



Lampwick, Ancoats, Manchester

Remediation Verification Report

For John Sisk & Son (Holdings) Ltd

Date: 29 July 2021

Doc ref: MLLW-HYD-XX-XX-RP-C-110007-S2-P04

DOCUMENT CONTROL SHEET

Issued by	Hydrock Consultants Limited Northern Assurance Buildings 9-21 Princess Street Manchester M2 4DN	Tel: 0161 804 5550 www.hydrock.com
Client	John Sisk & Son (Holdings) Ltd	
Project name	Lampwick, Ancoats, Manchester	
Title	Remediation Verification Report	
Doc ref	MLLW-HYD-XX-XX-RP-C-110007-S2-P04	
Hydrock Project no.	C-11081-C	
Status	S2	
Date	29/07/2021	

Document Production Record		
Issue Number	P04	Name
Prepared by	Jason Bradley BSc (Hons) MSc FGS	
Checked by	Danny Hope BSc (Hons) MSc MCIWEM C.WEM CEnv SiLC	
Approved by	Danny Hope BSc (Hons) MSc MCIWEM C.WEM CEnv SiLC	

Document Revision Record			
Issue Number	Status	Date	Revision Details
P01	S1	07/01/2021	Draft Issue to client.
P02	S2	07/01/2021	Updated following client comments.
P03	S2	26/01/2021	Document renamed to suit naming convention
P04	S2	29/07/2021	Addition of cover system test results

Hydrock Consultants Limited has prepared this report in accordance with the instructions of the above-named client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

CONTENTS

1.	INTRODUCTION.....	1
1.1	Terms of Reference.....	1
1.2	Background.....	1
1.3	Objectives	1
1.4	Parties Involved in Remedial Works.....	1
1.5	List of Previous Reports	2
2.	REMEDIATION STRATEGY.....	3
2.1	Background.....	3
2.2	Key Issues requiring remedial activities	4
2.3	Summary of Remediation Requirements.....	4
2.4	Materials Management Plan.....	5
3.	REMEDIATION WORKS UNDERTAKEN	6
3.1	Task 1: Project setup and management, including liaison with the Local Authority, Environment Agency and Health and Safety Executive, where necessary, with appropriate permits / licences / consents / approvals granted	6
3.2	Task 2: Appointment of contractors	6
3.3	Task 3: Air Quality Boundary Monitoring for asbestos, before earthworks commence and during the earthworks.....	6
3.4	Task 4: Break out of hardstanding and below ground obstructions, processing for re-use and below slab inspection	6
3.5	Task 5 and 6: Earthworks	7
3.6	Task 7: Over-excavation of service corridors and installation of Protectaline (or similar) pipework.	9
3.7	Task 8: Installation of cover system for landscaping areas	9
3.8	Task 9: Gas Protection Measures.....	9
3.9	Task 10: Supervision, Verification and Reporting.....	10
4.	CONCLUSION	11

Appendices

Appendix A	Drawings
Appendix B	Laboratory Results
Appendix C	Material Movements
Appendix D	Asbestos Air Monitoring Certification
Appendix E	Correspondence
Appendix F	Waste Consignment Notes
Appendix G	Gas Protection Measures Inspection Sheets
Appendix H	Progress Photographs
Appendix I	Photographs and chemical test data for imported soils for the landscape cover system

1. INTRODUCTION

1.1 Terms of Reference

In October 2018, Hydrock Consultants Limited (Hydrock) was commissioned by John Sisk & Son (Holdings) Ltd to produce a Verification Report for a site known as Lampwick in Ancoats, Manchester in accordance with the Remediation Method Statement (RMS) for the site (MLLW-HYD-XX-XX-MS-Y-110002).

1.2 Background

The site covers approximately 0.53Ha and prior to development was most recently open land mostly surfaced with crushed limestone hardcore and used as a car parking area.

The proposed development is to comprise the erection of one six-storey and one ten-storey building linked by a five-storey building, to form 213 residential apartments with ground floor commercial space, associated car parking, and hard and soft landscaping areas. A proposed development layout is presented in Appendix A.

Planning permission Ref. 116190/FO/2017 (included in Appendix E) has been issued by Manchester City Council. Contamination is covered by condition 5, as follows:

Notwithstanding the preliminary Geotechnical and Geo-environmental report stamped as received by the City Council, as Local Planning Authority, on the 5 May 2017, (a) a) Before the development hereby approved commences, a remediation strategy shall be submitted for approval in writing by the City Council, as Local Planning Authority.

(b) When the development commences, the development shall be carried out in accordance with the previously agreed Remediation Strategy and a Completion/Verification Report shall be submitted to and approved in writing by the City Council as local planning authority before the residential element of the development is occupied.

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 development shall cease and/or the development shall not be occupied 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.

The Planning Decision Notice (116190/FO/2017) is included in Appendix E.

1.3 Objectives

This verification report is the final report of a series that is required to discharge planning conditions relating to contamination and is based on the tasks set out in the Remediation Method Statement (RMS) prepared by Hydrock in November 2019. The overall objective is to demonstrate that the agreed remediation strategy has been complied with and that the site has been rendered Suitable for Use.

1.4 Parties Involved in Remedial Works

Remedial works mainly involved the excavation and re-use of materials on site and the installation of ground gas protection measures (CS2) in accordance with the approved remediation strategy.

- The main bulk earthworks and civils contractor for the development is PP O'Connor;
- The gas membrane installation contractor is MPB Membranes Ltd; and
- Geo environmental and earthworks consultant to PP O'Connor (via sub-consultant Arley Consulting).

Hydrock undertook watching brief visits on the following dates:

Visit 1 - 31/07/2019

Visit 2 - 27/08/2019

Visit 3 – 29/08/2019

Visit 4 – 05/09/2019

Visit 5 – 18/03/2020

Visit 6 – 13/10/2020

1.5 List of Previous Reports

The site has been the subject of a number of environmental investigations and assessments. These reports are listed below and have been summarised in the Hydrock Letter Report "Review of existing ground investigation information for Lampwick, Ancoats, Manchester", Ref, LAM-HYD-XX-X-RP-GE-0002, dated 8th November 2018.

In preparing the verification report, the following documents were consulted and should be read in conjunction with this report:

- Hydrock, Remediation Method Statement, November 2019, ref. MLLW-HYD-XX-XX-MS-Y-110002-S3-P03.
- The Arley Consulting Company Limited, April 2020, VERIFICATION OF EARTHWORKS at LAMPWICK ANCOATS, MANCHESTER, ref. 19902/1.

2. REMEDIATION STRATEGY

2.1 Background

Hydrock Remediation Method Statement (ref. MLLW-HYD-XX-XX-MS-Y-110002-S3-P03) dated November 2019 summarised the key risk drivers onsite as the following:

- Asbestos fibres in the Made Ground
- Marginally elevated concentrations of lead and PAH in the Made Ground; and
- Ground gas (carbon dioxide) ingress.

Consequently, the Made Ground soils were deemed to pose an unacceptable risk to human health and require remediation in order to mitigate the risk.

The Made Ground contamination is not considered to pose a significant risk to Controlled Waters.

The above reports (section 1.5) were submitted to the Local Authority and were deemed sufficient to obtain discharge of planning condition four. The remediation strategy which, if implemented, would render the site suitable for its proposed end use.

Manchester City Council contaminated land department reviewed the RMS and confirmed that it was adequate. The consultation and correspondence on the planning application is provided in Appendix E.

