Phase I & II Geo-Environmental Assessment

The Stirling Centre
Newton Heath
Manchester
M40 2RE

Prepared for:

Premier Modular Ltd
Catfoss Lane
Brandesburton
Driffield
East Yorkshire
YO25 8EJ

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THE STIRLING CENTRE, MANCHESTER

NON-TECHNICAL CLIENT SUMMARY

This report presents the findings of a combined Phase I Desk Study and Phase II Intrusive Investigation undertaken to determine ground conditions, establish if there are any environmental risks associated with the site and its development and provide a geotechnical appraisal. Pertinent findings and conclusions may be summarised as follows:

- The site currently comprises a two-storey youth centre. The proposed development comprises an additional single storey modular building including areas of external hardstanding and soft landscaping.
- Four window sample boreholes inclusive of one infiltration test were formed on site to a maximum depth of 5.00m. These found made ground (maximum depth 3.50m), overlying a grey clay to the base of all locations. Groundwater was not encountered.
- Evidence for contamination, in the form of hydrocarbon odours, high PID readings and exceedances in chemicals was encountered. Furthermore, the made ground has been classified as **Hazardous** under the waste code **17 05 03**, while the natural soils can be managed as **non-hazardous** under the non-hazardous waste code **17 05 04**.
- The ground gas monitoring programme has not identified any gas risks.
- Contaminant exceedances were detected within the made ground materials, therefore it is recommended that a 600mm clean cover system is implemented for areas of soft landscaping.

ENGINEERING SUMMARY

- Since no natural material was encountered within the top 1.50m, with the thicknesses of made ground materials being at least 2.50m in three of the four locations, conventional spread foundations have not been considered appropriate.
- A design sulphate class of DS2 and DS1 have been allocated to the made ground and natural soils respectively. Both have an aggressive chemical environment for concrete (ACEC) of AC-1s.
- A design CBR value of 2% is considered suitable for in-situ made ground materials, while a value of 3% is assumed appropriate for the natural soil.

The above points represent a simplified summary of the findings of this assessment and must not form the basis for key decisions for the proposed development. A thorough review of the details is contained within the following report, or alternatively get in touch and we'll talk you through it.

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Title:	Phase I & II Geo-Environmental Assessment – The Stirling Centre, Newton Heath, Manchester M40 2RE	
Client:	Premier Modular Ltd	
Date:	3rd November 2025	
EPS Contact Details:	10-12 East Parade Leeds LS1 2BH	T: 01954 710666 E: info@epstrategies.co.uk W: www.epstrategies.co.uk
Status:	Issue 2 – Inclusion of additional gas monitoring visits	

Author:	**Reviewed:**	**Authorised:**
A Watson	*J Bowley*	*S Bullock*
Ashleigh Watson	James Bowley	Steve Bullock
Senior Consultant	Senior Consultant	Director

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Where ground investigations have been conducted, these have been limited to the level of detail required for the site in order to achieve the objectives of the investigation.

The report has been written, reviewed and authorised by the persons listed above. It has also undergone EPS' quality management inspection. Should you require any further assistance regarding the information provided within the report, please do not hesitate to contact us.

The National Planning Policy Framework requires a competent person to prepare site investigation information, which is defined as a person with a recognised relevant qualification, sufficient experience in dealing with the type(s) of pollution or land instability, and membership of a relevant professional organisation. EPS considers that it fulfils these criteria and would welcome any request for staff CVs or case studies to demonstrate it.

As stated within DEFRA's Contaminated Land Statutory Guidance, with any complex risk assessment it is possible that different suitably qualified people may reach slightly different conclusions when interpreting the same information. EPS recognises this and considers the conclusions presented within this report to be robust and appropriate but input from the Local Authority and their judgement in line with this guidance would still be welcomed.

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1 INTRODUCTION

In July 2025, Environmental Protection Strategies Ltd (EPS) was commissioned by Premier Modular to complete a Phase I and II Geo-Environmental Assessment Report at The Stirling Centre, Newton Heath, Manchester, M40 2RE ('the site'); see Figure 1.

The work was commissioned in order to fulfil planning requirements for the construction of a new single storey modular building including areas of external hardstanding and soft landscaping to the northwest of the existing structure. This project can be found on Manchester City Council's planning portal under reference: 142987/VO/2025.

This report presents the findings, conclusions, and recommendations of the Phase I Desk Study and subsequent Phase II Intrusive Investigation undertaken as instructed.

1.1 Objectives

The objectives of this investigation were as follows:

a) Compile a Phase I Desk Study and Conceptual Site Model through a Preliminary Risk Assessment to evaluate the potential risks the site may pose to human and environmental receptors, both currently and in future.
b) Investigate potential contaminant linkages identified in the CSM by means of investigating shallow soils, groundwater and soil gases.
c) Determine the potential risks posed by the site and make recommendations for further work that may be required, to ensure safe development in accordance the Environment Agency's *Land Contamination: Risk Management* guidance (LC:RM) and the *National Planning Policy Framework.*
d) Collect information on ground conditions and strength in order to make appropriate recommendations for geotechnical design.
e) Collect information regarding waste classification of soils for offsite disposal.
f) Assess infiltration capabilities of the soil to inform drainage design.

1.2 Scope of Work

To perform an exploratory assessment of the site in accordance with the principles and requirements of DEFRAs '*Contaminated Land Statutory Guidance'* (2012), BS10175 – '*Investigation of Potentially Contaminated Sites'*, BS 5930:2015+A1:2020 '*Code of practice for ground investigations*' and BS EN 1997 '*Geotechnical Design'*, the following tasks were undertaken:

<u>Desk Study:</u>

- Collection of site records.
- Study of existing geological, hydrogeological and historic maps of the area.
- Consultation of environmental databases, including records held by the local authority (where available).
- Review of proposed development plans.

- Development of a Conceptual Site Model (CSM) through a Preliminary Risk Assessment.

Intrusive Investigation:

- Site walkover, inspection of any visual evidence of contamination at the site, obtaining photographic records.
- Health and safety briefing / site supervision.
- Drilling of four window sample boreholes to a depth of 5.0m below ground level (bgl) using a track-mounted percussive rig.
- Completion of two trial pits to a max depth of 1.85mbgl, using a mechanical excavator, to facilitate soakaway testing.
- Completion of four plate load tests to assess ground strength.
- Continual logging of ground conditions including inspection of samples for visual and olfactory contamination, and laboratory analysis of selected representative samples.
- Installation of gas monitoring standpipes at selected locations, with a return monitoring programme conducted.

Reporting:

- Data collection
- Interpretation of data including completion of Generic Quantitative Risk Assessment

The findings and conclusions of these investigations are presented in the following sections.

1.3 Limitations and Constraints

The purpose of this report is to present the findings of a soil sampling investigation conducted at the location(s) specified. When examining the data collected from the investigations made during the assessment, Environmental Protection Strategies Ltd (EPS) makes the following statements:

No investigation method is capable of completely identifying all ground conditions that might be present in the soil or groundwater under a site. Where outlined in our report, we have examined the ground beneath a site by constructing a number of boreholes and / or trial pits to recover soil and / or groundwater samples. The locations of these excavations and sampling points are considered representative of the condition of the whole site subsurface however, ground conditions are naturally variable and it may be possible that the conditions encountered may differ to those found during the investigation.

No visible evidence of Japanese Knotweed was identified during the site walkover. However, this plant can be difficult to identify in the early stages of growth and therefore it is not always possible to identify its' presence at certain times of the year. For this reason, EPS cannot confirm that Japanese Knotweed rhizomes do not exist and it is recommended that if it is suspected that this species, or other similarly invasive plants

are present at the site, a specialist contractor should be commissioned to make a detailed assessment.

This report does not include specific investigation for the presence of Potential Asbestos Containing Material (PACM). Specialist contractors should be commissioned to make detailed assessments and recommendations if these materials are suspected.

The investigation was carried out to assess the significance of contamination resulting from the use of the site as identified in this report. Unless EPS has otherwise indicated, no assessment of potential impact of any other previous uses has been made.

2 SITE CHARACTERISATION

The following section provides a summary of the information collected in relation to the site location and history.

2.1 Site & Location Description

Detail	Description
Location	The site lies within Newton Heath, Greater Manchester, approximately 4.3km northeast of Manchester city centre and can be accessed via Croydon Drive from the north.
National Grid Reference	388130, 399640
Topographic Elevation	A combined topographic and utilities survey completed as part of the assessment indicates that site levels are relatively flat lying approximately at 80.80m Above Ordnance Datum (AOD) in the southwest and 81.30m AOD in the northeast. The topographic and utility drawing is included as Appendix C.
Description of Site	The site is rectangular in shape, with an area of 0.13Ha. The southeast is occupied by the main building, a two-storey structure with access from the car park to the northwest and Scotland Hall Road to the northeast. Between the building and the southern site boundary was a strip of inaccessible land which appeared to be overgrown and densely vegetated. The site to the northwest of the existing building was split in two by a mature hedge, orientated northwest- south east. The western side of this hedge was the car park, dominated by hardstanding, a mix of concrete and asphalt, with planters located along the far western boundary, and access from Croydon Drive to the north. The area located to the east of the hedge was dominated by soft landscaping. Surrounding the northern and western sides of the building was a paved path, with the northern section connecting the car parking and soft landscaping, and the western part leading to the back of the building. The north, east and southern boundaries of the site were defined by a fence. In addition to this, mature trees were present at the northern end of the central hedge, eastern and southern boundaries. No signs of asbestos containing material (ACM) were noted and no evidence of above or below ground fuel tanks were observed.

Detail	Description
	Evidence for subsurface utilities were predominantly located within the paved path which runs parallel to the existing building. Furthermore, overhead cables were noted crossing the site from the northeastern corner.
Surrounding Land Use	The site lies within the residential area of Newton Heath, with housing in the surrounding area towards the north. Scotland Hall Road Recreation Ground is situated 100m to the east, and a railway line is located 70m south.

A plan showing the site location is provided as Figure 1, the current site layout is detailed on Figure 2 and an aerial photograph is included as Figure 3. Selected site photographs and site walkover notes are included as Appendix A, a proposed development plan is included as Appendix B and relevant extracts of a Landmark Envirocheck report are included as Appendices D - H.

2.2 Geo-Environmental Setting

Detail	Description	
Geology	Geological mapping of the area indicates the site is underlain by artificial ground (made ground) which overlies superficial glaciofluvial deposits (sand and gravel) which dominate most of the site, however encroaching onto the northern and southern boundaries is the Devensian Till. Underlying the superficial deposits is the Collyhurst Sandstone Bedrock. Information on the site's geological context is included as Appendix E.	
British Geological Survey (BGS)	An historic borehole drilled 80m south (within the superficial Till deposits) recorded 'rail construction' to 0.20m overlying made ground which extended to 1.95m comprising an initial layer of rail ballast to 0.70m followed by dark grey clay, silt, sand and gravel. The gravel comprised clinker, sandstone, mudstone and quartz. Between 1.85 – 19.5m it was noted to become organic. A brown, slightly silty fine to medium sand was noted underlying the made ground, extending to the maximum borehole depth of 2.20mbgl. No groundwater was encountered within the borehole. A copy of the historic borehole log is included within Appendix E.	
Geological Hazards	**Hazard**	**On Site Risk**
	Mining (non-coal)	No Hazard
	Collapsible Ground	Very Low
	Compressible Ground	No Hazard
	Ground Dissolution	No Hazard
	Running Sand	Very Low
	Landslide	Very Low
	Shrinking / Swelling Clay	No Hazard

Detail	Description
	One BGS recorded mineral site is reported within 500m, which was known as Cheetham Fold Clay Pit, located 287m north, for the extraction of common clay and shale. Operations at this site has since ceased. No natural cavities are located within 500m.
Coal Mining	The site lies within a Coal Mining Reporting Area. However, from a review of the Mining Remediation Authorities online maps, the site does not lie in a development high risk area, there are no mine entries, coal outcrops, past or probable shallow workings, and past or current surface mining recorded on site or in the surrounding area. Based on this, no further investigation is considered necessary.
Radon	The Envirocheck indicates the site to lie in a location where the percentage of homes above the radon action level is less than 1%. It further reports that the site will not require radon protection measures in the construction of new buildings.
Hydrogeology	Groundwater vulnerability maps of the area indicate the superficial glaciofluvial deposits are classified as a Secondary 'A' Aquifer, while the Devensian Till is a Secondary Undifferentiated Aquifer. The bedrock geology is classified as a Principal Aquifer. The site does not lie within a Source Protection Zone (SPZ). Groundwater vulnerability maps are included as Appendix F. The Envirocheck report doesn't list any groundwater abstractions within 500m.
Hydrology & Flood Risk	The nearest surface water feature is the River Medlock, which is located 154m southeast and flows east to west. The Envirocheck report lists six discharge consents within 500m. The closest are located between 313m and 318m southeast, four points have been mapped, but all were operated by United Utilities Water Limited for the discharge of public sewage (storm sewage overflow) into a freshwater stream/river between 1994 and 2019. The Envirocheck report doesn't list any surface water abstractions within 500m. Review of the EA Flood Zone Map for the area indicates that the site lies within Flood Zone 1, which is defined as the area with a low potential risk of flooding from fluvial or tidal sources. It should be noted that the EA maps do not take into account flooding from poor drainage or groundwater. A copy of the flood map for the site and surrounding area is also included within Appendix F.

