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**Chadwick Design &
Project Management Ltd**

P21-00086

**The Lawns, Hull
University Campus**

**Phase II
Geo Environmental
Site Assessment**

Report by:

T White

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Practical Solutions**



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CONTENTS

1. Revision Record	1
2. Introduction	2
2.1. General Introduction	2
2.2. Objectives	2
2.3. Scope of Works	2
2.4. Limitations of the Report	2
3. Site History and Environmental Setting	4
3.1. Site Description	4
4. Intrusive Investigation	5
4.1. Fieldwork	5
4.2. Groundwater	5
4.3. Gas Monitoring	5
4.4. Laboratory Testing	5
5. Contamination Assessment	7
5.1. General	7
5.2. Preliminary Conceptual Site Model	8
5.3. Contamination Criteria for Soil Testing	8
5.4. Results of Contamination Testing	8
5.5. Radon	12
5.6. Contamination Sources	12
5.7. Pathways	12
5.8. Receptors	12
5.9. Site Specific Model	14
5.10. Contamination Issues	15
5.11. Environmental Summary	15
6. Geotechnical Assessment	16
6.1. General	16
6.2. Geological Assessment	16

6.3.	Mining	16
6.4.	Foundations and Substructures	16
6.5.	Geotechnical Test Results	16
6.6.	Geotechnical Summary	17
7.	Conclusions and Recommendations	18
Appendix I Site Investigation Plan	
Appendix II Windowless Sampler Borehole Logs	
Appendix III Soil Test Results	

1. REVISION RECORD

Report Ref: P21-00086-Met-RP-GE-001 / Phase II					
Rev	Description	Date	Originator	Checked	Approved
1	Initial Issue	15/02/21	T White	AEC	RJS

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2. INTRODUCTION

2.1. GENERAL INTRODUCTION

This Report presents the findings of a Phase II Geo-environmental assessment of a site at The Lawns, Hull University Campus (Grid Reference: 503939, 433377) for Chadwick Design & Project Management Ltd.

The Intrusive Site Investigation (Phase II) comprised of windowless sampler boreholes to establish the sub surface strata and remove samples for contamination and geotechnical testing. The test results combined with the findings of the intrusions will then be used to make recommendations for any remedial works which may be necessary. A site plan including positions of the boreholes can be found in Appendix I of this report.

2.2. OBJECTIVES

The intrusive investigation was conducted to assess and confirm the immediate sub-surface ground conditions and extract in-situ soil samples for laboratory testing as specified by the client,

2.3. SCOPE OF WORKS

Based upon the recommendations of the client soil samples were taken for laboratory testing. CLEA Guidelines and recommendations given in Land Quality Management General Assessment Criteria have been applied to establish a risk based CLEA Model to assess the likely contamination issues and to comment on potential constraints for development of the site.

Judgement is based strictly on the findings of the specific boreholes and soil samples tested and therefore may not be representative of the site as a whole.

2.4. LIMITATIONS OF THE REPORT

Chadwick Design & Project Management Ltd. (the Client) has requested that a Phase II Site Investigation, CLEA Conceptual Model and Risk Assessment be undertaken in order to assess the suitability of the site for redevelopment. The report is not a comprehensive site characterisation and should not be construed as such.

This report has been prepared for the sole internal use and reliance of Chadwick Design & Project Management Ltd. The report shall not be relied upon or transferred to any other parties without the express written authority of Met Engineers Limited. If any unauthorised third party comes into possession of the report, they rely on it at their own risk and Met Engineers Limited owes them no duty of care.

The findings and opinions conveyed via this report are based on information obtained from a variety of sources as detailed within this report and which Met Engineers Limited, believes are reliable. Nevertheless, Met Engineers Limited, cannot and does not guarantee the authenticity or reliability of the information it has relied upon. The information contained in this report is to the best of our knowledge accurate at the date of issue, however, sub-surface conditions, including ground water levels, may vary, especially with time.

In preparing this report it has been assumed that all past and present occupants and Third Parties have provided accurate information, especially relating to known or potential hazards. This report does not identify deficiencies or mistakes in the information provided by the user/owner, or from any other source, except where obvious in the light of other information.

This report is relevant at the date the report was written and should be read in the light of any subsequent changes in legislation, statutory requirement or industry practices.

The report represents the technical findings and opinions of Met Engineers Limited, and does not constitute any legal advice. As such, the advice of a Solicitor may also be required.

3. SITE HISTORY AND ENVIRONMENTAL SETTING

A Phase I Desk Study has not been provided at the time of writing this report.

The area of land referred to as 'The Site' within this document is indicated in Appendix I.

3.1. SITE DESCRIPTION

Site Name	The Lawns, Hull University Campus, Harland Way, HU16 5SQ
Location	Grid Reference: 503939, 433377
Setting	<p>The development area is located in Cottingham, approximately 8.5km north west of the city centre of Hull. The development area is irregular in shape and is developed with unoccupied university halls of residence and associated car parking, roadways and soft landscaped areas.</p> <p>The development area is bound to the north and east by brick walls and wooden fences, and to the south and west is open to the remainder of the university campus.</p> <p>The land to the west of the development area is developed with additional university buildings and soft landscaped areas, soft landscaping to the south, and in all other directions with residential housing. In the wider area to the north there are agricultural fields.</p>
Site History	A Phase I Desk Study has not been provided at the time of writing this report therefore a full site history cannot be provided, however it is understood that the site has been developed with halls of residence since the mid 1950's.
Development Proposal	No development proposal has been provided at this stage.

4. INTRUSIVE INVESTIGATION

4.1. FIELDWORK

The intrusive investigation consisted of 12N₉ windowless sampler boreholes. The intrusive investigations were carried out on 15th to 17th February 2021; the locations of which can be found within Appendix I. The boreholes were carried out in the locations specified by the client. These intrusions were spread evenly across the site to give a good overview of the underlying strata. The weather was clear.

Made Ground was identified in WS04 and WS05 to depths of 0.7mbgl and 0.2mbgl respectively. The Made Ground comprised gravelly sand with fragments of ash, brick, sandstone and limestone.

Superficial deposits comprising gravelly clay and gravelly sand were identified under the entire site to the base of each borehole.

Bedrock was not identified during the site investigation.

Logs of the Boreholes can be found in Appendix II of this report.

Soil samples were removed for laboratory analysis from several of the boreholes as specified by the client.

All soils removed from the boreholes were screened for Volatile Organic Compounds (VOC's) using a Photoionization Detector (PID) and no elevated levels were identified.

4.2. GROUNDWATER

Groundwater was encountered in several of the boreholes from depths of between 2.0m (WS05, WS10 and WS11) and 4.5mbgl (WS08).

4.3. GAS MONITORING

Gas monitoring was not requested by the client, therefore gas monitoring wells were not installed within the boreholes.

4.4. LABORATORY TESTING

The client recommended a regime of contamination testing on soil samples recovered from the intrusive investigation. Samples were obtained during the site investigation and tested at a UKAS accredited laboratory for contaminants including:

- *Heavy Metals*
- *Polycyclic Aromatic Hydrocarbons*
- *Total Petroleum Hydrocarbons*
- *Asbestos*

Geotechnical testing was also carried out on the soils. The samples were tested for:

- *pH*
- *Water Soluble Sulphate (2:1)*

- *Atterberg limits*

5. CONTAMINATION ASSESSMENT

5.1. GENERAL

Current Environmental Legislation, in particular Part IIA of the Environmental Protection Act 1990, adopts a risk-based approach to the evaluation of contaminated sites, based on the proposed end use of the site. The commonly accepted approach is to adopt a Source-Pathway-Receptor model where the Source of the contaminant is examined in relation to potential Receptors (i.e. humans, controlled waters etc.) to determine if there is a Pathway (i.e. contaminant linkage) connecting them. If any of these elements (i.e. contaminant, pathway or receptor) are absent or removed, then there is no risk.

