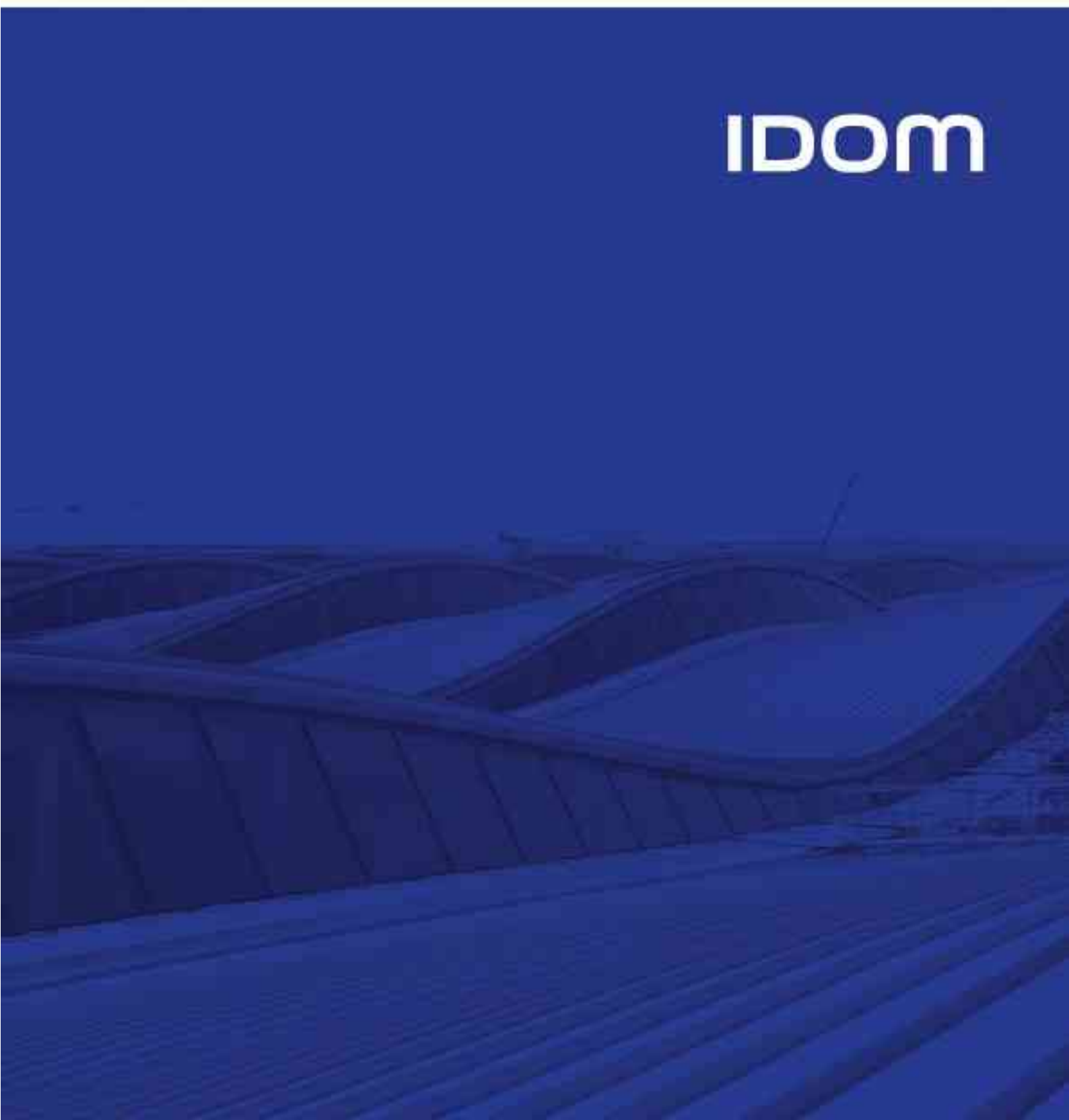


**REMEDIATION STRATEGY AND VERIFICATION PLAN
JOSEPH NORTON SEMH SCHOOL
HUDDERSFIELD
WATES CONSTRUCTION LTD
RSVP-25049-25-94 REV A
APRIL 2025**



IDOM



REMEDIATION STRATEGY AND VERIFICATION PLAN
 JOSEPH NORTON SEMH SCHOOL
 HUDDERSFIELD
 WATES CONSTRUCTION LTD
 RSVP-25049-25-94 REV A
 APRIL 2025

Document Issue Record

Status	Final	Date of Issue	06/03/25
--------	-------	---------------	----------

Prepared by		Approved by	
Thea James	BSc	Linford Shacklady	BSc MSc ACIEH
			

Rev	Prepared	Approved	Date of Issue	Reason(s) for Revision
A	KRP	LGS	15/04/25	Inclusion of further ground investigation. Updated ground gas monitoring and assessment.

TABLE OF CONTENTS

SECTION 1	INTRODUCTION	5
SECTION 2	BACKGROUND	6
2.1	SITE LOCATION AND SETTING	6
2.2	PRELIMINARY REMEDIATION STRATEGY	10
SECTION 3	GEOENVIRONMENTAL ASSESSMENT SUMMARY	10
3.1	INTRODUCTION.....	10
3.2	SITE HISTORY	10
3.3	GEOLOGY	16
3.4	HYDROGEOLOGY	17
3.5	HYDROLOGY	18
3.6	GROUND CONDITIONS	18
3.7	CONTAMINATION AND DISTRIBUTION.....	18
3.8	HSP.....	18
3.9	IDOM MEREBROOK 2025	23
3.10	CONTAMINATION RISKS – SOIL CHEMICAL CONTAMINATION.....	23
3.11	GROUND GAS.....	24
SECTION 4	CONCEPTUAL MODEL.....	26
4.1	INTRODUCTION.....	26
SECTION 5	ASBESTOS PLAN OF WORKS	29
5.1	INTRODUCTION.....	29
5.2	IDENTIFICATION OF AREA AFFECTED BY ASBESTOS	29
5.3	RISK ASSESSMENT	30
5.4	PROCEDURES FOR REMOVAL OF VISIBLE IDENTIFIED ACM	30
5.5	GENERAL PROCEDURE FOR PLANT DECONTAMINATION	31
5.6	ASBESTOS AWARENESS.....	31
5.7	PPE AND RPE	31
5.8	STAFF/RESPONSIBILITIES.....	32
5.9	GENERAL ACMS BONDED	32
5.10	FRIABLE AND FIBROUS ASBESTOS	32
5.11	CACHE PROCEDURES	33
5.12	ASBESTOS WASTE HANDLING	33
5.13	EMERGENCY PROCEDURES	34
5.14	DUST CONTROLS	34
5.15	ASBESTOS AIR MONITORING	34
5.16	SITE HYGIENE.....	34
SECTION 6	DETAILED REMEDIAL STRATEGY	35
6.1	OVERVIEW.....	35
6.2	CLEAN COVER - DESIGN	35
SECTION 7	CONTAMINATION DISCOVERY STRATEGY	38
SECTION 8	SERVICE CORRIDORS	38
SECTION 9	VALIDATION PROTOCOLS	38
9.1	VALIDATION OF CLEAN COVER.....	38

9.2	VALIDATION OF MATERIALS FOR USE AS GENERAL FILL.....	41
9.3	CHARACTERISATION OF SOILS FOR DISPOSAL.....	41
SECTION 10	ENVIRONMENTAL CONTROLS.....	42
10.1	INTRODUCTION.....	42
10.2	EMISSIONS CONTROLS.....	42
SECTION 11	REPORTING.....	42
SECTION 12	CONCLUSIONS.....	43

APPENDIX 1

- Site Location Plan
- Proposed Development Layout

APPENDIX 2

- Proposed Landscaping Layout

APPENDIX 3

- IDOM Merebrook Exploratory Hole & Sampling Locations – March 2025
- IDOM Merebrook Exploratory Hole Logs – March 2025

APPENDIX 4

- Laboratory Certificates of Analysis IDOM Merebrook supplementary investigation March 2025

APPENDIX 5

- Ground gas monitoring results IDOM Merebrook supplementary investigation March-April 2025

APPENDIX 6

- Risk Assessment Methodology

SECTION 1 INTRODUCTION

- 1.1 Wates Construction Ltd is redeveloping an area of land located off Deighton Road for a new Social Emotional and Mental Health (SEMH) school.
- 1.2 As consented by Kirklees Council (ref 2023/48/93350/W) the development will comprise:
- i.* single and two storey educational buildings;
 - ii.* sensory garden spaces;
 - iii.* multi-use games areas;
 - iv.* landscaping;
 - v.* hardstanding areas;
 - vi.* car parking; and
 - vii.* access with secure fencing and ancillary development.
- 1.3 A site location plan and proposed development layout are presented in Appendix 1.
- 1.4 IDOM Merebrook Limited (IDOM) has been commissioned by Wates Construction Ltd to prepare a Remediation Strategy and Verification Plan. This document has been prepared in accordance with LCRM (Land Contamination Risk Management) guidance (July 2023).
- 1.5 The following third party reports have been provided by Wates Construction:
- i.* Joseph Norton SEMH School (Former Deighton Centre), Phase I Geo-Environmental Desk Study Report ref HSP2022-C4164-G-GPI-1137. HSP Consulting, December 2022;
 - ii.* Joseph Norton SEMH School (Former Deighton Centre), Coal Mining Risk Assessment, ref C4164 – REV A, HSP Consulting, March 2023; and
 - iii.* Joseph Norton SEMH School (Former Deighton Centre), Phase II Geo-Environmental Assessment Report ref HSP2023-C4164-G-GPII-1222, Revision B, HSP Consulting, February 2024.
- 1.6 This *Remediation Strategy and Verification Plan* provides further details regarding the remediation methods, validation techniques / requirements and environmental controls to be applied during the development works.
- 1.7 The objectives of this report are to:
- i.* Summarise the contamination present at the site and the associated risks;

- ii.* Present the details of a remediation strategy based on current knowledge of the site;
 - iii.* Set out the verification procedures and techniques to be employed to ensure that the remedial works are effective;
 - iv.* Set out the required acceptance criteria for imported soils;
 - v.* Set out soil waste identification and disposal protocols; and
 - vi.* Summarise the environmental controls to be implemented during the works to manage contamination issues.
- 1.8 The first issue of this report dated 6 March 2025 was solely based on the findings and conclusions of the third-party ground investigation reports provided by Wates Construction Ltd for which IDOM had not independently verified the accuracy, completeness, or reliability of the data, interpretations, or conclusions presented in the reports.
- 1.9 The available information has been reviewed and supplemented with additional intrusive investigation data, soil chemical analysis results and ground gas monitoring results obtained by IDOM. Together these inform this revision of the proposed remediation and verification methods. It remains that IDOM cannot accept responsibility for any errors, omissions, or misinterpretations within the third-party reports that may impact the findings or recommendations of this document. Should any discrepancies or unforeseen ground conditions arise during the remediation works, further assessment may be required, and modifications to the remediation strategy may be necessary.
- 1.10 This report has been prepared for Wates Construction Ltd for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult Wates Construction Ltd and IDOM as to the extent to which the findings may be appropriate for their use.

SECTION 2 BACKGROUND

2.1 SITE LOCATION AND SETTING

- 2.1.1 The site is located off Deighton Road, on land formerly occupied by the Deighton Centre Secondary School which was demolished in 2013. The site occupies an area of approximately 2.07 ha located at National Grid Reference 415904, 419561 and indicated on the Site Location Plan presented in Appendix 1.
- 2.1.2 The site is bound to the southwest by the Christ Church CE Academy; delineated by green palisade fencing. The north of the site is bound by a woodland, which slopes down to the residential dwellings located off Tenter Hill Lane (60 m north of site). To the east of site are playing fields, and the south of site is Deighton Road, which is lined with residential properties.

- 2.1.3 The site is currently vacant with the former access road and carparks of the Deighton Centre remaining. Scrubland / overgrown greenspace occupies the area where the former school buildings stood. A few informal paths cut across this area, which are understood to be used by the general public. A public right of way footpath is located adjacent to the southwestern / west site boundary.
- 2.1.4 HSP Consulting identified a water discharge during their walkover, flowing across the site which will need to be addressed (if still occurring) as part of the development
- 2.1.5 Figure 1 below illustrates the site setting prior to demolition in 2013, Figure 2 presents the post demolition site setting in 2016 and Figure 3 presents the most recent imagery from 2023.

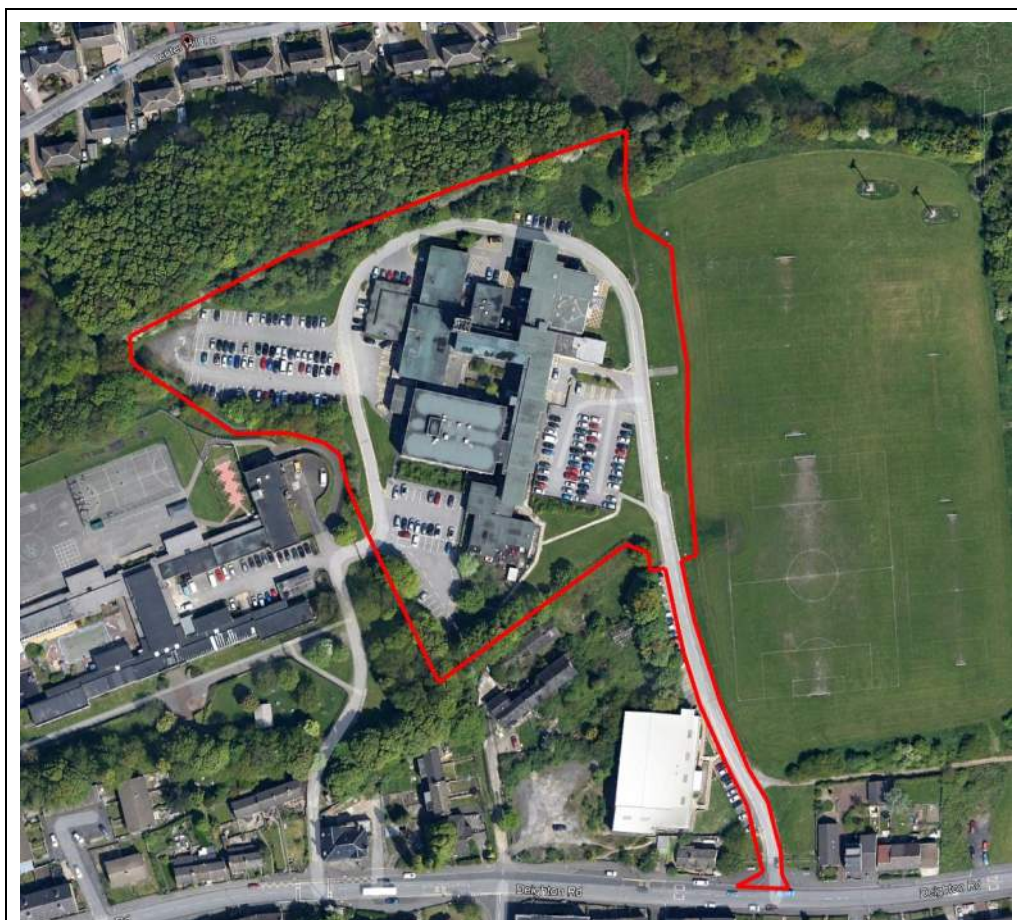


Figure 1: 2013 satellite imagery

Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

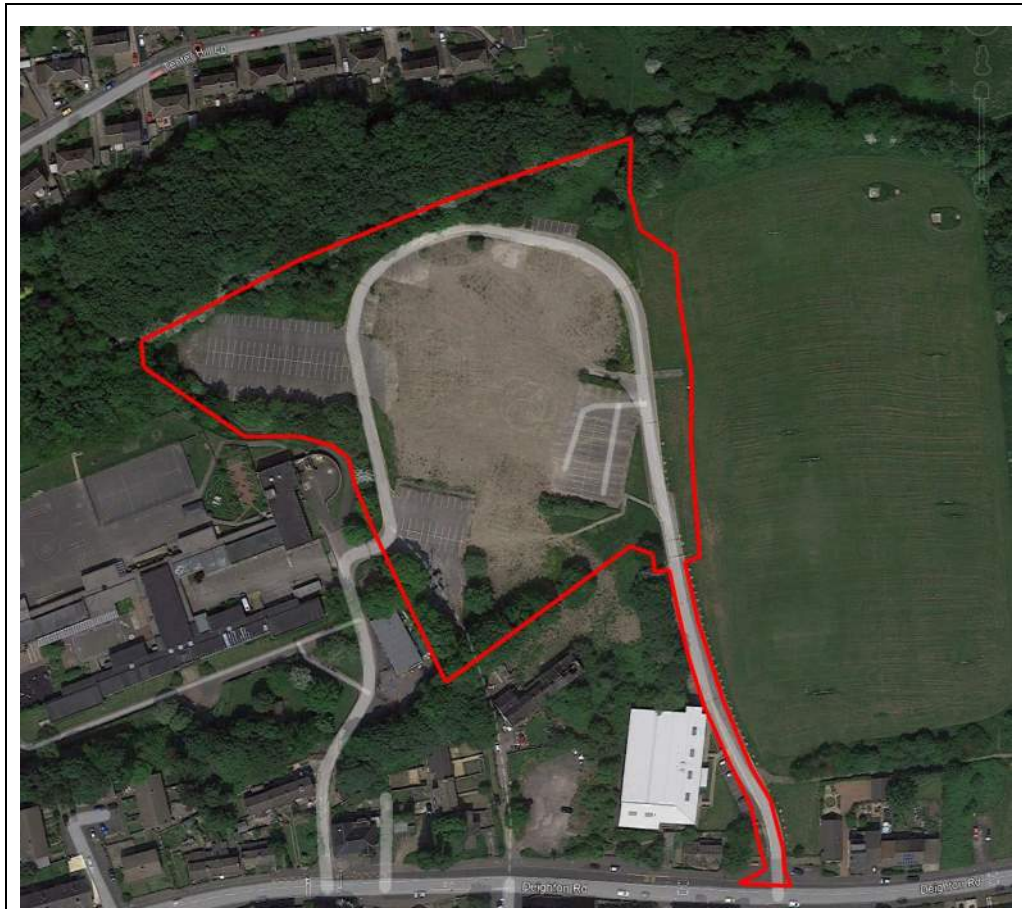


Figure 2: 2016 satellite imagery

Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.



Figure 3: 2023 satellite imagery

Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

2.1.6 Figure 4 below presents an extract taken from a site walkover conducted by HSP Consulting.



Figure 4: Site as photographed during walkover undertaken by HSP Consulting in 2022.

2.1.7 The site is owned and being developed by Kirklees Council.

2.1.8 The appointed principal contractor is Wates Construction Limited.

2.2 PRELIMINARY REMEDIATION STRATEGY

2.2.1 The Phase II Geo-Environmental Assessment report produced by HSP Consulting recommended a remediation strategy be produced for the provision of clean cover in soft landscaped areas.

SECTION 3 GEOENVIRONMENTAL ASSESSMENT SUMMARY

3.1 INTRODUCTION

3.1.1 This section provides a summary of the environmental setting from the various stages of geo-environmental assessment which have been undertaken for the site.

3.2 SITE HISTORY

3.2.1 The site was undeveloped until around 1957 when mapping shows the Deighton Secondary School present on site, as well as a number of embankments / cuttings which indicate that the site was terraced to form a plateau for the school.

