SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Project	Engineering Workshop, Openshaw Campus, The Manchester College				
Made By	Date	Checked By	Date	Rev	Contract No./Sheet number
PSS	Oct-25				9529
					9529-SWF-XX-XX-TC-C-1001

Drainage Calculations

For

Engineering Workshop, Openshaw Campus, The Manchester College

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Project	Engineering Workshop, Openshaw Campus, The Manchester College				
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1.0 INTRODUCTION

The project is to see the construction of a new engineering building on the existing car park area to the rear of the site with the building footprint measuring approximately 32.0m x 16.5m. The site lies within flood zone 1 and is not susceptible to surface water flooding according to the online mapping.

At present, the car park area is positively drained by a series of channels and gullys which have been proved by survey to discharge to a separator before entering the final manhole on site. From this point the surface water discharges at an un-restricted rate into the 900mm combined sewer that crosses the car park splitting the area in two.

Under the current regime, the discharge to the sewer has been calculated as:

50% AEP	7.8 l/s (15 minute winter storm)
3.33% AEP	17.0 l/s (15 minute winter storm)
1% AEP	21.6 l/s (15 minute winter storm)

based on FEH 2022 data, an area of 32 x 16.5m and a volumetic runoff coefficeint (c_v) of 0.84 for the winter storm. Calculations showing this are included within Appendix A.

Information on the existing drainage can be found within Appendix B of these calculations that show the results of a GPR survey together with the drainage designs from Bell Munro Consulting who designed the Sports Hall project in 2020. This clearly demonstrates the SW discharge from the Sports Hall being limited to 45.4l/s by use of a Hydrobrake and discharging to the combined sewer.

Under the hierarchical approach discharge from the new development should be infiltrated to ground. This solution has been considered but soakaway testing proved this solution is not possibe due to the contamination issues (hydrocarbons) on the site, the deep made ground and underlying cohesive deposits. Details of the testing has been provided within Appendix C.

The next point of discharge is considered to be the culverted water course which is situated under Clayton Lane South to the west of the development site. This is approximately 125m from the development site but access cannot be gained t it due to the construcion of the MUGA sports pitch. Given the network of land drainage constructed under these facilities it is expected that discharge to this location will be prohibitively expensive in proportion to the project.

There are no surface water sewers around the site that could provide an alternative connection point and therefore the proposal is to take the discharge from the building into the Sports Hall drainage.

It is acknowledged that this ultimately discharges to the combined sewer but the use of this solution will see the un-restricted flow removed from the sewer and the discharge controlled by the existing Hydrobrake such that the sewer will not see an increase in discharge rate.

The building is proposed to have above ground rain gardens in the form of SuDsPODS, a pre-fabricated rain garden supplied by GreenBlue Urban. These are designed to manage the discharge from the roof whilst also improving water quality as the rainwater filters throught the planting/ bedding material. Details of the product can be found within Appendix C

Discharge from the new engineering workshop building is to be taken to the lower level car park which is seeing the demolition of a small portal framed storage building and an increased provision of car parking. Given the demolition works being proposed it is expected that this area of car park can be constructed using permeable macadam to assist with volume control as well as discharge reduction. Again it is expected that this area will connect to the original Sports Hall drainage using the noted connection for the future phase on the Bell Munro drawing.

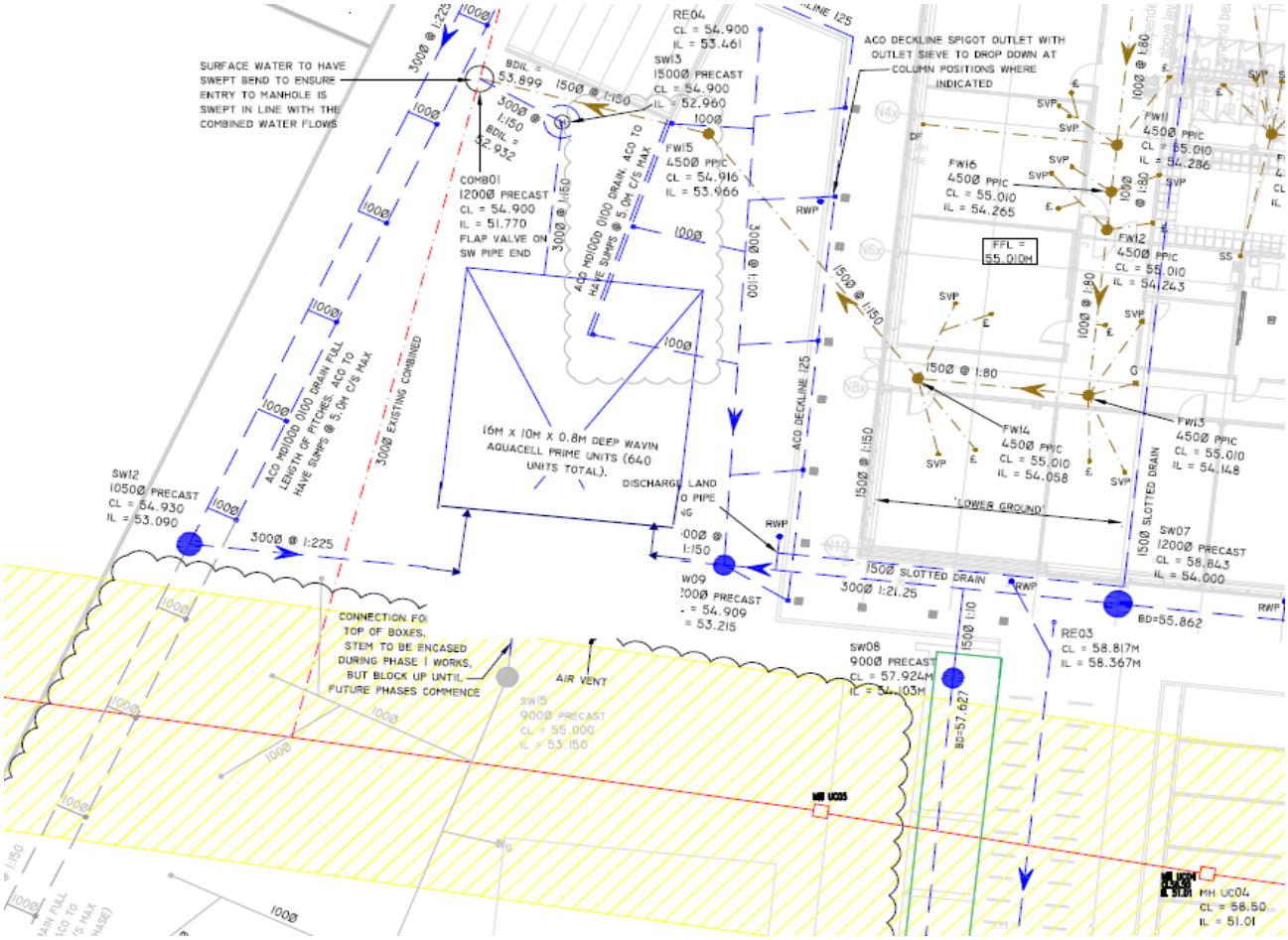
An extract of the Bell Munro drawing is reproduced overleaf and details the Hydrobrake location, existing geo-cellular attenuation tank and the connections for the side of the MUGA pitch and proposed connection from the lower car park area.

Designs on the proposed drainage have been undertaken with the InfoDrainage design package and the outpot can be seen within Appendix E of these calculations. Designs have been undertaken with the following allowances for climate change:

3.33% AEP	+40%	
1.00% AEP	+45%	in accordance with the Irwell Management Catchment

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Lower Level Car Park Area

This area currently houses the storage building which is to be demolished and new parking area provided.

At present the drainage in this area has been shown to be a series of road gullys and rainwater pipes which enter the existing combined drainage before entering the adopted combined sewer. Works by Bell Munro Consulting allowed this area to drain into the new network and be attenuated by the Hydrobrake flow control device with associated upstream geocellular storage.

Under the current regime, the discharge to the sewer has been calculated as:

50% AEP	3.1 l/s (15 minute winter storm)
3.33% AEP	6.8 l/s (15 minute winter storm)
1% AEP	8.6 l/s (15 minute winter storm)

based on FEH 2022 data, an area of 18.6 x 11.4m and a volumetic runoff coefficeint (c_v) of 0.84 for the winter storm. Calculations showing this are included within Appendix A. For the calculations, the pipe has been presumed to be laid at 1:150, the minimum recommended gradient to achieve self-cleansing velocities.

It is suggested that this entire lower section of car park is converted to permeable paving with a series of perforated pipe in the base to collect the discharge and release to the the existing tail that was provided as part of the sports hall project at a controlled rate of 1.5l/s, a reduction of 50% in the existing 50% AEP event. In converting this area to permeable paving the whole area will be restricted to 1.5l/s and not just the demolished storage building resulting in a greater area discharging at a restricted rate.

The 4-20mm stone sub-base will need to be sized to accommodate the discharge from the new engineering block roof which may increase the depth modestly.

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As a result of the design of the engineering building and permeable car park the combined sewer will see a controlled rate of discharge of 45.4l/s which is the current rate but also a reduction in flow from the upper level.

Interception Losses

Given the use of above ground rainwater gardens there is an expectation that interception losses will be provided by the soil/ plant use of the surface water run off from the roof of the new building. In addition, there are expected to be losses from the system given the use of an unlined permeable pavement to the lower level car park area.

Whilst infiltration has not been proven to the site it is expected that some losses will occur with the system being provided with a positive connection to the drainage network.

Water Quality

Water quality is to be improved by the use of the filtration benefits from the use of rainwater gardens and the use of the permeable pavement. These systems provide sufficient mitigation when assessed against the low risk land use of the simple index approach.

Exceedance

The southern end of the site is bounded by a brick wall separating the site from Network Rail. Therefore any surface flooding in an exceedance event cannot escape to south. Given the levels on the site, and the significant change in level, the water will pass towards to west where water will potentially flood the games pitch.

The western boundary, beyond the sports pitch is protected by a retaining wall with an upstand kerb of approximately 300mm. This will prevent exceedance flows escaping the site.

The general topographic levels on the site indicate that exceedence flows would be towards the south west and therefore would not be able to leave the site.

Maintenance

The development is proposed to have a traditional gravity system for the building with flows conrolled by the rainwater gardens. These gardens will need to be maintained in accordance with the manufacuteres recommendations there are no special planting requirements and therefore the flower beds should be kept in reasonable condition.

The permeable pavement should be swept clean on an annual basis as a minimum but particular attention should be given during the autumn months to reduce leaf litter and reduce risk of pore blockage.

Given the types of SuDs features being used on the project, blockage of the outfall will not be an issue. Therefore only periodic inspection will be required to the orifice plate within the penultimate manhole.

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Project	Engineering Workshop, Openshaw Campus, The Manchester College				
Made By	Date	Checked By	Date	Rev	Contract No./Sheet number
PSS	Oct-25				9529

APPENDIX A

Existing Drainage Discharge Calculations

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Existing	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

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FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Upper Car Park Pipe	FEH: 2 years: +0 %: 15 mins: Winter	Pipe	SWMH 2	SWMH 7	58.430	56.617	0.027	3.630	2.8	0.03	7.8	OK
Lower Car Park Pipe	FEH: 2 years: +0 %: 15 mins: Winter	Pipe	SWMH 10	Manhole (1)	55.840	54.729	0.048	1.501	0.6	0.21	3.1	OK

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Existing	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

FEH: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Upper Car Park Pipe	FEH: 30 years: +0 %: 15 mins: Winter	Pipe	SWMH 2	SWMH 7	58.430	56.630	0.040	7.935	3.6	0.07	17.0	OK
Lower Car Park Pipe	FEH: 30 years: +0 %: 15 mins: Winter	Pipe	SWMH 10	Manhole (1)	55.840	54.756	0.074	3.277	0.8	0.47	6.8	OK

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Existing	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

FEH: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Upper Car Park Pipe	FEH: 100 years: +0 %: 15 mins: Winter	Pipe	SWMH 2	SWMH 7	58.430	56.636	0.045	10.059	3.8	0.09	21.6	OK
Lower Car Park Pipe	FEH: 100 years: +0 %: 15 mins: Winter	Pipe	SWMH 10	Manhole (1)	55.840	54.769	0.086	4.159	0.8	0.6	8.6	OK

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Project	Engineering Workshop, Openshaw Campus, The Manchester College				
Made By	Date	Checked By	Date	Rev	Contract No./Sheet number
PSS	Oct-25				9529

APPENDIX B

GPR Survey &
Existing Drainage Drawing
(Bell Munro Consulting)



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A0

This survey has been produced at the survey scale detailed below with its accuracy commensurate with the indicated scale and should only be used for its original intended purpose. Any scaling should only be undertaken using a stable media print produced using the original data. The plotted scale may differ (for presentation purposes) from the survey scale.

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All ground features that were visible at the time of the survey have been located, however there may have been items obscured. Pipe sizes and flow direction have been visually assessed from the surface and should be considered as approximate only.

All data remains in the ownership of Formby Surveys Ltd and any discrepancies between this survey and any other information should be reported to Formby Surveys Ltd.

Utilities Legend

Utilities Services (Traced)	Utility Services (Assumed)	Utility Services (Record Drawings)
Drainage (General) — DRA	Drainage - Assumed (General) — DRA (A)	Drainage - Records (General) — DRA (R)
Drainage (Combined) — DR	Drainage - Assumed (Combined) — DR (A)	Drainage - Records (Combined) — DR (R)
Drainage (Foul Water) — FW	Drainage - Assumed (Foul Water) — FW (A)	Drainage - Records (Foul Water) — FW (R)
Drainage (Storm Water) — SW	Drainage - Assumed (Storm Water) — SW (A)	Drainage - Records (Storm Water) — SW (R)
Drainage (Sewer) — SEW	Drainage - Assumed (Sewer) — SEW (A)	Drainage - Records (Sewer) — SEW (R)
Comms (General) — COMMS	Comms - Assumed (General) — COMMS (A)	Comms - Records (General) — COMMS (R)
Comms (BT) — BT	Comms - Assumed (BT) — BT (A)	Comms - Records (BT) — BT (R)
Comms (Fibre Optic) — FIB	Comms - Assumed (Fibre Optic) — FIB (A)	Comms - Records (Fibre Optic) — FIB (R)
Electric (General) — ELEC	Electric - Assumed (General) — ELEC (A)	Electric - Records (General) — ELEC (R)
Electric (High Volt.) — HV-ELEC	Electric - Assumed (High Volt.) — HV-ELEC (A)	Electric - Records (High Volt.) — HV-ELEC (R)
Electric (Low Volt.) — LV-ELEC	Electric - Assumed (Low Volt.) — LV-ELEC (A)	Electric - Records (Low Volt.) — LV-ELEC (R)
Electric (Street Lighting) — SL	Electric - Assumed (St/Lighting) — SL (A)	Electric - Records (St/Lighting) — SL (R)
Gas (General) — GAS	Gas - Assumed (General) — GAS (A)	Gas - Records (General) — GAS (R)
Gas (High Pressure) — HP-GAS	Gas - Assumed (High Pres.) — HP-GAS (A)	Gas - Records (High Pres.) — HP-GAS (R)
Gas (Medium Pressure) — MP-GAS	Gas - Assumed (Med. Pres.) — MP-GAS (A)	Gas - Records (Med. Pres.) — MP-GAS (R)
Gas (Low Pressure) — LP-GAS	Gas - Assumed (Low Pres.) — LP-GAS (A)	Gas - Records (Low Pres.) — LP-GAS (R)
Oil — OIL	Oil - Assumed — OIL (A)	Oil - Records — OIL (R)
Multiple Utilities — MU	Multiple Utilities - Assumed — MU (A)	Multiple Utilities - Records — MU (R)
Abandoned Utility — ABD	Abandoned Utility - Assumed — ABD (A)	Abandoned Utility - Records — ABD (R)
Misc. Utility — MISC	Misc. Utility - Assumed — MISC (A)	Misc. Utility - Records — MISC (R)
Unknown Utility — UNK	Unknown Utility - Assumed — UNK (A)	Unknown Utility - Records — UNK (R)
Water — WTR	Water - Assumed — WTR (A)	Water - Records — WTR (R)
CCTV — CCTV		

EOT — End of Trace
No Depth Recorded
Depth on Utility

UTR — Unable to Raise
NVP — No Visible Pipes

Utilities on this drawing have been detected using non-invasive radio-detection techniques only. Formby Surveys Ltd (FSL) does not procure statutory / private source utility information as part of its detection service nor does it record this data on any drawings unless specifically commissioned to do so.

Utilities may continue outside of the indicated survey area and any residual paint marks outside of the survey area are for investigative purposes only, and may not represent the full extent of the sub-surface utilities.

The performance of the technologies used can be adversely affected by ground and weather conditions which are outside the control of FSL as consequently some utilities may be undetectable. FSL will make all reasonable endeavours to detect all utilities, however, it does not guarantee that 100% detection will be achieved.

Where there is evidence of a utility/feature that cannot be positively confirmed, an assumed route is recorded. Any vertical position (depth) stated is to the top of the utility/feature and should be taken as approximate. It is advised that trial excavations should be carried out to confirm service position, identification and depth.

Irrespective of the information provided within this survey, always exercise caution when excavating and if in any doubt ask. Any groundworks should be undertaken with extreme caution and in accordance with health & safety executive guidelines - "HSG47 - Avoiding Danger from Underground Services".

Rev	Date	Description	CAD

Client

10 Architect Ltd

measure" manage" deliver"

FormbySurveys

Professional Measurement Surveyors

Formby Surveys Ltd
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www.formbysurveys.com

Underground Utility Survey

The Manchester College, Openshaw Campus, Manchester, M11 2WH

Plotted Scale: A0@1:200 (MD Survey Scale: 1:200) 0.0 4.0 8.0 12.0m

Surveyor:	AM	CAD:	BP	Checker:	JO	Rev:

Date of Issue: September 2025 | FSL Ref No: FSL12429_U:200:1:1

- DENOTES SURFACE WATER DRAIN
- DENOTES FOUL WATER DRAIN
- DENOTES ADOPTED COMBINED SEWER
- DENOTES ADOPTED COMBINED MANHOLE
- DENOTES SURFACE WATER MANHOLE
- DENOTES FOUL WATER MANHOLE

NOTE, NO LAND DRAINAGE MAY ENTER THE PUBLIC SEWER NETWORK. SLOTTED LAND DRAINS BEHIND RETAINING WALLS TO BE PROVIDED AND TO DISCHARGE INTO PRIVATE DRAINAGE PIPE BEDDING.

ALL EXISTING & PROPOSED COVER LEVELS & INVERT LEVELS TO BE CONFIRMED BY CONTRACTOR PRIOR TO COMMENCING WORKS

THIS SCHEME IS TO BE CONSIDERED PRELIMINARY UNTIL SUCH TIME AS THE LOCAL COUNCIL (LLFA) UNITED UTILITIES GIVE TECHNICAL APPROVAL. ANY WORKS, OR ORDERING OF MATERIALS, PRIOR TO APPROVALS FROM THE ABOVE MENTIONED BODIES IS DONE SO AT THE CONTRACTORS RISK IN ITS ENTIRETY. BMC WILL ACCEPT NO RESPONSIBILITY FOR ANY ABORTIVE WORKS / MATERIAL COSTS.

CONTRACTOR TO CHECK INVERT LEVEL OF EXISTING DRAINAGE AS SOON AS POSSIBLE TO ENSURE VALIDITY OF SCHEME. BMC NOT RESPONSIBLE FOR CHECKING OF ANY SITE LEVELS. THIS REMAINS THE RESPONSIBILITY OF THE CONTRACTOR

ALL TEMPORARY WORKS FOR CONSTRUCTION OF DRAINAGE TO CONTRACTORS DESIGN AND DETAILS

SCHEME HAS BEEN DESIGNED FOR THE FOLLOWING;
1 IN 1 YEAR STORM - NO SURCHARGING.
1 IN 30 YEAR STORM - NO FLOODING.
1 IN 100 YEAR STORM + 40% FOR CLIMATE CHANGE - ANY FLOODING CONTAINED ON SITE.

DENOTES UNITED UTILITIES EASEMENT REQUIREMENTS

NOTE : HYDROBRAKE MANHOLE INVERT LEVELS SHOWN ON THIS DRAWING ARE CENTRE OF MANHOLE LEVELS AND NOT INCLUSIVE OF SUMP DEPTHS.

NOTE : ATTENUATION UNITS TO BE ROTATED TO ENABLE SPIGOT FIXING AT ALL SIDES AS REQUIRED.

SW13 HYDROBRAKE DETAILS
DESIGN HEAD : 2.000M
DESIGN PASS FORWARD FLOW : 45.4L/S
UNIT REFERENCE : MD-SHE-0269-4540-2000-4540

ALL PPICS TO BE WAVIN 450/600 RANGE. WAVIN MULTI-BASE / MINI-ACCESS CHAMBERS MAY BE USED IF THERE ARE 2 OR LESS CONNECTIONS ENTERING THE MANHOLE IN THE CORRECT CONFIGURATION AND THE COVER TO INVERT DEPTH IS LESS THAN 900MM - TBC BY CONTRACTOR. CHAMBERS OF 900Ø+ TO BE PRECAST CONCRETE.

NOTE!
450Ø PPIC MANHOLES WITH A DEPTH GREATER THAN 1.2M TO HAVE RESTRICTION ACCESS CAPS

ALL GULLYS TO HAVE 150MM DIAM PIPEWORK. IF 150MM DIAM PIPE IS TO CONNECT TO 100MM PIPE, REDUCERS ARE REQUIRED. IF 150MM DIAM PIPE IS TO ENTER MANHOLE WITH 100MM OUTLET, REDUCERS ARE REQUIRED.

SVP - DENOTES SOIL VENT PIPE
£ - DENOTES SHOWER OUTLET
DF - DENOTES DRINK FOUNDATION OUTLET
ST - DENOTES SILT TRAP GULLY
SS - DENOTES STUB STACK
* - DENOTES FOUL DRAIN (TBC BY ARCHITECT)
RWP - DENOTES RAIN WATER PIPE
G - DENOTES ROAD GULLY

ANY UNLABELLED FOUL BRANCH PIPEWORK UNDER BUILDINGS TO BE 100Ø PIPEWORK AT MINIMUM 1:40 FALL.

ALL MANHOLES IN HARSTANDING AREAS TO HAVE 150MM CONCRETE SURROUND

SURFACE WATER MANHOLES 9, 12 & 15 TO HAVE 325MM SUMP. SURFACE WATER MANHOLE 13 TO HAVE SUMP TO HYDRO INTERNATIONALS REQUIREMENTS

ROAD GULLY STEMS TO HAVE VERTICAL STEMS AS REQUIRED TO AVOID ANY CLASHES WITH FOUL WATER DRAINAGE

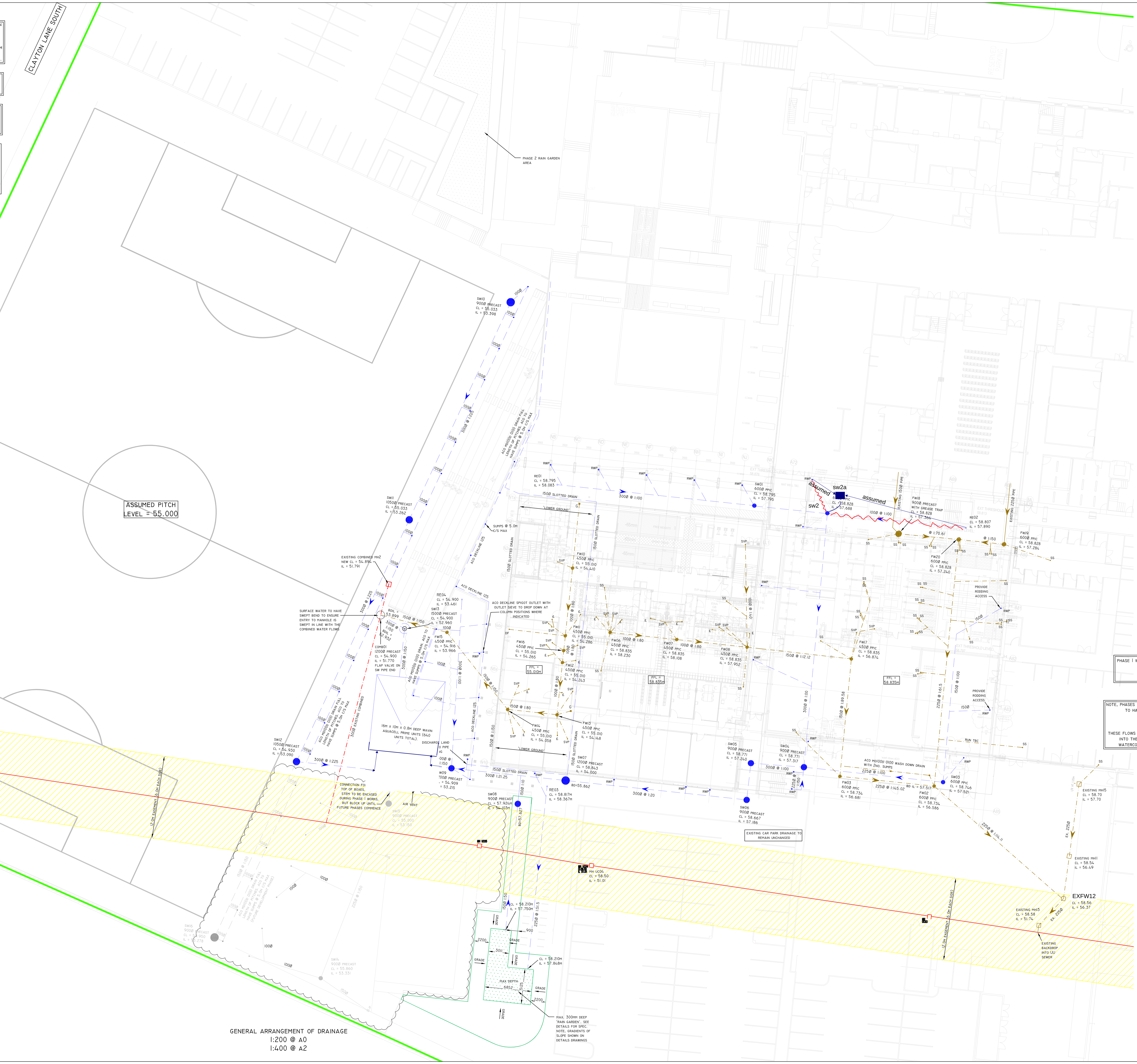
ALL CONCRETE MANHOLES TO HAVE A 225MM IN-SITU CONCRETE BASE

(H) DENOTES HYDROBRAKE MANHOLE

ALL PIPES TO BE INVERT TO INVERT

ALL LEVELS PROVIDED ARE TO CENTRE OF MANHOLE RING

ALL INTERNAL MANHOLES TO HAVE SAINT GOBAIN TRIPLE SEALED RECESSED COVERS



GENERAL ARRANGEMENT OF DRAINAGE
1:200 @ A0
1:400 @ A2

GENERAL NOTES:

1. THIS DRAWING IS COPYRIGHT AND THE PROPERTY OF BELL MUNRO CONSULTING LTD. THE DRAWING MUST NOT BE REPRODUCED IN PART OR IN WHOLE WITHOUT PRIOR WRITTEN AUTHORITY.

2. THIS DRAWING MUST NOT BE SCALED BY EITHER CONTRACTORS OR OTHER CONSULTANTS ANY DIMENSIONAL OR SETTING - OUT DISCREPANCIES ARE TO BE REPORTED TO BELL MUNRO CONSULTING PRIOR TO CONSTRUCTION / FABRICATION COMMENCING.

3. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE RELEVANT BMC SPECIFICATIONS TOGETHER WITH THE APPROPRIATE ARCHITECTS AND SERVICES CONSULTANTS DRAWINGS AND SPECIFICATIONS.

4. TEMPORARY STABILITY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE MAIN CONTRACTOR AND SHOULD BE ASSESSED ACCORDINGLY.

DRAINAGE NOTES

1. EXACT SVP AND GULLEY LOCATIONS TO BE CONFIRMED FROM SERVICES ENGINEERS'/ARCHITECTS DRAWINGS AND DETAILS.

2. ALL NEW PIPEWORK TO BE WAVIN OSMADRAIN OR WAVIN ULTRARIB UPVC (OR SIMILAR APPROVED) UNLESS NOTED OTHERWISE.

3. PLASTIC PIPES (PVC-U)TO BE FLEXIBLY JOINTED AND COMPLY WITH THE REQUIREMENTS OF BS EN 1401-1 1998.

4. WHERE COVER TO PIPES IS LESS THAN 900 IN ROADS AND HARDSTANDINGS OR 400 MM ELSEWHERE, CONCRETE SURROUND IS TO BE PROVIDED IN ACCORDANCE WITH THE DETAIL (CLASS Z BEDDING).

5. ALL OTHER PIPEWORK TO BE IN CLASS S BEDDING.

6. N.B. UNTIL FINAL SERVICE IS PLACED, HEAVY TRAFFIC IS NOT TO BE ALLOWED OVER PIPE TRENCHES WITHOUT SPECIAL PRECAUTIONS.

7. PIPES AND FITTINGS ARE TO BE LAID IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

8. MANHOLE COVERS IN CAR PARKS TO BE LOAD CLASS D400 TO BS EN 124.

9. MANHOLE COVERS IN LANDSCAPED AND PAVED AREAS TO BE LOAD CLASS B125 BS EN 124.

10. MANHOLE COVERS IN PAVED AREAS TO BE RECESSED TO ACCEPT PAVING FINISH.

11. ACCESS COVERS FOR GULLIES IN KERBSIDES TO BE LOAD CLASS C250 BS EN 124.

12. ALL INTERNAL POP UPS TO HAVE RODDABLE ACCESS.

13. ANY PPIC MANHOLE DEEPER THAN 1200MM MUST BE FITTED WITH ACCESS RESTRICTOR CAP.

14. PPIC MANHOLES WITHIN TRAFFICKED AREAS TO BE PROVIDED WITH 150MM ST4 CONCRETE SURROUND

15. ALL EXISTING DRAINAGE TO BE CONFIRMED PRIOR TO CONSTRUCTION COMMENCING.

16. PIPEWORK PASSING THROUGH BUILDING WALLS SHALL BE FITTED WITH ROCKER PIPES AS PER STANDARD DETAIL.

17. ANY UNLABELLED FOUL BRANCH PIPEWORK TO BE 100Ø PIPEWORK AT MINIMUM 1:40 FALL.

18. ANY UNLABELLED STORM WATER BRANCH PIPEWORK TO BE 100Ø AT MINIMUM 1:80 FALL.

19. ALL RWP LOCATIONS AND NUMBERS ARE TO BE CONFIRMED BY ARCHITECT PRIOR TO COMMENCING CONSTRUCTION.

PHASE 1 WORKS ACTUAL MAX SURFACE WATER DISCHARGES RATES;
1 IN 1 YEAR STORM EVENT: 25.4L/S
1 IN 30 YEAR STORM EVENT: 44.1L/S
1 IN 100 YEAR + 40% STORM EVENT: 45.4L/S

NOTE, PHASES 2 AND 3 (FOOTBALL PITCH AND CAR PARK TO THE NORTH) ARE TO HAVE A MAXIMUM COMBINED OFFSITE FLOW AS FOLLOWS;
1 IN 1 YEAR STORM EVENT: 5.1L/S
1 IN 30 YEAR STORM EVENT: 9.8L/S
1 IN 100 YEAR + 40% STORM EVENT: 12.1L/S
THESE FLOWS ARE GREENFIELD RUN OFF RATES AND SHOULD BE DISCHARGED INTO THE LA WATERCOURSE WITHIN CLAYTON LANE SOUTH. NOTE, WATERCOURSE WILL REQUIRE JETTING AND REPAIRING BY COUNCIL.

NOTE, PHASES 2 AND 3 OF SCHEME MUST DISCHARGE INTO WATERCOURSE WITHIN CLAYTON LANE SOUTH. LAND DRAINAGE CONSENTS WILL BE REQUIRED FROM MCC PRIOR TO UNDERTAKING ANY WORKS

PRELIMINARY SUBJECT TO COMMENTS

REV	COMMENTS	DATE	BY
07	ACO ADDED AT LOW SPOT (CLOUDED)	13.05.21	AM
06	CHANGES TO MINOR LLFA COMMENTS	12.05.21	AM
05	REVISED TO TO NEW OUTFALL AND FLOW RATE	11.05.21	AM
04	REVISED TO CONTRACTOR'S COMMENTS	04.12.20	SMB
03	REVISED TO CONTRACTOR'S COMMENTS	19.10.20	SMB
02	FOUL CONNECTION POINT UPDATED TO AS BUILT	27.08.20	AM
01	WORKSHOP FOUL DRAINAGE UPDATED	20.08.20	AM
-	INITIAL ISSUE	07.06.20	AM

BMC

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WWW.BELLMUNRO.CO.UK

CLIENT: CADDICK CONSTRUCTION LTD.

PROJECT: OPENSHAW CAMPUS

TITLE: GENERAL ARRANGEMENT OF BELOW GROUND DRAINAGE

DRAWN BY:	CHECKED BY:	SCALE:	DATE:
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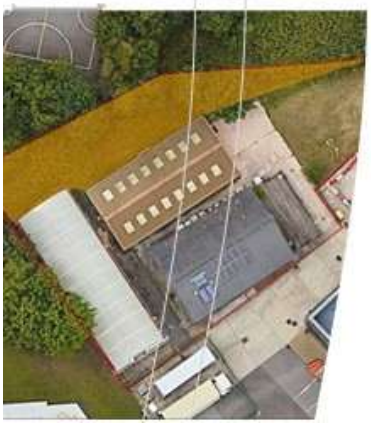
APPENDIX C

Geo-Environmental Investigation
(Earth Environmental & Geotechnical)









EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

Phase II GeoEnvironmental

Site Investigation

Openshaw Campus

Manchester College

October 2025

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1.0 INTRODUCTION

1.1 Background

A site investigation has been commissioned by Manchester College (the 'Client') to examine ground conditions for the construction of a new college building with associated servicing and vehicular access.

1.2 Existing Planning Applications

EEG is not aware of any planning applications submitted to the local council.

1.3 Terms of Reference

The Client has commissioned Earth Environmental and Geotechnical Ltd (EEG) to undertake a site investigation in accordance with proposal A7009/25 dated 4th August 2025.

The objectives of this investigation are as follows:

- *Provide factual information on the work undertaken, including sampling location plan, borehole logs, trial pit logs, geotechnical/ chemical testing, and monitoring.*
- *Tier 1 (semi-quantitative) risk assessment will be undertaken. This will compare the concentrations of soil and ground gas identified against current and relevant published guidelines, in relation to identified receptors, such as existing or future end-users and site neighbours.*
- *Classification of soils for off-site disposal.*
- *Assessment of ground conditions for foundation and soakaway design.*

1.4 Report Scope

This report presents complete factual records of the site work carried out, the ground conditions encountered in the exploratory holes, and the in situ and laboratory test results. All information collected has been used to provide an interpretation of the ground conditions, along with recommendations on geotechnical design and potential risks of ground contamination for the proposed development.

1.5 Limitations of the Study

The report is written in the context of an agreed scope of work and budget and should not be used in a different context. New information, improved practices, or changes in legislation may require a reinterpretation of the report in whole or in part. EEG reserves the right to amend either conclusions or recommendations in light of any further information that may become available. The report is provided for the sole use of the client and is confidential to them.

Recommendations within this report are also based on exploratory records and examination of samples and, where applicable, laboratory tests. No liability can be accepted for conditions not revealed by the boreholes and trial pits, particularly at intervening locations.

Whilst every effort is made to ensure the accuracy of the data supplied, all opinions expressed regarding the spatial distribution of strata between sampling locations are for guidance only, and no responsibility is accepted for their accuracy.

2.0 SITE LOCATION & DESCRIPTION

The site is located at the southern end of Manchester College, Openshaw Campus, Manchester.

The approximate National Grid Reference for the centre of the site is SJ 87587 97264 (X: 387587, Y: 397264), with the closest postcode being M11 2WH.

The site is an approximately rectangular parcel of land located to the rear of the Openshaw campus. The site comprises a hardstanding parking area and a small strip of soft landscaping along the southern edge of the site.

The broader site within the Openshaw Campus, with further parking areas to the north and east, is bounded by a campus boundary of trees to the south and a footpath and slope leading to additional parking to the west.

The site location is shown in the aerial photograph presented as Figure 1, below.

Figure 1: Aerial Photograph Showing Site Location



General site photographs are presented in Figure 2 overleaf.

Figure 2: General Site Photographs

Photograph taken across the site, facing south west.



Photograph looking south showing cable percussion drilling rig in use.



Photograph of WS03 soil samples



Photograph of TP01 showing deeply made ground



2.1 Geology

The British Geological Survey shows the site to be underlain by the geological succession outlined below.

The BGS states that artificial deposits do not underlie the site.

The site is recorded to be underlain by superficial deposits of Devensian Till, which generally comprises clay, silt, sand and gravel with or without boulders.

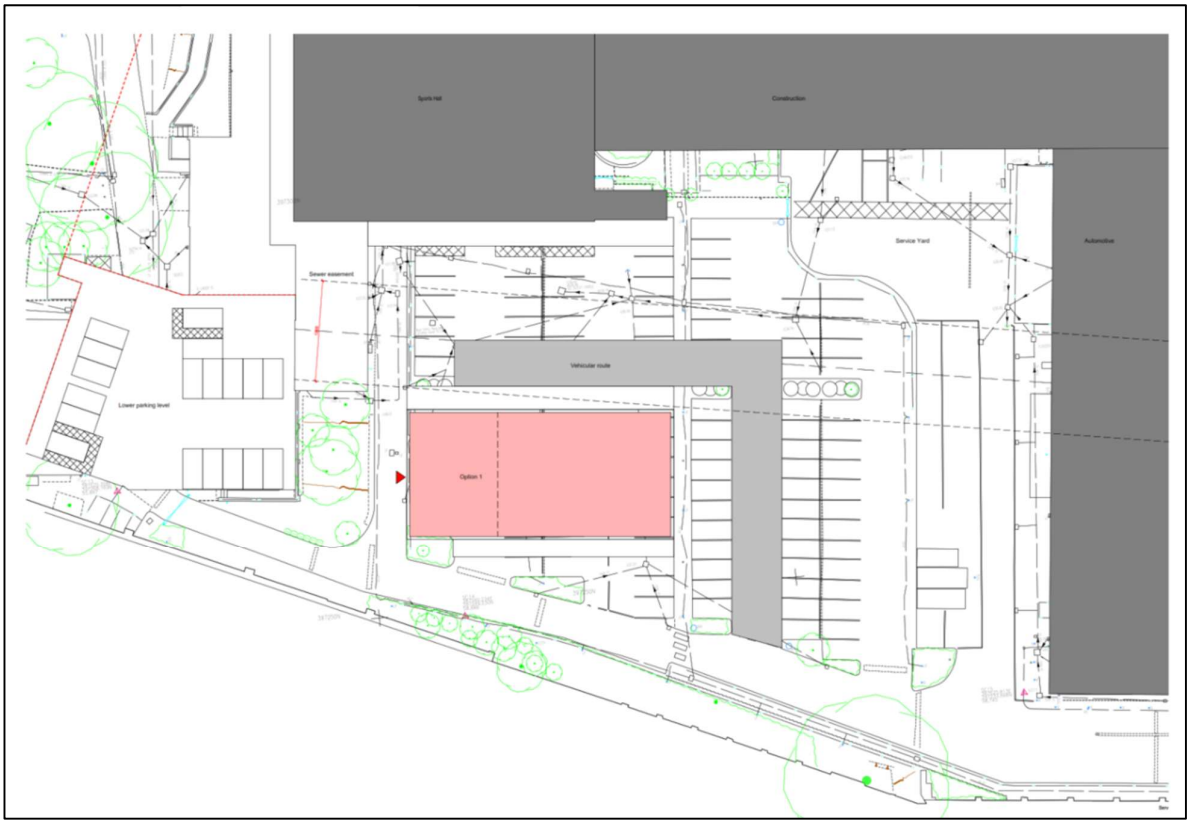
The solid geology beneath the north of the site is recorded to be the Chester Formation, which generally comprises reddish orange sandstone.

2.2 Proposed Development

It is understood that the Client intends to construct a new college building, with associated parking.

The proposed development layout details are shown in Figure 3 below.

Figure 3: Proposed Development Plan



3.0 SITE INVESTIGATION

3.1 Exploratory Fieldwork

The fieldwork was carried out by EEG between 14th and 20th August 2025.

The logging of soils and rocks has been carried out in accordance with BS5930(2015+A1:2020) except where superseded by the soil and rock description methodology in BS EN14688-1(2002), BS EN 14688-2(2004) and BS EN 14689-1(2003).

The fieldwork comprised:

- Five window sample boreholes (designated WS01 – WS05) were sunk to depths of between 1.00 and 5.00m below existing ground level. Window sampler boring was carried out using a small, track-mounted rig that employs a chain-driven trip hammer to drive sampling tubes or penetrometers into the ground. These tools are coupled to the anvil of the hammer by solid drill rods. Sampling tubes comprise “windowless samplers,” which are plain sampler tubes in which a continuous disturbed sample is recovered within a semi-rigid plastic liner. In order to reduce friction within the borehole, sampling tubes of progressively smaller diameter are used as the borehole depth increases. Sampler diameters generally range from approximately 90mm to 50mm. Standard Penetration Tests (SPTs) were undertaken in the boreholes in accordance with BS EN ISO 22476-3. Groundwater observations were noted where possible. These observations relate to the time of the investigation only and do not necessarily reflect seasonal fluctuations. Exploratory hole logs are included in Appendix 1.

- 50mm diameter monitoring standpipes were installed in all window sample boreholes at depths of between 1.00 to 5.00m below ground level. Installation and backfill details are shown with the appropriate borehole log sheet. EEG carried out groundwater and ground gas monitoring in standpipes after the fieldwork period, the results of which are presented in Section 8.