The Department of the Environment, Food and Rural Affairs (DEFRA) have published a series of guidelines in connection with Risk Assessment. In addition The Environment Agency has produced the Contaminated Land Exposure Model (CLEA) which models guideline values for those elements which pose the greatest risk to human health.¹ Using values derived from CLEA, a site specific, conceptual model has been used to determine any significant contaminant linkages and identify suitable risk management proposals on which remediation design (if any required) can be based. The conceptual model is summarised at the end of this section in tabular form.

By considering the Source-Pathway-Receptors Model, an assessment can be made as to whether the source contamination can reach a receptor. The degree and significance of any resulting risk is then determined. The categorisation of the risk is based on consideration of both:

- The likelihood or probability of an event (taking into account both the presence of the Source and the Receptor, and the integrity of the Pathway).
- The severity of the potential consequence (taking into account both the potential severity of the Source and the sensitivity of the Receptor).

The following categorisation of risk has been adopted in this report:

Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without appropriate remedial action.
High	Harm is likely to arise to a designated receptor from an identified hazard without appropriate remedial action.
Moderate	It is possible that, without appropriate remedial action, harm could arise to a designated receptor, but it is relatively unlikely that any such harm would be severe and, if harm were to occur, it is more likely that such harm would be relatively mild.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that, at worst, this harm, if realised, would normally be mild.
Negligible	The presence of an identified hazard does not give rise to the potential to cause any significant harm to a designated receptor on this site.

¹ Updated technical background to the CLEA model, Science Report SC050021/SR3, The Environment Agency, 2009

5.2. PRELIMINARY CONCEPTUAL SITE MODEL

A Phase I Desk Study or preliminary conceptual site model have not been provided at the time of writing this report.

5.3. CONTAMINATION CRITERIA FOR SOIL TESTING

Suitable 4 Use Levels (S4ULs) published by Land Quality Management, have been used to assess risk.² Where there are no S4ULs, Defra Category 4 Screening Levels (C4SLs) have been used as intervention values to assess risk.³

No details regarding the proposed land use have been provided at the time of writing this report, therefore soil testing results have been screened against values for a 'residential without home produce' land use in accordance with the CLEA Guidelines for the current usage of the site.

Soils were taken from site and tested for % Soil Organic Matter (SOM).

Location	WS01	WS02	WS05	WS08	WS09	WS10	WS11
Depth (m)	0.2	0.3	0.15	0.3	0.15	0.2	0.3
Strata	Topsoil	Topsoil	Made Ground	Clayey Sand	Topsoil	Topsoil	Topsoil
SOM (%)	2.2	3.4	21.5	1.2	4.3	3.2	5.1

Taking the lowest SOM recorded as the worst-case scenario, the results of the chemical analysis on the soil samples are compared against the S4ULs for residential without home produce developments with 1% SOM (where there are published S4ULs) and C4SLs where there are no published S4ULs. These values are then used as Intervention Values (IV) to assess the risk.

5.4. RESULTS OF CONTAMINATION TESTING

The following tables are summaries of the laboratory test results. Please see the key below for the origin of each intervention value.

Intervention Value Key

Author	Type	Land Use
Land Quality Management	S4UL	Residential without home produce
DEFRA	C4SL	Residential without home produce

² The LQM/CIEH S4ULs for Human Health Risk Assessment, Land Quality Press, Nathanail et. al, 2015.

³ SP1010, Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, DEFRA 2014

Heavy Metals

Location	WS01	WS02	WS05	WS08	WS09	WS10	WS11		
Depth (m)	0.2	0.3	0.15	0.3	0.15	0.2	0.3		
Strata	Topsoil	Topsoil	Made Ground	Clayey Sand	Topsoil	Topsoil	Topsoil		
Contaminant (mg/kg)								IV	Number Exceeding
Arsenic	<1	5	18	<1	5	2	10	40	0
Cadmium	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	85	0
Copper	12	29	60	11	30	23	27	7100	0
Chromium	27	24	29	32	30	33	31	910	0
Chromium (VI)	<1	<1	<1	<1	<1	<1	<1	6	0
Lead	25	44	33	18	76	45	42	310	0
Mercury	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	56	0
Nickel	16	17	45	18	27	25	27	180	0
Selenium	<1	<1	<1	<1	<1	<1	<1	430	0
Zinc	50	62	37	74	98	88	78	40000	0

Polycyclic Aromatic Hydrocarbons

Location	WS01	WS02	WS05	WS08	WS09	WS10	WS11		
Depth (m)	0.2	0.3	0.15	0.3	0.15	0.2	0.3		
Strata	Topsoil	Topsoil	Made Ground	Clayey Sand	Topsoil	Topsoil	Topsoil		
Contaminant (mg/kg)								IV	Number Exceeding
Acenaphthene	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	3000	0
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2900	0
Anthracene	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.02	31000	0
Benzo(a)anthracene	<0.04	<0.04	<0.04	<0.04	0.34	<0.04	<0.04	11	0
Benzo(a)pyrene	<0.04	<0.04	<0.04	<0.04	0.26	<0.04	<0.04	3.2	0
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	0.31	<0.05	<0.05	3.9	0
Benzo(ghi)perylene	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	<0.05	360	0
Benzo(k)fluoranthene	<0.07	<0.07	<0.07	<0.07	0.11	<0.07	<0.07	110	0

Location	WS01	WS02	WS05	WS08	WS09	WS10	WS11		
Depth (m)	0.2	0.3	0.15	0.3	0.15	0.2	0.3		
Strata	Topsoil	Topsoil	Made Ground	Clayey Sand	Topsoil	Topsoil	Topsoil		
Contaminant (mg/kg)								IV	Number Exceeding
Chrysene	<0.06	<0.06	<0.06	<0.06	0.31	<0.06	<0.06	30	0
Dibenzo(ah)anthracene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.31	0
Fluoranthene	<0.08	<0.08	<0.08	<0.08	0.73	<0.08	<0.08	1500	0
Fluorene	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	2800	0
Indeno(123-cd)pyrene	<0.03	<0.03	<0.03	<0.03	0.14	<0.03	<0.03	45	0
Naphthalene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	2.3	0
Phenanthrene	<0.03	<0.03	<0.03	<0.03	0.5	<0.03	<0.03	1300	0
Pyrene	<0.07	<0.07	<0.07	<0.07	0.6	<0.07	<0.07	3700	0
Total PAH	<0.08	<0.08	<0.08	<0.08	3.64	<0.08	<0.08		0

Total Petroleum Hydrocarbons

Location	WS01	WS02	WS05	WS08	WS09	WS10	WS11		
Depth (m)	0.2	0.3	0.15	0.3	0.15	0.2	0.3		
Strata	Topsoil	Topsoil	Made Ground	Clayey Sand	Topsoil	Topsoil	Topsoil		
Contaminant (mg/kg)								IV	Number Exceeding
Ali >C5-C6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	42	0
Ali >C6-C8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	100	0
Ali >C8-C10	<1	<1	<1	<1	<1	<1	<1	27	0
Ali >C10-C12	<1	<1	<1	<1	<1	<1	<1	130	0
Ali >C12-C16	<1	<1	<1	<1	<1	<1	<1	1100	0
Ali >C16-C21	<1	<1	<1	<1	<1	<1	<1	65000	0
Ali >C21-C35	2	6	2	<1	6	4	6	65000	0
Total Aliphatics	2	6	2	<1	6	4	6	-	-
Aro >C5-C7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	370	0
Aro >C7-C8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	860	0