- 3.2.2 A small refuse tip is also shown on maps produced between 1966 and 1970 within an embankment to the north of the site. Both the embankments / cuttings and refuse tip are no longer mapped from 1988.
- 3.2.3 From 2000, car parks and soft landscaping are mapped surrounding the school, now known as the Deighton Centre. From 2022 the Deighton Centre is no longer shown on site, and it is known that this was demolished in 2013. Car parks and the access road remain *in situ*.
- 3.2.4 Mapping indicates that the land adjacent to the east of the site was reprofiled to form playing fields. The Groundsure Report indicated this land was a historical landfill according to EA records. No details regarding this landfill other than the waste type being household are available. HSP consulted the local authority for more information who advised the “*in 1965 this was used as a spoil heap. The site was recorded as playing fields in 2009. There are no records of a waste disposal licence having been issued for this site. The waste type, depth, quantity, and date of filling is unknown*”.
- 3.2.4.1 The Council further advised: “*Shallow spike surveys carried out on the tipped area between 1989 and 2003*”. The results of this survey are reproduced below:

DATE	METHANE (% v/v)	CARBON DIOXIDE (% v/v)
9th July 2003	< 0.1	0.5
23rd May 1995	< 0.1	0.5
23rd March 1995	< 0.1	1.0
1st September 1994	< 0.1	4.0
29th November 1993	25.0	10.0
5th November 1992	3.0	-
22nd January 1992	24.0	-
23rd March 1991	1.0	-
30th January 1990	4.0	-
27th October 1989	18.0	-
28th June 1989	4.0	-
13th March 1989	< 0.1	-

- 3.2.5 Extracts from historical mapping provided and adjacent landfill extents as provided by the Groundsure Report are provided below.

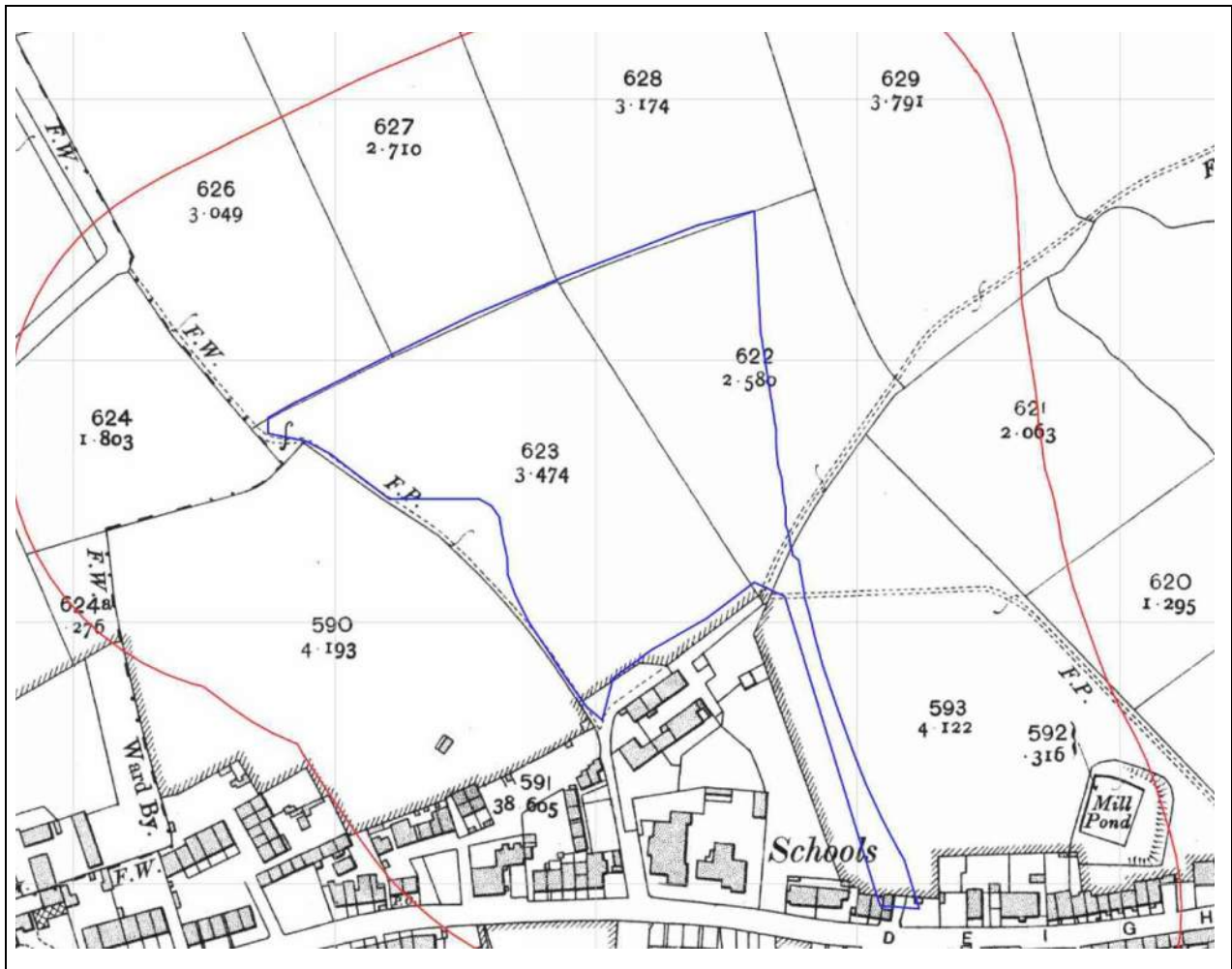


Figure 5: 1907 1:2,500 map showing predevelopment site setting
reproduced from Phase I Geo-Environmental Desk Study produced by HSP Consulting.

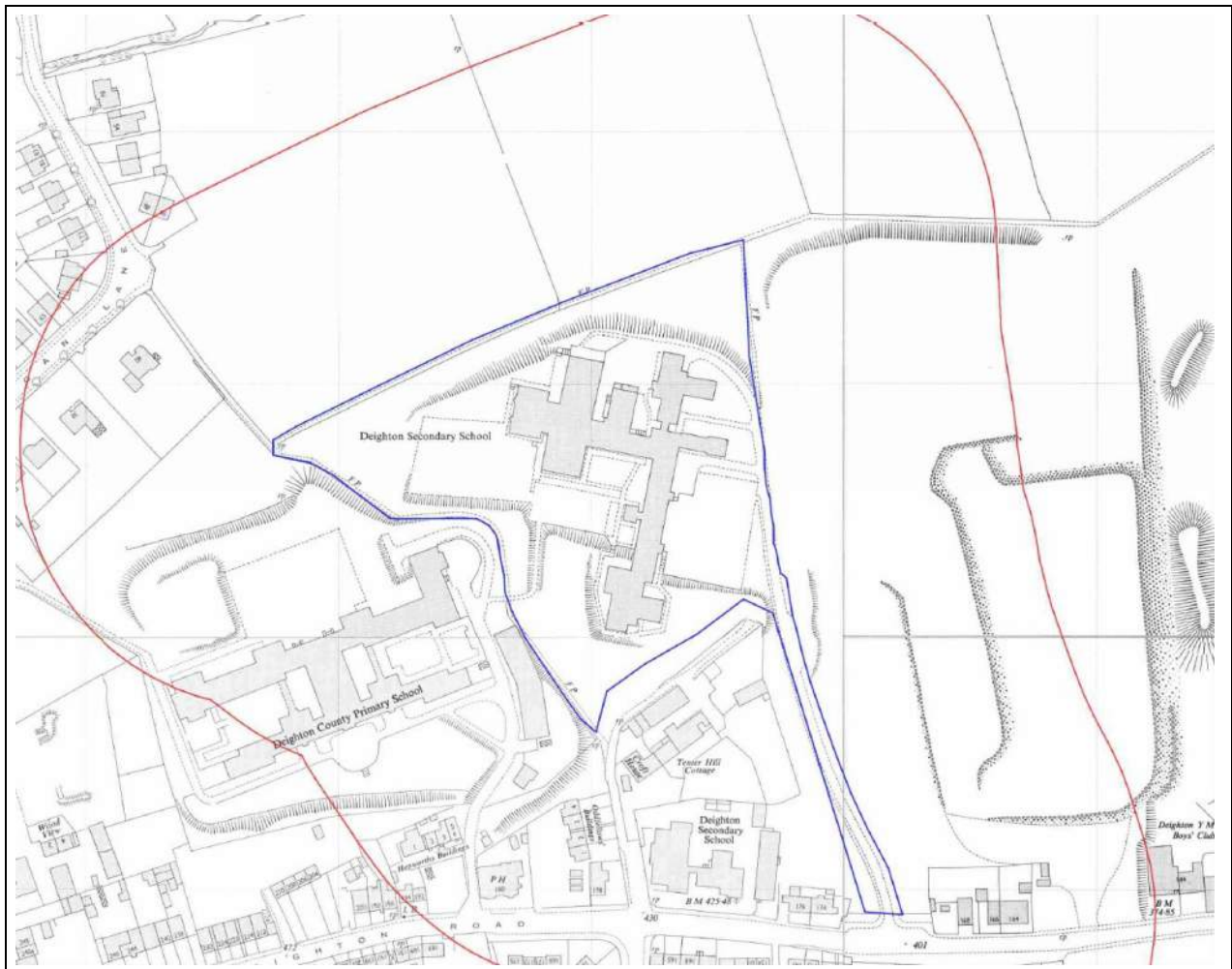
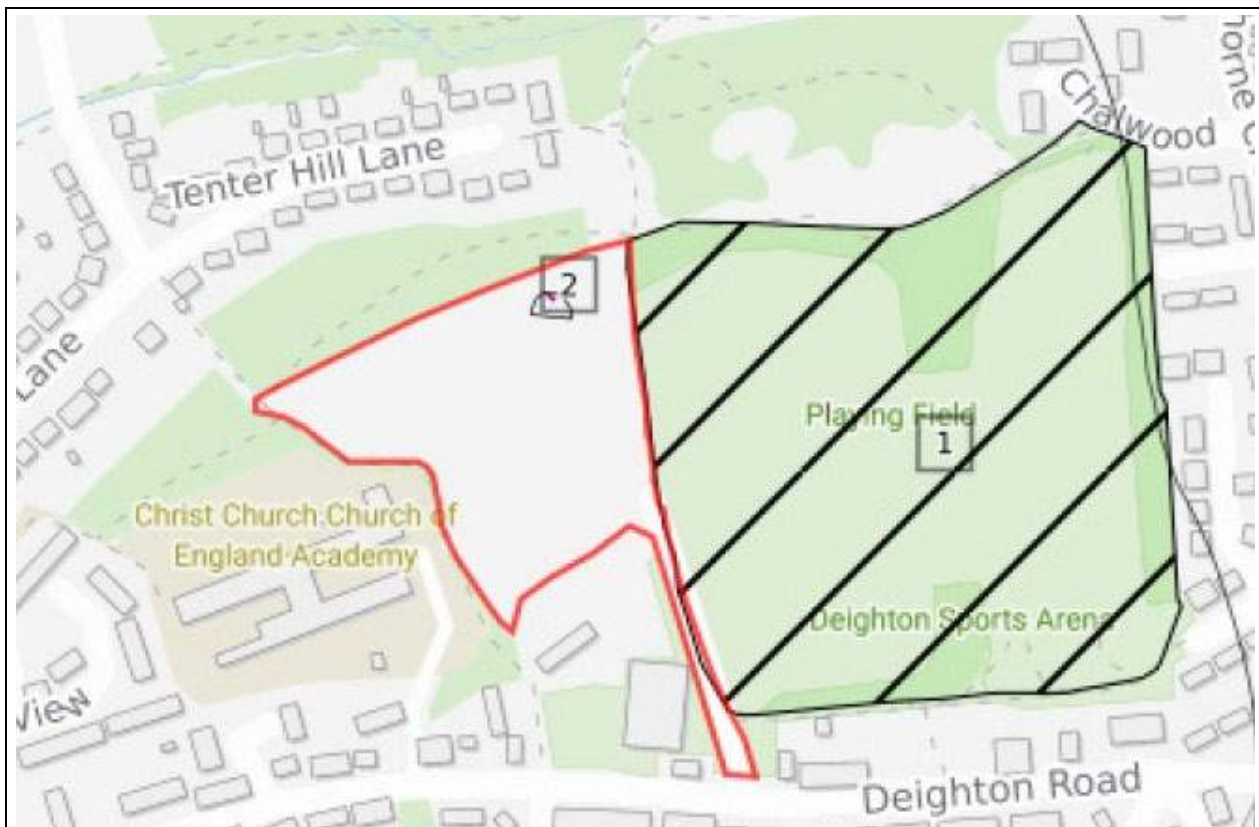


Figure 6: 1957 1:1,250 map showing development of Deighton Secondary School on the site and map symbols indicating filling on adjacent site to the east

reproduced from Phase I Geo-Environmental Desk Study produced by HSP Consulting.



3.3 Historical landfill (LA/mapping records)

Records within 500m	1
----------------------------	----------

Landfill sites identified from Local Authority records and high detail historical mapping. Features are displayed on the Waste and landfill map on **page 23**

ID	Location	Site address	Source	Data type
2	On site	Refuse Tip	1966 mapping	Polygon

3.4 Historical landfill (EA/NRW records)

Records within 500m	3
----------------------------	----------

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on **page 23**

ID	Location	Details		
1	On site	Site Address: Deighton Playing Fields, Deighton Road, Riddings, Huddersfield Licence Holder Address: -	Waste Licence: - Site Reference: - Waste Type: Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: - First Recorded: - Last Recorded: -

Figure 7: Groundsure Historic Landfill Map showing on site landfill (2) and landfill to the east (1) reproduced from Phase I Geo-Environmental Desk Study produced by HSP Consulting.



Figure 8: 1966 1:1,250 map showing refuse tip on site (landfill 2 on Groundsure map) within embankment and completed playing fields to the east

reproduced from Phase I Geo-Environmental Desk Study produced by HSP Consulting.

- 3.2.6 The playing fields to the east appear to have been formed to give a level playing surface set at a lower elevation than the former school land (see Figure 9). Very little information is available on potential filling activities, with historic landfill data only limited to the waste type as household. Assuming the site has been correctly identified as a historical landfill, then, based on our experience of sites of similar age and context (formation of public playing fields), anticipated fill could include mixed soils, mostly black silty soils formed from ash and cinders from domestic fires, with subfractions of bottles, ceramics, animal bones, some plastic and similar discarded household items. Potential putrescible material beneath the playing fields would have largely degraded, as suggested by the more recent spike data.



Figure 9: 2012 view of playing fields with level topography

Copyright Google Streetview image capture 2012.

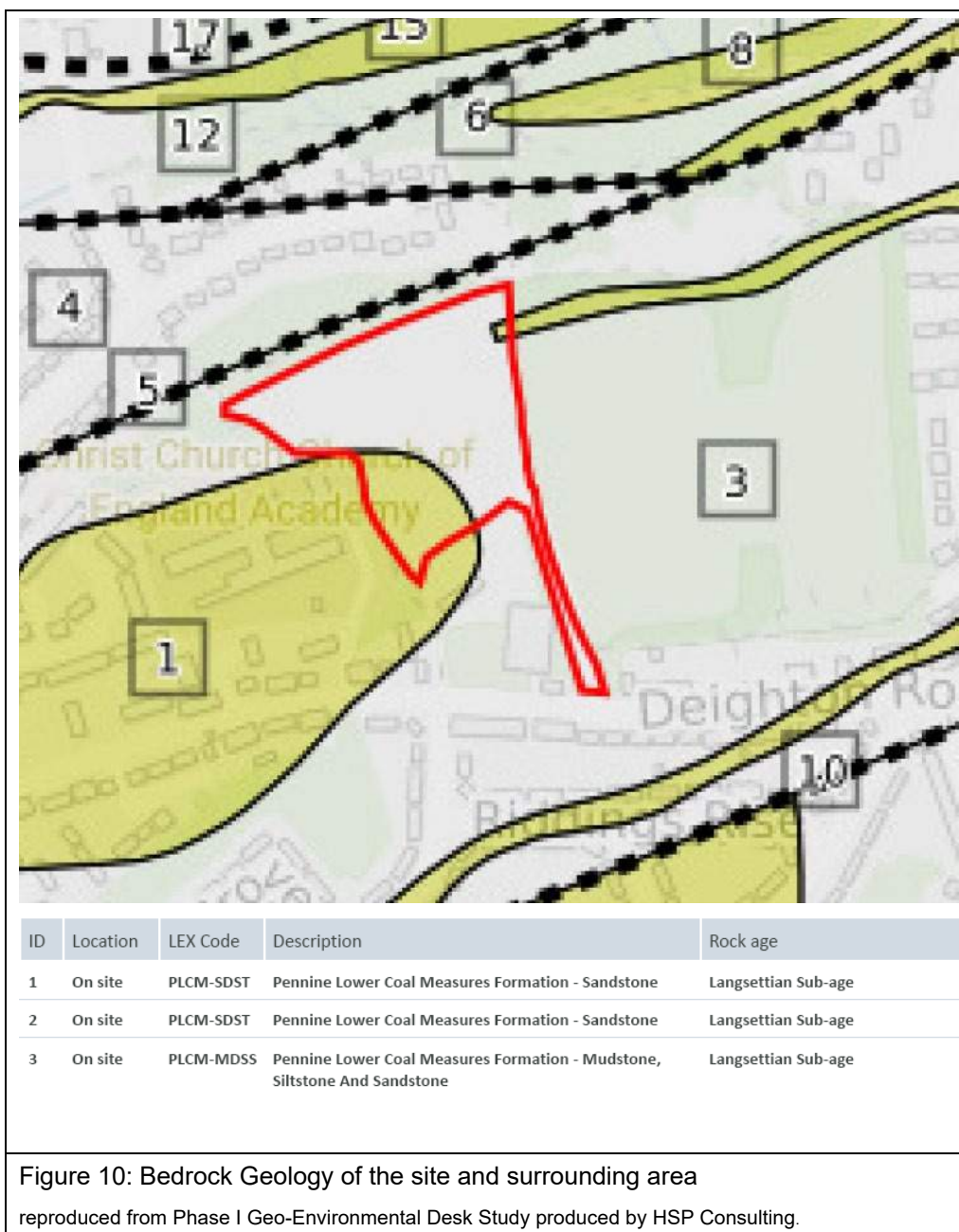
3.3 GEOLOGY

3.3.1 Table 1 summarises British Geological Survey (BGS) mapping for the site. There are no superficial deposits present on site.

Table 1: Summary of published geology

Geological Unit	Type	Description	Anticipated thickness on site (m)
Bedrock	Pennine Lower Coal Measures Formation	Sandstone	650
Bedrock	Pennine Lower Coal Measures Formation	Mudstone, Siltstone and Sandstone	650

3.3.2 Figure 10 below shows the Bedrock Geology map provided within the Groundsure report, which was included within the desk study undertaken by HSP Consulting.



3.4 HYDROGEOLOGY

3.4.1 The site is underlain by a Secondary A Aquifer. The site does not lie within a Source Protection Zone. The site lies within an area of high groundwater vulnerability, meaning the site is able to easily transmit pollution to groundwater. No groundwater abstractions are recorded within 1 km of site.

3.5 HYDROLOGY

3.5.1 There are 10 surface water features within 250 m of the site. The site lies within the River Colne surface water body catchment. There are no surface water abstractions recorded within 500 m of site.

3.6 GROUND CONDITIONS

3.6.1 The ground conditions encountered during the intrusive investigation undertaken by HSP Consulting are summarised in Table 2 below.