Full details of the remedial requirements are provided in the RMS (ref. MLLW-HYD-XX-XX-MS-Y-110002-S3-P03) and associated documents referred to therein. A summary of the risk assessment findings and outcomes are presented in Table 2.1 below.

Table 2.1: Risk Assessment Summary

Contaminant Linkages			Comments
Sources	Pathways	Receptors	
Loose asbestos fibres in the shallow Made Ground.	Inhalation of fugitive fibres.	Human health.	Low levels of asbestos fibres measured in soil samples. Mitigation required in the form of an engineered cover system.
Lead and some PAHs in the shallow Made Ground.	Ingestion, inhalation or direct contact.	Human health.	The exceedances recorded for these substances were rare and highly marginal (e.g. lead at 320mg/kg, compared to a screening value of 310mg/kg, and recorded in one sample only). These substances are not considered to pose a significant risk at the concentrations recorded. However, the remedial measures employed to break the pollution linkage with the asbestos fibres will do the same for lead and PAH.
Elevated concentrations of carbon dioxide from biodegradable matter in the Made Ground.	Migration through soils or groundwater to indoor air.	End users of new buildings (asphyxiation). Users of off-site properties (asphyxiation).	High levels of carbon dioxide (up to 13% v/v) were recorded in the shallow Made Ground at one location (BH6) during the 2007 Geotechnics investigation. Gas protection measures required in the new building commensurate with CS 2.

2.2 Key Issues requiring remedial activities

The exploratory works completed to date indicate the presence of loose asbestos fibres and localised, marginally elevated concentrations of lead and PAHs in the shallow Made Ground. There remains the potential for sporadic occurrences of fragments of ACM throughout the Made Ground, which largely comprises demolition rubble in a clayey or sandy matrix. In addition, elevated concentrations of carbon dioxide have been recorded at one location in the past.

Due to the nature of asbestos contamination on sites where demolition works have taken place, it has to be assumed that all of the Made Ground at the site may have been impacted, and therefore the whole site will require remediation to break the pollutant linkage between the asbestos-contaminated soils and the site end users.

Due to the presence of organic contamination within the Made Ground all service trenches will require over excavation (by at least 300mm) prior to the installation of barrier pipes as agreed with water supply company through the submission of water pipe risk assessment.

Provision was also to be made for hand picking of asbestos containing materials where these are observed at the surface or sporadically within Made Ground and disposal offsite to a suitably licensed waste contractor.

During the remedial works, Made Ground that contains pervasive PAH, arsenic, lead, PAH or <0.1%->0.001% w/w non-visible trace asbestos loose fibres will be placed at the agreed depth below hardstanding or an engineered cover system. The engineered cover systems are to contain soil up to 450mm depth underlain by a geotextile marker in areas of soft landscaping.

All soils to be re-used on site below the cover system or areas of hardstanding/buildings will not need additional testing but will require the following criteria to be met:

- no visual contamination (oil staining etc.);
- limited deleterious material (organics, wood, metal etc.), in accordance with any geotechnical specification;
- no visible asbestos containing material (ACM).

Soils to be re-used as part of the cover system will need to be tested at a rate of 1 sample per 50m³ and comply with the import/re-use criteria as detailed in Section 6. If any of these thresholds are exceeded the material shall be considered to be unsuitable unless treatment, further testing and risk assessment shows it to be satisfactory.

2.3 Summary of Remediation Requirements

Based upon the findings of the previous site investigations, risk assessments and a Remediation Options Appraisal, the remedial actions were undertaken to create a site which is suitable for its proposed end use. All works were completed in accordance with the “CLAIRE Definition of Waste Development Industry Code of Practice, 2nd Edition” and a Material Management Plan was produced and then signed off by a “Qualified Person” (QP).

The remediation works were designed to maximise the re-use of soils on site and minimise off-site disposal, whilst recognising the end goals of the various specifications.

The following remedial activities were undertaken to deliver the site Suitable for Use (SFU) for the defined residential end use.

- Task 1: Project setup and management, including liaison with the Local Authority, Environment Agency and Health and Safety Executive, where necessary, with appropriate permits / licences / consents / approvals granted.
- Task 2: Appointment of contractors.
- Task 3: Pre-works air quality boundary monitoring for dust and asbestos, before earthworks commence and during the earthworks.
- Task 4: Break out of any areas of relict hardstanding, below ground obstructions and old drainage systems, processing of the arisings for re-use, and below slab inspection.
- Task 5: Earthworks.
- Task 6: Stockpile testing and re-use on-site or disposal off-site of excess soils to appropriate waste management facilities.
- Task 7: Placement of Service Corridor.
- Task 8: Installation of cover system for landscaping areas.
- Task 9: Installation of ground gas protection measures appropriate for CS 2 conditions.
- Task 10: Supervision, Verification and Reporting.

2.4 Materials Management Plan

A fundamental requirement was the preparation and QP Declaration of a Materials Management Plan prepared under the CL: AIRE Definition of Waste Code of Practice to cover:

- The Bulk Earthworks Contract;
- The contracts relating to service trench and foundation excavations; and
- The import and placement of clean fill material.

The MMP and RMS included a Materials Tracking System that specified how material was to be stockpiled, tested, and placed, to become a project record for future reference.

Materials moved within the site, as per the cut and fill plan will be tracked on daily records/ diary by PP O'Connor. Imported materials will be tracked via delivery receipts with PP O'Connor to maintain the records.

Any export of materials, will be recorded by means of waste transfer tickets/consignment notes. A record will be made of the ticket number, the vehicle registration, driver and donor site details. The records will be maintained by PP O'Connor.

All excavated soils will be stockpiled. Chemical testing will be undertaken in accordance with the RMS to determine whether materials are suitable for reuse. Materials that are not suitable will be quarantined and kept damp to reduce wind-blown contamination prior to removal from the site or processing.

All excavated soils deemed to be unsuitable for reuse due to the presence of visible asbestos will be stockpiled separately (quarantined) subject to processing or disposal off site.

3. REMEDIATION WORKS UNDERTAKEN

- 3.1 Task 1: Project setup and management, including liaison with the Local Authority, Environment Agency and Health and Safety Executive, where necessary, with appropriate permits / licences / consents / approvals granted

The main construction contractor John Sisk & Son (Holdings) Ltd appointed PP O'Connor as the main bulk earthworks and civils contractor for the complete Lampwick commission. Hydrock were appointed by John Sisk & Son (Holdings) Ltd to undertake a periodic watching brief of the enablement phase remediation works, specifically relating to stockpile sampling and liaising with PP O'Connor to ensure management of material placement.

- 3.2 Task 2: Appointment of contractors

PP O'Connor was appointed as Principal Contractor by John Sisk & Son (Holdings) Ltd to undertake the bulk earthworks and enablement phase remedial works relating to planning application reference 116190/FO/2017. All permits and licenses were obtained by PP O'Connor and are available upon request.

- 3.3 Task 3: Air Quality Boundary Monitoring for asbestos, before earthworks commence and during the earthworks.

3.3.1 *Asbestos Air Monitoring*

Lucion Environmental Ltd were appointed to undertake a reassurance air quality monitoring visit during the works, with one day of air monitoring was undertaken on 13th October 2020. Readings taken were below the control limit <0.01f/ml, as such the control measures in place by PP O'Connor were deemed to be satisfactory.