Location	WS01	WS02	WS05	WS08	WS09	WS10	WS11		
Depth (m)	0.2	0.3	0.15	0.3	0.15	0.2	0.3		
Strata	Topsoil	Topsoil	Made Ground	Clayey Sand	Topsoil	Topsoil	Topsoil		
Contaminant (mg/kg)								IV	Number Exceeding
Aro >C8-C10	<1	<1	<1	<1	<1	<1	<1	47	0
Aro >C10-C12	<1	<1	<1	<1	<1	<1	<1	250	0
Aro >C12-C16	<1	<1	<1	<1	<1	<1	<1	1800	0
Aro >C16-C21	<1	1	<1	<1	8	<1	<1	1900	0
Aro >C21-C35	3	10	4	1	43	4	9	1900	0
Total Aromatics	3	11	4	1	51	4	9	-	-
TPH (Ali & Aro)	5	17	7	1	57	7	15	-	-
BTEX - Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.38	0
BTEX - Toluene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	880	0
BTEX - Ethyl Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	83	0
BTEX - m & p Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	79	0
BTEX - o Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	88	0
MTBE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-

Asbestos

Location	WS01	WS02	WS05	WS08	WS09	WS10	WS11		
Depth (m)	0.2	0.3	0.15	0.3	0.15	0.2	0.3		
Strata	Topsoil	Topsoil	Made Ground	Clayey Sand	Topsoil	Topsoil	Topsoil		
Contaminant									Number Exceeding
Asbestos in Soil	NAD	NAD	NAD	NAD	NAD	NAD	NAD		0

The full test certificates are included in Appendix III of this report.

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5.5. RADON

<1% of properties in the area are above the radon action level. Therefore radon specific protection measures are not required for new buildings in accordance with BRE publication BR211.

5.6. CONTAMINATION SOURCES

No elevated levels have been identified for the sources tested for.

Source	Elevated Levels Present?
Heavy Metals	No
Poly Aromatic Hydrocarbons	No
Total Petroleum Hydrocarbons	No
Asbestos	No
Radon	No
Land Gas	Undetermined

5.7. PATHWAYS

Based on the current land use, the possible pathways that exist on site for any possible source of contamination are as follows;

Pathway	Pathway Present	Comments
Direct Contact with soil/ water	Yes	Potential for contact with soil/ water during any landscaping works
Incidental ingestion	Yes	Potential for ingestion of soils/ water during any landscaping works
Inhalation of soil dust/ asbestos fibres	Yes	Potential for inhalation of soil dust/ asbestos during future landscaping works and ground disturbance
Leaching/ migration of liquids	Yes	Potential for leaching to aquifer assuming the site will likely remain developed with soft landscaping
Surface water run-off	Yes	Runoff from any hardstanding and areas not covered with vegetation
Migration/ emission/ accumulation inhalation of land gas/ vapours	Yes	Migration and emission of land gas/ vapours possible, and potential for accumulation in any new buildings
Plant uptake/ plant uptake followed by ingestion	Yes	It is assumed the site is to remain developed with areas of soft landscaping however home grown produce is unlikely

5.8. RECEPTORS

Based on the identified sources of contamination, and the present pathways, the potential receptors for the development are:-

Receptor	Receptor Present	Comments
Site worker	Yes	Contractors carrying out any ground works and landscaping
Maintenance staff	Yes	Future gardeners, landscaping and maintenance staff
Long term site user/ future resident	Yes	Future residents of the halls of residence

Receptor	Receptor Present	Comments
Off-site resident	Yes	Residential housing present adjacent to the north and east of the site
Flora & Fauna	Yes	Flora on landscaped areas
Aquifer	Yes	It is understood that the site lies within a source protection zone however a Phase I Desk Study has not been provided at this stage
Surface water	Yes	There are dykes and streams present within 250m of the site
Buildings & Infrastructure	Yes	Building sub-structure, services, drainage etc.

5.9. SITE SPECIFIC MODEL

Source	Contaminant	Receptor	Pathway	Risk
Soil based contaminants (Solid)	<i>Heavy Metals²</i>	A – Construction Workers ¹ B – Maintenance Worker ¹ C – Future End user ¹ E – Flora & Fauna ¹	a – Direct contact with soil/ water ¹ b – Incidental ingestion ¹ c – Inhalation of soil dust/ asbestos fibres ¹ d – Leaching/ migration ¹ e – Surface water run off ¹ g – Plant uptake/ plant uptake followed by ingestion ¹	Negligible
	<i>Polycyclic Aromatic Hydrocarbons²</i>	A – Construction Workers ¹ B – Maintenance Worker ¹ C – Future End user ¹ D – Off-Site Resident ¹ E – Flora & Fauna ¹	a – Direct contact with soil/ water ¹ b – Incidental ingestion ¹ c – Inhalation of soil dust/ asbestos fibres ¹ d – Leaching/ migration ¹ e – Surface water run off ¹ f – Migration/ emission/ inhalation of land gas/ vapours ¹ g – Plant uptake/ plant uptake followed by ingestion ¹	Negligible
	<i>Total Petroleum Hydrocarbon²</i>	A – Construction Workers ¹ B – Maintenance Worker ¹ C – Future End user ¹ D – Off-Site Resident ¹ E – Flora & Fauna ¹	a – Direct contact with soil/ water ¹ b – Incidental ingestion ¹ c – Inhalation of soil dust/ asbestos fibres ¹ d – Leaching/ migration ¹ e – Surface water run off ¹ f – Migration/ emission/ inhalation of land gas/ vapours ¹ g – Plant uptake/ plant uptake followed by ingestion ¹	Negligible
Asbestos in Made Ground	<i>Asbestos fibres²</i>	A – Construction Workers ¹ B – Maintenance Worker ¹ C – Future End user ¹ D – Off-Site Resident ¹	c – Inhalation of soil dust/ asbestos fibres ¹	Negligible
<i>Radon²</i>		C – Future End user ¹	f – Inhalation of gases ¹	Negligible
Land Gas ²		C – Future End user ¹	f – Inhalation of gases ¹	Undetermined

¹ Source/ Pathway/ Receptor PRESENT on site

²Source/ Pathway/ Receptor NOT PRESENT on site

5.10. CONTAMINATION ISSUES

No elevated levels have been identified for the sources tested for.

5.11. ENVIRONMENTAL SUMMARY

No elevated levels have been identified for the sources tested for. No Phase I Desk Study has been provided at this stage therefore the risks from any other potential contaminants not tested for cannot be determined.

All ground works should be monitored by a suitably qualified person and any significant deviation from the findings of this document is to be reported to the Engineer immediately prior to commencing any further works.

6. GEOTECHNICAL ASSESSMENT

6.1. GENERAL

The site investigation was required to determine general ground conditions beneath the site. No details of any proposed new development have been provided at this stage.

6.2. GEOLOGICAL ASSESSMENT

Artificial Deposits

Made Ground identified in WS04 and WS05 to depths of 0.7mbgl and 0.2mbgl respectively. The Made Ground comprised gravelly sand with fragments of ash, brick, sandstone and limestone.