Table 2: Summary of ground conditions encountered.

Strata	Depth Range (m bgl)	Maximum Thickness (m)	Description
Made Ground	0.00 – < 5.00	< 4.70	Grass or asphalt/ concrete over brown sandy gravelly CLAY / sandy GRAVEL with brick, aggregate and coal fragments. Some locations identified glass, asphalt, flint, ash, wire, metal, rubber and ceramic
Pennine Lower Coal Measures	0.15 – 15.42	11.42	Weak to stiff yellowish to greyish brown sandy gravelly CLAY / clayey gravelly SAND / weathered mudstone

3.7 CONTAMINATION AND DISTRIBUTION

3.7.1 Given the school was constructed in the 1950s, it is considered that asbestos is a principal contaminant of concern given it was widely used in construction at that time. No records concerning a pre-demolition asbestos survey, or the quantity of ACMs (asbestos containing materials) removed as part of demolition were made available to HSP. Any ACMs not removed during a soft strip are likely to have been crushed and spread into the ground during demolition.

3.8 HSP

3.8.1 The HSP investigation was non-targeted with the exception of trial pit locations positioned where deeper made ground was suspected following the findings of previous window sampler locations. The former refuse tip was not targeted.



Figure 12: Former plant / boiler room location

Copyright Google Streetview image capture 2012.

Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

3.8.2 The site investigation included 10 no. windowless sampler holes, and 5 no. machine excavated trial pits (Figure 13). A total of 16 samples from these exploratory locations were analysed for a broad suite of potential contaminants including asbestos, heavy metals and hydrocarbons.

3.8.3 An overlay of the site investigation location plan onto a satellite image of the site is presented below with the location of the former refuse tip indicated.

3.8.4 Location TP01 positively located the former plant/boiler room basement that had been infilled during demolition (Figure 12), however the full depth of fill was not determined due to the sides of the trial pit spalling with loose demolition fill. The depth was later estimated to be approximately 5 m from observations of the flush water from a rotary borehole located adjacent to TP01. Approximately 2 m of rubble fill was also recorded in nearby location WS08. The fill in WS08 and TP01 was reported to contain:

“brick, asphalt, concrete, coal and rare metal”.

“brick, concrete, aggregate, metal, ceramics and occasional glass”

“asphalt, concrete and brick and aggregate”

“brick, concrete, asphalt concrete, wire, rebar, sandstone, rubber and ceramics”

3.8.5 Location TP03 was recorded to have 2.7 m of fill and nearby location WS04/WS04A could not be advanced beyond 0.6 m due to a buried obstruction in the made ground. The fill in locations TP03 and WS04/WS04A was reported to contain:

“aggregates, bricks and slate fragments”

“brick, concrete, flint, aggregate and plastic”

“asphalt, concrete, brick, aggregate”

“brick, concrete, metal, plastic wire and occasional sandstone”

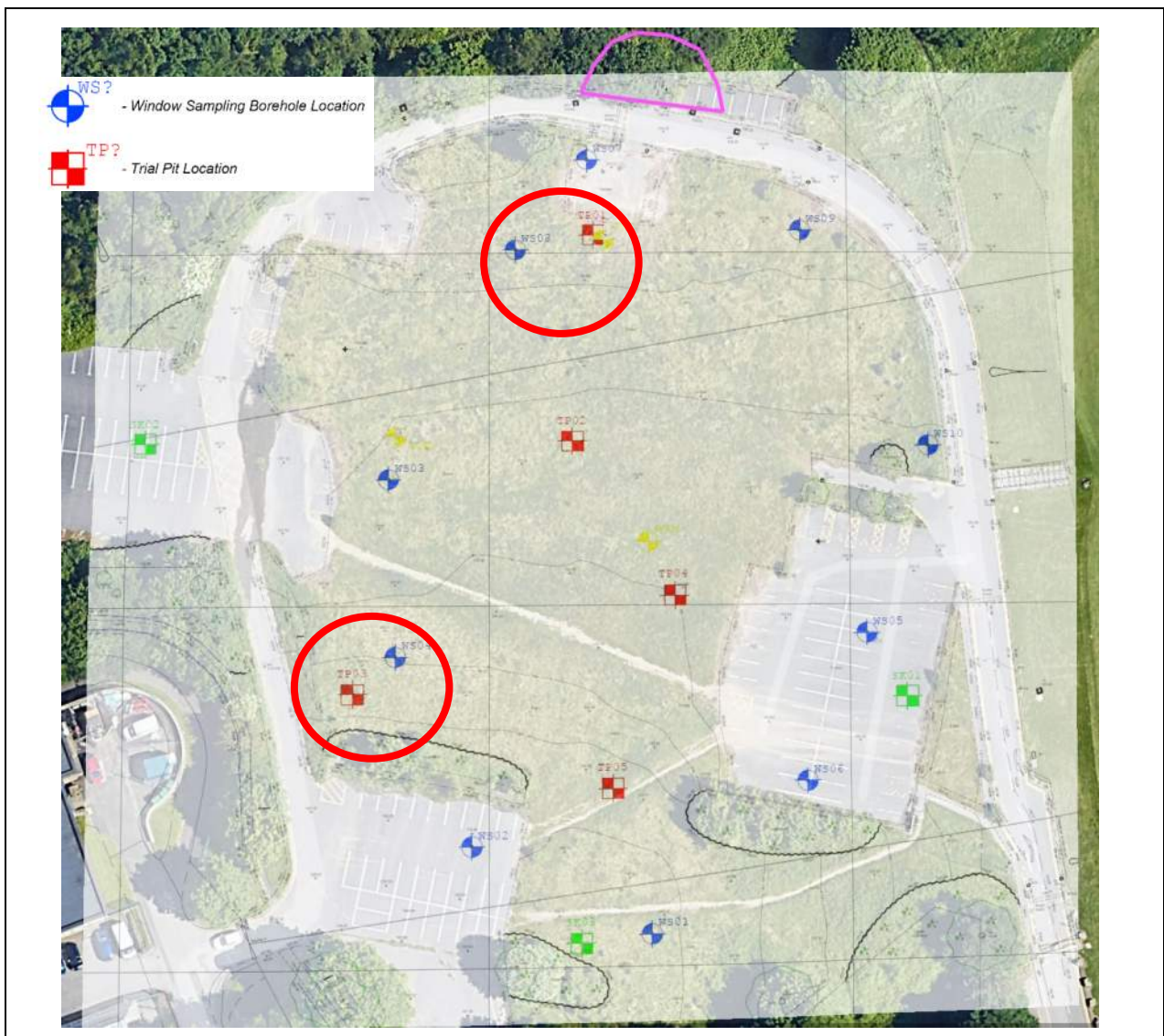


Figure 13: HSP windowless sampler and trial pit site investigation locations overlaid into satellite imagery. Location of former refuse tip to the north indicated. Trial hole locations where depth of made ground > 1.0 m also highlighted.

Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

- 3.8.6 HSP screened results against values derived from various sources for a “residential with consumption of homegrown produce” end use.
- 3.8.7 A detailed proposed landscaping layout for the site is provided in Appendix 2. Appropriate *Suitable for Use Levels* (S4ULs) published in 2015 by LQM/CIEH¹ have been assigned to each proposed area as detailed in Table 3 below.

Table 3: Proposed soft landscaped areas and appropriate end use scenario.

Planting Scheme / Land Use	End Use Scenario	Justification / Comments
Ornamental Shrub Planting	Residential without consumption of homegrown produce	<p>Model is sufficiently conservative as it includes indoor soil vapour pathway whereas the Public Open Space models do not.</p> <p>The occupancy period in the case of school age children is a weighted average of 20 hours per day with one hour per day outdoor activity per day across the year.</p> <p>Model also includes children up to school age spending 100% of their time at home so is overly cautious in this regard.</p>
Native Shrub Planting		
Hedge Planting		
Amenity Grass Seeding		
Pre-grow, Fibre-reinforced Turf Grass		
Woodland Undergrowth Seeding		
Wildflower Meadow Seeding		
Wetland / Pond Margin Seeding		
Grazing Pasture Seeding		
Proposed Tree Planting		
Polytunnel	Allotment	<p>For some contaminants model is the most conservative as it includes exposure to soil directly through digging, handling, and inhalation of dust and ingestion of homegrown produce.</p> <p>These areas are discrete, so the exclusion of the soil vapour pathway is considered not to be significant</p>
Vegetable Growing Beds		
Raised Planting Beds		
Orchard		

¹ Nathanail, C. P., McCaffrey, C., Gillett, A. G., Ogden, R. C. and Nathanail, J. F. 2015. *The LQM/CIEH S4ULs for Human Health Risk Assessment*. Land Quality Press, Nottingham. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3100. All rights reserved. Including August 2015 nickel update.

- 3.8.8 The following potentially significant contamination was identified by HSP:
- i.* Amosite fibres were detected in one sample of fill from the plant/boiler room basement (TP01 0.5 m bgl). The laboratory report did not include a quantitation, but HSP reported <0.001% by weight in the report.
 - ii.* Lead was recorded at 380 mg.kg⁻¹ in one location (WS10 0.15 m bgl);
 - iii.* PAH congeners were notably elevated in seven locations (with the maximum concentration located at WS03 0.15 m bgl which had a total PAH concentration of 1300 mg.kg⁻¹).
 - iv.* Potentially phytotoxic concentrations of zinc were detected in two locations (WS08 0.6 m bgl and WS10 0.15 m bgl).
- 3.8.9 A programme of hazardous gas monitoring was conducted by HSP on four standpipes that were installed in WS01, WS03, WS07 and WS10. Hazardous gas monitoring was undertaken by HSP on six occasions from the four borehole installations during December 2022 to February 2023 and once again from three remaining boreholes in January 2024. Generally, borehole gas flows were below the limit of detection for the equipment of 0.1 litres/hr, but a maximum steady flow of 0.6 litres/hr was recorded on one occasion. Methane was undetected, carbon detected to a maximum of 2.9 % v/v and minimum soil oxygen levels of 12.9% v/v.
- 3.8.10 The site lies in a coal mining area as defined by the Mining Remediation Authority (MRA - formerly the Coal Authority). No past underground mining has been recorded on site, but unrecorded shallow workings were considered to be probable. The MRA have however defined the extent of the High Risk Development Area for probable shallow workings, i.e. <30 m deep, as south of the proposed build area.
- 3.8.11 The gas risk assessment was undertaken in accordance with BS 8485:2015+A1:2019 *Code of Practice of the design of protective measures for methane and carbon dioxide ground gas for new buildings*. It is however recommended that CL:AIRE guidance – *Good Practice for Risk Assessment for Coal Mine Gas Emissions (2021)* be followed when assessing hazardous ground gas risks in coal mining areas. This guidance provides specific best practices for assessing and managing risks associated with mine gas emissions.
- 3.8.12 The gas risk assessment conducted by HSP concluded that the gas regime at the site corresponded to CS1 (Characteristic Situation 1) and ground gas protection measures will not be required.

3.9 IDOM MERE BROOK 2025

3.9.1 A supplementary investigation was undertaken by IDOM Merebrook in March 2025 which included the following exploratory holes:

- i.* Hand dug pits: MHP101-MHP106
- ii.* Machine excavated trial pits: MTP101-MTP104, MTP106-MTP108
- iii.* Dynamic sampler/windowless sampler boreholes: MWS101-MWS105.

3.9.2 Exploratory hole locations are shown on the drawing 25049-304-001 in Appendix 3 and were intended to sample areas of remaining hard surface parking, demolished building footprints and peripheral topsoil areas.

3.9.3 19 soil samples from made ground were scheduled for a broad suite of potential contaminants, one sample of surfacing was analysed for coal tar content and one sample of suspected bulk asbestos material.

3.9.4 The analyses found metals concentrations within screening levels for the allotment and residential-without-plant-uptake screening levels. Elevated levels for six of the USEPA Priority 16 PAH compounds were however found in eight locations from soils underlying macadam surfacing. One sample analysed for coal tar content was indicated to have a tar binder.

3.9.5 Of the 19 soil samples screened for asbestos content, one sample of black cindery sand from MWS101 in the northern edge of the site was found to contain microscopic asbestos board type debris, quantified at 0.008% w/w.

3.9.6 IDOM has undertaken three rounds of ground gas monitoring from five boreholes (MWS101-MWS105) at atmospheric pressures of 991-1011 mb. These found similar result to the HSP monitoring data. Methane was generally undetected with a maximum sustained concentration of 0.2% v/v and a maximum carbon dioxide of 1.3 % v/v. Borehole gas flows were detected to a maximum steady value of 0.1 litres/hr.

3.10 CONTAMINATION RISKS – SOIL CHEMICAL CONTAMINATION

3.10.1 The HSP investigation did not identify any soils on site that were suitable for re-use in the proposed soft landscaped areas. However, six samples from topsoil in MHP101-MHP106, analysed as part of the IDOM investigation, contained contaminant levels below CLEA-derived screening levels for the standard allotment land use and residential-without-pant-uptake land use. From the HSP investigation topsoil, where present, had significant anthropogenic inclusions and thus may also be physically unsuitable (and unlikely to comply with the British Standard Specification for topsoil).

3.10.2 A risk to human health from exposure to made ground is mainly driven by the elevated levels of PAH, both to future site users and construction workers. The risk

could exist if such materials are exposed in soft landscaped areas, pitches or growing areas and from materials movements and handling during construction. The exposure routes may include ingestion of soil, inhalation of soil-derive dust, dermal contact and consumption of produced grown in contaminated soil.

3.11 GROUND GAS

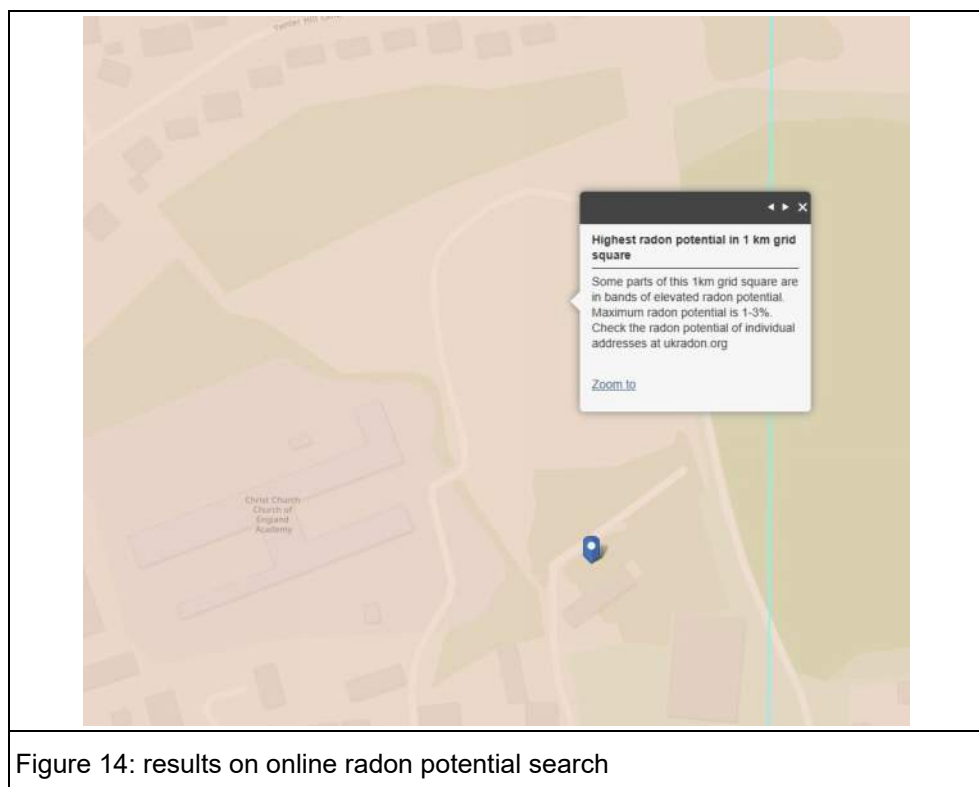
3.11.1 Ground gases measured from shallow strata have been found within the lowest risk regime – Characteristic Situation 1. HSP borehole installations response zones were however in natural clay and into the top of mudstone. Response zones in IDOM monitoring wells included 2 m of black ashy historic fill in the north of the site and ground likely to have been disturbed by demolition containing brick rubble and rubbly clay made ground. A Characteristic Situation 1 is considered consistent with the typical made ground. Based on the descriptions of the thicker made ground in the former boiler house as predominantly rubbly material, the gas generation potential would also be expected to be low.

3.11.2 However, the risk of coal mine gas should also be assessed in the context of historical coal mining in the area, with most recent guidance published by CL:AIRE (2021), as *Good Practice for Risk Assessments for Coal Mine Gas Emissions*. Potentially harmful gases associated with abandoned mine workings include predominantly: methane, elevated carbon dioxide and corresponding oxygen deficient atmospheres and carbon monoxide. The risk scenario is the potential for abandoned workings to act as a reservoir of gas which could be emitted rapidly. For a mine gas risk to exist, a credible source i.e. an abandoned mineworking must be present and, in this case, this will be the key element to consider as available data only identifies that probable (unrecorded) workings could affect the site. These are presumed to exist from the presence mapped coal seam outcrops in the area. No *recorded* underground workings are present beneath the site. Secondly a pathway for possible mine gas emissions to affect the receptor must be present for a risk to exist. From the CL:AIRE guidance, the majority of recorded mine gas incidents adversely affecting people and properties have resulted from emission via abandoned mine entries (shafts). Other pathways could include fractured rock, fissures and borings. The potential for emissions through fractured rock is more likely where workings are less than 30 m depth. Below this depth the risk of emission through overlying rock reduces, *'gas migration through the overlying ground from deep workings is not likely to cause significant emissions at the surface (Appleton, 2011) unless there are shafts, faults or other pathways linking the workings to the surface'*.

3.11.3 From BGS Geological Sheet 77, the new construction is located within a fault block, bounded by two east-west trending normal faults located to the north and to the south. The downthrow for both faults is to the site side. From named geological units on the BGS map, younger rocks underlie the site with older rocks to the north and south. A considerable displacement up the geological sequence is indicated. The faulting likely explains the termination of recorded underground mine works to the

north and south of the faults. Due to the degree of faulting and downthrow, the disposition of the nearest recorded workings will bear no relation to the depths probable workings beneath the site. The zone of probable workings identified from Mining Remediation Authority data, appears to relate to a conjectured seam outcrop to the south-east with dip direction reported as to the left, i.e. dipping under the site. From the HSP coal mining risk assessment, *'Interactive Map Viewer indicates a seam outcrop to the southeast of the site, approximately 200m – 250m southeast, dipping to the northwest. The seam thickness, dip and depth is unknown, as is the depth at which the seam intersects the subject site. A development high risk area associated with the seam outcrop / probable shallow coal mine workings noted as shallow depth (0-30m) is shown in the southeast of the site in the location of the current access road. The remainder of the site shows probable workings at moderate depth (30m – 100m).'* The Interactive viewer shows the seam outcrop to be nearer 300 m southeast. Assuming a shallow dip and the increase in ground levels, the estimation of the depth of the unnamed seam beneath the site being in excess of 30 m is considered to be reasonable. The risk of probable workings impacting the development will therefore be largely determined by the presence of a viable pathway. No recorded shafts are identified within influencing distances of the development and borehole investigation identified intact mudstone to at least 15 m depth beneath the new building. As the extent of recorded workings off site terminate some 300 m from proposed development, the potential for gas migration laterally and up through the faulted zone also appears to be unlikely.

