP5 gas barrier membrane			
		Self-Adhesive Membrane ☒ Yes	Preformed Top hats ☐ Yes		
		Double Sided Butyl Tape ☐ Yes	Preformed Corners ☐ Yes		
		Others Please List: N/A			
	Installation Notes	<p><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane, the membrane had been installed to a good standard. The membrane is lined across the full core area base and extends out under the temporary shuttering. All joints are hand welded. All pipes, stanchion and perimeter retro fit detailing sealed using SAGM and heat applied.</p> <p>In unit 3 the wet weather restricted UKM to apply the perimeter retro fit detail so they lined the membrane up and over the perimeter steel frame.</p>			
	Type of Joint	Tape Joint ☐	Auto Weld ☐	Hand Weld ☒	Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437)		☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing Ventilation Inlets & Outlets	Have all joints passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
		Have all pipes passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
		Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A

Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☒ N/A
Has all other detailing work passed inspection	☐ Yes	☐ No	☒ N/A
<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: No recorded defects</p> <p>Have any defects identified above been satisfactorily rectified ☐ Yes ☐ No ☒ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 07/11/2023</p>			

Area Inspected

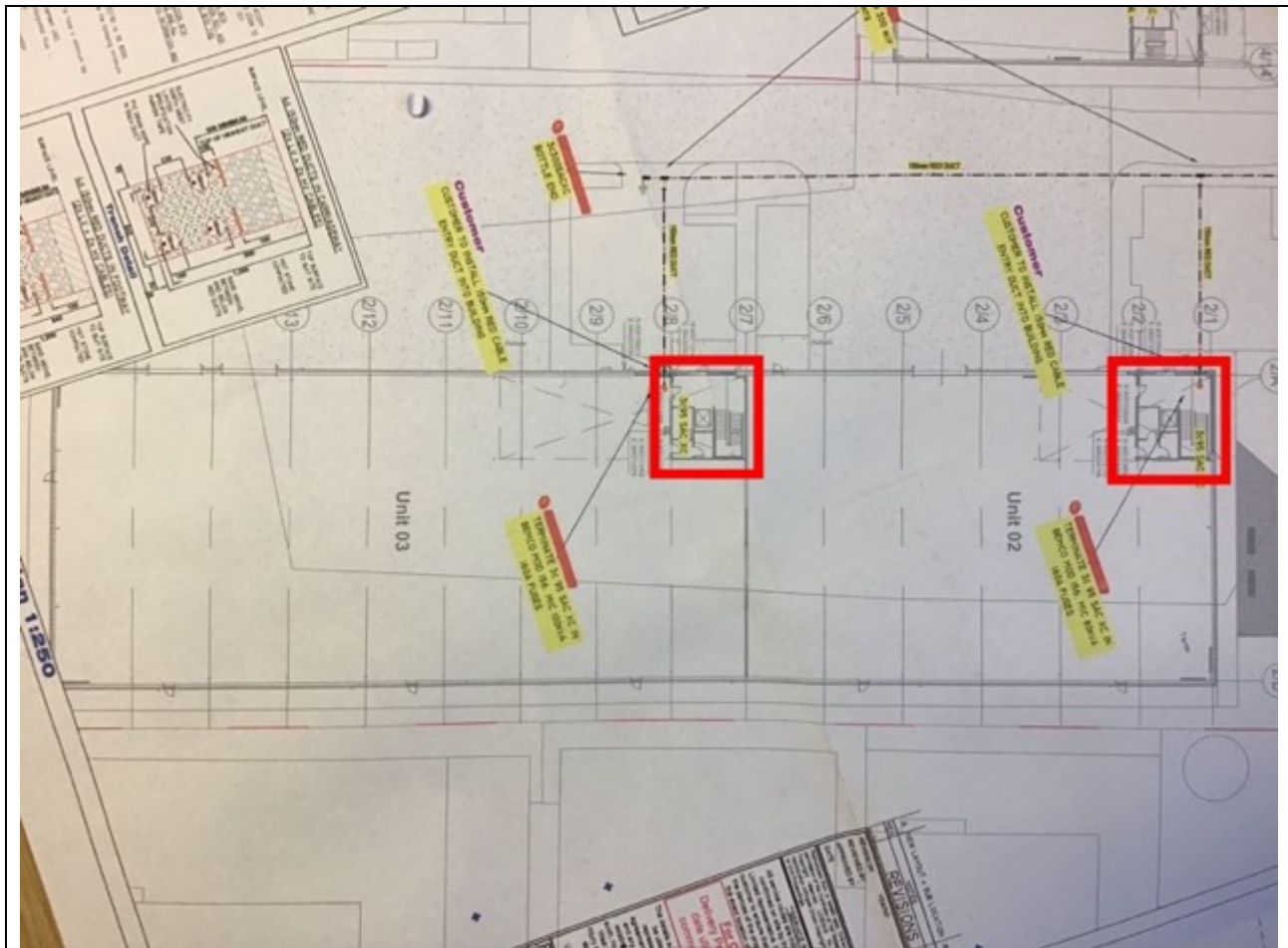


Photo 07/11/2023



Unit 2 core area line out installation



Unit 2 sealed retro fit detailing



Unit 2 sealed pipe penetration



Unit 2 sealed stanchion detailing



Unit 3 core area line out installation



Unit 3 membrane extended over the perimeter edge



Unit 3 sealed pipe penetrations



Unit 3 sealed stanchion detailing

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 9 core area	
Postcode: M8 8JJ			
Installers Name: UK Membranes			
Date: 07/11/2023			
Inspection by: Dan Squire		Weather: 10°C Wet	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A	
	Installation Notes	<u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u> MEC Environmental carried out a thorough visual inspection of the membrane, the membrane had been installed to a good standard. The membrane is lined across the full core area base and extends out under the temporary shuttering. All joints are hand welded. All pipes, stanchion and perimeter retro fit detailing sealed using SAGM and heat applied.	
	Type of Joint	Tape Joint ☐ Auto Weld ☐ Hand Weld ☒ Extrusion Weld ☐	
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
	Ventilation Inlets & Outlets	Have all pipes passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes ☐ No ☒ N/A
		Has all other detailing work passed inspection	☐ Yes ☐ No ☒ N/A

	<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: No recorded defects</p> <p>Have any defects identified above been satisfactorily rectified ☐ Yes ☐ No ☒ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 07/11/2023</p>
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Area Inspected