For details refer to Lucion report (ref. 435538), containing monitoring certification provided in Appendix D.

- 3.4 Task 4: Break out of hardstanding and below ground obstructions, processing for re-use and below slab inspection

PP O'Connor broke out and removed all buried structures from the area to be covered by the piling mat for the proposed building structures, with the exception of the following:

- a former crane base pile foundation in the south-eastern corner of the site has been left in.
- some buried structures at the perimeter working around specific pile locations.

PP O'Connor also broke out and removed buried structures to a depth of 2 m below final finished site levels in areas outside the piling mat which will comprise roads and car parking areas.

Broken out material was either processed on site by screening and crushing for re-use or disposed off-site.

Below slab inspections were carried out by Arley Consulting and PP O'Connor. Arley Consulting recorded information related to breaking out and below slab inspections on site inspection records provided within Appendix D of the Arley Consulting report (ref. 19902/1).

3.5 Task 5 and 6: Earthworks

3.5.1 General

During the enabling works stockpiling of material was dynamic and this data was predominantly recorded via the site inspection records. Arley Consulting indicate that due to the physical constraints of the small site and the time constraints the stockpiles were constantly changing and therefore it was not practical to manage the earthworks with lots of discrete stockpiles of known volume.

Materials were excavated, and stockpiled in accordance with a Materials Tracking System recorded via the site inspection records provided within Appendix D of the Arley Consulting report.

A drawing showing Merged formation levels (PPOC-ASB-LAMPWICK-001) is provided in appendix A.

PP O'Connor collected eight samples from various locations around the site and these were submitted to an accredited laboratory for chemical testing. The samples were collected by PP O'Connor on 8th August 2019 from Zones 1 (2 samples), 4 (1 sample), 5 (3 samples) and 10A (2 samples), for grid locations refer to drawing PPOC-ASB-LAMPWICK-006 in Appendix A. A copy of the chemical analysis results is provided in Appendix B.

It is envisaged that due to the presence of hardstanding across the majority of the site, and the introduction of a clean cover system (soft landscaping) future pathways that may have posed risk to human health will be severed. As such, Hydrock are satisfied that the re-use of soils has been undertaken in line with the Hydrock Remediation Method Statement Referenced (MLLW-HYD-XX-XX-MS-Y-110002) and the materials have been tracked suitably in line with the Material Management Plan Referenced (MLLW-HYD-XX-XX-MS-Y-110004-MMP).

3.5.2 Stockpile disposal

A selection of waste consignment notes for materials disposed off site are provided within Appendix F.

3.5.3 Imported Materials

Records of materials imported to site and stockpiled in accordance with a Materials Tracking System recorded via the site inspection records provided within Appendix D of the Arley Consulting report.

The volume of imported material was tracked via the materials movement spreadsheet used by PP O'Connor, provided in Appendix C.

Chemical testing was undertaken on the imported Class 1 fill used beneath the main access road, with a total of eight samples collected of the material. Chemical analysis results found one sample containing loose Chrysotile fibres at a concentration of <0.001%.

Given the presence of fibres in the sample at trace concentration, and the location it is to be placed (beneath hardstanding), the material is deemed suitable for its proposed end use.

The other chemicals analysed were found to also meet the reuse criteria and are suitable for placement beneath the main access road. A copy of the chemical analysis results is provided in Appendix B.

3.5.4 Dust Suppression

At the time of Hydrock's watching brief visits, it was evident that appropriate mitigation measures were in place during the demolition works and crushing to reduce the generation of dust. Stockpiles were generally kept to a minimum to reduce the risk of hazardous material to be blown from the piles. During

periods of inclement weather all stockpiles were sealed appropriately to mitigate against leaching of rain water through the stockpiles.

3.5.5 *Vehicle Movements*

During a period of wet weather and when mud was transferred offsite PP O'Connor hired a gully sucker to clean the adjacent Lampwick Lane.

3.5.6 *Personal Monitoring*

Appropriate PPE were provided by PP O'Connor to all site workers in accordance with 'HSG 66 Protection of Workers and the General Public during Redevelopment of Contaminated Land'. Basic hygiene measures were implemented on site through the welfare compound PP O'Connor had set up in the east of the site.

3.5.7 *Materials Management Plan (MMP)*

The MMP pertaining to the bulk earthworks contract was issued under reference (MLLW-HYD-XX-XX-MS-Y-110004-MMP). The declaration was made in 16th May 2019 by Adam Cheers who carries QP registration No QP351.

3.5.8 *Materials Tracking System*

A Materials Tracking System was employed via the site inspection records to maintain records of the excavation, stockpiling, testing, and re-use of materials. Daily surveys were undertaken to provide evidence of the quantity of materials moved. The data was transferred to CAD drawings showing the destination of materials. Example drawings showing the stockpile locations are presented in the site inspection records provided within Appendix D of the Arley Consulting report.

Examples of the muckaway tickets have been provided by each of the contractors and their chosen waste disposal contractor. Over the course of the project a large number of tickets accumulated, therefore, it is proposed that the examples in Appendix F are sufficient for the purposes of this validation report. A full set of records will be retained as part of overall project completion.

3.5.9 *Unexpected Contamination*

One area of unexpected contamination was encountered during the works. PP O'Connor followed the Discovery Strategy as set out in Hydrock Remediation Strategy MLLW-HYD-XX-XX-MS-Y-110002.

A buried asbestos pipe was encountered within the central roadway. Works in the area were suspended pending further investigation and remediation works. The location of the exposed pipes is shown on PP O'Connor marked-up Hydrock drawing MLLW-HYD-ZZ-00-DR-C-(52) provided in Appendix A.

PP O'Connor were continuing the bulk excavation/ site remediation from Section 1 (Site Cabin Area) into Section 10.

PP O'Connor discovered a concrete slab and lifted a section to continue the excavation on Wednesday 24th July 2019. Upon lifting part of the slab, a trench containing several pipes with a suspect material surround were found. The excavator driver and banksman stopped works and notified the SISK engineer on site, who then inspected the trench, stopped works in the area and notified SISK management.

A 5m exclusion zone was erected with relevant signage around the trench and PP O'Connor notified their specialist subcontractor of the find (Emchia).

Excavated material around the area was removed to enable a better exclusion zone and plastic sheeting was used to cover the exposed pipes, weighted down by timber boards.

PP O'Connor appointed a specialist contractor, Emchia Asbestos Solutions, to deal with the asbestos pipe. Emchia initially collected a sample of the pipe for confirmatory testing. The test result confirmed the pipe contained Beige fragments with grey coating of Chrysotile and Crocidolite. A copy of the testing certificate (ref. J157793) is provided in Appendix B.

Emchia arrived on site and set up the decontamination unit on Monday 19th August, and subsequently commenced works thereafter.

Emchia subsequently removed the asbestos pipe for safe off-site disposal. Arley Consulting were advised that Emchia liaised directly with Sisk in relation to the removal of the asbestos pipe.

Emchia had completed the works on Tuesday 3rd September 2019 and an inspector was brought out to confirm that the area was clean. Removal of the decontamination unit occurred the same day and the skips were collected the day after.

3.6 Task 7: Over-excavation of service corridors and installation of Protectaline (or similar) pipework.

Service corridors are to be completed by the main contractor during the construction phase. Sisk will take photographic evidence once service corridors are completed showing over excavation (by at least 300mm) and installation of clean bedding gravel around the pipe. These photographs can be included within Appendix H post-completion of works.