- 3.11.4 In the absence of identified workings and mine entries, together with the estimated depth to seams which may have been worked (as probable unrecorded workings), a significant risk from mine gas has not been demonstrated.
- 3.11.5 Offsite fill materials, which may include household waste may contain elevated concentrations of gases such as methane and carbon dioxide. In view of the age of filling (estimated at 60-70 years), gas generation rates and ground gas flows are anticipated to be low. As the fill is likely to be unlined and only capped with topsoil, the potential for migration of gas to the subject site is considered to be low.
- 3.11.6 The Groundsure radon check presented in the HSP report was generated in November 2022, prior to the December 2022 radon update by the UK Health Security Agency (UKHSA) and British Geological Survey (BGS). To ensure the recommendation for no radon protection measures is still valid, the online 1 km radon atlas has been consulted (Figure 14).



- 3.11.7 The search indicated maximum radon potential in the 1 km grid square was 1 to 3 % which corresponds to radon class RnC2 and no radon protection measures are required under the Building Control Regulations.

SECTION 4 CONCEPTUAL MODEL

4.1 INTRODUCTION

- 4.1.1 Following additional soil sampling and analysis by IDOM in March 2025 and a review of the ground gas risk an updated conceptual site model has been created.
- 4.1.2 In each case the existence of a pollutant linkage requires a pathway by which the receptor could be exposed to the source. A qualitative assessment of risk is thus considered in the first instance with respect to the site in its current condition and is summarised in the sections below.
- 4.1.3 The level of risk considers the likelihood of the risk occurring and the severity of the potential consequence of that risk using the approach outlined in Appendix 3. As illustrated in Table 4, this Tier 2 risk assessment combines the likelihood and severity of the risk using a Risk Assessment Matrix approach as recommended by CIRIA C552, 2001 and updated in *Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66* published by NHBC, EA and CIEH (2008).

Table 4: Risk assessment matrix (after CIRIA C552 and R&D66)

		MAGNITUDE OF POTENTIAL CONSEQUENCE (SEVERITY) OF RISK			
		SEVERE	MEDIUM	MILD	MINOR
LIKELIHOOD OF RISK	HIGH LIKELIHOOD	Very High Risk	High Risk	Moderate Risk	Low Risk
	LIKELY	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	LOW LIKELIHOOD	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	UNLIKELY	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

4.1.4 Following the re-appraisal of risks, an updated conceptual site model is presented in Table 5.

Table 5: Updated Conceptual Site Model

POTENTIAL CONTAMINANT SOURCE	RELEASE MECHANISM	PATHWAY	EXPOSURE ROUTE	RECEPTOR		
				Future Site Users	Construction Workers	Water Supply Pipes
SOIL (HEAVY METALS AND HYDROCARBONS)	DUST	AIR	INHALATION	MODERATE	MODERATE	
	DIRECT	DIRECT	INGESTION	MODERATE	MODERATE	
	DIRECT	DIRECT	DERMAL EXPOSURE	MODERATE	MODERATE	
	DIRECT	DIRECT	DIRECT CONTACT / UPTAKE			MODERATE / LOW
	PLANT UPTAKE	GARDEN FRUIT AND VEGETABLES	INGESTION	MODERATE		
MADE GROUND (ASBESTOS)	FIBRE RELEASE	AIR	INHALATION	MODERATE	MODERATE / LOW	
SOIL (COAL / PUTRESCIBLE MATERIAL)	GAS FROM DECOMPOSITION	AIR	INHALATION	LOW	LOW	

SECTION 5 ASBESTOS PLAN OF WORKS

5.1 INTRODUCTION

5.1.1 Relevant legislation and guidance for managing asbestos is set out in the CAR 2012 and guidance provided in CIRIA 733 Chapter 3. The guidance in CIRIA C733 for CAR 2012 Regulation 5 states that in order to avoid disproportionate responses to this regulation [specifically (b) (ii)] any brownfield redevelopment could have a contingency plan stating what to do if and when suspect materials are found. Any asbestos found would then be dealt with under the CAR.

5.1.2 Works on the site will involve soil with trace quantities of microscopic asbestos fibres which will constitute working with asbestos under Regulation 2 (2) (definition of working with asbestos) as set out below.

5.1.3 It also cannot be precluded that potential previously undiscovered bulk ACMs may be encountered during earthworks. Therefore, general groundworks involving soil, including *inter alia*: bulk soil excavations where asbestos is present, backfilling and placement, are considered to come under the provisions of: Regulation 4 (duty to manage asbestos), Regulation 5 (adequate assessment to identify asbestos present [which may be considered available in this report]), Regulation 6 (risk assessment) Regulation 7 (written plan of works detailing how works with asbestos will be carried out), and Regulation 10 (provision of adequate information and training for employees other than sub-contracted licensed asbestos removal contractors (LARCs)).

5.1.4 The following sections therefore provide written procedures to cover the following:

- i.* Notifiable potentially licensable works (asbestos cache removal);
- ii.* Notifiable non-licensable works which can be undertaken by an appointed subcontractor; and
- iii.* Non-notifiable works which include general groundworks to ensure that risk of fibre exposure is understood and minimised.

5.2 IDENTIFICATION OF AREA AFFECTED BY ASBESTOS

5.2.1 The investigation identified made ground on the site (infilled demolition material) that was impacted by asbestos. The site manager should maintain a watching brief during works in case of unexpected contamination.

5.3 **RISK ASSESSMENT**

5.3.1 **Risk characterisation – operatives exposure to airborne asbestos**

5.3.1.1 An assessment of risk is based on the current site condition.

5.3.1.2 The made ground was impacted by amosite asbestos fibres with measured quantities of <0.001% and 0.008% by weight.

5.3.1.3 A review of the soil moisture data taken during the supplementary site investigation showed measured values ranging from 9.8 to 26 %. Guidance in CIRIA C733² indicates the addition of 5% moisture to a dry soil reduces airborne fibre release by 80 to 95%. The resultant risk of fibre release during works from soils is therefore considered to be very low.

5.3.1.4 For the duration of the works in the areas affected by asbestos, it is therefore considered that a negligible risk of exposure to fibres in excess of the clearance limit of 0.01 fibres/ml would exist.

5.3.1.5 If, during the earthworks, bulk ACMs occur as a cache (see Section 5.11), the risk of exposure to fibres during removal under notification would also appear to be very low provided moisture contents of soil and ACMs are maintained.

5.3.2 **Risk characterisation – public and adjacent land users' exposure to airborne asbestos**

5.3.2.1 For public exposure to asbestos, it is also appropriate to consider exposure risk from airborne fibres that may potentially be generated by site activities. The risk to receptors which are at a greater distance from the earthworks would be even lower than that indicated for site operatives. Therefore, given the limited potential for fugitive fibre generation and deposition, it is considered that long term chronic risks to the public are unlikely to exceed those from exposures to background levels.

5.4 **PROCEDURES FOR REMOVAL OF VISIBLE IDENTIFIED ACM**

5.4.1 For low-risk material such as asbestos cement, which could conceivably be discovered during bulk earthworks, a specialist contractor will remove visible asbestos cement debris from affected made ground soils. A detailed method statement will be provided for technical approval following appointment of the contractor.

5.4.2 Any removal works should not cause any further degradation of the asbestos product and therefore the activities are considered to be non-notifiable.

² *Nathanail, C P, Jones, A, Ogden, R, Robertson, Asbestos in soil and made ground: a guide to understanding and managing risks (C733), CIRIA, March 2014*

5.4.3 A main element of ensuring ACMs are identified and removed is the implementation of a watching brief during earthworks. This role should be performed by a trained and suitably experienced environmental professional.

5.5 **GENERAL PROCEDURE FOR PLANT DECONTAMINATION**

5.5.1 Any plant that comes into contact with the potential asbestos contaminated layers (e.g. dumper, excavator) will be washed down at the end of each day.

5.6 **ASBESTOS AWARENESS**

5.6.1 All site staff will be made aware of the risks of asbestos at the site during site inductions. This element of the staff induction will be provided by the Principal Contractor. A written non-technical summary of the risks and mitigation procedures to be adopted should be displayed in staff welfare facilities and site offices. Inductions will include:

- i.* Regulations;
- ii.* Control Limits;
- iii.* Health Hazards;
- iv.* Identification;
- v.* Risk Assessment;
- vi.* Personnel Safety; and
- vii.* Decontamination Procedures.

5.6.2 Accredited awareness training should be provided to key staff involved in bulk earthworks to enable them to identify ACMs. Training will be compliant with the requirements of the CAR 2012.

5.6.3 For those staff directly involved with asbestos cement picking, the site manager or supervisor, additional NNLW (notifiable non-licenced work) training will be required.

5.7 **PPE AND RPE**

5.7.1 For general site staff, the use of respiratory protective equipment (RPE) is not proposed, provided soil dust conditions are kept within statutory limits. It is proposed dust generation will be minimised as far as practicable.

5.7.2 RPE (Disposable P3 mask to EN149 minimum) will be required for sporadic, short-duration non-licensable works (such as hand picking of surface cement).

5.7.3 Personal Protective Equipment (PPE) requirements for normal working conditions on site which may involve working with soils which contain bonded cement debris will comprise as a minimum: gloves, safety boots, hard hat and hi-visibility clothing.

Coveralls (Type 5 to BS EN ISO 13982-1) will be required for hand picking, sporadic, short-duration non-licensable works, potentially licensable ACM cache removal procedures or upon discovery of suspected caches and the activities required for their sampling and delineation.

5.8 STAFF/RESPONSIBILITIES

5.8.1 The Principal Contractor shall:

- i.* Ensure all personnel engaged in groundworks on site are suitably inducted and trained with regards ACMs and asbestos related risks and procedures;
- ii.* Ensure the asbestos watching brief role is being discharged by appropriately trained personnel;
- iii.* Ensure exclusion of staff from areas where ACMs are suspected (including organisation of fencing, signage and monitoring) and cessation of excavation in such areas where uncontrolled disturbance of ACMs could occur; and
- iv.* Ensure site records on ACMs being found, removed and disposed of are kept and maintained on site and for subsequent verification reporting.

5.9 GENERAL ACMS BONDED

5.9.1 It is considered that no significant additional degradation of bonded ACMs (e.g. cement) will occur. Additionally, it is considered that operations involving movement of soils containing bonded ACMs, and hand picking of any such items, can be conducted as a non-notifiable activity.

5.10 FRIABLE AND FIBROUS ASBESTOS

5.10.1 Sporadic occurrences of more friable and weak forms of asbestos (e.g. AIB) typically up to 100 mm across could also be encountered and will be considered as a low intensity short duration operation for either picking or handling of soils containing such items. The following conditions must therefore be satisfied:

- i.* For more than one worker, the work must not take more than two hours in any seven-day period including time spent setting up and decontamination ; or
- ii.* less than one hour for an individual worker.

5.10.2 Based on current site knowledge, during the normal course of earth movements, it is considered that the above conditions would be satisfied.

5.10.3 However, if the above conditions cannot be satisfied or if numerous or large amounts of such ACMs are present where removal for sampling and identification is not applicable and/or practical then working with this material will come under the provisions of Section 5.11.

5.11 **CACHE PROCEDURES**

- 5.11.1 For the purpose of this plan, a cache is defined as an occurrence of weak or friable ACM (e.g. lagging, board) for which works are unlikely to be of short duration (i.e. not sporadic). The *intensity* of exposure to airborne fibres is likely to be low for moist soils and ACMs within the soil (<0.01 f/ml). A relatively higher risk of exposure to airborne fibres is considered to exist in comparison with quick operations presented in the preceding sections but this can be minimised by adopting suitable procedures.
- 5.11.2 Where the trained banksman employed under the watching brief observes a cache, they will alert the excavator driver to cease digging and empty any arisings in the bucket back to the excavation. If the excavator driver is the first to observe a cache, they will cease excavation and alert the banksman and dumper driver to ensure that materials already loaded are not moved from the area and can be kept separate.
- 5.11.3 If a cache is found, temporary barriers will be placed 10 m from the suspected cache with warning signs. Confirmation of ACMs will be undertaken by confirmatory testing. Visual means of identification can only be used to make a presumption of asbestos being present. If immediate removal of ACMs cannot occur, the ground surface will be covered with polythene sheeting, adequately weighted down.
- 5.11.4 Where a decision has been made to pick the soils, the PPE and RPE equipped Licenced Asbestos Removal Contractor (LARC) will remove by hand or hand tools ACM fragments until the soils are free from visible ACMs. A mechanical excavator will then slowly remove a thin soil layer to expose underlying material to repeat as required. The arisings from the stripped layer may be raked over to allow handpicking.
- 5.11.5 All arisings and exposed soil faces will be wetted using misting or low-pressure jetting to maintain moisture contents. Current guidance indicates that the potential for fibre release to air reduces significantly with moisture contents from 5% and above.
- 5.11.6 Personnel air monitors will be attached to staff undertaking ACM removal. Static air monitors will be located upwind and downwind at the edge of the exclusion zone (minimum two) around the working area.
- 5.11.7 The LARC will carry out personnel decontamination in accordance with their own method statement which will likely be informed by the findings of personnel air fibre monitoring.

5.12 **ASBESTOS WASTE HANDLING**

- 5.12.1 Where removal is required, ACMs are likely to be present in quantities that will be dealt with by approved marked polythene asbestos waste bags. Picked ACMs will be double bagged and stored in lockable skips or a secure area.

5.13 **EMERGENCY PROCEDURES**

- 5.13.1 Based on current knowledge, it is concluded that it is unlikely that more hazardous forms of asbestos, such as lagging, may be encountered in excavations and that generation of significant airborne fibres is unlikely due to the soil moisture content.

5.14 **DUST CONTROLS**

- 5.14.1 Generation of visible dust shall be avoided as far as practical. The contractor will nominate persons to maintain a daily dust and site conditions diary, including incidences of visible dust generation and measures taken to reduce dust.

5.15 **ASBESTOS AIR MONITORING**

- 5.15.1 The formation layer will be kept damp as required and the Contractor shall designate person(s) responsible for monitoring formation condition and ensuring moisture levels are maintained. Sheeting of any lorries removing soils from site shall be enforced.
- 5.15.2 A UKAS accredited monitoring consultant will undertake air monitoring for asbestos fibres to HSG248 during bulk excavation and movement of made ground. The Principal Contractor will provide office space with desk and a power supply to allow on-site fibre counts by phase contrast microscopy and identification.
- 5.15.3 The number and position of static, boundary sample pumps will be decided subject to site activities and wind conditions. A minimum of two is proposed at any one time.

5.16 **SITE HYGIENE**

- 5.16.1 Site compounds (office, mess and welfare areas) will be established in a 'clean' zone to avoid transfer of made ground soils into those areas. Site workers will wear washable safety boots, and boot washing facilities will be placed at the edge of the 'clean' compound area to be used when leaving construction areas.
- 5.16.2 Specialist asbestos decontamination will be employed by the appointed LARC in the event of cache removal. If deployed, the location of the decontamination unit (envisaged for no more than three persons) will be at the edge of the 'clean' site compound area.
- 5.16.3 Wheel washing facilities should be maintained for all vehicles leaving the working areas of the site. Visitor and employee vehicles should park in car park areas formed from clean compacted granular materials and will not enter construction areas. Pedestrian access between parking areas and construction areas will be via the 'clean' site compound.

SECTION 6 DETAILED REMEDIAL STRATEGY

6.1 OVERVIEW

6.1.1 The identified risks at the site can be mitigated by removal of either the source, pathway or receptor. With reference to the conceptual model a remediation strategy has been developed to address the identified risks.

6.1.2 Polyaromatic hydrocarbon (PAH) contamination has been identified within made ground soils, as well as localised lead and asbestos contamination in areas of demolished buildings, disused parking areas and a localised area of ashy fill suspected as being coincident with a 1960s mapped area of refuse tip. Following the results of additional soil sampling on the eastern grassed slope and within an area of woodland in the north-west, these peripheral topsoil layers were not found to contain elevated levels of contamination.

6.1.3 The overarching remedial goal will be to ensure that soils within depths to which future users may be reasonably expected to be exposed, are suitable for use: either by removal of contaminated made ground to demonstrably clean formation level or covering of made ground which remains with a clean soil cover system. Over the bulk of the site area, it is expected that enabling works will strip hard materials (macadam parking) vegetation strip and upper layers of soil which have become colonised with grass and weeds. However, as finished levels are not known at this stage, achieving the remedial goal by contaminated soil removal, capping in situ contaminated soil or a combination of the two, shall remain as valid options. For peripheral retained woodland, retention of trees will constrain disturbance of the ground to protect roots, and the recent testing found low levels of contamination which is consistent with the development history of the site. This coupled with lower potential for soil disturbance and interaction with future users, the option for identification and segregation of existing soil resources for retention is considered appropriate.

6.2 CLEAN COVER - DESIGN

6.2.1 The verification of clean cover shall be in general accordance with procedures set out in Yorkshire and Lincolnshire Pollution Advisory Group, *Verification Requirements for Cover Systems, Technical Guidance for Developers Landowners and Consultants*, 2021.

6.2.2 The proposed soft landscaping layout is presented in Appendix 2. The clean cover thicknesses specified below are intended to reflect the depth over which interaction with soil by growing/cultivation could occur or, is necessary for it to fulfil its intended purpose and the resulting disturbance and mixing be reasonably anticipated for the activities, thereby avoiding exposure to underlying made ground. For example, for yearly or seasonal cultivation and growing of produce, 600 mm (to accommodate the practice of double-digging) is considered appropriate. One-off planting and occasional rejuvenation of shrub borders, 450 mm of growing medium is proposed.

For tree pits 1 m is a common specification to accommodate root boles, drainage and prevent root damage to surrounding surfaces, depending on the species. However, to take into account a degree of conservatism and possibility of future changes to site activities, clean cover systems overlying retained made ground layers shall incorporate a basal membrane to prevent mixing and provide a visible barrier to deter future digging. Where the landscape designer requires an increased thickness of planting medium to support the species mix, the greater thickness will then apply.

6.2.3 Where the remedial cover comprises removal of made ground to natural formation, then a careful inspection will be undertaken by a suitably qualified environmental specialist for visual and olfactory evidence of contamination. Residual made ground materials, if found, will be excavated to the clean cover depths specified in Table 6.

6.2.4 Table 6 below sets out a proposed options for each indicated end use.

Table 6: Proposed soft landscaped areas treatment.