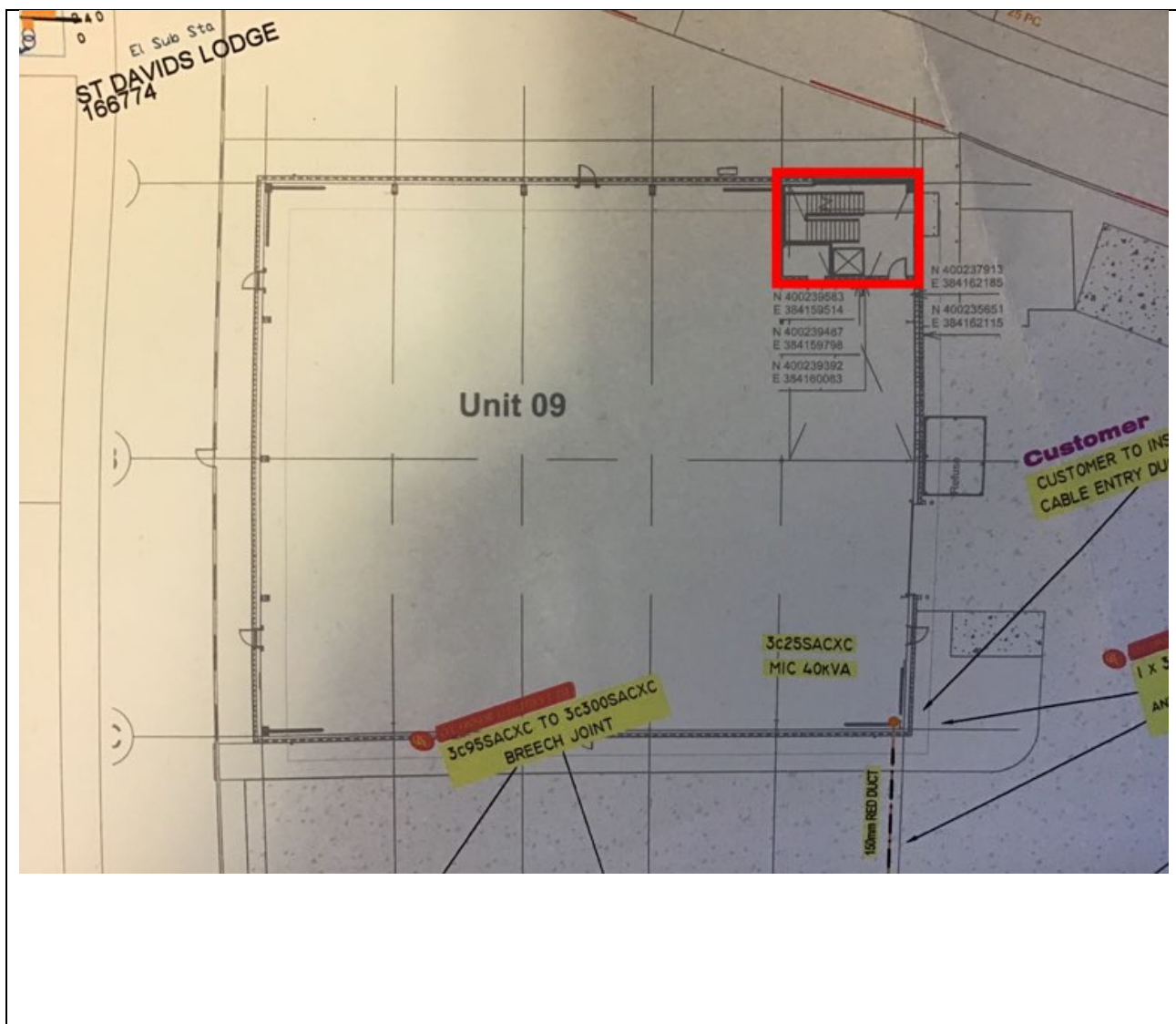


Photo 07/11/2023



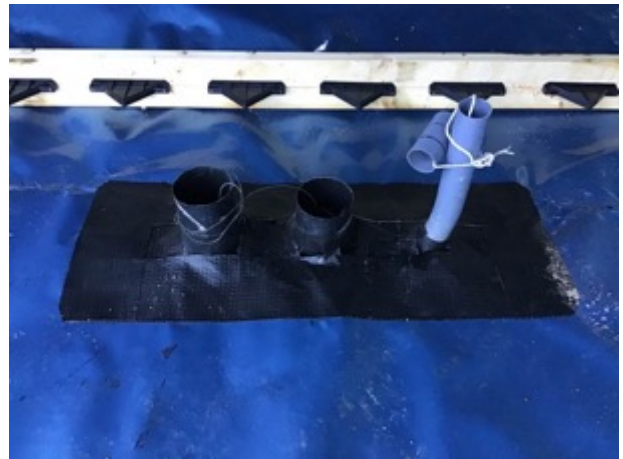
Unit 9 core area line out installation



Probe test to sealed hand weld membrane joint



Sealed retro fit detailing to stairs



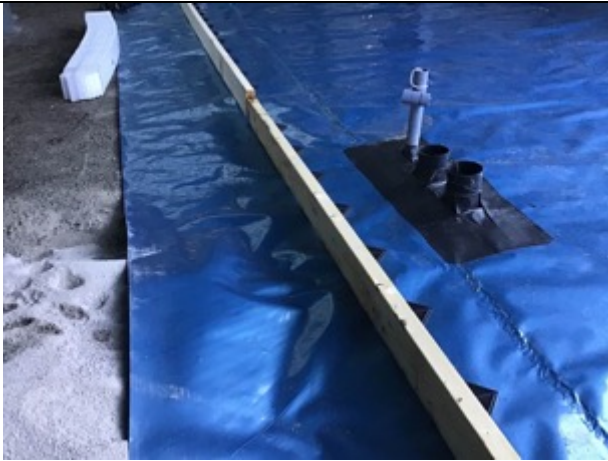
Sealed pipe penetrations



Sealed perimeter retro fit detailing



Sealed stanchion detailing



Membrane extending under temporary shuttering

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 4 to 8 core areas full line out installation	
Postcode: M8 8JJ			
Installers Name: UK Membranes			
Date: 21/11/2023			
Inspection by: Dan Squire		Weather: 11°C Dry	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A	
	Installation Notes	<u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u> MEC Environmental carried out a thorough visual inspection of the membrane, the membrane had been installed to a good standard. The membrane is lined across the full core area base upon a blinded substrate and extends out under where the temporary shuttering will sit. All joints are hand welded. All pipes, stanchion and perimeter retro fit detailing sealed using SAGM and heat applied.	
	Type of Joint	Tape Joint ☐ Auto Weld ☐ Hand Weld ☒ Extrusion Weld ☐	
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
	Ventilation Inlets & Outlets	Have all pipes passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes ☐ No ☒ N/A
		Has all other detailing work passed inspection	☐ Yes ☐ No ☒ N/A

(List any defects to detailing work and joints):

During our inspection the following defects and repairs were carried out: 4no patch repairs made by the installers in core area 8 using SAGM and heat applied.

Have any defects identified above been satisfactorily rectified ☐ Yes ☐ No ☒ N/A

The Area has passed inspection ☒

The Area has failed inspection and a corrective action sheet has been left with the contractor ☐