- Two 150mm diameter boreholes (designated CP01 to CP02) were sunk to depths of 11.00m below existing ground level. The holes had a target depth of 15.00m bgl, however refusals in the underlying mudstone bedrock terminated the holes early. All five 150mm boreholes were drilled using a cable percussion boring rig. With this type of rig boreholes are advanced by the percussive action of drill tools suspended on a winch-driven steel cable. The tools generally include a clay-cutter for penetrating fine-grained soils, and a shell for use in coarse-grained, or “granular,” soils. Representative disturbed samples were recovered as boring proceeded. In addition, “undisturbed” 100mm diameter samples (U100’s) were recovered, as appropriate, using standard thick-walled, open-drive samplers, with a steel cutting shoe, dynamically driven by a sliding hammer. Standard Penetration Tests (SPTs) were undertaken in the boreholes in accordance with BS EN ISO 22476-3. Chiselling techniques, using a chisel or shell, were employed where necessary to advance the boreholes through obstructions or into hard strata. Details of groundwater conditions were noted and are indicated on the attached borehole logs. These observations relate only to the time of boring and do not necessarily reflect possible seasonal fluctuations. They may have been affected by the installation of casing or the addition of water to aid boring.

- Exploratory Hole Logs are included in Appendix 1.

- Two trial pits (designated TP01 to TP02) were excavated using an 8-tonne tracked digger to a depth of 1.40m below the existing ground level. The trial pits were excavated for the purpose of conducting infiltration rate testing in accordance with BRE Digest 365 (2016). Trial pits were backfilled immediately on completion of testing.

Trial pit logs are presented in Appendix 1.

Exploratory hole locations were chosen based on the proposed development and located on-site by an EEG engineer, avoiding known or suspected services. Table 1 below outlines the targeted features.

Table 1: Sampling Location Justification

Exploratory Hole	Sampling Location
WS01	Beneath the proposed development.
WS02	Beneath the proposed development.
WS03	Beneath the proposed development.
WS04	Beneath the proposed development.
WS05	Beneath the proposed development.
CP01	Beneath the proposed development.
CP02	Beneath the proposed development. (Obstruction)
CP02A	Beneath the proposed development.
TP01	Area of proposed soakaway
TP02	Area of proposed soakaway

Each exploratory location was scanned using a Cable Avoidance Tool (CAT) in order to locate unrecorded underground services, and the exploratory locations were repositioned if necessary.

On completion, samples recovered from the site were taken to specialist laboratories for chemical and geotechnical testing.

Soil samples were recovered in 60g glass amber jars, 258g glass amber jars and 1kg plastic tubs. Water samples were retrieved in 1-litre glass bottles, 500-ml plastic bottles, 40-ml glass vials, and bottles with red, yellow, blue, and black lids. All the samples were labelled and stored in cool boxes prior to being collected by courier at the end of the day for delivery to the Envirolab laboratory.

If collection was not possible the same day, then samples were stored in the sample storage fridge at the EEG offices below 4˚C.

Samples were tracked using the appropriate Chain of Custody forms provided by Envirolab Ltd. It should be noted that hexavalent chromium soil is analysed using the USEPA recommended method of alkaline leach. This method limits chromium (VI) reduction to chromium (III).

The descriptive terminologies, such as "firm," formerly used within older versions of BS5930 to describe strength, now solely relate to consistency.

Shear strength is now defined in relation to results obtained in the field (using a hand vane, for example) or in the laboratory (from triaxial tests), as detailed in Table 2 below.

Table 2: Shear Strength Definitions

Term based on measurement	Undrained Strength (c_u) definition in kN/m² (from BS EN ISO 14688-2: 2004, 5.3, Table 5)
Extremely Low Strength	<10
Very Low Strength	10 to 20
Low Strength	20 to 40
Medium Strength	40 to 75
High Strength	75 to 150
Very High Strength	150 to 300
Extremely High Strength	300 to 600

An Exploratory Hole Location Plan is presented as Figure 4, overleaf.

A summary of exploratory holes and tests undertaken during the investigation is presented in Table 3 below.

Table 3: Summary of Exploratory Holes Undertaken

Hole	Type*	Depth (m)	Date Started	Date Finished	Easting (m)	Northing (m)	Backfill Details**
WS01	WS	1.20	14/08/2025	14/08/2025	387562.7	397269.23	M
WS02	WS	1.20	14/08/2025	14/08/2025	387576.02	397256.4	M
WS03	WS	5.00	14/08/2025	14/08/2025	387565.97	397273.02	M
WS04	WS	5.00	14/08/2025	14/08/2025	387580.88	397271.18	M
WS05	WS	1.20	14/08/2025	14/08/2025	387569.62	397252.65	M
CP01	CP	11.00	18/08/2025	19/08/2025	387562.3	397275.46	A
CP02	CP	11.00	19/08/2025	20/08/2025	387579.37	397276.36	A
CP02A	CP	1.50	19/08/2025	19/08/2025	387577.75	397262.61	A
TP01	TP	1.40	15/08/2025	15/08/2025	387570	397246	A
TP02	TP	1.40	15/08/2025	15/08/2025	387576	397243	A
*CP = Cable Percussive Borehole, TP = Trial Pit, WS = Window Sample **A=Arisings, MW= Installed							

Figure 4: Exploratory Hole Location Plan



3.2 Laboratory Testing

3.2.1 *Geotechnical Testing*

A programme of laboratory testing was carried out on samples taken from the various strata to assist in classification and determine the engineering properties of the materials underlying the site. The tests were scheduled by EEG and carried out by Murray Rix. The test procedures used were generally in accordance with the methods described in BS1377:1990. Details of the specific tests used in each case are given in Table 4, below.

Table 4: Summary of Laboratory Geotechnical Tests Undertaken

TEST	STANDARD	No.
Moisture Content	BS1377:1990 Part 2, Clause 3.2	7
Liquid Limit, Plastic Limit, Plasticity Index	BS1377:1990 Part 2, Clause 4/5	7
Sulphate content of 2:1 soil: water extract	BS1377:1990 Part 3, Clause 5	6
pH value	BS1377:1990 Part 3, Clause 9	6
Particle Size Distribution (Wet)	BS1377:1990 Part 2, Clause 9.2	4
Triaxial Test: Undrained with Multistage Loading	BS1377:1990 Part 2, Clause 9	3

The results of the laboratory geotechnical tests are discussed in Section 6 and are included in Appendix 2.

3.2.2 *Environmental Testing*

The environmental chemistry of the ground was investigated by specialist chemical analysis of selected samples, scheduled by EEG, and carried out by Envirolab, a UKAS and MCERTS accredited laboratory.

Chemical analyses were carried out on 8no. soil samples and were submitted for the following suite of determinants:

Asbestos Screen, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Phenol, Sulphate (SO_4), Sulphide, pH, Soil Organic Matter, Speciated Polycyclic Aromatic Hydrocarbons (PAH) and Speciated Petroleum Hydrocarbons.

A total of 2no. soil samples were additionally submitted for Waste Acceptance Criteria (WAC) testing.

The results of the laboratory chemical tests are discussed in Section 7 and are included in Appendix 3.

4.0 GROUND CONDITIONS ENCOUNTERED

4.1 Soil Profile Encountered

Generally, the sequence of strata encountered beneath the site is as follows:

- **MADE GROUND** - was encountered in all exploratory hole locations between ground level and to a maximum depth of 5.00m bgl, generally comprising:

    - Grey Asphalt
    - Greyish brown, slightly clayey sandy, angular to subangular fine to coarse GRAVEL of limestone, sandstone, concrete and brick with or without glass and ash.
    - Stiff brown, sandy, gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse sandstone, mudstone, concrete, brick, coal and ash, and ash.
    - Grass over dark brown clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse sandstone, concrete, brick and mudstone.
    - Dark brown clayey sandy fine to coarse GRAVEL of brick, concrete, metal, ash, sandstone and mudstone with low cobble content of brick.

- **Superficial Deposits** - Variable superficial deposits were encountered in all exploratory holes, to a minimum depth of 11.00m bgl.

    - Stiff brown gravelly CLA. Gravel is subangular to subrounded fine to coarse of sandstone and mudstone.
    - Very stiff brown sandy gravelly CLAY with low cobble content of sandstone. Grael is subangular to subrounded fine to coarse of sandstone and mudstone.

The depths of the various materials encountered in the exploratory holes are summarised in Table 5, overleaf.

4.2 Observable Indications of Contamination

There was no visible or olfactory evidence of contamination during the site investigation.

4.3 Obstructions

Obstructions within the made ground were encountered in WS01, WS02 and WS05, CP02, TP01 and TP02.

4.4 Groundwater

Groundwater was not encountered during the ground investigation.

During subsequent monitoring visits, groundwater was encountered in all window sample boreholes (WS01 and WS05) between 2.93-4.40m.

Table 5: Summary of Ground Conditions Encountered

Borehole Location	Depth to Stratum (m bgl)			Groundwater Strike During Drilling (m bgl)
	Made Ground		Superficial	
	Granular	Cohesive	Clay	
WS01	GL-0.60	0.60-1.20+	-	DRY
WS02	GL-1.20+	-	-	DRY
WS03	GL-3.60	3.60-4.40	4.40-5.00+	DRY
WS04	GL-2.42	2.42-4.22	4.22-5.00+	DRY
WS05	GL-1.20+	-	-	DRY
CP01	GL-3.20	3.20-5.00	5.00-11.00+	DRY
CP02	GL-3.50	3.50-4.50	4.50-11.00+	DRY
CP02A	GL-1.50+	-	-	DRY
TP01	GL-1.40+	-	-	DRY
TP02	GL-1.00+	-	-	DRY

5.0 ENGINEERING PROPERTIES OF SOILS ENCOUNTERED

5.1 General

The following sections discuss the engineering properties of the strata encountered, based on results of in situ testing and laboratory testing obtained during this investigation.

The results of laboratory geotechnical testing are summarised below in Table 6.

Table 6: Summary of Laboratory Geotechnical Test Results

Location	Depth (m)	Strata	CLASSIFICATION											STRENGTH	CHEMICAL	
			Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Modified Plasticity Index (%)	PSD Gravel (%)	PSD Sand (%)	PSD Silt (%)	PSD Clay (%)	Bulk Density (Mg/m^3)	Dry Density (Mg/m^3)	Undrained Triaxial Shear Strength (kN/m^2) & Undrained Angle of Internal Friction	pH Value	Water Soluble Sulphate SO_4 (mg/l)
WS03	4.7	Clay	31.6	40	18	22	20	-	-	-	-	-	-	-	7.6	220
WS04	4.60	Clay	32.6	42	20	22	21	-	-	-	-	-	-	-	7.2	180
CP01	5.00-5.45	Clay	-	-	-	-	-	-	-	-	-	2.09	1.71	144/0	-	-
CP01	6.5-7.00	Clay	-	-	-	-	-	1	17	67	15	-	-	-	-	-
CP01	7.00-7.45	Clay	14.6	36	14	22	18	-	-	-	-	-	-	-	7.3	290
CP01	9.50-10.00	Clay	-	-	-	-	-	3	15	64	18	-	-	-	-	-
CP01	10.10-10.45	Clay	13.1	34	14	20	15	-	-	-	-	-	-	-	7.3	320
CP02	6.00-6.45	Clay	18.1	38	17	21	18	-	-	-	-	-	-	-	7.2	370
CP02	8.00-8.45	Clay	15	40	17	23	19	-	-	-	-	-	-	-	-	-
CP02	4.50-5.0	Clay	-	-	-	-	-	7	20	58	15	-	-	-	-	-
CP02	5.0-5.45	Clay	-	-	-	-	-	-	-	-	-	2.09	1.71	41/2.3	-	-
CP02	7.0-7.45	Clay	-	-	-	-	-	-	-	-	-	2.23	1.86	121/2.3	-	-
CP02	9.0-9.45	Clay	13.8	36	15	21	18	-	-	-	-	-	-	-	7.3	380
CP02	10.0-10.45	Clay	-	-	-	-	-	17	40	29	14	-	-	-	-	-

5.2 Made Ground

Made Ground was encountered in all exploratory hole locations between ground level and a maximum depth of 5.00m bgl. No geotechnical testing was undertaken within made ground.

5.3 Superficial Deposits

As discussed in Section 5, superficial material was encountered as variable clay in all of the exploratory hole locations.

5.3.1 Cohesive

Cohesive material comprising clay was encountered in all exploratory hole locations, below the made ground.

SPT tests carried out in the cohesive material resulted in **SPT N values** of between 27 and 50, as shown on the SPT v Depth Plot in Figure 6 (overleaf). This result suggests the cohesive material is firm to very stiff.

These results show a general trend of increasing SPT N values with depth. Atterberg Limit tests were carried out on 7no. samples of the clay. Results of the test reported **liquid limit** values in the range of 36% to 42% and **plastic limit** values in the range of 14% to 20%, resulting in values of **plasticity index** in the range of 20% to 23%. These results suggest the clay to be of **low to intermediate plasticity**. Results are shown on the Plasticity Chart in Figure 6, overleaf.

The **water-soluble sulphate** content of the 6no. clay samples ranges from 180mg/l to 380mg/l SO_4, together with **pH values** of 7.2 to 7.6.

A total of 3no. multi-stage undrained triaxial testing was conducted on undisturbed samples collected from the clay strata. The results indicate an undrained shear strength range of 41-144kN/m^2.

Recommended N values and derived design values for the cohesive soils are summarised in Table 7.

Table 7: Summary of Design Parameters (Cohesive)

Depth	SPT N Value Range	Design N Value*	Equivalent Undrained Shear Strength** (kN/m^2)	Coefficient of Volume Compressibility** (m2/MN)
6.00	24-27 (2 tests)	24.75	127 (High Strength)	0.08 (Low)
7.00	31 (1 tests)	31	159 (Very High Strength)	0.006 (Low)
8.00	33 (1 tests)	33	169 (Very High Strength)	0.006 (Low)
9.00	36-37 (2 tests)	36.25	186(Very High Strength)	0.005 (Low)
10.00	50 (1 test)	50	257 (Very High Strength)	0.004 (Very Low)

*Based on lower quartile N value and correlations by Peck Hanson and Thornburn(1974)
**Based on correlation by Stroud & Butler (1975)

It is recommended that for assessing ultimate bearing capacities, where the lower values are critical, the lower quartile value of N values is used. Based on the N Values in the above table, the equivalent shear strength values are between 127 and 257kN/m^2.

For design purposes, a value of plasticity index = 22% is recommended, based on the average value.

The SPT data indicate a strong linear correlation of strength with depth, as shown in Figure 5, with a linear equation of y = 0.1744X + 1.933. Thus, the N value of any depth below 5m can be given by

$$N\ Value = (Depth/0.1774) - 11.085$$

The **coefficient of volume compressibility (mv)** has been estimated using the following correlation by Stroud and Butler (1975): for a clay with a plasticity index of 22%. This correlation gives a value of coefficient of volume compressibility of 0.08 to 0.04m^2/MN, as shown in Table 7, above. The results suggest the clay has a **low to very low compressibility**.

In accordance with NHBC Chapter 4.2 Building Near Trees (2003), soils can be classified in terms of volume change potential, using the relationship:

$$I'_p = I_p \times \frac{\%\ \text{less than } 425\mu m}{100\%}$$

I'_p = modified plasticity index,
I_p = plasticity index.

Based on the laboratory test results, the above relationship and Table 1 of NHBC Chapter 4.2, the samples of clay are shown to have a **medium to low volume change potential**.

The **Natural Moisture Content** (NMC) and **Liquid Limit** (LL) of the soil can be used to give an indication of **soil desiccation**, i.e., where the NMC is less than 40% of the LL, the soil is inferred to be desiccated, as summarised in Table 8, below.

Table 8: Soil Desiccation Indicators in the Clay

Location	Depth (m)	Liquid Limit (%)	40% Liquid Limit (%)	Natural Moisture Content (%)	Desiccation
WS03	4.7	40	16	31.6	No
WS04	4.6	42	16.8	32.6	No
CP01	7.00-7.45	36	14.4	14.6	No
CP01	10.00-10.45	34	13.6	13.1	Yes
CP02	6.0-6.45	38	15.2	18.1	No
CP02	8.0-8.45	40	16	15	Yes
CP02	9.0-9.45	36	14.4	13.8	Yes

The results in the above table show that 3no. of the clay samples tested show evidence of desiccation.

Figure 5: SPT v Depth Plot

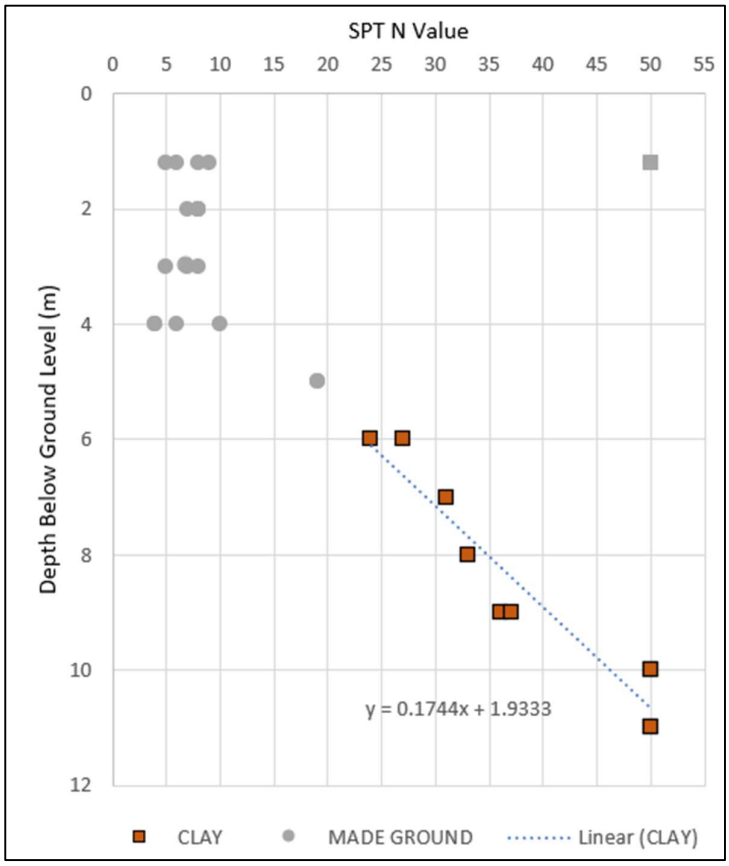
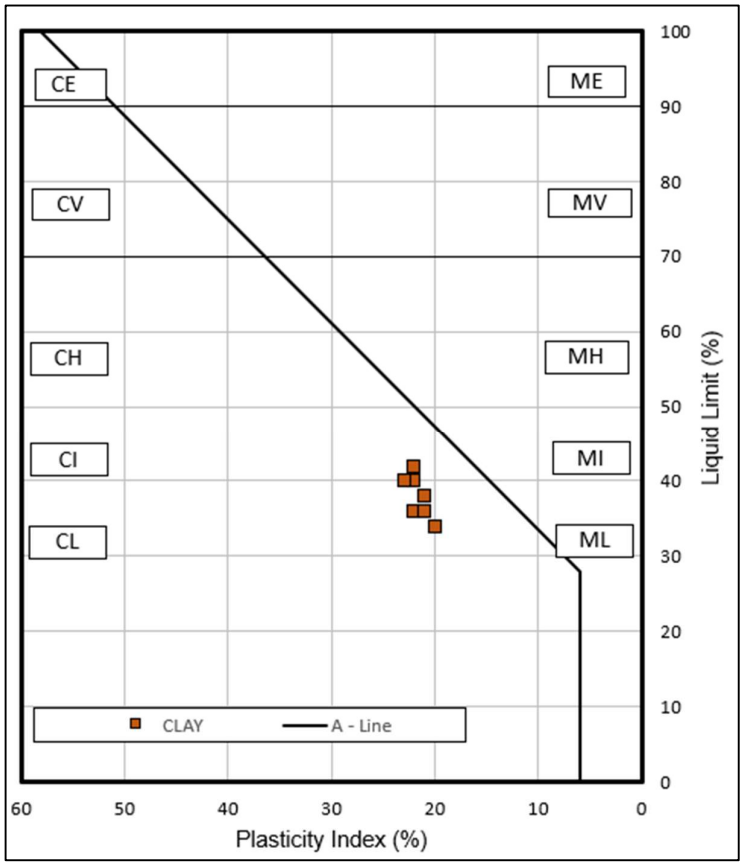


Figure 6: Plasticity Chart



6.0 GEOTECHNICAL ASSESSMENT

6.1 Proposed Development

It is understood that the Client intends to construct a new college building, with associated parking.

Detailed information regarding structural loadings and proposed foundation type was not available at the time of authoring this report.

6.2 Ground Conditions Encountered

The exploratory holes generally encountered cohesive made ground between ground level and a maximum depth of 5.00m bgl, underlain by natural clay to a minimum depth of 11.00m.

6.3 Foundation Considerations

Based on the ground conditions encountered, conventional shallow depth foundations (strip/pad/trench) would not be suitable for any new structures.

Therefore, alternative foundation solutions will be required at this site, such as driven/bored piles or vibro stone columns.

6.3.1 *Piled Foundation Solution*

Based on the ground conditions encountered in the area of the proposed structure, a conventional shallow depth foundation (strip/pad) is not suitable due to the made ground extending to 5.00m below the existing ground level.

The proposed development may be founded on a system of ground beams spanning onto piles driven into medium-dense sands or deeper, stiff clays.

A variety of pile types may be used, including bored and continuous flight auger (CFA) piles.

Driven piles may be suitable, subject to environmental constraints. Additionally, careful consideration will need to be given to the potential presence of services that traverse the site.

Because of the various advantages and limitations of each pile type, and the cost implications, advice should be sought from specialist piling contractors to determine the most suitable and cost-effective type.

They should also be able to provide recommended pile diameters and depths, as well as likely pile capacities, with guaranteed performance.

It is recommended that a pile test be carried out to confirm pile capacities. When assessing pile capacities, contractors should make allowances for the effects of negative skin friction, particularly in made ground and soft clays.

There may be differential settlement between piled structures and the surrounding ground level.

Provision should, therefore, be made to make up ground levels at threshold positions, loading bays, vehicle access doorways, etc.

Alternatively, these materials should be removed and replaced in a controlled manner by suitable existing materials or imported engineered fill.

It is essential that the advice of a specialist piling contractor is sought and that the piling contractor provides positive assurances that their proprietary system is capable of providing the required working loads in the ground conditions encountered.

Floor slabs should be designed as suspended if the piled solution is used.

6.3.2 *Vibro-Stone Columns*

Alternatively, ground treatment (e.g. vibro displacement) may be an option.

For example, vibro stone columns are often used to solve a wide range of static, dynamic, and seismic foundation problems by using powerful depth vibrators to densify soils of form stone columns that compact or reinforce soils in situ. Vibro systems can be used to treat granular deposits, fills, made ground and soft clays/silts.

Soils treated by vibro could offer an allowable bearing pressure in the range 100kN/m^2 to 150kN/m^2, depending on column spacings and ground encountered.

Once the treatment has been carried out, spread foundations may be adopted across the site, and designed to the loadings given above.

Providing that any imported fill material between the tops of the columns and the underside of the floor slab is placed in a controlled manner, floor slabs may be ground bearing.

Positive assurances should be sought from an experienced specialist contractor that the proprietary system proposed is capable of providing the required working loads in the ground conditions encountered, with a guarantee on maximum settlement for both footings and floor slabs.

6.4 Pavement Design

The exploratory boreholes generally encountered Made Ground or topsoil at a subgrade level. Based on the recommendations for design CBR values provided in Interim advice note 73/06, Revision 1 (2009), a conservative design CBR value of 1% should be adopted in areas where Made Ground is encountered at a subgrade level.

Consideration should be given to the potential differing ground conditions near the surface, which could cause pavements to be constructed on variable-made ground. In this context, a flexible pavement design may be required.

Consideration should also be given to the use of geotextiles to reduce capping thickness. For example, biaxial geogrids such as Tensar SSLA20 and SSLA30 are often used to reduce capping thickness. The advice of a suitable contractor should be sought as to the most appropriate type of geotextile to use in the ground conditions encountered at this site.

For guidance, the following table gives a comparison of granular layer thickness with and without the use of a geotextile, in accordance with the requirements of HA25/94 Part 2.

It should be noted that the type of construction will depend on the proposed finished pavement levels across the site, and it is recommended that the pavement design be reviewed once these levels are known. In this context, it is essential that further in situ CBR testing is carried out once formation levels are known to confirm design CBR values.

Table 9: Comparison of Capping Thickness with and without Geotextile

CBR	Unreinforced			Reinforced with Tensar Geogrid				
	Sub-base	Capping	Total	Sub-base	Capping	No. of grids	Total	Thickness saving
0.5%	Design not suitable			200mm	400mm	2	600mm	-
1.0%	150mm	600mm	750mm	400mm	0	1	400mm	350mm
1.5%	150mm	600mm	750mm	310mm	0	1	310mm	440mm
2.0%	150mm	600mm	750mm	260mm	0	1	260mm	490mm
3.0%	150mm	350mm	500mm	210mm	0	1	210mm	290mm
4.0%	150mm	300mm	450mm	175mm	0	1	175mm	275mm
5.0%	150mm	250mm	400mm	160mm	0	1	160mm	240mm
These figures are suitable for light access roads and car parks, based on 1000 standard axles. For heavier loaded pavements, the advice of specialist contractor should be sought.								

All formation excavations should be examined by a suitably experienced engineer or inspector to check for soft or unsuitable material, which should be removed and replaced with compacted granular fill. Also, to ensure good compaction and remove unevenness, the formation should be compacted with equipment suitable for use in the ground conditions encountered. Careful inspection of this work will also help identify any soft spots at or just below the formation level.

6.5 Soil Infiltration Testing

Two trial pits, TP01 and TP02, were excavated to a depth of 1.40m and 1.00m bgl at the client specified locations.

Due to obstruction and made ground encountered at the location of the trial pits, no infiltration testing was conducted, as made ground is not suitable for infiltration due to potential contamination issues.

Therefore, as made ground was found extensively across the site, the use of soakaways at this site is not considered to be feasible and alternative drainage solutions will be required.

6.6 Chemical Attack on Buried Concrete

Chemical tests (see Appendices) show low levels of water-soluble sulphates and generally neutral or slightly alkaline conditions.

Based on these conditions, it is recommended that for concrete placed in the soils, the Design Sulphate Class for the site, as defined in BRE Special Digest 1$^{(2005)}$, be taken as DS-1, and the Aggressive Chemical Environment for Concrete (ACEC) site classification be taken as AC-1s.

The recommendations of BRE Special Digest 1 should be followed for concrete foundations and ground-bearing floor slabs.

6.7 Suitability of Excavated Materials

Acceptability criteria and testing methods, as well as compaction/placement methods, will depend on the type of contract and specification used for the construction of the proposed development. It is recommended that earthworks specifications be reviewed by a suitably qualified engineer once the relevant parties have prepared them.

Granular made ground and clay could be suitable for reuse as structural fill, provided it is not contaminated and does not contain excessive amounts of clay and provided moisture contents are controlled during placement. The control of moisture content will be important as the cohesive content of this stratum is likely to be sensitive to moisture content changes.

6.8 Temporary Works

Formations will be susceptible to damage both by weather and trafficking, and should be protected immediately on exposure, particularly in areas where construction plant will access the site.

Excavations in clay are likely to be unstable and should be battered back to an angle of 1 in 2, or a system of close sheeting and shoring adopted to ensure stability, and in particular where personnel are required to enter excavations. All excavations should be adequately supported where personnel are required to enter.

Groundwater seepages could be encountered near surface within excavations, particularly during the wetter months of the year. Pumping of excavations from a suitable located sump is likely to be required to keep excavations dry.

7.0 SOIL CONTAMINATION RISK ASSESSMENT

7.1 Tier I Human Health Soil Risk Assessment – Groundworkers During Development

To assess the risk of soil contamination to construction and ground workers during development, guidelines from the HSE Document 'Protection of workers and the general public during development of contaminated land' (1991) are used. The document assesses soil contamination test results and classifies the site as being uncontaminated or contaminated with varying degrees of contamination from 'slight' to 'unusually heavy.' The guideline values and laboratory test results are summarised in the following table:

Table 10: Summary of Guideline Values for Protection of Workers and the General Public During the Development of Contaminated Land

Contaminant	Typical Values* for:					Test Results	Class
	Uncontaminated Soils	Slight Contamination	Contaminated	Heavy Contamination	Unusually Heavy Contamination		
	Class A	Class B	Class C	Class D	Class E		
pH (acid)	6 – 7	5 – 6	4 – 5	2 – 4	<2	-	-
pH (alkaline)	7 – 8	8 – 9	9 – 10	10 – 12	12	7.70-8.5	A-B
Arsenic	0 – 30	30 – 50	50 – 100	100 – 500	500	8-59	A-C
Cadmium	0 – 1	1 – 3	3 – 10	10 – 50	50	0.4-1.7	A-B
Chromium	0 – 100	100 – 200	200 – 500	500 – 2500	2500	15-540	A-D
Copper	0 – 100	100 – 200	200 – 500	500 – 2500	2500	20-323	A-C
Lead	0 – 500	500 – 1000	1000 – 2000	2000 – 1%	1.0%	10-1100	A-C
Mercury	0 – 1	1 – 3	3 – 10	10 – 50	50	<1	A
Nickel	0 – 20	20 – 50	50 – 200	200 – 1000	1000	16-172	A-C
Zinc	0 – 250	250 – 500	500 – 1000	1000 – 5000	5000	37-242	A
Boron	0 – 2	2 – 5	5 – 50	50 – 250	250	1.1-1.7	A
Selenium	0 – 1	1 – 3	3 – 10	10 – 50	50	<2-8	A-C
Barium	0 – 500	500 – 1000	1000 – 2000	2000 – 1.0%	1.0%	32-687.9	A-B
Beryllium	0 – 5	5 – 10	10 – 20	20 – 50	50	<0.5-4.1	A
Vanadium	0 – 100	100 – 200	200 – 500	500 – 2500	2500	22-295	A-C
Sulphate	0 – 2000	2000 – 5000	5000 – 1%	1% - 5%	5.05%	224-3363	A-B
Sulphide	0 – 10	10 – 20	20 – 100	100 – 500	500	<5	A
Cyanide (free)	0 – 1	1 – 5	5 – 50	50 – 100	100	<1	A
Phenol	0 – 2	2 – 5	5 – 50	50 – 250	250	<2	A

Based on the above results, the soils range from uncontaminated to contaminated. Therefore, there is a **LOW** potential risk from soil contamination to construction workers, ground workers and members of the public during construction.

Appropriate measures, such as PPE, site health plans, and appropriate disposal of material arising, will further mitigate this risk.

7.2 Tier I Human Health Soil Risk Assessment – Future Site Users

The following section provides a Human Health Soil Assessment for future site users. Based on the proposed development type, the following section compares the results of contamination analyses to residential types of end development as specified by Defra/LQM/CIEH. As part of the contamination assessment, the chemical results obtained by EEG have been screened against accepted compliance criteria, namely:

- Defra C4SL Health Criteria Values (March 2014), where available; and
- Tier 1 assessment values - based on LQM/CIEH Suitable 4 Use Levels (2015) (S4ULs).

The contaminated land guidance has recently changed the evaluation of risk from 'minimal' (SGVs) to 'low' (referred to as Lowest Level of Toxicological Concern (LLTCs)). The policy companion document and supporting letter by DEFRA, states that C4SLs 'could be used under the planning regime, as well as within Part 2A'.

Based on these comments, EEG considers the justifications and assumptions used to generate 'low' risk are suitable for the planning regime.

Where no C4SLs have been generated, EEG will use the LQM S4ULs. Similar assumptions and land use to C4SLs have been used. However, toxicological information has been based on the concept of 'minimal risk' as per previous guidelines and assumptions. If contaminants are not present as C4SLs or S4ULs, then EEG will use CL:AIRE GACs. These follow the 'minimal' risk principle and more stringent exposure parameters and will be conservative.

EEG consider the main risk drivers for PAHs to be benzo(a)pyrene (B(a)P) and naphthalene. This is due to B(a)P possibly being a carcinogen and the most toxic of the PAHs, and naphthalene being the most volatile and soluble. The new C4SLs indicate B(a)P as a surrogate marker for carcinogenic PAHs, since the risk from other non-carcinogenic PAHs is considered negligible. Naphthalene will be treated separately using the LQM S4ULs.

The average Soil Organic Matter Content for the site is 9.29%, there an assessment criterion of 6% SOM will be used.

As a preliminary screening assessment, all results have been compared to residential areas without homegrown produce end use criteria. As the site is within a college, no new areas of soft landscaping will be created.

The soil chemical testing results are summarised in Table 11, overleaf.

Table 11: Soil Results Comparison with C4SL/S4UL Values

Determinand	C4SL/S4UL Levels Resi wo/ HP SOM 6% (mg/kg)	WS01 0.40m MG	WS01 0.90m MG	WS02 0.40m MG	WS03 0.60m MG	WS03 2.70m MG	No of Exceedances
Metals							
Arsenic	40	14	8	14	16	59	1
Beryllium	1.7	1.8	0.8	1	< 0.5	1	1
Boron	11000	< 1	< 1	< 1	< 1	1.1	0
Cadmium	150	< 0.2	< 0.2	0.7	< 0.2	0.4	0
Chromium	910	29	28	68	70	104	0
Chromium VI	21	< 2	< 2	< 2	< 2	< 2	0
Copper	7100	20	31	225	64	120	0
Lead	310	10	16	203	67	397	1
Inorganic Mercury	300	< 1	< 1	< 1	< 1	< 1	0
Nickel	180	33	38	64	152	33	0
Selenium	430	< 2	< 2	< 2	< 2	< 2	0
Vanadium	1200	39	23	40	28	295	0
Zinc	40000	99	42	242	37	233	0
Petroleum Hydrocarbons							
Benzene	3.3	<0.002	<0.002	<0.002	<0.002	<0.002	0
Toluene	3900	<0.005	<0.005	<0.005	<0.005	<0.005	0
Ethylbenzene	440	<0.002	<0.002	<0.002	<0.002	<0.002	0
o-xylenes	430	<0.005	<0.005	<0.005	<0.005	<0.005	0
m-p-xylenes	180	<0.002	<0.002	<0.002	<0.002	<0.002	0
p-xylenes	480	<0.005	<0.005	<0.005	<0.005	<0.005	0
Aliphatic EC >5-6	160	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0
Aliphatic EC >6-8	530	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0
Aliphatic EC >8-10	150	< 2	< 2	< 2	< 2	4	0
Aliphatic EC >10-12	760	< 2	< 2	< 2	< 2	< 2	0
Aliphatic EC >12-16	4300	< 3	< 3	< 3	< 3	< 3	0
Aliphatic EC >16-21	110000	8	< 3	< 3	< 3	< 3	0
Aliphatic EC >21-35	110000	115	< 10	< 10	< 10	< 10	0
Aromatic EC >5-7	1400	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0
Aromatic EC >7-8	3900	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0
Aromatic EC >8-10	270	< 2	< 2	< 2	< 2	< 2	0
Aromatic EC >10-12	1200	< 2	< 2	< 2	< 2	4	0
Aromatic EC >12-16	2500	< 2	< 2	< 2	< 2	6	0
Aromatic EC >16-21	1900	< 3	< 3	< 3	< 3	7	0
Aromatic EC >21-35	1900	20	< 10	< 10	< 10	< 10	0
Polycyclic Aromatic Hydrocarbons							
Naphthalene	85	< 0.1	< 0.1	0.11	< 0.1	0.85	0
Acenaphthylene	6000	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0
Acenaphthene	6000	< 0.1	< 0.1	< 0.1	< 0.1	0.15	0
Fluorene	4500	< 0.1	< 0.1	0.12	< 0.1	< 0.1	0
Phenanthrene	1500	0.2	0.19	1.22	< 0.1	1.02	0
Anthracene	37000	< 0.1	< 0.1	0.28	< 0.1	0.18	0
Fluoranthene	4500	0.83	0.24	2.17	< 0.1	0.9	0
Pyrene	3800	1.42	0.25	1.97	< 0.1	0.84	0
Benzo(a)anthracene	15	0.68	0.14	1.54	< 0.1	0.59	0
Chrysene	32	0.73	0.16	1.31	< 0.1	0.51	0
Benzo(a)pyrene	4	0.99	0.21	1.39	< 0.1	0.62	0
Benzo(b)fluoranthene	110	0.33	< 0.1	0.58	< 0.1	0.26	0
Benzo(k)fluoranthene	3.3	1.11	0.21	1.31	< 0.1	0.56	0
Indeno(1,2,3-cd) pyrene	46	0.66	0.15	0.72	< 0.1	0.32	0
Dibenzo (a, h) anthracene	0.32	0.13	< 0.1	0.17	< 0.1	< 0.1	0
Benzo(ghi)perylene	360	0.57	0.16	0.56	< 0.1	0.39	0
Phenols							
Phenol	760	<0.2	<0.2	<0.2	<0.2	<0.2	0

Determinand	C4SL/S4UL Levels Resi wo/ HP SOM 6% (mg/kg)	WS04 1.20m MG	WS05 0.50m MG	TP02 0.3m MG	No of Exceedances
Metals					
Arsenic	40	33	14	11	0
Beryllium	1.7	4.1	< 0.5	0.6	1
Boron	11000	< 1	< 1	1.7	0
Cadmium	150	< 0.2	1.7	0.6	0
Chromium	910	19	540	15	0
Chromium VI	21	< 2	< 2	< 2	0
Copper	7100	111	232	85	0
Lead	310	101	1100	114	1
Inorganic Mercury	300	< 1	< 1	< 1	0
Nickel	180	47	172	16	0
Selenium	430	< 2	8	< 2	0
Vanadium	1200	60	133	22	0
Zinc	40000	116	191	174	0
Petroleum Hydrocarbons					
Benzene	3.3	<0.002	<0.002	<0.002	0
Toluene	3900	<0.005	<0.005	<0.005	0
Ethylbenzene	440	<0.002	<0.002	<0.002	0
o-xylenes	430	<0.005	<0.005	<0.005	0
m-xylenes	180	<0.002	<0.002	<0.002	0
p-xylenes	480	<0.005	<0.005	<0.005	0
Aliphatic EC >5-6	160	< 0.01	< 0.01	< 0.01	0
Aliphatic EC >6-8	530	< 0.05	< 0.05	< 0.05	0
Aliphatic EC >8-10	150	< 2	< 2	< 2	0
Aliphatic EC >10-12	760	< 2	< 2	< 2	0
Aliphatic EC >12-16	4300	< 3	< 3	< 3	0
Aliphatic EC >16-21	110000	< 3	< 3	4	0
Aliphatic EC >21-35	110000	< 10	< 10	164	0
Aromatic EC >5-7	1400	< 0.01	< 0.01	< 0.01	0
Aromatic EC >7-8	3900	< 0.05	< 0.05	< 0.05	0
Aromatic EC >8-10	270	< 2	< 2	< 2	0
Aromatic EC >10-12	1200	5	< 2	< 2	0
Aromatic EC >12-16	2500	4	< 2	< 2	0
Aromatic EC >16-21	1900	< 3	< 3	4	0
Aromatic EC >21-35	1900	< 10	< 10	< 10	0
Polycyclic Aromatic Hydrocarbons					
Naphthalene	85	0.4	< 0.1	< 0.1	0
Acenaphthylene	6000	< 0.1	< 0.1	< 0.1	0
Acenaphthene	6000	< 0.1	0.13	< 0.1	0
Fluorene	4500	< 0.1	< 0.1	< 0.1	0
Phenanthrene	1500	0.37	0.83	0.92	0
Anthracene	37000	< 0.1	0.21	0.23	0
Fluoranthene	4500	0.24	1.32	2.05	0
Pyrene	3800	0.24	1	1.83	0
Benzo(a)anthracene	15	0.17	0.48	1.25	0
Chrysene	32	0.18	0.5	1.04	0
Benzo(a)pyrene	4	0.18	0.5	1.4	0
Benzo(b)fluoranthene	110	< 0.1	0.14	0.52	0
Benzo(k)fluoranthene	3.3	0.12	0.37	1.29	0
Indeno(1,2,3-cd) pyrene	46	< 0.1	0.17	0.86	0
Dibenzo (a, h) anthracene	0.32	< 0.1	< 0.1	0.18	0
Benzo(ghi)perylene	360	< 0.1	0.22	0.82	0
Phenols					
Phenol	760	<0.2	<0.2	<0.2	0

Based on the above table, 5no. contaminant concentrations from the soil samples were found in excess of the screening criteria relevant to a residential without homegrown produce end use.

Asbestos fibres and fragments were identified in 6no. of the 8no. soils samples analysed.

Table 12: Soil Asbestos Summary

Location	Depth (m bgl)	Asbestos	Sample Matrix	Quantification %
WS01	0.40	Chrysotile	Fibre bundles	<0.001
WS02	0.40	Chrysotile	Microscopic insultation debris	0.002
WS03	0.60	Chrysotile	Microscopic insultation debris	0.001
WS04	1.20	Amosite	Fibre Bundles	0.001
WS05	0.50	Chrysotile	Fibre bundles	0.006
TP02	0.30	Chrysotile	Fibre bundles	0.002

Due to the elevated concentration (>0.001%) of asbestos found in samples from across the site, an Asbestos Management Plan in accordance with CAR2012 will be required.

7.3 Soil Waste Assessment

An assessment of the disposal characteristics of the soil in accordance with Environment Agency guidance WM3.1, edition of June 2018, "Guidance on the classification and assessment of waste" has been carried out on soils recovered from the site, using HazWasteOnline.

The results are summarised in Table 13 below and presented in full in Appendix 4.

Table 13: Waste Classification of Soils

Location	Depth (m bgl)	WM3.1 Classification	WAC Testing Classification	Comments
WS01	0.40	Non-Hazardous	-	-
WS01	0.90	Non-Hazardous	-	-
WS02	0.40	Non-Hazardous	-	-
WS03	0.60	Non-Hazardous	Stable Non-reactive Hazardous Waste	Excess Fluoride
WS03	2.70	Non-Hazardous		-
WS04	1.20	Non-Hazardous	Hazardous	Elevated TOC and Loss on Ignition
WS05	0.50	Non-Hazardous	-	-
TP02	0.30	Non-Hazardous	-	-

The above table shows that all of the tested samples collected from the site have been classified as **Non-Hazardous** in accordance with WM3.1.