Planting Scheme / Land Use	Proposed Strategy
Ornamental Shrub Planting	<p>remove overlying made ground soils to natural formation subsoils – visually inspect and test @ one sample per 20 x 20 m to confirm compliance with acceptance criteria. Place imported topsoil to import acceptance criteria and landscape architect depth requirements</p> <p style="text-align: center;">or</p> <p>reduced level dig to a minimum of 450 mm (or minimum depth specified by landscape architect) below final level to accommodate geotextile separator, clean subsoil (site won or imported) and imported topsoil to import acceptance criteria and landscape architect depth requirements</p>
Native Shrub Planting	
Hedge Planting	
Wetland / Pond Margin Seeding	
Pig enclosure and wallow area	Remove made ground entirely.
Amenity Grass Seeding	<p>remove overlying made ground soils to natural formation subsoils – visually inspect and test @ one sample per 20 m x 20 m to confirm compliance with acceptance criteria. Place imported topsoil to import acceptance criteria and landscape architect depth requirements</p> <p style="text-align: center;">or</p> <p>reduced level dig to a minimum of 300 mm (or minimum depth specified by landscape architect) below final level to accommodate geotextile separator, clean subsoil (site won or imported) and imported topsoil to import criteria and landscape architect depth requirements</p>
Pre-grow, Fibre-reinforced Turf Grass	
Woodland Undergrowth Seeding	
Wildflower Meadow Seeding	
Proposed Tree Planting	<p>remove overlying made ground soils to natural formation subsoils – visually inspect and test @ one sample per two tree pits / per 20 m x 20 m area pasture to confirm compliance with acceptance criteria. Place imported topsoil to import acceptance criteria and landscape architect depth requirements</p> <p style="text-align: center;">or</p> <p>reduced level dig to a minimum of 1000 mm (or minimum depth specified by landscape architect) below final level to accommodate clean subsoil (site won or imported) and imported topsoil to import criteria and landscape architect depth requirements</p>
Orchard	
Grazing Pasture Seeding	
Existing Woodland to be improved	<p>A potential constraint to remediation if needed given root protection requirements – assess existing upper 100 mm of soils @ one sample per 100m³ (ca 30 m x 30 m area) against chemical acceptance criteria and undertake risk assessment.</p> <p style="text-align: center;">In area of MWS101 (former tip) with asbestos fibres - 300 mm cover with barrier geotextile.</p>
Polytunnel	<p>remove overlying made ground soils to natural formation subsoils – visually inspect and test @ one sample per 20 m x 20 m area to confirm compliance with acceptance criteria. Place imported topsoil to import acceptance criteria and landscape architect depth requirements</p> <p style="text-align: center;">or</p> <p>reduced level dig to a minimum of 600 mm (or minimum depth specified by landscape architect) below final level to accommodate geotextile separator, clean subsoil (site won or imported) and imported topsoil to import criteria and landscape architect depth requirements</p>
Vegetable Growing Beds	
Raised Planting Beds	

- 6.2.5 Where used, the separator basal membrane will be a non-woven geotextile. To mitigate any drainage issues, the geotextile must be permeable to water with a minimum permeability of $90 \text{ l.m}^{-2}.\text{s}^{-1}$ as measured by test method EN ISO 13438.
- 6.2.6 Prior to the placement of the clean cover, the formation soils should be broken up to allow infiltration drainage and prevent waterlogging.

SECTION 7 CONTAMINATION DISCOVERY STRATEGY

- 7.1 Should any evidence of unsuspected contamination be discovered during demolitions, this will be reported to Idom Merebrook immediately. An engineer will attend site to make an independent observation and take samples as required. Any confirmed contamination requiring additional remedial measures will be documented and reported to the Local Authority in a timely manner to agree appropriate action.

SECTION 8 SERVICE CORRIDORS

- 8.1 Provision for clean service corridors will be made where this is a requirement of the utility provider.
- 8.2 Contamination with the potential to permeate polymeric services has been identified by the investigations and it is recommended that the utility provider is consulted with respect to their requirements for water supply pipes. Utility companies apply strict guideline levels on use of polymeric pipes and will likely consider all made ground unsuitable for typical plastic pipe materials to be used.

SECTION 9 VALIDATION PROTOCOLS

9.1 VALIDATION OF CLEAN COVER

- 9.1.1 All soils intended for reuse on the site will be required to be tested for chemical suitability at frequencies stipulated the Yorkshire and Lincolnshire Pollution Advisory Group guidance document. The testing frequencies have been summarised in the table below:

Table 7. Summary of required topsoil and subsoil validation testing

MATERIAL	SAMPLING FREQUENCY
Virgin Quarried Material	1-2 to confirm inert nature of material
Crushed hardcore, stone, brick	1 per 500m ³
Greenfield/ Manufactured soils	Minimum 3 or 1 per 250 m ³
Brownfield/Screened Soils	Minimum 6 or 1 per 100 m ³

- 9.1.2 For as-dug imported soils, ground investigation and test reports detailing the donor site condition shall be required for review. Such sites shall be confirmed as providing clean, natural soils. Soil test certificates and/or site investigation and chemical testing reports shall be provided for review prior to importation. Batch test certificates

will be required for review for manufactured soil products prior to import and dated within 3 months of importation. Imported soils shall then be subject to the testing regime set out in Tables 7 and 8.

- 9.1.3 Where required by the contract, topsoil should include confirmation that it is generally compliant with the relevant British Standard (BS 3882). Minor deviation for nutrient quality (+/- 25% of limits) will be considered acceptable, however the soil must be texturally compliant, have no visible contaminants or phytotoxic contaminants in exceedance of their respective thresholds. The certification for subsoil should include confirmation that it is generally compliant with the relevant British Standard (BS 8601). Deviations will be allowed for mass loss on ignition, as values greater than 2% are considered not to affect suitability for use in this scenario.
- 9.1.4 The certification must be provided to the appointed environmental consultant before the material is brought to site for confirmation of acceptability.
- 9.1.5 Sampling can be carried out in stockpile prior to placement or *in situ*. If the imported soil is tested in stockpile, then measures should be put in place to prevent cross-contamination with other site materials (*i.e.* imported clean soils must be stockpiled on clean ground or a tarpaulin).
- 9.1.6 Where sampling from a stockpile, a hand auger or mechanical excavator will be used to ensure representative samples are taken from the full depth of the stockpile.
- 9.1.7 Imported soils will also be subject to any additional requirements of the scheme's landscape architect.
- 9.1.8 Once placed, the depth of cover shall be inspected and verified by a hand-dug pit at the rate per area as follows (equates approximately to the YALPAG volumetric requirement for natural imported soil factored by the recommended cover depth):
- i.* Shrubs, borders requiring 450 mm cover and cultivation areas requiring 600 mm cover. One inspection pit per 20 m x 20 m area.
 - ii.* Grassland or similar areas requiring 300 mm cover. One inspection pit per 25 m x 25 m area.
- 9.1.9 Acceptance criteria for imported clean cover (both topsoil and subsoil) will be applied as per Table 8 below. These are based on *Suitable for Use Levels* (S4ULs) published in 2015 by LQM/CIEH³ and assuming a Soil Organic Matter content of 1 %.
- 9.1.10 Imported soils should have a clean status and therefore a combination of both the S4ULs for *allotments* and *residential setting where there is potential for uptake of*

³ Nathanail, C. P., McCaffrey, C., Gillett, A. G., Ogden, R. C. and Nathanail, J. F. 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3100. All rights reserved.

homegrown produce scenarios has been developed, with the most conservative value applying for each potential contaminant.

- 9.1.11 For lead, the DEFRA Category 4 Screening Level has been used as this is based on updated toxicological data and a low risk to human health.
- 9.1.12 An additional set of phytotoxin screening levels have been adopted from 'The Code of Agricultural Practice for the Protection of Soil' Ministry of Agriculture, Fisheries and Food (MAFF), 1993, which are protective of healthy plant growth.

Table 8: Acceptance Criteria for Imported Topsoil / Subsoil or Site Won Subsoil

CONTAMINANT	UNITS	Acceptance Criteria
Deleterious Materials	-	none
Staining or Odours	-	none
Asbestos in soil	-	none
pH	-	7-9
Arsenic	mg.kg ⁻¹	37
Cadmium	mg.kg ⁻¹	1.9
Chromium (total)	mg.kg ⁻¹	910
Hexavalent Chromium	mg.kg ⁻¹	1.8
Lead	mg.kg ⁻¹	80
Mercury	mg.kg ⁻¹	19
Nickel	mg.kg ⁻¹	53
Selenium	mg.kg ⁻¹	88
Vanadium	mg.kg ⁻¹	91
TPH Aliphatic >EC ₅ - EC ₆	mg.kg ⁻¹	78
TPH Aliphatic >EC ₆ - EC ₈	mg.kg ⁻¹	230
TPH Aliphatic >EC ₈ - EC ₁₀	mg.kg ⁻¹	65
TPH Aliphatic >EC ₁₀ - EC ₁₂	mg.kg ⁻¹	330
TPH Aliphatic >EC ₁₂	mg.kg ⁻¹	2400
TPH Aromatic >EC ₅ - EC ₇	mg.kg ⁻¹	13
TPH Aromatic >EC ₇ - EC ₈	mg.kg ⁻¹	22
TPH Aromatic >EC ₈ - EC ₁₀	mg.kg ⁻¹	8.6
TPH Aromatic >EC ₁₀ - EC ₁₂	mg.kg ⁻¹	13
TPH Aromatic >EC ₁₂ - EC ₁₆	mg.kg ⁻¹	23
TPH Aromatic >EC ₁₆ - EC ₂₁	mg.kg ⁻¹	46
TPH Aromatic >EC ₂₁	mg.kg ⁻¹	370
Acenaphthene	mg.kg ⁻¹	34
Acenaphthylene	mg.kg ⁻¹	28
Anthracene	mg.kg ⁻¹	380
Benz(a)anthracene	mg.kg ⁻¹	2.9
Benzo(a)pyrene	mg.kg ⁻¹	0.97
Benzo(b)fluoranthene	mg.kg ⁻¹	0.99
Benzo(k)fluoranthene	mg.kg ⁻¹	37

CONTAMINANT	UNITS	Acceptance Criteria
Benzo(ghi)perylene	mg.kg ⁻¹	290
Chrysene	mg.kg ⁻¹	4.1
Dibenzo(ah)anthracene	mg.kg ⁻¹	0.14
Fluoranthene	mg.kg ⁻¹	52
Fluorene	mg.kg ⁻¹	27
Indeno(123-cd)pyrene	mg.kg ⁻¹	9.5
Naphthalene	mg.kg ⁻¹	4.1
Phenanthrene	mg.kg ⁻¹	15
Pyrene	mg.kg ⁻¹	110
Phytotoxins		
Copper	mg.kg ⁻¹	200
Nickel	mg.kg ⁻¹	110
Zinc	mg.kg ⁻¹	300

9.1.13 If any soils fail the above acceptance criteria, they will be removed from site and a full documentary record kept comprising waste transfer / tip tickets.

9.2 VALIDATION OF MATERIALS FOR USE AS GENERAL FILL

9.2.1 Any other arisings will be deemed suitable for use as general fill (below clean cover and hard surfaced areas) provided they are physically suitable. There will be no requirement for laboratory testing in this instance, however, in areas impacted by asbestos, materials handling protocols will apply as set out in Section 5.

9.3 CHARACTERISATION OF SOILS FOR DISPOSAL

9.3.1 Soils destined for disposal will be characterised in accordance with the requirements of WM3 Guidance to determine whether they are hazardous or non-hazardous.

9.3.2 Non-hazardous soils do not require Waste Acceptance Criteria testing if disposal at non-hazardous landfill is intended. WAC testing will be carried out for any hazardous soils and also for any non-hazardous soils where an inert classification is potentially viable.

9.3.3 Soils will only be disposed once an appropriate disposal route is identified.

SECTION 10 ENVIRONMENTAL CONTROLS

10.1 INTRODUCTION

10.1.1 Standard PPE precautions (gloves, overalls *etc*) will minimise risks to construction workers. Dust control measures will also be required to avoid exposure by inhalation.

10.2 EMISSIONS CONTROLS

10.2.1 The main dust-generating activity is considered to be soil handling and dust generation from plant/vehicle movements over dry surface soils. The groundworker shall be required to have a method statement in place for minimising dust. Placement of temporary surfacing for haul routes and damping down is considered to be the most effective method of control for dust.

10.2.2 In addition, any hard-surfaced vehicle routes should be kept clean to minimise potential for general dust generation.

10.2.3 The groundworker must also have a procedure in place to segregate made ground and natural arisings. Particular care must be taken to avoid cross-contamination of imported materials with site soils.

10.2.4 Reference should also be made to the provisions detailed under the Asbestos Plan of Works (see Section 5).

SECTION 11 REPORTING

11.1 The Verification Report shall be submitted in a timely manner following completion of the development. It shall include:

- i.* Basic site details as defined by LCRM;
- ii.* overall site objectives set in the preliminary risk assessment;
- iii.* brief summary of former use, previous investigations, ground conditions, hydrogeology and hydrology and other receptors;
- iv.* details of the project and the roles and responsibilities of those involved – such as owner, contractors, developers;
- v.* a general description of remediation – including the conceptual site model and relevant contaminant linkages;
- vi.* remediation objectives and criteria;
- vii.* brief details of the DoWCoP or other end of waste quality protocols, if used;
- viii.* description of the final site condition at completion and the final extent of remediation; and

- ix.* an updated conceptual site model to demonstrate that all relevant contaminant linkages have been mitigated.

11.2 The following records will be presented in the verification report:

- i.* Records demonstrating the provenance and suitability of imported topsoil and subsoils (certificates to be provided by supplier);
- ii.* Results of validation testing of imported subsoil and topsoil;
- iii.* Photographic records confirming required depth of clean cover;
- iv.* Copies of any air reassurance monitoring certificates;
- v.* Proof of consultation with relevant statutory undertaker and details of potable water supply pipe materials used; and
- vi.* Copies of all waste transfer notes.

SECTION 12 CONCLUSIONS

- 12.1 The site has been investigated and a remedial strategy has been designed based on the risks identified by previous investigations to ensure a safe development.
- 12.2 This document sets out the principles for the remediation and soil movement, and also specifies how the works will be validated to demonstrate that the site is suitable for its intended use and that there are no significant adverse effects during the works.
- 12.3 It is necessary that this report is submitted to the Local Planning Authority and Environmental Health Officer and that approval of the strategy is obtained prior to construction works commencing.

- APPENDIX 1**
- Site Location Plan
 - Proposed Development Layout

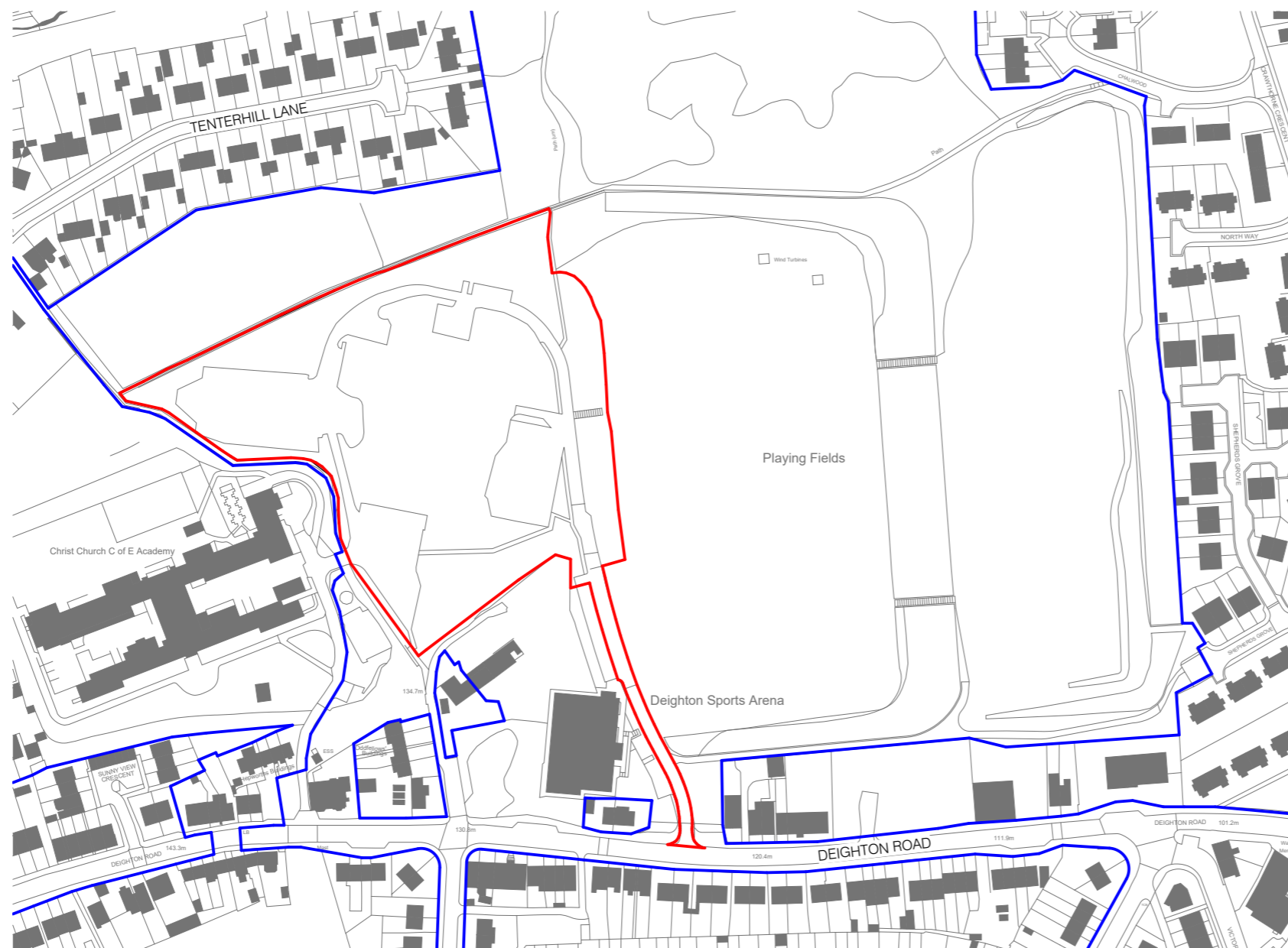


Scale 1: 2500

Status	
PLANNING	

SITE AREA	
	Area
APPLICATION SITE BOUNDARY	22244 m ²

AJOINING LAND UNDER APPLICANT OWNERSHIP



P01 FIRST ISSUE 01/06/23 GK

No. Revision Date Isss

Job

JOSEPH NORTON ACADEMY
SEMh SCHOOL DEIGHTON

Drawing

SITE LOCATION PLAN

Client

KIRKLEES COUNCIL

**FRANK
SHAW
ASSOCIATES
LIMITED
ARCHITECTS**

Penmore House Hasland Chesterfield Derbyshire S41 0SJ
Tel 01246 233255 www.frankshawassociates.co.uk

Scale Drawn/Checked

As indicated@A3 GK /DR

Job Number Date

22308

Drawing Number Rev

FSA-XX-ZZ-DR-A-1000 P01

The use of drawings by the Customer acts as an agreement to the following statements. The Customer must not use the drawings if it does not agree with any of the following statements:
 All drawings are based upon site information supplied by third parties and as such their accuracy cannot be guaranteed. All drawings are approximate and subject to verification by a detailed topographical survey, statutory service enquiries and confirmation of the high boundaries. Do not rely on the drawings. If any discrepancies must be used in all cases. All dimensions must be checked on site. Any discrepancies must be reported in writing to Colours Ltd, before proceeding. All drawings are copyright protected. Refer to full Terms & Conditions at www.colours.com

Seeding

	Species-Rich Meadow Seed Mix	4g / m ²
	Habitat Aid Grazing Meadow Seed Mix	4g / m ²
	Pond Edge Mix	5g / m ²
	Wildflower Meadow Mix	4g / m ²
	Hedgehog Mix	4g / m ²
	Grass Seeding Mix	10g / m ²

Turfing

	Hard-wearing fibre-reinforced Amenity Grass
	ALS Advanced Turf Restore Restoration System with Lindum LTB Festival Plus Turf