Superficial Deposits

Superficial deposits comprising gravelly clay and gravelly sand were identified under the entire site to the base of each borehole.

Bedrock

Bedrock was not identified during the site investigation.

6.3. MINING

No evidence of mining was uncovered during the site investigation. A Phase 1 Desk Study has not been carried out for the site, therefore the potential for mining on site or in the surrounding area has not been assessed as part of this report.

6.4. FOUNDATIONS AND SUBSTRUCTURES

No details of the proposed development have been provided at this stage, therefore specific foundation recommendations cannot be made. However, based on the general ground conditions identified, it is determined that reinforced traditional foundations are likely to be suitable for any new low rise buildings.

6.5. GEOTECHNICAL TEST RESULTS

Soil samples were taken from site and submitted for the following geotechnical testing.

Location	WS03	WS07	WS09	WS10
Depth (m)	1.0 – 1.6	2.0 – 2.6	1.5 – 2.0	1.0 – 1.5
pH	8.74	8.55	8.82	8.95
SO ₄ (2:1)	0.03	0.04	0.02	<0.01
Plasticity Index	19	19	27	14
% <425µm	88	87	97	87
Modified Plasticity	16.72	16.53	26.19	12.18

Based on the soil sulphate concentrations and pH levels, AC-1 conditions exist for buried concrete in accordance with BRE Special Digest 1:2005 – Concrete in Aggressive Ground.⁴

The Plasticity Index for the soils tested, have been modified as per chapter 4.2 of NHBC guidelines. The results show low to medium volume change soils exist on site. As trees already exist on the site, foundations for any new buildings should be designed in accordance with chapter 4.2 of NHBC guidelines.⁵

6.6. GEOTECHNICAL SUMMARY

No details of the proposed development have been provided at this stage, therefore specific foundation recommendations cannot be made. However, reinforced traditional foundations are likely to be suitable for any proposed new low rise buildings.

Based on the soluble sulphate levels found, AC-1 conditions exist on site in accordance with BRE Special Digest 1:2005 – Concrete in Aggressive Ground.

Low to medium volume change soils exist below the site. Foundations should be designed in accordance with chapter 4.2 of NHBC guidelines.

All ground works should be monitored by a suitably qualified person and any significant deviation from the findings of this document is to be reported to the Engineer immediately prior to commencing any further.

⁴ BRE Special Digest 1, Concrete in Aggressive Ground, BRE Press, 2005

⁵ NHBC Standards, Chapter 4.2 Building Near Trees, NHBC, 2014

7. CONCLUSIONS AND RECOMMENDATIONS

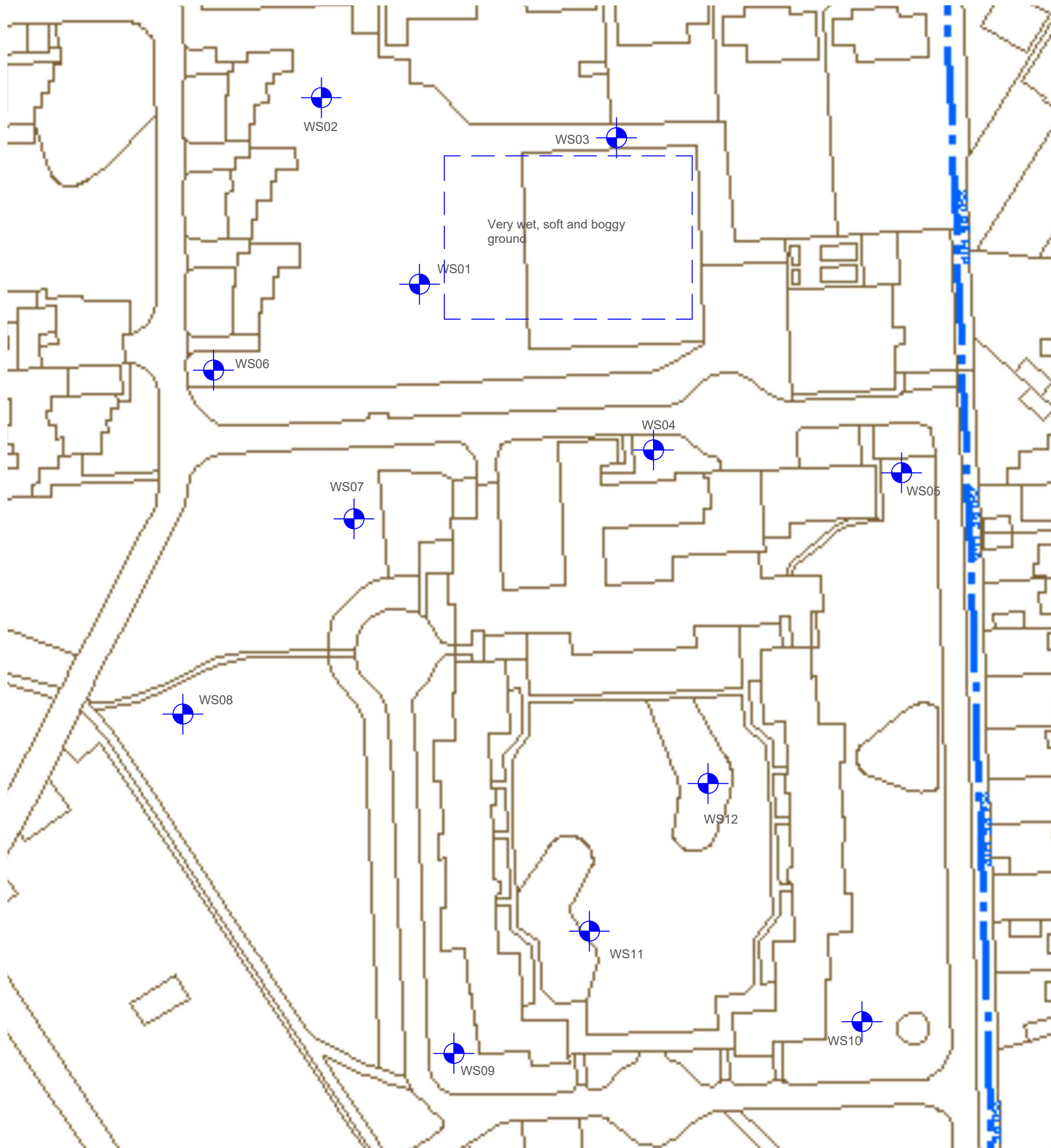
In conclusion:


- No Phase 1 Desk Study has been provided, therefore the scope of works carried out has been based on the specification provided by the client.
- No contamination linkages are deemed exist on the site for the sources tested for.
- The site is underlain by a nominal amount of Made Ground above gravelly clay and gravelly sand superficial deposits.

Reinforced traditional foundations are likely to be suitable for any proposed new low - rise buildings. This is subject to the details and layout of any final proposed development.


Appendix I

Site Investigation Plan



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1. Do not scale dimensions from this drawing in either paper or electronic format.
2. To be read in conjunction with all relevant Engineer's, Architect's and Other drawings and specifications.
3. All building products to be used in strict accordance with the manufacturer's recommendations.
4. Any discrepancies are to be reported to the Engineer immediately.
5. Main Contractor to provide a detailed method statement for all works prior to commencement on site.