Two of the soil samples have been submitted for Waste Acceptance Criteria (WAC) testing. One of the tested samples (WS03 at 0.60m) is recorded to exceed the criteria for disposal at an Inert Waste facility due to elevated Fluoride. The sample tested WS04 at 0.50m is recorded to exceed the criteria for disposal at a hazardous waste landfill, due to elevated Total Organic Carbon (TOC) and Loss on Ignition.

For Waste Acceptance Criteria (WAC) testing, EEG have compared solid waste and leachate values with guideline values in Landfill Regulations. The following table summarises the results of the solid waste analysis and leachate testing, together with limit values for Non-Hazardous waste and Hazardous waste as described in the Landfill Regulations.

Table 14: Summary of WAC Test Results

Determinand	Landfill Regulations Limits (mg/kg unless otherwise indicated)			WS03 0.60m (mg/kg)	WS04 1.20m (mg/kg)
	Inert Waste	Stable Non-Reactive non-hazardous waste	Hazardous Waste		
TOC (%)	3%	5%	6%	1.1	13
Loss on ignition (%)	-	-	10%	2.04	11.50
BTEX (mg/kg)	6	-	-	< 0.05	< 0.05
Sum of PCBs (mg/kg)	1	-	-	< 0.1	< 0.1
Mineral Oil (mg/kg)	500	-	-	< 10	< 10
Total PAH (mg/kg)	100	-	-	< 1.7	1.9
pH (units)	-	< 6	-	8.1	8.1
Acid Neutralisation Capacity (mol/kg)	-	*To be evaluated*		<1	1.1
Arsenic	0.5	2	25	0.005	0.007
Barium	20	100	300	0.729	0.775
Cadmium	0.04	1	5	< 0.002	< 0.002
Chromium	0.5	10	70	0.054	0.002
Copper	2	50	100	0.036	0.059
Mercury	0.01	0.2	2	0.0033	0.0054
Molybdenum	0.5	10	30	0.068	0.230
Nickel	0.4	10	40	0.0057	0.0057
Lead	0.5	10	50	< 0.002	0.004
Antimony	0.06	0.7	5	< 0.002	< 0.002
Selenium	0.1	0.5	7	0.0016	0.0028
Zinc	4	50	200	0.04	0.09
Chloride	800	15000	25000	43	171
Fluoride	10	150	500	27.9	13.1
Sulphate	1000	20000	50000	71	246
Total Dissolved Solids	4000	60000	100000	705	1387
Phenol Index	1	-	-	< 0.5	< 0.5
DOC	500	800	1000	47	42.3

8.0 GROUND GAS AND RADON GAS CONTAMINATION RISK ASSESSMENT

8.1 Radon Gas

The site is located in a Radon Affected Area, where less than 1% of residential properties are above the Action Level. Therefore, radon protection measures will not be required.

8.2 Analyses of Monitoring Results

The potential risk associated with gases being generated in the ground (whether from natural or man-made sources) depends on the concentrations of gas and its flow rate to the surface. These factors are assessed by monitoring the gas installations in the boreholes. The variable nature of gas generation and the effect of barometric pressure on gas flow mean that the volume of gas potentially reaching the ground surface is normally inconsistent over time.

Three monitoring visits have been conducted between 22nd August and 2nd October 2025. The results recorded methane (CH_4) levels of 0.0% to 0.0% v/v with carbon dioxide (CO_2) levels of 0.3% to 6.2% v/v. Oxygen concentrations of between 9.7% and 16.4% v/v were also recorded.

An absence of positive flow rates was detected during the monitoring period. For assessment purposes, a flow rate of 0.1 litres/hour has been used based on the limit of detection of the flow meter.

Atmospheric pressure was recorded to be between 989mb and 1011mb.

Full results of the monitoring are presented in Appendix 5.

Table 15 overleaf, adapted from Table 1 of the technical paper Risk and Reliability in Gas Protection Design by Card et al. 2019, shows a summary of the current UK practice with respect to appropriate gas protection measures based upon a Gas Screening Value (GSV). A GSV for the site has been obtained by multiplying the maximum concentration of gas by the steady flow rate of 0.1l/h adopted for assessment purposes.

- Methane: Steady flow rate = 0.1 l/hr, max concentration = 0.0%.
- Carbon dioxide: Steady flow rate = 0.1 l/hr, max concentration = 6.2%

Based on the above figures, the GSV is calculated as:

- **Methane**: GSV = 0.1 x 0.0 / 100 = **0.000 litres/hour**
- **Carbon Dioxide**: GSV = 0.1 x 6.2/ 100 = **0.0062 litres/hour**

The CIRIA guidance document notes that '...the GSV is a guideline value and not an absolute threshold'.

The above results suggest the site can be given a Characteristic Situation 1, i.e., 'low risk', in accordance with Table 15 below. However, the elevated Carbon Dioxide concentration of 6.2% recorded during a period of low pressure would require an increase to Characteristic Situation 2.

Therefore, a detailed ground gas risk assessment has been conducted in Section 8.3.

Table 15: Characteristic Situation (Wilson et al 2006/2007 modified from Wilson and Card, 1999)

Characteristic Situation	*Risk Classification*	*Gas Screening Value CH_4 or CO_2 (l/hr)*	*Additional Factors*	*Typical source of generation*
1	Very Low	<0.07	Typically, < 1% methane Typically, < 5% carbon dioxide	Typical made ground
2	Low	<0.7	Borehole air flow rate to not exceed 70l/hr otherwise consider increase to Characteristic Situation 3	Typical made ground
3	Moderate	<3.5		Old landfill, inert waste, flooded mine workings
4	Moderate to High	<15	Quantitative risk assessment	Mine workings susceptible to flooding, completed landfill
5	High Risk	<70		Mineworking unflooded inactive with shallow workings near surface
6	Very High Risk	>70		Recent landfill site

8.3 Detailed Analysis

EEG have referred to *Ground Gas Information Sheet No.1, Using Ternary Plots for Interpretation of Ground Gas Monitoring Results (July 2018),* which reports that carbon dioxide is widespread in the sub-surface environment at concentrations of up to 21% and is generated by microbial and geochemical processes. Elevated carbon dioxide concentrations are commonly elevated in Glacial Till, Chalk, River Terrace Gravel, Thanet Sand, Lambeth Group and Made Ground.

It is reported that when monitoring wells are installed in these materials, small volumes of organic material are exposed to oxygen, which results in biological respiration or oxidation of the material, resulting in the production of carbon dioxide. Weathering of pyrites and subsequent reactions of

acidic pore water with carbonate material can also cause increased concentrations of carbon dioxide in the monitoring well headspace.

Organic material in Made Ground can also degrade to produce carbon dioxide and or methane, in which case the carbon dioxide may be generated so slowly that it will not be emitted from the ground surface in quantities or at a rate that is sufficient to pose a risk to overlying development.

Based on the above information, the gas monitoring data from this investigation has been analysed in respect of methane, carbon dioxide, oxygen, and nitrogen gas ratios, to deduce the potential source of the ground gas, as shown in Figures 7 to 9 overleaf.

Figure 7 shows the ground gas monitoring results from this site investigation, plotted alongside the gas composition from different sources, adapted from Teasdale et al. (2015). The results show that the gas composition within the monitoring wells at the site is unlikely to be landfill gas. The results generally correspond to the air on the gas ratios ternary plot.

Figure 8 shows that the points that plot to the left of the biological respiration and oxidation of methane lines are caused by dissolution of gas from the ground (or pore) water and from the reaction of rainwater with soil. The points to the right of the biological respiration line are caused by biological respiration (i.e., oxidation of organic material in the soil). The majority of the points plot to the right of the biological respiration line, indicating the source of the elevated CO_2 is biological respiration within the monitoring wells rather than an external source.

Figure 9 presents an assessment of the nitrogen/oxygen and carbon dioxide ratios. The figure shows the monitoring results plotted on the left side of the graph, which represents minimal oxygen consumption.

Therefore, from the above results and assessment suggested that the site should continue to be given a Characteristic Situation 1, i.e., ‘low risk’, in accordance with Table 15 above.

Therefore, ground gas protection measures are not considered necessary at the site.

Figure 7: Gas Ratio Ternary Plot

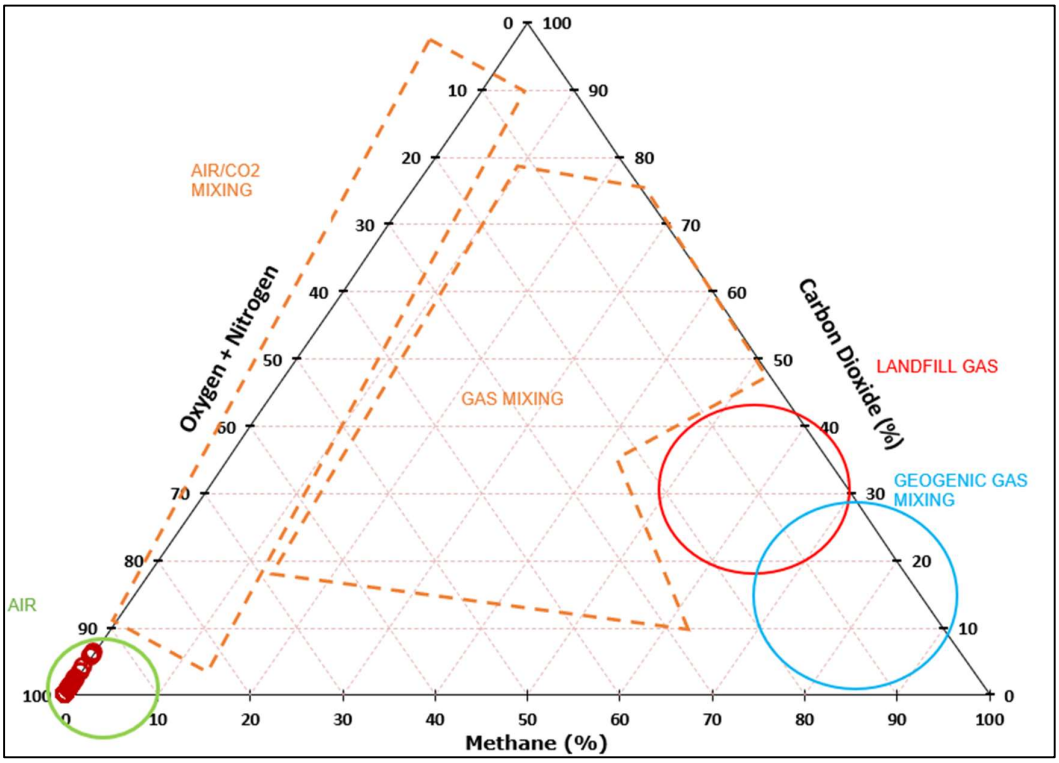


Figure 8: Carbon Dioxide: Oxygen Ratio Plot

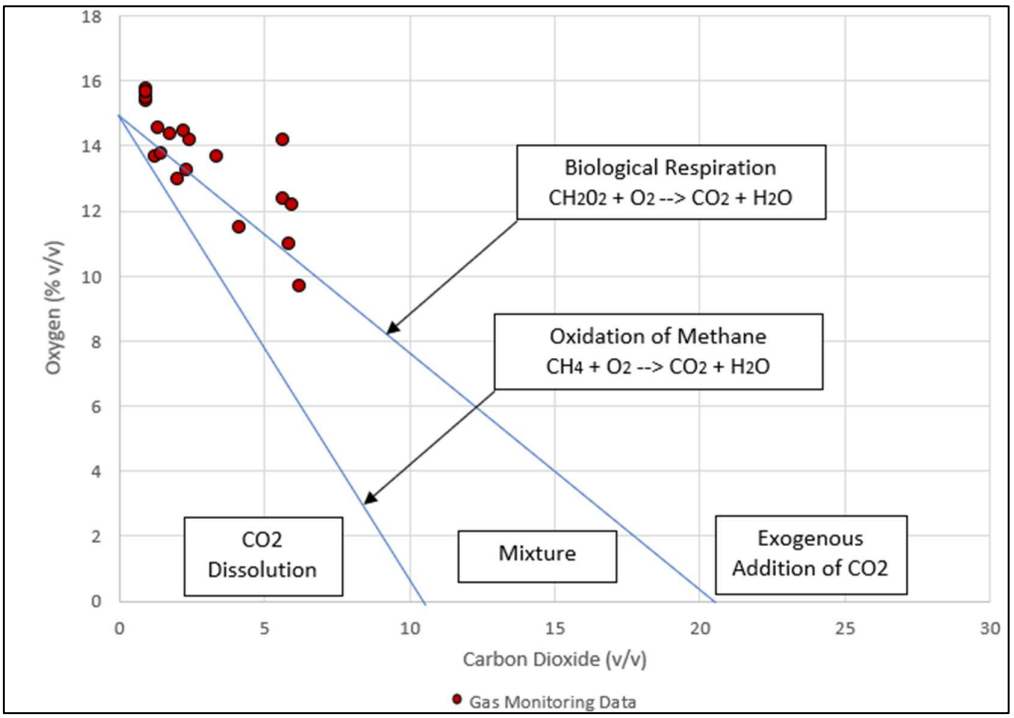
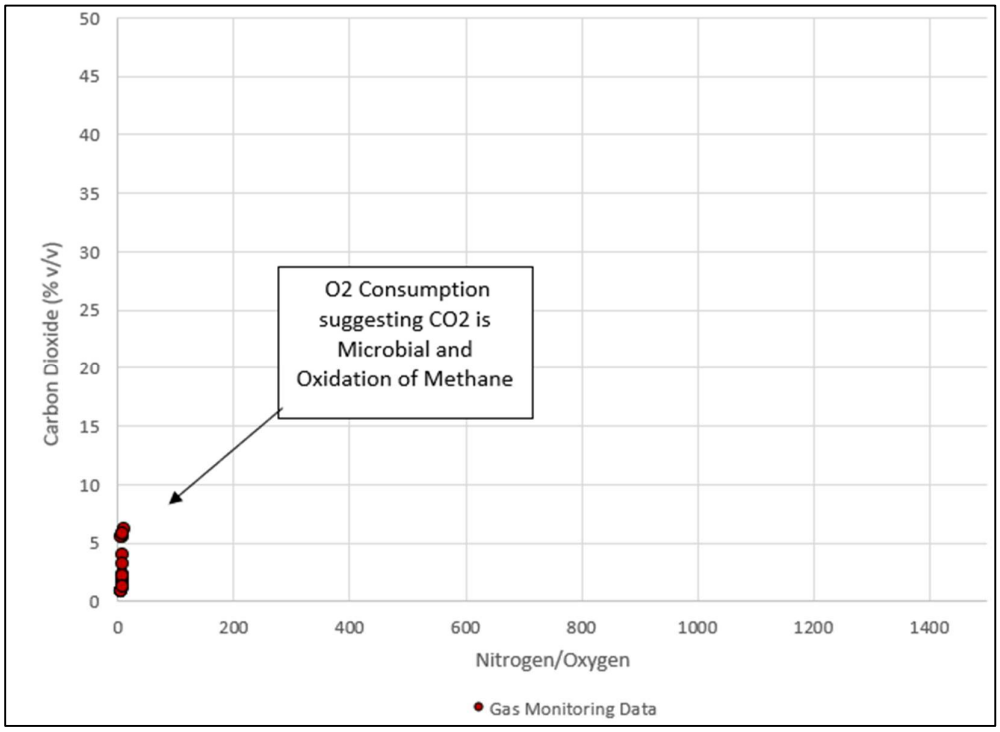


Figure 9: Carbon Dioxide: Oxygen Ratio Plot



9.0 CONCLUSIONS & RECOMMENDATIONS

9.1 Soil Contamination

There is a low potential risk of soil contamination to construction workers and ground workers during development, and appropriate measures, such as PPE, site health plans, and the proper disposal of material arisings, will be required to mitigate this risk.

Based on the chemical testing, 5no. contaminant concentrations from the soil samples were found in excess of the screening criteria relevant to a residential area without homegrown produce end use.

However, as the proposed development plan contains no new areas of soft landscaping and all the exceedances are for metals, there will be no new pathways created, breaking any pollutant linkage and therefore no remediation will be required at this site.

9.2 Asbestos in soils

Asbestos fibres and fragments were identified in 6no. of the 8no. soils samples analysed.

Due to the elevated concentration (>0.001%) of asbestos found in samples from across the site, an Asbestos Management Plan in accordance with CAR2012 will be required.

9.3 Foundations

Based on the ground conditions encountered, conventional shallow depth foundations (strip/pad/trench) would not be suitable for any new structures.

Therefore, alternative foundation solutions will be required at this site, such as piles or vibro stone columns.

It is recommended that for foundations and any potential ground floor slabs in contact with soils, the Design Sulphate Class should be taken as DS-1, and the Aggressive Chemical Environment for Concrete (ACEC) site classification should be taken as AC-1.

9.4 Surface Water Soakaways

The installation of soakaways at this site is not considered to be suitable due to the made ground encountered at depth across the site and underlying cohesive deposits.

9.5 Soil Disposal

Soils should be disposed of at a suitable site, registered to take the levels of contamination encountered. Soil samples collected have been classified mainly as Non-Hazardous for off-site disposal in accordance with Environment Agency guidance WM3.1.

Two of the soil samples have been submitted for Waste Acceptance Criteria (WAC) testing. One of the tested samples (WS03 at 0.60m) is recorded to exceed the criteria for disposal at an Inert Waste facility due to elevated Fluoride. The sample tested WS04 at 0.50m is recorded to exceed the criteria for disposal at a hazardous waste landfill, due to elevated Total Organic Carbon and Total Loss on ignition.

We recommend that further advice be sought from local landfills and waste facilities in regards to the acceptance of this material.

9.6 Pavement Design

Based on the findings of the site investigation, the soil type at the subgrade level was typically Made Ground or topsoil. Based on the recommendations for design CBR values provided in Interim advice note 73/06, Revision 1 (2009).

A conservative design CBR value of 1% should be adopted in areas where Made Ground is encountered at the subgrade level.

9.7 Land Gas

Ground gas monitoring results indicate that the site can be given a Characteristic Situation 1, which should be elevated to Characteristic Situation 2 due to elevated Carbon Dioxide (6.2%). However, detailed analysis of the ground gas monitoring results indicates that the risk can be reduced to Characteristic Situation 1.

Therefore, no ground gas protection measures are required.

9.8 Risk to Buried (Water) Services

It is considered that, due to elevated hydrocarbons in the tested soils, standard materials may not be suitable for new water pipes. Further advice should be sought from the local water company.

Previous guidance on buried water pipes was contained in Water Regulations Advisory Scheme (WRAS) Guidance Note No. 9-04-03(2002), however, this has been superseded by the UK Water Industry Research Report 'Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites' Ref 10/WM/03/21 (January 2011).

9.9 Site Personnel

As with all construction sites, personnel working on the site during the construction period should be encouraged to maintain a high standard of personal hygiene, and on-site washing facilities should be available.

9.10 Other Matters

Due diligence is required during the construction period, and should any further evidence of contamination be found, appropriate investigation and/or action should be taken. The significance of any contamination not discovered by this investigation is outside the scope of this report.

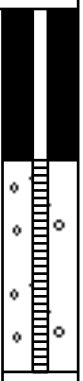
APPENDIX 1

EXPLORATORY HOLE LOGS

EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

Project Title: Openshaw Campus, Manchester College		WS01
Project Number: A7009	Client: SWF Consulting	Sheet 1 Of 1
GL (mAOD):	N Coord: 397269.23	E Coord: 387562.7
Date: 14/08/2025	Method: Drilling Rig	Driller: PM Sampling
		Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
					0.11	MADE GROUND: Grey ASPHALT.		
0.40	ES				0.60	MADE GROUND: Greyish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of limestone, sandstone, concrete and brick. Sand is fine to coarse.		
0.90	ES				1.00	MADE GROUND: Stiff brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, mudstone, concrete, brick, coal and ash.		
		pp 50/190mm			1.20	End Of Borehole At 1.20 m		
					2.00			
					3.00			
					4.00			



KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was installed with a monitoring well (0.5 plain, 0.7 slotted).

Scale: 1:25

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

Project Title: Openshaw Campus, Manchester College		WS02
Project Number: A7009	Client: SWF Consulting	Sheet 1 Of 1
GL (mAOD):	N Coord: 397256.4	E Coord: 387576.02
Date: 14/08/2025	Method: Drilling Rig	Driller: PM Sampling	Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
					0.10	MADE GROUND: Grey ASPHALT.		
					0.22	MADE GROUND: Grey sandy subround to round medium GRAVEL of limestone. Sand is fine to coarse.		
0.40	ES					MADE GROUND: Dark brown clayey sandy angular to subangular fine to coarse GRAVEL of concrete, brick, sandstone, mudstone, coal, ash, glass and clinker. Sand is fine to coarse.		
					1.00			
		N=50 (5,6,14,25)			1.20	End Of Borehole At 1.20 m		
					2.00			
					3.00			
					4.00			

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▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was installed with a monitoring well (0.5 plain, 0.7 slotted).

Scale: 1:25

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

	Project Title: Openshaw Campus, Manchester College		WS03
	Project Number: A7009	Client: SWF Consulting	Sheet 1 Of 2
	GL (mAOD):	N Coord: 397273.02	E Coord: 387565.97
Date: 14/08/2025	Method: Drilling Rig	Driller: PM Sampling	Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
					0.11	MADE GROUND: Grey ASPHALT.		
						MADE GROUND: Brown clayey sandy angular to subangular fine to coarse GRAVEL of concrete, brick, sandstone, mudstone, coal, ash and clinker. Sand is fine to coarse.		
0.60	ES							
		N=6 (1,1,2,2)			1.00			
		N=8 (1,1,2,4)			2.00			
					2.30	MADE GROUND: Dark brown clayey sandy angular to subangular fine to coarse GRAVEL of concrete, brick, sandstone, mudstone, coal, ash and clinker. Sand is fine to coarse.		
2.70	ES							
		N=7 (0,1,4,2)			3.00			
					3.60	MADE GROUND: Soft dark brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to coarse of sandstone, mudstone, brick, ash, clinker and coal.		
4.00	ES	N=4 (0,0,2,2)			4.00	Borehole Continues		

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▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was installed with a monitoring well (1.0 plain, 4.0 slotted).

Scale: 1:25

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

Project Title: Openshaw Campus, Manchester College		WS03
Project Number: A7009	Client: SWF Consulting	Sheet 2 Of 2
GL (mAOD):	N Coord: 397273.02	E Coord: 387565.97
Date: 14/08/2025	Method: Drilling ~~Rig~~	Driller: PM Sampling / Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
4.70	D	N=19 (3,3,5,8)			4.40	MADE GROUND: Soft dark brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to coarse of sandstone, mudstone, brick, ash, clinker and coal.		
					5.00	Stiff brown gravelly CLAY. Gravel is subangular to subround fine to coarse of sandstone and mudstone.		
					6.00	End Of Borehole At 5.00 m		
					7.00			
					8.00			

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▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was installed with a monitoring well (1.0 plain, 4.0 slotted).

Scale: 1:25

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

	Project Title: Openshaw Campus, Manchester College		WS04
	Project Number: A7009	Client: SWF Consulting	Sheet 1 Of 2
	GL (mAOD):	N Coord: 397271.18	E Coord: 387580.88
Date: 14/08/2025	Method: Drilling Rig	Driller: PM Sampling	Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
					0.10	MADE GROUND: Grey ASPHALT.		
0.20	ES				0.37	MADE GROUND: Grey sandy angular to subangular fine to coarse GRAVEL of concrete and brick. Sand is fine to coarse.		
						MADE GROUND: Dark brown clayey sandy angular to subangular fine to coarse GRAVEL of concrete, brick, sandstone, mudstone, coal, ash and clinker. Sand is fine to coarse.		
					1.00			
1.20	ES	N=9 (2,2,2,3)						
		N=8 (2,2,2,2)			2.00			
					2.42	MADE GROUND: Soft brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, mudstone, concrete, brick, coal, ash and clinker.		
		N=7 (2,2,2,1)			3.00			
		N=4 (1,0,1,2)			4.00	Borehole Continues		

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V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was installed with a monitoring well (1.0 plain, 4.0 slotted).

Scale: 1:25

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

	Project Title: Openshaw Campus, Manchester College		WS04
	Project Number: A7009	Client: SWF Consulting	Sheet 2 Of 2
	GL (mAOD):	N Coord: 397271.18	E Coord: 387580.88
Date: 14/08/2025	Method: Drilling Rig	Driller: PM Sampling	Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
4.60	D	N=19 (3,4,5,7)			4.22	MADE GROUND: Soft brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, mudstone, concrete, brick, coal, ash and clinker.		
					5.00	Stiff greyish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subround fine to coarse of sandstone and mudstone.		
						End Of Borehole At 5.00 m		
					6.00			
					7.00			
					8.00			

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V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was installed with a monitoring well (1.0 plain, 4.0 slotted).

Scale: 1:25

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

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EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

Project Title: Openshaw Campus, Manchester College		WS05
Project Number: A7009	Client: SWF Consulting	Sheet 1 Of 1
GL (mAOD):	N Coord: 397252.65	E Coord: 387569.62
Date: 14/08/2025	Method: Drilling Rig	Driller: PM Sampling	Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
					0.14	MADE GROUND: Grey ASPHALT.		
0.50	ES				0.80	MADE GROUND: Dark brown clayey sandy angular to subangular fine to coarse GRAVEL of concrete, brick, sandstone, mudstone, coal, ash, glass and clinker. Sand is fine to coarse.		
1.00	ES				1.00	MADE GROUND: Brown clayey sandy angular to subangular fine to coarse GRAVEL of concrete, brick, sandstone, mudstone, coal, ash and clinker. Sand is fine to coarse.		
		pp 50/75mm			1.20	End Of Borehole At 1.20 m		
					2.00			
					3.00			
					4.00			

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C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was installed with a monitoring well (0.5 plain, 0.7 slotted).

Scale: 1:25

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company	Project Title: Openshaw Campus, Manchester College		CP01
	Project Number: A7009	Client: SWF Consulting	Sheet 1 Of 3
	GL (mAOD):	N Coord: 397275.46	E Coord: 387562.3
Date: 18/08/2025-19/08/2025	Method: Cable Percussion	Driller: PM Sampling	Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
					0.11	MADE GROUND: Grey ASPHALT.		
						MADE GROUND: Brown clayey sandy angular to subangular fine to coarse GRAVEL of concrete, brick, sandstone, mudstone, coal, ash and clinker. Sand is fine to coarse.		
					1.00			
1.20 - 1.65	D	N=5 (1,1,2,1)						
2.00 - 2.45	D	N=7 (2,2,1,2)			2.00			
						MADE GROUND: Dark brown clayey sandy angular to subangular fine to coarse GRAVEL of concrete, brick, sandstone, mudstone, coal, ash and clinker. Sand is fine to coarse.		
3.00 - 3.45	D	N=5 (1,1,2,1)			3.00			
					3.20			
						MADE GROUND: Firm dark brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to coarse of sandstone, mudstone, brick and coal.		
4.00 - 4.45	D	N=10 (2,2,2,4)			4.00			
						4.00 SV = 40Kpa @ 4.0m bgl.		
						Borehole Continues		

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was backfilled with arisings.

Scale: 1:30

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours
10	11	1 hour

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company	Project Title: Openshaw Campus, Manchester College		**CP01**
	Project Number: A7009	Client: SWF Consulting	Sheet 2 Of 3
	GL (mAOD):	N Coord: 397275.46	E Coord: 387562.3
Date: 18/08/2025-19/08/2025	Method: Cable Percussion	Driller: PM Sampling	Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
5.00 - 5.45	U					MADE GROUND: Firm dark brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to coarse of sandstone, mudstone, brick and coal.		
						Stiff brown slightly gravelly CLAY. Gravel is subangular to subround fine to coarse of sandstone and mudstone.		
						5.50 SV = 90Kpa @ 5.5m bgl.		
6.00 - 6.45	D	N=24 (4,5,5,10)						
6.50 - 7.00	B							
7.00 - 7.45	D	N=31 (5,6,10,10)						
						7.50 SV = 100Kpa @ 7.5m bgl.		
						Very stiff brown sandy gravelly CLAY with low cobble content of sandstone. Gravel is subangular to subround fine to coarse of sandstone and mudstone.		
						8.50 SV = 72Kpa @ 8.5m bgl.		
9.00 - 9.45	D	N=33 (6,7,10,10)						
9.50 - 10.00	B							
						Borehole Continues		

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was backfilled with arisings.

Scale: 1:30

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours
10	11	1 hour

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

Project Title: Openshaw Campus, Manchester College		CP01
Project Number: A7009	Client: SWF Consulting	Sheet 3 Of 3
GL (mAOD):	N Coord: 397275.46	E Coord: 387562.3
Date: 18/08/2025-19/08/2025	Method: Cable Percussion	Driller: PM Sampling
		Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
10.00 - 10.45	D	pp 50/290mm				Very stiff brown sandy gravelly CLAY with low cobble content of sandstone. Gravel is subangular to subround fine to coarse of sandstone and mudstone.		
						10.00 SV = 95Kpa @ 10.0m bgl.		
		pp 50/210mm				End Of Borehole At 11.00 m		

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was backfilled with arisings.

Scale: 1:30

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours
10	11	1 hour

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company	Project Title: Openshaw Campus, Manchester College		CP02
	Project Number: A7009	Client: SWF Consulting	Sheet 1 Of 3
	GL (mAOD):	N Coord: 397276.36	E Coord: 387579.37
Date: 19/08/2025-20/08/2025	Method: Cable Percussion	Driller: PM Sampling	Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
					0.12	MADE GROUND: Grey ASPHALT.		
						MADE GROUND: Dark brown clayey sandy angular to subangular fine to coarse GRAVEL of concrete, brick, sandstone, mudstone, coal, ash and clinker. Sand is fine to coarse.		
					1.00			
1.20 - 1.65	D	N=8 (2,2,2,2)						
					2.00			
2.00 - 2.45	D	N=8 (1,2,1,4)						
					3.00			
3.00 - 3.45	D	N=8 (3,2,2,1)						
					3.50	MADE GROUND: Firm dark brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to coarse of sandstone, mudstone, brick and coal.		
					4.00			
4.00 - 4.45	D	N=6 (1,2,1,2)						
					4.50	Stiff brown slightly gravelly CLAY. Gravel is subangular to subround fine to coarse of sandstone and mudstone.		
4.50 - 5.00	B					Borehole Continues		

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was backfilled with arisings.

Scale: 1:30

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours
10	11	1 hour

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL A Technics Group Company	Project Title: Openshaw Campus, Manchester College		CP02
	Project Number: A7009	Client: SWF Consulting	Sheet 2 Of 3
	GL (mAOD):	N Coord: 397276.36	E Coord: 387579.37
Date: 19/08/2025-20/08/2025	Method: Cable Percussion	Driller: PM Sampling	Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
5.00 - 5.45	U					Stiff brown slightly gravelly CLAY. Gravel is subangular to subround fine to coarse of sandstone and mudstone. 5.00 SV = 105Kpa @ 5.0m bgl.		
6.00 - 6.45	D	N=27 (5,7,7,8)						
7.00 - 7.45	U					7.50 SV = 80Kpa @ 7.5m bgl.		
8.00 - 8.45	D	N=33 (7,7,10,9)				Very stiff brown sandy gravelly CLAY with low cobble content of sandstone. Gravel is subangular to subround fine to coarse of sandstone and mudstone.		
8.50 - 9.00	B							
9.00 - 9.45	D	N=43 (7,10,13,13)				9.50 SV = 80Kpa @ 9.5m bgl. Borehole Continues		

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was backfilled with arisings.

Scale: 1:30

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours
10	11	1 hour

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

Project Title: Openshaw Campus, Manchester College		CP02
Project Number: A7009	Client: SWF Consulting	Sheet 3 Of 3
GL (mAOD):	N Coord: 397276.36	E Coord: 387579.37
Date: 19/08/2025-20/08/2025	Method: Cable Percussion	Driller: PM Sampling
		Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
10.00 - 10.45	D	pp 50/245mm				Very stiff brown sandy gravelly CLAY with low cobble content of sandstone. Gravel is subangular to subround fine to coarse of sandstone and mudstone.		
		pp 50/220mm				End Of Borehole At 11.00 m		

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Groundwater was not encountered. 4. The borehole was backfilled with arisings.

Scale: 1:30

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours
10	11	1 hour

Printed By GeoLogs (www.GeoLogs.com)

EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

Project Title: Openshaw Campus, Manchester College		CP02A
Project Number: A7009	Client: SWF Consulting	Sheet 1 Of 1
GL (mAOD):	N Coord: 397262.61	E Coord: 387577.75
Date: 19/08/2025	Method: Cable Percussion	Driller: PM Sampling
		Logged By: CL

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
					0.12	MADE GROUND: Grey ASPHALT.		
						MADE GROUND: Brown clayey sandy angular to subangular fine to coarse GRAVEL of concrete, brick, sandstone, mudstone, coal, ash and clinker. Sand is fine to coarse.		
					1.00			
					1.50	End Of Borehole At 1.50 m		
					2.00			
					3.00			
					4.00			

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
1. Borehole was scanned and an inspection dug to 1.2mbgl. 2. No olfactory or visual evidence of contamination was encountered. 3. Borehole terminated due to brick and concrete layer. 4. The borehole was backfilled with arisings.

Scale: 1:30

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

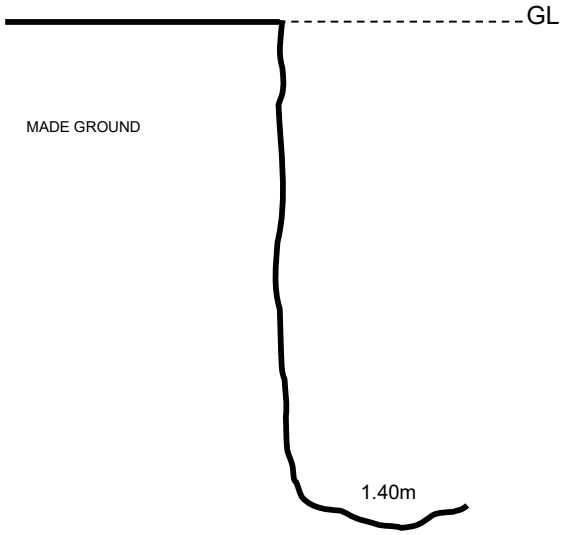
EARTH ENVIRONMENTAL & GEOTECHNICAL
Houldsworth Mill Business & Arts Centre, Houldsworth Street,
Stockport, SK5 6DA
Tel: 0161 975 6088
Email: info@earthenvironmental.co.uk
Web: www.earthenvironmental.co.uk

TRIAL PIT LOG

Project Name: Openshaw Campus, Manchester College.
Date: 15/08/2025
Project No.: A7009
Client: SWF Consulting Ltd

Hole Number: TP01
Logged By: C. Low
Total Depth: 1.40m
Remarks: Trail pit for infiltration testing

Schematic Profile:



NOT TO SCALE

Legend	Depth (m)	Description
	GL-0.38	MADE GROUND: Grass over dark brown clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone, concrete, brick and mudstone.
	0.38-1.40	MADE GROUND: Dark brown clayey sandy fine to coarse GRAVEL of brick, concrete, metal, ash, sandstone and mudstone with low cobble content of brick. Sand is fine to coarse.

Trial pit terminated at 1.40m due to concrete obstruction.

Trial pit stable.
Infiltration test aborted due to deep made ground deposits.

Environmental sample taken at 0.2m and 0.9m bgl.

Pictures:



TP01: Overview of trial Pit



TP01: Internal view of excavation

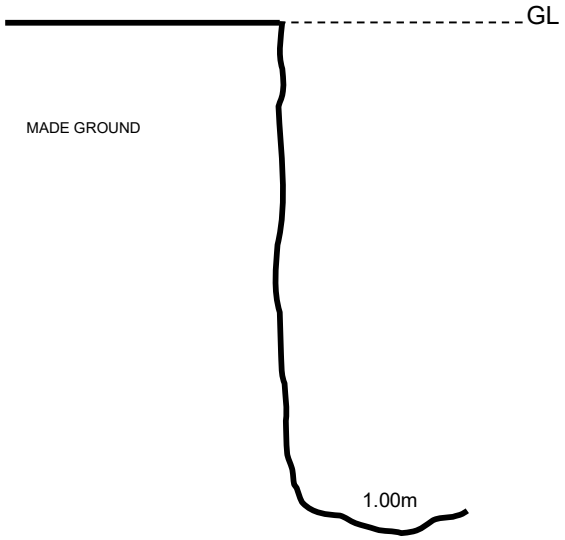
EARTH ENVIRONMENTAL & GEOTECHNICAL
Houldsworth Mill Business & Arts Centre, Houldsworth Street,
Stockport, SK5 6DA
Tel: 0161 975 6088
Email: info@earthenvironmental.co.uk
Web: www.earthenvironmental.co.uk

TRIAL PIT LOG

Project Name: Openshaw Campus, Manchester College.
Date: 15/08/2025
Project No.: A7009
Client: SWF Consulting Ltd

Hole Number: TP02
Logged By: C. Low
Total Depth: 1.00m
Remarks: Trail pit for infiltration testing

Schematic Profile:



NOT TO SCALE

Legend	Depth (m)	Description
	GL-0.40	MADE GROUND: Grass over dark brown clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of sandstone, concrete, brick and mudstone.
	0.40-1.00	MADE GROUND: Dark brown clayey sandy fine to coarse GRAVEL of brick, concrete, metal, ash, sandstone and mudstone with moderate cobble content of brick. Sand is fine to coarse.

Trial pit terminated at 1.00m due to concrete obstruction.

Trial pit stable.
Infiltration test aborted due to deep made ground deposits.

Environmental sample taken at 0.3m bgl.

Pictures:



TP02: Overview of trial Pit



TP02: Internal view of excavation

APPENDIX 2

LABORATORY GEOTECHNICAL TESTING RESULTS

MURRAY RIX

CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client Earth Environmental & Geotechnical Ltd

Address Houldsworth Mill Business & Arts Centre
Houldsworth Mill
Reddish
Stockport
SK5 6DA

Contract A7009 -
Openshaw Campus, Manchester College

Job Number MRN 25001/64
Date of Issue 22 September 2025
Page 1 of 16

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

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

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.