3.7 Task 8: Installation of cover system for landscaping areas

These works were completed by the main contractor during the construction phase. As agreed with the local authority a simple cover system was placed to contain soil up to 450mm in soft landscaping areas underlain by a geotextile.

A selection of photographs showing the placement of the soils and the geotextile are included in Appendix I.

Chemical test results for three soil samples from the imported soils are included in Appendix I.

Hydrock has assessed the testing data and confirm that it meets the criteria for imported materials set out within the remediation strategy.

3.8 Task 9: Gas Protection Measures

Gas Membranes Installation commensurate with CS2 conditions have been installed to the ground floor of the development.

The installation was carried out by MPB Membranes Ltd who installed a three-layer, low density polyethylene membrane with a polypropylene reinforcing grid.

Once the membranes had been installed, an inspection was undertaken by MPB and Sisk to establish the presence of any defects. It has been confirmed by MPB that only small defects had been identified and the remedials/repairs were completed by MPB and Sisk.

MPB have provided signed copies of the Check Sheets verified the locations together with photographs, provided in Appendix G.

According to the information provided, Hydrock believes that the gas protection measures were installed in accordance with the Hydrock Remediation Method statement.

3.9 Task 10: Supervision, Verification and Reporting

Hydrock completed a periodic visit during the enabling works which included 6 days onsite to provide any feedback / defects to the site manager and client.

A selection of progress photographs taken during the visits are provided in Appendix H.

4. CONCLUSION

Hydrock can confirm that remediation works for the Lampwick site under the approved planning permission (Application Reference. 116190/FO/2017) have been conducted in accordance with the Hydrock Remediation Method Statement. The works involved:

- Asbestos air monitoring undertaken proved readings below the control limit, as such the control measures in place by PP O'Connor were deemed to be satisfactory;
- Adequate breaking out of floor slabs and below ground obstructions, and subsequent inspection/documentation has been undertaken;
- Adequate tracking of the stockpiled materials via the site inspection records undertaken by Arley Consulting;
- Disposal off site of surplus or unsuitable materials, and the collection of muckaway tickets for those loads removed from site;
- Unexpected contamination was encountered on one occasion. Hydrock can verify that the unexpected contamination was dealt with in accordance with the discovery strategy provided within the Remediation Method Statement;
- The installation of gas protection measures commensurate with CS2 conditions in accordance with the requirements outlined in the Remediation Method Statement; and
- The installation of the soil cover system and geotextile has been completed in accordance with the remediation strategy.

This Verification Report should be submitted to the LPA at the earliest opportunity in order to discharge planning conditions in relation to contaminated land.

Appendix A

Drawings



Rev	Date	Description	By	Ckd
Architect :				
Hydrock Consultants Ltd 4 Lakeside Festival Park Stoke-on-Trent ST1 5RY T +44 (0)1782 261919 stoke@hydrock.com www.hydrock.com Client : JOHN SISK & SON (HOLDINGS) LTD				
Project Title: LAMPWICK, ANCOATS				
Drawing Title: Site Location Plan				
Reference: LAM-HYD-XX-XX-DR-GE-0002				
Hydrock Job No: C-11081-C				
Drawn	Checked	Scale @ A3	Date	Issue Date
TW	DH	As Shown	16/11/18	16/11/18
Revision:			Status:	
P01			S2	

WEAVERS QUAY

OLD MILL ST

GENERAL NOTES

All rights reserved.

All drawings and written material appearing here, constitute original and unpublished work of the Architect and may not be duplicated, used or disclosed without written consent of the Architect.

Notes and material designations are typical for similar conditions unless otherwise indicated.

Do not scale from this drawing.

Room Key

- L Living
- K Kitchen
- B Bedroom
- W WC

Legend

- 1 Bed
- 2 Bed
- AMENITY
- BOH
- CIRCULATION
- COMMERCIAL
- STAFF

B	28.04.2017	Additional louvers added
A	26.04.2017	Revised to clients comments
REV NO.	DATE	DESCRIPTION

KEY PLAN

PROJECT

Lampwick

CLIENT



Manchester Life
Development
Company

CALLISORTKL
A DESIGN CONSULTANCY OF ARCADIS
CallisonRTKL, 25 Farringdon Street, 10th Floor, London, EC4A 4AB,
T: +44 (0)20 7306 0404