 = Windowless Sampler Borehole Location

ISSUE	DATE	DRAWN	DESCRIPTION	CH'D



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Client
Chadwick Design and Project Management Ltd

Project
The Lawns, Hull University Campus
P21-00086

Title	Site Investigation Location Plan
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Drawn	TAW	Checked		Scale NTS
Date	10.03.21	Date		
Status Final				Original Size A3

Drawing No	Version
P21-00086-Met-M2-GE-001	1

Appendix II

Windowless Sampler Borehole Logs



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Windowless Sampler Borehole Log

Borehole No.

WS01

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503922E - 433457N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	15/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			Grass over loose brown very clayey gravelly SAND. Sand is fine to medium, gravel is sub-rounded fine sandstone. TOPSOIL. PID PPM = 0	1
								Soft to firm light orangish brown gravelly CLAY. Gravel is rounded fine to coarse sandstone, limestone and coal. Firm from 0.9 mbgl. PID PPM = 0	
		1.00	SPT	N=17 (1,2/3,4,5,5)	3.25				2
		2.00	SPT	N=22 (3,3/4,5,5,8)					
		3.00	SPT	N=19 (2,3/3,5,5,6)					3
		4.00	SPT	N=14 (2,3/3,4,4,3)					4
		4.60		HVP=46	5.00			Firm greyish brown silty gravelly CLAY. Gravel is fine sub-angular fine limestone. PID PPM = 0	5
		5.00	SPT	N=27 (4,4/6,6,7,8)				End of Borehole at 5.00m	

Remarks	
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Windowless Sampler Borehole Log

Borehole No.

WS02

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503916E - 433471N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	15/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.35			Grass over loose brown very clayey gravelly SAND. Sand is fine to medium, gravel is sub-rounded fine to coarse sandstone and brick. TOPOSIL. PID PPM = 0	1
		0.90 1.00	SPT	HVP=65 N=8 (1,1/2,2,2,2)				Firm light orangish brown CLAY. PID PPM = 0	
		1.50		HVP=75				Wet medium dense dark brown silty SAND. Sand is fine to medium. PID PPM = 0	2
		2.00	SPT	N=16 (2,2/3,4,4,5)					
		2.50						Firm grey silty CLAY. PID PPM = 0	3
		3.00	SPT	N=6 (1,1/1,1,2,2)	3.00				
		3.60		HVP=40					4
		4.00	SPT	N=9 (2,3/2,3,2,2)					
		5.00	SPT	N=14 (2,2/3,3,3,5)	5.00		End of Borehole at 5.00m		5

Remarks	
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Borehole No.

WS03

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503935E - 433481N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	15/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.15			Loose brown very clayey gravelly SAND. Sand is fine to medium, gravel is sub-rounded fine sandstone. TOPSOIL. PID PPM = 0	
		0.90		HVP=50					
		1.00	B						
		1.00	SPT	N=14 (2,2/2,4,4,4)					1
		1.50		HVP=95					
		2.00	SPT	N=16 (2,2/3,4,4,5)					2
					2.85			Medium dense yellowish brown gravelly SAND. Sand is medium to coarse, gravel is fine angular limestone. PID PPM = 0	3
		3.00	SPT	N=11 (2,3/4,3,3,1)					
					3.85			Soft greyish brown silty CLAY. PID PPM = 0	4
		4.00	SPT	N=4 (1,1/1,1,1,1)					
					4.50			Medium dense brown gravelly SAND. Sand is medium to coarse, gravel is angular fine limestone. PID PPM = 0	
		5.00	SPT	N=20 (2,3/5,5,5,5)	5.00			End of Borehole at 5.00m	5

Remarks	
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Borehole No.

WS04

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503947E - 433430N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	15/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.25			MADE GROUND. Grass over medium dense brown clayey gravelly SAND. Sand is fine to coarse, gravel is angular to sub-rounded fine to coarse sandstone, brick and limestone. PID PPM = 0	
					0.35			MADE GROUND. Medium dense dark grey medium SAND. PID PPM = 0	
					0.70			MADE GROUND. Medium dense multicoloured gravelly SAND. Sand is fine to coarse, gravel is angular fine to coarse brick and sandstone. PID PPM = 0	
		1.00	SPT	N=11 (2,2/2,3,3,3)				Firm to stiff orangish brown gravelly CLAY. Gravel is angular to rounded fine to coarse sandstone and limestone. Stiff from 1.2mbgl. PID PPM = 0	1
		1.30		HVP=110					
		2.00	SPT	N=22 (3,4/4,4,6,8)					2
		3.00	SPT	N=21 (3,4/4,5,6,6)	3.10				3
		4.00	SPT	N=20 (3,4/4,4,5,7)				Medium dense greyish brown silty gravelly SAND. Sand is fine, gravel is angular to rounded fine limestone. PID PPM = 0	4
		5.00	SPT	N=20 (4,4/4,5,5,6)	5.00				5
								End of Borehole at 5.00m	

Remarks



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Borehole No.

WS05

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503970E - 433433N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	15/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.12	ES		0.10			Grass over loose dark brown very clayey gravelly SAND. Sand is fine to medium, gravel is sub-rounded fine sandstone. TOPSOIL. PID PPM = 0	1
					0.20			MADE GROUND. Loose dark grey gravelly SAND. Sand is medium to coarse, gravel is angular fine ash. PID PPM = 0	
					0.60			Loose light brown clayey SAND with rootlets. Sand is medium. Relict TOPSOIL. PID PPM = 0	
		1.00	SPT	N=17 (2,2/3,4,4,6)				Firm orangish brown silty sandy CLAY. Sand is fine. PID PPM = 0	
		1.20		HVP=50					
		1.80		HVP=90					
		2.00	SPT	N=24 (2,2/5,5,7,7)	2.00			Firm wet brown silty sandy gravelly CLAY. Sand is fine, gravel is angular fine sandstone. PID PPM = 0	
		2.30		HVP=80					
					2.50				
		3.00	SPT	N=14 (1,2/2,3,4,5)				Medium dense wet brown gravelly medium SAND. Gravel is angular to rounded fine sandstone and limestone. PID PPM = 0	3
		4.00	SPT	N=11 (1,2/2,2,3,4)	4.00			End of Borehole at 4.00m	4
									5

Remarks	
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Borehole No.

WS06

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503897E - 433441N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	16/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.35			Grass over loose brown very clayey gravelly SAND with roots. Sand is fine to medium, gravel is sub-rounded fine sandstone. TOPSOIL. PID PPM = 0	
					0.80			Loose orangish brown very clayey gravelly SAND. Sand is medium to coarse, gravel is angular fine mudstone, sandstone, limestone and coal. PID PPM = 0	
		0.90		HVP=60				Firm orangish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium, gravel is angular to rounded fine to coarse sandstone. PID PPM = 0	
		1.00	SPT	N=12 (1,3/3,3,3,3)					1
		1.50		HVP=90					
		1.90		HVP=100					
		2.00	SPT	N=19 (2,3/3,5,5,6)					2
		2.55		HVP=110					
		2.70		HVP=140					
		3.00	SPT	N=20 (3,3/5,4,5,6)	3.00			Medium dense brown medium SAND. PID PPM = 0	3
					3.20			Firm greyish brown silty slightly gravelly CLAY. Gravel is angular to sub-rounded fine limestone. PID PPM = 0	
		4.00	SPT	N=12 (1,2/3,3,3,3)					4
		5.00	SPT	N=19 (3,5/4,5,5,5)	5.00			End of Borehole at 5.00m	5

Remarks	
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Borehole No.