Detail	Description
Known Site Drainage & Utilities	A site-specific utility survey was undertaken as part of the works and has been included within Appendix C. This showed an electricity cable running from the north to the south into the building on-site. Another utility (noted as possibly gas) was recorded as running from the northwest to southeast, however the end location of this pipe is unclear and an 'end of trace' has been noted on the survey for this utility. Other notable utilities include a drainage channel running parallel to the building in a southwest to northeast direction, and a foul drainage pipe running parallel to this. Furthermore, within the northeastern corner was overhead cables crossing the site leading to the building.
Landfill & Waste	One BGS recorded landfill site (Clayton Vale) is located 51m south. A further three historic landfill sites are also mapped, appearing to be associated with Clayton Vale Landfill. The entirety of the site falls within the northern section of this historical landfill. The input for this landfill as noted on Envirocheck was inert and industrial waste. Researching further into the Clayton Vale landfill, Manchester City Council's 'City Roots: The Story of Manchester's Urban Forest' report noted that between the 1900s and 1947 the entity of the Clayton Vale area (57 hectares) was used as landfill, which disposed of ash cinders from Stuart Street Power Station and municipal waste. In 1982 the council purchased the site, taking five years to complete its reclamation project. In 2006 it gained Local Nature Reserve status. No licenced waste management facilities are mapped within 500m. The boundary of the site is located within one of the six areas of infilled land within the surrounding 500m. It is assumed that this area of infilled land is related to the aforementioned historic landfill noted on geological maps of the area. The second and third closest areas of infilled land are 193m and 196m south. Over 30 areas of infilled land (water) are located within 500m, the majority of which are related to infilled ponds. The closest is located 79m north.
Permitted Industrial Activity	The closest local authority pollution prevention and controls is located 580m north, for an air pollution control associated with Briscoe Lane Service Station.

<table>
<tr><th>Detail</th><th>Description</th></tr>
<tr><td rowspan="8">Industrial Land Use & Points of Interest</td><td colspan="3">The Envirocheck report lists eight industrial land uses/points of interest within 500m, the most pertinent of which are summarised below.</td></tr>
<tr><td>Land Use</td><td>Distance (Direction)</td><td>Status</td></tr>
<tr><td>Mrs Mops (Cleaning Services – Domestic)</td><td>363m (NW)</td><td>Inactive</td></tr>
<tr><td>New Century Blinds (Blinds, Awnings & Canopies)</td><td>385m (E)</td><td>Inactive</td></tr>
<tr><td>Scrap Cars In Manchester (Car Breakers & Dismantlers)</td><td>394m (NW)</td><td>Active</td></tr>
<tr><td>Drain Services N W Ltd (Commercial Cleaning Services)</td><td>412m (E)</td><td>Inactive</td></tr>
<tr><td>Maid It Sparkle (Cleaning Services – Domestic)</td><td>445m (N)</td><td>Inactive</td></tr>
<tr><td colspan="3">One fuel station is located 596m north, Briscoe Lane Service Station.</td></tr>
<tr><td>Pollution Incidents</td><td colspan="3">Eight pollution incidents have been recorded within 500m, the closest of which occurred 215m south when crude sewage entered the River Medlock, this was a category 3 – minor incident. Two other category 3 incidents were noted 333m southeast of the site when crude sewage and sewage debris/litter entered the River Medlock in 1995 and 1996 respectively.</td></tr>
<tr><td>Previous Investigation or Remediation</td><td colspan="3">EPS are not aware of any previous ground investigations or remedial works undertaken at the site.</td></tr>
<tr><td>Unexploded Ordnance</td><td colspan="3">A Preliminary UXO Assessment was completed for the site by 1st Line Defence, and the report concluded the risks from UXO is not considered to be significantly elevated above the ‘background risk’ of finding UXO in this part of the UK. The Preliminary UXO Assessment Report is included as Appendix G.</td></tr>
<tr><td>Sensitive Land Use</td><td colspan="3">An area of adopted greenbelt and Clayton Vale Nature Reserve are located 47m and 58m south respectively.</td></tr>
</table>

2.3 Site History

A summary of historical map data from 1848 to 2025 is provided below. Key points are highlighted and copies of relevant historic maps and any others examined during the investigation are included in this report as Appendix H.



- The earliest mapping (1848) shows the site to be rural land with a few ponds located to the northeast within 100m, A railway, orientated east – west, located 22m south and the River Medlock 145m southeast. Immediately south of the river was Clayton Vale Print & Bleach Works. The land surrounding the site was also dominated by rural fields.
- By the 1890s there was a path traversing the site, north – south, with evidence for disused pits mapped immediately east of this path, within the site boundary. These remained mapped until the 1940s when they were referred to as a refuse heap. As mentioned previously, Manchester City Council noted the entirety of Clayton Vale, including the whole of the site, to comprise landfill between the 1900s – 1950s. To the south, additional railway sidings had been developed leading to Clayton Vale Print & Bleach Works, now mapped as disused.
- Further south of the railway line was a large refuse heap, noted on mapping from the 1940s until the 1950s, part of which is within 100m of the site. This is presumably associated with Clayton Vale Landfill Site, which was active up until the 1970s, before remedial works commenced in the 1980s. It is currently used as a local nature reserve.

- An infectious diseases hospital is situated further southeast, and was present from 1900 to the 1940s, approximately 200m south from the site.
- A pumping station was situated 250m southwest from the 1920s and seemingly existed until the 1950s. Further north of this feature, between 50m and 250m east of the site, a number of allotment gardens were depicted on mapping which existed from the 1940s and ceased between the 1960s and 1980s.
- Within the site boundary during the 1960s a group of single buildings appear to have been constructed; the exact nature of these structures is unknown. By the 1980s they are no longer mapped, but the existing building is, located along the southern boundary. Furthermore, the former refuse heaps are no longer mapped but noted as playing fields and slopes (leading to the railway to the south).

3 PRELIMINARY RISK ASSESSMENT & CONCEPTUAL SITE MODEL

In accordance with the Environment Agency's Land Contamination: Risk Management, there are three stages to managing contaminated land (Risk Assessment, Remedial Options Appraisal / Remediation and Verification). This section outlines the first tier of Stage 1, the Preliminary Risk Assessment.

The following section provides a review of the contaminant linkages that may be active at the site, whereby EPS have examined the potential sources that may be present as a result of historic and / or current site activities and where potential interaction between these sources and the identified human / environmental receptors may occur.

3.1 Background

A Desk Study comprises the first stage of any geo-environmental assessment, the purpose of which is to determine what potentially contaminative activities may have occurred at the property or the surrounding area which may pose an environmental or geological risk to site users, the surrounding environment or proposed development, either at present or in the future.

The method used in this investigation to assess the environmental risk posed is based on the concept of 'contaminant linkage', which considers the following three factors:

Source	The location from which an environmentally hazardous / contaminative substance is, (or was,) derived.
Pathway	A route or mechanism via which a source could come into contact with a receptor to cause significant harm.
Receptor	An environmentally sensitive object or condition e.g. person, property, controlled water, or ecological system, which may be present now or in future.

If all three factors are identified, there is the potential for a 'contaminant linkage' to be active, which could result in significant harm being caused to the environment or human health.

3.2 Source Characterisation

The following potential contaminant sources have been identified at the site and in the surrounding area:

Potential Source	Source Description	Principal Contaminants of Concern
Current / Historic Site Use	In-fill material of unknown origin (Made Ground) situated beneath the entire site.	PAH, Metals, ACM
	Clayton Vale Landfill, associated infilled pits and refuse heaps (1900s – 1950s)	PAH, Metals, ACM, Landfill Gas (CH_4, CO_2)

Potential Source	Source Description	Principal Contaminants of Concern
Current / Historic Surrounding Land Use	Clayton Vale Landfill, and associated infilled pits (1900s – 1950s)	Landfill Gas (CH_4, CO_2)
	Print and Bleach Works (1840s – 1890s)	PAH, Metals, ACM, VOCs
	Allotment Gardens (1940s – 1980s)	Herbicides, Pesticides, Metals
	Current and historic railway lines located to the south including historic sidings.	TPH, PAH, Metals, ACM

Notes: PAH Polycyclic Aromatic Hydrocarbons; ACM Asbestos Containing Material; VOC Volatile Organic Compounds; TPH Total Petroleum Hydrocarbons; CO_2 Carbon Dioxide; CH_4 Methane

3.3 Potential Receptors

A framework for the assessment of risks arising from the presence of contamination in soils has been produced by the Environment Agency and the Department for the Environment, Food and Rural Affairs (DEFRA) and is presented with the report: '*Using Science to Create A Better Place: Updated Technical Background to the CLEA Model* – Science Report SC050021/SR3'. This guidance document defines a series of standard land-uses which have been further developed into six generic land uses in the Category 4 Screening Levels project for Land Affected by Contamination (DEFRA/Contaminated Land: Applications in Real Environments (CL:AIRE) Project Report SP1010, 2014) which form a basis for the development of the Conceptual Site Model.

Risks posed to controlled waters have been considered in line with the Environment Agency's *approach to groundwater protection* (v1.2, 2018) and associated position statements.

The proposed development plan includes the for the construction of a new single storey modular building including areas of external hardstanding and soft landscaping to the northwest of the existing structure, therefore, the land-use has been considered as Public Open Space (Parks), or 'POS_{PARKS}'.

The above land use has been adopted as it is considered the most representative at this stage, in terms of exposure pathways and activity patterns. It is acknowledged that the proposed land use does not align particularly well with 'POS_{RESI}' or 'POS_{PARKS}', however the proposed land use is most relevant to a POS_{PARKS} for the following reasons:

- Although soft landscaped areas do exist within close proximity to residential housing, it is not accessible to local residence due to the site being fenced off.
- The critical receptor age class is sensitive as it is assumed the site is to be used by younger children.
- No home-grown vegetable intake is anticipated since the soft landscaped areas are not considered close enough to properties to allow the tracking back of soils into people's homes.
- The frequency with which site users will be returning to the site is considered low.

In view of the environmental setting, current and potential future land use of the site and surrounding sites, the potential receptors for any contaminant impact are discussed in the table below:

Receptor	Site Specific Description
Human	Future site users, site workers involved in the site redevelopment, and those working and living in the surrounding area have the potential to be at risk from exposure to potential contaminants of concern (CoCs).
Groundwater	The underlying geology comprises superficial deposits, classified as a Secondary 'A' and Undifferentiated Aquifers, with the bedrock geology classified as a Principal Aquifer. Although the site does not lie within a SPZ for groundwater abstraction, the underlying geology does have some resource potential and as such, should be considered a receptor for contaminants of concern.
Surface Water	The nearest surface water feature is the River Medlock, located 154m southeast of the site. Given the distance of this feature from the site, it is considered unlikely that site derived contaminants could impact this receptor. As such, surface waters have not been identified as a sensitive receptor to site derived contaminants of concern.
Flora and Fauna	The proposed development is expected to include soft landscaped areas. Some of the identified contaminants of concern are known to be phytotoxic and as such, the potential for this impact should be considered.
Buildings & Infrastructure	Given the nature of the contaminants of concern identified, subsurface structures such as new building foundations or potable water supply pipework are not considered to be at risk.
Adjacent Land	Adjacent properties include residential dwellings, which are considered at risk from potential contaminants found at the site.

3.4 Potential Pathways

Where contaminants may be present in soil, there are a number of potential pathways that enable human receptors to come into contact with or be exposed to them. The most direct pathways, considered under current UK legislation, can be summarised as follows:

- Direct ingestion of contaminated soil
- Ingestion of household dust
- Ingestion of contaminated vegetables
- Ingestion of soil attached to vegetables
- Dermal contact with contaminated soil
- Dermal contact with household dust
- Inhalation of fugitive soil dust
- Inhalation of fugitive household dust
- Inhalation of vapours outside
- Inhalation of vapours inside

Clearly, not all of these potential pathways apply for every standard land-use. For example, ingestion of contaminated vegetables will not apply to land uses other than residential with plant uptake and allotments.