Ornamental Shrub Planting

Trees	Key	Girth cm	Height cm	Root Zone	Specification
Acer campestre 'Streetwise'	Ac	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 200cm; 5 breaks
Malus domestica 'Cox's Orange Pippin'	Ma	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Malus domestica 'Egremont Russet'	Ma	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Malus domestica 'Sunset'	Ma	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Carpinus betulus	Cb	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Prunus avium 'Plena'	Pa	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Prunus domestica 'Reine Claude d'Orléans'	Pd	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Prunus padus 'Aberni'	Pp	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Prunus cerasifera 'Contaminata'	Pc	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Sorbus aucuparia 'Shepherd's Seedling'	So	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 200cm; 5 breaks
Tilia cordata 'Greenispire'	Tc	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem 175-200cm; 5 breaks
Salix alba (flower trees to be regularly pollarded to provide goat food)	Sa	10-12	300-350	RB	3x, Selected Standard, clear stem 175-200cm; 4 breaks

Hedge

Hedge	Height cm	Density per m	Specification
50% Fagus sylvatica (mix alternate)	120-150	4	3 year, bare root, 1+2 transplant, double-staggered, 500mm c/c
50% Carpinus betulus	120-150	4	3 year, bare root, 1+2 transplant, double-staggered, 500mm c/c

Planting Mixture (100%)

Shrubs	%	Height cm	Pot size	Density per m ²	Specification
Choisya ternata	10	40-60	3L	3	Bushy; 4 breaks
Lavandula angustifolia 'Hidcote'	6	15-20	2L	4	Bushy; 5 breaks
Hebe 'Green Globe'	8	20-30	3L	4	Bushy; 3 breaks
Lonicera nitida 'May Green'	10	30-40	2L	3	Bushy; 3 breaks
Sarcococca confusa	8	3L	3L	4	Bushy; 3 breaks
Stimonia x confusa 'New Green'	7	3L	3L	4	Bushy; 3 breaks

Active / Passive Outdoor Spaces

Trees	Key	Girth cm	Height cm	Root Zone	Specification
Acer campestre 'Streetwise'	Ac	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 200cm; 5 breaks; underground rootball geying system
Acer saccharum	As	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 200cm; 5 breaks; underground rootball geying system
Betula papyrifera	Bp	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 200cm; 5 breaks; underground rootball geying system
Prunus avium 'Plena'	Pa	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem 175-200cm; 5 breaks; underground rootball geying system
Tilia cordata 'Greenispire'	Tc	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem 175-200cm; 5 breaks; underground rootball geying system

Hedge

Hedge	Height cm	Density per m	Specification
50% Fagus sylvatica (mix alternate)	120-150	4	3 years, bare root, 1+2 transplant, double-staggered, 500mm c/c
50% Carpinus betulus	120-150	4	3 years, bare root, 1+2 transplant, double-staggered, 500mm c/c

Planting Mixture (100%)

Shrubs	%	Height cm	Pot size	Density per m ²	Specification
Sarcococca confusa	10	3L	3L	4	Bushy; 3 breaks
Hebe 'Green Globe'	5	20-30	3L	4	Bushy; 3 breaks
Lavandula angustifolia 'Hidcote'	6	15-20	2L	4	Bushy; 5 breaks
Lonicera nitida 'May Green'	10	30-40	2L	3	Bushy; 3 breaks
Ruscus acrolophus 'Blue Boy'	5	30-40	3L	3	Bushy; 4 breaks
Stimonia x confusa 'New Green'	10	3L	3L	4	Bushy; 3 breaks

Native Shrub and Woodland Planting

Trees	Key	Girth cm	Height cm	Root Zone	Specification
Acer campestre 'Streetwise'	Ac	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 200cm; 5 breaks
Carpinus betulus	Cb	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Prunus avium 'Plena'	Pa	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Prunus padus 'Aberni'	Pp	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks
Quercus robur	Qr	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 175-200cm; 5 breaks

Planting Mixture (100%)

Shrubs	%	Height cm	Pot size	Density per m ²	Specification
Coronilla avaria	10	80-100	10L	1	Branching; 4 breaks
Viburnum bodinieri	10	40-60	2L	3	Bushy; 7 breaks
Sambucus nigra	10	40-60	2L	2	Branching; 3 breaks

Fruit Bushes

Fruit Bushes	Height cm	Pot size	Density per m ²	Specification	
Ribes nigrum	5	60-80	3L	3	Bush 3/5 shoots
Ribes rubrum	5	60-80	3L	3	Bush 3/5 shoots
Rubus idaeus 'Autumn Bliss'	5	40-60	2L	3	Strong cane
Rubus fruticosus	5	20-30	0.5L	3	

Herbaceous

Herbaceous	Pot size	Density per m ²	Specification
Alcea rosea 'Catharine's Giant'	10	0.5L	6
Geranium macrorrhizum 'Spessart'	15	0.5L	2

Grasses

Grasses	Pot size	Density per m ²	Specification
Berla media	8	2L	6
Dianthus barbatus 'Goldbar'	8	2L	3
Drumstick 'Red Buttons'	8	2L	3
Sida calamagrostis 'Lemongrass'	8	2L	3
Sida tenuifolia	10	2L	5

Ferns

Ferns	Pot size	Density per m ²	Specification
Drumstick 'Filices'	10	2L	1

Grasses

Grasses	Pot size	Density per m ²	Specification
Carex pendula	10	2L	3
Luzula sylvatica	10	2L	4



Class Gardens

Trees	Qty	Girth cm	Height cm	Root Zone	Specification
Prunus 'Dogshead'	22	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem 175-200cm; 5 breaks; underground rootball geying system

Hedge to fence

Hedge to fence	Height cm	Density per m	Specification
Claydonia x abotage	120-150cm	2	Pot grown, 20L pot

Planting Mixture (100%)

Shrubs	%	Height cm	Pot size	Density per m ²	Specification
Choisya ternata	10	40-60	3L	3	Bushy; 4 breaks
Hebe 'Green Globe'	8	20-30	3L	4	Bushy; 3 breaks
Sarcococca confusa	10	3L	3L	4	Bushy; 7 breaks
Stimonia x confusa 'New Green'	10	3L	3L	4	Bushy; 3 breaks

Herbaceous

Herbaceous	Pot size	Density per m ²	Specification
Achillea millefolium	6	0.5L	7
Geranium macrorrhizum 'Spessart'	6	0.5L	7
Thymus serpyllifolius 'Tiger'	6	0.5L	8
Thymus vulgaris 'Compartus'	6	0.5L	8
Luzula sylvatica 'Moorgras'	6	2L	5

Grasses

Grasses	Pot size	Density per m ²	Specification
Berla media	6	2L	6
Dianthus barbatus 'Goldbar'	6	2L	3
Drumstick 'Red Buttons'	6	2L	3
Sida calamagrostis 'Lemongrass'	6	2L	3
Sida tenuifolia	6	2L	5

Existing Woodland to be improved

Trees	Qty	Girth cm	Height cm	Root Zone	Specification
Sorbus aucuparia (1 no. per 200 m ²)	22	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 200cm; 5 breaks
Malus sylvestris (1 no. per 200 m ²)	22	14-16	400-450	RB	3x, Extra Heavy Standard, clear stem minimum 200cm; 5 breaks

Planting / Seeding Mixture (100%)

Planting / Seeding Mixture (100%)	%	Height cm	Pot size	Density per m ²	Specification
Cornus sanguinea	3	40-60	3L	1	Branching; 4 breaks
Coronilla avaria	3	80-100	10L	1	Branching; 4 breaks
Crataegus monogyna	3	175-200	10-15L	1	3+1; Translucent - seed raised; branching; 4 breaks
Ilex aquifolium	3	60-80	3L	1	Leader with laterals
Rhus cotinifolia	3	40-60	2L	2	Leader with laterals; 3 breaks
Sambucus nigra	3	40-60	2L	2	Branching; 3 breaks
Viburnum bodinieri	3	40-60	2L	1	Branching; 3 breaks

Climbers

Climbers	Height cm	Pot size	Density per m ²	Specification	
Lonicera periclymenum	3	60-80	2L	1	Cane; several shoots; 2 breaks

Fruit bushes

Fruit bushes	Height cm	Pot size	Density per m ²	Specification	
Ribes rubrum	3	60-80	3L	3	Bush 3/5 shoots
Rubus fruticosus	3	20-30	0.5L	3	Bush 3/5 shoots

Grasses

Grasses	Pot size	Density per m ²	Specification
Carex pendula	4	2L	4
Luzula sylvatica	4	2L	4

Ferns

Ferns	Pot size	Density per m ²	Specification
Adiantum scolopendrium	4	2L	4
Blechnum spicant	4	2L	4
Cyrtopogon affinis	4	2L	2

Woodland groundcover seed mix

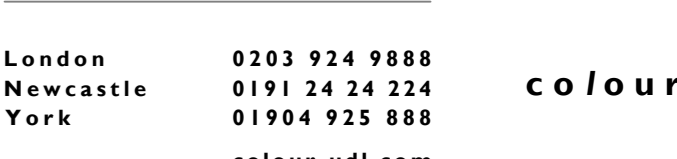
Woodland groundcover seed mix	Qty	Specification
Emongate FV1 Woodland Mixture	50	4g / m ²

NOT FOR CONSTRUCTION

05 Tender Issue 18/04/24 TK PD
 Rev Amendments Date Drawn Child

Project: Joseph Norton Academy, Deighton
 Drawing Title: Planting Schedule

Project No: 2352 Scale: 1:250 Project Status: For Tender
 Drawing No: L-2352-PP-5000 Revision: 05



APPENDIX 2 ▪ Proposed Landscaping Layout



The use of drawings by the Customer are as an agreement to the following conditions. The Customer must not use the drawings if it does not agree with any of the following conditions:

- All drawings are based upon site information supplied by third parties and as such their accuracy cannot be guaranteed. All drawings are approximate and subject to clarification by a detailed topographical survey, statutory service enquiries and confirmation of the high water level. Do not rely on the drawings. Any dimensions must be checked on site. Any discrepancy should be reported in writing to Colours Ltd, before proceeding. All drawings are copyright protected. Refer to full Terms & Conditions at www.colours.com
- All play equipment shown are indicative only.
- All landscape items that could potentially affect drainage or proposed drainage shall be checked to review before tender and construction.
- Root barrier requirements to be coordinated with Civil Engineer.
- Each individual class garden to be equipped with a watering tap point.

- Key**
- Site Boundary
 - Existing level and contour line
 - Proposed level and contour line
 - Proposed gradient
- Paving**
- Treated Concrete Slab Paving with stone aggregates, colour: natural
 - Standard Concrete Block Paving 200x100x60mm colour: natural
 - Permeable Concrete Block Paving 200x100x60mm colour: natural and charcoal
 - Standard Concrete Pimples Paving 400x400x60mm colour: buff
 - Standard Tactile Slab Paving Blister Concrete 400x400x60mm colour: charcoal
 - Standard Tactile Slab Paving Blister Concrete 400x400x60mm colour: charcoal
 - Standard Drop Kerb HD2 to BS2
 - Standard Pin Kerb 50mm wide, flat top
 - 6mm Steel Edging
 - Timber Fencing 1.8m to 2.0m
 - Timber Log Steps to Woodbank Footpath
 - Reinforced Slope to Engineer's detail
 - 3.0m Timber Slatted Mesh Fencing to Sprinkler Tank Compound and eastern side of MUGA
 - 2.0m Timber Slatted Mesh Fencing to Site
 - 2.0m Timber Featherboard Fencing as cladding to lower part of the 3.0m rebound fence at eastern side of MUGA
 - 3.0m Rebound Wood Mesh Fencing to MUGA
 - 2.0m Anti-climb Wood Mesh Fencing to outdoor play spaces & site perimeter
 - 1.8m Anti-climb Wood Mesh Fencing to Class Gardens
 - 1.5m Anti-climb Wood Mesh Fencing to Class Gardens
 - 1.2m Metal Balaustrade on top of Retaining Walls
 - 0.9m Stainless Steel Handrail to Slope
 - 1.5m Galvanneal Wire Mesh Fencing to Chicken Run (200mm mesh) and Goat Enclosures (75-100mm mesh)
 - 1.5m Galvanneal Wire Mesh Fencing to Pig Enclosures (75-100mm mesh) with electric pasture tape to bottom
 - 1.5m Timber Picket Fencing for Forest School and Vegetable Beds (later with 800mm high rabbit-proof wire netting to the base)
- Softworks**
- Ornamental Shrub Planting
 - Native Shrub Planting
 - Hedge Planting
 - Amenity Grass Seeding
 - Pre-grown Fibre-reinforced Turf Grass
 - Woodland Undergrowth Seeding
 - Wildflower Meadow Seeding
 - Wetland / Pond Margin Seeding
 - Grazing Pasture Seeding
 - Existing Woodland to be improved
 - Proposed Tree Planting
 - Existing Trees with Root Protection Zone (RPZ) shaded in blue
 - Existing Trees to be removed

NOT FOR CONSTRUCTION

37	Revised Tender Issue	14.02.24	TK	RF
36	Revised system establishment	12.03.24	TK	PD
35	Revised Tender Issue	03.03.24	TK	PD
Rev	Amendments	Date	Drawn	Checked

Project: Joseph Norton Academy, Deighton
 Drawing Title: General Arrangement Plan Landscape Layout
 Project No: 2352 Scale: @ A0
 Drawing No: L-2352-GAP-1000 Project Status: For Tender
 Revision: 37
 London Newcastle 0203 924 9888 0191 24 24 234
 York 01904 925 888 colour-ud.com

- APPENDIX 3**
- IDOM Merebrook Exploratory Hole & Sampling Locations – March 2025
 - IDOM Merebrook Exploratory Hole Logs – March 2025



MHP104

MHP105

MHP106

MWS101

MWS103

MTP105

MHP101

MWS105

MTP101

MTP104

MTP108

MWS104

MTP106

MHP102

MTP102

MWS102

MTP103

MHP103

MTP107

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 11/03/2025	
Location: Deighton Road, Huddersfield		Contractor:		Co-ords: E415914.00 N419594.00	
Project No. : 25049		Crew Name:		Equipment: Tracked Excavator 22 ton	
Location Number MTP101	Location Type TP	Level	Logged By NMc	Scale 1:25	Page Number Sheet 1 of 2

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.00	D,J,V		0.30			MADE GROUND: Grass overlying dark brown gravelly sandy topsoil. Gravel is fine to coarse angular to sub-angular of brick and concrete. Sand is fine to coarse.	
0.30 0.30	D D,J,V					MADE GROUND: Greyish brown sandy gravel. Gravel is fine to coarse angular of frequent brick, concrete, rare plastic and fibreglass. Sand is fine to coarse.	0.5
							1.0
							1.5
							2.0
							2.5
							3.0
							3.5
							4.0
							4.5
			5.00				5.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.10	0.60	Slightly unstable					

Remarks

IDOM

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 11/03/2025	
Location: Deighton Road, Huddersfield		Contractor:		Co-ords: E415914.00 N419594.00	
Project No. : 25049		Crew Name:		Equipment: Tracked Excavator 22 ton	
Location Number MTP101	Location Type TP	Level	Logged By NMc	Scale 1:25	Page Number Sheet 2 of 2

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth (m)	Type	Results					
			5.20			Weak yellowish brown weathered MUDSTONE.	
						End of Borehole at 5.20m	
							5.5
							6.0
							6.5
							7.0
							7.5
							8.0
							8.5
							9.0
							9.5
							10.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.10	0.60	Slightly unstable					

Remarks


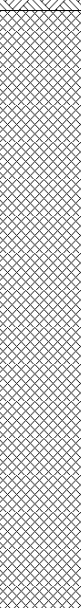
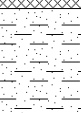

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 12/03/2025	
Location: Deighton Road, Huddersfield		Contractor:		Co-ords: E415884.00 N419540.00	
Project No. : 25049		Crew Name:		Equipment:	
Location Number MTP102a	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D		0.30			MADE GROUND: Grass overlying dark brown gravelly sandy topsoil. Gravel is fine to coarse angular to sub-angular of occasional brick and concrete. Sand is fine to coarse.	
0.30	D,J,V					MADE GROUND: Greyish brown sandy GRAVEL. Gravel is fine to coarse angular of frequent brick concrete and aggregate. Sand is fine to coarse.	0.5
			2.00			Tarmacadam	2.0
			2.20			Yellowish brown sandy firm CLAY. Sand is fine to coarse.	2.5
			3.30			Yellowish brown weathered MUDSTONE.	3.0
			3.50			End of Borehole at 3.50m	3.5
							4.0
							4.5
							5.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks	
---------	--



Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 12/03/2025	
Location: Deighton Road, Huddersfield		Contractor:		Co-ords: E415898.00 N419542.00	
Project No. : 25049		Crew Name:		Equipment:	
Location Number MTP102b	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30 0.30	D D,J,V		0.30			MADE GROUND: Grass overlying dark brown gravelly slightly sandy slightly clayey topsoil. Gravel is fine to coarse angular to sub-rounded of occasional brick and concrete.	
						MADE GROUND; Greyish brown sandy gravel. Gravel is fine to coarse angular to sub-angular of brick concrete and plastic. Sand is fine to coarse.	0.5 1.0 1.5 2.0
			2.30			Yellowish brown sandy firm CLAY. Sand is fine to coarse.	2.5
			2.70 2.80			Weak yellowish brown weathered MUDSTONE. End of Borehole at 2.80m	3.0 3.5 4.0 4.5 5.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 11/03/2025	
Location: Deighton Road, Huddersfield		Contractor:		Co-ords: E415945.00 N419545.00	
Project No. : 25049		Crew Name:		Equipment:	
Location Number MTP103	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.00	D,J,V					Tarmacadam	
			0.20			Brick	
			0.40			Yellowish brown slightly sandy very firm CLAY. Sand is fine to coarse.	0.5
			1.60			End of Borehole at 1.60m	1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

IDOM

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 11/03/2025	
Location: Deighton Road, Huddersfield		Contractor:		Co-ords: E415842.00 N419579.00	
Project No. : 25049		Crew Name:		Equipment:	
Location Number MTP104	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.10	D,J,V		0.10			Tarmacadam	
			0.40			MADE GROUND: Greyish brown very sandy gravel. Gravel is fine to coarse angular to sub-angular of brick concrete and aggregate. Sand is medium to coarse.	
						Yellowish brown sandy firm CLAY. Sand is fine to coarse.	0.5
						Yellowish greyish brown weak weathered MUDSTONE.	2.5
			2.50 2.60			End of Borehole at 2.60m	
							3.0
							3.5
							4.0
							4.5
							5.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 11/03/2025	
Location: Deighton Road, Huddersfield		Contractor:		Co-ords: E415968.00 N419573.00	
Project No. : 25049		Crew Name:		Equipment:	
Location Number MTP106	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1





Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.10	B		0.10			Tarmacadam	
			0.20			Tarmacadam	
0.30	D,J,V		0.30			Brick	
			0.40			MADE GROUND: Dark brown gravelly sandy CLAY. Gravel is fine to coarse angular of brick and concrete. Sand is fine to coarse. Yellowish brown slightly sandy firm CLAY. Sand is fine to coarse.	0.5
			1.90			End of Borehole at 1.90m	2.0
							2.5
							3.0
							3.5
							4.0
							4.5
							5.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

IDOM

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 11/03/2025	
Location: Deighton Road, Huddersfield		Contractor:		Co-ords: E415911.00 N419518.00	
Project No. : 25049		Crew Name:		Equipment:	
Location Number MTP107	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1














Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.00	D,J,V					MADE GROUND: Grass overlying dark brown gravelly slightly sandy topsoil. Gravel is fine to coarse angular to sub-rounded of brick and concrete. Sand is fine to coarse.	
			0.30			MADE GROUND: Greyish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse angular of brick and concrete.	
			0.50			Yellowish greyish brown slightly sandy CLAY. Sand is fine to coarse.	0.5
			2.00			Yellowish brown weak MUDSTONE.	2.0
			2.10			End of Borehole at 2.10m	
							2.5
							3.0
							3.5
							4.0
							4.5
							5.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