WS07

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503895E - 433409N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	16/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			Grass over loose brown very clayey gravelly SAND, Sand is fine to medium, gravel is sub-rounded fine sandstone. TOPSOIL. PID PPM = 0	
					0.40			Loose orangish brown very clayey gravelly medium SAND. Gravel is rounded fine to coarse sandstone. PID PPM = 0	
								Firm orangish brown sandy gravelly CLAY. Sand is fine to medium, gravel is angular to rounded fine to coarse sandstone and limestone. PID PPM = 0	
		1.00	SPT	N=15 (2,3/3,4,4,4)					1
		1.50		HVP=90					
		2.00	B SPT	N=17 (3,3/4,4,4,5)					2
		2.60		HVP=110					
		3.00	SPT	N=18 (2,3/3,4,5,6)					3
		3.50		HVP=80					
		4.00	SPT	N=21 (3,3/5,4,6,6)					4
		5.00	SPT	N=21 (4,4/4,5,6,6)	5.00			End of Borehole at 5.00m	5

Remarks	
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Borehole No.

WS08

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503867E - 433361N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	16/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.18			0.18			Grass over loose brown very clayey gravelly SAND with rootlets. Sand is fine to medium gravel is sub-rounded fine sandstone. TOPSOIL. PID PPM = 0	
		0.30	ES		0.30			Loose brown very clayey medium SAND. PID PPM = 0	
		1.00		HVP=90				Firm orangish brown silty gravelly CLAY. Gravel is angular fine limestone. PID PPM = 0	1
		1.50		HVP=110					
		2.00	SPT	N=20 (2,4/5,5,5,5)					2
		2.50		HVP=120					
		3.00	SPT	N=32 (4,5/6,9,9,8)					3
		3.30			3.30			Dense light brown medium SAND. PID PPM = 0	
		3.60			3.60			Firm light grey silty CLAY. PID PPM = 0	
		4.00	SPT	N=13 (1,2/3,3,3,4)					4
		4.50			4.50			Medium dense wet clayey medium SAND. PID PPM = 0	
		4.80			4.80			Firm grey CLAY. PID PPM = 0	
		5.00	SPT	N=51 (2,2/3,6,15,27)	5.00			End of Borehole at 5.00m	5

Remarks	
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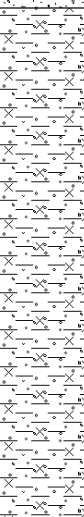
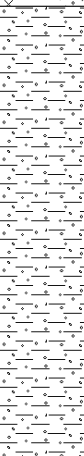
Windowless Sampler Borehole Log

Borehole No.

WS09

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503891E - 433337N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	16/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15	ES		0.20			Grass over loose dark brown clayey gravelly medium SAND. Gravel is angular fine to medium brick and tarmac. TOPSOIL. PID PPM = 0	1
					0.80			Medium dense reddish brown gravelly SAND. Sand is fine to coarse, gravel is angular to rounded fine to coarse sandstone. PID PPM = 0	
		1.00	SPT	N=8 (1,2/2,2,2,2)				Soft reddish brown silty gravelly CLAY. Gravel is rounded fine mudstone and limestone. PID PPM = 0	
		1.20		HVP=60					
		1.50	B						
		1.90		HVP=100					
		2.00	SPT	N=16 (1,2/3,4,4,5)					
		2.25		HVP=90					
		2.60		HVP=140	2.50			Stiff grey gravelly CLAY. Gravel is sub-rounded to rounded limestone. PID PPM = 0	3
		3.00	SPT	N=21 (3,4/5,6,5,5)					
				4.00	SPT	N=47 (4,5/8,8,10,21)	4.00		End of Borehole at 4.00m
									5

Remarks	
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Windowless Sampler Borehole Log

Borehole No.

WS10

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503969E - 433339N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	15/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30			Grass over loose dark brown clayey gravelly medium SAND. Gravel is angular fine to medium brick and tarmac. TOPSOIL. PID PPM = 0	
					0.50			Loose orangish brown clayey gravelly SAND. Sand is medium to coarse, gravel is sub-angular to rounded fine to coarse sandstone and mudstone. PID PPM = 0	
								Firm orangish brown silty gravelly CLAY. Gravel is angular to rounded fine to medium limestone. PID PPM = 0	
		1.00	B						1
		1.00	SPT	N=9 (1,1/2,2,2,3)					
		1.20		HVP=80					
		1.70		HVP=80					
		2.00	SPT	N=32 (2,4/7,8,9,8)	2.00			Medium dense wet medium SAND. PID PPM = 0	2
		2.60		HVP=140	2.50			Firm grey slightly gravelly CLAY. Very stiff from 4.5mbgl. PID PPM = 0	
		3.00	SPT	N=19 (3,4/4,5,5,5)					3
		3.50		HVP=90					
		4.00	SPT	N=20 (1,1/3,5,6,6)					4
		4.50		HVP=140	4.50				
								End of Borehole at 4.50m	5

Remarks	
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Windowless Sampler Borehole Log

Borehole No.

WS11

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503946E - 433343N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	17/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.35			Grass over loose dark brown clayey gravelly medium SAND. Gravel is angular fine to medium tarmac and brick. TOPSOIL. PID PPM = 0	1
					0.70			Loose orangish brown clayey gravelly SAND. Sand is fine to medium, gravel is angular to sub-rounded fine to coarse sandstone and quartz. PID PPM = 0	
		1.00	SPT	N=9 (1,1/2,3,2,2)				Firm orangish brown mottled with light grey very sandy gravelly CLAY. Sand is fine, gravel is angular to rounded fine to coarse sandstone. PID PPM = 0	
		1.50		HVP=65					2
		2.00	SPT	N=32 (2,2/7,9,8,8)	1.90			Medium dense orangish brown medium SAND. Wet from 2mbgl. PID PPM = 0	
		2.80		HVP=140	2.70			Stiff grey CLAY. PID PPM = 0	
		3.00	SPT	N=7 (1,1/1,2,2,2)	3.00			NO RECOVERY	3
		4.00	SPT	N=13 (2,2/2,3,4,4)	4.00			End of Borehole at 4.00m	4
									5

Remarks

No recovery from 3-4mbgl



Met Consultancy Group Ltd
Southgate House
Pontefract Road
Leeds
LS10 1SW
Email: admin@metconsultancygroup.com
Phone: 0113 200 8900

Windowless Sampler Borehole Log

Borehole No.