SHEET IDENTIFICATION

TITLE

**GROUND FLOOR
PLAN**

STATUS

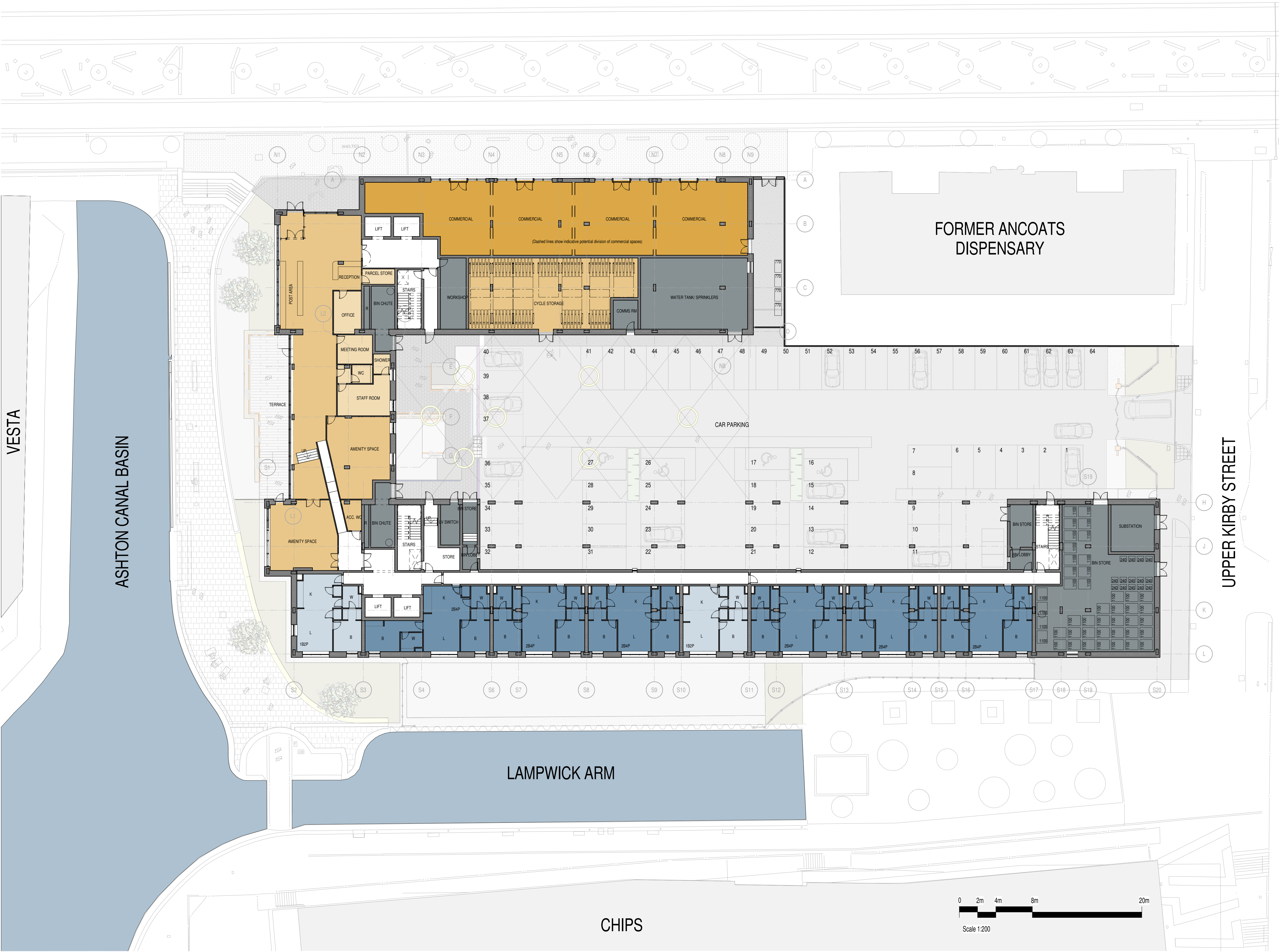
PLANNING

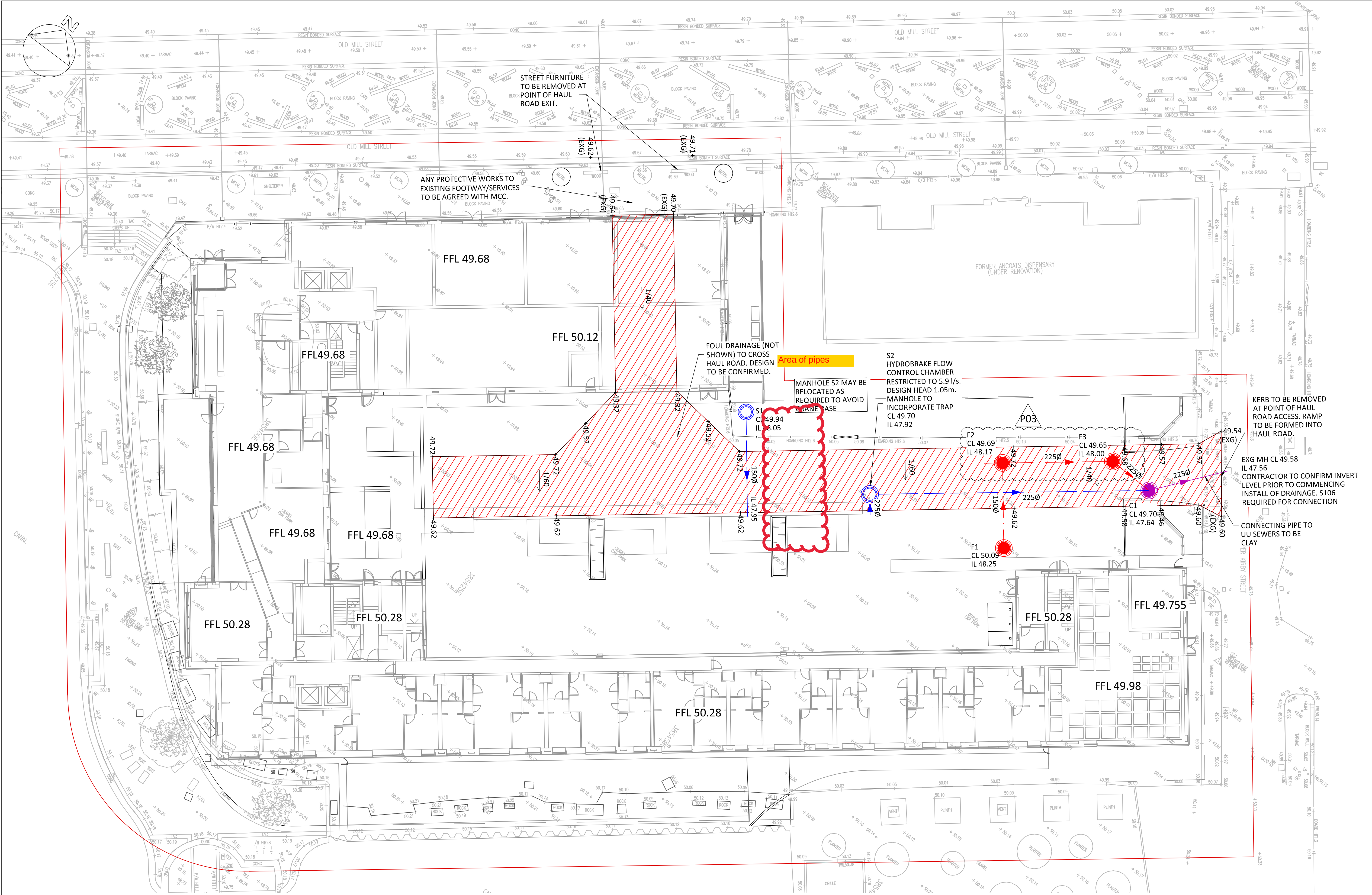
PROJECT NUMBER	DATE DRAWN	03/28/17
050-160055	SCALE @ A1:	1 : 200
	DRAWN BY:	AC
	CHECKED BY:	MJP

DRAWING NUMBER	REVISION
P-12500	B

© 2016 CallisonRTKL UK Ltd

26.04.2017 18:38:22





TEMPORARY HAUL ROAD CONSTRUCTION
100mm AC32 BASE 100/150 TO BS EN PART 1: 2006 AND PD 6691
420mm TYPE 1 SUBBASE TO CLAUSE 803 OF THE HIGHWAYS SPECIFICATION, LAID IN ACCORDANCE WITH CLAUSE 802

DESIGN BASED ON AN ASSUMED CBR VALUE OF 2.5%. CONTRACTOR TO CARRY OUT INSITU TESTING TO CONFIRM CBR AT FORMATION LEVEL. IF CBR VALUE DIFFERS FROM THE DESIGN VALUE ENGINEER TO BE NOTIFIED

FOLLOWING GROUND RE-WORKING, FORMATION TO HAVE CBR OF 15%. IF HAUL ROAD CONSTRUCTED FOLLOWING RE-WORKING SUBBASE TO BE REDUCED TO 260mm

CONTRACTOR TO CONFIRM LOCATION AND LEVEL OF UNITED UTILITIES SEWERS WITHIN LAMPWICK LANE

M+E ENGINEER TO PROVIDE DETAILS OF SERVICES/ DUCTING REQUIRED WITHIN HAUL ROAD.

SURFACE WATER MANHOLE SCHEDULE							
MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	TYPE	CHAMBER DIA (min)	COVER GRADE (min)	EASTING	NORTHING
S1	49.94	48.05	2 REFER DETAIL	1200	D400	385437.479	398400.088
S2	49.70	47.92		1200	D400	385451.997	398400.945

FOUL WATER MANHOLE SCHEDULE							
MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	TYPE	CHAMBER DIA (min)	COVER GRADE (min)	EASTING	NORTHING
F1 F2 F3	50.09	48.25	2	1200	D400	385465.646	398404.629
	49.69	48.17	2	1200	D400	385460.538	398411.220
	49.65	48.00	2	1200	D400	385469.057	398417.823
C1	49.70	47.64	2	1200	D400	385473.608	398417.694

NOTE: COVER LEVELS SHOWN ARE FINAL LEVELS. COVER LEVEL WILL NEED TO BE ADJUSTED TO SUITE HAUL ROAD LEVELS

KEY PLAN

LEGEND

FOUL WATER SEWER

SURFACE WATER SEWER

FOUL WATER MANHOLE

FOUL WATER INSPECTION CHAMBER (PIC)

SURFACE WATER MANHOLE

COMBINED SEWER

HAUL ROAD LEVELS

+50.00

- NOTES**
1. THIS DRAWING IS NOT TO BE SCALED.