The Area is incomplete as detailed above ☐

Signed: **Dan Squire**

Date: **21/11/2023**

Area Inspected

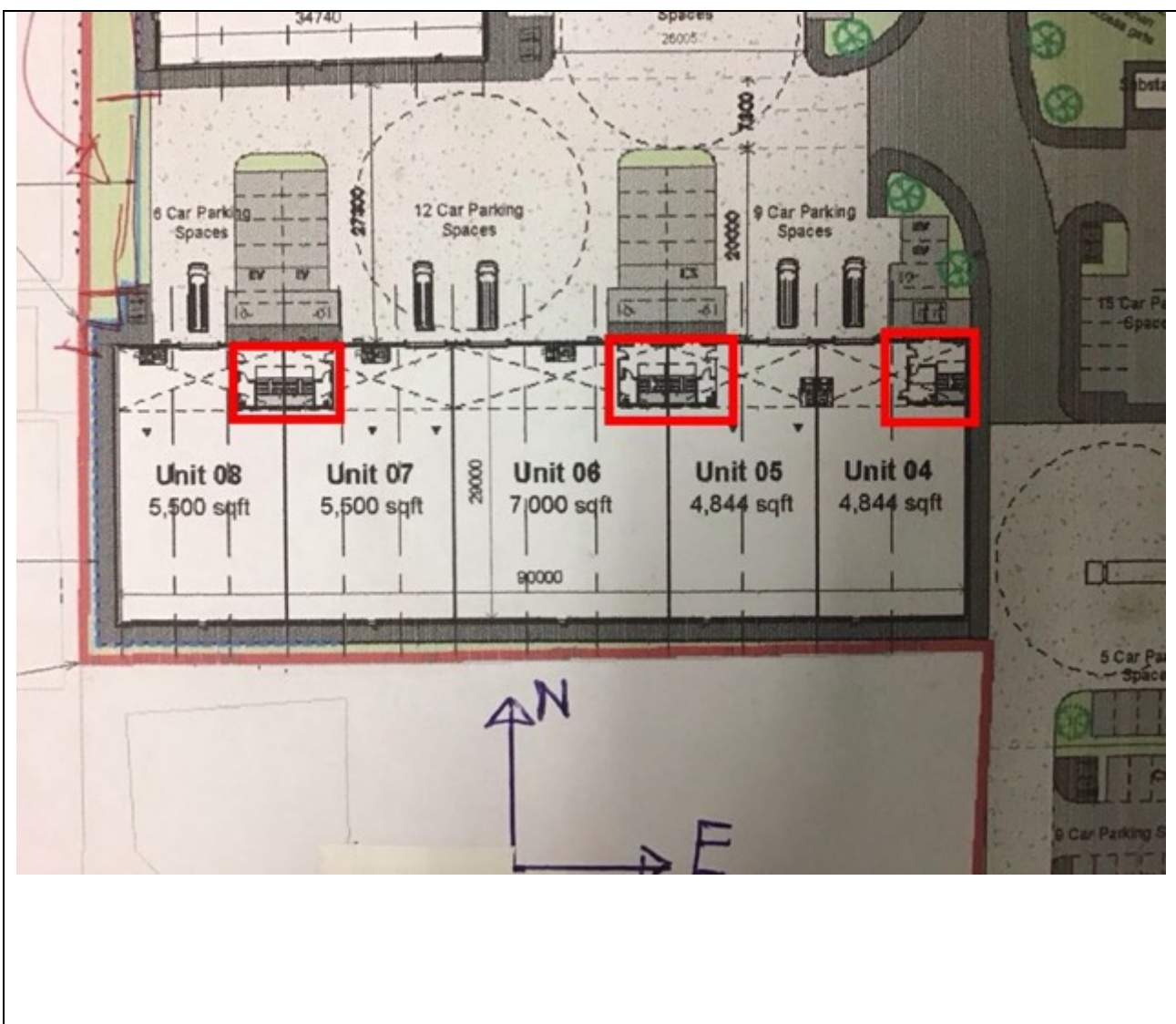


Photo 21/11/2023



Probe test to sealed hand weld membrane joint



Core area 4 overview



Core 4 sealed pipe penetration and stanchion detailing



Core 4 sealed perimeter retro fit detailing



Core area 5 & 6 overview



Core 5 sealed pipe penetrations



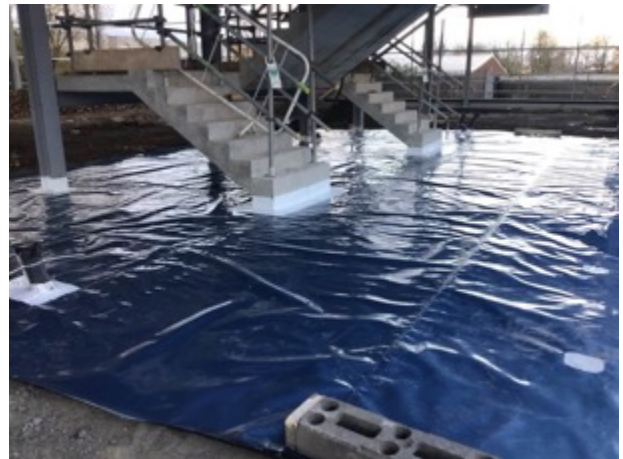
Core 5 sealed stair detailing



Core 6 sealed pipe penetrations



Core 6 sealed stanchion detailing



Core area 7 & 8 overview



Core 7 sealed pipe penetration



Core 7 sealed stanchion detailing



Core 8 sealed perimeter retro fit detailing



Core 8 sealed stanchion detailing, pipe penetration and patch repair

Site name: Trade City Manchester, Triton, Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 1	
Postcode: M8 8JJ			
Installers Name: UK Membranes			
Date: 04/01/2024			
Inspection by: Ross Edwards		Weather: 8°C Dry	
	Item	Comments	
	Sub-floor void		
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents		
	Materials used:	Membrane – JUTA GP5 Gas Membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A	
	Installation Notes	<u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u> MEC Environmental carried out a thorough visual inspection of the membrane, the membrane had been installed to a good standard, the membrane has been installed across the full footprint to Unit 1 with the membrane terminated to the perimeter steel using SAGM as a retro fit detail. All other detailing has been completed and sealed also using SAGM.	
	Type of Joint	Tape Joint ☐	Auto Weld ☐ Hand Weld ☒ Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site? ☒ Yes ☐ No ☐ N/A	
	Ventilation Inlets & Outlets	Have all pipes passed testing prior to surveyor leaving site? ☒ Yes ☐ No ☐ N/A	
		Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site? ☒ Yes ☐ No ☐ N/A	
		Have all piles and pile caps passed testing prior to surveyor leaving site? ☐ Yes ☐ No ☒ N/A	
		Has all other detailing work passed inspection ☐ Yes ☐ No ☒ N/A	

	<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: no defects located</p> <p>Have any defects identified above been satisfactorily rectified ☐ Yes ☐ No ☒ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Ross Edwards Date: 04/01/2024</p>
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Area Inspected

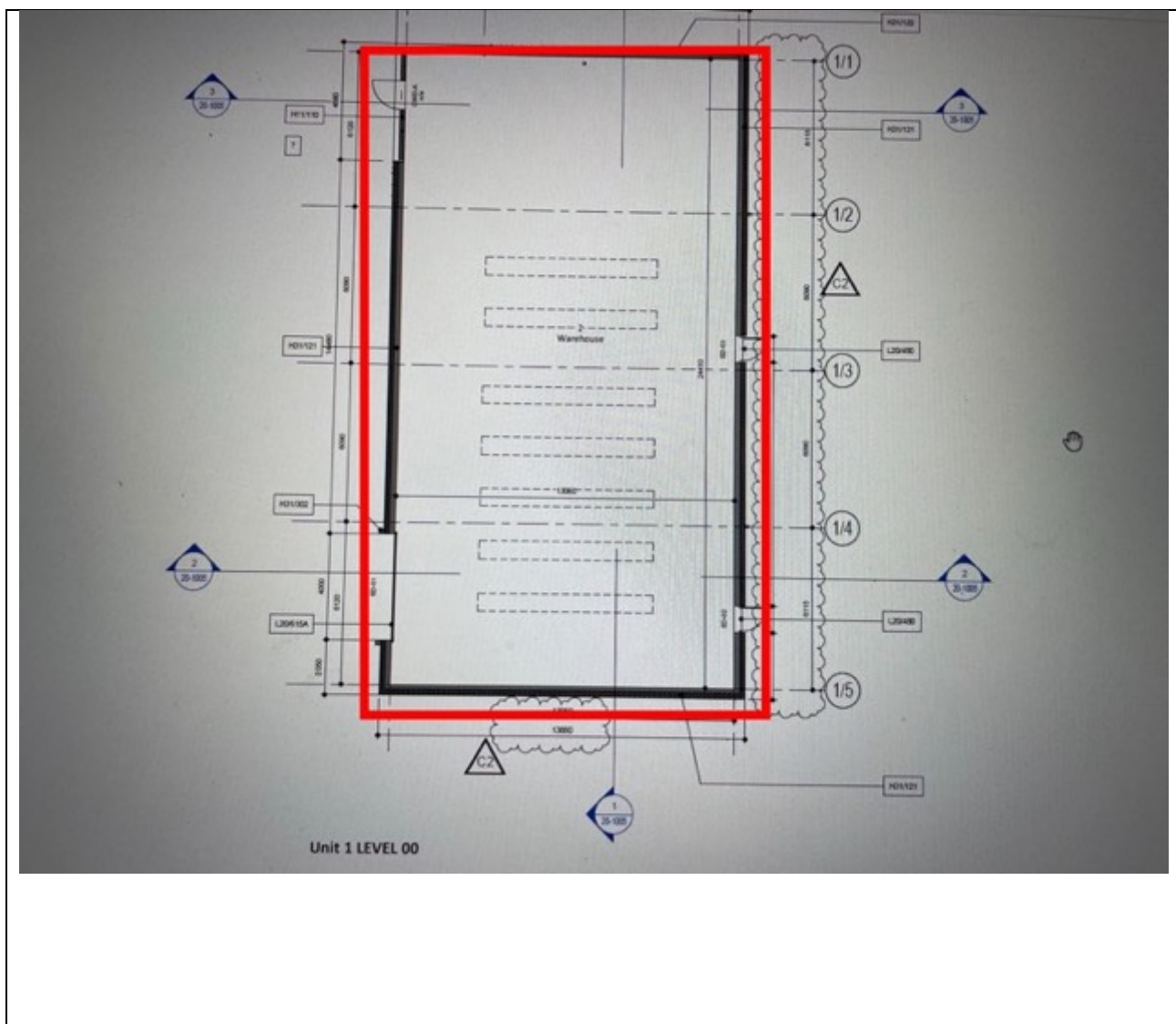


Photo 04/01/2024



Overview to the membrane line out to unit 1.



Sand blinding across the footprint within unit 1.



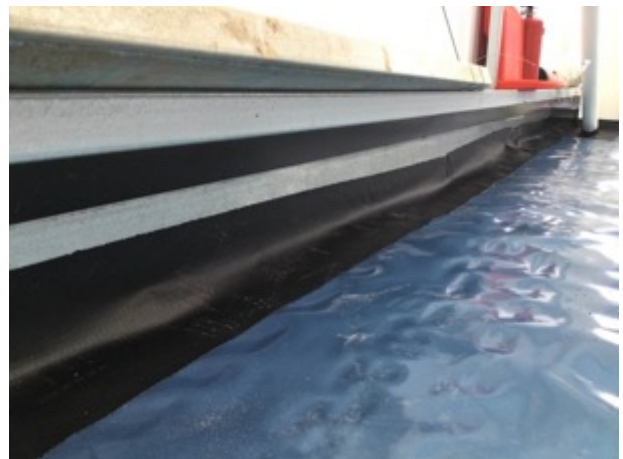
Pick testing along the hand welded lap joint.



Pipe penetration details sealed using SAGM.



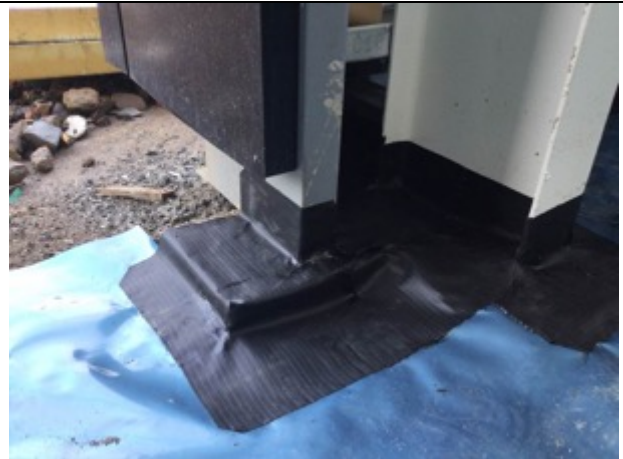
Steel stanchion and column details.



Retro detailing to the perimeter steel using SAGM.



Pick testing to the SAGM detail.



Door way detailing sealed with SAGM.