However, in addition to direct exposure pathways, a number of physical transport mechanisms / pathways may also exist at a site that allow remote or less accessible contaminants in soil or groundwater to reach human or environmental receptors both at a site and beyond the site boundary. These include the transport mechanisms listed below.

- Downward and lateral movement of contaminants in soil either by gravity or through being 'leached' by percolating rainwater
- Lateral migration of contaminants dissolved in groundwater.
- Direct seepage or leaching of contaminants from soil into subsurface drains or supply pipework.
- Volatilisation of contaminants from groundwater or unsaturated soils into buildings or outdoor air.

Through examination of the standard land use and environmental setting at each site, the presence of pathways and transport mechanisms described above must be considered when assessing whether a contaminant linkage may plausibly be active, and therefore be included in the conceptual site model.

3.5 Summary of Contaminant Linkages

Considering the site use and environmental setting, and proposed land use, the following plausible contaminant linkages have been identified through this phase I assessment and require further investigation.

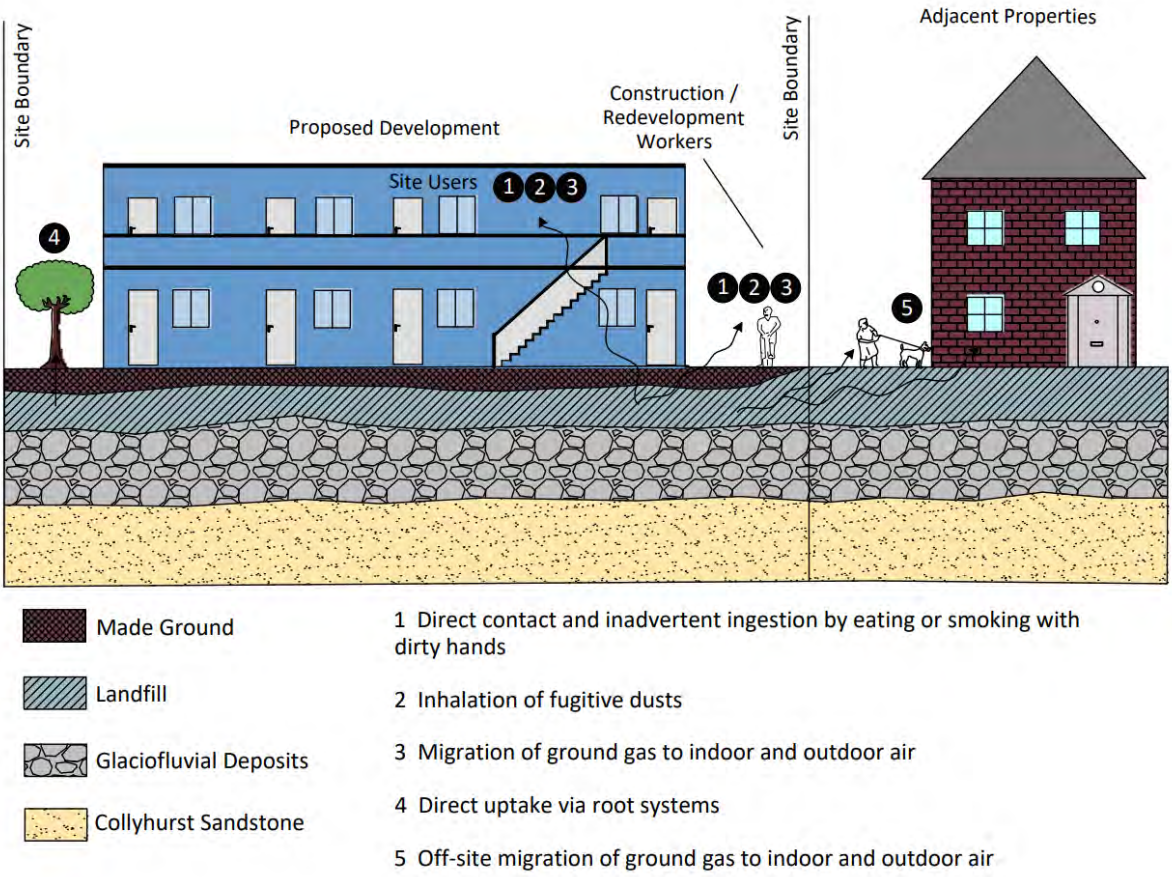
Source	Pathway	Receptor
Contaminated soil	Direct contact and inadvertent ingestion by eating or smoking with dirty hands	Construction workers during redevelopment & site users
	Inhalation of fugitive dusts	
	Migration of ground gas to indoor and outdoor air	
	Direct uptake via root systems	Plants
	Off-site migration of ground gas to indoor and outdoor air	Adjacent Site Users

The following comments are made with respect to contaminant linkages which have been considered through development of the conceptual model, but have not been concluded as 'plausible' – i.e. through which a significant possibility of significant harm could occur to an identified receptor:

- PAHs and metals have been identified as contaminants of concern associated with the historic on-site infill, however these contaminants are considered to be relatively immobile in the environment by virtue of their very low solubility and volatility. On this basis, plausible pathways by which these potential contaminants could pose a significant risk to the underlying groundwater are not considered to be active.
- Historical industrial land uses are recorded in the Clayton Vale area with the most notable including the print and bleach works that was located alongside the River Medlock to the south of the site. No plausible contaminant linkage have been considered regarding the print and bleach works since this source is located hydraulically down gradient, and the River Medlock is likely to draw groundwater away from the site. As such, risks are not considered to be present associated with the on-site migration of organic compounds in the groundwater.
- The historic allotments located to the east have also been discounted as a plausible risk due the time since last active (>40 years), it is highly likely that any contaminants associated with the allotments have since degraded into the soil.
- Whilst a railway line has been noted approximately 75m south of the site, that historically had a number of sidings present associated with the industrial nature of the surrounding area, this source has the potential to impact soils and groundwater in the area. However, the railway line is hydraulically downgradient of the site, and therefore, the rivers are likely to draw groundwater away from the works (and therefore away from the site). As such, risks are not considered to be present associated with the on-site migration of associated contaminants in the groundwater from this.

The following diagram provides an illustration of the plausible contaminant linkages that may be active at the site and which may need further investigation or control to ensure safe development:

Illustrative Conceptual Site Model – The Stirling Centre, Manchester



3.6 Key Potential Areas of Concern and Uncertainties

The main area of focus within the property boundary is the potential for the interaction between ground workers and potentially contaminated shallow soils during the redevelopment works, as well as the potential ground gases associated with the infill and made ground material mapped beneath the site.

Furthermore, due the possible extensive thickness of the made ground beneath the site, combined with the variable and unreliable nature of such materials, there is concern regarding the strength profile of this unit and therefore its impact on the viability of conventional spread foundations.

4 SUMMARY OF INTRUSIVE INVESTIGATIONS

Intrusive ground investigations were undertaken on 4th August 2025 in accordance with EPS standard operating procedures, copies of which will be made available on request. A summary of all site activities is presented in the following sections.

4.1 Exploratory Hole Locations

Exploratory hole locations were selected through consideration of the potential contaminant linkages identified through the Phase I Desk Study, the proposed development layout, the location of below ground utilities as well as operational and health & safety considerations.

Four window sample boreholes (WS01 – WS04) were formed at the site to a depth of 5.0m using a track-mounted percussive drilling rig. In addition to this, two trial pits were completed to a max depth of 1.85mbgl, using a mechanical excavator, to facilitate soakaway testing. Additionally, four plate load tests were undertaken to determine ground strength in the proposed crane locations.

The overall objective in terms of exploratory hole locations was to provide an appropriate lateral and vertical coverage of the soils underlying the site in order to offer information relating to their quality and nature as well as provide information for geotechnical design. Further rational for each sampling location is provided within the table below:

Location	Rationale
WS01 - WS04 & TP01 – TP02	Assess the nature, quality and strength of shallow soils across the site to provide suitable coverage of the ground profile to assess contamination and assist with geotechnical design.
WS01 & WS02	To also facilitate the installation of ground gas monitoring wells.
TP02	Allow the completion of a soakaway infiltration test to assess the permeability of the shallow soils.
PL01-PL04	Determine ground strength in the proposed crane locations.

Standpipes were installed in within positions WS01 and WS02 at the request of the Client and due to the identified ground gas risks. Combined gas and groundwater sampling pipes were installed using 50mm diameter HDPE well casing and fitted with a gas tap. Slotted casing (1mm slot) was installed at each location from the base of the borehole to approximately 1.0m below the surface. The installations were completed to ground surface using plain casing. A filter pack of 2-3mm of washed gravel extended from the base of the boreholes to approximately 0.1m above the slotted section with a bentonite seal to surface. All installations were finished with flush-mounted, bolt-down headworks.

A ground investigation location plan is presented as Figure 4.

4.2 In-Situ Testing & Soil Sampling

Each borehole was logged for ground conditions encountered and inspected for any physical evidence of contamination, such as soil staining, odour and the presence of separate phase liquids on a precautionary basis. All logs are presented in Appendix I.

Standard or cone penetration tests (SPT / CPT) were carried out in all materials using an automatic trip hammer. The number of blows required to advance a standard split spoon, (or solid 60° nose cone for the CPT test) over the final 300mm of a 450mm total drive was recorded, and is shown on the borehole records at the penetration resistance ("N" value).

PID readings were collected during this intrusive investigation, these are only used to provide EPS with a basic means to quantify areas of volatile organic compound in the field to help guide the investigation. These readings are included within borehole logs presented as Appendix I and the results are discussed further in later sections.

Plate load testing was also conducted using an 8-tonne excavator to allow for strength testing of the surface soils and providing CBR values.

4.3 Laboratory Testing

Samples obtained for analysis of identified contaminants of concern were submitted to Element Materials Technology, who hold appropriate UKAS / MCERT accreditation for the required testing. Samples were transported in laboratory supplied containers and delivered to the laboratory by approved courier.

Geotechnical testing was undertaken by The Testing Lab, Doncaster, a UKAS accredited laboratory. Copies of chain of custody documentation are held by EPS and will be made available on request.

Laboratory testing schedules are included as Tables 1 and 2.

4.4 Ground Gas & Organic Vapour Monitoring

An initial gas monitoring visits were completed on the 5th August 2025 with a further three visits completed on the 21st, 28th and 31st October 2025 in order to assess the potential presence of ground gases (including carbon dioxide, oxygen and methane) and concentration of volatile organic compounds that might be present were also monitored, as well as borehole flow rate within all installed wells. These parameters were measured using a GFM 435 gas analyser, Photo-Ionisation Detector (PID) and flow meter respectively. A summary of the measurements recorded during the return gas / vapour monitoring programme are presented in Table 3.

5 FINDINGS OF THE INVESTIGATION

This section of the report provides a summary of the findings of the various aspects of the ground investigation.

5.1 Ground Conditions

A total of four window sample boreholes and two trial pits were formed at the site and the ground conditions encountered, from surface level, have been interpreted to comprise:

- Made Ground
- Till

Site specific borehole logs are included as Appendix I and give descriptions and depths of strata encountered. A summary of the general strata encountered across the site is provided in the table below, with more detailed description given in the following sub sections.

Geological Strata	Maximum Depth to Base of Strata (m bgl)	Strata Thickness (m)
Made Ground	3.50	1.20 – 3.50
Devensian Till	>5.0 (not proven)	>1.50m - >3.50 (not proven)

5.1.1 Made Ground

Extensive made ground was encountered in all locations, with WS01 having the thickest layer of 3.50m.

This material comprised black, ashy, sandy gravel with brick, bitumen, concrete and tile fragments throughout although in some locations the WS01 and TP02 the clay content within the made ground did increase. Within WS01 between 3.00 – 3.50m a hydrocarbon odour was noted.

5.1.2 Devensian Till

Directly underlying the made ground in all the window sample locations was material representative of the superficially mapped Devensian Till, recovered as brown mottled orange and grey, silty clay with rare, rounded gravel fragments.

5.2 Groundwater

Groundwater was not encountered during or upon completion of intrusive activities. Furthermore, no groundwater was recorded during the return monitoring visit.

5.3 Physical Evidence of Contamination

A significant thickness of made ground (as detailed above) was recorded across the site. In addition to the generic fill material, that had ash and man-made inclusions evidence of hydrocarbons odours were noted within WS01, this was supported by headspace testing undertaken which recorded values of 31.60 and 132.5ppmv at 0.40m and 2.50m respectively. At TP02, fragments of bitumen and a bituminous odour was recorded between 1.20m and 1.60m.