IDOM

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 11/03/2025	
Location: Deighton Road, Huddersfield		Contractor:		Co-ords: E415894.00 N419571.00	
Project No. : 25049		Crew Name:		Equipment:	
Location Number MTP108	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.10	D,J,V		0.10			MADE GROUND: Grass overlying dark brown gravelly slightly sandy slightly clayey topsoil. Gravel is fine to coarse angular to sub-rounded of frequent brick concrete aggregate and rare plastic. Sand is fine to coarse.	
			0.40			MADE GROUND: Greyish brown sandy GRAVEL. Gravel is fine to coarse angular to sub angular of frequent brick concrete and rare plastic. Sand is fine to coarse.	
						Yellowish brown medium soft sandy CLAY. Sand is medium to coarse.	0.5
							1.0
							1.5
							2.0
			2.50			Yellowish brown weak weathered MUDSTONE.	2.5
			2.60			End of Borehole at 2.60m	
							3.0
							3.5
							4.0
							4.5
							5.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

IDOM

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 12/03/2025	
Location: Deighton Road, Huddersfield				Co-ords: E415927.00 N419624.00	
Project No: 25049		Weather:		Drilling Equipment:	
Logged By	Checked By AH	Level	Hole Type WLS	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
©		0.30	D,J,V		0.30		Topsoil		
							Black sand and gravel of ash and clinker.	1	
		1.30	D,J,V		1.30		MADE GROUND: Yellow brown and dark brown locally black sandy gravelly clay.	2	
					3.50		Stiff grey and yellowish brown slightly sandy CLAY	3	
					4.80 5.00		Fine angular tabular mudstone gravel (Mudstone)	4	
						End of Borehole at 5.00m	5		
								6	
								7	
								8	
								9	
								10	

Casing Details			Legend HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample	Remarks Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.		
Diameter	Top (m bgl)	Base (m bgl)				
Chiselling Details			SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample	Groundwater Details		
Top (m bgl)	Base (m bgl)	Duration (mins)		Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 12/03/2025	
Location: Deighton Road, Huddersfield				Co-ords: E415889.00 N419532.00	
Project No: 25049		Weather:		Drilling Equipment:	
Logged By	Checked By AH	Level	Hole Type WLS	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
⊙					0.30		MADE GROUND: Black sandy organic gravel		
							MADE GROUND: Bricks and rubble	1	
					1.60		Very stiff light grey slightly sandy CLAY	2	
					3.00		End of Borehole at 3.00m	3	
								4	
								5	
								6	
								7	
								8	
								9	
								10	

Casing Details			Legend HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample	Remarks Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.		
Diameter	Top (m bgl)	Base (m bgl)				
Chiselling Details			SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample	Groundwater Details		
Top (m bgl)	Base (m bgl)	Duration (mins)		Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 12/03/2025	
Location: Deighton Road, Huddersfield				Co-ords: E415908.00 N419607.00	
Project No: 25049		Weather:		Drilling Equipment:	
Logged By	Checked By AH	Level	Hole Type WLS	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
							Topsoil and clay fill		
				0.40			Tarmacadam		
				0.50			MADE GROUND: Very gravelly cobbles of brick and sandstone cobbles. Gravel is of ash and cinder		
				0.70			MADE GROUND: Firm brown sandy clay with bricks and sandstone cobbles	1	
				2.00			Stiff brown sandy CLAY	2	
				3.60			End of Borehole at 3.60m	3	
								4	
								5	
								6	
								7	
								8	
								9	
								10	

Casing Details			Legend HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample	Remarks Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.	
Diameter	Top (m bgl)	Base (m bgl)			
Chiselling Details			Groundwater Details		
Top (m bgl)	Base (m bgl)	Duration (mins)	Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 12/03/2025	
Location: Deighton Road, Huddersfield				Co-ords: E415931.00 N419566.00	
Project No: 25049		Weather:		Drilling Equipment:	
Logged By	Checked By AH	Level	Hole Type WLS	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
©		0.00	D,J,V				Topsoil over dark brown clayey gravel with bricks and concrete boulders		
					0.50		MADE GROUND: broken concrete and macadam.		
					0.80		MADE GROUND: black gravelly sand and brick fragments		
					1.00		Firm light brown sandy gravelly CLAY	1	
								2	
								3	
					3.00		End of Borehole at 3.00m	3	
								4	
								5	
								6	
							7		
							8		
							9		
							10		

Casing Details			Legend HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample	Remarks Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.		
Diameter	Top (m bgl)	Base (m bgl)				
Chiselling Details			SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample	Groundwater Details		
Top (m bgl)	Base (m bgl)	Duration (mins)		Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)

Project Name: Joseph Norton SEMH School		Client: Wates Construction		Date: 12/03/2025	
Location: Deighton Road, Huddersfield		Contractor:		Co-ords: E415879.00 N419581.00	
Project No: 25049		Weather:		Drilling Equipment:	
Logged By	Checked By AH	Level	Hole Type WLS	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
©		0.00	D,J,V				MADE GROUND: Black ashy sand with humic matter.		
					0.40		MADE GRUND: brick and concrete rubble.		
					0.70		MADE GROUND: Stiff brown sandy gravelly clay. Gravel is sandstone and brick.	1	
					2.10		Very stiff light grey slightly sandy CLAY with bands of mudstone gravel (lithorelicts - MUDSTONE)	2	
					3.00		End of Borehole at 3.00m	3	
								4	
								5	
								6	
								7	
								8	
								9	
								10	

Casing Details			Legend HVP = Hand Vane Peak (kPa) PP = Pocket Penetrometer (kg cm2) PID = Photoionisation detector (ppm) D = Small Disturbed Sample (tub) J = Organic Sample (amber glass jar) V = Volatile Sample (amber glass vial) B = Bulk Bag Sample	Remarks Coordinates and levels, where indicated, must not be used for design purposes. The user is responsible for verifying all site and setting out dimensions.		
Diameter	Top (m bgl)	Base (m bgl)				
Chiselling Details			SPT(C) = Standard Penetration Test (cone) SPT(S) = Standard Penetration Test (split spoon) U = Undisturbed Sample	Groundwater Details		
Top (m bgl)	Base (m bgl)	Duration (mins)		Depth Strike (m bgl)	Depth Rose (m bgl)	Time Elapsed (mins)

- APPENDIX 4** ▪ Laboratory Certificates of Analysis IDOM Merebrook supplementary investigation March 2025



Merebrook
First Floor
1 Leonard Place
Westerham Road
Keston
BR2 6HQ

t: 01689 889980

e: nmcnulty@idom.com
lhayes@idom.com
sjames@idom.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 25-012462

Project / Site name:	Joseph Norton	Samples received on:	12/03/2025
Your job number:	25049	Samples instructed on/ Analysis started on:	13/03/2025
Your order number:	25-2-FDO-LABS	Analysis completed by:	25/03/2025
Report Issue Number:	1	Report issued on:	26/03/2025
Samples Analysed:	17 soil samples		

Signed: 

Rachel Chappell
Key Account Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480011	480012	480013	480014	480015			
Sample Reference	MHP 101	MHP 102	MHP 103	MHP 104	MHP 105			
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Water Matrix	N/A	N/A	N/A	N/A	N/A			
Depth (m)	0.20	0.20	0.20	0.20	0.20			
Date Sampled	11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	24	23	21	27	44
Total mass of sample received	kg	0.1	NONE	0.5	0.5	0.6	0.6	0.5

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSO	DSO	DSO	DSO	SPU
Analysis completed	N/A	N/A	N/A	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
-------------------------------------	---	-------	-----------	---	---	---	---	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
---	------	-----	-----------	---	---	---	---	---

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.2	7.4	7	7.3	6.9
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	42	37	31	48	53
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0212	0.0184	0.0154	0.0239	0.0263
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	21.2	18.4	15.4	23.9	26.3
Organic Matter	%	0.1	MCERTS	-	-	-	-	15
Organic Matter (automated)	%	0.1	MCERTS	5.9	4.9	3.9	6.3	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.4	2.8	2.3	3.7	-
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	-	-	-	-	8.8

Total Phenols

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

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480011		480012		480013		480014		480015	
Sample Reference	MHP 101		MHP 102		MHP 103		MHP 104		MHP 105	
Sample Number	None Supplied		None Supplied		None Supplied		None Supplied		None Supplied	
Water Matrix	N/A		N/A		N/A		N/A		N/A	
Depth (m)	0.20		0.20		0.20		0.20		0.20	
Date Sampled	11/03/2025		11/03/2025		11/03/2025		11/03/2025		11/03/2025	
Time Taken	None Supplied		None Supplied		None Supplied		None Supplied		None Supplied	
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status							

Speciated PAHs

Compound	mg/kg	0.05	MCERTS	0.14	< 0.05	< 0.05	0.12	0.19
Naphthalene	mg/kg	0.05	MCERTS	0.14	< 0.05	< 0.05	0.12	0.19
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.2	< 0.05	0.06	0.21	0.18
Fluorene	mg/kg	0.05	MCERTS	0.17	< 0.05	0.06	0.18	0.12
Phenanthrene	mg/kg	0.05	MCERTS	1.6	0.38	0.42	2.2	1.2
Anthracene	mg/kg	0.05	MCERTS	0.36	0.08	0.1	0.64	0.22
Fluoranthene	mg/kg	0.05	MCERTS	3.1	0.81	0.67	5.6	2.3
Pyrene	mg/kg	0.05	MCERTS	2.7	0.77	0.58	4.7	2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.4	0.37	< 0.05	2.4	1.1
Chrysene	mg/kg	0.05	MCERTS	1.4	0.48	0.32	2.7	1.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.6	0.55	0.39	3.1	1.4
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.84	0.2	0.16	1.3	0.5
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.4	0.44	0.34	2.8	1.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.8	0.25	0.18	1.4	0.53
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.16	< 0.05	< 0.05	0.22	0.12
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.86	0.28	0.19	1.5	0.55

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	16.8	4.61	3.45	29.1	12.7

Heavy Metals / Metalloids

Compound	mg/kg	1	MCERTS	28	18	20	14	15
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	28	18	20	14	15
Barium (aqua regia extractable)	mg/kg	1	MCERTS	200	130	140	89	93
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.3	0.8	1.1	0.8	0.8
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	37	33	33	31	29
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	38	33	34	32	30
Copper (aqua regia extractable)	mg/kg	1	MCERTS	55	33	36	74	35
Lead (aqua regia extractable)	mg/kg	1	MCERTS	100	63	59	67	65
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	36	28	37	30	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	45	34	34	33	35
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	150	110	150	130	140

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480011	480012	480013	480014	480015
Sample Reference	MHP 101	MHP 102	MHP 103	MHP 104	MHP 105
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.20	0.20	0.20	0.20	0.20
Date Sampled	11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_ID_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	1	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_ID_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_ID_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_ID_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_ID_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_ID_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_ID_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_ID_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_ID_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_ID_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_ID_AR}	mg/kg	1	MCERTS	1	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_ID_AR}	mg/kg	2	MCERTS	2.5	< 2.0	< 2.0	3.1	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_ID_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_ID_AR}	mg/kg	10	MCERTS	14	< 10	< 10	17	12
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_ID_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_ID_AR}	mg/kg	10	NONE	17	< 10	< 10	20	12
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_ID_AR}	mg/kg	10	NONE	17	< 10	< 10	20	12

TPH Total >EC5 - EC40 _{EH_CU+HS_ID_TOTAL}	mg/kg	10	NONE	17	< 10	< 10	20	12

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480016	480017	480018	480019	480020
Sample Reference	MHP 106	MTP 101	MTP 101	MTP 102a	MTP 102b
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.20	0.10	3.00	2.00	2.00
Date Sampled	11/03/2025	11/03/2025	11/03/2025	12/03/2025	12/03/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	38.3	34.1	28.7
Moisture Content	%	0.01	NONE	34	12	12	12	13
Total mass of sample received	kg	0.1	NONE	0.6	0.4	0.8	0.9	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSO	DSO	DSO	MBI	MBI
Analysis completed	N/A	N/A	N/A	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
-------------------------------------	---	-------	-----------	---	---	---	---	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
---	------	-----	-----------	---	---	---	---	---

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.3	8.5	10.2	10.7	9.3
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	46	130	1400	1100	940
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0231	0.067	0.702	0.552	0.47
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	23.1	67	702	552	470
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	11	3.9	1	1.6	1.7
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	6.4	2.2	0.6	0.9	1
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

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

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480016	480017	480018	480019	480020
Sample Reference	MHP 106	MTP 101	MTP 101	MTP 102a	MTP 102b
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.20	0.10	3.00	2.00	2.00
Date Sampled	11/03/2025	11/03/2025	11/03/2025	12/03/2025	12/03/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Speciated PAHs

Compound	mg/kg	0.05	MCERTS	0.13	2.3	0.13	0.28	0.25
Naphthalene	mg/kg	0.05	MCERTS	0.13	2.3	0.13	0.28	0.25
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.54	< 0.05	0.13	0.09
Acenaphthene	mg/kg	0.05	MCERTS	0.25	3	0.16	0.48	0.8
Fluorene	mg/kg	0.05	MCERTS	0.17	2.5	0.1	0.35	0.74
Phenanthrene	mg/kg	0.05	MCERTS	2.2	22	1.2	3.3	5.5
Anthracene	mg/kg	0.05	MCERTS	0.48	5.6	0.3	0.92	1.4
Fluoranthene	mg/kg	0.05	MCERTS	5.4	31	2.6	6.5	7.4
Pyrene	mg/kg	0.05	MCERTS	4.8	28	2.9	6.2	6.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.6	16	1.6	3.9	3.8
Chrysene	mg/kg	0.05	MCERTS	2.8	14	1.6	3.6	3.6
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	3.7	20	2.1	4.8	4.8
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.5	5.9	0.88	1.9	1.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3	16	1.7	4	3.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.4	6.9	0.84	1.9	1.8
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.32	1.8	0.24	0.47	0.45
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.4	7.2	0.85	1.9	1.8

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	30.2	182	17.2	40.7	44.5
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	30.2	182	17.2	40.7	44.5

Heavy Metals / Metalloids

Compound	mg/kg	1	MCERTS	21	11	8.1	7.3	9.5
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	21	11	8.1	7.3	9.5
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	200	120	180	140
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.1	0.4	0.4	0.4	0.6
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	36	30	26	19	25
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	36	30	26	19	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	49	35	24	21	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	96	50	24	29	43
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	25	19	16	14	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	38	26	24	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	150	87	82	99	140

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480016			480017			480018			480019			480020			
Sample Reference	MHP 106			MTP 101			MTP 101			MTP 102a			MTP 102b			
Sample Number	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied			
Water Matrix	N/A			N/A			N/A			N/A			N/A			
Depth (m)	0.20			0.10			3.00			2.00			2.00			
Date Sampled	11/03/2025			11/03/2025			11/03/2025			12/03/2025			12/03/2025			
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied			
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status													

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_ID_AL}	mg/kg	1	MCERTS	< 1.0	1.5	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_ID_AL}	mg/kg	2	MCERTS	< 2.0	2.6	2.1	2.7	3.9
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_ID_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	11	8.5	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_ID_AL}	mg/kg	8	MCERTS	< 8.0	110	120	80	32
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_ID_AL}	mg/kg	10	NONE	< 10	51	56	20	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_ID_AL}	mg/kg	10	NONE	< 10	110	130	91	36
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_ID_AL}	mg/kg	10	NONE	< 10	160	190	110	36

TPHCWG - Aromatic >EC5 - EC7 _{HS_ID_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_ID_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_ID_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_ID_AR}	mg/kg	1	MCERTS	< 1.0	2.9	< 1.0	1.2	1.3
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_ID_AR}	mg/kg	2	MCERTS	< 2.0	15	< 2.0	3	3.6
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_ID_AR}	mg/kg	10	MCERTS	< 10	100	14	16	14
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_ID_AR}	mg/kg	10	MCERTS	24	270	92	95	40
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_ID_AR}	mg/kg	10	NONE	< 10	110	69	39	15
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_ID_AR}	mg/kg	10	NONE	24	390	110	120	58
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_ID_AR}	mg/kg	10	NONE	24	510	180	150	74

TPH Total >EC5 - EC40 _{EH_CU+HS_ID_TOTAL}	mg/kg	10	NONE	24	670	360	260	110
--	-------	----	------	----	-----	-----	-----	-----

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480021				480022				480023				480024				480025			
Sample Reference	MTP 103				MTP 104				MTP 106				MTP 107				MTP 108			
Sample Number	None Supplied				None Supplied				None Supplied				None Supplied				None Supplied			
Water Matrix	N/A				N/A				N/A				N/A				N/A			
Depth (m)	0.20				0.10				0.20				0.20				0.30			
Date Sampled	12/03/2025				12/03/2025				12/03/2025				12/03/2025				12/03/2025			
Time Taken	None Supplied				None Supplied				None Supplied				None Supplied				None Supplied			
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status																	

Stone Content	%	0.1	NONE	42.5	51.9	47.7	35	41.9
Moisture Content	%	0.01	NONE	9.5	12	9.1	14	14
Total mass of sample received	kg	0.1	NONE	0.5	0.5	0.6	0.6	0.6

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MBI	MBI	MBI	MBI	MBI
Analysis completed	N/A	N/A	N/A	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
-------------------------------------	---	-------	-----------	---	---	---	---	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
---	------	-----	-----------	---	---	---	---	---

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.5	8	8.4	9.3	9.2
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	250	87	220	290	510
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.124	0.0437	0.111	0.145	0.254
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	124	43.7	111	145	254
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	6.2	1	3.8	1	1.3
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.6	0.6	2.2	0.6	0.8
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

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

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480021	480022	480023	480024	480025
Sample Reference	MTP 103	MTP 104	MTP 106	MTP 107	MTP 108
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.20	0.10	0.20	0.20	0.30
Date Sampled	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Speciated PAHs

Compound	mg/kg	0.05	MCERTS	1.1	0.78	1.1	0.29	0.25
Naphthalene	mg/kg	0.05	MCERTS	1.1	0.78	1.1	0.29	0.25
Acenaphthylene	mg/kg	0.05	MCERTS	3.7	0.28	2.6	0.17	0.17
Acenaphthene	mg/kg	0.05	MCERTS	5.2	7	5.4	0.67	0.59
Fluorene	mg/kg	0.05	MCERTS	3.7	5.9	3.9	0.48	0.47
Phenanthrene	mg/kg	0.05	MCERTS	60	59	51	6	3.9
Anthracene	mg/kg	0.05	MCERTS	24	18	19	1.6	1.1
Fluoranthene	mg/kg	0.05	MCERTS	210	70	140	11	8.2
Pyrene	mg/kg	0.05	MCERTS	190	54	120	9.2	7.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	110	29	66	5.5	4.2
Chrysene	mg/kg	0.05	MCERTS	110	24	62	5	4.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	140	25	82	7.4	5.7
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	59	13	29	2.9	2.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	130	24	71	6	4.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	69	11	43	2.9	2.4
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	14	2.4	8.1	0.65	0.58
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	69	11	43	2.9	2.5

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1190	353	751	62.3	48.1
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1190	353	751	62.3	48.1