Membrane line out to unit 1

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 2 & 3 undercroft areas full line out installation	
Postcode: M8 8JJ			
Installers Name: UK Membranes			
Date: 11/01/2024			
Inspection by: Dan Squire		Weather: 6°C Dry	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A	
	Installation Notes	<p><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane, the membrane had been installed to a good standard. In each area the membrane is lined across the full marked up area upon a blinded substrate and extends out under where the armoured joint is installed. All joints are hand welded. All pipe penetrations & stanchion detailing and perimeter retro fit detailing is sealed using SAGM and heat applied. The membrane is hand welded to the membrane previously installed to the core areas and double sided butyl tape is used to seal the armoured joint pins. Each undercroft area has a small boxed out area where the membrane is lapped up the temporary shuttering to allow the area to be sealed at a later date after the pour.</p>	
	Type of Joint	Tape Joint ☐ Auto Weld ☐ Hand Weld ☒ Extrusion Weld ☐	
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
	Ventilation Inlets & Outlets	Have all pipes passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes ☐ No ☒ N/A

Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: all damages to the existing core area membrane have been sealed using SAGM patches and heat applied. No recorded defects to the undercroft area membrane.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 11/01/2024</p>			

Area Inspected

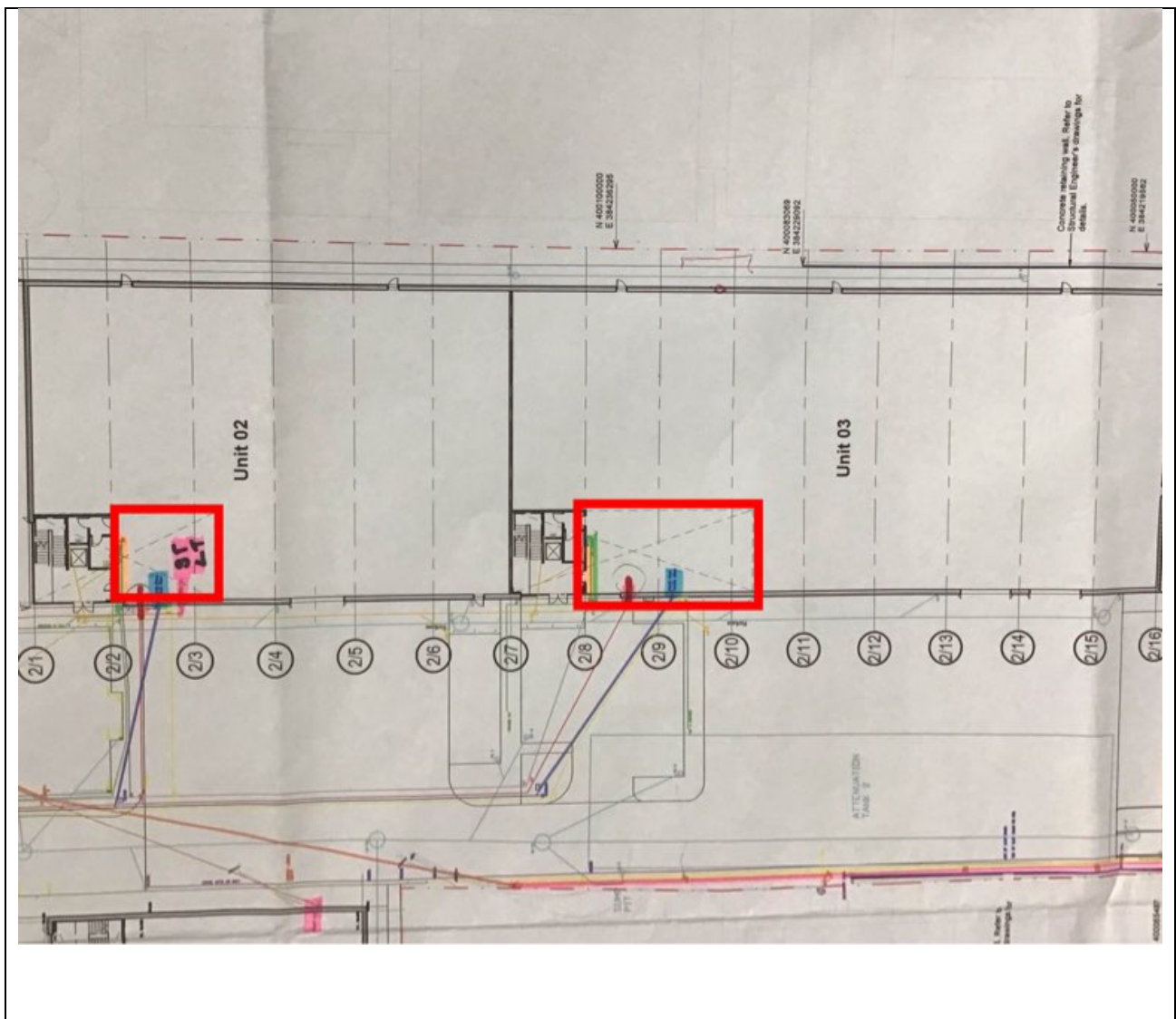


Photo 11/01/2024



Unit 2 undercroft overview



Unit 2 retro fit detailing and sealed pipe penetration



Unit 2 stanchion detailing



Unit 2 pin seals



Unit 2 membrane sealed to core area existing membrane



Unit 2 boxed out area



Unit 2 patch repairs



Rolled sub grade



Unit 3 undercroft overview



Unit 3 patch repairs



Unit 3 membrane sealed to core area existing membrane



Unit 3 boxed out area



Unit 3 retro fit detailing



Unit 3 pin seals



Unit 3 sealed pipe penetrations



Unit 3 stanchion detailing

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 4 to 8. undercroft area full line out installation	
Postcode: M8 8JJ			
Installers Name: UK Membranes			
Date: 16/01/2024			
Inspection by: Dan Squire		Weather: 1°C Dry	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A	
	Installation Notes	<p><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane, the membrane had been installed to a good standard. The membrane is lined across the full marked up area upon a blinded substrate and extends out under where the armoured joint is installed. All joints are hand welded. All pipe penetrations & stanchion detailing and perimeter retro fit detailing is sealed using SAGM and heat applied. The membrane is hand welded to the membrane previously installed to the core areas and double sided butyl tape is used to seal the armoured joint pins.</p> <p>A single layer of mesh was installed over 50% of the membrane which was to be inspected. This did not restrict the inspection.</p>	
	Type of Joint	Tape Joint ☐ Auto Weld ☐ Hand Weld ☒ Extrusion Weld ☐	
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
	Ventilation Inlets & Outlets	Have all pipes passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes ☐ No ☒ N/A

Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: all damages to the existing core area membrane have been sealed using SAGM patches and heat applied. 5no patch repairs made to the membrane installed on this visit using SAGM.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 16/01/2024</p>			

Area Inspected

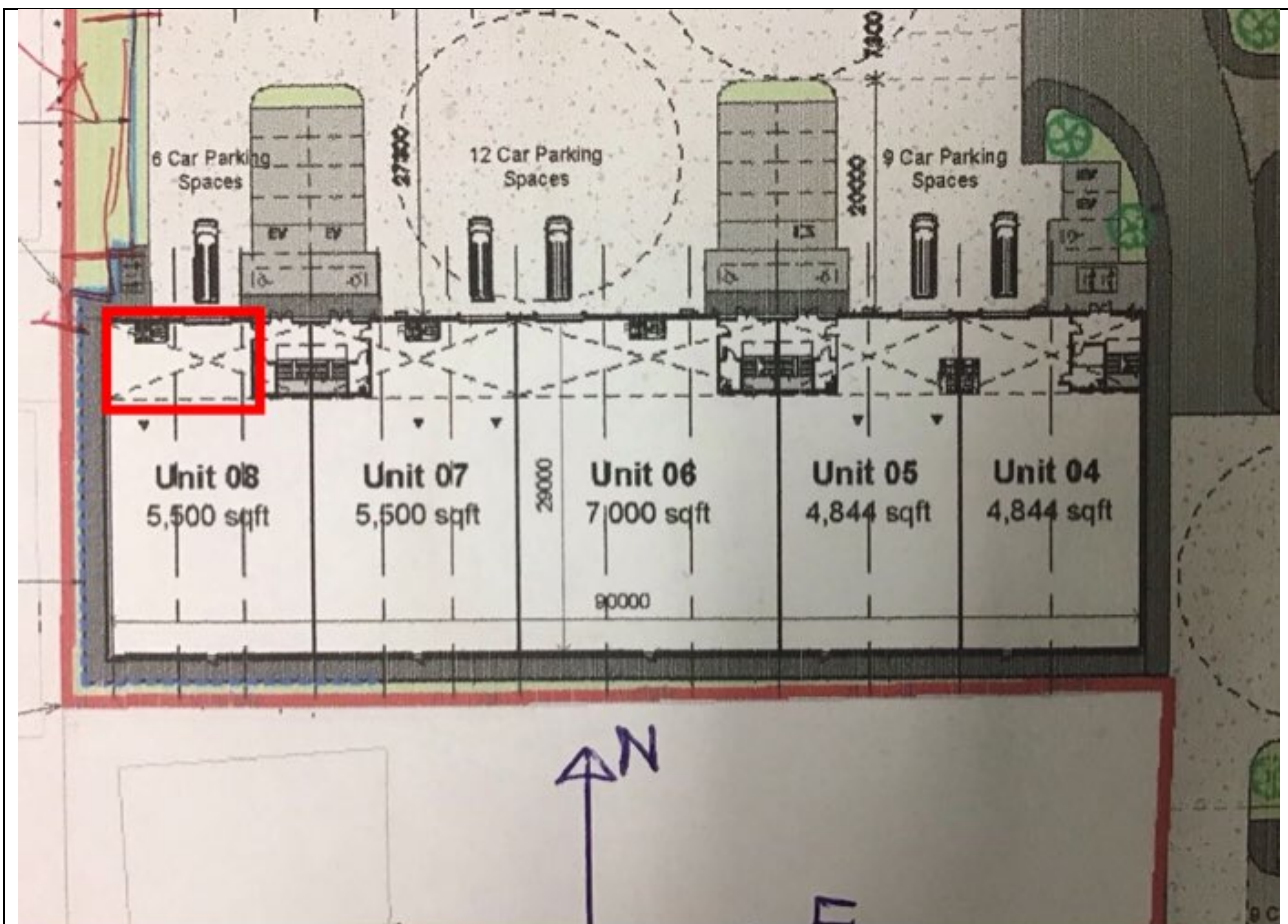
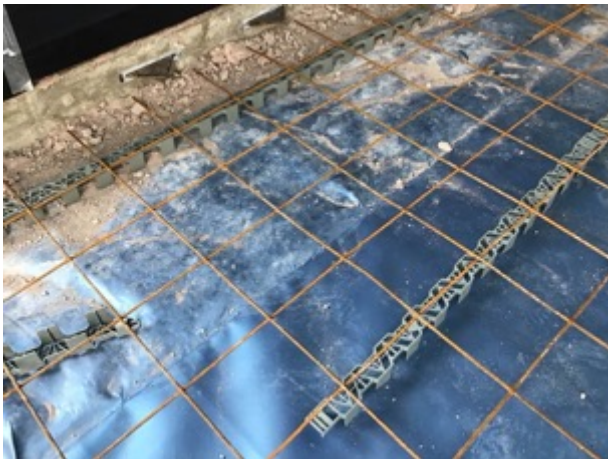