5 The results included within the report are representative of the samples submitted for analysis.

6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

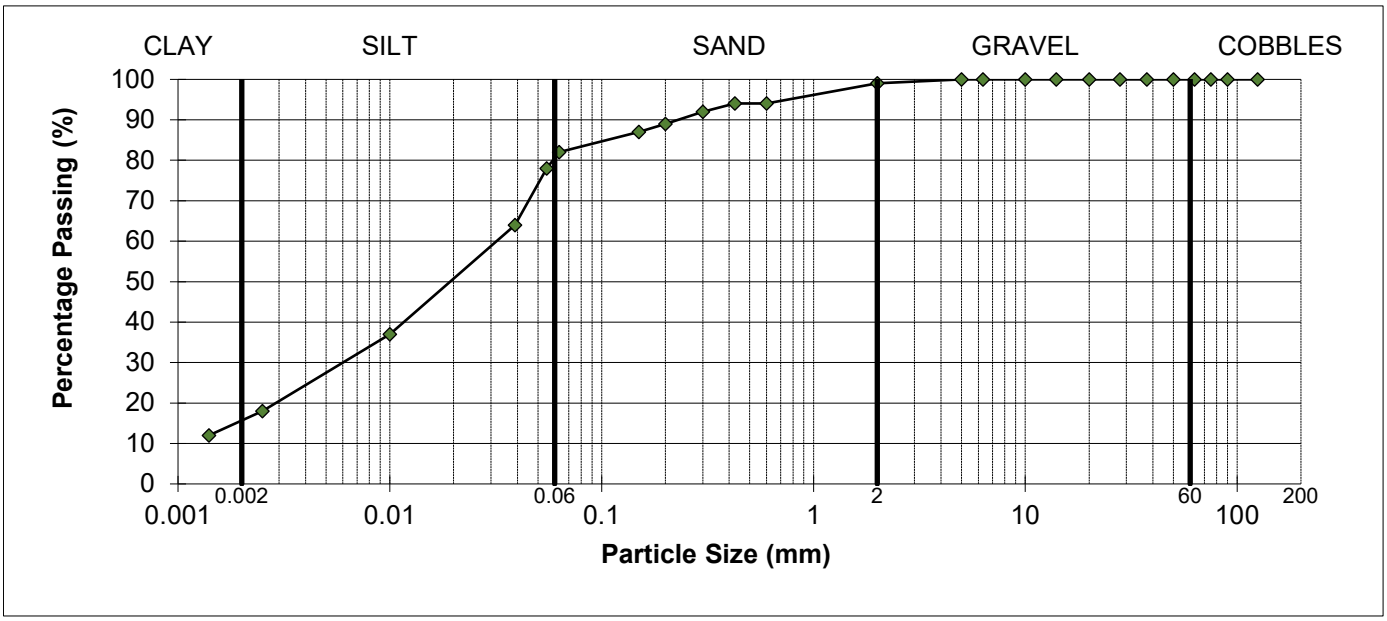
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP01 6.5-7.0m B	DATE SAMPLED	18-Aug-25
LAB SAMPLE No	5159022	DATE RECEIVED	20-Aug-25
DATE TESTED	28-Aug-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	99	
90	100		0.6	94	
75	100		0.425	94	
63	100		0.3	92	
50	100		0.2	89	
37.5	100		0.15	87	
28	100		0.063	82	
20	100		0.055	78	
14	100		0.039	64	
10	100		0.01	37	
6.3	100		0.0025	18	
5	100		0.0014	12	



REMARKS

SIGNED [redacted]

NAME O.P. Davies BA (Hons) DATE 22-Sep-25
(Director / Head of Laboratory)

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

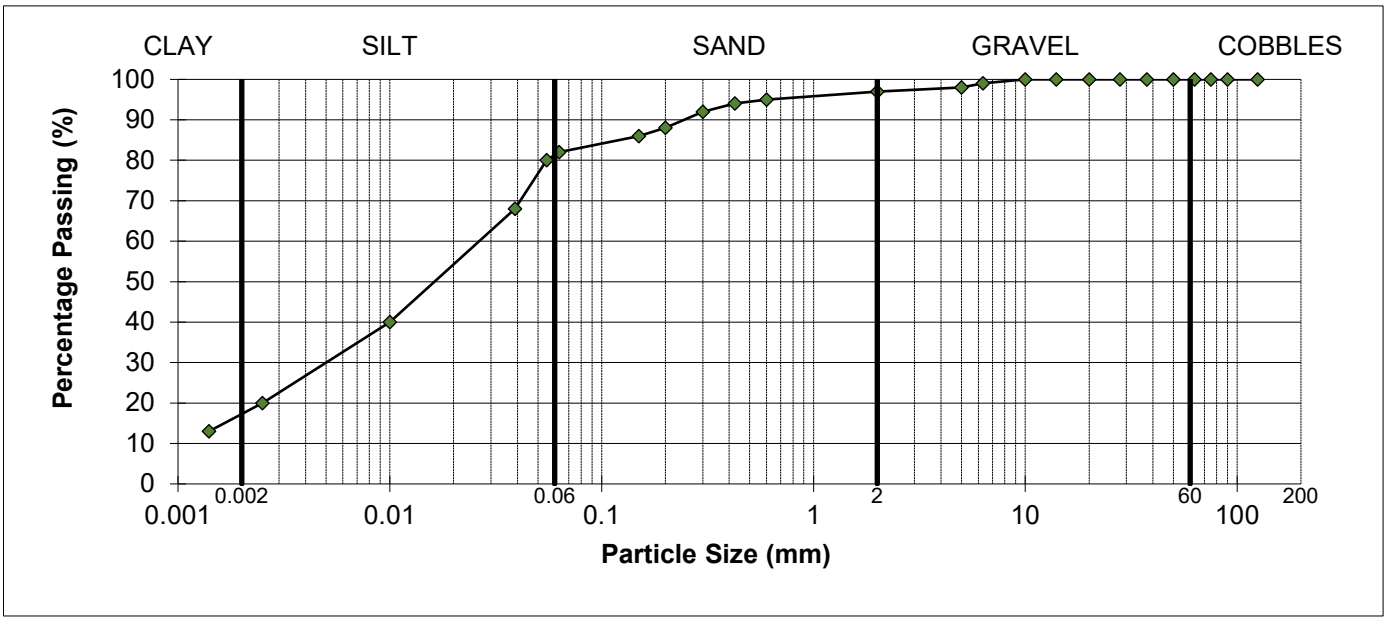
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP01 9.5-10.0m B	DATE SAMPLED	18-Aug-25
LAB SAMPLE No	5159023	DATE RECEIVED	20-Aug-25
DATE TESTED	28-Aug-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	97	
90	100		0.6	95	
75	100		0.425	94	
63	100		0.3	92	
50	100		0.2	88	
37.5	100		0.15	86	
28	100		0.063	82	
20	100		0.055	80	
14	100		0.039	68	
10	100		0.01	40	
6.3	99		0.0025	20	
5	98		0.0014	13	



REMARKS

SIGNED [redacted]

NAME [redacted]vies BA (Hons) DATE 22-Sep-25
(Director / Head of Laboratory)

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
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TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

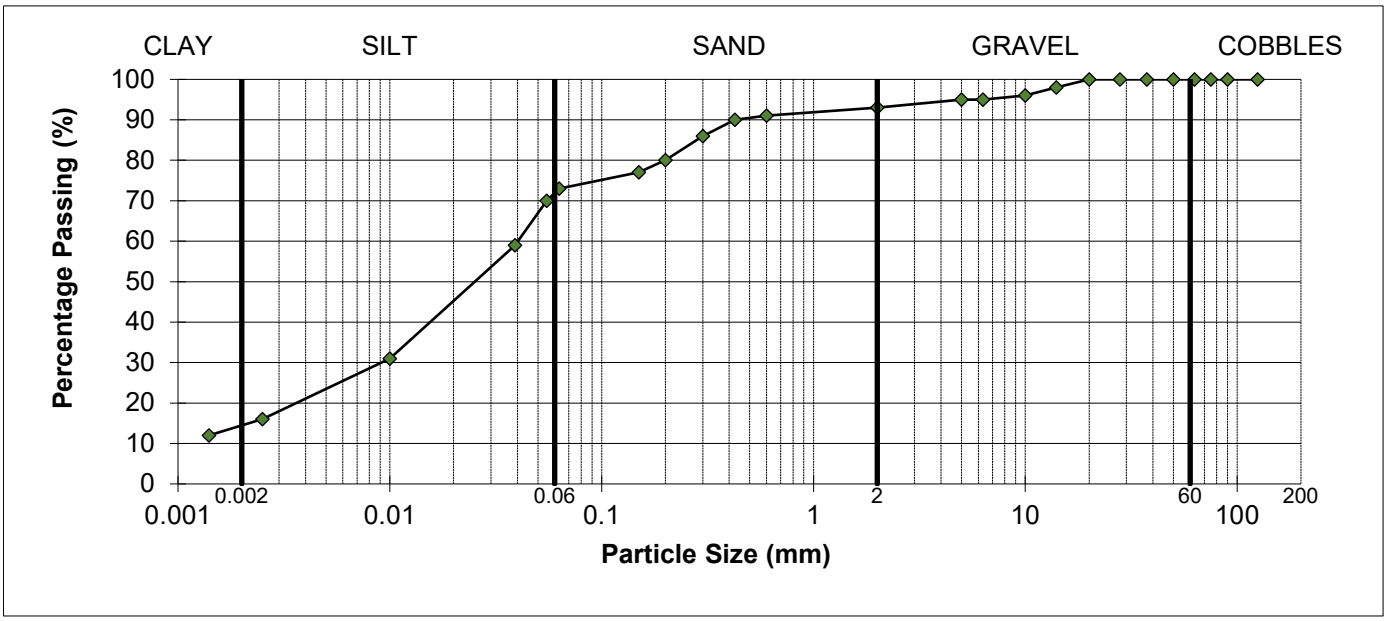
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP02 4.5-5.0m B	DATE SAMPLED	19-Aug-25
LAB SAMPLE No	5159024	DATE RECEIVED	20-Aug-25
DATE TESTED	28-Aug-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	93	
90	100		0.6	91	
75	100		0.425	90	
63	100		0.3	86	
50	100		0.2	80	
37.5	100		0.15	77	
28	100		0.063	73	
20	100		0.055	70	
14	98		0.039	59	
10	96		0.01	31	
6.3	95		0.0025	16	
5	95		0.0014	12	



REMARKS

SIGNED [redacted]

NAME [redacted] BA (Hons) DATE 22-Sep-25

(Director / Head of Laboratory)

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

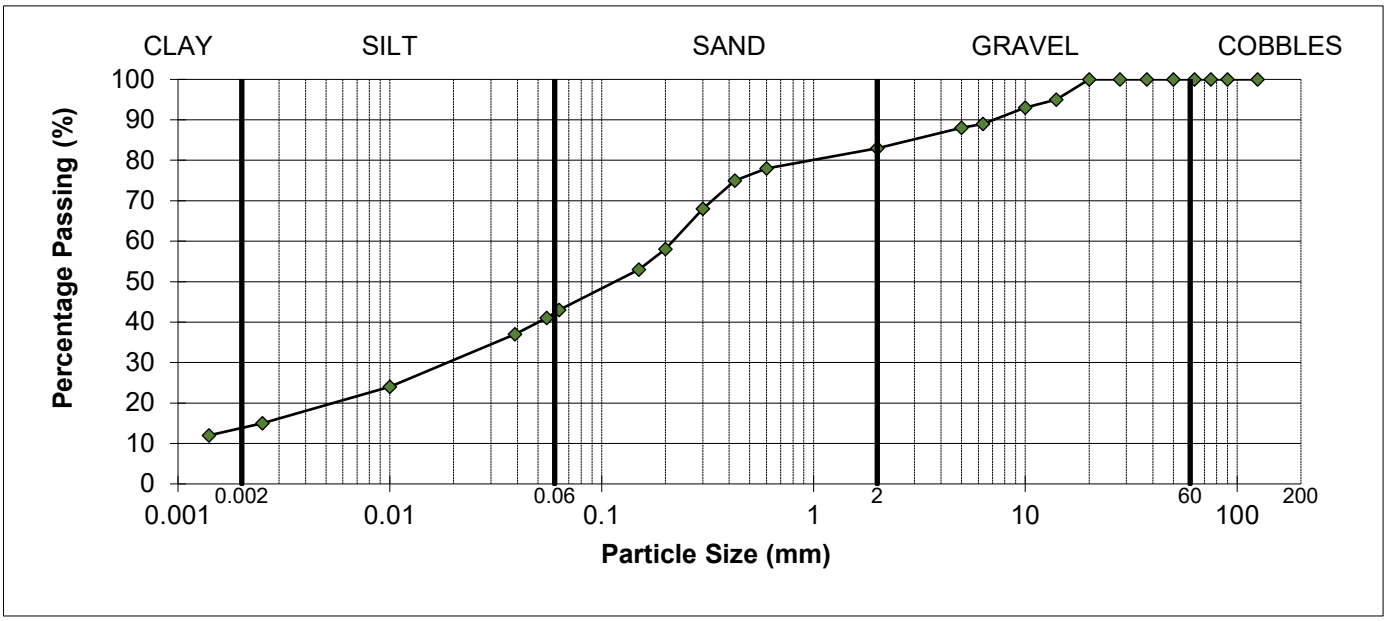
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP02 10.0-10.45m D	DATE SAMPLED	20-Aug-25
LAB SAMPLE No	5159016	DATE RECEIVED	20-Aug-25
DATE TESTED	28-Aug-25	SAMPLED BY	Client

MATERIAL	Brown silty sandy slightly gravelly CLAY
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2	83	
90	100		0.6	78	
75	100		0.425	75	
63	100		0.3	68	
50	100		0.2	58	
37.5	100		0.15	53	
28	100		0.063	43	
20	100		0.055	41	
14	95		0.039	37	
10	93		0.01	24	
6.3	89		0.0025	15	
5	88		0.0014	12	



REMARKS

SIGNED [redacted]

NAME C.P. Davies BA (Hons) DATE 22-Sep-25
(Director / Head of Laboratory)

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

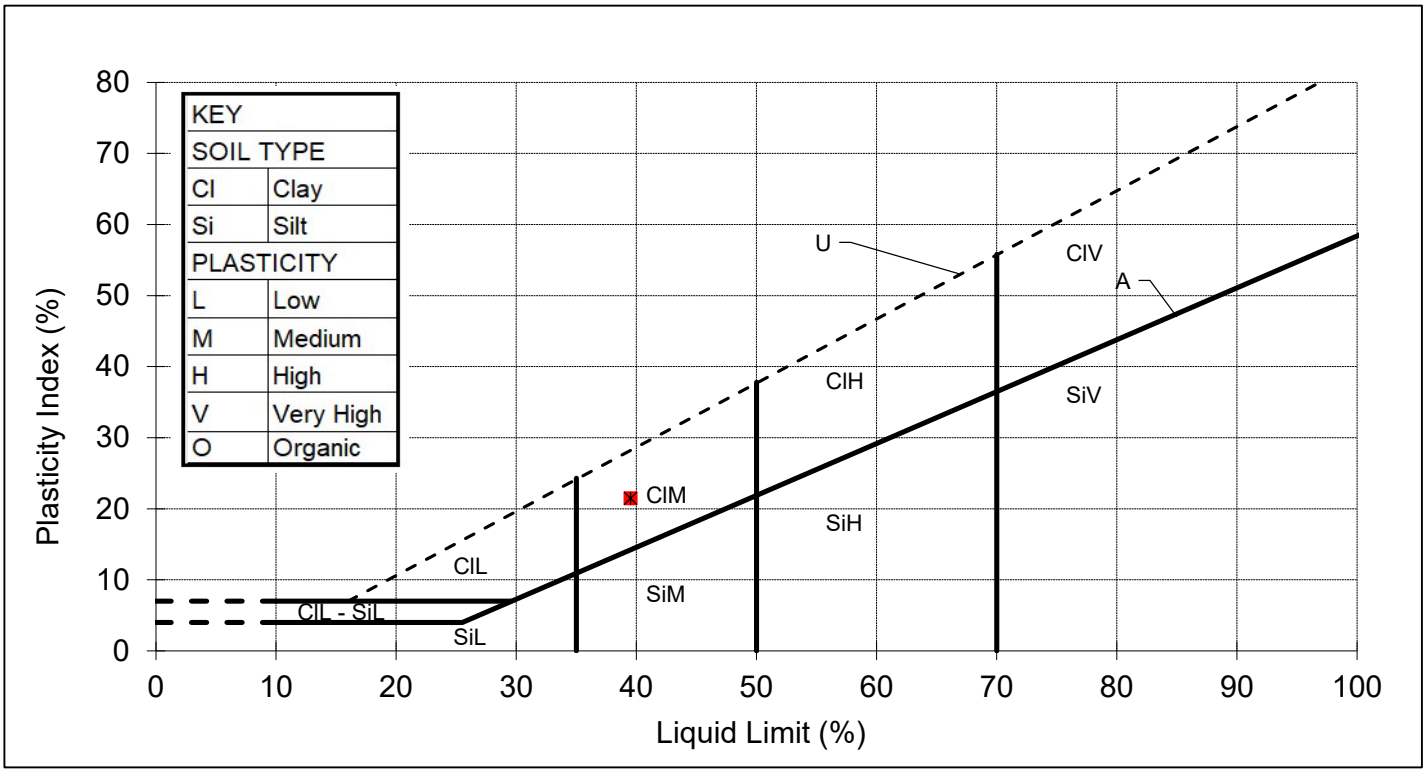
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	WS03 4.7m D	DATE SAMPLED	14-Aug-25
SAMPLE No.	5159017	DATE RECEIVED	20-Aug-25
DATE TESTED	01-Sep-25	SAMPLED BY	Client

MATERIAL	Grey brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Hand Picked

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.0	39.5	1.000	
Determination 2 (avg)	20.0	39.5		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
31.6	40	18	22	91



REMARKS

SIGNED [redacted]

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 22-Sep-25

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

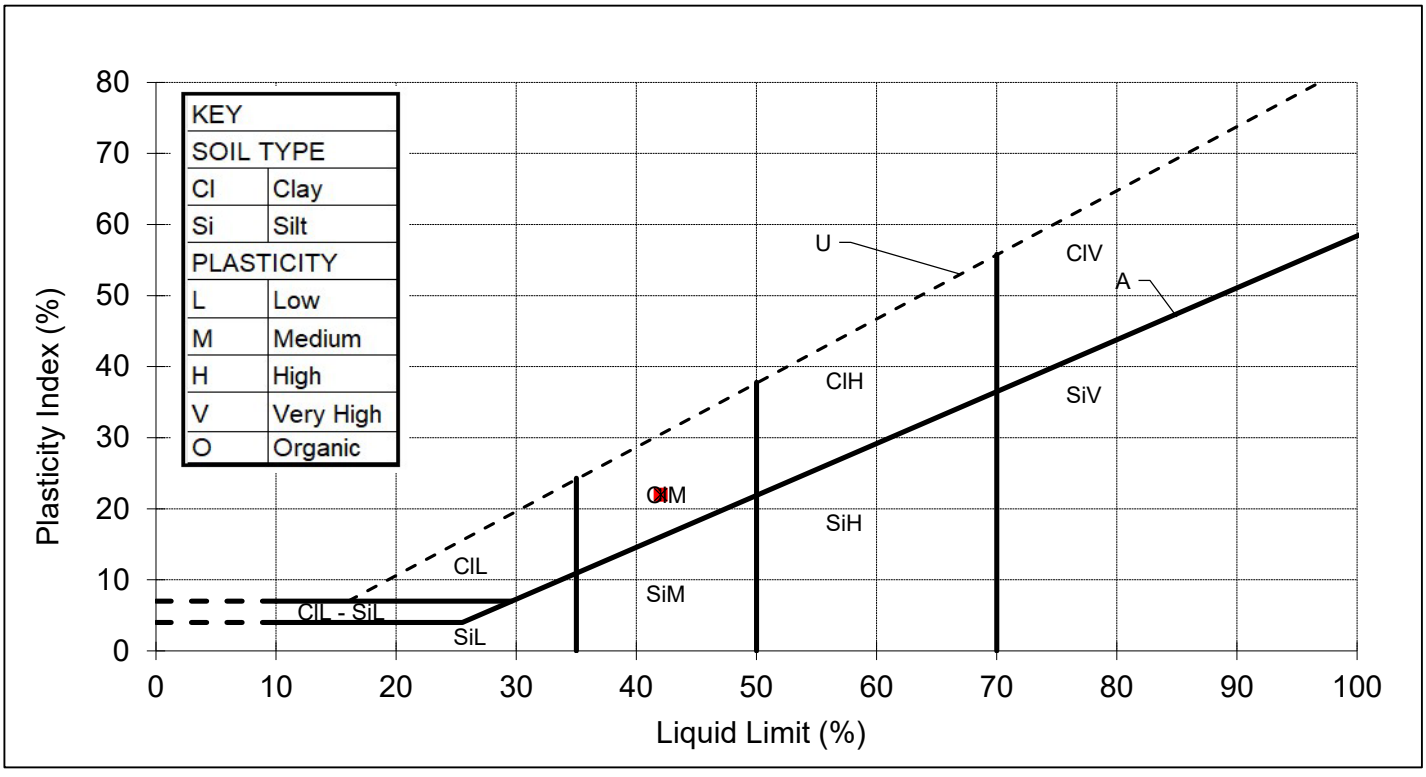
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	WS04 4.6m D	DATE SAMPLED	14-Aug-25
SAMPLE No.	5159018	DATE RECEIVED	20-Aug-25
DATE TESTED	01-Sep-25	SAMPLED BY	Client

MATERIAL	Grey brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Hand Picked

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.5	42.3	0.992	
Determination 2 (avg)	20.5	42.4		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
32.6	42	20	22	94



REMARKS

SIGNED [redacted]

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 22-Sep-25

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WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

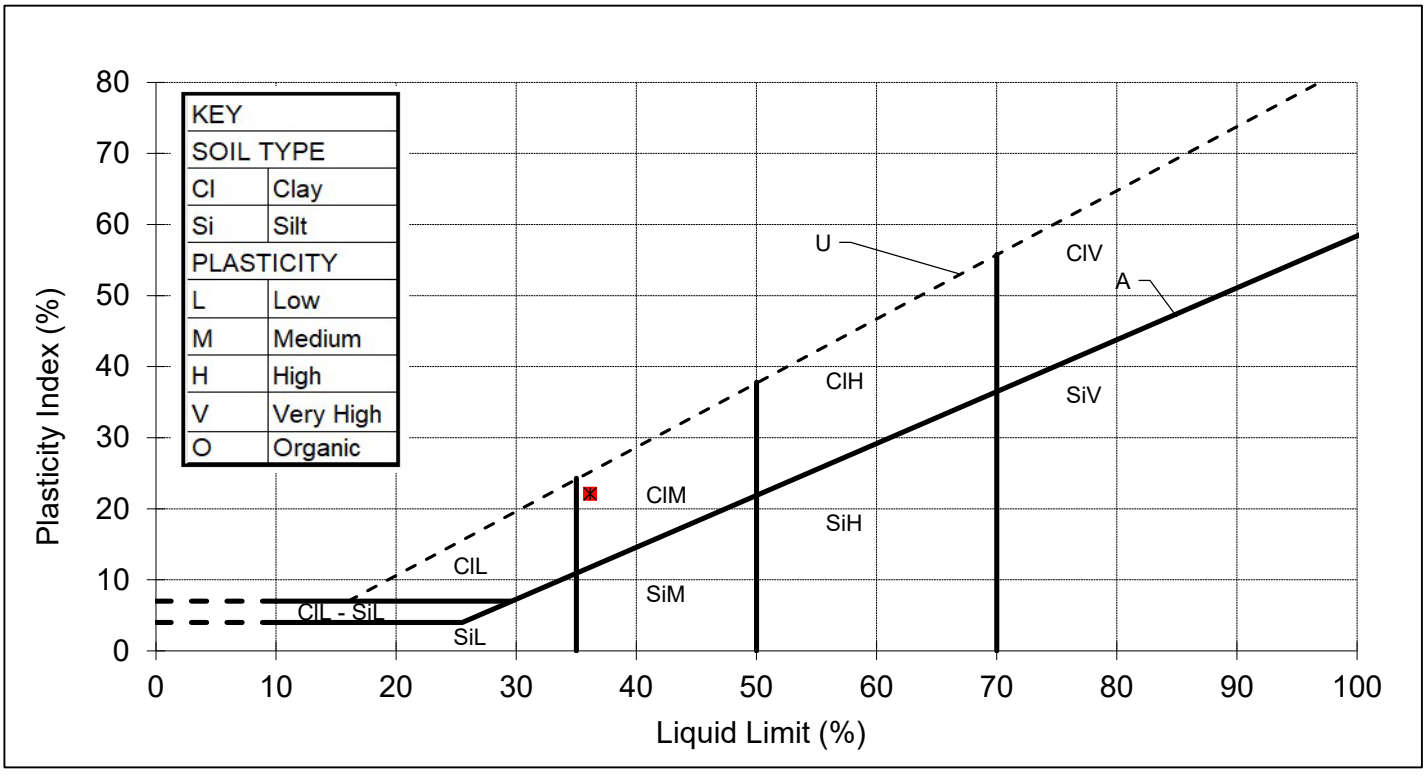
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP01 7.0-7.45m D	DATE SAMPLED	18-Aug-25
SAMPLE No.	5159006	DATE RECEIVED	20-Aug-25
DATE TESTED	01-Sep-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.5	35.2	1.028	
Determination 2 (avg)	18.4	35.1		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
14.6	36	14	22	81



REMARKS

SIGNED [redacted]

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 22-Sep-25

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TEST CERTIFICATE

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PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

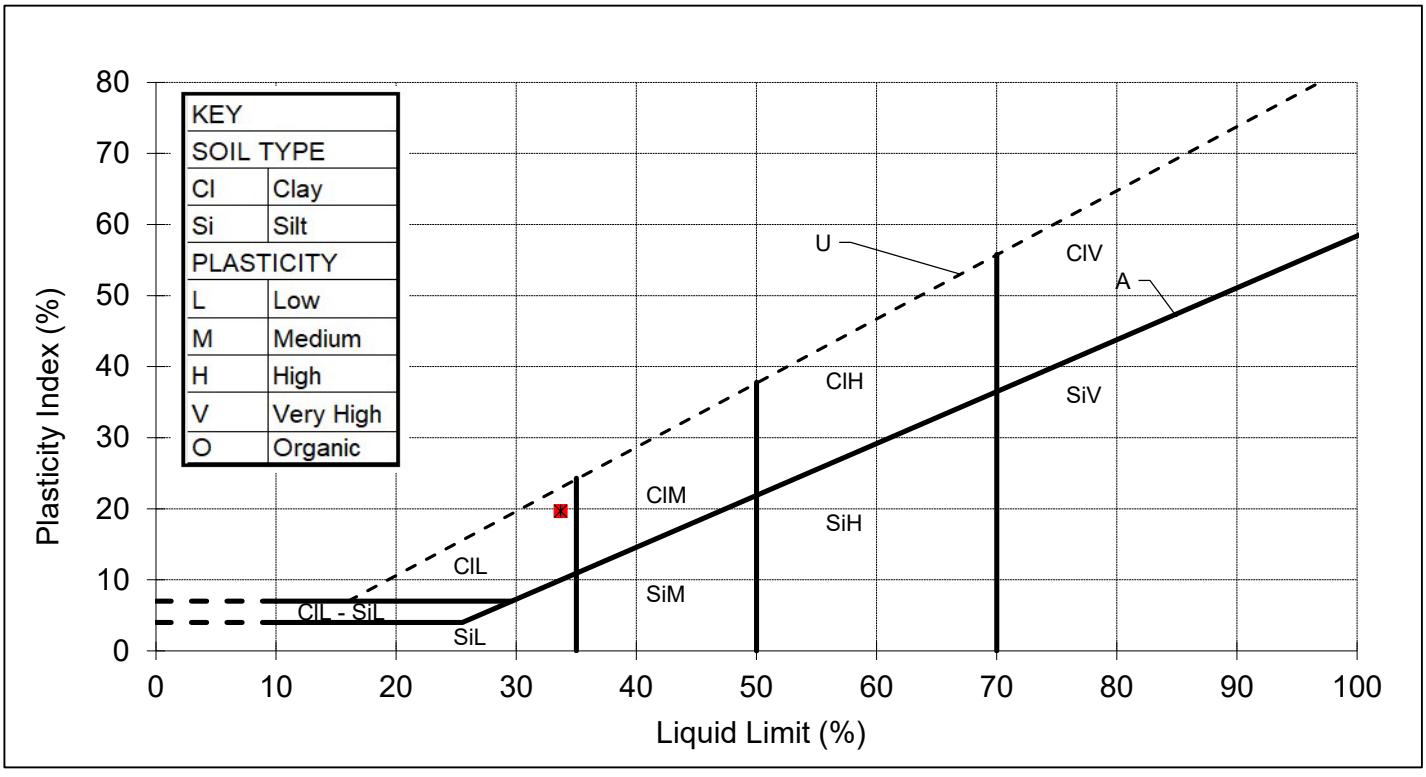
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP01 10.0-10.45m D	DATE SAMPLED	18-Aug-25
SAMPLE No.	5159008	DATE RECEIVED	20-Aug-25
DATE TESTED	01-Sep-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.8	33.6	1.003	
Determination 2 (avg)	19.8	33.6		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
13.1	34	14	20	76



REMARKS

SIGNED [redacted]

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 22-Sep-25

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PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

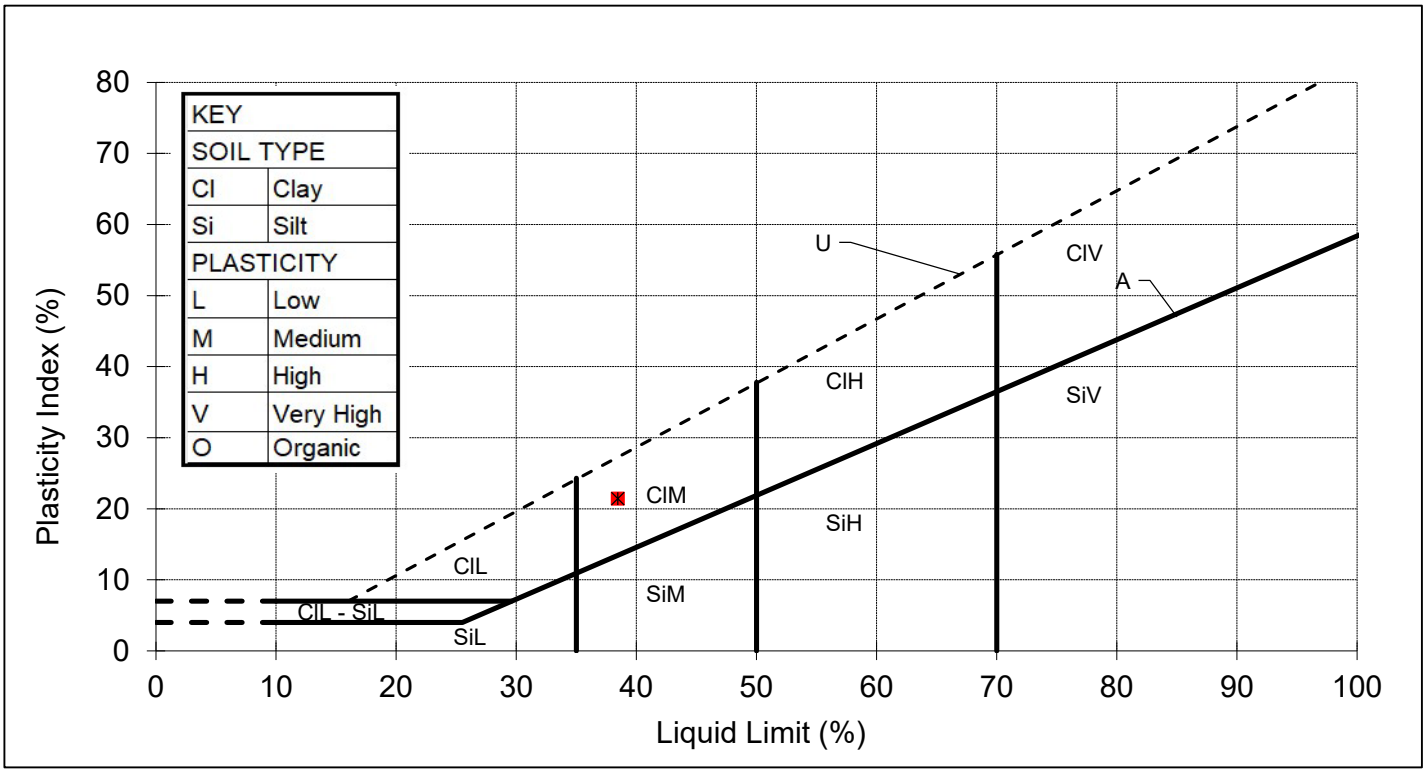
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP02 6.0-6.45m D	DATE SAMPLED	19-Aug-25
SAMPLE No.	5159013	DATE RECEIVED	20-Aug-25
DATE TESTED	01-Sep-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.2	38.6	0.998	
Determination 2 (avg)	20.1	38.5		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
18.1	38	17	21	88



REMARKS

SIGNED [redacted]

NAME (Hons) DATE 22-Sep-25

(Director / Head of Laboratory)

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TEST CERTIFICATE

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PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

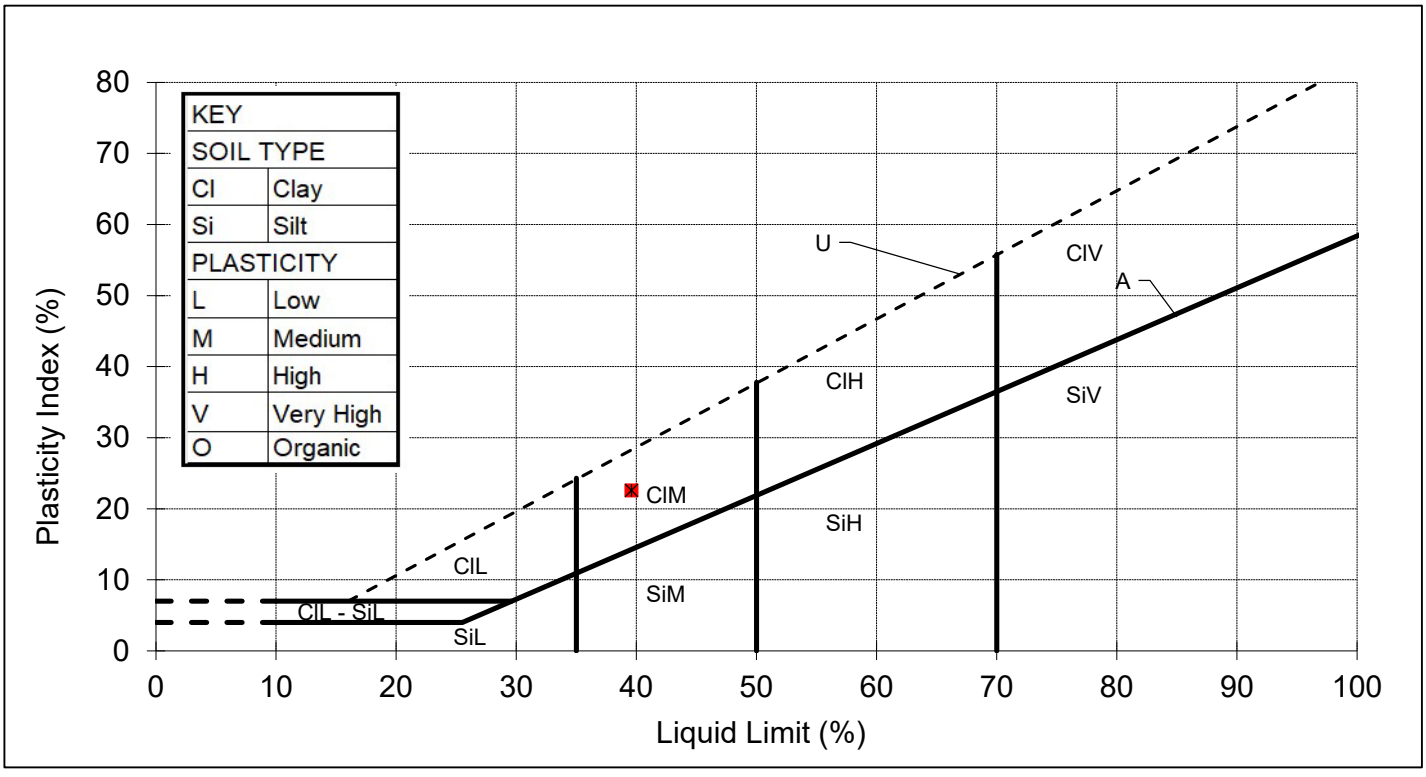
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP02 8.0-8.45m D	DATE SAMPLED	20-Aug-25
SAMPLE No.	5159014	DATE RECEIVED	20-Aug-25
DATE TESTED	01-Sep-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	19.9	39.4	1.002	
Determination 2 (avg)	19.9	39.6		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
15.0	40	17	23	83



REMARKS

SIGNED [redacted]

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 22-Sep-25

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UKAS TESTING 1580

TEST CERTIFICATE

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PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

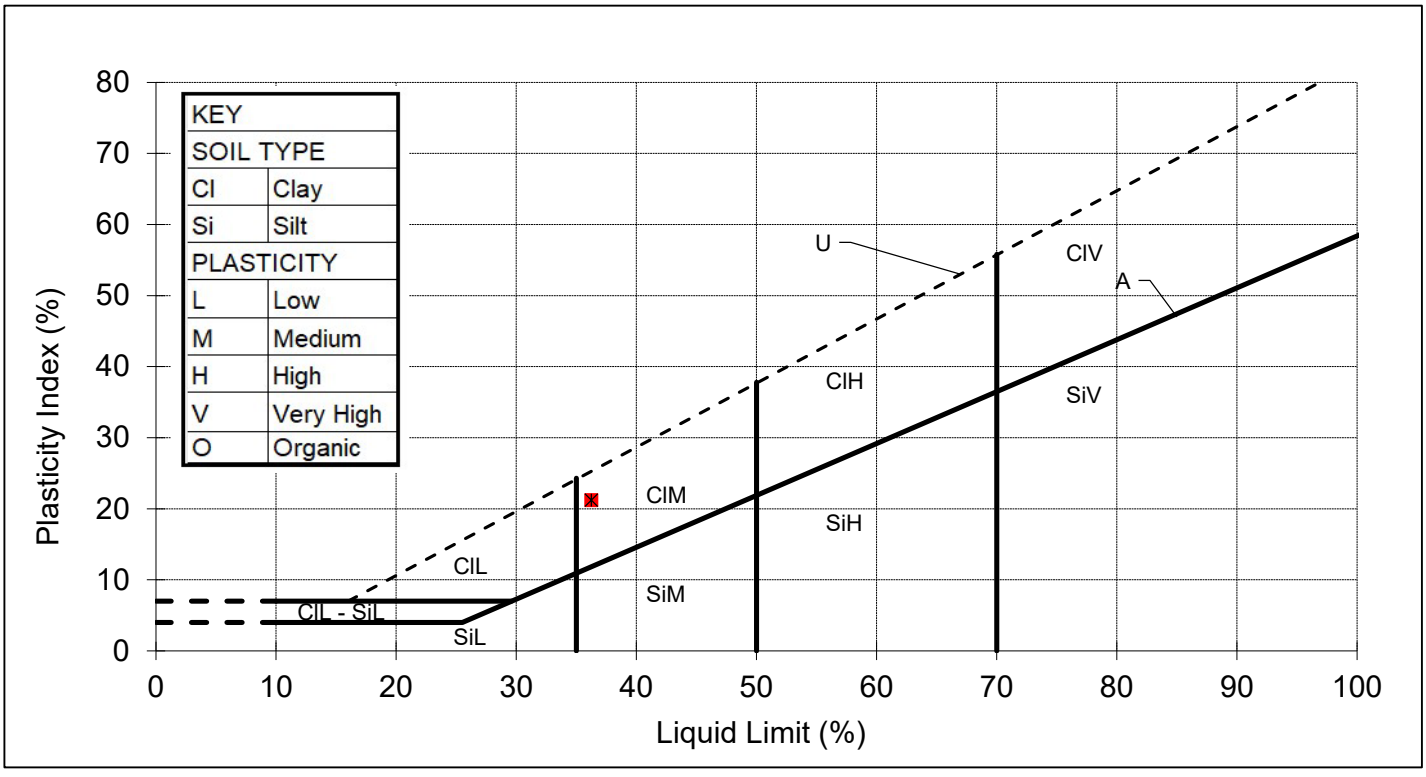
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP02 9.0-9.45m D	DATE SAMPLED	20-Aug-25
SAMPLE No.	5159015	DATE RECEIVED	20-Aug-25
DATE TESTED	01-Sep-25	SAMPLED BY	Client

MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Water Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	20.2	36.3	0.997	
Determination 2 (avg)	20.2	36.4		

Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
13.8	36	15	21	88



REMARKS

SIGNED [redacted]

NAME O.P. Davies BA (Hons) (Director / Head of Laboratory) DATE 22-Sep-25

M U R R A Y R I X
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF WATER-SOLUBLE SULPHATE IN SOIL
& DETERMINATION OF THE pH VALUE
BS 1377-3:2018+A1:2021, Cl. 7.3 & Cl. 12

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

DATE TESTED	28-Aug-25	DATE SAMPLED	14-20-Aug-25
SAMPLED BY	Client	DATE RECEIVED	20-Aug-25
PRE-TREATMENT	Air Dried	ADVISED SOURCE	Site Investigation Samples

Sample Number	Sample Label	Material	% Ret. 2mm	pH Value	Water Soluble Sulphate as SO_4 (mg/l)
5159017	WS03 4.7m D	Grey brown silty slightly sandy slightly gravelly CLAY	5	7.6	220
5159018	WS04 4.6m D	Grey brown silty slightly sandy slightly gravelly CLAY	5	7.2	180
5159006	CP01 7.0-7.45m D	Brown silty slightly sandy slightly gravelly CLAY	15	7.3	290
5159008	CP01 10.0-10.45m D	Brown silty slightly sandy slightly gravelly CLAY	20	7.3	320
5159013	CP02 6.0-6.45m D	Brown silty slightly sandy slightly gravelly CLAY	8	7.2	370
5159015	CP02 9.0-9.45m D	Brown silty slightly sandy slightly gravelly CLAY	7	7.3	380

REMARKS

SIGNED [redacted]

NAME O.P. Davies BA (Hons) DATE 22-Sep-25
(Director / Head of Laboratory)

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

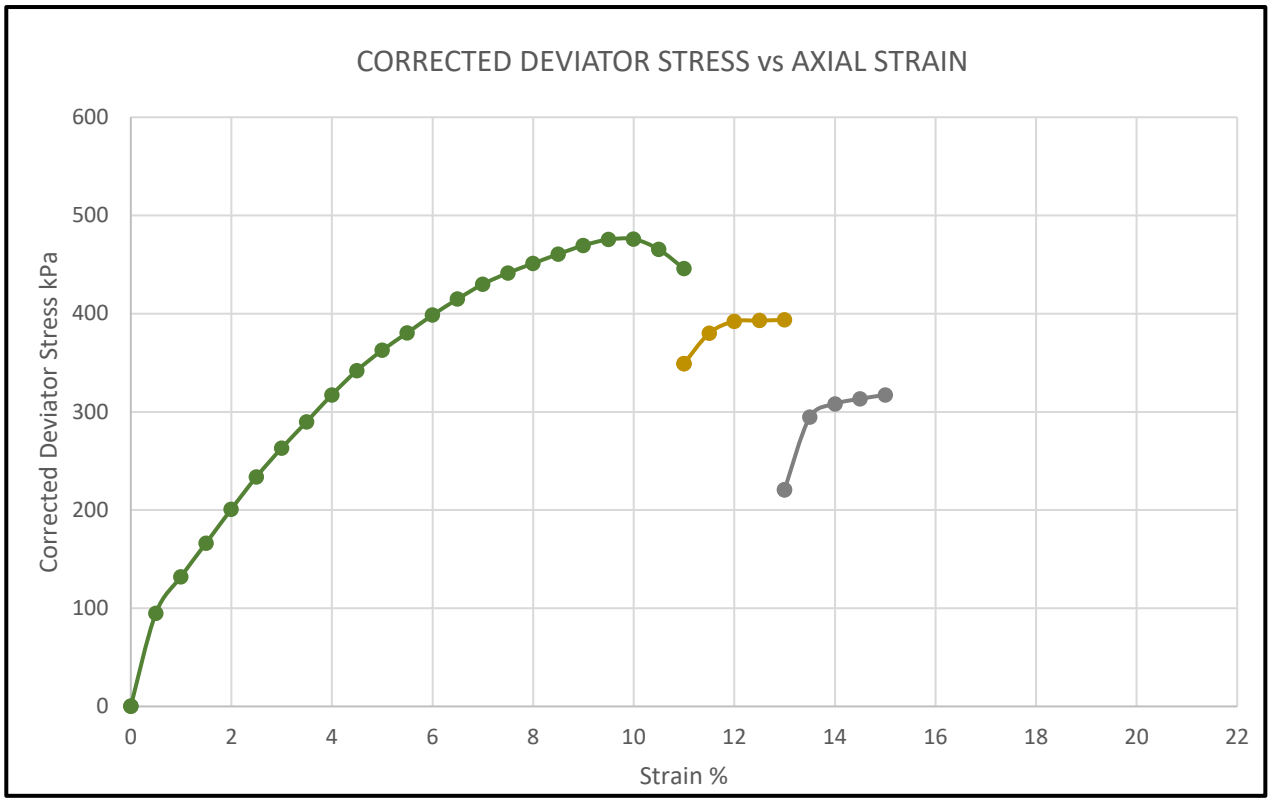
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP01 5.0-5.45m U	**DATE SAMPLED**	19-Aug-25
LAB SAMPLE No.	5159020	**DATE RECEIVED**	20-Aug-25
DATE TESTED	28-Aug-25	**SAMPLED BY**	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