Lower PID values ranging between 1.70 – 5.70ppmv were also found across the site within both the made ground and natural soil beneath.

Other than the above, and the extensive made ground materials encountered on site, there was no palpable evidence putrefiable material encountered in any of the sampling locations during the investigation.

5.4 Laboratory Analysis – Soil

A laboratory analysis testing schedule is presented as Table 1 and all environmental sample results obtained from the laboratory are included as Appendix I. The key results of laboratory testing on environmental soil samples are summarised below.

Contaminant	No. of Samples	No of Detections	Range of Detections (mg/kg)		Highest Location & Depth (m bgl)
			Min	Max	
Arsenic	4	4	9.0	29.6	WS01 (0.60-0.80)
Cadmium	4	0	-		-
Chromium III	4	4	34.8	74.5	WS02 (0.30-0.70)
Chromium VI	4	0	-		-
Copper	4	4	22	105	TP01 (0.35-0.60)
Lead	4	4	24	484	
Mercury	4	3	0.1	0.3	
Nickel	4	4	19.1	27.2	TP01 (0.35-0.60) WS02 (0.30-0.70)
Selenium	4	4	-		-
Zinc	4	4	50	393	TP01 (0.35-0.60)
Naphthalene	4	3	1.26	5.57	TP01 (0.35-0.60)
Benzo[a]pyrene	4	3	6.85	86.33	
Dibenz(ah)anthracene	4	3	0.93	12.56	
PAH (16 Total)	4	3	87.9	996.7	
PCB (7 Total)	3	0	-		-
Total Cyanide	2	1	0.9		TP01 (0.35-0.60)
MTBE	5	0	-		-
Benzene	5	1	0.018		WS01 (3.30-3.50)
Toluene	5	4	0.006	0.126	WS01 (3.30-3.50)
Ethylbenzene	5	1	0.148		

Contaminant	No. of Samples	No of Detections	Range of Detections (mg/kg)		Highest Location & Depth (m bgl)
			Min	Max	
m/p-Xylene	5	1	0.493		
o-Xylene	5	1	0.280		WS01 (3.30-3.50)
TPH CWG - Aliphatics					
C6-C8	5	1	0.2		WS01 (3.30-3.50)
C8-C10	5	1	2.8		
C10-C12	5	1	63.1		
C12-C16	5	4	10	219	
C16-C21	5	4	13	219	
C21-C35	5	4	39	499	
C35-C40	5	2	28	45	
TPH CWG - Aromatics					
EC7-EC8	5	1	0.1		WS01 (3.30-3.50)
EC8-EC10	5	1	0.9		
EC10-EC12	5	2	9.3	345.5	
EC12-EC16	5	4	41	1,313	
EC16-EC21	5	4	143	3,729	
EC21-EC35	5	4	307	6,602	
EC35-EC40	5	4	169	938	
Asbestos (%)	4	2	<0.001	0.002	WS02 (0.30-0.70)

Notes:
- Contaminant not found above laboratory detection limits
PAH Polycyclic Aromatic Hydrocarbons
MTBE Methyl Tert-Butyl Ether
BTEX Benzene, Toluene, Ethylbenzene, Xylenes
TPH CWG Total Petroleum Hydrocarbons (Criteria Working Group)

Detectable concentrations of ACM, in the form of chrysotile fibre bundles and free fibres of amosite were identified in shallow soils recovered from TP01 (0.35-0.60m) and WS02 (0.30-0.70m). Upon quantification analysis, the percentage of ACM by sample mass was identified at below minimum detection limits (MDL) of 0.001% in TP01, but at 0.002% in WS02.

Additionally, PAHs, possible diesel and lubricating oils were detected within WS01 (0.60-0.80m and 3.30-3.50m), WS02 (0.30-0.70m) and WS04 (0.30m-0.80m).

5.5 Waste Classification

Waste classification (i.e. hazardous or non-hazardous) was undertaken on samples of both made ground and natural soils, which included total concentrations of metals and hydrocarbons, using computer software provided by HazWaste Online™. The results of the WAC analysis are included within Appendix J and the outputs from the software are included in a Waste Classification Report in Appendix K.

Waste Acceptance Criteria was subsequently undertaken on two samples of made ground and one sample of natural soils. The results of the WAC analysis are included

within Appendix J. These results, together with those of the waste classification above are summarised in the following table:

Strata	Typical Depth (m bgl) and Description	Hazardous or Non-Hazardous? (No. of hazardous samples)	Waste Acceptance Criteria
Made Ground	0.30 – 3.50: Black, ashy, sandy gravel with brick throughout and hydrocarbon odour noted (WS01 only)	Hazardous (3 of 5)	Passed Hazardous Criteria
Devensian Till	1.50 - >5.00: Brown mottled orange and grey, slightly gravelly, silty clay.	Non-Hazardous (0 of 1)	Failed Inert Criteria

Based on the above assessment, the made ground materials (excluding any surfacing), should be classified as **Hazardous**, under the code **17 05 03** due to the presence of elevated concentrations of TPH in three of the five samples collected (WS01 3.30-3.50m, WS02 0.30-0.70m, and WS04 0.30-0.80m). Additionally, asbestos was identified within the made ground materials.

However, the natural soils should be classified as **Non-Hazardous** under the waste code **17 05 04** and are considered suitable for disposal to a Non-Hazardous landfill. This material failed Inert criteria due to an exceedance in Fluoride.

Input from the waste haulier should always be obtained to confirm the appropriate facility for disposal.

5.6 Geotechnical Testing

5.6.1 In -Situ Geotechnical Testing

The results of the in-situ strength testing conducted via cone penetration tests (CPTs) completed at regular intervals within the windowless sample boreholes are displayed in the table below. Since the depth at which the natural materials varied greatly across the site, the materials in which the test was undertaken has also been displayed. The results obtained within the made ground vary between 1 and 23, while those in the Devensian Till vary between 12 and 34 indicating stiff to very stiff clay.

Depth (mbgl)	Material	Min 'N' Value	Max 'N' Value
1.0	Made Ground	6	23
2.0	Made Ground	1	16
	Devensian Till	12	
3.0	Made Ground	4	15
	Devensian Till	18	26
4.0	Devensian Till	16	30
5.0	Devensian Till	19	34

Additionally, a series of plate load tests were conducted across the site to aid with CBR values for the crane pads. These were conducted over a range of areas, however, were only completed on hardstanding. The results are shown in the table below:

Test Location Ref.	Area of Site (Surfacing)	CBR Values (%)	
		Min	Max
PL01-PL02	Car Park (Hardstanding)	40	138
PL03-PL04	Pavement (Hardstanding)	3.5	16

The location of each of these tests is included within Figure 4, and the full test results in Appendix M.

5.6.2 Laboratory Geotechnical Testing

The results of geotechnical laboratory testing are summarised in the table below and all geotechnical sample results obtained from the laboratory are included as Appendix L. The key results of laboratory testing on geotechnical soil samples are summarised below.

Strata	Range of Parameters				
	Moisture Content (%)		Plasticity Index (%)		California Bearing Ratio (%)
	Min	Max	Min	Max	
Made Ground	21.5		13 (9.1)		7.4
Devensian Till	18.9	23.3	16 (15.68)	20 (19.40)	-

Notes: *() Indicates plasticity adjusted for granular content*

The water content, liquid and plastic limits and plasticity and liquidity indexes were established for one sample of made ground and three samples of natural soils, tested in line with BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.4, 5.3 and 5.4.

Sulphate contents and pH values determinations were carried out by the environmental and geotechnical laboratories for natural soils, the results of which are summarised in Section 6.6.

A laboratory California Bearing Ratio (CBR) test was scheduled for one sample of made ground, tested in accordance with BS1377: Part 4: 1990: 7.

A geotechnical laboratory analysis testing schedule is presented as Table 2 and all geotechnical sample results obtained from the laboratory are included as Appendix L.

6 GEOTECHNICAL APPRAISAL

The ground conditions have been found to comprise a notable thickness of made ground underlain by Devensian Till; groundwater was not encountered. The development is understood to comprise the installation of new single storey modular building.

6.1 Geotechnical Category

Geotechnical Category (BS EN 1997-1:2004)	Definition
GC1	Geotechnical Category 1 (GC1) should only include small and relatively simple structures for which it is possible to ensure that the fundamental requirements will be satisfied on the basis of experience and qualitative geotechnical investigations with negligible risk in terms of overall stability or ground movements and in ground conditions which are known.
GC2	Geotechnical Category 2 (GC2) should include conventional types of structure and foundation with no exceptional risk or difficult or loading conditions. Designs for structures in Geotechnical Category 2 should normally include quantitative geotechnical data and analysis.
GC3	Geotechnical Category 3 (GC3) should include structures or parts of structures, which fall outside the limits of Geotechnical Categories 1 and 2. This may include very large or unusual structures, structures involving abnormal risks, or unusual or exceptionally difficult ground or loading conditions, or structures in areas of probable site instability or persistent ground movements that require separate investigation or special measures.

The proposed development comprises the installation of new single storey modular building and therefore the below assessment has been undertaken in accordance with Geotechnical Category 2 (GC2), including conventional types of structure and foundation with no exceptional risk or difficult ground or loading conditions, as defined by BS EN 1997 – 1 & 2: 2024.

6.2 Structural Foundations

6.2.1 Spread Foundations

Since no natural material was encountered within the top 1.50m, with the thicknesses of made ground being at least 2.50m in three of the four locations, conventional spread foundations have not been considered appropriate, therefore alternate foundation solutions have been given consideration.

6.2.2 Raft Foundations

The use of raft foundations should be considered for design, particularly since the proposed building is modular, a lightly loaded structure.

Raft foundations must be engineer-designed to transmit loads from the structure to the ground without excessive settlement and must be of adequate stiffness to ensure differential movement does not affect the structure. An appropriately compacted granular infill material should be placed beneath the raft, which should extend beyond the edge of the foundation. The depth to the underside of the foundation must be at least 450mm below finished ground level.

For the made ground, an allowable bearing capacity of no more than 20kN/m^2 is considered suitable, due to the variable and unreliable nature of such materials. This will depend however upon the proposed foundation size and depth, nature of compacted infill, and associated structural load.

6.2.3 Pile Foundations

The use of pile foundations should also be considered for design, since the thickness of made ground material present beneath the site is significant.

Based on the information obtained from this investigation, piles would likely terminate in the natural Till, encountered as a stiff to hard clay.

Piles will carry their loads in a combination of end bearing and skin friction. In view of the wide variety of pile sizes available, and the range of installation plant and techniques, the design of the piles should be carried out by, and should remain the responsibility, of the specialist piling contractor, who will reflect their own methods, experience and design procedures within their proposals.

6.3 Groundworks

Whilst excavations in the cohesive soils may remain stable for short periods during construction, the stability of the infilled or any granular soils should not be relied upon, particularly if groundwater was encountered, loosening of soils can be created.

Heavy plant and stockpiles of materials should not be permitted close to the edges of unsupported excavations. Further reference may be made to CIRIA Report No. 97 *'Trenching Practice'* 1992.

The presence of underground services is also likely and should be given full consideration in design proposals and may require diversion to accommodate the proposed development.

Excavations must not be carried out in close proximity of any existing on-site or neighbouring structures / retaining features without appropriate support measures in place. Care should also be taken to ensure excavations do not destabilise any slopes.

Based on the findings of the intrusive works, groundwater ingress is not anticipated within shallow excavations for new foundations and services.

6.4 External Works

6.4.1 Pavement Design

One laboratory CBR test was undertaken on one bulk sample of the made ground, taken from TP02 at a depth of 0.60mbgl. The result obtained found the made ground to have a CBR value of 7.4%, anticipated to be associated with the granular nature of this material. This result is included within the full laboratory report presented in Appendix L.

Given it variability, a design CBR value of only 2% is considered suitable for made ground materials, whilst based on experience of the natural Devensian Till a value of 3% may be appropriate for that soil at subgrade level.

In addition to the laboratory CBR value obtained, in-situ plate load testing was undertaken to inform the strength of the hardstanding of the car park (CBR01 – CBR02) and adjacent pavement (CBR03 and CBR04). The results obtained within the car park were 40% and 138%, while those on the pavement were 3.5% and 16%. These results are presented in Appendix M.

Once the formation level for the new pavement has been achieved, proof rolling should be carried out using a heavy roller, and any significant / extensive soft areas revealed should be excavated and a greater depth of sub-base provided.