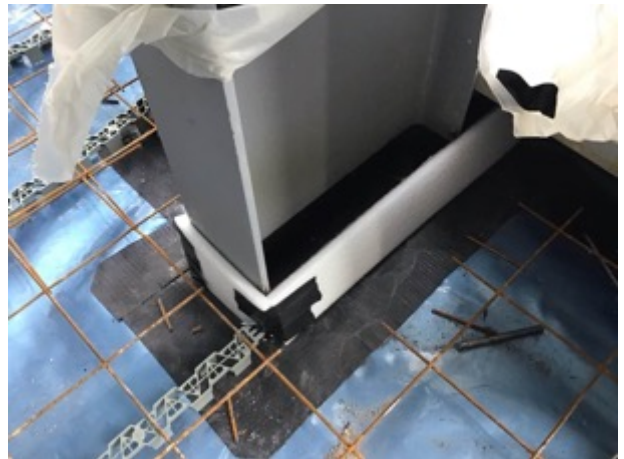
Photo 16/01/2024



Under Croft area overview



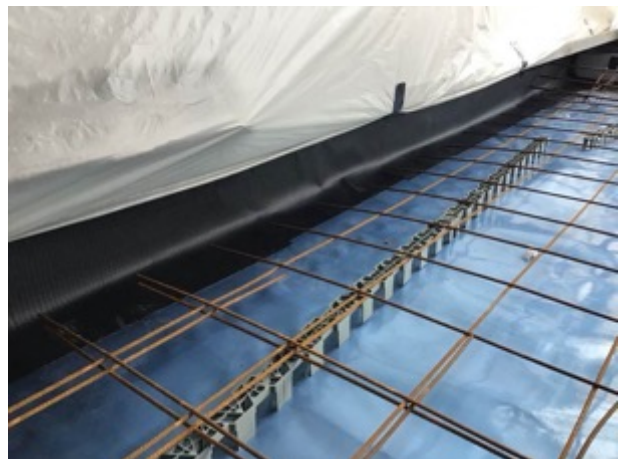
Membrane sealed to existing core area membrane



Sealed stanchion detailing



Sealed pipe penetrations



Sealed perimeter retro fit detailing



Armoured joint pins sealed using butyl tape



Sealed SAGM patch repairs

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 2 & 3 laser pour. See marked up plan		
Postcode: M8 8JJ				
Installers Name: UK Membranes				
Date: 22/01/2024				
Inspection by: Dan Squire		Weather: 9°C Dry		
	Item	Comments		
	Sub-floor void	N/A		
	Ventilation Inlets and Outlets	N/A		
	Number Of Vents	N/A		
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: Double sided butyl tape		
	Installation Notes	<p><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the perimeter edge using SAGM as a retro fit detail. All stanchions are sealed using SAGM. Butyl tape is used to seal armoured joint pins.</p>		
	Type of Joint	Tape Joint ☐	Auto Weld ☒	Hand Weld ☒ Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437)		☒ Probe Test (ASTM D4437)
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes	☐ No ☐ N/A
		Have all pipes passed testing prior to surveyor leaving site?	☐ Yes	☐ No ☒ N/A
	Ventilation Inlets & Outlets	Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes	☐ No ☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes	☐ No ☒ N/A
		Has all other detailing work passed inspection	☒ Yes	☐ No ☐ N/A

	<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: 3no patch repairs using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 22/01/2024</p>
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Area Inspected



Photo 22/01/2024



Sealed patch repairs



Sub grade prep ahead of the membrane installation



Sealed auto weld



Butyl tape on armoured joint pin



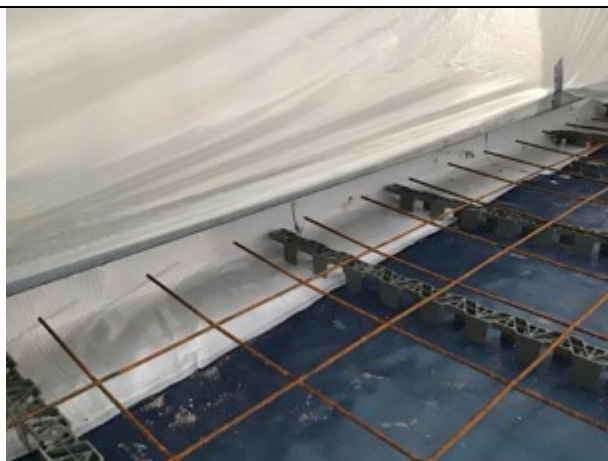
Sealed stanchion detailing



Probe test to hand weld



Pour area overview



Perimeter retro fit detailing



Concrete pour

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 2 & 3 laser pour. See marked up plan	
Postcode: M8 8JJ			
Installers Name: UK Membranes			
Date: 23/01/2024			
Inspection by: Dan Squire		Weather: 6°C Dry	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: Double sided butyl tape	
	Installation Notes	<u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u> MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the perimeter edge using SAGM as a retro fit detail and hand welded to the membrane from the previous pour areas. All stanchions are sealed using SAGM. Butyl tape is used to seal armoured joint pins.	
	Type of Joint	Tape Joint ☐	Auto Weld ☒ Hand Weld ☒ Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
	Ventilation Inlets & Outlets	Have all pipes passed testing prior to surveyor leaving site?	☐ Yes ☐ No ☒ N/A
		Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes ☐ No ☒ N/A

Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: All shuttering pin holes and 2no patch repairs made by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 23/01/2024</p>			