WS12

Sheet 1 of 1

Project Name:	The Lawns, Hull University Campus	Project No.	P21-00086	Co-ords:	503952E - 433356N	Hole Type	WS
Location:	The Lawns, University of Hull, Harland Way, HU16 5SQ			Level:		Scale	1:25
Client:	Chadwick Design and Project Management Ltd			Dates:	17/02/2021	Logged By	TAW

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.35			Grass over loose dark brown gravelly SAND. Sand is fine to medium, gravel is angular fine to medium tarmac and brick. TOPOIL. PID PPM = 0	
					1.10			Loose wet orangish brown clayey gravelly SAND. Sand is fine to medium, gravel is angular fine sandstone and mudstone. PID PPM = 0	1
					2.20			Firm orangish brown sandy gravelly CLAY. Sand is fine, gravel is angular to sub-rounded fine to coarse sandstone and mudstone. PID PPM = 0	2
		2.00	SPT	N=20 (2,2/4,6,6,4)					
		2.50		HVP=80					
		3.00	SPT	N=15 (2,2/3,4,4,4)				Firm grey CLAY. PID PPM = 0	3
		3.80		HVP=90					
		4.00	SPT	N=15 (2,3/3,3,4,5)	4.00			End of Borehole at 4.00m	4
									5

Remarks

Terminated due to inflow of water and sand

Appendix III

Soil Test Results



STRUCTURAL SOILS LTD
TEST REPORT



Report No. 784842 R1

Date 08-March-2021 Contract 20/01686

Client Envirolab Ltd
Address Units 7 & 8 Sandpits Business Park
Mottram Road
Hyde
SK14 3AR

For the Attention of Holly Neary-King

Samples submitted by client	22/02/2021	Client Reference	20/01686
Testing Started	02/03/2021	Client Order No.	
Testing Completed	08/03/2021	Instruction Type	Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests Undertaken

Moisture Content (oven drying method) BS1377:Part 2:1990,clause 3.2 (superseded) **
Liquid Limit (definitive method) BS1377:Part 2:1990,clause 4.3
Plastic Limit BS1377:Part 2:1990,clause 5.3
Plasticity Index Derivation BS1377:Part 2:1990,clause 5.4

* This clause of BS1377 is no longer the most up to date method due to the publication of ISO17892

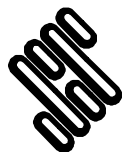
Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of.
Test were undertaken on samples 'as received' unless otherwise stated.
Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Structural Soils Ltd, The Potteries, Pottery Street, Castleford, WF10 1NJ Tel.01977 552255. E-mail luke.fisher@soils.co.uk

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Description of Sample
WS03	21/01686/3	D	1.00	16	34	15	19	88	Brown slightly sandy slightly gravelly CLAY
WS07	21/01686/5	D	2.00	14	34	15	19	87	Brown slightly sandy slightly gravelly CLAY
WS09	21/01686/8	D	1.50	18	44	17	27	97	Brown slightly gravelly silty CLAY
WS10	21/01686/10	D	1.00	15	29	15	14	87	Brown slightly gravelly slightly sandy CLAY



**STRUCTURAL
SOILS LTD**

Contract:

21/01686

Contract Ref:

784842



GINT_LIBRARY V10 01 GLB LibVersion: v8.07.001 PriVersion: v8.071 Graph L - ALINE STANDARD - A4P 784842 - 20-01686.GPJ - v10_01.
 The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255 Fax: 01977-552299, Web: www.solis.co.uk, Email: ask@solis.co.uk | 08/03/21 - 14:55 | LWSJ

TESTING VERIFICATION CERTIFICATE



1774

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **08/03/2021 16:05:32**.

Testing reported after this date is not covered by this Verification Certificate.

Approved Signatory
Luke Fisher (Materials Laboratory Manager)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU



**STRUCTURAL
SOILS LTD**

Contract:

21/01686

Job No:

784842



FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/01686
Issue Number: 1
Date: 08 March, 2021

Client: MET Engineers Ltd
Southgate House
Pontefract Road
Leeds
LS10 1SW

Project Manager: Ami Cooper/Thomas White
Project Name: The Lawns, Hull University Campus
Project Ref: P21-00086
Order No: PO-04958
Date Samples Received: 18/02/21
Date Instructions Received: 19/02/21
Date Analysis Completed: 08/03/21

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 21/01686

Client Project Name: The Lawns, Hull University Campus

Client Project Ref: P21-00086

Lab Sample ID	21/01686/1	21/01686/2	21/01686/3	21/01686/4	21/01686/5	21/01686/6	21/01686/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS03	WS05	WS07	WS08	WS09			
Depth to Top	0.20	0.30	1.00	0.15	2.00	0.30	0.15			
Depth To Bottom			1.60		2.60					
Date Sampled	15-Feb-21	15-Feb-21	15-Feb-21	15-Feb-21	16-Feb-21	16-Feb-21	16-Feb-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6AE	2AE	5A	2AE	5A	6AE	2AE			
% Stones >10mm _A	3.9	<0.1	<0.1	11.2	6.1	5.7	5.0	% w/w	0.1	A-T-044
pH _D ^{M#}	-	-	8.74	-	8.55	-	-	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	-	0.03	-	0.04	-	-	g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	-	-	230	-	<200	-	-	mg/kg	200	A-T-028s
Organic matter _D ^{M#}	2.2	3.4	-	21.5	-	1.2	4.3	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	<1	5	-	18	-	<1	5	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	<0.5	<0.5	-	<0.5	-	<0.5	0.6	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	12	29	-	60	-	11	30	mg/kg	1	A-T-024s
Chromium _D ^{M#}	27	24	-	29	-	32	30	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	-	<1	-	<1	<1	mg/kg	1	A-T-040s
Lead _D ^{M#}	25	44	-	33	-	18	76	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	-	<0.17	-	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	16	17	-	45	-	18	27	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	-	<1	-	<1	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	50	62	-	37	-	74	98	mg/kg	5	A-T-024s
1.02 Atterburg 4Pt BS1377 1990 pt2 cl4.4,5.3+5.4 _A [#]	-	-	Appended	-	Appended	-	-	%	1	Subcon SS
1.01 % Moisture BS1377 1990 pt2 cl3.2 _A [#]	-	-	Appended	-	Appended	-	-	%	0.1	Subcon SS

Envirolab Job Number: 21/01686

Client Project Name: The Lawns, Hull University Campus

Client Project Ref: P21-00086

Lab Sample ID	21/01686/1	21/01686/2	21/01686/3	21/01686/4	21/01686/5	21/01686/6	21/01686/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS03	WS05	WS07	WS08	WS09			
Depth to Top	0.20	0.30	1.00	0.15	2.00	0.30	0.15			
Depth To Bottom			1.60		2.60					
Date Sampled	15-Feb-21	15-Feb-21	15-Feb-21	15-Feb-21	16-Feb-21	16-Feb-21	16-Feb-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6AE	2AE	5A	2AE	5A	6AE	2AE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	-	NAD	-	NAD	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	-	N/A	-	N/A	N/A			A-T-045

Envirolab Job Number: 21/01686

Client Project Name: The Lawns, Hull University Campus

Client Project Ref: P21-00086

Lab Sample ID	21/01686/1	21/01686/2	21/01686/3	21/01686/4	21/01686/5	21/01686/6	21/01686/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS03	WS05	WS07	WS08	WS09			
Depth to Top	0.20	0.30	1.00	0.15	2.00	0.30	0.15			
Depth To Bottom			1.60		2.60					
Date Sampled	15-Feb-21	15-Feb-21	15-Feb-21	15-Feb-21	16-Feb-21	16-Feb-21	16-Feb-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6AE	2AE	5A	2AE	5A	6AE	2AE			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	-	<0.01	-	<0.01	0.05	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	-	<0.02	-	<0.02	0.12	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	-	<0.04	-	<0.04	0.34	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	-	<0.04	-	<0.04	0.26	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	-	<0.05	-	<0.05	0.31	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	-	<0.05	-	<0.05	0.13	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	-	<0.07	-	<0.07	0.11	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	-	<0.06	-	<0.06	0.31	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	-	<0.04	-	<0.04	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	-	<0.08	-	<0.08	0.73	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	-	<0.01	-	<0.01	0.04	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	-	<0.03	-	<0.03	0.14	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	-	<0.03	-	<0.03	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	-	<0.03	-	<0.03	0.50	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	-	<0.07	-	<0.07	0.60	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	-	<0.08	-	<0.08	3.64	mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/01686