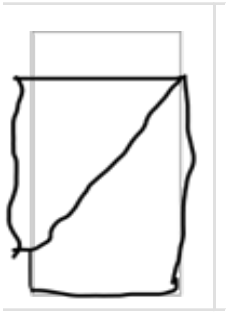
Specimen Location

Sample Length (mm)	450	Specimen depth from top of Sample (mm)	50
Sample Orientation	Vertical	Specimen Condition	Undisturbed
Specimen Length (mm)	200	Specimen Moisture Content (%)	22.3
Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m3)	2.09
Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m3)	1.71
Membrane Correction	1.01	1.08	1.52



TEST TYPE
MULTI STAGE

SKETCH OF SPECIMEN AT FAILURE



SIMPLE_SHEAR

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
50	10	2	475.9	238
100	13	2	393.7	197
200	15	2	317.2	159

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed [redacted]

Date 22 September 2025

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

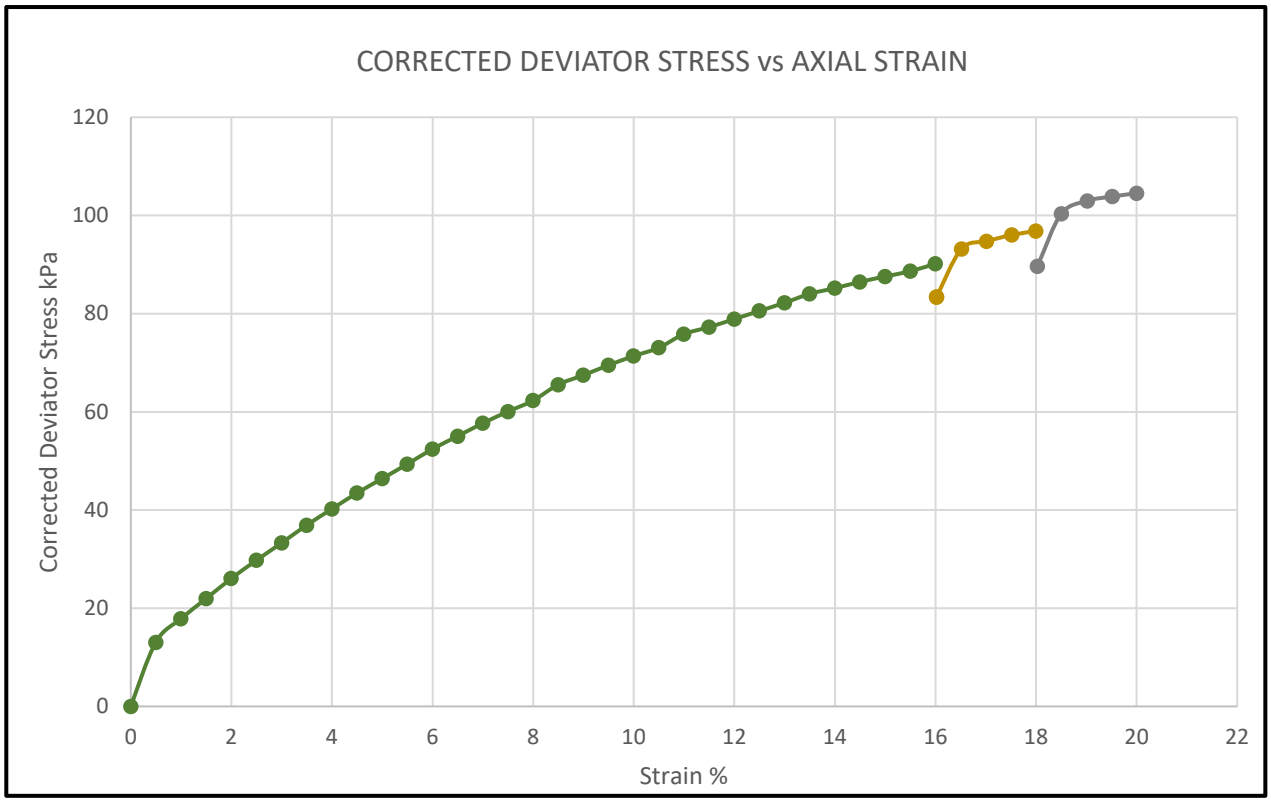
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP02 5.0-5.45m U	**DATE SAMPLED**	19-Aug-25
LAB SAMPLE No.	5159020	**DATE RECEIVED**	20-Aug-25
DATE TESTED	28-Aug-25	**SAMPLED BY**	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

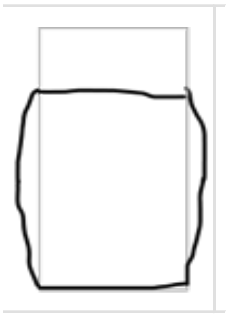
Specimen Location

Sample Length (mm)	450	Specimen depth from top of Sample (mm)	50
Sample Orientation	Vertical	Specimen Condition	Undisturbed
Specimen Length (mm)	200	Specimen Moisture Content (%)	22.3
Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m3)	2.09
Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m3)	1.71
Membrane Correction	1.29	1.40	1.52



TEST TYPE
MULTI STAGE

SKETCH OF SPECIMEN AT FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
50	16	2	88.6	44
100	18	2	96.0	48
200	20	2	103.9	52

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed [redacted]

Date 22 September 2025

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 9 Multi Stage

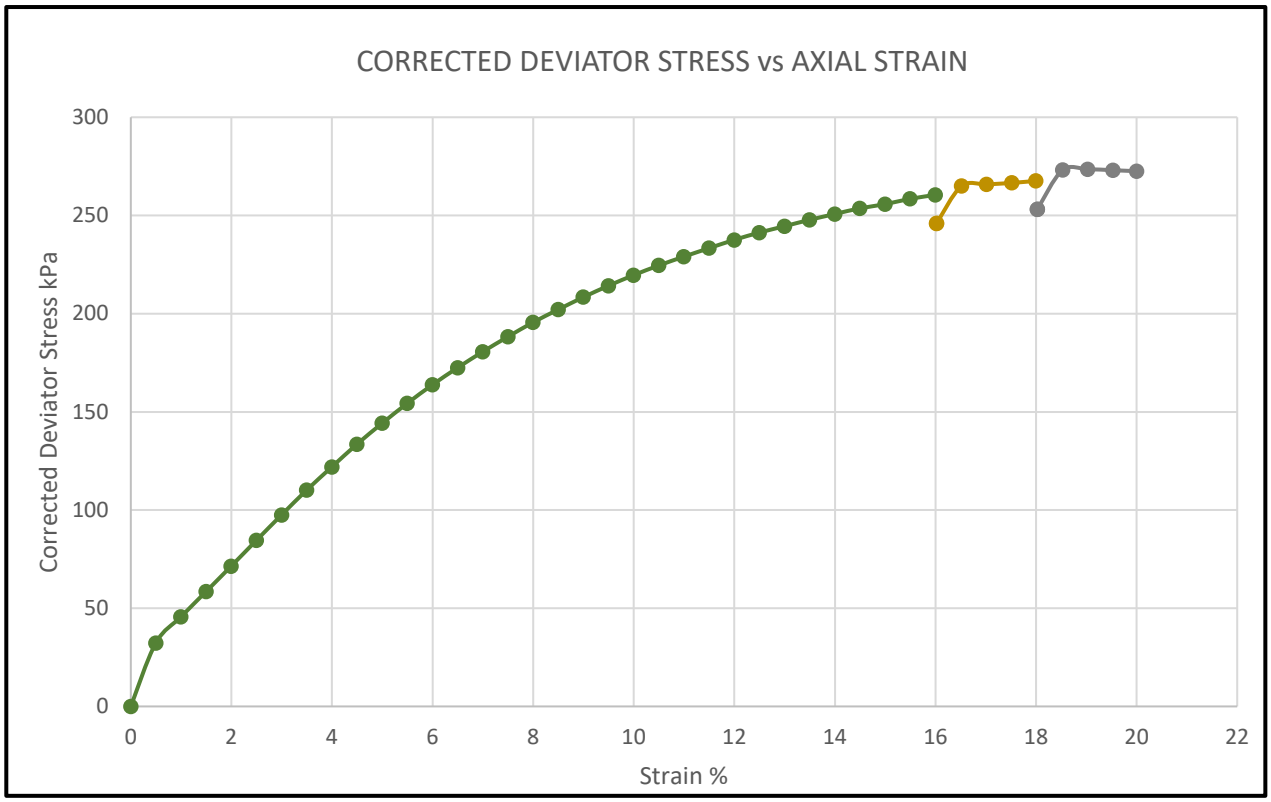
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A7009 - Openshaw Campus, Manchester College
JOB NUMBER	MRN 25001/64

SAMPLE LABEL	CP02 7.0-7.45m U	**DATE SAMPLED**	20-Aug-25
LAB SAMPLE No.	5159021	**DATE RECEIVED**	20-Aug-25
DATE TESTED	28-Aug-25	**SAMPLED BY**	Client
MATERIAL	Brown silty slightly sandy slightly gravelly CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

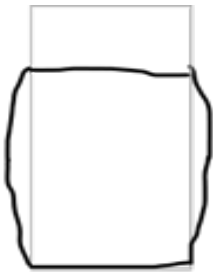
Specimen Location

Sample Length (mm)	420	Specimen depth from top of Sample (mm)	50
Sample Orientation	Vertical	Specimen Condition	Undisturbed
Specimen Length (mm)	202	Specimen Moisture Content (%)	20.1
Specimen Diameter (mm)	100	Specimen Bulk Density (Mg/m3)	2.23
Membrane Thickness (mm)	0.40	Specimen Dry Density (Mg/m3)	1.86
Membrane Correction	1.28	1.39	1.51



TEST TYPE
MULTI STAGE

SKETCH OF SPECIMEN AT FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
70	16	2	258.5	129
140	18	2	266.6	133
280	19	2	273.5	137

Remarks/Abnormalities

Name O.P. Davies BA (Hons)
(Director / Head of Laboratory)

Signed [redacted]

Date 22 September 2025

APPENDIX 3

LABORATORY CHEMICAL TESTING RESULTS

Normec DETS

UKAS TESTING
4480

Craig Low
Earth Environmental & Geotechnical Ltd
Houldsworth Mill Business Centre
Houldsworth Street
Reddish
Stockport
Cheshire
SK5 6DA

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 25-07484

Site Reference:	Openshaw Campus, Manchester College
Project / Job Ref:	A7009
Order No:	A7009/CL/01
Sample Receipt Date:	18/08/2025
Sample Scheduled Date:	19/08/2025
Report Issue Number:	1
Reporting Date:	26/08/2025

Authorised by:

Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate						
DETS Report No: 25-07484	**~Date Sampled**	14/08/25	14/08/25	14/08/25	14/08/25	14/08/25
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS01	WS01	WS02	WS03	WS03
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: A7009/CL/01	**~Depth (m)**	0.40	0.90	0.40	0.60	2.70
Reporting Date: 26/08/2025	**DETS Sample No**	786883	786884	786885	786886	786887

Determinand	Unit	RL	Accreditation					
Asbestos Screen [S]	N/a	N/a	ISO17025	Detected	Not Detected	Detected	Detected	Not Detected
Sample Matrix [S]	Material Type	N/a	NONE	Chrysotile present as fibre bundles		Chrysotile present in microscopic insulation debris	Chrysotile present in microscopic insulation debris	
Asbestos Type [S]	PLM Result	N/a	ISO17025	Chrysotile		Chrysotile	Chrysotile	
pH	pH Units	N/a	MCERTS	8.5	8.1	8.1	8.1	7.8
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	5	< 1	< 1
Complex Cyanide	mg/kg	< 1	NONE	< 1	< 1	5	< 1	< 1
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	1048	224	1882	485	3363
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.10	0.02	0.19	0.05	0.34
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	90	42	311	28	77
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.09	0.04	0.31	0.03	0.08
Sulphide	mg/kg	< 5	NONE	< 5	< 5	5	< 5	< 5
Organic Matter (SOM)	%	< 0.1	MCERTS	6.9	1.9	7.1	1.9	20.6
Arsenic (As)	mg/kg	< 2	MCERTS	14	8	14	16	59
Barium (Ba)	mg/kg	< 2.5	MCERTS	32.0	116.5	594.0	158.4	210.9
Beryllium (Be)	mg/kg	< 0.5	MCERTS	1.8	0.8	1	< 0.5	1
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	1.1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	0.7	< 0.2	0.4
Chromium (Cr)	mg/kg	< 2	MCERTS	29	28	68	70	104
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	20	31	225	64	120
Lead (Pb)	mg/kg	< 3	MCERTS	10	16	203	67	397
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	33	38	64	152	33
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	39	23	40	28	295
Zinc (Zn)	mg/kg	< 3	MCERTS	99	42	242	37	233
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate						
DETS Report No: 25-07484	**~Date Sampled**	14/08/25	14/08/25	15/08/25		
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS04	WS05	TP02		
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: A7009/CL/01	**~Depth (m)**	1.20	0.50	0.30		
Reporting Date: 26/08/2025	**DETS Sample No**	786888	786889	786890		

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Detected	Detected	Detected		
Sample Matrix (S)	Material Type	N/a	NONE	Amosite present as fibre bundles	Chrysotile present as fibre bundles	Chrysotile present as fibre bundles		
Asbestos Type (S)	PLM Result	N/a	ISO17025	Amosite	Chrysotile	Chrysotile		
pH	pH Units	N/a	MCERTS	8.1	8.5	7.7		
Total Cyanide	mg/kg	< 1	NONE	6	< 1	< 1		
Complex Cyanide	mg/kg	< 1	NONE	6	< 1	< 1		
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1		
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	1032	1324	682		
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.10	0.13	0.07		
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	95	29	23		
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.09	0.03	0.02		
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5		
Organic Matter (SOM)	%	< 0.1	MCERTS	22.3	2.6	11		
Arsenic (As)	mg/kg	< 2	MCERTS	33	14	11		
Barium (Ba)	mg/kg	< 2.5	MCERTS	308.3	687.9	134.5		
Beryllium (Be)	mg/kg	< 0.5	MCERTS	4.1	< 0.5	0.6		
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	1.7		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	1.7	0.6		
Chromium (Cr)	mg/kg	< 2	MCERTS	19	540	15		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	111	232	85		
Lead (Pb)	mg/kg	< 3	MCERTS	101	1100	114		
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	47	172	16		
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	8	< 2		
Vanadium (V)	mg/kg	< 1	MCERTS	60	133	22		
Zinc (Zn)	mg/kg	< 3	MCERTS	116	191	174		
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2		

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 25-07484	**~Date Sampled**	14/08/25	14/08/25	14/08/25	14/08/25	14/08/25
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS01	WS01	WS02	WS03	WS03
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: A7009/CL/01	**~Depth (m)**	0.40	0.90	0.40	0.60	2.70
Reporting Date: 26/08/2025	**DETS Sample No**	786883	786884	786885	786886	786887

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.11	< 0.1	0.85
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	0.15
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.12	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.20	0.19	1.22	< 0.1	1.02
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.28	< 0.1	0.18
Fluoranthene	mg/kg	< 0.1	MCERTS	0.83	0.24	2.17	< 0.1	0.90
Pyrene	mg/kg	< 0.1	MCERTS	1.42	0.25	1.97	< 0.1	0.84
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.68	0.14	1.54	< 0.1	0.59
Chrysene	mg/kg	< 0.1	MCERTS	0.73	0.16	1.31	< 0.1	0.51
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.99	0.21	1.39	< 0.1	0.62
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	0.33	< 0.1	0.58	< 0.1	0.26
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	1.11	0.21	1.31	< 0.1	0.56
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.66	0.15	0.72	< 0.1	0.32
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	0.13	< 0.1	0.17	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.57	0.16	0.56	< 0.1	0.39
**Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	7.7	1.7	13.5	< 1.6	7.2

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 25-07484	**~Date Sampled**	14/08/25	14/08/25	15/08/25		
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS04	WS05	TP02		
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: A7009/CL/01	**~Depth (m)**	1.20	0.50	0.30		
Reporting Date: 26/08/2025	**DETS Sample No**	786888	786889	786890		

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	0.40	< 0.1	< 0.1		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	0.13	< 0.1		
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Phenanthrene	mg/kg	< 0.1	MCERTS	0.37	0.83	0.92		
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	0.21	0.23		
Fluoranthene	mg/kg	< 0.1	MCERTS	0.24	1.32	2.05		
Pyrene	mg/kg	< 0.1	MCERTS	0.24	1	1.83		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.17	0.48	1.25		
Chrysene	mg/kg	< 0.1	MCERTS	0.18	0.50	1.04		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.18	0.50	1.40		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.14	0.52		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.12	0.37	1.29		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.17	0.86		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.18		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	0.22	0.82		
**Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	1.9	5.9	12.4		

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 25-07484	**~Date Sampled**	14/08/25	14/08/25	14/08/25	14/08/25	14/08/25
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS01	WS01	WS02	WS03	WS03
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: A7009/CL/01	**~Depth (m)**	0.40	0.90	0.40	0.60	2.70
Reporting Date: 26/08/2025	**DETS Sample No**	786883	786884	786885	786886	786887

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	4
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	8	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	115	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	123	< 21	< 21	< 21	< 21
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	4
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	6
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	7
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	20	< 10	< 10	< 10	< 10
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	143	< 42	< 42	< 42	< 42

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 25-07484	**~Date Sampled**	14/08/25	14/08/25	15/08/25		
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS04	WS05	TP02		
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: A7009/CL/01	**~Depth (m)**	1.20	0.50	0.30		
Reporting Date: 26/08/2025	**DETS Sample No**	786888	786889	786890		

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2		
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2		
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	**MCERTS**	< 3	< 3	< 3		
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	**MCERTS**	< 3	< 3	4		
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	**MCERTS**	< 10	< 10	164		
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	168		
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2		
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	**MCERTS**	5	< 2	< 2		
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	**MCERTS**	4	< 2	< 2		
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	**MCERTS**	< 3	< 3	4		
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	**MCERTS**	< 10	< 10	< 10		
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21	< 21		
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	< 42	< 42	172		

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-07484	**~Date Sampled**	14/08/25	14/08/25	14/08/25	14/08/25	14/08/25
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS01	WS01	WS02	WS03	WS03
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: A7009/CL/01	**~Depth (m)**	0.40	0.90	0.40	0.60	2.70
Reporting Date: 26/08/2025	**DETS Sample No**	786883	786884	786885	786886	786887

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene : HS_1D_MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE : HS_1D_MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 25-07484	**~Date Sampled**	14/08/25	14/08/25	15/08/25		
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied		
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS04	WS05	TP02		
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied	None Supplied	None Supplied		
~Order No: A7009/CL/01	**~Depth (m)**	1.20	0.50	0.30		
Reporting Date: 26/08/2025	**DETS Sample No**	786888	786889	786890		

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2		
Toluene : HS_1D_MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5		
Ethylbenzene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2		
p & m-xylene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2		
o-xylene : HS_1D_MS	µg/kg	< 2	MCERTS	< 2	< 2	< 2		
MTBE : HS_1D_MS	µg/kg	< 5	MCERTS	< 5	< 5	< 5		

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Waste Acceptance Criteria Analytical Certificate

				Landfill Waste Acceptance Criteria Limits		
DETS Report No: 25-07484	**~Date Sampled**	14/08/25		**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied				
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS03				
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied				
~Order No: A7009/CL/01	**~Depth (m)**	0.60				
Reporting Date: 26/08/2025	**DETS Sample No**	786886				

Determinand	**Unit**	**MDL**						
TOC[MU]	%	< 0.1	1.1			3%	5%	6%
Loss on Ignition[MU]	%	< 0.01	2.04			--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05			6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1			1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10			500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7			100	--	--
pH[MU]	pH Units	N/a	8.1			--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1			--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 * mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic	0.0006	0.0004		0.005	0.5	2	25
Barium	0.0949	0.0705		0.729	20	100	300
Cadmium	< 0.0002	< 0.0002		< 0.002	0.04	1	5
Chromium	0.0113	0.0048		0.054	0.5	10	70
Copper	0.0031	0.0036		0.036	2	50	100
Mercury	0.00047	0.00032		0.0033	0.01	0.2	2
Molybdenum	0.0159	0.0059		0.068	0.5	10	30
Nickel	0.0005	0.0006		0.0057	0.4	10	40
Lead	< 0.0002	< 0.0002		< 0.002	0.5	10	50
Antimony	< 0.0002	< 0.0002		< 0.002	0.06	0.7	5
Selenium	0.0003	< 0.0002		0.0016	0.1	0.5	7
Zinc	0.007	0.004		0.04	4	50	200
Chloride	14	3		43	800	15000	25000
Fluoride	4.5	2.6		27.9	**10**	150	500
Sulphate	20	6		71	1000	20000	50000
TDS	128	65		705	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	3.3	4.8		47	500	800	1000

Leach Test Information					
Sample Mass (kg)	0.10				
Dry Matter (%)	89.8				
Moisture (%)	11.4				
Stage 1					
Volume Eluate L2 (litres)	0.17				
Filtered Eluate VE1 (litres)	0.07				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and Normec DETS Limited cannot be held responsible for any discrepencies with current legislation

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Waste Acceptance Criteria Analytical Certificate

DETS Report No: 25-07484	**~Date Sampled**	14/08/25		**Landfill Waste Acceptance Criteria Limits**		
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied		**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS04				
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied				
~Order No: A7009/CL/01	**~Depth (m)**	1.20				
Reporting Date: 26/08/2025	**DETS Sample No**	786888				

Determinand	**Unit**	**MDL**					
TOC[MU]	%	< 0.1	13			3%	5%	**6%**
Loss on Ignition[MU]	%	< 0.01	11.50			--	--	**10%**
BTEX[MU]	mg/kg	< 0.05	< 0.05			6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1			1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10			500	--	--
Total PAH[MU]	mg/kg	< 1.7	1.9			100	--	--
pH[MU]	pH Units	N/a	8.1			--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	1.1			--	To be evaluated	To be evaluated

Eluate Analysis	**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 * mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic	0.0007	0.0007		0.007	0.5	2	25
Barium	0.0650	0.0778		0.775	20	100	300
Cadmium	< 0.0002	< 0.0002		< 0.002	0.04	1	5
Chromium	0.0003	0.0002		0.002	0.5	10	70
Copper	0.0046	0.0059		0.059	2	50	100
Mercury	0.00043	0.00054		0.0054	0.01	0.2	2
Molybdenum	0.0381	0.0218		0.230	0.5	10	30
Nickel	0.0006	0.0006		0.0057	0.4	10	40
Lead	< 0.0002	0.0004		0.004	0.5	10	50
Antimony	< 0.0002	< 0.0002		< 0.002	0.06	0.7	5
Selenium	0.0006	0.0003		0.0028	0.1	0.5	7
Zinc	0.013	0.008		0.09	4	50	200
Chloride	94	12		171	800	15000	25000
Fluoride	2.6	1.2		13.1	**10**	150	500
Sulphate	98	19		246	1000	20000	50000
TDS	389	121		1387	4000	60000	100000
Phenol Index	< 0.01	< 0.01		< 0.5	1	-	-
DOC	4.2	4.2		42.3	500	800	1000

Leach Test Information				
Sample Mass (kg)	0.10			
Dry Matter (%)	84.3			
Moisture (%)	18.6			
Stage 1				
Volume Eluate L2 (litres)	0.16			
Filtered Eluate VE1 (litres)	0.05			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and Normec DETS Limited cannot be held responsible for any discrepencies with current legislation

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 25-07484	
Earth Environmental & Geotechnical Ltd	
~Site Reference: Openshaw Campus, Manchester College	
~Project / Job Ref: A7009	
~Order No: A7009/CL/01	
Reporting Date: 26/08/2025	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
786883	WS01	None Supplied	0.40	7.2	Brown loamy sand with stones and concrete
786884	WS01	None Supplied	0.90	13.6	Brown clay
786885	WS02	None Supplied	0.40	10.8	Brown loamy sand with stones and concrete
786886	WS03	None Supplied	0.60	9.7	Brown loamy sand with stones and brick
786887	WS03	None Supplied	2.70	15.7	Black loamy sand with stones and concrete
786888	WS04	None Supplied	1.20	15.2	Black loamy sand with stones and concrete
786889	WS05	None Supplied	0.50	14.2	Black loamy sand with stones and concrete
786890	TP02	None Supplied	0.30	13.3	Brown loamy sand with vegetation

Moisture content is part of procedure E003 & is not an accredited test

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 25-07484
Earth Environmental & Geotechnical Ltd
~Site Reference: Openshaw Campus, Manchester College
~Project / Job Ref: A7009
~Order No: A7009/CL/01
Reporting Date: 26/08/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

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Water Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 25-07484
Earth Environmental & Geotechnical Ltd
~Site Reference: Openshaw Campus, Manchester College
~Project / Job Ref: A7009
~Order No: A7009/CL/01
Reporting Date: 26/08/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	F	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (BOD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	F	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	F	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	F	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E115
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichlorometha	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Acidification, followed by high-temperature oxidation and IR detection.	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

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List of HWOL Acronyms and Operators
DETS Report No: 25-07484
Earth Environmental & Geotechnical Ltd
~Site Reference: Openshaw Campus, Manchester College
~Project / Job Ref: A7009
~Order No: A7009/CL/01
Reporting Date: 26/08/2025

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
Mineral Oil (C10 - C40) (BS EN 12457-3) - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aliphatic C5 - C34 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C35 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C35 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
Total BTEX (BS EN 12457-3) - HS_1D_MS_Total
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Parameter	Matrix Type	Expanded Uncertainity Measurement	Unit
TOC	Soil	11	%
Loss on Ignition	Soil	24	%
BTEX	Soil	11	%
Sum of PCBs	Soil	30	%
Mineral Oil	Soil	9	%
Total PAH	Soil	17	%
pH	Soil	0.2	Units
Acid Neutralisation Capacity	Soil	18	%
Clay Content	Soil	15	%
Silt Content	Soil	14	%
Sand Content	Soil	13	%
Loss on Ignition	Soil	24	%
pH	Soil	0.2	Units
Carbonate	Soil	12	%
Total Nitrogen	Soil	12	%
Phosphorus (Extractable)	Soil	24	%
Potassium (Extractable)	Soil	20	%
Magnesium (Extractable)	Soil	26	%
Zinc	Soil	26	%
Copper	Soil	24	%
Nickel	Soil	29	%
Available Sodium	Soil	23	%
Available Calcium	Soil	23	%
Electrical Conductivity	Soil	10	%

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Certificate Key

Symbol	Description
F	Filtered sample
UF	Unfiltered sample
D	Dried sample
AR	As received sample
RL	Reporting limit
~	Sample details provided by customer and can affect the validity of results
M/S	Missing Sample
*	The Dutch 10 PAH compounds consist of Naphthalene, Anthracene,Phenanthrene, Fluoranthene, Benz(a)anthracene, Chrysene, Benzo(k) fluoranthene, Benzo(a)pyrene, Benzo(g,h,i)perylene, and Indeno(1,2,3-cd)pyrene
**	Total EPA-16 PAHs consist of the following polycyclic aromatic hydrocarbons: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, and Benzo(ghi)perylene.
***	Total WAC-17 PAHs consist of the following polycyclic aromatic hydrocarbons: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz (a,h)anthracene, Benzo(ghi)perylene and Coronene.
^	No sampling date provided; unable to confirm if samples are within acceptable holding times
n	Please note that we are MCERTS soil accredited (UK soils only) for sand, loam, and clay, and UKAS accredited for groundwater, tap water, surface water, and generated leachates. Other matrices are outside our scope of accreditation.
S	Subcontracted analysis
M	MCERTS accredited test
U	UKAS accredited test

Normec DETS

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DETS Report No: 25-07980

Site Reference:	Openshaw Campus, Manchester College
Project / Job Ref:	A7009
Order No:	A7009/CL/01
Sample Receipt Date:	18/08/2025
Sample Scheduled Date:	28/08/2025
Report Issue Number:	1
Reporting Date:	10/09/2025

[redacted]

Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

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Soil Analysis Certificate						
DETS Report No: 25-07980	**~Date Sampled**	14/08/25	14/08/25	14/08/25	14/08/25	14/08/25
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	WS01	WS02	WS03	WS04	WS05
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: A7009/CL/01	**~Depth (m)**	0.40	0.40	0.60	1.20	0.50
Reporting Date: 10/09/2025	**DETS Sample No**	789051	789052	789053	789054	789055

Determinand	Unit	RL	Accreditation					
Asbestos Quantification (S)	%	< 0.001	ISO17025	< 0.001	0.002	0.001	0.001	0.006

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Analysis carried out on the dried sample is corrected for the stone content

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Soil Analysis Certificate						
DETS Report No: 25-07980	**~Date Sampled**	15/08/25				
Earth Environmental & Geotechnical Ltd	**~Time Sampled**	None Supplied				
~Site Reference: Openshaw Campus, Manchester College	**~TP / BH No**	TP02				
~Project / Job Ref: A7009	**~Additional Refs**	None Supplied				
~Order No: A7009/CL/01	**~Depth (m)**	0.30				
Reporting Date: 10/09/2025	**DETS Sample No**	789056				

Determinand	Unit	RL	Accreditation					
Asbestos Quantification (S)	%	< 0.001	ISO17025	0.002				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Analysis carried out on the dried sample is corrected for the stone content

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 25-07980
Earth Environmental & Geotechnical Ltd
~Site Reference: Openshaw Campus, Manchester College
~Project / Job Ref: A7009
~Order No: A7009/CL/01
Reporting Date: 10/09/2025

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

List of HWOL Acronyms and Operators
DETS Report No: 25-07980
Earth Environmental & Geotechnical Ltd
~Site Reference: Openshaw Campus, Manchester College
~Project / Job Ref: A7009
~Order No: A7009/CL/01
Reporting Date: 10/09/2025

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

Det - Acronym

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Certificate Key

Symbol	Description
F	Filtered sample
UF	Unfiltered sample
D	Dried sample
AR	As received sample
RL	Reporting limit
~	Sample details provided by customer and can affect the validity of results
M/S	Missing Sample
*	The Dutch 10 PAH compounds consist of Naphthalene, Anthracene,Phenanthrene, Fluoranthene, Benz(a)anthracene, Chrysene, Benzo(k) fluoranthene, Benzo(a)pyrene, Benzo(g,h,i)perylene, and Indeno(1,2,3-cd)pyrene
**	Total EPA-16 PAHs consist of the following polycyclic aromatic hydrocarbons: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, and Benzo(ghi)perylene.
***	Total WAC-17 PAHs consist of the following polycyclic aromatic hydrocarbons: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz (a,h)anthracene, Benzo(ghi)perylene and Coronene.
^	No sampling date provided; unable to confirm if samples are within acceptable holding times
$	Samples exceeded their recommended holding times
S	Subcontracted analysis
U	UKAS accredited test

APPENDIX 4

SOIL WASTE ASSESSMENT

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

K53FT-8KR4C-DEQSX

Report is invalid if pages are removed.

Job name

A7009 Openshaw Campus, Manchester College

Description/Comments

Project

A7009

Site

Openshaw Campus, Manchester College

Classified by

Name:
Luke Glover
Company:
Earth Environmental & Geotechnical Ltd
Date:
25 Sep 2025 13:57 GMT
Telephone:

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: -

Course	Date
Hazardous Waste Classification	-

Purpose of classification

2 - Material Characterisation

Address of the waste

Openshaw Campus, Manchester College, Ashton Old Road, Openshaw **Post Code** M11 2WH

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

Existing material on site.

Description of the specific process, sub-process and/or activity that created the waste

Preliminary investigation.

Description of the waste

Made ground.

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS01	0.40	Non Hazardous		3
2	WS01[2]	0.90	Non Hazardous		6
3	WS02	0.40	Non Hazardous		9
4	WS03	0.60	Non Hazardous		12
5	WS03[2]	2.70	Non Hazardous		15
6	WS04	1.20	Non Hazardous		18
7	WS05	0.50	Non Hazardous		21
8	TP02	0.30	Non Hazardous		24

Related documents

#	Name	Description
1	Example worst case waste stream template: 17 05 04 or 17 05 03 *	waste stream template used to create this Job

Report

Created by: Luke Glover

Created date: 25 Sep 2025 13:57 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	27
Appendix B: Rationale for selection of metal species	28
Appendix C: Version	29

Classification of sample: WS01

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS01
Sample Depth:
0.40 m
Moisture content:
7.2%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7.2% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<0.001 %		<0.001 %	<0.001 %		<**LOD**
2		asbestos fibres detected (Yes/No)			ACM_FIBRES		Yes					
3		arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }	033-005-00-1				14 mg/kg	1.895	24.742 mg/kg	0.00247 %	✓	
4		barium { barium carbonate }	056-003-00-2	208-167-3	513-77-9		32 mg/kg	1.437	42.895 mg/kg	0.00429 %	✓	
5		beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }	004-002-00-2				1.8 mg/kg	8.868	14.89 mg/kg	0.00149 %	✓	
6		boron { boric acid; [1] boric acid; [2] }	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]		<1 mg/kg	5.719	<5.719 mg/kg	<0.000572 %		<**LOD**
7		cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		<0.2 mg/kg	1.855	<0.371 mg/kg	<0.0000371 %		<**LOD**
8		chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		29 mg/kg	1.462	39.538 mg/kg	0.00395 %	✓	
9		chromium in Cr(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<**LOD**
10		copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		20 mg/kg	3.929	73.303 mg/kg	0.00733 %	✓	
11		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	10 mg/kg	1.56	14.551 mg/kg	0.000933 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
12		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
13		nickel { nickel dibromate }	028-053-00-5	238-596-1	14550-87-9		33	mg/kg	5.358	164.948	mg/kg	0.0165 %	✓	
14		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
15		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		39	mg/kg	1.785	64.946	mg/kg	0.00649 %	✓	
16		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		99	mg/kg	2.774	256.195	mg/kg	0.0256 %	✓	
17		TPH (C6 to C40) petroleum group			TPH		143	mg/kg		133.396	mg/kg	0.0133 %	✓	
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
19		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
20		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
22		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
23		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
24		pH			PH		8.5	pH		8.5	pH	8.5 pH		
25		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
26		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
28		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
29		phenanthrene		201-581-5	85-01-8		0.2	mg/kg		0.187	mg/kg	0.0000187 %	✓	
30		anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
31		fluoranthene		205-912-4	206-44-0		0.83	mg/kg		0.774	mg/kg	0.0000774 %	✓	
32		pyrene		204-927-3	129-00-0		1.42	mg/kg		1.325	mg/kg	0.000132 %	✓	
33		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.68	mg/kg		0.634	mg/kg	0.0000634 %	✓	
34		chrysene	601-048-00-0	205-923-4	218-01-9		0.73	mg/kg		0.681	mg/kg	0.0000681 %	✓	
35		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.99	mg/kg		0.924	mg/kg	0.0000924 %	✓	
36		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.33	mg/kg		0.308	mg/kg	0.0000308 %	✓	
37		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.11	mg/kg		1.035	mg/kg	0.000104 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		indeno[123-cd]pyrene				0.66	mg/kg		0.616	mg/kg	0.0000616 %	✓	
			205-893-2	193-39-5									
39		dibenz[a,h]anthracene				0.13	mg/kg		0.121	mg/kg	0.0000121 %	✓	
		601-041-00-2	200-181-8	53-70-3									
40		benzo[ghi]perylene				0.57	mg/kg		0.532	mg/kg	0.0000532 %	✓	
			205-883-8	191-24-2									
41		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0831 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 5000 mg/kg (0.5%) because: No free phase product.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0133%)

Classification of sample: WS01[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS01[2]
Sample Depth:
0.90 m
Moisture content:
13.6%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13.6% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	asbestos fibres detected (Yes/No)			ACM_FIBRES		No					
2	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }	033-005-00-1				8 mg/kg	1.895	13.342 mg/kg	0.00133 %	✓	
3	barium { barium carbonate }	056-003-00-2	208-167-3	513-77-9		116.5 mg/kg	1.437	147.366 mg/kg	0.0147 %	✓	
4	beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }	004-002-00-2				0.8 mg/kg	8.868	6.245 mg/kg	0.000625 %	✓	
5	boron { boric acid; [1] boric acid; [2] }	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]		<1 mg/kg	5.719	<5.719 mg/kg	<0.000572 %		<LOD
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		<0.2 mg/kg	1.855	<0.371 mg/kg	<0.0000371 %		<LOD
7	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		28 mg/kg	1.462	36.024 mg/kg	0.0036 %	✓	
8	chromium in Cr(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
9	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		31 mg/kg	3.929	107.219 mg/kg	0.0107 %	✓	
10	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	16 mg/kg	1.56	21.969 mg/kg	0.00141 %	✓	
11	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<LOD
12	nickel { nickel dibromate }	028-053-00-5	238-596-1	14550-87-9		38 mg/kg	5.358	179.239 mg/kg	0.0179 %	✓	
13	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		23	mg/kg	1.785	36.144	mg/kg	0.00361 %	✓	
15		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		42	mg/kg	2.774	102.565	mg/kg	0.0103 %	✓	
16		TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<**LOD**
17		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
18		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
19		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
21		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<**LOD**
22		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
23		pH			PH		8.1	pH		8.1	pH	8.1 pH		
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
25		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
26		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
27		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
28		phenanthrene		201-581-5	85-01-8		0.19	mg/kg		0.167	mg/kg	0.0000167 %	✓	
29		anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
30		fluoranthene		205-912-4	206-44-0		0.24	mg/kg		0.211	mg/kg	0.0000211 %	✓	
31		pyrene		204-927-3	129-00-0		0.25	mg/kg		0.22	mg/kg	0.000022 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.14	mg/kg		0.123	mg/kg	0.0000123 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.16	mg/kg		0.141	mg/kg	0.0000141 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.21	mg/kg		0.185	mg/kg	0.0000185 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.21	mg/kg		0.185	mg/kg	0.0000185 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.15	mg/kg		0.132	mg/kg	0.0000132 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
39		benzo[ghi]perylene		205-883-8	191-24-2		0.16	mg/kg		0.141	mg/kg	0.0000141 %	✓	

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
40		phenol				<2 mg/kg		<2 mg/kg	<0.0002 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2							
								Total:	0.0644 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS02

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS02
Sample Depth:
0.40 m
Moisture content:
10.8%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 10.8% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		0.002 %		0.0018 %	0.00181 %	✓	
2		asbestos fibres detected (Yes/No)			ACM_FIBRES		Yes					
3		arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }	033-005-00-1				14 mg/kg	1.895	23.938 mg/kg	0.00239 %	✓	
4		barium { barium carbonate }	056-003-00-2	208-167-3	513-77-9		594 mg/kg	1.437	770.366 mg/kg	0.077 %	✓	
5		beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }	004-002-00-2				1 mg/kg	8.868	8.004 mg/kg	0.0008 %	✓	
6		boron { boric acid; [1] boric acid; [2] }	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]		<1 mg/kg	5.719	<5.719 mg/kg	<0.000572 %		**<LOD**
7		cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.7 mg/kg	1.855	1.172 mg/kg	0.000117 %	✓	
8		chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		68 mg/kg	1.462	89.698 mg/kg	0.00897 %	✓	
9		chromium in Cr(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		**<LOD**
10		copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		225 mg/kg	3.929	797.867 mg/kg	0.0798 %	✓	
11		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	203 mg/kg	1.56	285.778 mg/kg	0.0183 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
12		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
13		nickel { nickel dibromate }	028-053-00-5	238-596-1	14550-87-9		64	mg/kg	5.358	309.506	mg/kg	0.031 %	✓	
14		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
15		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		40	mg/kg	1.785	64.447	mg/kg	0.00644 %	✓	
16		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		242	mg/kg	2.774	605.906	mg/kg	0.0606 %	✓	
17		TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<LOD
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
19		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
20		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
22		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
23		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
24		pH			PH		8.1	pH		8.1	pH	8.1 pH		
25		naphthalene	601-052-00-2	202-049-5	91-20-3		0.11	mg/kg		0.0993	mg/kg	0.00000993 %	✓	
26		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
28		fluorene		201-695-5	86-73-7		0.12	mg/kg		0.108	mg/kg	0.0000108 %	✓	
29		phenanthrene		201-581-5	85-01-8		1.22	mg/kg		1.101	mg/kg	0.00011 %	✓	
30		anthracene		204-371-1	120-12-7		0.28	mg/kg		0.253	mg/kg	0.0000253 %	✓	
31		fluoranthene		205-912-4	206-44-0		2.17	mg/kg		1.958	mg/kg	0.000196 %	✓	
32		pyrene		204-927-3	129-00-0		1.97	mg/kg		1.778	mg/kg	0.000178 %	✓	
33		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.54	mg/kg		1.39	mg/kg	0.000139 %	✓	
34		chrysene	601-048-00-0	205-923-4	218-01-9		1.31	mg/kg		1.182	mg/kg	0.000118 %	✓	
35		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.39	mg/kg		1.255	mg/kg	0.000125 %	✓	
36		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.58	mg/kg		0.523	mg/kg	0.0000523 %	✓	
37		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.31	mg/kg		1.182	mg/kg	0.000118 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		indeno[123-cd]pyrene				0.72	mg/kg		0.65	mg/kg	0.000065 %	✓	
			205-893-2	193-39-5									
39		dibenz[a,h]anthracene				0.17	mg/kg		0.153	mg/kg	0.0000153 %	✓	
		601-041-00-2	200-181-8	53-70-3									
40		benzo[ghi]perylene				0.56	mg/kg		0.505	mg/kg	0.0000505 %	✓	
			205-883-8	191-24-2									
41		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.288 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS03