2. THE CONTRACTOR SHALL CHECK ALL DIMENSIONS AND LEVELS ON SITE. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.

3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS' AND SERVICE ENGINEERS' DRAWINGS AND SPECIFICATIONS.

4. ANY SOFT SPOTS ARE TO BE REMOVED AND REPLACED WITH COMPACTED 6F2 MATERIAL.

5. ALL MATERIALS (INCLUDING SUBGRADE) WITHIN 450mm OF THE FINISHED SURFACE SHALL BE NON-FROST SUSCEPTIBLE. IF MATERIALS WITHIN 450mm ARE FOUND TO BE FROST SUSCEPTIBLE, THEN IN ACCORDANCE WITH CLAUSE 705 OF THE SPECIFICATION FOR HIGHWAY WORKS, IT SHALL BE REMOVED AND REPLACED WITH NON-FROST SUSCEPTIBLE MATERIAL.

6. CONTRACTOR TO MANAGE SURFACE WATER RUNOFF FROM HAUL ROAD.

REVISIONS				
P03	MANHOLES F2 AND F3 RELOCATED			
	JH	09.07.19	JB	09.07.19
P02	PRELIMINARY ISSUE			
	JH	25.06.19	JB	25.06.19
P01	PRELIMINARY ISSUE			
	G.WARSAMA	14.06.19	J.HAYDEN	14.06.19
REV	REVISION NOTES/COMMENTS			
	DRAWN BY	DATE	CHECKED BY	DATE

2nd Floor

172 Edmund Street

Birmingham

B3 2HB

t: +44(0)121 752 5197

e: birmingham@hydrock.com

CLIENT

MANCHESTER LIFE

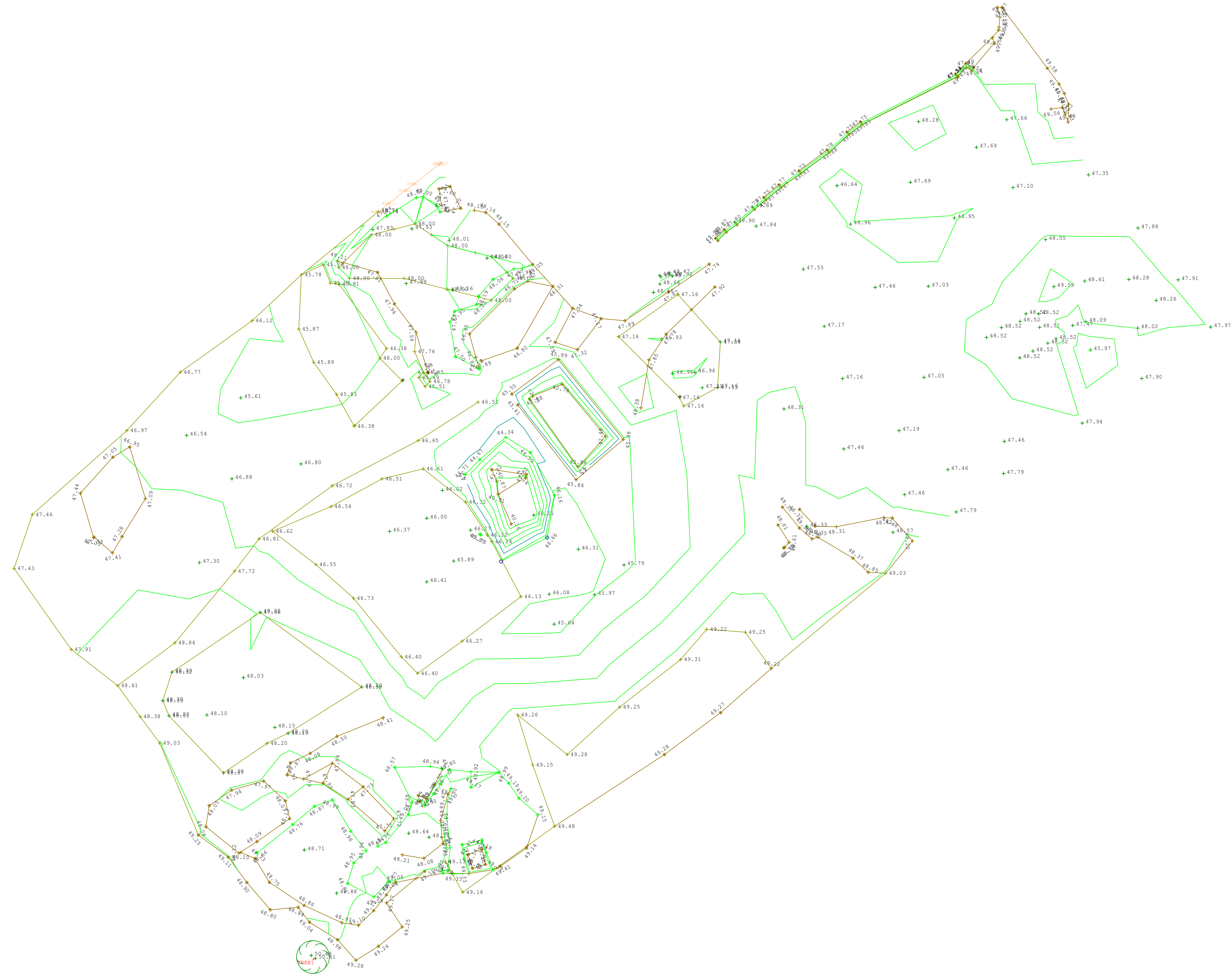
PROJECT

LAMPWICK

TITLE

HAUL ROAD DRAINAGE AND EXTERNAL WORKS

HYDROCK PROJECT NO. C-07278		SCALE @ A1 1/200	
STATUS DESCRIPTION PRELIMINARY			STATUS S2
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) MLLW-HYD-ZZ-00-DR-C-(52)0100			REVISION P03



1. All dimensions are in metres unless otherwise stated.
2. Do not scale from this drawing, any dimensions should be confirmed with the designers.
3. All levels shown are in metres above Ordnance Datum.
4. Levels Survey undertaken by PPOC Ltd