Area Inspected

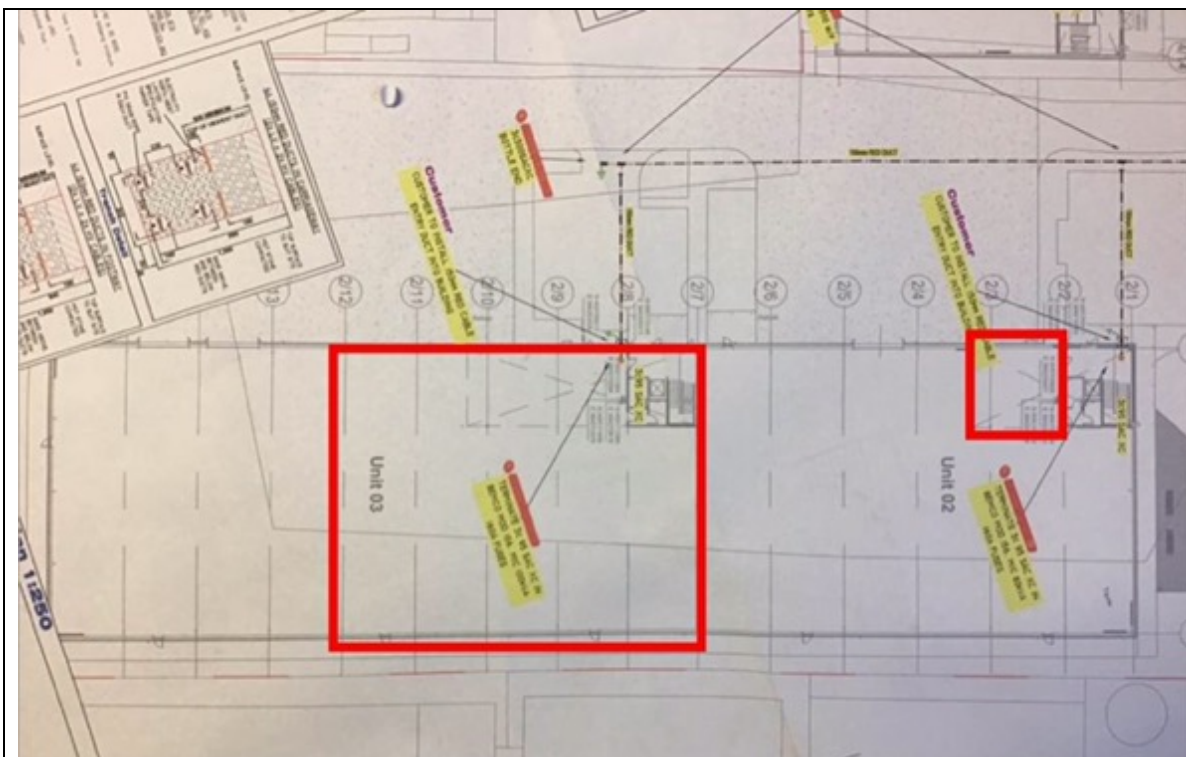


Photo 23/01/2024



Poured under crotch area



Laser screed pour



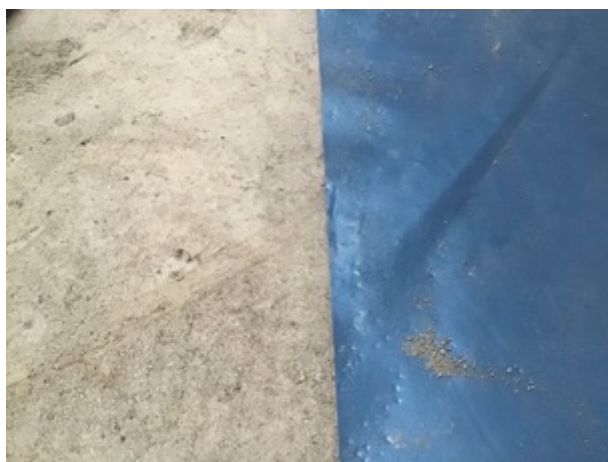
Sealed auto weld membrane joint



Perimeter retro fit detailing



Sealed stanchion detailing



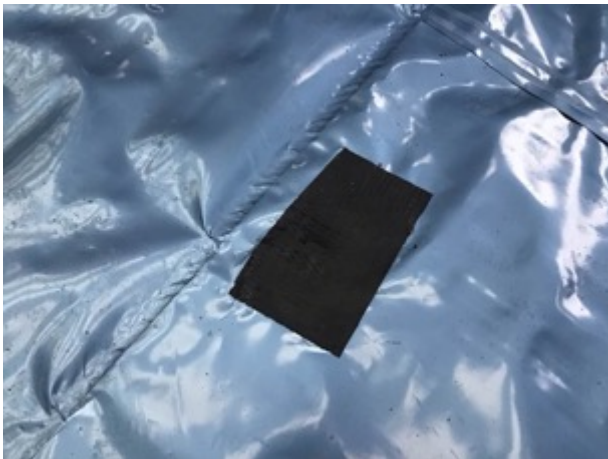
Membrane lined over rolled substrate



Pick test to hand weld



Armoured pin sealed with butyl tape



Sealed patch repair



Plant keeping off the mesh over the membrane

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 2 & 3 laser pour. See marked up plan			
Postcode: M8 8JJ					
Installers Name: UK Membranes					
Date: 24/01/2024					
Inspection by: Dan Squire		Weather: 9°C Dry			
	Item	Comments			
	Sub-floor void	N/A			
	Ventilation Inlets and Outlets	N/A			
	Number Of Vents	N/A			
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: Double sided butyl tape			
	Installation Notes	<p><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the perimeter edge using SAGM as a retro fit detail and hand welded to the membrane from the previous pour areas. All stanchions are sealed using SAGM. Butyl tape is used to seal armoured joint pins.</p>			
	Type of Joint	Tape Joint ☐	Auto Weld ☒	Hand Weld ☒	Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437)		☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
	Ventilation Inlets & Outlets	Have all pipes passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☒ N/A
		Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☒ N/A

Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: 4no patch repairs made by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 24/01/2024</p>			

Area Inspected



Photo 24/01/2024



Under Croft area pump pour



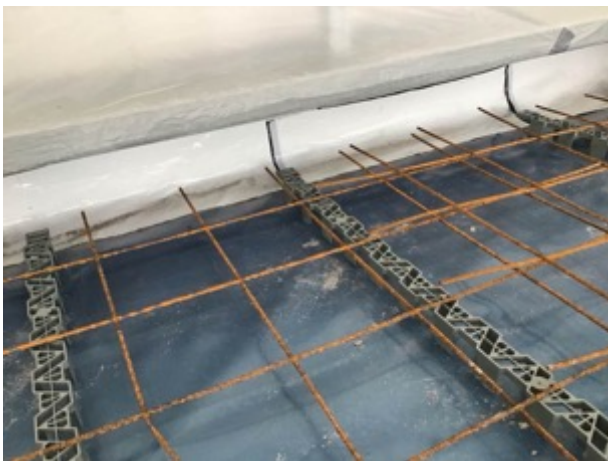
Membrane install prior to laser screed



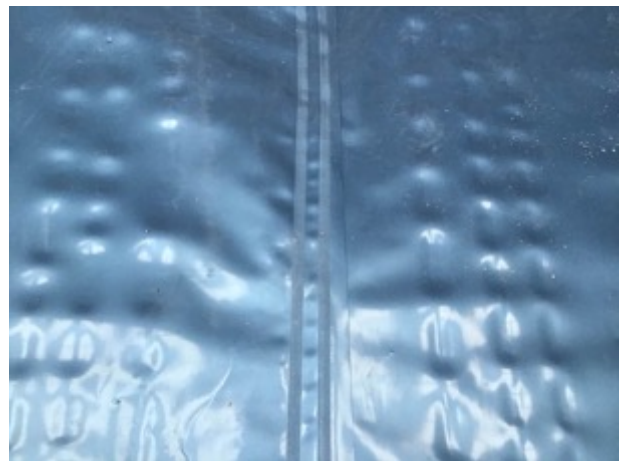
Sealed stanchion detailing



Probe test to hand welds



Perimeter retro fit detailing



Auto weld membrane joint



Butyl tape on armoured joint pin



Plant keeping off the mesh over the membrane



Sealed patch repair



Laser screed pour



Sub grade prep

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 4 to 8 laser pour. See marked up plan	
Postcode: M8 8JJ			
Installers Name: UK Membranes			
Date: 25/01/2024			
Inspection by: Dan Squire		Weather: 8°C Dry	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A	
	Installation Notes	<u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u> MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the perimeter edge using SAGM as a retro fit detail and hand welded to the membrane from the previous pour areas. All stanchions and pipe penetrations are sealed using SAGM.	
	Type of Joint	Tape Joint ☐ Auto Weld ☒ Hand Weld ☒ Extrusion Weld ☐	
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
Laps, welds and detailing Ventilation Inlets & Outlets	Have all joints passed testing prior to surveyor leaving site?	☒ Yes	☐ No ☐ N/A
	Have all pipes passed testing prior to surveyor leaving site?	☒ Yes	☐ No ☐ N/A
	Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes	☐ No ☐ N/A
	Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes	☐ No ☒ N/A
	Has all other detailing work passed inspection	☒ Yes	☐ No ☐ N/A

	<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: 11no patch repairs made by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 25/01/2024</p>
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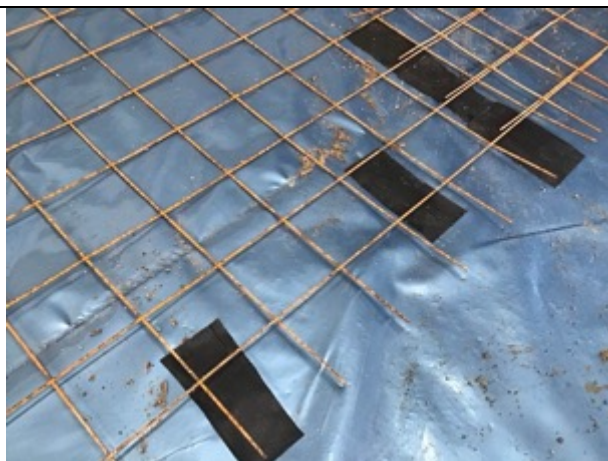
Area Inspected