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS03
Sample Depth:
0.60 m
Moisture content:
9.7%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.7% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		0.001 %		0.0009 %	0.000912 %	✓	
2	asbestos fibres detected (Yes/No)			ACM_FIBRES		Yes					
3	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }	033-005-00-1				16 mg/kg	1.895	27.632 mg/kg	0.00276 %	✓	
4	barium { barium carbonate }	056-003-00-2	208-167-3	513-77-9		158.4 mg/kg	1.437	207.491 mg/kg	0.0207 %	✓	
5	beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }	004-002-00-2				<0.5 mg/kg	8.868	<4.434 mg/kg	<0.000443 %		<**LOD**
6	boron { boric acid; [1] boric acid; [2] }	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]		<1 mg/kg	5.719	<5.719 mg/kg	<0.000572 %		<**LOD**
7	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		<0.2 mg/kg	1.855	<0.371 mg/kg	<0.0000371 %		<**LOD**
8	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		70 mg/kg	1.462	93.262 mg/kg	0.00933 %	✓	
9	chromium in Cr(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<**LOD**
10	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		64 mg/kg	3.929	229.225 mg/kg	0.0229 %	✓	
11	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	67 mg/kg	1.56	95.267 mg/kg	0.00611 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
12		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
13		nickel { nickel dibromate }	028-053-00-5	238-596-1	14550-87-9		152	mg/kg	5.358	742.447	mg/kg	0.0742 %	✓	
14		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
15		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		28	mg/kg	1.785	45.565	mg/kg	0.00456 %	✓	
16		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		37	mg/kg	2.774	93.567	mg/kg	0.00936 %	✓	
17		TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<LOD
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
19		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
20		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
22		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
23		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
24		pH			PH		8.1	pH		8.1	pH	8.1 pH		
25		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
26		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
28		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
29		phenanthrene		201-581-5	85-01-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
30		anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
31		fluoranthene		205-912-4	206-44-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
32		pyrene		204-927-3	129-00-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
33		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
34		chrysene	601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
35		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
36		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
37		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
39		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
40		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
41		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.151 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS03[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS03[2]
Sample Depth:
2.70 m
Moisture content:
15.7%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15.7% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	asbestos fibres detected (Yes/No)			ACM_FIBRES		No					
2	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }	033-005-00-1				59 mg/kg	1.895	96.609 mg/kg	0.00966 %	✓	
3	barium { barium carbonate }	056-003-00-2	208-167-3	513-77-9		210.9 mg/kg	1.437	261.935 mg/kg	0.0262 %	✓	
4	beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }	004-002-00-2				1 mg/kg	8.868	7.665 mg/kg	0.000766 %	✓	
5	boron { boric acid; [1] boric acid; [2] }	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]		1.1 mg/kg	5.719	5.437 mg/kg	0.000544 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.4 mg/kg	1.855	0.641 mg/kg	0.0000641 %	✓	
7	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		104 mg/kg	1.462	131.376 mg/kg	0.0131 %	✓	
8	chromium in Cr(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<**LOD**
9	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		120 mg/kg	3.929	407.508 mg/kg	0.0408 %	✓	
10	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	397 mg/kg	1.56	535.217 mg/kg	0.0343 %	✓	
11	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<**LOD**
12	nickel { nickel dibromate }	028-053-00-5	238-596-1	14550-87-9		33 mg/kg	5.358	152.83 mg/kg	0.0153 %	✓	
13	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2 mg/kg	2.554	<5.108 mg/kg	<0.000511 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		295	mg/kg	1.785	455.168	mg/kg	0.0455 %	✓	
15		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		233	mg/kg	2.774	558.666	mg/kg	0.0559 %	✓	
16		TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<LOD
17		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
21		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
22		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
23		pH			PH		7.8	pH		7.8	pH	7.8 pH		
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.85	mg/kg		0.735	mg/kg	0.0000735 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
26		acenaphthene		201-469-6	83-32-9		0.15	mg/kg		0.13	mg/kg	0.000013 %	✓	
27		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
28		phenanthrene		201-581-5	85-01-8		1.02	mg/kg		0.882	mg/kg	0.0000882 %	✓	
29		anthracene		204-371-1	120-12-7		0.18	mg/kg		0.156	mg/kg	0.0000156 %	✓	
30		fluoranthene		205-912-4	206-44-0		0.9	mg/kg		0.778	mg/kg	0.0000778 %	✓	
31		pyrene		204-927-3	129-00-0		0.84	mg/kg		0.726	mg/kg	0.0000726 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.59	mg/kg		0.51	mg/kg	0.000051 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.51	mg/kg		0.441	mg/kg	0.0000441 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.62	mg/kg		0.536	mg/kg	0.0000536 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.26	mg/kg		0.225	mg/kg	0.0000225 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.56	mg/kg		0.484	mg/kg	0.0000484 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.32	mg/kg		0.277	mg/kg	0.0000277 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		0.39	mg/kg		0.337	mg/kg	0.0000337 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
40		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.243 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS04

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS04
Sample Depth:
1.20 m
Moisture content:
15.2%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15.2% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		0.006 %		0.0052 %	0.00521 %	✓	
2		asbestos fibres detected (Yes/No)			ACM_FIBRES		Yes					
3		arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }	033-005-00-1				33 mg/kg	1.895	54.27 mg/kg	0.00543 %	✓	
4		barium { barium carbonate }	056-003-00-2	208-167-3	513-77-9		308.3 mg/kg	1.437	384.566 mg/kg	0.0385 %	✓	
5		beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }	004-002-00-2				4.1 mg/kg	8.868	31.561 mg/kg	0.00316 %	✓	
6		boron { boric acid; [1] boric acid; [2] }	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]		<1 mg/kg	5.719	<5.719 mg/kg	<0.000572 %		<**LOD**
7		cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		<0.2 mg/kg	1.855	<0.371 mg/kg	<0.0000371 %		<**LOD**
8		chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	24.106 mg/kg	0.00241 %	✓	
9		chromium in Cr(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<**LOD**
10		copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		111 mg/kg	3.929	378.581 mg/kg	0.0379 %	✓	
11		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	101 mg/kg	1.56	136.755 mg/kg	0.00877 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
12		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
13		nickel { nickel dibromate }	028-053-00-5	238-596-1	14550-87-9		47	mg/kg	5.358	218.612	mg/kg	0.0219 %	✓	
14		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
15		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		60	mg/kg	1.785	92.978	mg/kg	0.0093 %	✓	
16		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		116	mg/kg	2.774	279.341	mg/kg	0.0279 %	✓	
17		TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<LOD
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
19		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
20		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
22		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
23		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
24		pH			PH		8.1	pH		8.1	pH	8.1 pH		
25		naphthalene	601-052-00-2	202-049-5	91-20-3		0.4	mg/kg		0.347	mg/kg	0.0000347 %	✓	
26		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
28		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
29		phenanthrene		201-581-5	85-01-8		0.37	mg/kg		0.321	mg/kg	0.0000321 %	✓	
30		anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
31		fluoranthene		205-912-4	206-44-0		0.24	mg/kg		0.208	mg/kg	0.0000208 %	✓	
32		pyrene		204-927-3	129-00-0		0.24	mg/kg		0.208	mg/kg	0.0000208 %	✓	
33		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.17	mg/kg		0.148	mg/kg	0.0000148 %	✓	
34		chrysene	601-048-00-0	205-923-4	218-01-9		0.18	mg/kg		0.156	mg/kg	0.0000156 %	✓	
35		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.18	mg/kg		0.156	mg/kg	0.0000156 %	✓	
36		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
37		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.12	mg/kg		0.104	mg/kg	0.0000104 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
39		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
40		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
41		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.161 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS05

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS05
Sample Depth:
0.50 m
Moisture content:
14.2%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14.2% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	asbestos fibres detected (Yes/No)			ACM_FIBRES		No					
2	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }	033-005-00-1				14 mg/kg	1.895	23.225 mg/kg	0.00232 %	✓	
3	barium { barium carbonate }	056-003-00-2	208-167-3	513-77-9		687.9 mg/kg	1.437	865.584 mg/kg	0.0866 %	✓	
4	beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }	004-002-00-2				<0.5 mg/kg	8.868	<4.434 mg/kg	<0.000443 %		<**LOD**
5	boron { boric acid; [1] boric acid; [2] }	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]		<1 mg/kg	5.719	<5.719 mg/kg	<0.000572 %		<**LOD**
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		1.7 mg/kg	1.855	2.761 mg/kg	0.000276 %	✓	
7	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		540 mg/kg	1.462	691.103 mg/kg	0.0691 %	✓	
8	chromium in Cr(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<**LOD**
9	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		232 mg/kg	3.929	798.196 mg/kg	0.0798 %	✓	
10	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	1100 mg/kg	1.56	1502.449 mg/kg	0.0963 %	✓	
11	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1 mg/kg	1.353	<1.353 mg/kg	<0.000135 %		<**LOD**
12	nickel { nickel dibromate }	028-053-00-5	238-596-1	14550-87-9		172 mg/kg	5.358	807.032 mg/kg	0.0807 %	✓	
13	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		8 mg/kg	2.554	17.89 mg/kg	0.00179 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		133	mg/kg	1.785	207.907	mg/kg	0.0208 %	✓	
15		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		191	mg/kg	2.774	463.977	mg/kg	0.0464 %	✓	
16		TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<LOD
17		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
18		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
21		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
22		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
23		pH			PH		8.5	pH		8.5	pH	8.5 pH		
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
25		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
26		acenaphthene		201-469-6	83-32-9		0.13	mg/kg		0.114	mg/kg	0.0000114 %	✓	
27		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
28		phenanthrene		201-581-5	85-01-8		0.83	mg/kg		0.727	mg/kg	0.0000727 %	✓	
29		anthracene		204-371-1	120-12-7		0.21	mg/kg		0.184	mg/kg	0.0000184 %	✓	
30		fluoranthene		205-912-4	206-44-0		1.32	mg/kg		1.156	mg/kg	0.000116 %	✓	
31		pyrene		204-927-3	129-00-0		1	mg/kg		0.876	mg/kg	0.0000876 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.48	mg/kg		0.42	mg/kg	0.000042 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.5	mg/kg		0.438	mg/kg	0.0000438 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.5	mg/kg		0.438	mg/kg	0.0000438 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.14	mg/kg		0.123	mg/kg	0.0000123 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.37	mg/kg		0.324	mg/kg	0.0000324 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.17	mg/kg		0.149	mg/kg	0.0000149 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		0.22	mg/kg		0.193	mg/kg	0.0000193 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
40		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.485 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP02

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP02
Sample Depth:
0.30 m
Moisture content:
13.3%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13.3% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		0.002 %		0.0017 %	0.00177 %	✓	
2	asbestos fibres detected (Yes/No)			ACM_FIBRES		Yes					
3	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }	033-005-00-1				11 mg/kg	1.895	18.393 mg/kg	0.00184 %	✓	
4	barium { barium carbonate }	056-003-00-2	208-167-3	513-77-9		134.5 mg/kg	1.437	170.586 mg/kg	0.0171 %	✓	
5	beryllium { beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex }	004-002-00-2				0.6 mg/kg	8.868	4.696 mg/kg	0.00047 %	✓	
6	boron { boric acid; [1] boric acid; [2] }	005-007-00-2	233-139-2 [1] 234-343-4 [2]	10043-35-3 [1] 11113-50-1 [2]		1.7 mg/kg	5.719	8.581 mg/kg	0.000858 %	✓	
7	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.6 mg/kg	1.855	0.982 mg/kg	0.0000982 %	✓	
8	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15 mg/kg	1.462	19.35 mg/kg	0.00193 %	✓	
9	chromium in Cr(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<2 mg/kg	2.27	<4.54 mg/kg	<0.000454 %		<LOD
10	copper { copper sulphate pentahydrate }	029-023-00-4	231-847-6	7758-99-8		85 mg/kg	3.929	294.766 mg/kg	0.0295 %	✓	
11	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	114 mg/kg	1.56	156.945 mg/kg	0.0101 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
12		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
13		nickel { nickel dibromate }	028-053-00-5	238-596-1	14550-87-9		16	mg/kg	5.358	75.669	mg/kg	0.00757 %	✓	
14		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
15		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		22	mg/kg	1.785	34.664	mg/kg	0.00347 %	✓	
16		zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		174	mg/kg	2.774	426.038	mg/kg	0.0426 %	✓	
17		TPH (C6 to C40) petroleum group			TPH		172	mg/kg		151.809	mg/kg	0.0152 %	✓	
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
19		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
20		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
22		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
23		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
24		pH			PH		7.7	pH		7.7	pH	7.7 pH		
25		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
26		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
28		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
29		phenanthrene		201-581-5	85-01-8		0.92	mg/kg		0.812	mg/kg	0.0000812 %	✓	
30		anthracene		204-371-1	120-12-7		0.23	mg/kg		0.203	mg/kg	0.0000203 %	✓	
31		fluoranthene		205-912-4	206-44-0		2.05	mg/kg		1.809	mg/kg	0.000181 %	✓	
32		pyrene		204-927-3	129-00-0		1.83	mg/kg		1.615	mg/kg	0.000162 %	✓	
33		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.25	mg/kg		1.103	mg/kg	0.00011 %	✓	
34		chrysene	601-048-00-0	205-923-4	218-01-9		1.04	mg/kg		0.918	mg/kg	0.0000918 %	✓	
35		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.4	mg/kg		1.236	mg/kg	0.000124 %	✓	
36		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.52	mg/kg		0.459	mg/kg	0.0000459 %	✓	
37		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.29	mg/kg		1.139	mg/kg	0.000114 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		indeno[123-cd]pyrene				0.86	mg/kg		0.759	mg/kg	0.0000759 %	✓	
			205-893-2	193-39-5									
39		dibenz[a,h]anthracene				0.18	mg/kg		0.159	mg/kg	0.0000159 %	✓	
		601-041-00-2	200-181-8	53-70-3									
40		benzo[ghi]perylene				0.82	mg/kg		0.724	mg/kg	0.0000724 %	✓	
			205-883-8	191-24-2									
41		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.133 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 5000 mg/kg (0.5%) because: No free phase product.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0152%)

Appendix A: Classifier defined and non GB MCL determinands

asbestos fibres detected (Yes/No) (CAS Number: ACM_FIBRES)

Description/Comments: not classified, information only
Data source: N/A
Data source date: 15 Jan 2020
Hazard Statements: None.

chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Unknown Oil

Hazard statements taken from WM3 1st Edition 2015
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic acid and its salts with the exception of those specified elsewhere in this Annex}

Worst case CLP species based on hazard statements/molecular weight and conversion factor for arsenic acid H3AsO4. (edit as required)

barium {barium carbonate}

Potential presence given site history. No chromium (VI) detected.

beryllium {beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex}

Worst case CLP species based on hazard statements/molecular weight and conversion factor for beryllium chloride. (edit as required)

boron {boric acid; [1] boric acid; [2]}

Reasonable worst case CLP species based on hazard statements/molecular weight and assuming water is or has been present. (edit as required)

cadmium {cadmium sulfate}

Worst case CLP species based on hazard statements/molecular weight. (edit as required)

chromium in Cr(III) compounds {chromium(III) oxide (worst case)}

No chromium (VI) detected.

chromium in Cr(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

copper {copper sulphate pentahydrate}

Worst case CLP species based on hazard statements/molecular weight. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Reasonable worst case CLP species based on hazard statements/molecular weight and assuming no evidence for the use of explosives. (edit as required)

nickel {nickel dibromate}

Worst case CLP species based on hazard statements/molecular weight. (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2025.248.6764.12269 (06 Sep 2025)
HazWasteOnline Database: 2025.266.6789.12301 (23 Sep 2025)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023
GB MCL List v3.0 - version 3.0 of 11th January 2024
GB MCL List v4.0 - version 4.0 of 2nd March 2024
GB MCL List v5.0 - version 5.0 of 26th June 2024
GB MCL List v6.0 - version 6.0 of 15th February 2025

APPENDIX 5

MONITORING DATA

GAS MONITORING RECORD SHEET

JOB DETAILS

Site:	Opensahw Campus, Manchester	Job No:	A7009
Date:	22/08/2025	Engineer:	RS
Time:	11:20	Client	The Manchester College

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet				
Wind:	Calm	x	Light		Moderate		Strong		
Cloud cover:	None		Slight	X	Cloudy		Overcast		
Precipitation:	None	x	Slight		Moderate		Heavy		

Barometric pressure (mb): 1011-1010 Local pressure system*: Falling Air temperature (°C): 17

Well No.	Time (s)	Flow (l/hr)	CH_4 (% vol. in air)	CO_2 (% vol. in air)	O_2 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Total Depth (mbgl)	Comments
WS01	0	0.0	0.0	0.6	16.4		DRY	0.99	C0= 0 H2S= 0
	15	0.0	0.0	1.6	16.1				
	30	0.0	0.0	1.7	15.6				
	45	0.0	0.0	1.7	15.2				
	60	0.0	0.0	1.7	15.0				
	120	0.0	0.0	1.7	14.5				
	180	0.0	0.0	1.6	14.4				
	240	0.0	0.0	1.6	14.4				
	300	0.0	0.0	1.5	14.4				
WS02	0	0.0	0.0	1.4	15.3		DRY	0.99	C0= 0 H2S= 0
	15	0.0	0.0	2.1	15.0				
	30	0.0	0.0	2.2	14.4				
	45	0.0	0.0	2.2	14.1				
	60	0.0	0.0	2.2	13.9				
	120	0.0	0.0	2.2	13.4				
	180	0.0	0.0	2.2	13.3				
	240	0.0	0.0	2.3	13.3				
	300	0.0	0.0	2.3	13.3				
WS03	0	0.0	0.0	5.6	13.7		DRY	2.95	C0= 0 H2S= 0
	15	0.0	0.0	4.5	13.4				
	30	0.0	0.0	4.6	13.2				
	45	0.0	0.0	4.7	13.0				
	60	0.0	0.0	4.7	12.8				
	120	0.0	0.0	4.7	12.6				
	180	0.0	0.0	4.7	12.5				
	240	0.0	0.0	4.7	12.5				
	300	0.0	0.0	4.8	12.4				
WS04	0	0.0	0.0	1.3	15.1		4.40	4.91	C0= 0 H2S= 0
	15	0.0	0.0	4.0	14.6				
	30	0.0	0.0	4.6	13.9				
	45	0.0	0.0	4.8	13.2				
	60	0.0	0.0	4.9	12.7				
	120	0.0	0.0	5.0	11.8				
	180	0.0	0.0	5.3	11.5				
	240	0.0	0.0	5.5	11.3				
	300	0.0	0.0	5.8	11.0				
WS05	0	0.0	0.0	2.2	14.5		DRY	0.90	C0= 0 H2S= 0
	15	0.0	0.0	1.2	14.6				
	30	0.0	0.0	1.2	14.5				
	45	0.0	0.0	1.1	14.5				
	60	0.0	0.0	1.1	14.5				
	120	0.0	0.0	1.2	14.5				
	180	0.0	0.0	1.2	14.5				
	240	0.0	0.0	1.2	14.5				
	300	0.0	0.0	1.3	14.5				

Notes: TOC = top of casing

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive*

	Flow (l/hr)	CH4 (% vol. in air)	CO2 (% vol. in air)	O2 (% vol. in air)
MIN	0.0	0.0	0.6	**11.0**
MAX	**0.0**	**0.0**	**5.8**	16.4
GSV		**0**	**0**	

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Openshaw Campus, Manchester	Job No:	A7009
Date:	02/09/25	Engineer:	RS
Time:	3:00	Client	The Manchester College

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet			
Wind:	Calm	x	Light		Moderate		Strong	
Cloud cover:	None		Slight	X	Cloudy		Overcast	
Precipitation:	None	x	Slight		Moderate		Heavy	

Barometric pressure (mb): 991-989 Local pressure system*: Falling Air temperature (°C): 18

Well No.	Time (s)	Flow (l/hr)	CH_4 (% vol. in air)	CO_2 (% vol. in air)	O_2 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Total Depth (mbgl)	Comments
WS01	0	0.0	0.0	1.9	15.5		DRY	0.99	C0= 0 H2S= 0
	15	0.0	0.0	2.0	14.6				
	30	0.0	0.0	2.0	14.4				
	45	0.0	0.0	2.0	14.0				
	60	0.0	0.0	2.0	13.9				
	120	0.0	0.0	2.0	13.4				
	180	0.0	0.0	2.0	13.2				
	240	0.0	0.0	2.0	13.1				
	300	0.0	0.0	2.0	13.0				
WS02	0	0.0	0.0	2.0	14.2		DRY	0.99	C0= 0 H2S= 0
	15	0.0	0.0	2.0	14.0				
	30	0.0	0.0	2.2	13.9				
	45	0.0	0.0	2.2	13.8				
	60	0.0	0.0	2.3	13.7				
	120	0.0	0.0	2.4	13.3				
	180	0.0	0.0	2.4	13.1				
	240	0.0	0.0	2.4	13.1				
	300	0.0	0.0	2.4	13.1				
WS03	0	0.0	0.0	2.3	14.2		DRY	2.95	C0= 0 H2S= 0
	15	0.0	0.0	5.2	13.6				
	30	0.0	0.0	5.4	12.6				
	45	0.0	0.0	5.5	11.9				
	60	0.0	0.0	5.5	11.4				
	120	0.0	0.0	5.6	10.6				
	180	0.0	0.0	5.5	10.4				
	240	0.0	0.0	5.6	10.4				
	300	0.0	0.0	5.6	10.4				
WS04	0	0.0	0.0	5.3	12.8		3.75	4.91	C0= 0 H2S= 0
	15	0.0	0.0	6.0	12.3				
	30	0.0	0.0	6.1	11.5				
	45	0.0	0.0	6.2	10.9				
	60	0.0	0.0	6.2	10.6				
	120	0.0	0.0	6.2	9.9				
	180	0.0	0.0	6.2	9.8				
	240	0.0	0.0	6.2	9.7				
	300	0.0	0.0	6.2	9.7				
WS05	0	0.0	0.0	5.9	12.2		DRY	0.90	C0= 0 H2S= 0
	15	0.0	0.0	1.1	12.5				
	30	0.0	0.0	1.0	12.9				
	45	0.0	0.0	1.0	13.2				
	60	0.0	0.0	1.0	13.4				
	120	0.0	0.0	1.0	13.6				
	180	0.0	0.0	1.1	13.6				
	240	0.0	0.0	1.2	13.7				
	300	0.0	0.0	1.3	13.7				

Notes: TOC = top of casing

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive*

	Flow (l/hr)	CH4 (% vol. in air)	CO2 (% vol. in air)	O2 (% vol. in air)
MIN	0.0	0.0	1.0	**9.7**
MAX	**0.0**	**0.0**	**6.2**	15.5
GSV		**0**	**0**	

GAS MONITORING RECORD SHEET

JOB DETAILS

Site:	Openshaw Campus, Manchester	Job No:	A7009
Date:	16/09/25	Engineer:	RS
Time:	2:15	Client	The Manchester College

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry		Moist		Wet	X		
Wind:	Calm		Light	X	Moderate		Strong	
Cloud cover:	None		Slight	X	Cloudy		Overcast	
Precipitation:	None		Slight	X	Moderate		Heavy	

Barometric pressure (mb): 1,005 Local pressure system*: Steady Air temperature (°C): 16

Well No.	Time (s)	Flow (l/hr)	CH_4 (% vol. in air)	CO_2 (% vol. in air)	O_2 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Total Depth (mbgl)	Comments
WS01	0	0.0	0.0	0.8	15.6		DRY	0.99	C0= 0 H2S= 0
	15	0.0	0.0	0.9	15.6				
	30	0.0	0.0	0.9	15.5				
	45	0.0	0.0	0.9	15.5				
	60	0.0	0.0	0.9	15.4				
	120	0.0	0.0	0.9	15.3				
	180	0.0	0.0	0.9	15.4				
	240	0.0	0.0	0.9	15.4				
	300	0.0	0.0	0.9	15.4				
WS02	0	0.0	0.0	0.9	15.8		DRY	0.99	C0= 0 H2S= 0
	15	0.0	0.0	0.9	15.8				
	30	0.0	0.0	0.9	15.7				
	45	0.0	0.0	0.9	15.6				
	60	0.0	0.0	0.9	15.6				
	120	0.0	0.0	0.9	15.5				
	180	0.0	0.0	0.9	15.5				
	240	0.0	0.0	0.9	15.5				
	300	0.0	0.0	0.9	15.5				
WS03	0	0.0	0.0	0.8	15.9		2.93	2.95	C0= 0 H2S= 0
	15	0.0	0.0	0.9	15.8				
	30	0.0	0.0	0.9	15.8				
	45	0.0	0.0	0.9	15.8				
	60	0.0	0.0	0.9	15.8				
	120	0.0	0.0	0.9	15.7				
	180	0.0	0.0	0.9	15.7				
	240	0.0	0.0	0.9	15.7				
	300	0.0	0.0	0.9	15.7				
WS04	0	0.0	0.0	0.8	15.8		3.70	4.91	C0= 0 H2S= 0
	15	0.0	0.0	0.9	15.8				
	30	0.0	0.0	0.9	15.8				
	45	0.0	0.0	0.9	15.7				
	60	0.0	0.0	0.9	15.7				
	120	0.0	0.0	0.9	15.6				
	180	0.0	0.0	0.9	15.6				
	240	0.0	0.0	0.9	15.6				
	300	0.0	0.0	0.9	15.6				
WS05	0	0.0	0.0	0.8	16.0		DRY	0.90	C0= 0 H2S= 0
	15	0.0	0.0	0.9	15.9				
	30	0.0	0.0	0.9	15.9				
	45	0.0	0.0	0.9	15.8				
	60	0.0	0.0	0.9	15.8				
	120	0.0	0.0	0.9	15.7				
	180	0.0	0.0	0.9	15.7				
	240	0.0	0.0	0.9	15.7				
	300	0.0	0.0	0.8	15.7				

Notes: TOC = top of casing

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive*

	Flow (l/hr)	CH4 (% vol in air)	CO2 (% vol in air)	O2 (% vol in air)
MIN	0.0	0.0	0.8	**15.3**
MAX	**0.0**	**0.0**	**0.9**	16.0
GSV		**0**	**0**	

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Openshaw Campus, Manchester	Job No:	A7009
Date:	02/10/25	Engineer:	RS
Time:	16:00	Client	The Manchester College

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet			
Wind:	Calm		Light	X	Moderate		Strong	
Cloud cover:	None		Slight		Cloudy	X	Overcast	
Precipitation:	None	X	Slight		Moderate		Heavy	

Barometric pressure (mb): 1007-1005 Local pressure system*: Falling Air temperature (°C): 18

Well No.	Time (s)	Flow (l/hr)	CH_4 (% vol. in air)	CO_2 (% vol. in air)	O_2 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Total Depth (mbgl)	Comments
WS01	0	0.0	0.0	0.5	16.1		Dry	0.99	C0= 0 H2S= 0
	15	0.0	0.0	0.5	16.1				
	30	0.0	0.0	0.4	16.1				
	45	0.0	0.0	0.4	16.1				
	60	0.0	0.0	0.4	16.1				
	120	0.0	0.0	0.3	16.2				
	180	0.0	0.0	0.6	16.1				
	240	0.0	0.0	0.9	15.4				
	300	0.0	0.0	1.3	14.6				
WS02	0	0.0	0.0	0.9	14.7		DRY	0.99	C0= 0 H2S= 0
	15	0.0	0.0	0.9	14.5				
	30	0.0	0.0	0.9	14.2				
	45	0.0	0.0	0.8	14.0				
	60	0.0	0.0	0.8	13.8				
	120	0.0	0.0	0.8	13.6				
	180	0.0	0.0	0.8	13.7				
	240	0.0	0.0	1.0	13.7				
	300	0.0	0.0	1.2	13.7				
WS03	0	0.0	0.0	3.7	13.6		2.93	2.95	C0= 0 H2S= 0
	15	0.0	0.0	4.2	13.0				
	30	0.0	0.0	4.3	12.6				
	45	0.0	0.0	4.1	12.1				
	60	0.0	0.0	4.1	12.0				
	120	0.0	0.0	3.9	11.5				
	180	0.0	0.0	3.5	11.7				
	240	0.0	0.0	3.5	12.0				
	300	0.0	0.0	3.7	11.9				
WS04	0	0.0	0.0	1.2	14.4		3.70	4.91	C0= 0 H2S= 0
	15	0.0	0.0	1.3	14.2				
	30	0.0	0.0	1.3	14.0				
	45	0.0	0.0	1.2	13.9				
	60	0.0	0.0	1.2	13.8				
	120	0.0	0.0	1.2	13.8				
	180	0.0	0.0	1.6	13.9				
	240	0.0	0.0	2.3	13.7				
	300	0.0	0.0	3.3	13.7				
WS05	0	0.0	0.0	1.3	14.9		Dry	0.90	C0= 0 H2S= 0
	15	0.0	0.0	1.4	14.7				
	30	0.0	0.0	1.4	14.4				
	45	0.0	0.0	1.4	14.1				
	60	0.0	0.0	1.3	13.9				
	120	0.0	0.0	1.3	13.8				
	180	0.0	0.0	1.1	13.8				
	240	0.0	0.0	1.0	13.9				
	300	0.0	0.0	0.9	13.8				

Notes: TOC = top of casing

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive*

	Flow (l/hr)	CH4 (% vol in air)	CO2 (% vol in air)	O2 (% vol in air)
MIN	0.0	0.0	0.3	**11.5**
MAX	**0.0**	**0.0**	**4.3**	16.2
GSV		**0**	**0**	

APPENDIX 6

REPORT LIMITATIONS

REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget, and staff resources allocated to the project.

Other than that, expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2025 and should be read in light of any subsequent changes in legislation, statutory requirements, and industry best practices. Ground conditions can also change over time and further investigations, or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full of those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Project	Engineering Workshop, Openshaw Campus, The Manchester College				
Made By	Date	Checked By	Date	Rev	Contract No./Sheet number
PSS	Oct-25				9529

APPENDIX D

SuDSPod Information (GreenBlue Urban)

SuDSPod™

On plot attenuation



Overview

Discover GreenBlue Urban's cost effective, cutting-edge solution that addresses a myriad of challenges associated with stormwater management, ranging from reducing peak flow rates from roofs, complex SuDS designs to reducing CSO spills.

SuDSPod offers a versatile and innovative on plot attenuation approach that benefits new developments, and can be seamlessly retrofitted to private, public housing and service buildings.

The patented design is the next generation of a traditional drain-down vessel, delivering industry leading attenuation performance, providing in some cases up to five times its own storage volume.

With a focus on simplicity, effectiveness, and adaptability, SuDSPod delivers on all four pillars of SuDS as set in the CIRIA SuDS Manual Guidance and is poised to transform the landscape of drainage systems.

Features

Contribution towards reduction of CSO spills through intelligent on-plot attenuation.
Potential sewer upgrade avoidance through highly effective peak flow attenuation.
Maximise land values through reduction of downstream retention pond/tank size.

Benefits

Suits most downpipes.
Fast and simple install.
Failsafe design.
Homeowner-friendly maintenance.
Attractive cladding options.
Positive ecological impact.

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W: greenblue.com

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	Code	Description
Product Code	SUDSPOD12X5A	SuDSPod On-plot attenuation raised planter 1200mm x 500mm with tanlised timber slat cladding.
	SUDSPOD12X5B	SuDSPod On-plot attenuation raised planter 1200mm x 500mm with tanlised timber slat cladding - colour/finish to be specified by customer.
	SUDSPOD12X5C	SuDSPod On-plot attenuation raised planter 1200mm x 500mm without cladding.

Additional Information

- Intended to manage 30-year return period storm for a 50sqm roof subject to location.
- Accurate modelled data currently in development.
- Live trial projects for long term testing currently in development – please enquire if you have a project you feel would be suitable to undertake a trial installation in partnership with GreenBlue Urban.

Material

100% recycled polyethylene

Cladding Options



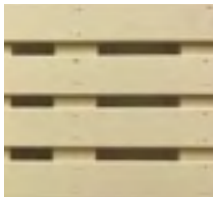
Standard



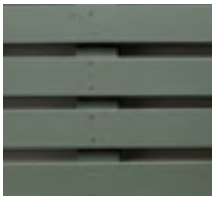
Rustic Oak (stained)



Weathered Grey (Paint)



Birch Wood (Paint)



Green (Paint)



Black (Paint)

Accessories

Levelling support frame available.

Maintenance

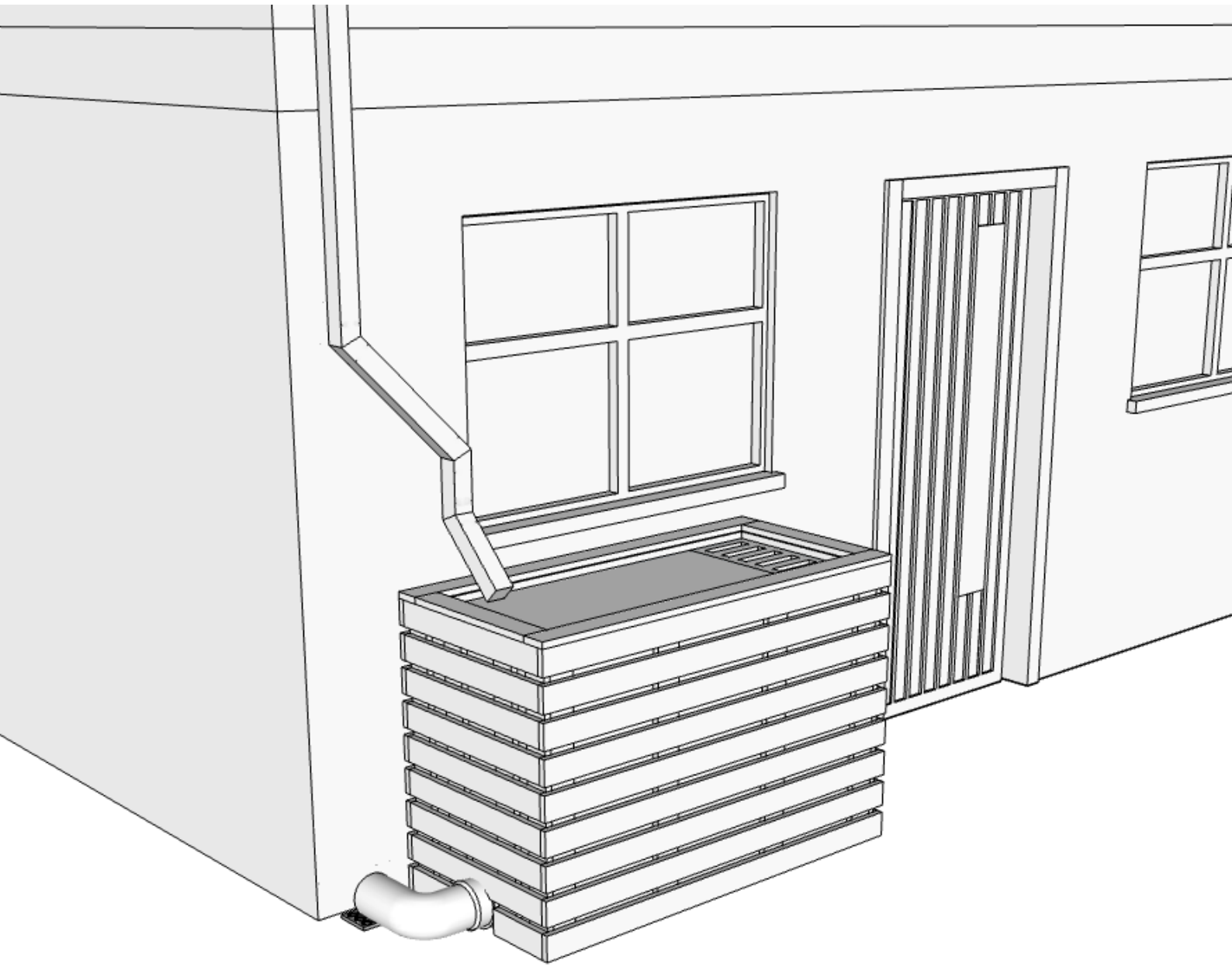
No maintenance required

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SuDSPod

Quick start guide



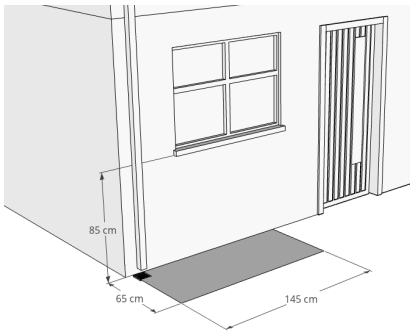
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SuDSPod
Quick start guide

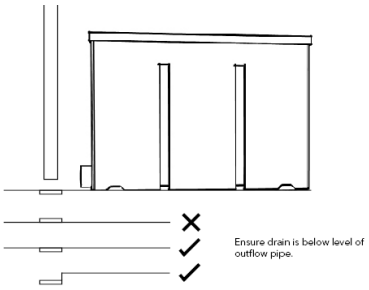
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CHECK LOCATION
CHECK DOWNPIPE & OUTLET TYPES
PLAN PARTS REQUIRED



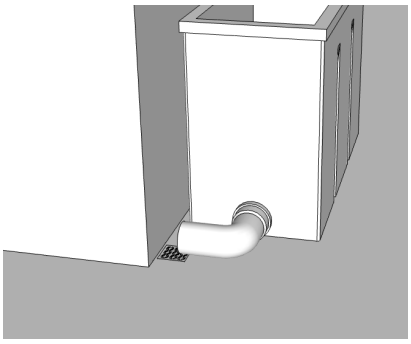
2 - BASE

PREPARE BASE
POSITION SuDSPod



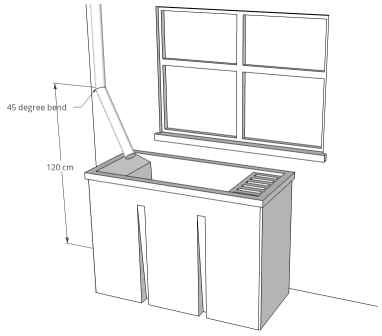
3 - OUTLET

OUTLET CONNECTION



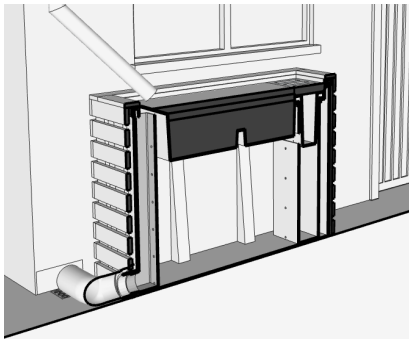
4 - INLET

INLET CONNECTION



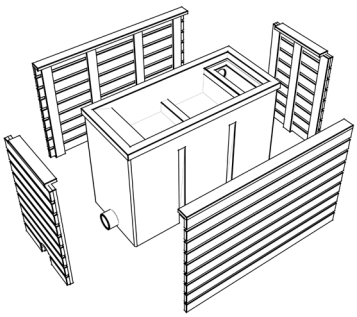
5 - PLANTS

FILTER BLOCK, SOIL,
PLANTING



6 - CLADDING

CLADDING



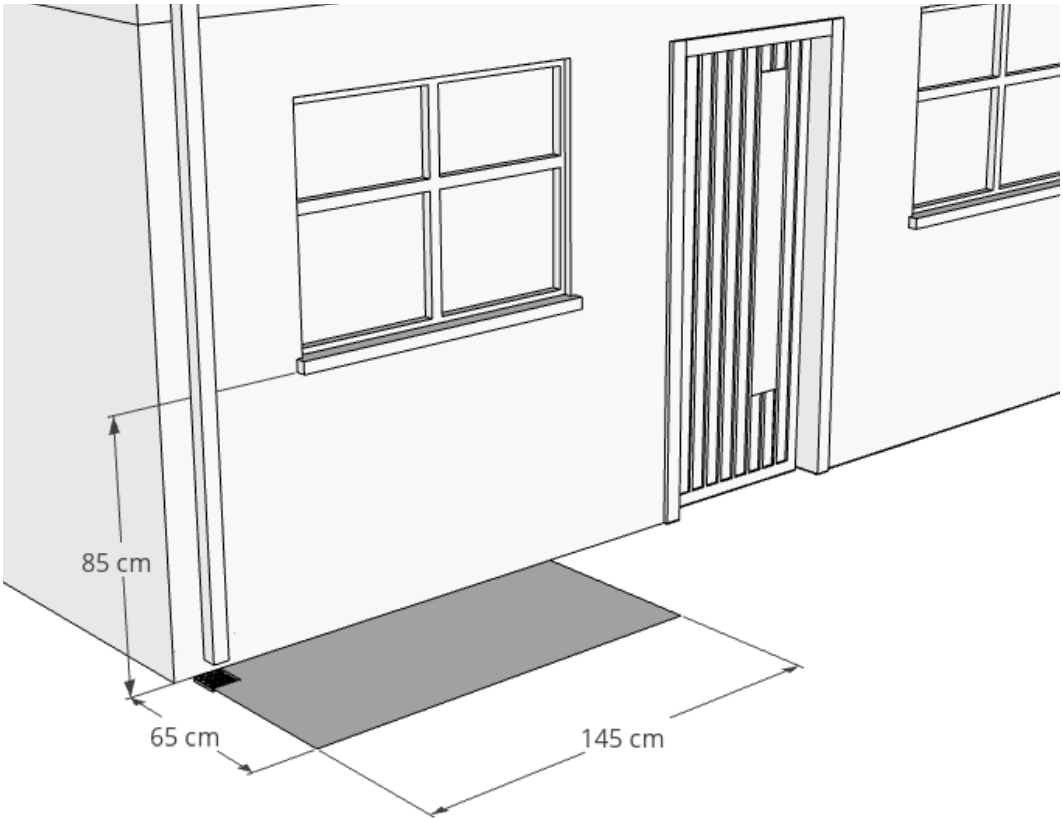
Scan QR code to discover more on SuDSPod