Exposed subgrades will likely deteriorate rapidly on exposure to wet weather and should be shaped to shed water. Sub-base should be placed as soon as possible to minimise the exposure of the subgrade to adverse weather conditions.

6.4.2 Drainage

Although made ground was encountered across the site to a maximum depth of 3.50m, an infiltration test, was still attempted, in general accordance with *'BRE Digest 365 – Soakaway Design'.* The results of this are depicted in the table below:

Test Location	Approximate Depth (m bgl)	Indicative Infiltration Rate (m/s)		
		Test 1	Test 2	Test 3
TP02	2.00	$3.51x10^{-5}$	$1.79x10^{-5}$	$2.65x10^{-5}$

Although low to medium infiltration was observed, soakaways are not recommended for design within made ground materials, due to the potential for consolidation and risk of contaminant mobilisation. Furthermore, it is also anticipated that the natural materials on site would be unsuitable for soakaways due to being cohesive.

6.5 Concrete Grade

Sulphate contents and pH value determinations were carried out by the environmental laboratory and the results of this testing are summarised in the below table as well as being presented within Appendices J.

Strata	Water Soluble Sulphate 2:1 SO_4 (mg/l)		pH	
	Min	Max	Min	Max
Made Ground	46.4	1,467.9	7.87	8.60
Devensian Till	21.8	63.5	6.98	8.19

In accordance with Part 1 of the BRE Special Digest 1 'Concrete in Aggressive Ground' 2005, since there are less than five samples obtained for each stratum, the highest value of water soluble sulphate has been taken as characteristic.

For both the made ground and natural soils, a design sulphate class of DS2 is considered suitable, with an aggressive chemical environment for concrete (ACEC) of AC-1s.

7 ENVIRONMENTAL APPRAISAL

The following section outlines the approach applied to assessing the risks posed to human health and controlled waters, then identifies any sample results found by this investigation which warrant further consideration. In accordance with the Environment Agency's Land Contamination: Risk Management, this section represents the second tier of Stage 1, the Generic Quantitative Risk Assessment.

7.1 Human Health

7.1.1 Land Use Setting

It is understood that development proposals for the site includes the installation of new single storey modular building with the existing areas of soft landscaping being reduced as a result. In order to screen laboratory data for concentrations of contaminants in soil with potential to cause harm to human health in these soft landscaped areas, relevant generic screening values most applicable to this land use have been utilised. A land use setting of Public Open Space (Parks), abbreviated to 'POS_{PARKS}', has been adopted as it is considered the most representative.

The technical framework used to derive DEFRA's Category 4 Screening Levels (Policy Companion Document '*SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination')* outlines the relevant factors for determining land use selection in the application of the screening levels and the following key considerations have been taken into account.

The proposed land use is considered to be most relevant to a POS_{PARKS} for the following reasons:

- Although soft landscaped areas do exist within close proximity to residential housing, it is not accessible to local residence due to the site being fenced off.
- The critical receptor age class is sensitive as it is assumed the site is to be used by younger children.
- No home-grown vegetable intake is anticipated since the soft landscaped areas are not considered close enough to properties to allow the tracking back of soils into people's homes.
- The frequency with which site users will be returning to the site is considered low.

7.1.2 Generic Screening – Soils

The technical framework used to derive the assessment criteria and the documents in which they are published are summarised as follows:

- *EA Science Reports* (SC050021/SR2, SC050021/SR3, and SC050021/SR7)
- *EA Soil Guideline Value Science Reports*

- *Suitable For Use Levels (S4ULs) for Human Health Risk Assessment* – LQM & CIEH (2015)
- *Soil Generic Assessment Criteria for Human Health Risk Assessment* - EIC/AGS/CL:AIRE (2010)

Category 4 Screening Levels (C4SLs) provide generic suitable for use screening values for common contaminants in a variety of land uses and are also utilised as appropriate generic screening criteria.

Benzo(a)pyrene has been adopted as the risk driver for other genotoxic PAHs which do not have equivalent C4SLs.

Where assessment of the risk to human health from asbestos in soil is concerned there is no nationally recognised suitable for use /generic screening value commonly referred to through the planning system. Due to this, it is necessary to take a more qualitative approach to the risks posed to future site users from asbestos on a site-specific basis.

A summary of the screening criteria and the methodology used to derive them is included in Appendix N.

7.1.3 Generic Screening – Groundwater

The technical framework used to derive the assessment criteria and the documents in which they are published are summarised as follows, in addition to those list above:

- *The VOCs Handbook. Investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination (C682),* CIRIA, London 2009
- *Society of Brownfield Risk Assessment (SoBRA) 'Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater'* - Version 1.0, February 2017

SoBRA groundwater vapour GAC were derived for two types of land uses, namely generic residential and generic commercial land use. They are intended as a conservative screening tool in the assessment for long-term (chronic) risks to human health from inhalation of vapours arising from groundwater. For other land uses (public open space, and allotment), these typically do not include building and as such pathway of vapour intrusion is generally not recognised.

A summary of the screening criteria and the methodology used to derive them is included in Appendix N.

7.1.4 Assessment of Soil Results

The results of the screening process for on-site human receptors showed that generic screening criteria representative of risks to future site users were only exceeded for Benzo(a)pyrene in a couple of locations. The screening level for BaP is 21.00mg/kg, the highest exceedance was obtained within TP01 (0.35-0.60m) at 86.33mg/kg, with the other exceedance within WS02 (0.30-0.70m) at 73.80mg/kg. Both exceedances were within the made ground materials encountered.

The exceedances of relevant screening criteria presented above appear primarily related to the quality of the general made ground across the site, associated with the general landfilling of the area and do require further consideration. With reference to the CL:AIRE guidance, *'Comparing Soil Concentration Data with a Critical Concentration'* (2020), the available dataset is not appropriate to undertake comprehensive statistical analysis.

The petroleum hydrocarbons encountered in the soils are largely outside of the volatile range (<C16) and were interpreted by the laboratory as low mobility forms of hydrocarbons, which was generally supported by the on-site headspace testing of the soils and monitoring wells. Risks to future users through vapour ingress into buildings (which POS land uses do not take account of) have therefore not been identified. The presence of hydrocarbons in the ground does warrant consideration in the installation of barrier drinking water pipes though.

Furthermore, ACM was detected as chrysotile fibre bundles and free fibres of amosite in shallow soils recovered from TP01 (0.35-0.60m, 0.001%) and WS02 (0.30-0.70m, 0.002%).

Details of appropriate control measures to address the presence of shallow soil contamination are outlined in Section 7.4 of this report.

7.2 Controlled Waters

7.2.1 Generic Screening

In addition to screening the recorded concentrations of contaminants to pose risks to human health, EPS has also screened the results of soil analysis for potential to cause harm to water resources.

The criteria used for this process were derived by EPS using the following technical guidance

- *Environment Agency Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination.*

Primary Receptor Associated with Site	Basis of Tier 1 Criteria
Groundwater	UK Drinking Water Standards (UKDWS)
Surface Water	UK Environmental Quality Standards (EQS)

Although groundwater and surface water were not included within the conceptual site model, due to the thickness of the made ground encountered and some evidence of hydrocarbons, the risks to controlled waters from contaminants present on site has been reintroduced into this environmental appraisal.

The site is underlain by a Secondary 'A' and Undifferentiated Aquifers, followed by a Principal Aquifer, combined with the closest watercourse being >150m away, the primary water resource receptor associated with the site is groundwater. Groundwater screening criteria have been selected in the assessment of risks to water resource receptors.

7.2.2 Assessment of Soil Results – Controlled Waters

The results of the screening process for controlled waters recorded exceedances in the screening values for one sample of made ground taken from WS01 (3.30-3.50m) of the made ground comprising black, ashy, sandy gravel which at this depth had a strong hydrocarbon odour. The results are presented within the table below:

Contaminant	Screening Value (mg/kg)	Number of Exceedances	Highest Detection (mg/kg)	Sampling Location (mbgl)
Benzene	0.002	1	0.018	WS01 (3.30-3.50m)
Aromatic Group EC10-EC12	5.67	2	345.5	WS01 (3.30-3.50m)
Aromatic Group EC12-EC16	11.3	4	1,313	WS01 (3.30-3.50m)
Aromatic Group EC16-EC21	35.6	4	3,729	WS01 (3.30-3.50m)
Aromatic Group EC21-EC35	284	4	6,602	WS01 (3.30-3.50m)

As mentioned previously, the fact that some values exceed screening values does not necessarily indicate that an unacceptable risk to controlled waters exists. The generic screening values are by their nature, extremely conservative, and in the first instance an exceedance should lead to qualitative consideration of the risks that may be posed given the context of a specific site / proposed development.

The soil exceedances are isolated to the made ground samples from across the site which averaged 2.5m in thickness but at some locations was found to be thicker, particularly at WS01 where the greatest exceedances have been recorded. It should however be taken

into consideration that the CL:AIRE Petroleum Hydrocarbons in Groundwater document reports that these Aromatic groups have an overall moderate to very low relative mobility in groundwater, inferring that it is unlikely for vertical migration of these contaminants to occur. Additionally, when looking at the organic matter content of the made ground material, TP01 (0.35-0.60m) reports 13.8% and this does mean that contaminants are likely to become adsorbed onto the soil particles which will again inhibit any vertical migration.

Furthermore, when considering material underlying the made ground a silty clay was present beneath and the sample of this material was tested from WS02 (1.70-1.90m) and no detections of any TPH fractions were reported. This is particularly important as the made ground sample from WS02 (0.30-0.70m) reported total TPH concentrations of 2,718mg/kg so this does support the initial conclusions that no significant vertical migration of the contaminants was occurring. This was further supported by the visual observations not identifying any staining within the soils and PID testing of the natural soils were all below 6ppmv and showing a trend of decreasing with depth.

When considering the receptor to any contamination which would be the principal aquifer of the sandstone bedrock this wasn't encountered during the intrusive investigation and neither was groundwater. When reviewing local historic borehole logs from the local area suggest that the sandstone bedrock was encountered from between 7m to 12mbgl but it is important to note that these were all completed at a much lower elevation around 55mAOD to 59mAOD when compared to the sites level of ~81mAOD so the sandstone would be expected around 30m beneath the site.

Therefore, given all the information currently available in order for the contamination to pose a risk to the principal aquifer they must first partition into groundwater. It is clear that whilst there are elevated concentrations of the contaminants given the depth to the aquifer and the thickness of the unsaturated zone there is no plausible likelihood of significantly contaminating any local groundwater. As such the risks to controlled water resource receptors are considered acceptable and no further action is recommended in respect to controlled waters.

7.3 Initial Ground Gas and Organic Vapour Monitoring

An initial assessment of risks posed by ground gas generation has been undertaken through consideration of defined Gas Screening Values (GSV) or site characteristic hazardous gas flow rate, in accordance with the following guidance:

- CIRIA 665 – '*Assessing Risks Posed by Hazardous Ground Gasses to Buildings' (2007).*
- NHBC – '*Guidance on Evaluation of Development Proposals on Sites Where Methane and Carbon Dioxide are Present' (March 2007).*
- British Standard BS8485:2015 – '*Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings*'

This aspect was primarily included in the investigation due to the reasonably significant thicknesses of made/ infilled ground noted on geological mapping of the site associated within the historic Clayton Vale landfill. Both these could represent potential sources of ground gas and/ or organic vapours.

It is acknowledged that one monitoring visit does not constitute a typical monitoring programme for a recognised source of gas under C665 and as such, the assessment of the associated risks is considered an initial assessment at this stage.

The gas screening values have initially been calculated as per the CIRIA 665 guidance *'Assessing Risks Posed by Hazardous Ground Gases to Buildings'* however the gas screening values presented by EPS within this report have also been defined based on the BS 8485:2015 guidance '*Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*' which suggests that gas screening values should not only be based on measured data '*but ultimately derived using professional judgement*'.

7.3.1 Initial Ground Gas & Organic Vapour Risk Assessment

Results of ground gas monitoring undertaken following the initial intrusive investigation are presented in full as Table 1, along with gas screening values (GSV's).

At the time of writing, the proposed development is understood to include the construction of a new single storey building and as such the '*Modified Wilson and Card Classification System*' has been used to assess the risks from ground gases (in accordance with CIRIA C665).