Reference drawings

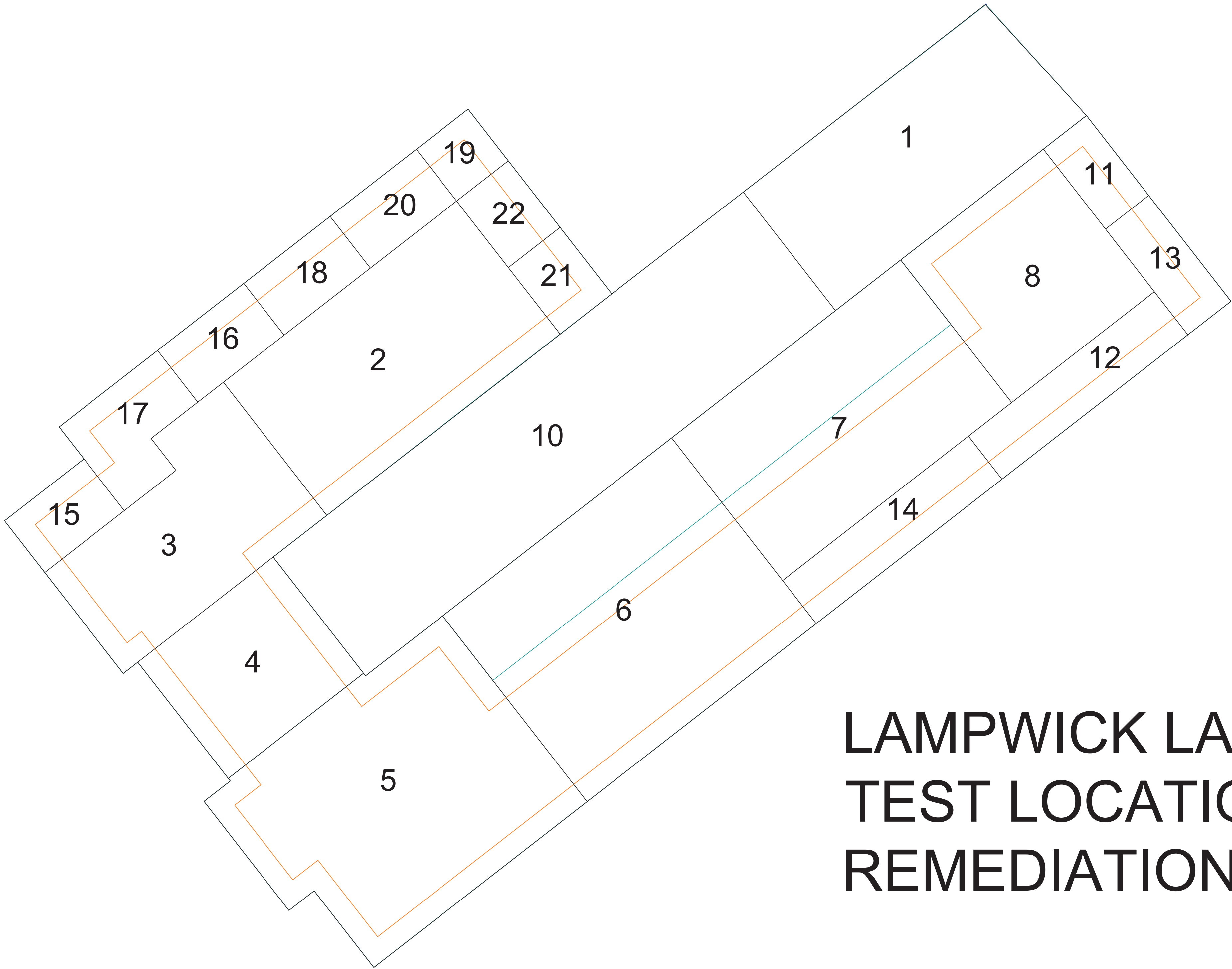
P. P. O'CONNOR
Committed To Excellence

61 Mosley Road
Trafford Park
Manchester
M17 1GJ

John Sisk Ltd

Designed			Eng.Chk.	
Drawn	Craig Hndle	CH	Coordination	
Dwg.Chk.	M Dixon	MD	Approved	
Scale at A1		Project	C0272	Status
NTS		CAD file	C0272:001	ASB
Drawing No	PPOC-ASB-LAMPWICK-001			Rev

This document should not be relied on or used in circumstances other than those for which it was originally prepared and for which PP O' Connor Construction Ltd was commissioned. PP O' Connor Construction Ltd accepts no responsibility for this document to any other party other than the person by whom it was commissioned.



LAMPWICK LANE TEST LOCATIONS REMEDIATION WORKS

Notes
1. All dimensions are in metres unless otherwise stated.
2. Do not scale from this drawing, any dimensions should be confirmed with the designers.
3. All levels shown are in metres above Ordnance Datum.
4. Levels Survey undertaken by PP O`Connor Ltd

Key to symbols

Reference drawings

AB			As Built Issue		
Rev	Date	Drawn	Description	Ch'k'd	App'd



61 Moseley Road
Trafford Park
Manchester
M17 1GJ

Client



John Sisk Ltd

Title
Lampwick Lane
Lampwick Site Grid Layout

Designed			Eng.Chk.		
Drawn	Craig Hindle	CH	Coordination		
Dwg.Chk.	M Dixon	MD	Approved		
Scale at A1	Project	C0272	Status		
	NTS	CAD file	C0272:006	ASB	
Drawing No	PPOC-ASB-LAMPWICK-006	Rev	B		

Appendix B

Laboratory Results



William Swinnerton
Hydrock Consultants Ltd
4 Lakeside
Festival Park
Stoke on Trent
ST1 5RY

t: 01782 261919
f: 01782 262020
e: stoke@hydrock.com



i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS
t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-35676

Replaces Analytical Report Number: 20-35676, issue no. 1

Additional analysis undertaken.

Project / Site name:	Lampwick, Manchester	Samples received on:	14/10/2020
Your job number:	C-16930	Samples instructed on/ Analysis started on:	14/10/2020
Your order number:	PO02621	Analysis completed by:	30/10/2020
Report Issue Number:	2	Report issued on:	30/10/2020
Samples Analysed:	8 soil samples		

Signed: 

Zina Abdul Razzak
Senior Quality Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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



Analytical Report Number: 20-35676
 Project / Site name: Lampwick, Manchester
 Your Order No: PO02621

Lab Sample Number	1651262	1651263	1651264	1651265
Sample Reference	CPT01	CPT02	CPT03	CPT04
Sample Number	1	1	1	1
Depth (m)	0.40	0.45	0.50	0.40
Date Sampled	13/10/2020	13/10/2020	13/10/2020	13/10/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	N/A	NONE	14
Total mass of sample received	kg	0.001	NONE	1.2

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	< 0.001	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	< 0.001	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.8	10.3	10.3	11.3
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.16	0.43	0.51	0.051
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.023	0.018	0.026	0.033

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
----------------------------	-------	---	--------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.55	0.59	1.6	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	1.5	1.1	3.4	0.8
Fluorene	mg/kg	0.05	MCERTS	1.2	0.99	2.8	0.71
Phenanthrene	mg/kg	0.05	MCERTS	8.9	7.6	18	6.1
Anthracene	mg/kg	0.05	MCERTS	2.5	2	5.5	1.8
Fluoranthene	mg/kg	0.05	MCERTS	9.6	7.6	22	8.5
Pyrene	mg/kg	0.05	MCERTS	8.1	6.6	19	7.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.8	4.1	11	4.7
Chrysene	mg/kg	0.05	MCERTS	3.3	2.7	8.3	3.7
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	3.9	2.9	8.5	3.5
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	2.5	2	5.7	2.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4.1	3	9.1	4.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.9	1.4	4.4	1.9
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.54	0.47	1.1	0.6
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.3	1.7	4.9	2.4

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	55.6	44.7	126	48.7
-----------------------------	-------	-----	--------	------	------	-----	------

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.3	11	7.3	6.7
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.53	0.81	0.62	0.63
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	0.9	1.3	1.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.8	< 0.2	0.6	0.6
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	18	22	19	18
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	22	19	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	41	33	28
Lead (aqua regia extractable)	mg/kg	1	MCERTS	43	88	99	37
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.4	0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	22	18	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0