Photo 25/01/2024



Hand weld probe testing



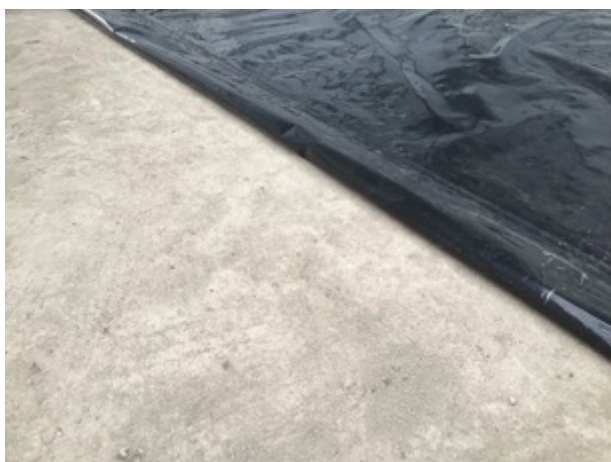
Sealed patch repairs



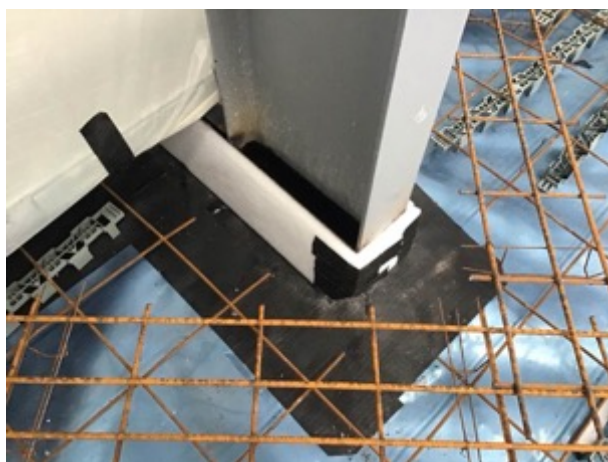
Laser screed pour



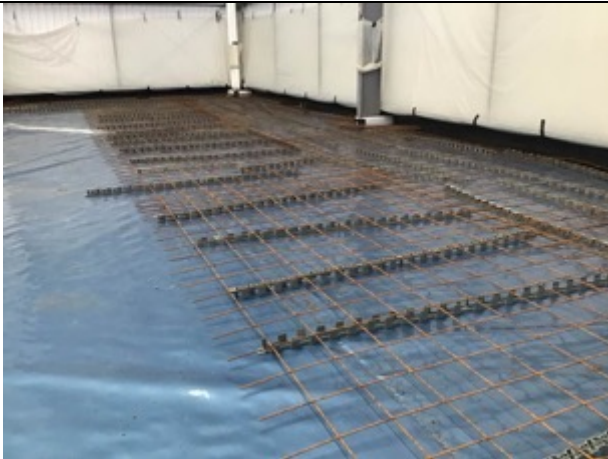
Sealed auto weld membrane joint



Rolled substrate ahead of the membrane installation



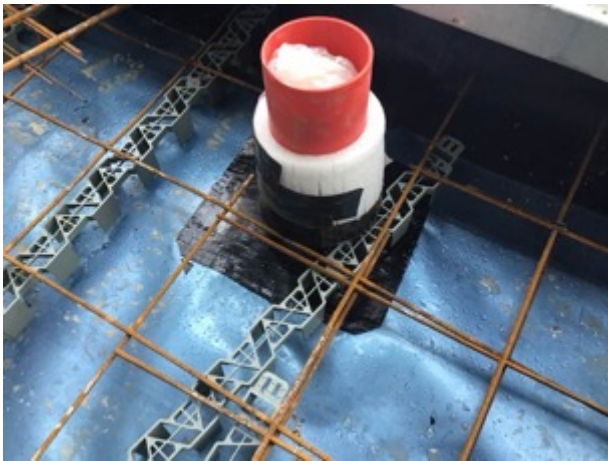
Sealed stanchion detailing



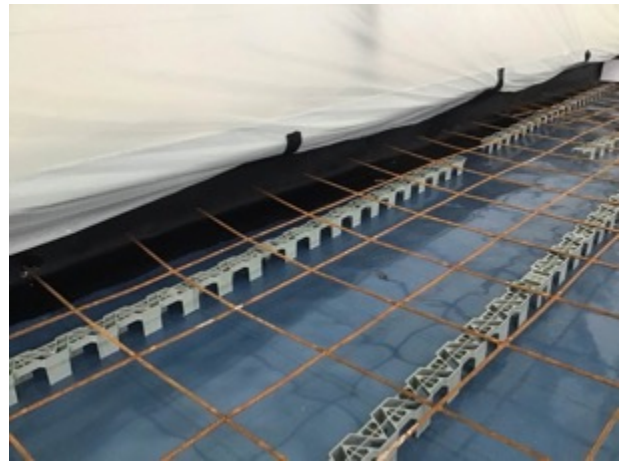
Membrane lined ahead of the pour



Laser screed pour



Sealed pipe penetration



Perimeter retro fit detailing

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 4 to 8 laser pour. See marked up plan	
Postcode: M8 8JJ			
Installers Name: UK Membranes			
Date: 26/01/2024			
Inspection by: Dan Squire		Weather: 7°C Dry	
	Item	Comments	
	Sub-floor void	N/A	
	Ventilation Inlets and Outlets	N/A	
	Number Of Vents	N/A	
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☒ Yes Preformed Corners ☐ Yes Others Please List: N/A	
	Installation Notes	<u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u> MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the perimeter edge using SAGM as a retro fit detail and hand welded to the membrane from the previous pour areas. All stanchions are sealed using SAGM. Double sided Butyl tape is used to seal armoured joint pins	
	Type of Joint	Tape Joint ☐	Auto Weld ☒
		Hand Weld ☒	Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437) ☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
	Ventilation Inlets & Outlets	Have all pipes passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?	☒ Yes ☐ No ☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes ☐ No ☒ N/A

Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: 7no patch repairs made by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 26/01/2024</p>			

Area Inspected

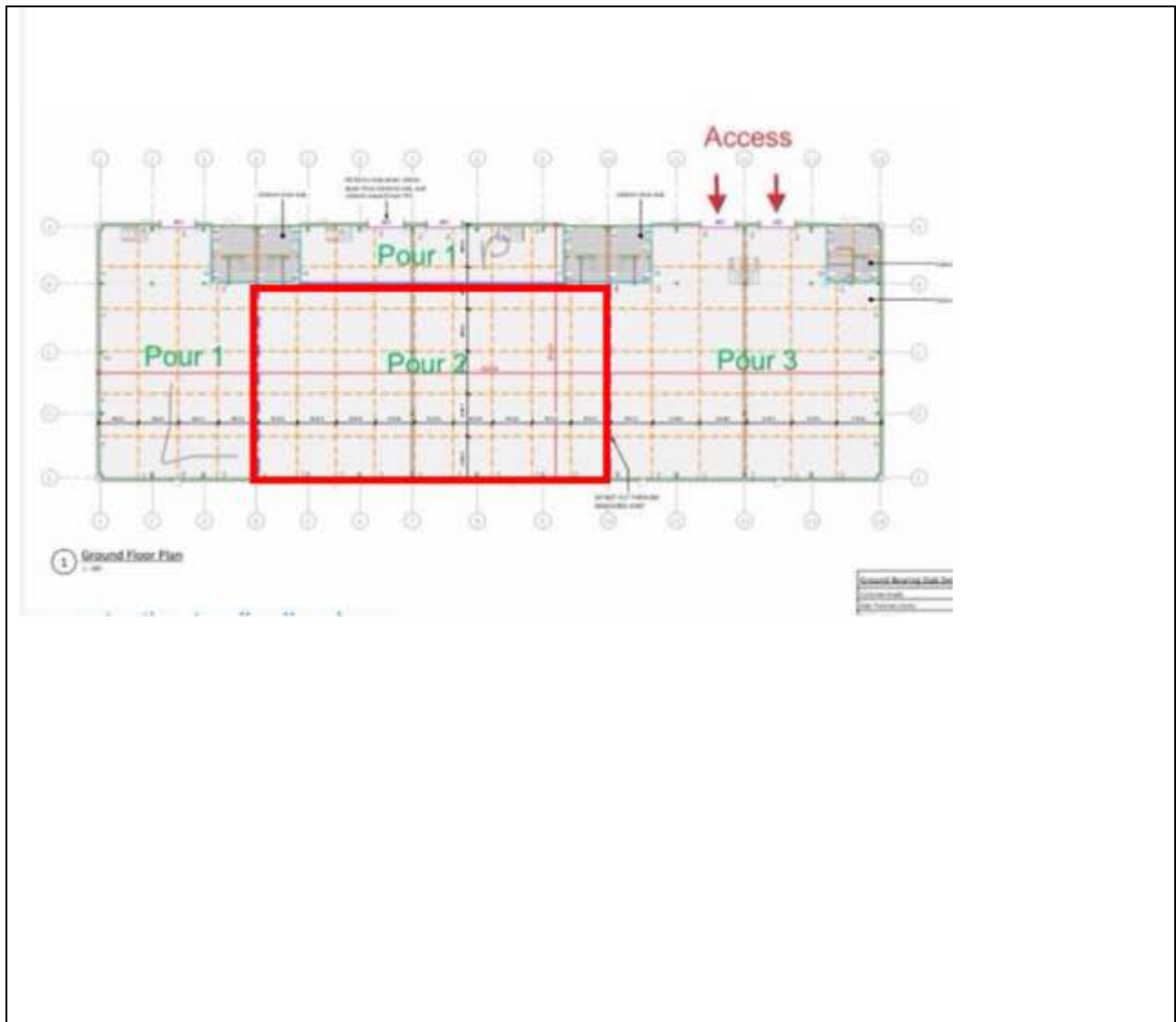


Photo 26/01/2024



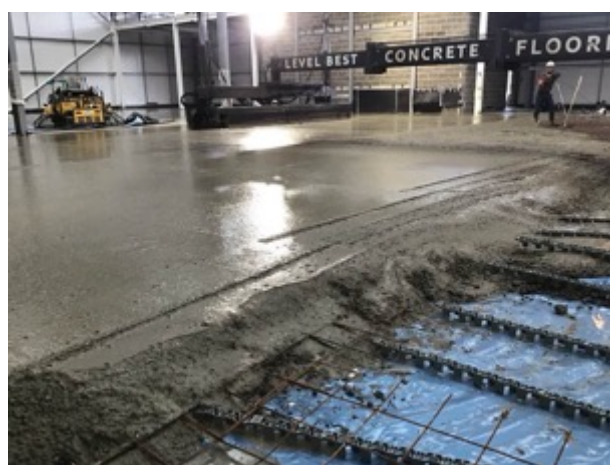
Sub grade prep ahead of the membrane installation