Initially GSV's have been calculated according to the CIRIA C665 guidance, this is done by multiplying the maximum borehole flow rate (l/hr) by the maximum gas concentration (%). For example, monitoring data reporting a maximum flow rate of 3.5 l/hr and a maximum concentration of 4% methane would have a GSV of 0.14 (4/100 x 3.5). The BS8485:2015 guidance advocates for the use of '*professional judgement*' in defining GSV's, in this case, it is EPS' professional judgement that the worst case GSV's should be used as the defined GSV's (i.e. the maximum calculated GSV's & defined GSV's are the same). The worst case defined GSV's from data collected throughout the monitoring programme are as follows:

- Methane (CH_4): <0.0001 l/hr
- Carbon Dioxide (CO_2): <0.0033 l/hr

The calculated GSVs are representative of Characteristic Situation 1 (CS1) conditions, which denotes likely 'very low risk' from ground gases to be currently present. Therefore, ground gas protection measures are not considered necessary for the new development.

In terms of organic vapours, the field observations and laboratory results of soil, combined with monitoring data do not suggest that there are discernible risks associated with the volatilisation of organic compounds and ingress into indoor (or outdoor) air.

7.4 Summary of Findings

The Phase I Desk Study identified potential risks to construction workers and future site users from ground contamination mainly relating to the extensive thickness of made ground present on site.

The Phase II Ground Investigation comprised the formation of four boreholes and two trials pits to a maximum depth of 5.00m bgl, and four CBR Plate Load Test locations. The ground conditions consisted of an extensive thickness of made ground to a maximum depth of 3.50m. Beneath the made ground was natural Devensian Till deposits.

Exceedances in BaP were detected in twos soil samples of the made ground with regards to human health, recommendations are discussed in section 7.5. No other exceedances were found.

Whilst exceedances of benzene and TPH were detected in samples of the made ground, with regards to controlled waters, due to the nature of the contaminants, generally having limited mobility in groundwater, the presence of cohesive practically impermeable strata acting as a barrier between the made ground and sensitive bedrock aquifer, and lack of presence of shallow groundwater, it is not deemed that there is any appreciable risk to controlled waters. During the return ground gas monitoring visits, the wells will also be dipped to assess if any groundwater is present. Should water be encountered, this assessment will need to be reviewed.

The made ground soils can be classified as **Hazardous**, whilst the Devensian Till can be classified as **Non-Hazardous** and disposed of within a non-hazardous landfill, subject to confirmation by the chosen waste receiver.

Additionally, EPS completed a precautionary ground gas risk assessment which suggests a ‘very low risk’ classification/ CS1 conditions, in accordance with CIRIA C665. Based on the results of the gas monitoring and observations during the intrusive works, ground gas protection measures are not considered to be necessary for this development.

7.5 Recommendations

In the context of potentially unacceptable or acceptable risks as outlined within the Environment Agency’s *Land Contamination: Risk Management* guidance, the risks identified by this work can be addressed through implementation of the following recommendations.

The most appropriate form of remedial action / control measure that will mitigate risks associated with the identified contamination in shallow soils to acceptable levels is considered to be the implementation of a clean topsoil cover system in all areas of soft landscaping within the redline planning boundary, as per the BRE publication: Cover Systems for Land Regeneration: Thickness Design of Cover Systems for Contaminated Land (BRE, Mar 2004). The minimum recommended thickness under this guidance has been calculated as **600mm** based on the worst-case laboratory data and designed to ensure a practical thickness can be implemented.

It should be noted that this recommendation is made only for areas of soft landscaping, and there is no such requirement for areas beneath any hard standing or building footprints. It is recognised that some shallow soils will need to be removed to achieve this cover thickness. Following the sufficient removal of shallow soils (to allow for the recommended cover system thickness), the excavations should then be made up with clean imported soils accompanied by appropriate laboratory analysis to demonstrate its chemical suitability for use. A Cover Soils Checklist which details these requirements further is presented as Appendix O.

These remedial works must be verified and EPS can assist in this process. All waste transfer documentation must be retained, with photographs of the excavations including any exposed clean natural soils and compiling the information outlined in the Cover Soils Checklist. If an established supplier such as British Sugar was used, then the soil is tested at source and no further analysis would typically be needed.

Precautionary measures are also recommended to ensure safe development, as follows:

a) All construction workers operating at the site should be advised of the potential for contact with made ground material within shallow soils, particularly beneath the existing buildings and hardstanding. Appropriate health and safety precautions should be adopted during any excavation works to avoid exposure to infilled soils. Reference should be made to relevant health & safety guidance including the following CIRIA document: *R132 Guide to Safe Working on Contaminated Sites.*

b) Although the findings of the investigation would suggest that significant quantities of asbestos are unlikely to be encountered, the possibility of discrete pockets of this material existing within the made ground remains. If any evidence of visually identifiable ACM is suspected and is to be disturbed during the site development it is recommended that all works are postponed until suitable assessment and control measures (including a Safe Working Method (SWM)) are created. This SWM should be prepared in accordance with guidance from CIRIA as well as CL:AIRE and it will support the principal contractor in their duties under *The Contraction (Design & Management) Regulations 2015* (CDM). EPS can assist with this SWM if required.

c) Private (alkythene) drinking water supply pipes are unlikely to be at risk from contaminants in the ground, specifically petroleum hydrocarbons. However, some

low levels of such contamination was detected and it would be advisable to confirm with the local water supplier whether an upgrade to barrier drinking water pipes are necessary.

d) Should any palpable evidence of unexpected contamination be encountered during the redevelopment work, it should be reported to EPS so that an inspection can be made and appropriate sampling and assessment work carried out, a method statement for this is provided as Appendix P.

It is recommended that a copy of this report be provided to the Environmental Health Department of Manchester City Council so that the information may be incorporated into their land quality records and used to support the current planning application. This report should satisfy the pre-commencement requirements of the planning process relating to contamination. A Verification Report will be required documenting the implementation of the remediation prior to completion.

FIGURES



Rev	Date	Drawn	Description	Ch'k'd

The Geotechnical and Environmental Engineers
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Site: The Stirling Centre, Newton Heath
Manchester, M40 2RE

Client: Premier Modular

Title: Figure 01 - Site Location Plan

Surveyed:	AW	Drawn by:	AW
Checked by:	JB	Date:	17.07.25

Scale	[A4 Sheet]	Drawing Reference	
NTS		UK25.7470_Fig_01	

Job No	Rev
UK25.7470	01



KEY:

SITE BOUNDARY

N

Rev	Date	Drawn	Description	Ch'k'd

eps

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Site
The Stirling Centre, Newton Heath
Manchester, M40 2RE

Client
Premier Modular

Title
Figure 02 - Current Site Layout

Surveyed:	AW	Drawn by:	AW
Checked by:	JB	Date:	17.07.25

Scale [A4 Sheet]	Drawing Reference
NTS	UK25.7470_Fig_02

Job No	Rev
UK25.7470	01



KEY:

SITE BOUNDARY

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Rev	Date	Drawn	Description	Ch'k'd

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Site
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Title
Figure 03 - Aerial Photograph

Surveyed:	AW	Drawn by:	AW
Checked by:	JB	Date:	17.07.25

Scale [A4 Sheet]	Drawing Reference
NTS	UK25.7470_Fig_03

Job No	Rev
UK25.7470	01



KEY:

- SITE BOUNDARY
- WINDOWLESS SAMPLE BOREHOLE
- PLATE LOAD TEST
- TRIAL PIT - SOAKAWAY IN SA02

N

Rev	Date	Drawn	Description	Ch'k'd

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Title
Figure 04 - GI Location Plan

Surveyed:	AW / JB	Drawn by:	AW
Checked by:	JB	Date:	08.08.25

Scale [A4 Sheet]	Drawing Reference
NTS	UK25.7470_Fig_04

Job No	Rev
UK25.7470	01

TABLES

Table 1 – Laboratory Testing Schedule (Environmental)

Sample ID	Sample Depth (m bgl)	EPS Waste Suite	EPS Mini Suite	EPS TPH Suite	pH and Sulphate
TP01	0.35-0.60	-	X	-	-
WS01 ES1	0.60-0.80	X	-	-	X
WS01 ES2	3.30-3.50	-	-	X	X
WS01 ES3	4.80-5.00	-	-	-	X
WS02 ES1	0.30-0.70	X	-	-	-
WS02 ES2	1.70-1.90	X	X		
WS03 ES1	0.30-0.50	-	-	-	-
WS03 ES2	3.80-4.00	-	-	-	-
WS04 ES1	0.30-0.80	-	-	X	-
WS04 ES2	3.50-4.00	-	-	-	X

Notes:

mbgl	meters below ground level
X	Sample Taken
-	Sample Not Analysed
EPS Mini Suite	Organic Matter, Cyanide, Metals, PAH's, Phenols, Asbestos
EPS Waste Suite	Waste Characterisation Suite
EPS TPH Suite	Total Petroleum Hydrocarbons

Table 2 – Laboratory Testing Schedule (Geotechnical)

Sample ID	Sample Depth (m bgl)	Moisture Content	Liquid / Plastic Limits	CBR
TP02 B1	0.60-1.20	X	X	X
WS01 D1	1.50-2.00	-	-	-
WS01 D2	3.80-4.00	X	X	-
WS02 D1	0.30-0.70	-	-	-
WS02 B1	2.10-2.70	X	X	X
WS02 D2	2.70-2.80	-	-	-
WS03 D1	2.00-2.50	-	-	-
WS04 D1	3.50-4.00	-	-	-
WS04 D2	4.80-5.00	X	X	-

Notes:

mbgl	meters below ground level
X	Sample Taken
-	Sample Not Analysed
CBR	California Bearing Ratio

Table 3 – Soil Gas Monitoring Results

Visit No. 1 – 05/08/2025

Borehole ID	Duration	Flow Rate (l/hr)	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (% v/v)	CO (ppmV)	H_2S (ppmV)	VOC's (ppmV)	CH_4 GSV (l/hr)	CO_2 GSV (l/hr)
WS01	>10s	<0.1	<0.1	<0.1	22.0	<0.1	<0.1	<0.1	-	-
	>30s	<0.1	<0.1	<0.1	20.8			<0.1		
	>1m	<0.1	<0.1	<0.1	20.8			<0.1		
	>1m 30s	<0.1	<0.1	<0.1	20.7			<0.1		
	>2m	<0.1	<0.1	<0.1	20.7			<0.1		
	>2m 30s	-	<0.1	<0.1	20.7			-		
	>3m		<0.1	<0.1	20.7					
	>3m 30s		<0.1	<0.1	20.6					
	>4m		<0.1	<0.1	20.6					
	>4m 30s		<0.1	<0.1	20.5					
	>5m		<0.1	<0.1	20.5	<0.1	<0.1			
Min		<0.1	<0.1	<0.1	20.5	<0.1	<0.1	<0.1	<0.0001	<0.0001
Max				<0.1	22.0			<0.1		

Notes: *Readings collected at an atmospheric pressure of 1008mbar on a rainy and warm day, prior to recording the readings from the equipment, the equipment is tested in ambient air to ensure that it is functioning as intended with no unexpected readings*

CH_4	*Methane*	*CO_2*	*Carbon Dioxide*
O_2	*Oxygen*	*CO*	*Carbon Monoxide*
H_2S	*Hydrogen Sulphide*	*VOC's*	*Volatile Organic Compounds*
ppmV	*Parts Per Million Volume*	*GSV*	*Gas Screening Value*

Visit No. 1 – 05/08/2025

Borehole ID	Duration	Flow Rate (l/hr)	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (% v/v)	CO (ppmV)	H_2S (ppmV)	VOC's (ppmV)	CH_4 GSV (l/hr)	CO_2 GSV (l/hr)
WS02	>10s	<0.1	<0.1	<0.1	20.3	<0.1	<0.1	<0.1	-	-
	>30s	<0.1	<0.1	<0.1	20.6			<0.1		
	>1m	<0.1	<0.1	<0.1	20.6			<0.1		
	>1m 30s	<0.1	<0.1	<0.1	20.6			<0.1		
	>2m	<0.1	<0.1	<0.1	20.5			<0.1		
	>2m 30s	-	<0.1	<0.1	20.4			-		
	>3m		<0.1	<0.1	20.4					
	>3m 30s		<0.1	<0.1	20.4					
	>4m		<0.1	<0.1	20.4					
	>4m 30s		<0.1	<0.1	20.4					
	>5m		<0.1	<0.1	20.4	<0.1	<0.1			
Min		<0.1	<0.1	<0.1	20.3	<0.1	<0.1	<0.1	<0.0001	<0.0001
Max				<0.1	20.6			<0.1	<0.0001	<0.0001

Notes: *Readings collected at an atmospheric pressure of 1008mbar (falling to 1007mbar) on a rainy and warm day, prior to recording the readings from the equipment, the equipment is tested in ambient air to ensure that it is functioning as intended with no unexpected readings*