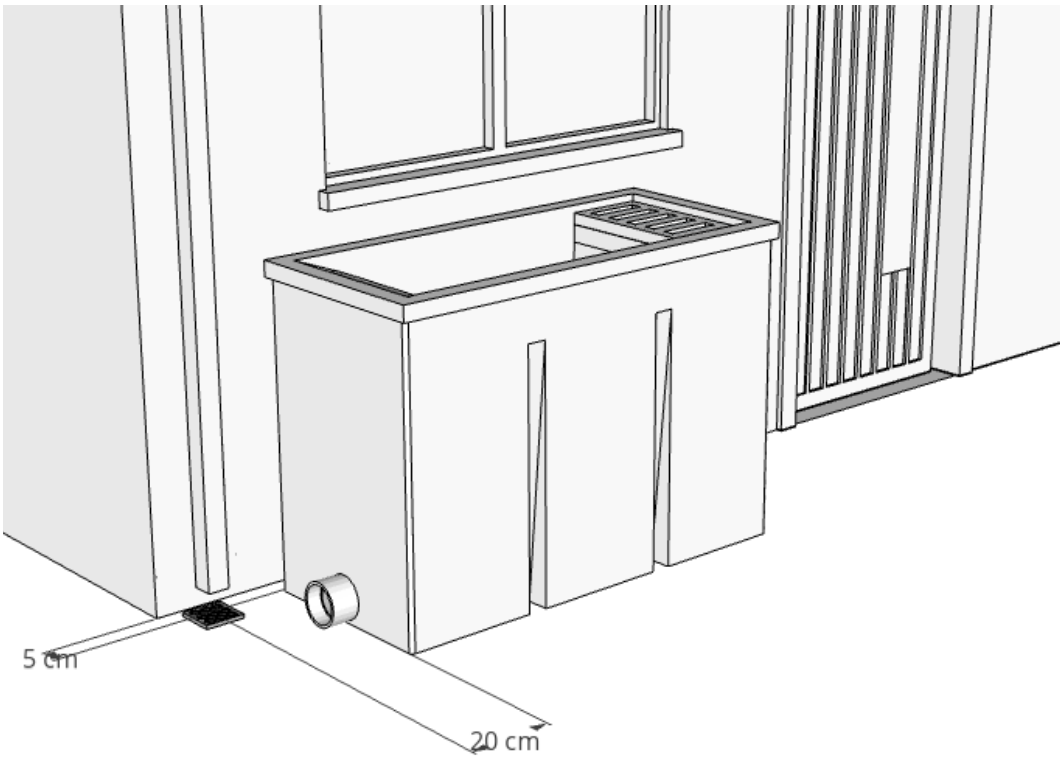
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1 Location and base





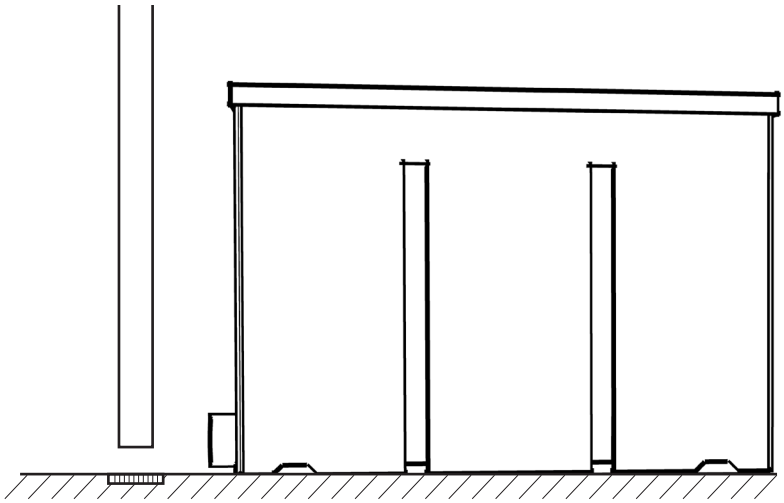
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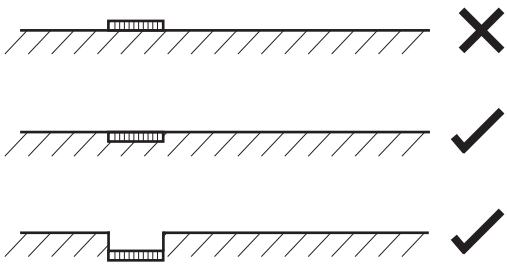
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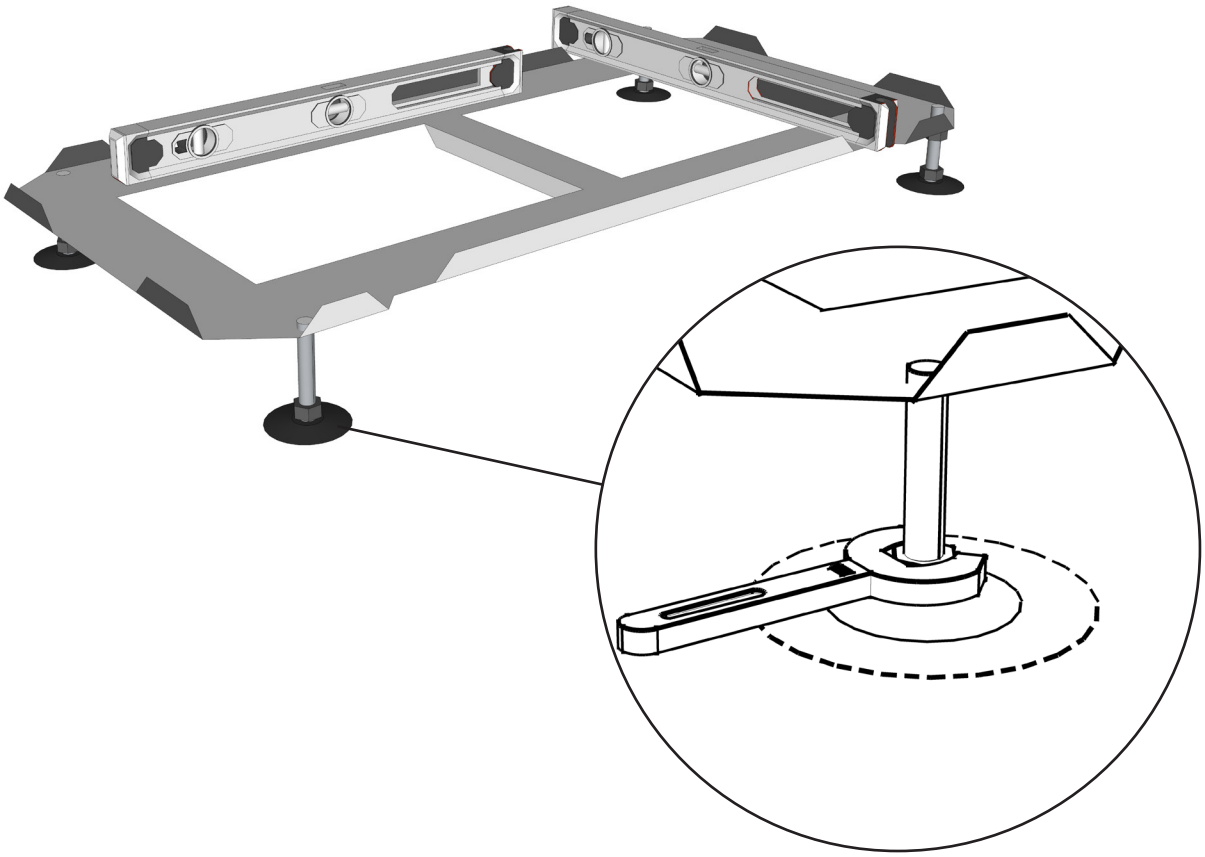
2

Optional levelling frame





Ensure drain is below level of outflow pipe.



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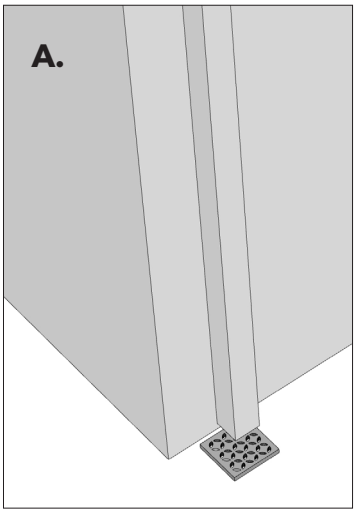
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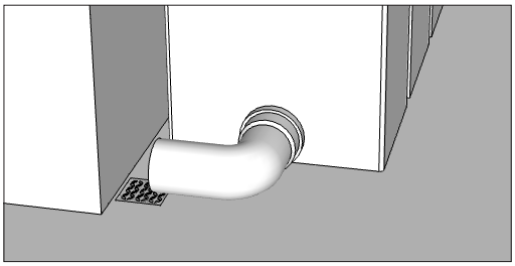
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3

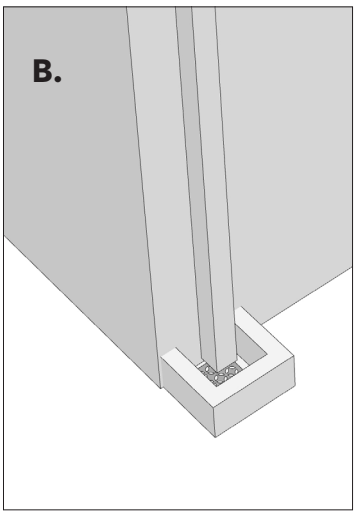
Outlet Connections

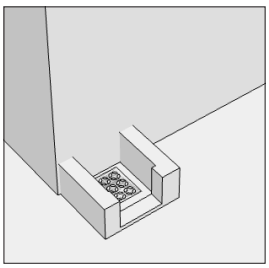
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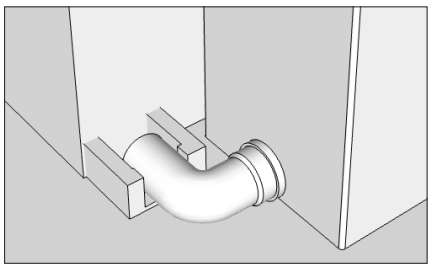




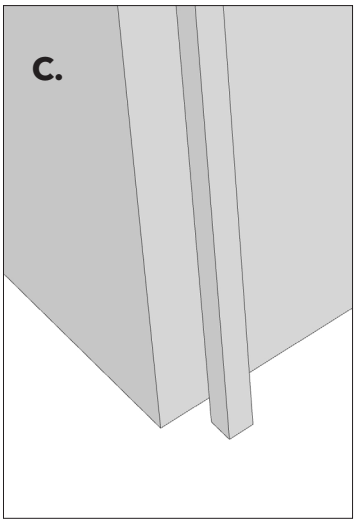
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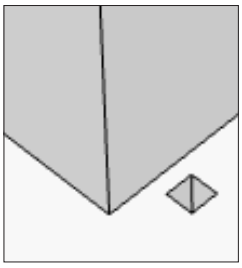


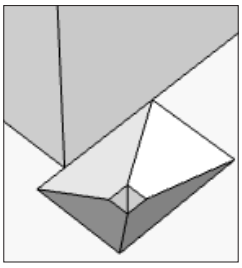


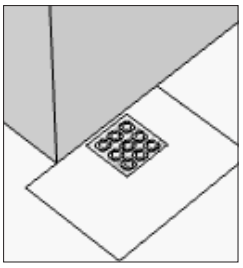


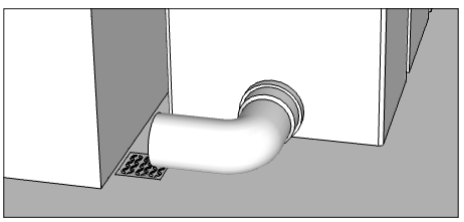
C.











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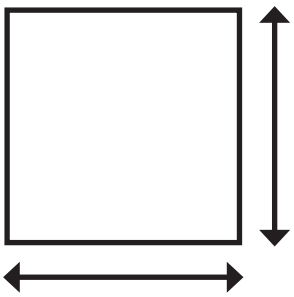
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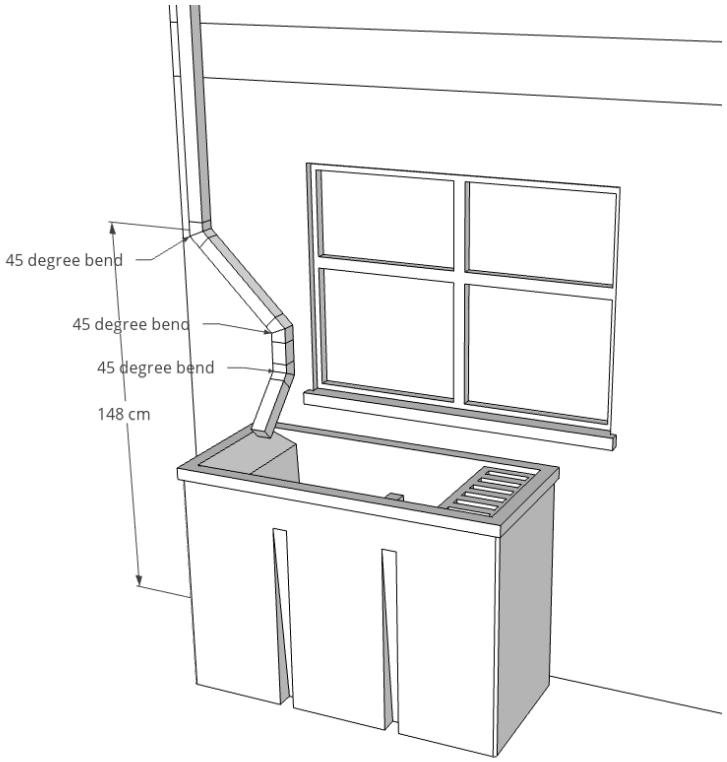
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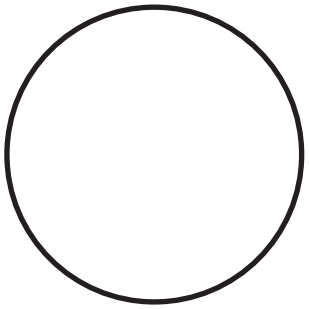
Inlet Connections

Check downpipe shape and size - procure correct pipe fittings

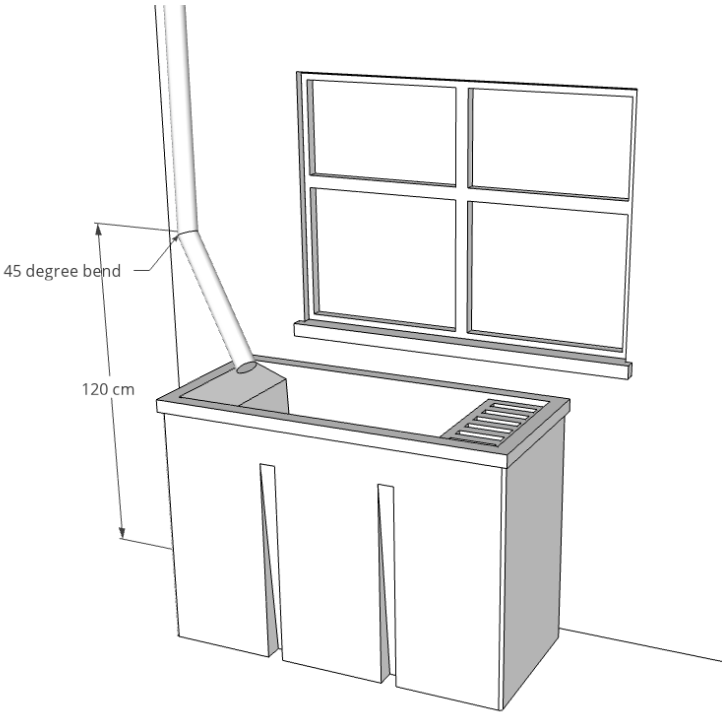


Measure size





Measure diameter

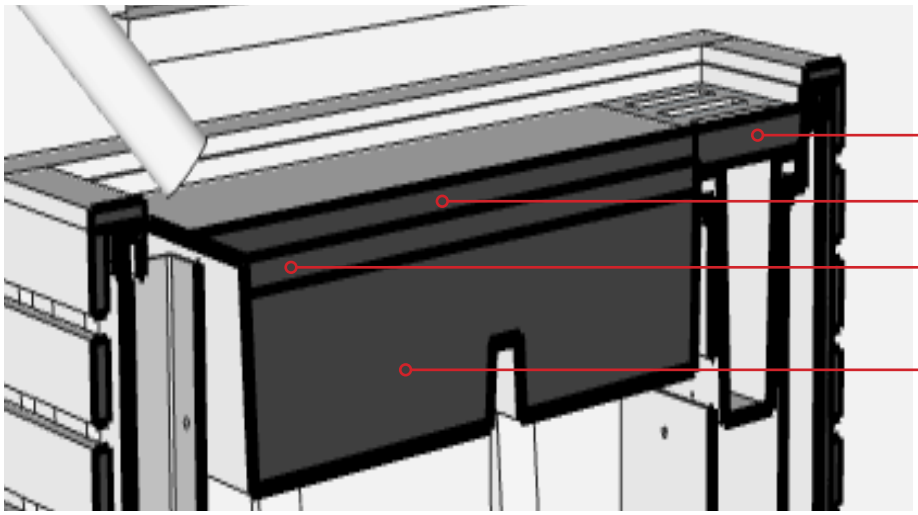


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5 **Filter block, soil, planting**





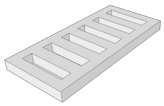
SuDSPod Soil x 3



Slate mulch x 1



Gravel x 1



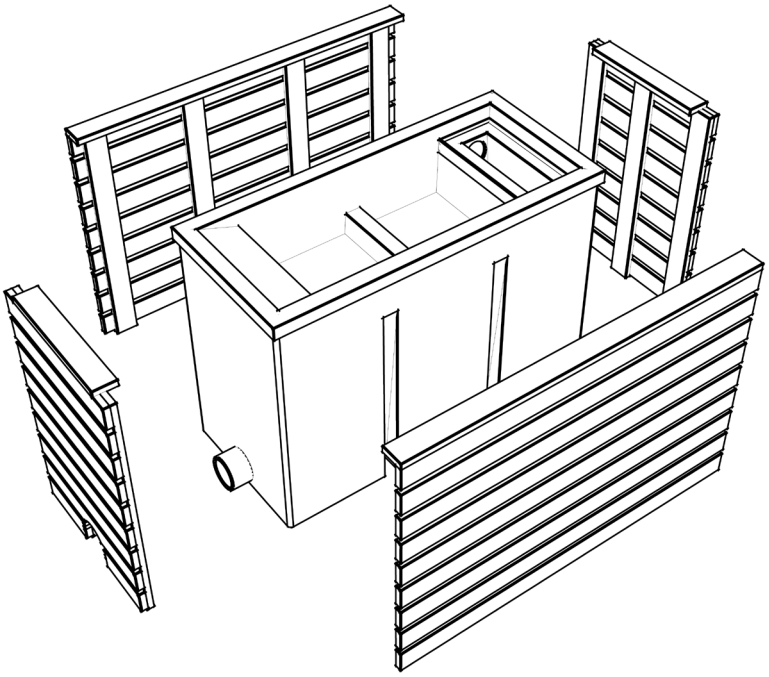
ArboResin Filter Block x 1

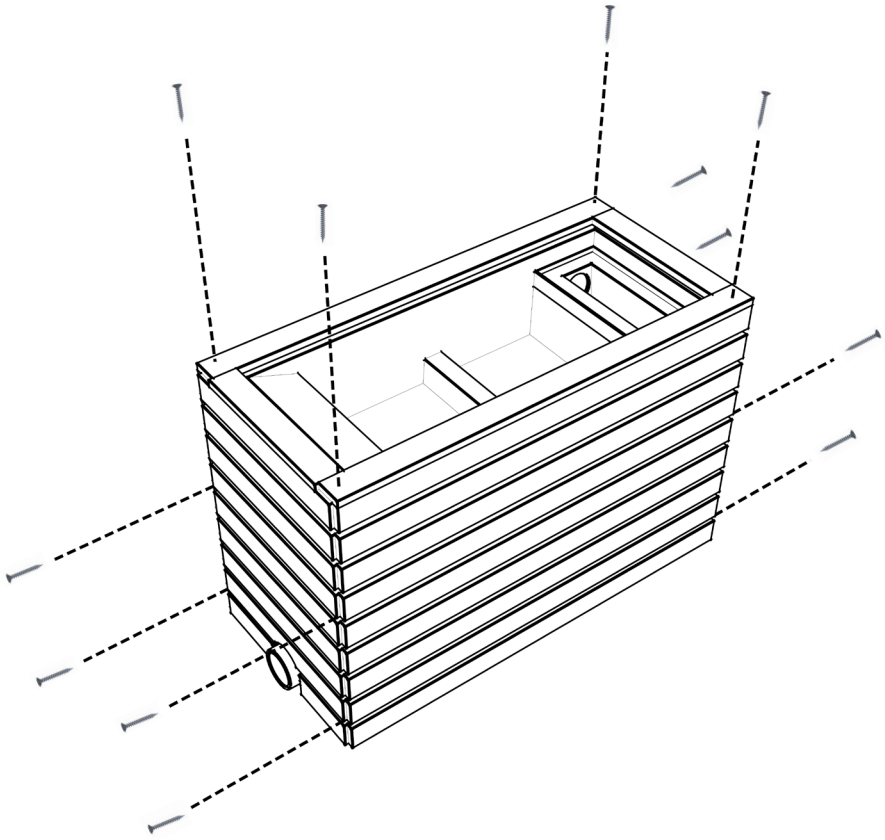
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6 Cladding





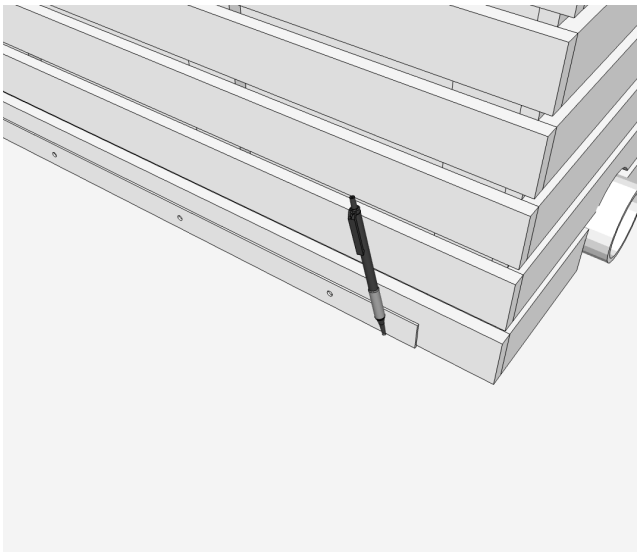
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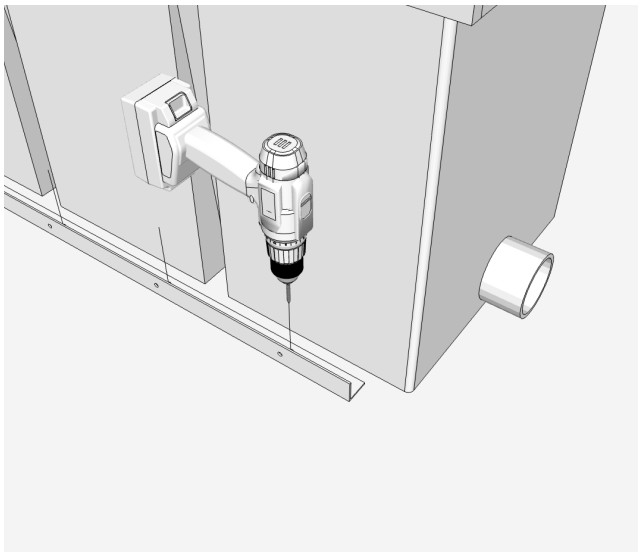
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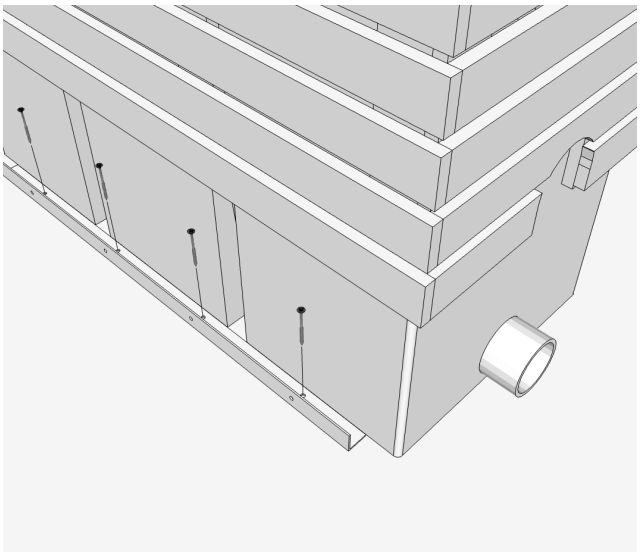
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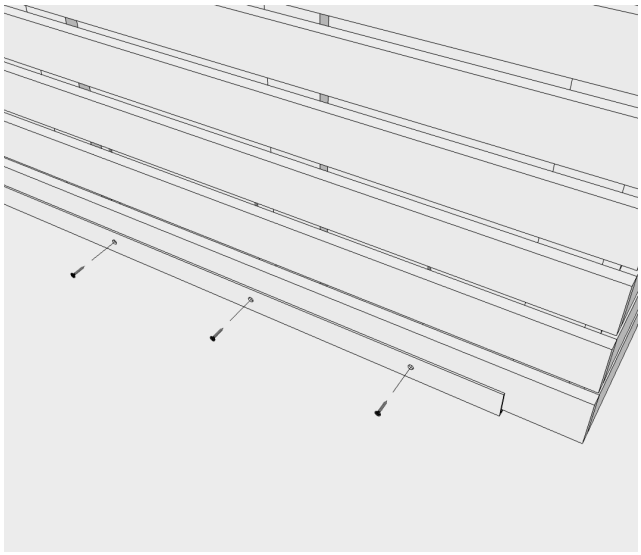
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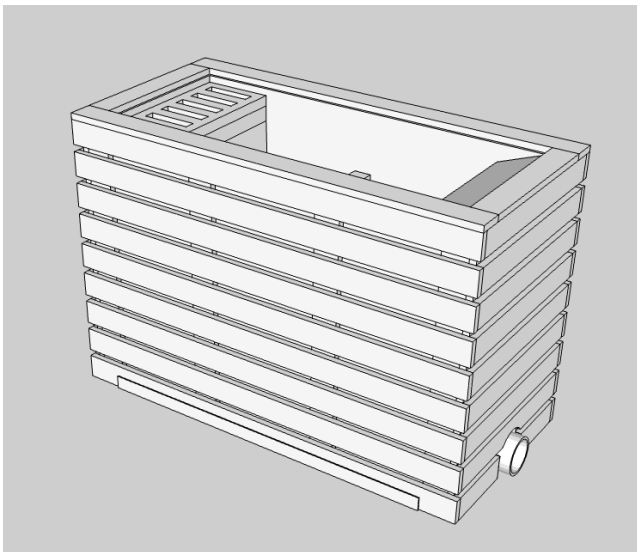
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Project	Engineering Workshop, Openshaw Campus, The Manchester College				
Made By	Date	Checked By	Date	Rev	Contract No./Sheet number
PSS	Oct-25				9529

APPENDIX E

Proposed Drainage Calculations

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by:	Checked by:	Approved By:
	PSS		
Report Details: Type: Junctions Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

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Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
RE 1	Simple Junction	387587.493	397272.497					
PPIC A	Manhole	387555.342	397275.610	58.750	0.800	57.950	Circular	0.600
PPIC B	Manhole	387553.497	397257.255	58.750	0.800	57.950	Circular	0.600
Simple Junction	Simple Junction	387585.648	397254.142					
PPIC C	Manhole	387553.839	397265.102	58.750	1.000	57.750	Circular	0.600
Manhole	Manhole	387529.285	397289.187	55.800	1.090	54.710	Circular	1.200

Name	
RE 1	
PPIC A	None
PPIC B	None
Simple Junction	
PPIC C	None
Manhole	None

Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
RE 1	Inlet	No Delay (6) No Delay (7) No Delay (6) (1) No Delay (7) (1) No Delay (5) No Delay (9) No Delay (10) No Delay (11)	(None)	No Restriction
PPIC A	Inlet	Pipe	(None)	No Restriction
PPIC B	Inlet	Pipe (1)	(None)	No Restriction
Simple Junction	Inlet	No Delay (10) (1) No Delay (11) (1) No Delay (5) (1) No Delay (9) (1) No Delay (6) (1) (1) No Delay (7) (1) (1) No Delay (6) (2) No Delay (7) (2)	(None)	No Restriction
PPIC C	Inlet	Pipe (2) Pipe (3)	(None)	No Restriction
Manhole	Inlet	Pipe (5)	(None)	No Restriction

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
RE 1	Outlet	Pipe	Free Discharge
PPIC A	Outlet	Pipe (2)	Free Discharge
PPIC B	Outlet	Pipe (3)	Free Discharge
Simple Junction	Outlet	Pipe (1)	Free Discharge
PPIC C	Outlet	Pipe (4)	Free Discharge
Manhole	Outlet	(None)	Orifice
	Diameter (m)	0.032	
	Coefficient of Discharge	0.600	
	Invert Level (m)	54.710	

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

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SudsPod Inlet Tank 1

Type : Tank

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	0.00
Total Volume (m³)	0.038

Depth (m)	Area (m²)	Volume (m³)
0.000	0.047	0.000
0.800	0.047	0.038

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Area 1
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice A

Outgoing Connection	No Delay
Outlet Type	Orifice
Diameter (m)	0.010
Coefficient of Discharge	0.600
Invert Level (m)	58.750

Weir

Outgoing Connection	No Delay (1)
Outlet Type	Weir
Width (m)	0.200
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Orifice B

Outgoing Connection	No Delay (2)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	58.900

Orifice C

Outgoing Connection	No Delay (3)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	59.050

Orifice D

Outgoing Connection	No Delay (4)
Outlet Type	Orifice
Diameter (m)	0.026
Coefficient of Discharge	0.600
Invert Level (m)	59.200

Advanced

Perimeter	Circular
Length (m)	0.130



SudsPod Outlet Tank 1 Type : Tank

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by:	Checked by:	Approved By:
	PSS		
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: Proposed	1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

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Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	85
Average Slope (1:X)	0.00
Total Volume (m³)	0.235

Depth (m)	Area (m²)	Volume (m³)
0.000	0.345	0.000
0.800	0.345	0.235

Inlets

Inlet

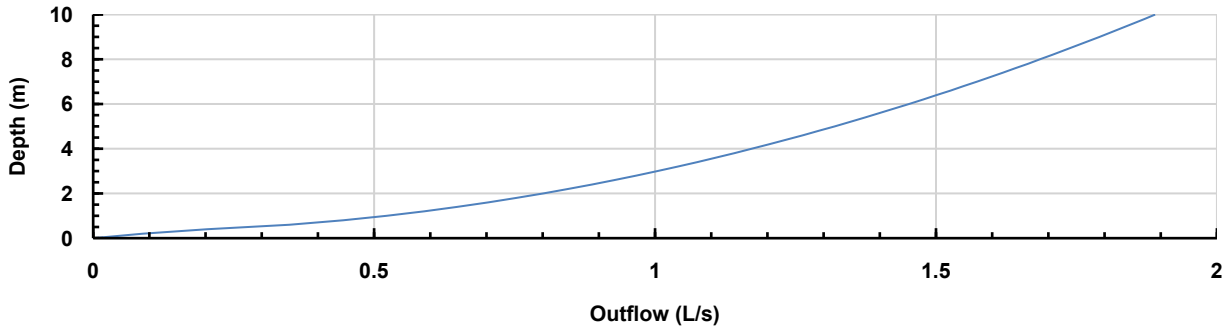
Inlet Type	Point Inflow
Incoming Item(s)	No Delay (1) No Delay (2) No Delay (3) No Delay No Delay (4)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice 2

Outgoing Connection	No Delay (6)
Outlet Type	Multiple
Invert Level (m)	58.750

Combined Outflow



Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.000

Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.150

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.300

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.450

Weir 2

Outgoing Connection	No Delay (7)
Outlet Type	Weir
Width (m)	0.320
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Advanced

Perimeter	Rectangular
Length (m)	0.910

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by:	Checked by:	Approved By:
	PSS		
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: Proposed	1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	0.00
Total Volume (m³)	0.038

Depth (m)	Area (m²)	Volume (m³)
0.000	0.047	0.000
0.800	0.047	0.038

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Area 2
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice A

Outgoing Connection	No Delay (8)
Outlet Type	Orifice
Diameter (m)	0.010
Coefficient of Discharge	0.600
Invert Level (m)	58.750

Weir

Outgoing Connection	No Delay (1) (1)
Outlet Type	Weir
Width (m)	0.200
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Orifice B

Outgoing Connection	No Delay (2) (1)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	58.900

Orifice C

Outgoing Connection	No Delay (3) (1)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	59.050

Orifice D

Outgoing Connection	No Delay (4) (1)
Outlet Type	Orifice
Diameter (m)	0.026
Coefficient of Discharge	0.600
Invert Level (m)	59.200

Advanced

Perimeter	Circular
Length (m)	0.130



SudsPod Outlet Tank 2 Type : Tank

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	85
Average Slope (1:X)	0.00
Total Volume (m³)	0.235

Depth (m)	Area (m²)	Volume (m³)
0.000	0.345	0.000
0.800	0.345	0.235

Inlets

Inlet

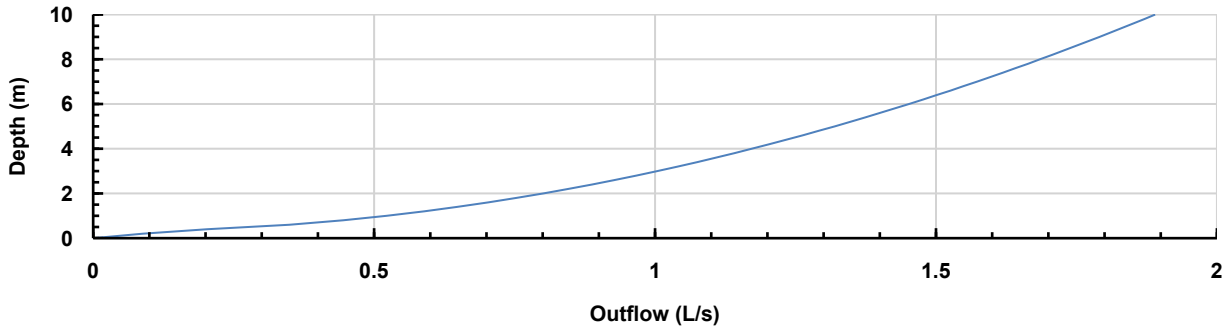
Inlet Type	Point Inflow
Incoming Item(s)	No Delay (1) (1) No Delay (2) (1) No Delay (3) (1) No Delay (8) No Delay (4) (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice 2

Outgoing Connection	No Delay (6) (1)
Outlet Type	Multiple
Invert Level (m)	58.750

Combined Outflow



Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.000

Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.150

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.300

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.450

Weir 2

Outgoing Connection	No Delay (7) (1)
Outlet Type	Weir
Width (m)	0.320
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Advanced

Perimeter	Rectangular
Length (m)	0.910

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

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Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	0.00
Total Volume (m³)	0.038

Depth (m)	Area (m²)	Volume (m³)
0.000	0.047	0.000
0.800	0.047	0.038

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Area 3
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice A

Outgoing Connection	No Delay (8) (1)
Outlet Type	Orifice
Diameter (m)	0.010
Coefficient of Discharge	0.600
Invert Level (m)	58.750

Weir

Outgoing Connection	No Delay (1) (1) (1)
Outlet Type	Weir
Width (m)	0.200
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Orifice B

Outgoing Connection	No Delay (2) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	58.900

Orifice C

Outgoing Connection	No Delay (3) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	59.050

Orifice D

Outgoing Connection	No Delay (4) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.026
Coefficient of Discharge	0.600
Invert Level (m)	59.200

Advanced

Perimeter	Circular
Length (m)	0.130



SudsPod Outlet Tank 3 Type : Tank

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	85
Average Slope (1:X)	0.00
Total Volume (m³)	0.235

Depth (m)	Area (m²)	Volume (m³)
0.000	0.345	0.000
0.800	0.345	0.235

Inlets

Inlet

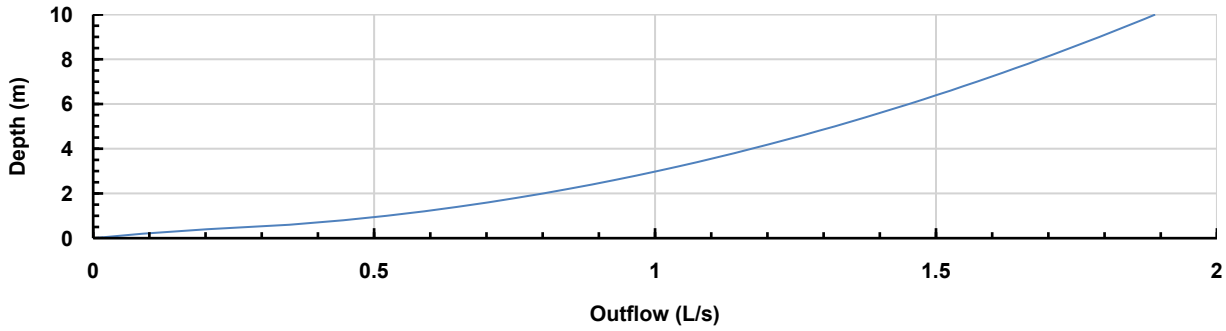
Inlet Type	Point Inflow
Incoming Item(s)	No Delay (1) (1) (1) No Delay (2) (1) (1) No Delay (3) (1) (1) No Delay (8) (1) No Delay (4) (1) (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice 2

Outgoing Connection	No Delay (9)
Outlet Type	Multiple
Invert Level (m)	58.750

Combined Outflow



Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.000

Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.150

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.300

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.450

Weir 2

Outgoing Connection	No Delay (5)
Outlet Type	Weir
Width (m)	0.320
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Advanced

Perimeter	Rectangular
Length (m)	0.910

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by:	Checked by:	Approved By:
	PSS		
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: Proposed	1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	85
Average Slope (1:X)	0.00
Total Volume (m³)	0.235

Depth (m)	Area (m²)	Volume (m³)
0.000	0.345	0.000
0.800	0.345	0.235

Inlets

Inlet

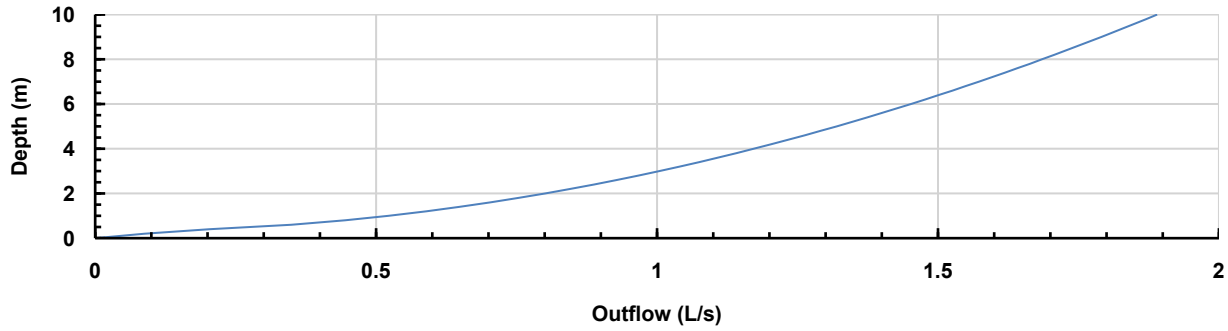
Inlet Type	Point Inflow
Incoming Item(s)	No Delay (1) (1) (1) (1) No Delay (2) (1) (1) (1) No Delay (3) (1) (1) (1) No Delay (8) (1) (1) No Delay (4) (1) (1) (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice 2

Outgoing Connection	No Delay (10)
Outlet Type	Multiple
Invert Level (m)	58.750

Combined Outflow



Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.000

Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.150

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.300

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.450

Weir 2

Outgoing Connection	No Delay (11)
Outlet Type	Weir
Width (m)	0.320
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Advanced

Perimeter	Rectangular
Length (m)	0.910

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	0.00
Total Volume (m³)	0.038

Depth (m)	Area (m²)	Volume (m³)
0.000	0.047	0.000
0.800	0.047	0.038

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Area 4
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice A

Outgoing Connection	No Delay (8) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.010
Coefficient of Discharge	0.600
Invert Level (m)	58.750

Weir

Outgoing Connection	No Delay (1) (1) (1) (1)
Outlet Type	Weir
Width (m)	0.200
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Orifice B

Outgoing Connection	No Delay (2) (1) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	58.900

Orifice C

Outgoing Connection	No Delay (3) (1) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	59.050

Orifice D

Outgoing Connection	No Delay (4) (1) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.026
Coefficient of Discharge	0.600
Invert Level (m)	59.200

Advanced

Perimeter	Circular
Length (m)	0.130



SudsPod Outlet Tank 8 Type : Tank

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by:	Checked by:	Approved By:
	PSS		
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: Proposed	1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	85
Average Slope (1:X)	0.00
Total Volume (m³)	0.235