Sealed patch repairs



Sealed patch repair



Laser screed pour



Plant keeping off the mesh over the membrane



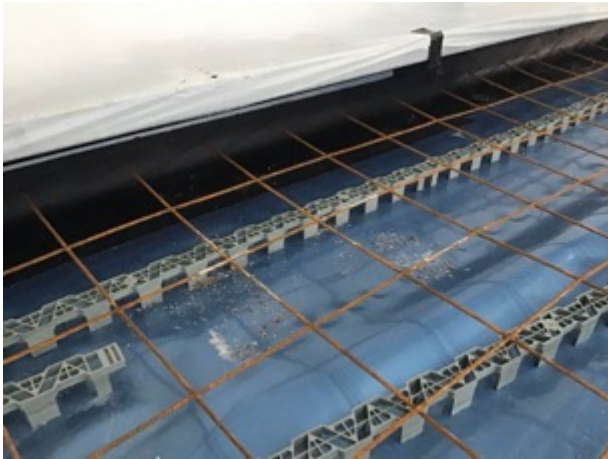
Auto weld membrane joint



Hand weld probe testing



Butyl tape around armoured joint pin



Perimeter retro fit detailing



Sealed stanchion detailing



Pour area overview

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 4 to 8 laser pour. See marked up plan			
Postcode: M8 8JJ					
Installers Name: UK Membranes					
Date: 29/01/2024					
Inspection by: Dan Squire		Weather: 9°C Dry			
	Item	Comments			
	Sub-floor void	N/A			
	Ventilation Inlets and Outlets	N/A			
	Number Of Vents	N/A			
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☒ Yes Preformed Corners ☐ Yes Others Please List: N/A			
	Installation Notes	<u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u> MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the perimeter edge using SAGM as a retro fit detail and hand welded to the membrane from the previous pour areas. All stanchions and pipe penetrations are sealed using SAGM. Double sided Butyl tape is used to seal armoured joint pins			
	Type of Joint	Tape Joint ☐	Auto Weld ☒	Hand Weld ☒	Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437)		☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?		☒ Yes	☐ No ☐ N/A
	Ventilation Inlets & Outlets	Have all pipes passed testing prior to surveyor leaving site?		☒ Yes	☐ No ☐ N/A
		Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?		☒ Yes	☐ No ☐ N/A
		Have all piles and pile caps passed testing prior to surveyor leaving site?		☐ Yes	☐ No ☒ N/A

Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: 6no patch repairs made by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 29/01/2024</p>			

Area Inspected



Photo 29/01/2024



Patch repair



Patch repair



Laser screed pour



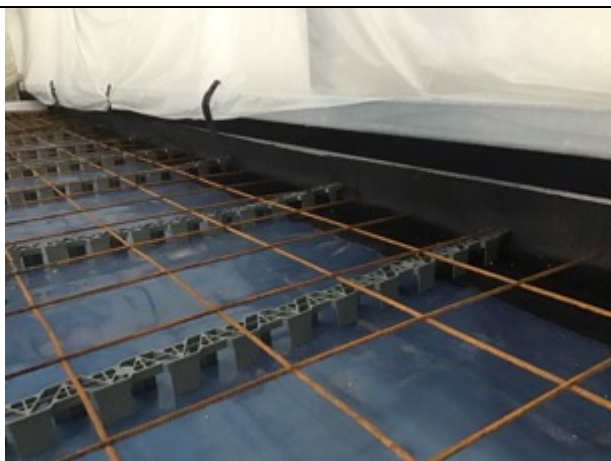
Sub grade prep



Pins sealed with butyl tape



Sealed stanchion detailing



Sealed perimeter retro fit detailing



Sealed pipe penetration



Probe test on hand weld



Sealed auto weld membrane joint

Site name: Triton Construction - Trade City. Elizabeth Street, Cheetham Hill, Manchester		Units/ plots checked: : Unit 9 laser pour. See marked up plan			
Postcode: M8 8JJ					
Installers Name: UK Membranes					
Date: 30/01/2024					
Inspection by: Dan Squire		Weather: 8°C Dry			
	Item	Comments			
	Sub-floor void	N/A			
	Ventilation Inlets and Outlets	N/A			
	Number Of Vents	N/A			
	Materials used:	Membrane – Juta GP5 gas barrier membrane Self-Adhesive Membrane ☒ Yes Preformed Top hats ☐ Yes Double Sided Butyl Tape ☐ Yes Preformed Corners ☐ Yes Others Please List: N/A			
	Installation Notes	<p><u>(brief description of area/plots and list of defects/repairs identified to the main membrane sheet, excluding detailing and joints)</u></p> <p>MEC Environmental carried out a thorough visual inspection of the membrane that was laid on a just in time basis in front of a laser pour, during our inspection we witnessed the installer carrying out their own CQA repairs as the pour progressed. The membrane is lined across the full footprint of the building upon a sand blinded and rolled substrate. The membrane is auto welded into panels and hand welded into position as the pour progresses. The membrane is sealed to the perimeter edge using SAGM as a retro fit detail. All stanchions and pipe penetrations are sealed using SAGM. There is 1no boxed out section from the pour where the membrane has been taken up and over the temporary shuttering to allow it to be joined and sealed at a later date when the shuttering is removed. The approximate location of this is marked in green on the marked up plan.</p>			
	Type of Joint	Tape Joint ☐	Auto Weld ☒	Hand Weld ☒	Extrusion Weld ☐
	Jointing/Detailing Testing	☐ Air Lance (ASTM D4437)		☒ Probe Test (ASTM D4437)	
	Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?		☒ Yes	☐ No
		Have all pipes passed testing prior to surveyor leaving site?		☒ Yes	☐ No
	Ventilation Inlets & Outlets	Have all stanchions/wind braces/columns passed testing prior to surveyor leaving site?		☒ Yes	☐ No
				☐ N/A	☐ N/A

	Have all piles and pile caps passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☒ N/A
	Has all other detailing work passed inspection	☒ Yes	☐ No	☐ N/A
	<p><u>(List any defects to detailing work and joints):</u></p> <p>During our inspection the following defects and repairs were carried out: 5no patch repairs made by the installers using SAGM and heat applied.</p> <p>Have any defects identified above been satisfactorily rectified ☒ Yes ☐ No ☐ N/A</p> <p>The Area has passed inspection ☒</p> <p>The Area has failed inspection and a corrective action sheet has been left with the contractor ☐</p> <p>The Area is incomplete as detailed above ☐</p> <p>Signed: Dan Squire Date: 30/01/2024</p>			

Area Inspected



Photo 30/01/2024



Laser screed pour



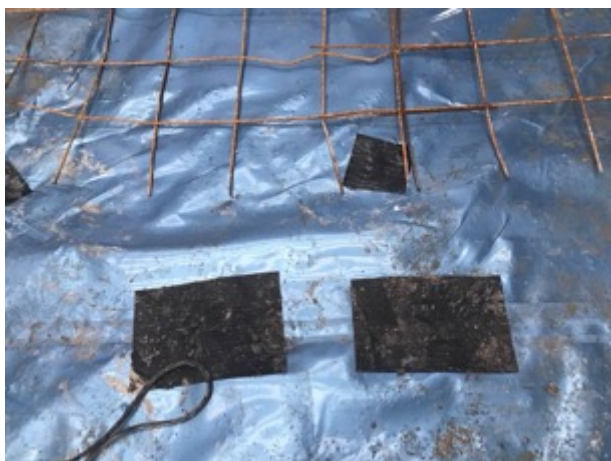
Sub grade prep



Sealed pipe penetrations



Boxed out area



SAGM patch repairs



Sealed stanchion detailing



Probe test to hand weld



Auto weld membrane joint



Perimeter retro fit detailing

080139-CUR-XX-XX-T-GE-00006

Elizabeth Street, Cheetham Hill

Phase 4 Validation Report

Curtins

Appendix H – Correspondence

NW164 Elizabeth Street, Manchester M8 8BB

Ground Remediation Statement

Triton Construction Ltd confirm that during the ground remediation works at Elizabeth Street, Manchester M8 8BB, no unexpected contamination was encountered in the ground.

Whilst existing site ground materials and suitable crushed materials were re-engineered and re-used in the ground stabilisation, all additional ground stabilisation operations were completed using imported fill.

These imported materials were all selected inert and structurally appropriate materials.

The details of all imported materials along with certifications is within the Health & Safety File.

Yours faithfully

Andy Gaskell MCIOB
Contracts Manager

Triton Construction Ltd

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