CH_4	*Methane*	*CO_2*	*Carbon Dioxide*
O_2	*Oxygen*	*CO*	*Carbon Monoxide*
H_2S	*Hydrogen Sulphide*	*VOC's*	*Volatile Organic Compounds*
ppmV	*Parts Per Million Volume*	*GSV*	*Gas Screening Value*

Visit No. 2 – 21/10/2025

Borehole ID	Duration	Flow Rate (l/hr)	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (% v/v)	CO (ppmV)	H_2S (ppmV)	VOC's (ppmV)	CH_4 GSV (l/hr)	CO_2 GSV (l/hr)
WS01	>10s	<0.1	<0.1	0.6	19.9	<0.1	<0.1	<0.1	-	-
	>30s	<0.1	<0.1	0.8	19.5			<0.1		
	>1m	<0.1	<0.1	1.1	18.9			<0.1		
	>1m 30s	<0.1	<0.1	1.4	18.5			<0.1		
	>2m	<0.1	<0.1	1.8	18.0			<0.1		
	>2m 30s	-	<0.1	2.1	17.5			-		
	>3m		<0.1	2.4	17.1					
	>3m 30s		<0.1	2.8	16.7					
	>4m		<0.1	3.2	16.4					
	>4m 30s		<0.1	3.3	16.1					
	>5m		<0.1	3.4	16.0	<0.1	<0.1			
Min		<0.1	<0.1	0.6	16.0	<0.1	<0.1	<0.1	<0.0001	<0.0006
Max				3.4	19.0			<0.1		<0.0034

Notes: *Readings collected at an atmospheric pressure of 978mbar falling to 978mbar on a damp and cold day, prior to recording the readings from the equipment, the equipment is tested in ambient air to ensure that it is functioning as intended with no unexpected readings*

CH_4	*Methane*	*CO_2*	*Carbon Dioxide*
O_2	*Oxygen*	*CO*	*Carbon Monoxide*
H_2S	*Hydrogen Sulphide*	*VOC's*	*Volatile Organic Compounds*
ppmV	*Parts Per Million Volume*	*GSV*	*Gas Screening Value*

Visit No. 2 – 21/10/2025

Borehole ID	Duration	Flow Rate (l/hr)	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (% v/v)	CO (ppmV)	H_2S (ppmV)	VOC's (ppmV)	CH_4 GSV (l/hr)	CO_2 GSV (l/hr)
WS02	>10s	<0.1	<0.1	<0.1	20.8	<0.1	<0.1	<0.1	-	-
	>30s	<0.1	<0.1	<0.1	20.7			<0.1		
	>1m	<0.1	<0.1	<0.1	20.6			<0.1		
	>1m 30s	<0.1	<0.1	<0.1	20.6			<0.1		
	>2m	<0.1	<0.1	<0.1	20.6			<0.1		
	>2m 30s	-	<0.1	0.1	20.6			-		
	>3m		<0.1	0.3	20.3					
	>3m 30s		<0.1	0.6	19.6					
	>4m		<0.1	1.1	19.3					
	>4m 30s		<0.1	1.7	18.4					
	>5m		<0.1	2.0	18.3	<0.1	<0.1			
Min		<0.1	<0.1	<0.1	20.3	<0.1	<0.1	<0.1	<0.0001	<0.0001
Max				2.0	20.6			<0.1	<0.0001	<0.002

Notes: *Readings collected at an atmospheric pressure of 977mbar on a damp and cold day, prior to recording the readings from the equipment, the equipment is tested in ambient air to ensure that it is functioning as intended with no unexpected readings*

CH_4	*Methane*	*CO_2*	*Carbon Dioxide*
O_2	*Oxygen*	*CO*	*Carbon Monoxide*
H_2S	*Hydrogen Sulphide*	*VOC's*	*Volatile Organic Compounds*
ppmV	*Parts Per Million Volume*	*GSV*	*Gas Screening Value*

Visit No. 3 – 28/10/2025

Borehole ID	Duration	Flow Rate (l/hr)	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (% v/v)	CO (ppmV)	H_2S (ppmV)	VOC's (ppmV)	CH_4 GSV (l/hr)	CO_2 GSV (l/hr)
WS01	>10s	<0.1	<0.1	0.7	20.3	<0.1	<0.1	1.1	-	-
	>30s	<0.1	<0.1	0.9	19.6			1.1		
	>1m	<0.1	<0.1	1.1	19.3			1.0		
	>1m 30s	<0.1	<0.1	1.4	18.9			0.9		
	>2m	<0.1	<0.1	1.6	18.6			0.9		
	>2m 30s	-	<0.1	1.8	18.4			-		
	>3m		<0.1	2.0	18.2					
	>3m 30s		<0.1	2.1	18.0					
	>4m		<0.1	2.2	17.9					
	>4m 30s		<0.1	2.3	17.7					
	>5m		<0.1	2.3	17.6	<0.1	<0.1			
Min		<0.1	<0.1	0.7	17.6	<0.1	<0.1	0.9	<0.0001	<0.0007
Max				2.3	20.3			1.1		<0.0023

Notes: *Readings collected at an atmospheric pressure of 991mbar falling to 989mbar on a damp and cold day, prior to recording the readings from the equipment, the equipment is tested in ambient air to ensure that it is functioning as intended with no unexpected readings*

CH_4	*Methane*	*CO_2*	*Carbon Dioxide*
O_2	*Oxygen*	*CO*	*Carbon Monoxide*
H_2S	*Hydrogen Sulphide*	*VOC's*	*Volatile Organic Compounds*
ppmV	*Parts Per Million Volume*	*GSV*	*Gas Screening Value*

Visit No. 3 – 28/10/2025

Borehole ID	Duration	Flow Rate (l/hr)	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (% v/v)	CO (ppmV)	H_2S (ppmV)	VOC's (ppmV)	CH_4 GSV (l/hr)	CO_2 GSV (l/hr)
WS02	>10s	<0.1	<0.1	<0.1	20.8	<0.1	<0.1	0.3	-	-
	>30s	<0.1	<0.1	<0.1	20.7			0.3		
	>1m	<0.1	<0.1	<0.1	20.6			0.3		
	>1m 30s	<0.1	<0.1	0.1	20.6			0.3		
	>2m	<0.1	<0.1	0.1	20.6			0.3		
	>2m 30s	-	<0.1	0.1	20.6			-		
	>3m		<0.1	0.3	20.3					
	>3m 30s		<0.1	0.5	19.6					
	>4m		<0.1	0.8	19.3					
	>4m 30s		<0.1	1.2	18.4					
	>5m		<0.1	1.4	18.3	<0.1	<0.1			
Min		<0.1	<0.1	<0.1	20.3	<0.1	<0.1	0.3	<0.0001	<0.0001
Max				1.4	20.6			0.3	<0.0001	<0.0014

Notes: *Readings collected at an atmospheric pressure of 989mbar on a damp and cold day, prior to recording the readings from the equipment, the equipment is tested in ambient air to ensure that it is functioning as intended with no unexpected readings*

CH_4	*Methane*	*CO_2*	*Carbon Dioxide*
O_2	*Oxygen*	*CO*	*Carbon Monoxide*
H_2S	*Hydrogen Sulphide*	*VOC's*	*Volatile Organic Compounds*
ppmV	*Parts Per Million Volume*	*GSV*	*Gas Screening Value*

Visit No. 4 – 31/10/2025

Borehole ID	Duration	Flow Rate (l/hr)	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (% v/v)	CO (ppmV)	H_2S (ppmV)	VOC's (ppmV)	CH_4 GSV (l/hr)	CO_2 GSV (l/hr)
WS01	>10s	<0.1	<0.1	2.4	19.6	<0.1	<0.1	0.9	-	-
	>30s	<0.1	<0.1	3.3	17.4			0.9		
	>1m	<0.1	<0.1	3.3	17.2			1.0		
	>1m 30s	<0.1	<0.1	3.3	17.1			1.0		
	>2m	<0.1	<0.1	3.3	17.1			1.0		
	>2m 30s	-	<0.1	3.3	17.1			-		
	>3m		<0.1	3.3	17.1					
	>3m 30s		<0.1	3.3	17.1					
	>4m		<0.1	3.3	17.1					
	>4m 30s		<0.1	3.3	17.1					
	>5m		<0.1	3.3	17.1	<0.1	<0.1			
Min		<0.1	<0.1	2.4	17.1	<0.1	<0.1	0.9	<0.0001	<0.0024
Max				3.3	19.6			1.0		<0.0033

Notes: *Readings collected at an atmospheric pressure of 984mbar on a damp and cold day, prior to recording the readings from the equipment, the equipment is tested in ambient air to ensure that it is functioning as intended with no unexpected readings*

CH_4	*Methane*	*CO_2*	*Carbon Dioxide*
O_2	*Oxygen*	*CO*	*Carbon Monoxide*
H_2S	*Hydrogen Sulphide*	*VOC's*	*Volatile Organic Compounds*
ppmV	*Parts Per Million Volume*	*GSV*	*Gas Screening Value*

Visit No. 4 – 31/10/2025

Borehole ID	Duration	Flow Rate (l/hr)	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (% v/v)	CO (ppmV)	H_2S (ppmV)	VOC's (ppmV)	CH_4 GSV (l/hr)	CO_2 GSV (l/hr)
WS02	>10s	<0.1	<0.1	1.0	20.1	<0.1	<0.1	1.7	-	-
	>30s	<0.1	<0.1	1.8	18.9			1.7		
	>1m	<0.1	<0.1	2.0	18.4			1.7		
	>1m 30s	<0.1	<0.1	2.0	18.3			1.7		
	>2m	<0.1	<0.1	2.1	18.2			1.7		
	>2m 30s	-	<0.1	2.1	18.3			-		
	>3m		<0.1	2.1	18.2					
	>3m 30s		<0.1	2.1	18.2					
	>4m		<0.1	2.1	18.2					
	>4m 30s		<0.1	2.1	18.2					
	>5m		<0.1	2.1	18.2	<0.1	<0.1			
Min		<0.1	<0.1	1.0	18.2	<0.1	<0.1	1.7	<0.0001	<0.001
Max				2.1	20.1			1.7	<0.0001	<0.0021

Notes: *Readings collected at an atmospheric pressure of 983mbar on a damp and cold day, prior to recording the readings from the equipment, the equipment is tested in ambient air to ensure that it is functioning as intended with no unexpected readings*

CH_4	*Methane*	*CO_2*	*Carbon Dioxide*
O_2	*Oxygen*	*CO*	*Carbon Monoxide*
H_2S	*Hydrogen Sulphide*	*VOC's*	*Volatile Organic Compounds*
ppmV	*Parts Per Million Volume*	*GSV*	*Gas Screening Value*

APPENDICES

APPENDIX A

Selected Site Photographs and Site Walkover Notes

Photo 1:



Photo 2:



Photo 3:



Photo 4:



Photo 5:



Photo 6:



Photo 7:



Photo 8:



Photo 9:



Photo 10:



Photo 11:



SITE WALKOVER CHECKLIST 2024

GEOTECHNICAL		COMMENTS/EVIDENCE
	Are there any abrupt changes in slope profiles?	*No*
	Is there evidence of overburden on the slopes?	*No*
	Is there evidence of excavation at the base of a slope?	*No*
	Are there signs of landslip, such as tilting trees/posts?	*No*
	Are there signs of subsidence?	*No*
	Is there evidence of cracked ground?	*No*
	Is there evidence of compressible ground (i.e. Peat)?	*No*
	Is there evidence of an abrupt change in ground conditions?	*No*
	Is there evidence of high groundwater, such as areas of waterlogged ground?	*No*
	Do signs of water loving plants such as reeds exist?	*No*
	Are there any ponds, streams, ditches (even if dry), springs or wells?	*No*
	Is there vegetation? What is the nature of it?	*Yes Hedge in centre of site separating the soft landscaping and car park*
	Are trees present? What are the species & height of the trees?	*Yes Mature*

Job Number: UK25.7470
Date: 5 August 2025
Engineer: AW

To be completed by consultant for all Phase I Desk Studies and completed form must be scanned/photographed and saved in job folder under 'Scanned Site Notes'. EPS Lower Risk Assessment (EPS025a) also must be completed and scanned.

	What is the nature and condition of vegetation on adjoining land?	*No Former Vegetation Seen*
	Is there evidence of former vegetation?	*Yes*
	Is there evidence of movement in any existing structures?	*No*
	Evidence of below ground structures & services?	*Yes Standard utilities, drainage and electic. Overhead cable to northeast.*
	Any evidence of mine shafts or adits? (Check Coal Authority Mapping)	*No*
	Are there any access issues for a digger/drilling rig (slopes, height, gates etc.)?	*No*

Any other comments?	