Client Project Name: The Lawns, Hull University Campus

Client Project Ref: P21-00086

Lab Sample ID	21/01686/1	21/01686/2	21/01686/3	21/01686/4	21/01686/5	21/01686/6	21/01686/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01	WS02	WS03	WS05	WS07	WS08	WS09			
Depth to Top	0.20	0.30	1.00	0.15	2.00	0.30	0.15			
Depth To Bottom			1.60		2.60					
Date Sampled	15-Feb-21	15-Feb-21	15-Feb-21	15-Feb-21	16-Feb-21	16-Feb-21	16-Feb-21			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6AE	2AE	5A	2AE	5A	6AE	2AE			
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	-	<1	-	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	-	<1	-	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	-	<1	-	<1	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	-	<1	-	<1	<1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	2	6	-	2	-	<1	6	mg/kg	1	A-T-055s
Total Aliphatics _A	2	6	-	2	-	<1	6	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	-	<1	-	<1	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	-	<1	-	<1	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	-	<1	-	<1	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	<1	1	-	<1	-	<1	8	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	3	10	-	4	-	1	43	mg/kg	1	A-T-055s
Total Aromatics _A	3	11	-	4	-	1	51	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	5	17	-	7	-	1	57	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 21/01686

Client Project Name: The Lawns, Hull University Campus

Client Project Ref: P21-00086

Lab Sample ID	21/01686/8	21/01686/9	21/01686/10	21/01686/11				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS09	WS10	WS10	WS11						
Depth to Top	1.50	0.20	1.00	0.30						
Depth To Bottom	2.00		1.50							
Date Sampled	16-Feb-21	16-Feb-21	16-Feb-21	17-Feb-21						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	6AE	5A	2AE						
% Stones >10mm _A	<0.1	3.8	<0.1	<0.1				% w/w	0.1	A-T-044
pH _D ^{M#}	8.82	-	8.95	-				pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.02	-	<0.01	-				g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	<200	-	<200	-				mg/kg	200	A-T-028s
Organic matter _D ^{M#}	-	3.2	-	5.1				% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	-	2	-	10				mg/kg	1	A-T-024s
Cadmium _D ^{M#}	-	<0.5	-	<0.5				mg/kg	0.5	A-T-024s
Copper _D ^{M#}	-	23	-	27				mg/kg	1	A-T-024s
Chromium _D ^{M#}	-	33	-	31				mg/kg	1	A-T-024s
Chromium (hexavalent) _D	-	<1	-	<1				mg/kg	1	A-T-040s
Lead _D ^{M#}	-	45	-	42				mg/kg	1	A-T-024s
Mercury _D	-	<0.17	-	<0.17				mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	-	25	-	27				mg/kg	1	A-T-024s
Selenium _D ^{M#}	-	<1	-	<1				mg/kg	1	A-T-024s
Zinc _D ^{M#}	-	88	-	78				mg/kg	5	A-T-024s
1.02 Atterburg 4Pt BS1377 1990 pt2 cl4.4,5.3+5.4 _A [#]	Appended	-	Appended	-				%	1	Subcon SS
1.01 % Moisture BS1377 1990 pt2 cl3.2 _A [#]	Appended	-	Appended	-				%	0.1	Subcon SS

Envirolab Job Number: 21/01686

Client Project Name: The Lawns, Hull University Campus

Client Project Ref: P21-00086

Lab Sample ID	21/01686/8	21/01686/9	21/01686/10	21/01686/11				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS09	WS10	WS10	WS11						
Depth to Top	1.50	0.20	1.00	0.30						
Depth To Bottom	2.00		1.50							
Date Sampled	16-Feb-21	16-Feb-21	16-Feb-21	17-Feb-21						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	6AE	5A	2AE						
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	-	NAD	-	NAD						A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	-	N/A	-	N/A						A-T-045

Envirolab Job Number: 21/01686

Client Project Name: The Lawns, Hull University Campus

Client Project Ref: P21-00086

Lab Sample ID	21/01686/8	21/01686/9	21/01686/10	21/01686/11				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS09	WS10	WS10	WS11						
Depth to Top	1.50	0.20	1.00	0.30						
Depth To Bottom	2.00		1.50							
Date Sampled	16-Feb-21	16-Feb-21	16-Feb-21	17-Feb-21						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	6AE	5A	2AE						
PAH-16MS										
Acenaphthene _A ^{M#}	-	<0.01	-	<0.01				mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	-	<0.01	-	<0.01				mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	-	<0.02	-	<0.02				mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	-	<0.04	-	<0.04				mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	-	<0.04	-	<0.04				mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	-	<0.05	-	<0.05				mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	-	<0.05	-	<0.05				mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	-	<0.07	-	<0.07				mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	-	<0.06	-	<0.06				mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	-	<0.04	-	<0.04				mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	-	<0.08	-	<0.08				mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	-	<0.01	-	<0.01				mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	-	<0.03	-	<0.03				mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	-	<0.03	-	<0.03				mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	-	<0.03	-	<0.03				mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	-	<0.07	-	<0.07				mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	-	<0.08	-	<0.08				mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/01686

Client Project Name: The Lawns, Hull University Campus

Client Project Ref: P21-00086

Lab Sample ID	21/01686/8	21/01686/9	21/01686/10	21/01686/11				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS09	WS10	WS10	WS11						
Depth to Top	1.50	0.20	1.00	0.30						
Depth To Bottom	2.00		1.50							
Date Sampled	16-Feb-21	16-Feb-21	16-Feb-21	17-Feb-21						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	6AE	5A	2AE						
TPH CWG										
Ali >C5-C6 _A [#]	-	<0.01	-	<0.01				mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	-	<0.01	-	<0.01				mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	-	<1	-	<1				mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	-	<1	-	<1				mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	-	<1	-	<1				mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	-	<1	-	<1				mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	-	4	-	6				mg/kg	1	A-T-055s
Total Aliphatics _A	-	4	-	6				mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	-	<0.01	-	<0.01				mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	-	<0.01	-	<0.01				mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	-	<1	-	<1				mg/kg	1	A-T-055s
Aro >C10-C12 _A	-	<1	-	<1				mg/kg	1	A-T-055s
Aro >C12-C16 _A	-	<1	-	<1				mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	-	<1	-	<1				mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	-	4	-	9				mg/kg	1	A-T-055s
Total Aromatics _A	-	4	-	9				mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	-	7	-	15				mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	-	<0.01	-	<0.01				mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	-	<0.01	-	<0.01				mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	<0.01	-	<0.01				mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	-	<0.01	-	<0.01				mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	-	<0.01	-	<0.01				mg/kg	0.01	A-T-022s
MTBE _A [#]	-	<0.01	-	<0.01				mg/kg	0.01	A-T-022s

REPORT NOTES

General

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

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

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

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

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

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

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

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

Soil chemical analysis:

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

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

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

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

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

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

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

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

Asbestos:

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

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

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

Predominant Matrix Codes:

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

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

Secondary Matrix Codes:

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

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

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

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

Please contact us if you need any further information.

Envirolab Deviating Samples Report

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Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: MET Engineers Ltd, Southgate House, Pontefract Road, Leeds, LS10 1SW

Project No: 21/01686

Project: The Lawns, Hull University Campus

Date Received: 19/02/2021 (am)

Clients Project No: P21-00086

Cool Box Temperatures (°C): 10.5

NO DEVIATIONS IDENTIFIED

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