Depth (m)	Area (m²)	Volume (m³)
0.000	0.345	0.000
0.800	0.345	0.235

Inlets

Inlet

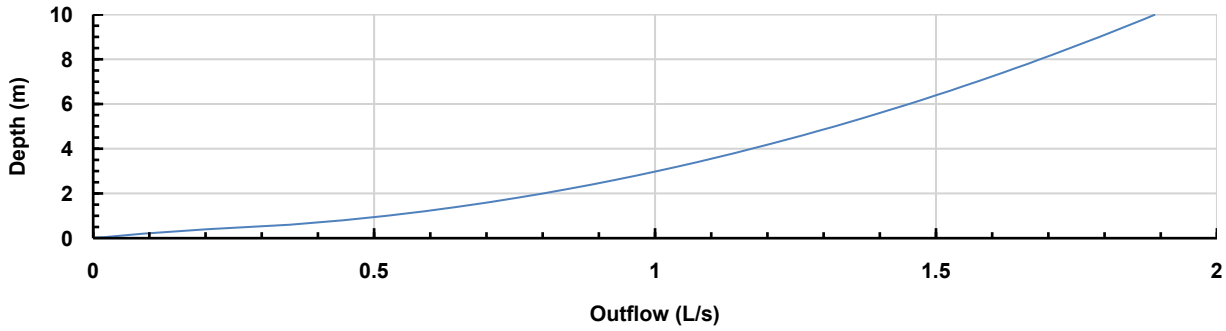
Inlet Type	Point Inflow
Incoming Item(s)	No Delay (1) (1) (1) (1) (1) No Delay (2) (1) (1) (1) (1) No Delay (3) (1) (1) (1) (1) No Delay (8) (1) (1) (1) No Delay (4) (1) (1) (1) (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice 2

Outgoing Connection	No Delay (10) (1)
Outlet Type	Multiple
Invert Level (m)	58.750

Combined Outflow



Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.000

Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.150

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.300

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.450

Weir 2

Outgoing Connection	No Delay (11) (1)
Outlet Type	Weir
Width (m)	0.320
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Advanced

Perimeter	Rectangular
Length (m)	0.910

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	0.00
Total Volume (m³)	0.038

Depth (m)	Area (m²)	Volume (m³)
0.000	0.047	0.000
0.800	0.047	0.038

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Area 8
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice A

Outgoing Connection	No Delay (8) (1) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.010
Coefficient of Discharge	0.600
Invert Level (m)	58.750

Weir

Outgoing Connection	No Delay (1) (1) (1) (1) (1)
Outlet Type	Weir
Width (m)	0.200
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Orifice B

Outgoing Connection	No Delay (2) (1) (1) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	58.900

Orifice C

Outgoing Connection	No Delay (3) (1) (1) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	59.050

Orifice D

Outgoing Connection	No Delay (4) (1) (1) (1) (1)
Outlet Type	Orifice
Diameter (m)	0.026
Coefficient of Discharge	0.600
Invert Level (m)	59.200

Advanced

Perimeter	Circular
Length (m)	0.130



SudsPod Outlet Tank 7 Type : Tank

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by:	Checked by:	Approved By:
	PSS		
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: Proposed	1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	85
Average Slope (1:X)	0.00
Total Volume (m³)	0.235

Depth (m)	Area (m²)	Volume (m³)
0.000	0.345	0.000
0.800	0.345	0.235

Inlets

Inlet

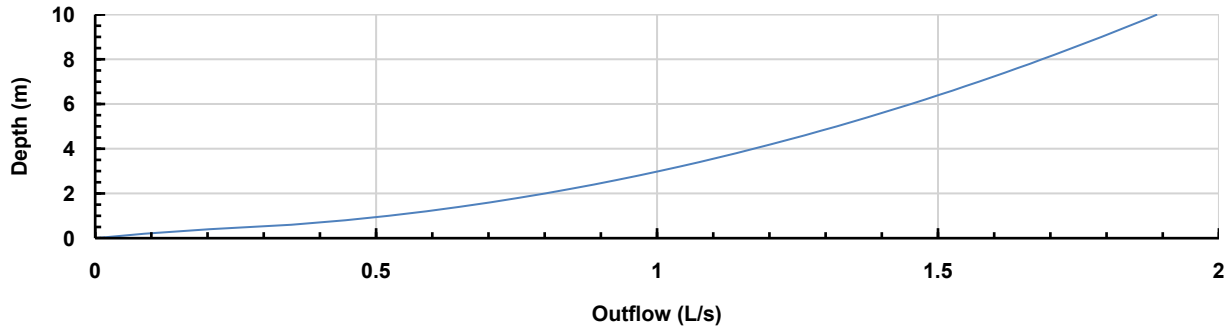
Inlet Type	Point Inflow
Incoming Item(s)	No Delay (1) (1) (1) (2) No Delay (2) (1) (1) (2) No Delay (3) (1) (1) (2) No Delay (8) (1) (2) No Delay (4) (1) (1) (2)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice 2

Outgoing Connection	No Delay (9) (1)
Outlet Type	Multiple
Invert Level (m)	58.750

Combined Outflow



Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.000

Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.150

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.300

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.450

Weir 2

Outgoing Connection	No Delay (5) (1)
Outlet Type	Weir
Width (m)	0.320
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Advanced

Perimeter	Rectangular
Length (m)	0.910

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	0.00
Total Volume (m³)	0.038

Depth (m)	Area (m²)	Volume (m³)
0.000	0.047	0.000
0.800	0.047	0.038

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Area 7
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice A

Outgoing Connection	No Delay (8) (1) (2)
Outlet Type	Orifice
Diameter (m)	0.010
Coefficient of Discharge	0.600
Invert Level (m)	58.750

Weir

Outgoing Connection	No Delay (1) (1) (1) (2)
Outlet Type	Weir
Width (m)	0.200
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Orifice B

Outgoing Connection	No Delay (2) (1) (1) (2)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	58.900

Orifice C

Outgoing Connection	No Delay (3) (1) (1) (2)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	59.050

Orifice D

Outgoing Connection	No Delay (4) (1) (1) (2)
Outlet Type	Orifice
Diameter (m)	0.026
Coefficient of Discharge	0.600
Invert Level (m)	59.200

Advanced

Perimeter	Circular
Length (m)	0.130



SudsPod Outlet Tank 6 Type : Tank

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	85
Average Slope (1:X)	0.00
Total Volume (m³)	0.235

Depth (m)	Area (m²)	Volume (m³)
0.000	0.345	0.000
0.800	0.345	0.235

Inlets

Inlet

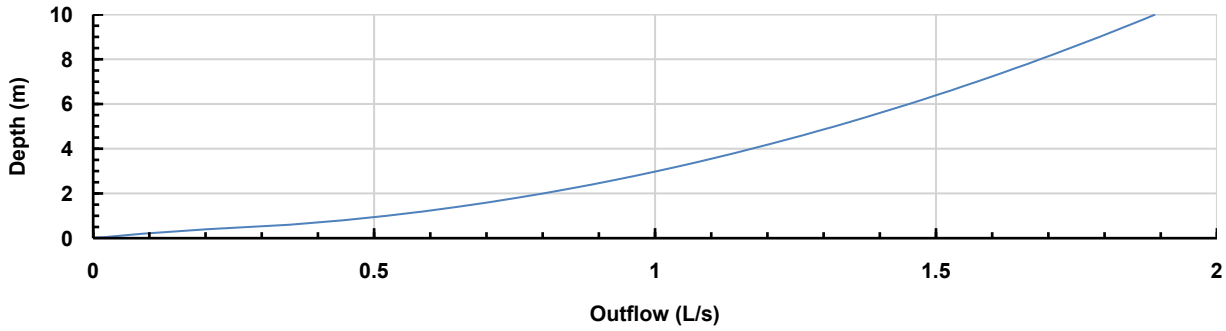
Inlet Type	Point Inflow
Incoming Item(s)	No Delay (1) (1) (2) No Delay (2) (1) (2) No Delay (3) (1) (2) No Delay (8) (2) No Delay (4) (1) (2)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice 2

Outgoing Connection	No Delay (6) (1) (1)
Outlet Type	Multiple
Invert Level (m)	58.750

Combined Outflow



Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.000

Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.150

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.300

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.450

Weir 2

Outgoing Connection	No Delay (7) (1) (1)
Outlet Type	Weir
Width (m)	0.320
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Advanced

Perimeter	Rectangular
Length (m)	0.910

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	0.00
Total Volume (m³)	0.038

Depth (m)	Area (m²)	Volume (m³)
0.000	0.047	0.000
0.800	0.047	0.038

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Area 6
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice A

Outgoing Connection	No Delay (8) (2)
Outlet Type	Orifice
Diameter (m)	0.010
Coefficient of Discharge	0.600
Invert Level (m)	58.750

Weir

Outgoing Connection	No Delay (1) (1) (2)
Outlet Type	Weir
Width (m)	0.200
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Orifice B

Outgoing Connection	No Delay (2) (1) (2)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	58.900

Orifice C

Outgoing Connection	No Delay (3) (1) (2)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	59.050

Orifice D

Outgoing Connection	No Delay (4) (1) (2)
Outlet Type	Orifice
Diameter (m)	0.026
Coefficient of Discharge	0.600
Invert Level (m)	59.200

Advanced

Perimeter	Circular
Length (m)	0.130



SudsPod Outlet Tank 5 Type : Tank

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	85
Average Slope (1:X)	0.00
Total Volume (m³)	0.235

Depth (m)	Area (m²)	Volume (m³)
0.000	0.345	0.000
0.800	0.345	0.235

Inlets

Inlet

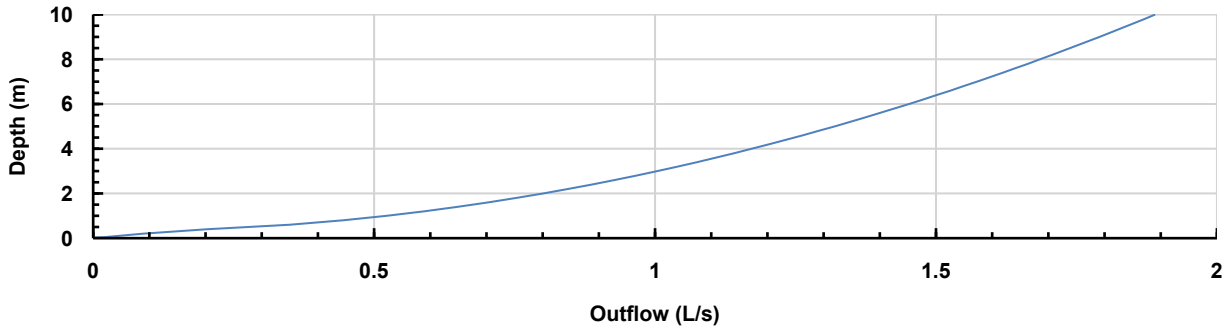
Inlet Type	Point Inflow
Incoming Item(s)	No Delay (1) (2) No Delay (2) (2) No Delay (3) (2) No Delay (12) No Delay (4) (2)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice 2

Outgoing Connection	No Delay (6) (2)
Outlet Type	Multiple
Invert Level (m)	58.750

Combined Outflow



Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.000

Orifice

Diameter (m)	0.008
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.150

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.300

Orifice

Diameter (m)	0.009
Coefficient of Discharge	0.600
Depth Above Invert (m)	0.450

Weir 2

Outgoing Connection	No Delay (7) (2)
Outlet Type	Weir
Width (m)	0.320
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Advanced

Perimeter	Rectangular
Length (m)	0.910

Dimensions

Exceedance Level (m)	59.550
Depth (m)	0.800
Base Level (m)	58.750
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	0.00
Total Volume (m³)	0.038

Depth (m)	Area (m²)	Volume (m³)
0.000	0.047	0.000
0.800	0.047	0.038

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Area 5
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Orifice A

Outgoing Connection	No Delay (12)
Outlet Type	Orifice
Diameter (m)	0.010
Coefficient of Discharge	0.600
Invert Level (m)	58.750

Weir

Outgoing Connection	No Delay (1) (2)
Outlet Type	Weir
Width (m)	0.200
Coefficient of Discharge	0.544
Crest Level (m)	59.450

Orifice B

Outgoing Connection	No Delay (2) (2)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	58.900

Orifice C

Outgoing Connection	No Delay (3) (2)
Outlet Type	Orifice
Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	59.050

Orifice D

Outgoing Connection	No Delay (4) (2)
Outlet Type	Orifice
Diameter (m)	0.026
Coefficient of Discharge	0.600
Invert Level (m)	59.200

Advanced

Perimeter	Circular
Length (m)	0.130



Porous Paving

Type : Porous Paving

Dimensions

Exceedance Level (m)	55.850
Depth (m)	0.505
Base Level (m)	55.345
Paving Layer Depth (mm)	155
Membrane Percolation (m/hr)	1000.0
Porosity (%)	30
Length (m)	14.000
Long. Slope (1:X)	200.00
Width (m)	39.557
Total Volume (m³)	58.303

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	100
No. of Barrels	2
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Lower Car Park
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Pipe (4)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (5)
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	300.0

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by:	Checked by:	Approved By:
	PSS		
Report Details: Type: Connections Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
No Delay	1.160	No Delay						
No Delay (1)	1.160	No Delay						
No Delay (2)	1.160	No Delay						
No Delay (3)	1.160	No Delay						
No Delay (4)	1.160	No Delay						
Pipe	32.301	Pipe	161.506		0.6	150	58.750	58.150
No Delay (6)	1.521	No Delay						
No Delay (7)	1.521	No Delay						
No Delay (1) (1)	1.453	No Delay						
No Delay (2) (1)	1.453	No Delay						
No Delay (3) (1)	1.453	No Delay						
No Delay (8)	1.453	No Delay						
No Delay (4) (1)	1.453	No Delay						
No Delay (6) (1)	9.149	No Delay						
No Delay (7) (1)	9.149	No Delay						
No Delay (1) (1) (1)	1.453	No Delay						
No Delay (2) (1) (1)	1.453	No Delay						
No Delay (3) (1) (1)	1.453	No Delay						
No Delay (8) (1)	1.453	No Delay						
No Delay (4) (1) (1)	1.453	No Delay						
No Delay (5)	17.127	No Delay						
No Delay (9)	17.127	No Delay						
No Delay (1) (1) (1) (1)	1.453	No Delay						
No Delay (2) (1) (1) (1)	1.453	No Delay						
No Delay (3) (1) (1) (1)	1.453	No Delay						
No Delay (8) (1) (1)	1.453	No Delay						
No Delay (4) (1) (1) (1)	1.453	No Delay						
No Delay (10)	25.057	No Delay						
No Delay (11)	25.057	No Delay						
No Delay (10) (1)	25.057	No Delay						
No Delay (11) (1)	25.057	No Delay						
No Delay (1) (1) (1) (1) (1)	1.453	No Delay						
No Delay (2) (1) (1) (1) (1)	1.453	No Delay						
No Delay (3) (1) (1) (1) (1)	1.453	No Delay						
No Delay (8) (1) (1) (1)	1.453	No Delay						
No Delay (4) (1) (1) (1) (1)	1.453	No Delay						
No Delay (5) (1)	17.127	No Delay						
No Delay (9) (1)	17.127	No Delay						
No Delay (1) (1) (1) (2)	1.453	No Delay						
No Delay (2) (1) (1) (2)	1.453	No Delay						
No Delay (3) (1) (1) (2)	1.453	No Delay						
No Delay (8) (1) (2)	1.453	No Delay						
No Delay (4) (1) (1) (2)	1.453	No Delay						
No Delay (6) (1) (1)	9.149	No Delay						
No Delay (7) (1) (1)	9.149	No Delay						
No Delay (1) (1) (2)	1.453	No Delay						
No Delay (2) (1) (2)	1.453	No Delay						
No Delay (3) (1) (2)	1.453	No Delay						
No Delay (8) (2)	1.453	No Delay						
No Delay (4) (1) (2)	1.453	No Delay						
No Delay (6) (2)	1.521	No Delay						
No Delay (7) (2)	1.521	No Delay						
No Delay (1) (2)	1.160	No Delay						
No Delay (2) (2)	1.160	No Delay						
No Delay (3) (2)	1.160	No Delay						
No Delay (12)	1.160	No Delay						

No Delay (4) (2)	1.160	No Delay						
Pipe (1)	32.301	Pipe	161.506		0.6	150	58.750	58.150
Pipe (2)	10.615	Pipe	53.075		0.6	150	58.750	57.950
Pipe (3)	7.854	Pipe	39.272		0.6	150	58.750	57.950
Pipe (4)	13.840	Pipe	5.927		0.6	150	58.750	57.750
Pipe (5)	2.668	Pipe	4.201		0.6	100	55.920	55.345

Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock	Min. Downstream Invert Level (m)	Flow Restriction (L/s)	Culvert Type	Culvert Entrance
No Delay								
No Delay (1)								
No Delay (2)								
No Delay (3)								
No Delay (4)								
Pipe	58.750	57.950		None	0.000		(None)	(None)
No Delay (6)								
No Delay (7)								
No Delay (1) (1)								
No Delay (2) (1)								
No Delay (3) (1)								
No Delay (8)								
No Delay (4) (1)								
No Delay (6) (1)								
No Delay (7) (1)								
No Delay (1) (1) (1)								
No Delay (2) (1) (1)								
No Delay (3) (1) (1)								
No Delay (8) (1)								
No Delay (4) (1) (1)								
No Delay (5)								
No Delay (9)								
No Delay (1) (1) (1) (1)								
No Delay (2) (1) (1) (1)								
No Delay (3) (1) (1) (1)								
No Delay (8) (1) (1)								
No Delay (4) (1) (1) (1)								
No Delay (10)								
No Delay (11)								
No Delay (10) (1)								
No Delay (11) (1)								
No Delay (1) (1) (1) (1) (1)								
No Delay (2) (1) (1) (1) (1)								
No Delay (3) (1) (1) (1) (1)								
No Delay (8) (1) (1) (1)								
No Delay (4) (1) (1) (1) (1)								
No Delay (5) (1)								
No Delay (9) (1)								
No Delay (1) (1) (1) (2)								
No Delay (2) (1) (1) (2)								
No Delay (3) (1) (1) (2)								
No Delay (8) (1) (2)								
No Delay (4) (1) (1) (2)								
No Delay (6) (1) (1)								
No Delay (7) (1) (1)								
No Delay (1) (1) (2)								
No Delay (2) (1) (2)								
No Delay (3) (1) (2)								
No Delay (8) (2)								

No Delay (4) (1) (2)								
No Delay (6) (2)								
No Delay (7) (2)								
No Delay (1) (2)								
No Delay (2) (2)								
No Delay (3) (2)								
No Delay (12)								
No Delay (4) (2)								
Pipe (1)	58.750	57.950		None	0.000		(None)	(None)
Pipe (2)	58.750	57.750		None	0.000		(None)	(None)
Pipe (3)	58.750	57.750		None	0.000		(None)	(None)
Pipe (4)	55.920	55.415		None	0.000		(None)	(None)
Pipe (5)	55.800	54.710		None	0.000	0.0	(None)	(None)

Name	Wall Thickness (mm)	Material	Trench Width (mm)	Bedding Material	Surrounding Material
No Delay					
No Delay (1)					
No Delay (2)					
No Delay (3)					
No Delay (4)					
Pipe	0		0		
No Delay (6)					
No Delay (7)					
No Delay (1) (1)					
No Delay (2) (1)					
No Delay (3) (1)					
No Delay (8)					
No Delay (4) (1)					
No Delay (6) (1)					
No Delay (7) (1)					
No Delay (1) (1) (1)					
No Delay (2) (1) (1)					
No Delay (3) (1) (1)					
No Delay (8) (1)					
No Delay (4) (1) (1)					
No Delay (5)					
No Delay (9)					
No Delay (1) (1) (1) (1)					
No Delay (2) (1) (1) (1)					
No Delay (3) (1) (1) (1)					
No Delay (8) (1) (1)					
No Delay (4) (1) (1) (1)					
No Delay (10)					
No Delay (11)					
No Delay (10) (1)					
No Delay (11) (1)					
No Delay (1) (1) (1) (1) (1)					
No Delay (2) (1) (1) (1) (1)					
No Delay (3) (1) (1) (1) (1)					
No Delay (8) (1) (1) (1)					
No Delay (4) (1) (1) (1) (1)					
No Delay (5) (1)					
No Delay (9) (1)					
No Delay (1) (1) (1) (2)					
No Delay (2) (1) (1) (2)					
No Delay (3) (1) (1) (2)					
No Delay (8) (1) (2)					
No Delay (4) (1) (1) (2)					

No Delay (6) (1) (1)					
No Delay (7) (1) (1)					
No Delay (1) (1) (2)					
No Delay (2) (1) (2)					
No Delay (3) (1) (2)					
No Delay (8) (2)					
No Delay (4) (1) (2)					
No Delay (6) (2)					
No Delay (7) (2)					
No Delay (1) (2)					
No Delay (2) (2)					
No Delay (3) (2)					
No Delay (12)					
No Delay (4) (2)					
Pipe (1)	0		0		
Pipe (2)	0		0		
Pipe (3)	0		0		
Pipe (4)	0		0		
Pipe (5)	0		0		

Project:	Date:			
Engineering Building Openshaw Campus The Manchester College	03/09/2025 Designed by: PSS	Checked by:	Approved By:	SWF CONSULTING CONSULTING CIVIL & STRUCTURAL ENGINEERS
Report Details: Type: Manhole Schedule Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
RE 1		Diameter / Length: 0.600	{1} No Delay (6)	No Delay	Not Applicable	Not Applicable	Simple Junction
E:387587.493 N:397272.497			{2} No Delay (7)	No Delay	Not Applicable	Not Applicable	
			{3} No Delay (6) (1)	No Delay	Not Applicable	Not Applicable	
			{4} No Delay (7) (1)	No Delay	Not Applicable	Not Applicable	
			{5} No Delay (5)	No Delay	Not Applicable	Not Applicable	
			{6} No Delay (9)	No Delay	Not Applicable	Not Applicable	
			{7} No Delay (10)	No Delay	Not Applicable	Not Applicable	
			{8} No Delay (11)	No Delay	Not Applicable	Not Applicable	
			{a} Pipe	Pipe	58.150	Diam/Width:150	Not Applicable
PPIC A	58.750 57.950	Diameter / Length: 0.600	{1} Pipe	Pipe	57.950	Diam/Width:150	Manhole
E:387555.342 N:397275.610	0.800		{a} Pipe (2)	Pipe	57.950	Diam/Width:150	Not Applicable

Project:	Date:			
Engineering Building Openshaw Campus The Manchester College	03/09/2025 Designed by: PSS	Checked by:	Approved By:	SWF CONSULTING CONSULTING CIVIL & STRUCTURAL ENGINEERS
Report Details: Type: Manhole Schedule Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
PPIC B	58.750 57.950	Diameter / Length: 0.600	{1} Pipe (1)	Pipe	57.950	Diam/Width:150	Manhole
E:387553.497 N:397257.255	0.800		{a} Pipe (3)	Pipe	57.950	Diam/Width:150	Not Applicable
Simple Junction		Diameter / Length: 0.600	{1} No Delay (10) (1)	No Delay	Not Applicable	Not Applicable	Simple Junction
E:387585.648 N:397254.142			{2} No Delay (11) (1)	No Delay	Not Applicable Not Applicable	Not Applicable Not Applicable	
			{3} No Delay (5) (1)	No Delay	Not Applicable	Not Applicable	
			{4} No Delay (9) (1)	No Delay	Not Applicable Not Applicable	Not Applicable Not Applicable	
			{5} No Delay (6) (1) (1)	No Delay	Not Applicable	Not Applicable	
			{6} No Delay (7) (1) (1)	No Delay	Not Applicable	Not Applicable	
			{7} No Delay (6) (2)	No Delay	Not Applicable	Not Applicable	
			{8} No Delay (7) (2)	No Delay	Not Applicable	Not Applicable	
			{a} Pipe (1)	Pipe	58.150	Diam/Width:150	Not Applicable

Project:	Date:			
Engineering Building Openshaw Campus The Manchester College	03/09/2025	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
PPIC C	58.750 57.750	Diameter / Length: 0.600	{1} Pipe (2)	Pipe	57.750	Diam/Width:150	Manhole
E:387553.839 N:397265.102	1.000		{2} Pipe (3)	Pipe	57.750	Diam/Width:150	
			{a} Pipe (4)	Pipe	57.750	Diam/Width:150	Not Applicable
Manhole	55.800 54.710	Diameter / Length: 1.200	{1} Pipe (5)	Pipe	54.710	Diam/Width:100	Manhole
E:387529.285 N:397289.187	1.090						
							Not Applicable

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Inflow Summary Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

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Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Area 1	SudsPod Inlet Tank 1		Time of Concentration	0.006	100	0	100	0.006
Area 2	SudsPod Inlet Tank 2		Time of Concentration	0.006	100	0	100	0.006
Area 3	SudsPod Inlet Tank 3		Time of Concentration	0.006	100	0	100	0.006
Area 4	SudsPod Inlet Tank 4		Time of Concentration	0.006	100	0	100	0.006
Area 5	SudsPod Inlet Tank 5		Time of Concentration	0.006	100	0	100	0.006
Area 6	SudsPod Inlet Tank 6		Time of Concentration	0.006	100	0	100	0.006
Area 7	SudsPod Inlet Tank 7		Time of Concentration	0.006	100	0	100	0.006
Area 8	SudsPod Inlet Tank 8		Time of Concentration	0.006	100	0	100	0.006
Lower Car Park	Porous Paving		Time of Concentration	0.057	100	0	100	0.057
TOTAL		**0.0**		**0.109**				**0.109**

Project:	Date:			
Engineering Building Openshaw Campus The Manchester College	03/09/2025			
	Designed by: PSS	Checked by:	Approved By:	
Report Details: Type: Outfall Details Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ			

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Outfalls

Outfall	Outfall Type	Gated	Fixed Surcharged Level (m)	Level Curve
Manhole	Free Discharge			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FEH

Type: FEH

Site Location	GB 387558 397279 SJ 87558 97279
Rainfall Version	2022
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	40.000
100.0	45.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

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FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Area 4	FEH: 2 years: +0 %: 15 mins: Winter	0.01	1.0	0.450
Area 3	FEH: 2 years: +0 %: 15 mins: Winter	0.01	1.0	0.450
Area 2	FEH: 2 years: +0 %: 15 mins: Winter	0.01	1.0	0.450
Area 1	FEH: 2 years: +0 %: 15 mins: Winter	0.01	1.0	0.450
Area 5	FEH: 2 years: +0 %: 15 mins: Winter	0.01	1.0	0.450
Area 6	FEH: 2 years: +0 %: 15 mins: Winter	0.01	1.0	0.450
Area 7	FEH: 2 years: +0 %: 15 mins: Winter	0.01	1.0	0.450
Area 8	FEH: 2 years: +0 %: 15 mins: Winter	0.01	1.0	0.450
Lower Car Park	FEH: 2 years: +0 %: 15 mins: Winter	0.06	8.7	4.008

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025 Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

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FEH: 30 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Area 4	FEH: 30 years: +40 %: 15 mins: Winter	0.01	3.0	1.389
Area 3	FEH: 30 years: +40 %: 15 mins: Winter	0.01	3.0	1.389
Area 2	FEH: 30 years: +40 %: 15 mins: Winter	0.01	3.0	1.389
Area 1	FEH: 30 years: +40 %: 15 mins: Winter	0.01	3.0	1.389
Area 5	FEH: 30 years: +40 %: 15 mins: Winter	0.01	3.0	1.389
Area 6	FEH: 30 years: +40 %: 15 mins: Winter	0.01	3.0	1.389
Area 7	FEH: 30 years: +40 %: 15 mins: Winter	0.01	3.0	1.389
Area 8	FEH: 30 years: +40 %: 15 mins: Winter	0.01	3.0	1.389
Lower Car Park	FEH: 30 years: +40 %: 15 mins: Winter	0.06	26.5	12.258

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025 Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
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FEH: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Area 4	FEH: 100 years: +45 %: 15 mins: Winter	0.01	3.9	1.821
Area 3	FEH: 100 years: +45 %: 15 mins: Winter	0.01	3.9	1.821
Area 2	FEH: 100 years: +45 %: 15 mins: Winter	0.01	3.9	1.821
Area 1	FEH: 100 years: +45 %: 15 mins: Winter	0.01	3.9	1.821
Area 5	FEH: 100 years: +45 %: 15 mins: Winter	0.01	3.9	1.821
Area 6	FEH: 100 years: +45 %: 15 mins: Winter	0.01	3.9	1.821
Area 7	FEH: 100 years: +45 %: 15 mins: Winter	0.01	3.9	1.821
Area 8	FEH: 100 years: +45 %: 15 mins: Winter	0.01	3.9	1.821
Lower Car Park	FEH: 100 years: +45 %: 15 mins: Winter	0.06	34.8	16.095

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025 Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

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FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RE 1	FEH: 2 years: +0 %: 30 mins: Winter		58.150	58.188	0.038	2.4			1.7	2.289	OK
PPIC A	FEH: 2 years: +0 %: 15 mins: Winter	58.750	57.950	57.978	0.028	1.6	0.008	0.000	1.7	1.457	OK
PPIC B	FEH: 2 years: +0 %: 15 mins: Winter	58.750	57.950	57.976	0.026	1.6	0.007	0.000	1.7	1.460	OK
Simple Junction	FEH: 2 years: +0 %: 30 mins: Winter		58.150	58.189	0.039	2.4			1.7	2.289	OK
PPIC C	FEH: 2 years: +0 %: 15 mins: Winter	58.750	57.750	57.772	0.022	3.4	0.006	0.000	3.4	2.902	OK
Manhole	FEH: 2 years: +0 %: 120 mins: Winter	55.800	54.710	55.423	0.713	2.2	0.806	0.000	1.8	14.920	OK

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025 Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

FEH: 30 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RE 1	FEH: 30 years: +40 %: 15 mins: Winter		58.150	58.259	0.109	11.9			11.4	5.183	OK
PPIC A	FEH: 30 years: +40 %: 15 mins: Winter	58.750	57.950	58.027	0.077	11.4	0.022	0.000	11.0	5.154	OK
PPIC B	FEH: 30 years: +40 %: 15 mins: Winter	58.750	57.950	58.021	0.071	11.4	0.020	0.000	11.0	5.157	OK
Simple Junction	FEH: 30 years: +40 %: 15 mins: Winter		58.150	58.260	0.110	11.9			11.4	5.183	OK
PPIC C	FEH: 30 years: +40 %: 15 mins: Winter	58.750	57.750	57.806	0.056	22.0	0.016	0.000	21.8	10.300	OK
Manhole	FEH: 30 years: +40 %: 240 mins: Winter	55.800	54.710	55.579	0.869	2.2	0.983	0.000	2.0	46.151	Flood Risk

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by:	Checked by:	Approved By:
	PSS		
Report Details: Type: Junctions Summary Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
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FEH: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RE 1	FEH: 100 years: +45 %: 15 mins: Winter		58.150	58.293	0.143	15.6			14.6	6.904	OK
PPIC A	FEH: 100 years: +45 %: 15 mins: Winter	58.750	57.950	58.040	0.090	14.6	0.026	0.000	14.2	6.874	OK
PPIC B	FEH: 100 years: +45 %: 15 mins: Winter	58.750	57.950	58.034	0.084	14.7	0.024	0.000	14.4	6.877	OK
Simple Junction	FEH: 100 years: +45 %: 15 mins: Winter		58.150	58.292	0.142	15.6			14.7	6.903	OK
PPIC C	FEH: 100 years: +45 %: 15 mins: Winter	58.750	57.750	57.814	0.064	28.6	0.018	0.000	28.4	13.736	OK
Manhole	FEH: 100 years: +45 %: 240 mins: Winter	55.800	54.710	55.665	0.955	2.1	1.080	0.000	2.1	49.223	Flood Risk

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025 Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
SudsPod Inlet Tank 1	FEH: 2 years: +0 %: 30 mins: Winter	59.462	59.462	0.712	0.712	0.6	0.033	0.000	0.000	0.6	0.591	10.944	OK
SudsPod Outlet Tank 1	FEH: 2 years: +0 %: 30 mins: Winter	59.455	59.455	0.705	0.705	0.6	0.207	0.000	0.000	0.6	0.575	11.851	OK
SudsPod Inlet Tank 2	FEH: 2 years: +0 %: 30 mins: Winter	59.462	59.462	0.712	0.712	0.6	0.033	0.000	0.000	0.6	0.591	10.944	OK
SudsPod Outlet Tank 2	FEH: 2 years: +0 %: 30 mins: Winter	59.455	59.455	0.705	0.705	0.6	0.207	0.000	0.000	0.6	0.575	11.851	OK
SudsPod Inlet Tank 3	FEH: 2 years: +0 %: 30 mins: Winter	59.462	59.462	0.712	0.712	0.6	0.033	0.000	0.000	0.6	0.591	10.944	OK
SudsPod Outlet Tank 3	FEH: 2 years: +0 %: 30 mins: Winter	59.455	59.455	0.705	0.705	0.6	0.207	0.000	0.000	0.6	0.575	11.851	OK
SudsPod Outlet Tank 4	FEH: 2 years: +0 %: 30 mins: Winter	59.455	59.455	0.705	0.705	0.6	0.207	0.000	0.000	0.6	0.575	11.851	OK
SudsPod Inlet Tank 4	FEH: 2 years: +0 %: 30 mins: Winter	59.462	59.462	0.712	0.712	0.6	0.033	0.000	0.000	0.6	0.591	10.944	OK
SudsPod Outlet Tank 8	FEH: 2 years: +0 %: 30 mins: Winter	59.455	59.455	0.705	0.705	0.6	0.207	0.000	0.000	0.6	0.575	11.851	OK
SudsPod Inlet Tank 8	FEH: 2 years: +0 %: 30 mins: Winter	59.462	59.462	0.712	0.712	0.6	0.033	0.000	0.000	0.6	0.591	10.944	OK
SudsPod Outlet Tank 7	FEH: 2 years: +0 %: 30 mins: Winter	59.455	59.455	0.705	0.705	0.6	0.207	0.000	0.000	0.6	0.575	11.851	OK
SudsPod Inlet Tank 7	FEH: 2 years: +0 %: 30 mins: Winter	59.462	59.462	0.712	0.712	0.6	0.033	0.000	0.000	0.6	0.591	10.944	OK
SudsPod Outlet Tank 6	FEH: 2 years: +0 %: 30 mins: Winter	59.455	59.455	0.705	0.705	0.6	0.207	0.000	0.000	0.6	0.575	11.851	OK
SudsPod Inlet Tank 6	FEH: 2 years: +0 %: 30 mins: Winter	59.462	59.462	0.712	0.712	0.6	0.033	0.000	0.000	0.6	0.591	10.944	OK
SudsPod Outlet Tank 5	FEH: 2 years: +0 %: 30 mins: Winter	59.455	59.455	0.705	0.705	0.6	0.207	0.000	0.000	0.6	0.575	11.851	OK
SudsPod Inlet Tank 5	FEH: 2 years: +0 %: 30 mins: Winter	59.462	59.462	0.712	0.712	0.6	0.033	0.000	0.000	0.6	0.591	10.944	OK
Porous Paving	FEH: 2 years: +0 %: 120 mins: Winter	55.462	55.434	0.047	0.089	5.4	9.964	0.000	0.000	2.6	14.975	82.911	OK

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025		
	Designed by:	Checked by:	Approved By:
	PSS		
Report Details: Type: Stormwater Controls Summary Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

FEH: 30 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
SudsPod Inlet Tank 1	FEH: 30 years: +40 %: 15 mins: Winter	59.496	59.496	0.746	0.746	3.0	0.035	0.000	0.000	3.0	1.377	6.725	OK
SudsPod Outlet Tank 1	FEH: 30 years: +40 %: 15 mins: Winter	59.478	59.478	0.728	0.728	3.0	0.213	0.000	0.000	3.0	1.301	8.999	OK
SudsPod Inlet Tank 2	FEH: 30 years: +40 %: 15 mins: Winter	59.496	59.496	0.746	0.746	3.0	0.035	0.000	0.000	3.0	1.377	6.725	OK
SudsPod Outlet Tank 2	FEH: 30 years: +40 %: 15 mins: Winter	59.478	59.478	0.728	0.728	3.0	0.213	0.000	0.000	3.0	1.301	8.999	OK
SudsPod Inlet Tank 3	FEH: 30 years: +40 %: 15 mins: Winter	59.496	59.496	0.746	0.746	3.0	0.035	0.000	0.000	3.0	1.377	6.725	OK
SudsPod Outlet Tank 3	FEH: 30 years: +40 %: 15 mins: Winter	59.478	59.478	0.728	0.728	3.0	0.213	0.000	0.000	3.0	1.301	8.999	OK
SudsPod Outlet Tank 4	FEH: 30 years: +40 %: 15 mins: Winter	59.478	59.478	0.728	0.728	3.0	0.213	0.000	0.000	3.0	1.301	8.999	OK
SudsPod Inlet Tank 4	FEH: 30 years: +40 %: 15 mins: Winter	59.496	59.496	0.746	0.746	3.0	0.035	0.000	0.000	3.0	1.377	6.725	OK
SudsPod Outlet Tank 8	FEH: 30 years: +40 %: 15 mins: Winter	59.478	59.478	0.728	0.728	3.0	0.213	0.000	0.000	3.0	1.301	8.999	OK
SudsPod Inlet Tank 8	FEH: 30 years: +40 %: 15 mins: Winter	59.496	59.496	0.746	0.746	3.0	0.035	0.000	0.000	3.0	1.377	6.725	OK
SudsPod Outlet Tank 7	FEH: 30 years: +40 %: 15 mins: Winter	59.478	59.478	0.728	0.728	3.0	0.213	0.000	0.000	3.0	1.301	8.999	OK
SudsPod Inlet Tank 7	FEH: 30 years: +40 %: 15 mins: Winter	59.496	59.496	0.746	0.746	3.0	0.035	0.000	0.000	3.0	1.377	6.725	OK
SudsPod Outlet Tank 6	FEH: 30 years: +40 %: 15 mins: Winter	59.478	59.478	0.728	0.728	3.0	0.213	0.000	0.000	3.0	1.301	8.999	OK
SudsPod Inlet Tank 6	FEH: 30 years: +40 %: 15 mins: Winter	59.496	59.496	0.746	0.746	3.0	0.035	0.000	0.000	3.0	1.377	6.725	OK

SudsPod Outlet Tank 5	FEH: 30 years: +40 %: 15 mins: Winter	59.478	59.478	0.728	0.728	3.0	0.213	0.000	0.000	3.0	1.301	8.999	OK
SudsPod Inlet Tank 5	FEH: 30 years: +40 %: 15 mins: Winter	59.496	59.496	0.746	0.746	3.0	0.035	0.000	0.000	3.0	1.377	6.725	OK
Porous Paving	FEH: 30 years: +40 %: 120 mins: Winter	55.597	55.593	0.182	0.248	16.0	35.705	0.000	0.000	3.2	23.671	38.760	OK

Project:	Date:		
Engineering Building Openshaw Campus The Manchester College	03/09/2025 Designed by: PSS	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Proposed	Company Address: 1st Floor Unit 1 Millbank House, Riverside Business Park Wilmslow. SK9 1BJ		

SWF CONSULTING
CONSULTING CIVIL & STRUCTURAL ENGINEERS

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

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
SudsPod Inlet Tank 1	FEH: 100 years: +45 %: 15 mins: Winter	59.506	59.506	0.756	0.756	3.9	0.036	0.000	0.000	3.9	1.809	5.458	OK
SudsPod Outlet Tank 1	FEH: 100 years: +45 %: 15 mins: Winter	59.484	59.484	0.734	0.734	3.9	0.215	0.000	0.000	3.9	1.731	8.197	OK
SudsPod Inlet Tank 2	FEH: 100 years: +45 %: 15 mins: Winter	59.506	59.506	0.756	0.756	3.9	0.036	0.000	0.000	3.9	1.809	5.458	OK
SudsPod Outlet Tank 2	FEH: 100 years: +45 %: 15 mins: Winter	59.484	59.484	0.734	0.734	3.9	0.215	0.000	0.000	3.9	1.731	8.197	OK
SudsPod Inlet Tank 3	FEH: 100 years: +45 %: 15 mins: Winter	59.506	59.506	0.756	0.756	3.9	0.036	0.000	0.000	3.9	1.809	5.458	OK
SudsPod Outlet Tank 3	FEH: 100 years: +45 %: 15 mins: Winter	59.484	59.484	0.734	0.734	3.9	0.215	0.000	0.000	3.9	1.731	8.197	OK
SudsPod Outlet Tank 4	FEH: 100 years: +45 %: 15 mins: Winter	59.484	59.484	0.734	0.734	3.9	0.215	0.000	0.000	3.9	1.731	8.197	OK
SudsPod Inlet Tank 4	FEH: 100 years: +45 %: 15 mins: Winter	59.506	59.506	0.756	0.756	3.9	0.036	0.000	0.000	3.9	1.809	5.458	OK
SudsPod Outlet Tank 8	FEH: 100 years: +45 %: 15 mins: Winter	59.484	59.484	0.734	0.734	3.9	0.215	0.000	0.000	3.9	1.731	8.197	OK
SudsPod Inlet Tank 8	FEH: 100 years: +45 %: 15 mins: Winter	59.506	59.506	0.756	0.756	3.9	0.036	0.000	0.000	3.9	1.809	5.458	OK
SudsPod Outlet Tank 7	FEH: 100 years: +45 %: 15 mins: Winter	59.484	59.484	0.734	0.734	3.9	0.215	0.000	0.000	3.9	1.731	8.197	OK
SudsPod Inlet Tank 7	FEH: 100 years: +45 %: 15 mins: Winter	59.506	59.506	0.756	0.756	3.9	0.036	0.000	0.000	3.9	1.809	5.458	OK
SudsPod Outlet Tank 6	FEH: 100 years: +45 %: 15 mins: Winter	59.484	59.484	0.734	0.734	3.9	0.215	0.000	0.000	3.9	1.731	8.197	OK
SudsPod Inlet Tank 6	FEH: 100 years: +45 %: 15 mins: Winter	59.506	59.506	0.756	0.756	3.9	0.036	0.000	0.000	3.9	1.809	5.458	OK

SudsPod Outlet Tank 5	FEH: 100 years: +45 %: 15 mins: Winter	59.484	59.484	0.734	0.734	3.9	0.215	0.000	0.000	3.9	1.731	8.197	OK
SudsPod Inlet Tank 5	FEH: 100 years: +45 %: 15 mins: Winter	59.506	59.506	0.756	0.756	3.9	0.036	0.000	0.000	3.9	1.809	5.458	OK
Porous Paving	FEH: 100 years: +45 %: 240 mins: Winter	55.683	55.679	0.268	0.334	12.7	50.087	0.000	0.000	2.4	50.344	14.091	OK