Heavy Metals / Metalloids

Compound	mg/kg	1	MCERTS	12	14	15	6	9.4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	14	15	6	9.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	62	45	71	100	180
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.9	< 0.2	< 0.2	0.4	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	17	21	44	22	22
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	21	45	22	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	40	24	22	21	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	15	17	30	33
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	21	22	23	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	29	32	25	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	58	52	43	84	74

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480021	480022	480023	480024	480025
Sample Reference	MTP 103	MTP 104	MTP 106	MTP 107	MTP 108
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	0.20	0.10	0.20	0.20	0.30
Date Sampled	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_ID_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	1.4	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_ID_AL}	mg/kg	2	MCERTS	9.5	< 2.0	8.7	< 2.0	3.1
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_ID_AL}	mg/kg	8	MCERTS	44	< 8.0	32	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_ID_AL}	mg/kg	8	MCERTS	96	< 8.0	81	14	17
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_ID_AL}	mg/kg	10	NONE	< 10	< 10	13	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_ID_AL}	mg/kg	10	NONE	150	< 10	120	14	20
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_ID_AL}	mg/kg	10	NONE	150	< 10	140	14	20

TPHCWG - Aromatic >EC5 - EC7 _{HS_ID_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_ID_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_ID_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_ID_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.4	1.2
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_ID_AR}	mg/kg	2	MCERTS	25	13	29	4.9	3.4
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_ID_AR}	mg/kg	10	MCERTS	440	110	360	17	16
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_ID_AR}	mg/kg	10	MCERTS	1000	110	710	59	40
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_ID_AR}	mg/kg	10	NONE	160	65	150	63	43
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_ID_AR}	mg/kg	10	NONE	1500	230	1100	82	61
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_ID_AR}	mg/kg	10	NONE	1700	300	1200	140	100

TPH Total >EC5 - EC40 _{EH_CU+HS_ID_TOTAL}	mg/kg	10	NONE	1800	300	1400	160	130

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480026	480027
Sample Reference	MWS 101	MWS 101
Sample Number	None Supplied	None Supplied
Water Matrix	N/A	N/A
Depth (m)	1.00	2.00
Date Sampled	12/03/2025	12/03/2025
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection
		Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	14
Total mass of sample received	kg	0.1	NONE	0.8	0.6

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	MBI
Analysis completed	N/A	N/A	N/A	20/03/2025	20/03/2025
Actinolite detected	Type	N/A	ISO 17025	Not-detected	-
Amosite detected	Type	N/A	ISO 17025	Detected	-
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	-
Chrysotile detected	Type	N/A	ISO 17025	Not-detected	-
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	-
Tremolite detected	Type	N/A	ISO 17025	Not-detected	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	0.008	-
-------------------------------------	---	-------	-----------	-------	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Sheeting/Board Debris	-
---	------	-----	-----------	-----------------------	---

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.9	8
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	140	230
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0679	0.117
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	67.9	117
Organic Matter	%	0.1	MCERTS	-	-
Organic Matter (automated)	%	0.1	MCERTS	2.5	0.6
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.5	0.4
Total Organic Carbon (TOC) - Manual	%	0.1	MCERTS	-	-

Total Phenols

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

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number				480026	480027
Sample Reference				MWS 101	MWS 101
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				1.00	2.00
Date Sampled				12/03/2025	12/03/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Speciated PAHs

	mg/kg	0.05	MCERTS	0.14	< 0.05
Naphthalene	mg/kg	0.05	MCERTS	0.11	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.31	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.27	< 0.05
Fluorene	mg/kg	0.05	MCERTS	2.2	0.22
Phenanthrene	mg/kg	0.05	MCERTS	0.68	< 0.05
Anthracene	mg/kg	0.05	MCERTS	3.3	0.36
Fluoranthene	mg/kg	0.05	MCERTS	2.9	0.34
Pyrene	mg/kg	0.05	MCERTS	1.5	0.21
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.4	0.2
Chrysene	mg/kg	0.05	ISO 17025	1.9	0.25
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.62	0.13
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.5	0.25
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.68	0.13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.17	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.7	0.13
Benzo(ghi)perylene	mg/kg	0.05	MCERTS		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	18.4	2.22
-----------------------------	-------	-----	-----------	------	------

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	40	5.6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	450	69
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.7
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	32	20
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	33	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	96	9.2
Lead (aqua regia extractable)	mg/kg	1	MCERTS	67	16
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	67	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	96	24
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	230	140

Analytical Report Number: 25-012462
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number	480026	480027			
Sample Reference	MWS 101	MWS 101			
Sample Number	None Supplied	None Supplied			
Water Matrix	N/A	N/A			
Depth (m)	1.00	2.00			
Date Sampled	12/03/2025	12/03/2025			
Time Taken	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_ID_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_ID_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_ID_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_ID_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_ID_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_ID_AL}	mg/kg	10	NONE	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_ID_AL}	mg/kg	10	NONE	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_ID_AL}	mg/kg	10	NONE	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_ID_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_ID_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_ID_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_ID_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_ID_AR}	mg/kg	2	MCERTS	3.4	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_ID_AR}	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_ID_AR}	mg/kg	10	MCERTS	25	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_ID_AR}	mg/kg	10	NONE	54	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_ID_AR}	mg/kg	10	NONE	28	< 10
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_ID_AR}	mg/kg	10	NONE	82	< 10

TPH Total >EC5 - EC40 _{EH_CU+HS_ID_TOTAL}	mg/kg	10	NONE	82	< 10
--	-------	----	------	----	------

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0

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



Analytical Report Number: 25-012462
Project / Site name: Joseph Norton
Your Order No: 25-2-FDO-LABS

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

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

Quantitative Analysis

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

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

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

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
480026	MWS 101	1.00	144	Sheeting/Board Debris	Amosite	0.008	0.008

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

Analytical Report Number : 25-012462
Project / Site name: Joseph Norton

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
480011	MHP 101	None Supplied	0.2	Brown loam and clay with gravel and vegetation
480012	MHP 102	None Supplied	0.2	Brown loam and clay with gravel and vegetation
480013	MHP 103	None Supplied	0.2	Brown loam and clay with gravel and vegetation
480014	MHP 104	None Supplied	0.2	Brown loam and clay with gravel and vegetation
480015	MHP 105	None Supplied	0.2	Brown loam and clay with gravel and vegetation
480016	MHP 106	None Supplied	0.2	Brown loam and clay with gravel and vegetation
480017	MTP 101	None Supplied	0.1	Brown loam and clay with gravel and vegetation
480018	MTP 101	None Supplied	3	Brown loam and sand with gravel and stones
480019	MTP 102a	None Supplied	2	Brown loam and sand with gravel and stones
480020	MTP 102b	None Supplied	2	Brown loam and sand with gravel and stones
480021	MTP 103	None Supplied	0.2	Brown loam and sand with gravel and stones
480022	MTP 104	None Supplied	0.1	Brown loam and clay with gravel and stones
480023	MTP 106	None Supplied	0.2	Brown loam and sand with gravel and stones
480024	MTP 107	None Supplied	0.2	Brown loam and clay with gravel and stones
480025	MTP 108	None Supplied	0.3	Brown loam and clay with vegetation and stones
480026	MWS 101	None Supplied	1	Brown loam and sand with gravel
480027	MWS 101	None Supplied	2	Brown clay and loam with vegetation

Analytical Report Number : 25-012462

Project / Site name: Joseph Norton

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L023B	D	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L023B	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 25-012462

Project / Site name: Joseph Norton

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution



Merebrook
Cromford Mills
Mill Lane
Cromford
Derbyshire
DE4 3RQ

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

e: nmcnulty@idom.com

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 25-012658

Project / Site name:	Joseph Norton	Samples received on:	14/03/2025
Your job number:	25049	Samples instructed on/ Analysis started on:	14/03/2025
Your order number:	25-2-FDO-LABS	Analysis completed by:	20/03/2025
Report Issue Number:	1	Report issued on:	20/03/2025
Samples Analysed:	3 soil samples - 1 bulk sample		

Signed: 

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

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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

Analytical Report Number: 25-012658

Project / Site name: Joseph Norton

Your Order No: 25-2-FDO-LABS

Lab Sample Number	481077			481078			481080		
Sample Reference	MWS 104			MWS 105			MTP106 - Tar		
Sample Number	None Supplied			None Supplied			None Supplied		
Water Matrix	N/A			N/A			N/A		
Depth (m)	None Supplied			None Supplied			None Supplied		
Date Sampled	12/03/2025			12/03/2025			12/03/2025		
Time Taken	None Supplied			None Supplied			None Supplied		
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status						

Stone Content	%	0.1	NONE	< 0.1	47.3	50.9
Moisture Content	%	0.01	NONE	10	12	0.76
Total mass of sample received	kg	0.1	NONE	0.6	0.6	2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	MBI	DBU	-
Analysis completed	N/A	N/A	N/A	19/03/2025	18/03/2025	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	10.1	10.2	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	630	850	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.315	0.425	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	315	425	-
Organic Matter (automated)	%	0.1	MCERTS	2.3	1	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.3	0.6	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.42	< 0.05	2.4
Acenaphthylene	mg/kg	0.05	MCERTS	0.13	< 0.05	4
Acenaphthene	mg/kg	0.05	MCERTS	0.92	< 0.05	21
Fluorene	mg/kg	0.05	MCERTS	0.77	< 0.05	13
Phenanthrene	mg/kg	0.05	MCERTS	7.1	0.22	150
Anthracene	mg/kg	0.05	MCERTS	2.1	< 0.05	51
Fluoranthene	mg/kg	0.05	MCERTS	8.3	0.62	330
Pyrene	mg/kg	0.05	MCERTS	7.2	0.55	290
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.1	0.37	120
Chrysene	mg/kg	0.05	MCERTS	4.2	0.47	120
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	6.5	0.63	150
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	6.7	0.17	70
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4.3	0.5	150
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.2	0.35	65
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.82	0.09	13
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.3	0.35	68

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	58	4.34	1620
-----------------------------	-------	-----	-----------	----	------	------

Analytical Report Number: 25-012658
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number		481077	481078	481080
Sample Reference		MWS 104	MWS 105	MTP106 - Tar
Sample Number		None Supplied	None Supplied	None Supplied
Water Matrix		N/A	N/A	N/A
Depth (m)		None Supplied	None Supplied	None Supplied
Date Sampled		12/03/2025	12/03/2025	12/03/2025
Time Taken		None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.1	8.2	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	140	79	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.4	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	-
Chromium (III)	mg/kg	1	NONE	23	24	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	24	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	21	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	35	30	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	23	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	25	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	79	94	-

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	-
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	-
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	15	< 8.0	-
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	200	< 8.0	-
TPHCWG - Aliphatic >EC35 - EC40 _{EH_CU_1D_AL}	mg/kg	10	NONE	35	< 10	-
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	210	< 10	-
TPHCWG - Aliphatic >EC5 - EC40 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	250	< 10	-

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	-
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	-
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	-
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	8.3	< 2.0	-
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	54	< 10	-
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	150	< 10	-
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	41	< 10	-
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	210	< 10	-
TPHCWG - Aromatic >EC5 - EC40 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	250	< 10	-

TPH Total >EC5 - EC40 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	500	< 10	-
--	-------	----	------	-----	------	---

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	-
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	-

Analytical Report Number: 25-012658

Project / Site name: Joseph Norton

Your Order No: 25-2-FDO-LABS

Lab Sample Number				481077	481078	481080
Sample Reference				MWS 104	MWS 105	MTP106 - Tar
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				12/03/2025	12/03/2025	12/03/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Miscellaneous Organics						
Coal Tar		N/A	NONE	-	-	Identified
Total Residue	mg/kg	10	NONE	-	-	19000

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



Analytical Report Number: 25-012658
 Project / Site name: Joseph Norton
 Your Order No: 25-2-FDO-LABS

Lab Sample Number				481079
Sample Reference				MTP 101 - Asbestos
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				None Supplied
Date Sampled				12/03/2025
Time Taken				None Supplied
Analytical Parameter (Bulk Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Asbestos

Asbestos in bulks	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DBU
Analysis completed	N/A	N/A	N/A	18/03/2025

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



Analytical Report Number : 25-012658
Project / Site name: Joseph Norton

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
481077	MWS 104	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
481078	MWS 105	None Supplied	None Supplied	Brown clay and loam with gravel and stones
481080	MTP106 - Tar	None Supplied	None Supplied	Non Soil. ¹⁹

Analytical Report Number : 25-012658

Project / Site name: Joseph Norton

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Bulks	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	W	ISO 17025
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Coal Tar in soil	In-house method by GC-MS, by calculation of discrete polyaromatic content	In-house method by calculation	L064B	D	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

Analytical Report Number : 25-012658

Project / Site name: Joseph Norton

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

*g - Unaccredited sample matrix.

Sample Deviation Report



Analytical Report Number : 25-012658

Project / Site name: Joseph Norton

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
MTP106 - Tar	N/A	S	481080	b	Coal Tar in soil	L064B	b
MTP106 - Tar	N/A	S	481080	b	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	b

- APPENDIX 5** ▪ Ground gas monitoring results IDOM Merebrook supplementary investigation March-April 2025

GAS MONITORING RECORD ROUND 1

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements								VOC Measurements		Dip Measurements		Comments	
		Flow		Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water		Depth to Base
		max	steady																
l hr ⁻¹		mb	Pa	%	%	%	%	%	%	ppm	ppm	s	%	ppm	m bgl	m bgl			
MWS101	10:15	0.3	0.1	1007	0	0	0	1	1	19.2	0	0	65.000	0.014	0	Dry	4.95	-	
MWS102	09:30	-0.2	-0.9	1007	-4	0.1	0.1	2.3	0	0	19.5	0	45.000	0.026	0	Dry	1.50	-	
MWS103	10:00	0.1	0	1006	0	0	0	0	0.4	0.4	19.8	0	80.000	0.020	0	Dry	3.60	-	
MWS104	10:30	0.1	0	1006	0	0	0	0	0	0	17.7	0	80.000	0.008	0	Dry	3.00	-	
MWS105	09:45	0.1	0	1007	0	0	0	0	0.1	0.1	19	0	60.000	0.020	0	Dry	3.00	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weather:	Sunny, dry. Pressure stable over last 48 hours.					nr = not recorded				Gas Analyser		PID		Site:		Joseph Norton			
						Model:				GFM436		MiniRae Lite		Project Number:			25049		
						Serial Number:				13702		590-904749		Monitored By:			Thea James		
						Date of Last Calibration:				26/07/2024		27/11/2024		Date:			20/03/2025		

GAS MONITORING RECORD ROUND 2

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements								VOC Measurements		Dip Measurements		Comments		
		Flow		Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water		Depth to Base	
		max	steady																	
l hr ⁻¹		mb	Pa	%	%	%	%	%	%	ppm	ppm	s	%	ppm	m	m				
MWS101	10:55	0	-1	1010	-5	0.3	0	0	1.3	1.3	18.5	0	0		0.014	0	dry	4.85	-	
MWS102	10:15	-0.9	-1.6	1011	-7	0	0	1.8	0	0	19.5	0	0		0.024	0	dry	1.45	-	
MWS103	10:45	-0.3	-0.2	1010	0	0.3	0.2	5.5	0.5	0.5	18.5	0	0		0.027	0	dry	3.65	-	
MWS104	11:15	0	0	1011	0	0	0	0	0	0	20.4	0	0		0.014	0	dry	4.85	-	
MWS105	10:30	0	-1.3	1011	-7	0.1	0.1	2.7	0	0	20	0	0		0.025	0	1.10	3.00	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weather:	Sunny, dry. Pressure rising over last 2 days.					nr = not recorded					Gas Analyser		PID		Site:		Joseph Norton			
						Model:					GFM436		MiniRae Lite		Project Number:		25049			
						Serial Number:					13702		590-904749		Monitored By:		Thea James			
						Date of Last Calibration:					26/07/2024		27/11/2024		Date:		26/03/2025			

GAS MONITORING RECORD ROUND 3

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements								VOC Measurements		Dip Measurements		Comments		
		Flow		Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water		Depth to Base	
		max	steady																	
l hr ⁻¹		mb	Pa	%	%	%	%	%	%	ppm	ppm	s	%	ppm	m	m				
MWS101	10:40	0	0	991	0	0	0	0	0.8	0.8	19.3	0	0		0.000	nr	dry	4.85	-	
MWS102	10:10	0	0	991	0	0	0	0	0	0	19.7	0	0		0.000	nr	dry	1.49	-	
MWS103	10:30	-0.2	-0.1	991	0	0	0	0	0.4	0.3	18.7	0	0		0.000	nr	dry	3.58	-	
MWS104	10:00	0	0	992	0	0	0	0	0	0	17.4	0	0		0.000	nr	dry	3.10	-	
MWS105	10:20	0	0	992	0	0	0	0	0	0	20.2	0	0		0.000	nr	1.40	3.55	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weather:	Sunny, dry, warm, 2/8 cloud, falling pressure over last 24 hours					nr = not recorded				Gas Analyser		PID		Site:		Joseph Norton				
						Model:				GFM435		-		Project Number:		25049				
						Serial Number:				11839		-		Monitored By:		Andrew Harris				
						Date of Last Calibration:				01/07/2024		-		Date:		12/04/2025				

APPENDIX 6 ▪ Risk Assessment Methodology

RISK ASSESSMENT METHODOLOGY (FOLLOWING CIRIA C552, 2001)

The potential sources of contamination at the site and the implications with respect to development have been interpreted in accordance with the current government guidance on source-pathway-receptor risk assessment.

The existence of a pollutant linkage requires a pathway by which the receptor could be exposed to the source.

Where a complete pollutant linkage is deemed to be present, the level of *risk* is then determined taking into account the *likelihood* of significant impact and the *severity* of potential impact using the following classification tables which broadly follow the method set out in CIRIA C552.

Table A1: Classification of Severity (or Consequence)

CLASSIFICATION	DEFINITION
Severe	Short term (acute) risk to human health likely to result in “significant harm” as defined by the Environment Protection Act 1990, Part IIA. Short term risk of sensitive water resource. Catastrophic damage to buildings/property. A short term risk to a particular ecosystem or organism forming part of such ecosystem (note: the definitions of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).
Medium	Chronic damage to Human Health (“significant harm” as defined in DETR, 2000). Pollution of sensitive water resources, significant change in a particular ecosystem or organism forming part of such ecosystem.
Mild	Pollution of non sensitive water resources. Significant damage to crops, buildings, structures and services (“significant harm” as defined in the Draft Circular on Contaminated Land, DETR, 2000). Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve. Non permanent health effects to human health (easily prevented by means such as personal protective clothing, etc). Easily repairable effects of damage to buildings, structures and services.

Table A2: Classification of Likelihood (Probability)

CLASSIFICATION	DEFINITION
High Likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Table A3: Risk Estimation – Combination of Consequence and Probability(after CIRIA C552 and R&D66)

		MAGNITUDE OF POTENTIAL CONSEQUENCE (SEVERITY) OF RISK			
		SEVERE	MEDIUM	MILD	MINOR
LIKELIHOOD OF RISK	HIGH LIKELIHOOD	Very High Risk	High Risk	Moderate Risk	Low Risk
	LIKELY	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	LOW LIKELIHOOD	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	UNLIKELY	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Table A4: Description of the Classified Risks and Likely Reaction Required

CLASSIFICATION	DEFINITION
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the long term.
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

IDOM

IDOM Cromford Mills, Mill Lane, Matlock, Derbyshire DE4 3RQ
t +44 (0)1773 829 988 e info.derbyshire@idom.com **idom.com**

Registered in England No. 02740216 Registered office: as above