Analytical Report Number: 20-35676
 Project / Site name: Lampwick, Manchester
 Your Order No: PO02621

Lab Sample Number				1651262	1651263	1651264	1651265
Sample Reference				CPT01	CPT02	CPT03	CPT04
Sample Number				1	1	1	1
Depth (m)				0.40	0.45	0.50	0.40
Date Sampled				13/10/2020	13/10/2020	13/10/2020	13/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	27	29	32
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	87	84	93	91

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 20-35676
Project / Site name: Lampwick, Manchester
Your Order No: PO02621

Lab Sample Number				1651266	1651267	1651268	1651269
Sample Reference				CPT05	CPT06	CPT07	LWD03
Sample Number				1	1	1	1
Depth (m)				0.40	0.45	0.40	0.40
Date Sampled				13/10/2020	13/10/2020	13/10/2020	13/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	9.8	11	13	8
Total mass of sample received	kg	0.001	NONE	1.5	1.5	1.5	1.5

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.9	11.5	10.6	10.6
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.22	0.024	0.29	0.25
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.035	0.035	0.04	0.021

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
----------------------------	-------	---	--------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.32	0.41	1.1	0.53
Acenaphthylene	mg/kg	0.05	MCERTS	0.35	0.28	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	2.2	2.2	2.7	1.3
Fluorene	mg/kg	0.05	MCERTS	2.3	2.4	2.5	1.2
Phenanthrene	mg/kg	0.05	MCERTS	17	19	15	8.5
Anthracene	mg/kg	0.05	MCERTS	5.3	5.6	4.6	2
Fluoranthene	mg/kg	0.05	MCERTS	22	22	16	9.6
Pyrene	mg/kg	0.05	MCERTS	19	18	14	8.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	12	11	9.1	4.9
Chrysene	mg/kg	0.05	MCERTS	7.5	7.8	6.8	4.5
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	9	8	8.3	4.4
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	6	5.7	4.7	2.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	9.2	8.4	7.9	4.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	4.3	4.1	3.5	2.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.3	1.3	0.9	0.66
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	4.9	4.5	4	2.3

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	122	120	101	57
-----------------------------	-------	-----	--------	-----	-----	-----	----

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.9	6.9	6.1	6.7
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.52	0.63	0.57	0.53
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3	0.6	1.2	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	0.7	0.6	0.5
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	20	26	19	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	27	19	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	28	24	51
Lead (aqua regia extractable)	mg/kg	1	MCERTS	39	44	50	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	0.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	21	19	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0



Analytical Report Number: 20-35676
 Project / Site name: Lampwick, Manchester
 Your Order No: PO02621

Lab Sample Number				1651266	1651267	1651268	1651269
Sample Reference				CPT05	CPT06	CPT07	LWD03
Sample Number				1	1	1	1
Depth (m)				0.40	0.45	0.40	0.40
Date Sampled				13/10/2020	13/10/2020	13/10/2020	13/10/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	32	38	30	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	62	92	82	97

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 20-35676
Project / Site name: Lampwick, Manchester
Your Order No: P002621

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

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

Quantitative Analysis

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

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

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

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1651264	CPT03	0.50	153	Loose Fibres	Chrysotile	< 0.001	< 0.001

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

Analytical Report Number : 20-35676

Project / Site name: Lampwick, Manchester

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1651262	CPT01	1	0.4	Brown clay and sand with gravel.
1651263	CPT02	1	0.45	Brown clay and sand with gravel and rubble.
1651264	CPT03	1	0.5	Brown clay and sand with gravel and brick.
1651265	CPT04	1	0.4	Brown clay and sand with gravel.
1651266	CPT05	1	0.4	Brown clay and sand with gravel.
1651267	CPT06	1	0.45	Brown clay and sand with gravel and vegetation.
1651268	CPT07	1	0.4	Brown clay and sand with gravel.
1651269	LWD03	1	0.4	Brown sandy clay with gravel and brick.



Analytical Report Number : 20-35676

Project / Site name: Lampwick, Manchester

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 19/07581
Issue Number: 1

Date: 16 August, 2019

Client: PP O'connor Ltd
Thames Trading Estate
Woodrow Way
Irlam
Manchester
M44 6NN

Project Manager: Derek McLoughlin/Tom Barr
Project Name: Lampwick, Manchester
Project Ref: C0272
Order No: C0272/34686
Date Samples Received: 09/08/19
Date Instructions Received: 12/08/19
Date Analysis Completed: 16/08/19

Prepared by:



Holly Neary-King
Client Manager

Approved by:



Gill Walker
Director/Laboratory Manager

Envirolab Job Number: 19/07581

Client Project Name: Lampwick, Manchester

Client Project Ref: C0272

Lab Sample ID	19/07581/1	19/07581/2	19/07581/3	19/07581/4	19/07581/5	19/07581/6	19/07581/7	Units	Limit of Detection	Method ref
Client Sample No	Area 1	Area 1	Area 10A	Area 10A	Area 4	Area 5	Area 5			
Client Sample ID	Sample 1	Sample 2	Sample 1	Sample 2	Sample 1	Sample 1	Sample 2			
Depth to Top	1.00	2.00	1.70	2.10	1.50	1.00	2.00			
Depth To Bottom										
Date Sampled	08-Aug-19	08-Aug-19	08-Aug-19	08-Aug-19	08-Aug-19	08-Aug-19	08-Aug-19			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	4ABE	4ABE	4AE	4AE	4AE	4ABE	6AE			
% Moisture at <40C _A	12.5	12.6	13.9	13.3	6.8	14.5	11.1	% w/w	0.1	A-T-044
% Stones >10mm _A	<0.1	2.5	<0.1	<0.1	7.7	3.1	<0.1	% w/w	0.1	A-T-044
pH _D ^{MS}	8.92	9.19	9.03	9.62	9.06	9.22	8.59	pH	0.01	A-T-031s
Cyanide (total) _A ^{MS}	<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
Arsenic _D ^{MS}	7	15	15	8	6	12	7	mg/kg	1	A-T-024s
Beryllium _D ^{MS}	0.6	1.2	<0.5	<0.5	<0.5	0.8	1.1	mg/kg	0.5	A-T-024s
Boron (water soluble) _D ^{MS}	<1.0	<1.0	1.8	<1.0	1.1	1.1	<1.0	mg/kg	1	A-T-027s
Cadmium _D ^{MS}	0.9	1.5	1.1	1.0	1.5	1.3	1.4	mg/kg	0.5	A-T-024s
Copper _D ^{MS}	31	113	211	47	21	50	31	mg/kg	1	A-T-024s
Chromium _D ^{MS}	16	24	16	16	12	21	29	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead _D ^{MS}	194	217	211	102	114	110	60	mg/kg	1	A-T-024s
Mercury _D	0.84	0.73	0.82	0.93	0.90	0.49	0.30	mg/kg	0.17	A-T-024s
Nickel _D ^{MS}	15	26	14	14	15	21	35	mg/kg	1	A-T-024s
Selenium _D ^{MS}	<1	<1	<1	1	2	2	2	mg/kg	1	A-T-024s
Vanadium _D ^{MS}	21	31	21	22	14	27	35	mg/kg	1	A-T-024s
Zinc _D ^{MS}	162	149	234	144	128	102	81	mg/kg	5	A-T-024s
TPH total (>C6-C40) _A ^{MS}	725	325	1440	2310	446	279	37	mg/kg	10	A-T-007s