CONTAMINATION		COMMENTS/EVIDENCE
	Evidence of ground contamination?	*No*
	Evidence of groundwater /surface water contamination?	*No*
	Evidence of historic site use?	*No*
	Have all buildings been accessed internally, what was found?	*No*
	Evidence of /suspected asbestos? In building fabric or on ground, describe condition and form (cement/fibrous).	*No*

Job Number: UK25.7470
Date: 5 August 2025
Engineer: AW

To be completed by consultant for all Phase I Desk Studies and completed form must be scanned/photographed and saved in job folder under 'Scanned Site Notes'. EPS Lower Risk Assessment (EPS025a) also must be completed and scanned.

	Any man-made surfacing present? Including bituminous road planings/scalpings. Describe condition of hardstanding.	*Yes Good. Bituminous car park. Paving slab walkways*
	Any fuel or oil storage? If above ground, are tanks bunded/ steel/with above ground pipe or any staining?	*No*
	Obvious drainage features observed such as 3-chamber oil-water interceptor?	*Yes Surface drainage channels*
	Any waste deposition observed, such as fly-tipped soils or chemical containers/ drums or areas of burning?	*No*
	Electricity substation present, maintained/operational? Are there any warning stickers on the gates/fence regarding chemicals?	*No*
	Evidence of previous investigation/remediation (e.g. old monitoring wells)?	*No*
	Walked around surrounding areas? Identify any off-site sources such as petrol stations, heating oil tanks.	*No*
	Anecdotal evidence	*No*

Any other comments?	

AIR QUALITY (ONLY NECESSARY IF INSTRUCTED – CHECK WITH AQ TEAM)	
Completed Air Quality Walkover Checklist?	*No*

Photo 1: WS01, extensive made ground overlying brown, mottled orange, grey clay.	Photo 2: Made ground within WS01.
	
Photo 3: WS02, made ground overlying brown, mottled orange, grey clay.	Photo 4: TP02, an initial layer of made ground with rootlets throughout, overlying extensive made ground materials.
	
Photo 5: TP02 – Soakaway test underway.	Photo 6: Made ground arisings from TP02.
	

APPENDIX B

Proposed Development Plan



1 PROPOSED SITE PLAN

1:200

NORTH

0 2.0 4.0 6.0 8.0 10.0 20.0m

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Rev.	Description	Date	Drw.	Chk.
P-00	Planning Issue	22.08.24	SK	LC

Client
YIF
Youth Investment Fund

Project
Modular Youth Hub
The Stirling Centre M40 2RF

Drawing Title
Proposed Site Plan

Drawing Status
PLANNING

Corstorphine & Wright
Tamworth Studio
5 Aldergate, Tamworth, B79 7DJ
01827 671 23
corstorphine-wright.com

Drawing No.	Revision
23519-0324	P-00

Drawn	Checked	Paper Size	Scale	Date
SK	LC	A2	1:200	19.03.24



1 PROPOSED SITE PLAN
1:200

NORTH

0 2.0 4.0 6.0 8.0 10.0 20.0m

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Rev.	Description	Date	Drw.	Chk.
P-00	Planning Issue	22.08.24	SK	LC

Client
YIF
Youth Investment Fund

Project
Modular Youth Hub
The Stirling Centre M40 2RF

Drawing Title
Proposed Site Plan

Drawing Status
PLANNING

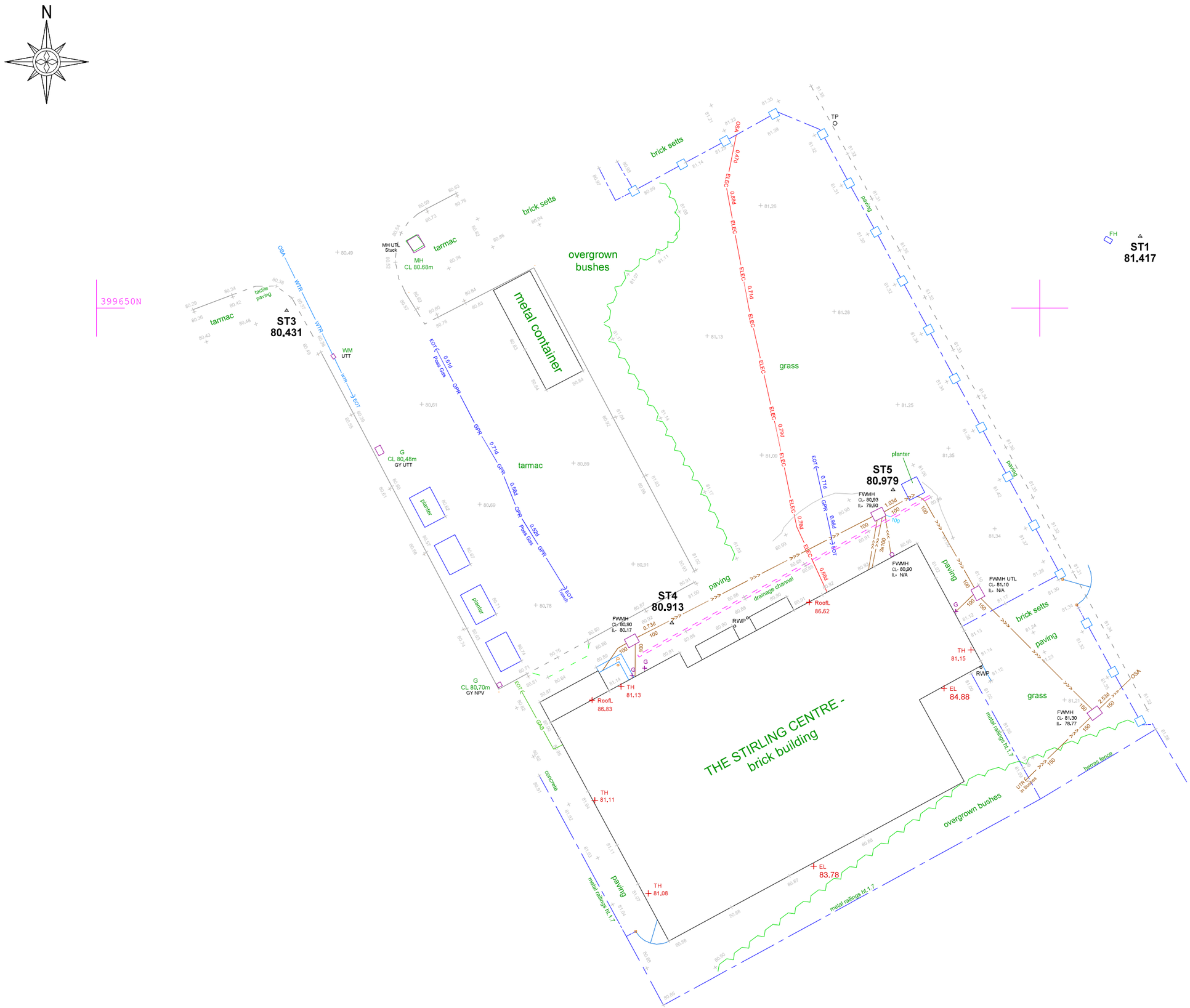
Corstorphine & Wright
Tamworth Studio
5 Aldergate, Tamworth, B79 7DJ
01827 671 23
corstorphine-wright.com

Drawing No.	Revision
23519-0324	P-00

Drawn	Checked	Paper Size	Scale	Date
SK	LC	A2	1:200	19.03.24

APPENDIX C

Site Specific Utility and Topographical Survey



Utilities Survey Notes:

All utility information has been obtained and compiled by Subsite Surveys Ltd in July 2025. The location of underground services within the survey area has otherwise been determined using electromagnetic and/or ground penetrating radar techniques and visual observations. Subsite Surveys Ltd has made every endeavour to make sure that the information contained within this drawing is accurate and of the highest quality.

Public record information provided by the client or by the Statutory Utility Providers, at the time of the survey has been included to supplement utility detection methods up to 5m beyond the survey boundary, within the buffer zone shown. Notwithstanding, this drawing may not include the location of all public services that may cross the site and therefore the relevant service drawings should be obtained from the appropriate utility company and used in conjunction. Additional services, structures or other below ground obstructions not indicated on this drawing may be present on site, and reference should be made to historical plans and as built drawings in addition. Historic record information is often incomplete and inaccurate so cannot be relied upon.

The limitations of this drawing and detection methods employed should be realised and no guarantee can be given that all services have been identified. The size and location of services are indicative only and should be confirmed on site prior to any excavation works. Multiple cable lines are a graphical representation of overall thickness and should not be counted. All depths provided are to the centre of the utility (or invert/base for drainage channels) and relative to ground levels at the time of the survey. Depths are approximate only and are generally within +/- 10% accuracy, but can not be guaranteed.

The completeness of any underground survey cannot be 100% guaranteed and the results from these types of surveys are not infallible. If the location or depth of services/features is of particular importance to a project then it is strongly advised that discussions are held with Subsite Surveys Ltd regarding any possible limitations or anomalies. It is also strongly advised that trial excavations should be undertaken to confirm survey results. Excavations in the vicinity of services should be carried out with due diligence ref: HSG47 document "avoiding dangers from underground services". Location accuracy is determined by referring to manufacturers guidelines for the systems deployed.

Traditional Topographic Survey Notes:

All features and levels shown have been gathered using traditional topographic survey methods conducted in July 2025 by Subsite Surveys. Datum is in metres to OSNG using the Trimble VRS Now Network Commercial RTK GPS Correction Service. All ground features that were visible at the time of the survey have been located. Tree sizes are approximate and Survey Station coordinates provided below.

SURVEY CO-ORDINATE SCHEDULE

STATION	EASTING	NORTHING	HEIGHT
ST1	398189.328	399653.806	81.417
ST3	398110.681	399649.964	80.431
ST4	398130.506	399633.308	80.913
ST5	398141.231	399640.370	80.979

ABBREVIATIONS (Land & Utilities)

KEY

Rev	Date	Drawn	Description	Ch'kd
-	-	-	-	-
-	-	-	-	-

SUBSITE SURVEYS

m: +44 (0)7427 401344 o: +44 (0)1302 618690 w: subsitesurveys.co.uk

Registered Office: Willow House, Low Lane, Braithwaite, Doncaster, DN27SS

Site: Stirling Centre

Client: -

Title: Combined Topo & Utilities Plan

Surveyed:	CM	Drawn by:	DS
Checked by:	XX	Date:	23.07.2025
Scale [A1 Sheet]	1:100	Drawing Reference	UK25.7470_001
Job No	UK25.7470	Rev	-



0m 5m 10m 15m 20m 25m

Utilities Survey Notes:

All utility information has been obtained and compiled by Subsite Surveys Ltd in July 2025. The location of underground services within the survey area has otherwise been determined using electromagnetic and/or ground penetrating radar techniques and visual observations. Subsite Surveys Ltd has made every endeavour to make sure that the information contained within this drawing is accurate and of the highest quality.

Public record information provided by the client or by the Statutory Utility Providers, at the time of the survey has been included to supplement utility detection methods up to 5m beyond the survey boundary, within the buffer zone shown. Notwithstanding, this drawing may not include the location of all public services that may cross the site and therefore the relevant service drawings should be obtained from the appropriate utility company and used in conjunction. Additional services, structures or other below ground obstructions not indicated on this drawing may be present on site, and reference should be made to historical plans and as built drawings in addition. Historic record information is often incomplete and inaccurate so cannot be relied upon.

The limitations of this drawing and detection methods employed should be realised and no guarantee can be given that all services have been identified. The size and location of services are indicative only and should be confirmed on site prior to any excavation works. Multiple cable lines are a graphical representation of overall thickness and should not be counted. All depths provided are to the centre of the utility (or invert/base for drainage channels) and relative to ground levels at the time of the survey. Depths are approximate only and are generally within +/- 10% accuracy, but can not be guaranteed.

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SURVEY CO-ORDINATE SCHEDULE

STATION	EASTING	NORTHING	HEIGHT
ST1	398150.928	399657.805	81.417
ST3	398110.524	399650.000	80.431
ST4	398110.081	399669.864	80.433
ST4	398132.506	399633.108	80.913
ST5	398142.231	399640.370	80.979

ABBREVIATIONS (Land & Utilities)

AP	ASHLAR PATH	HDL	HORIZ.DUCT
BB	BB VALVE	HL	HORIZ.LIGHT
BE	BELLMAN BEACON	HP	HORIZ.PIPE
BH	BOREHOLE	LG	LOCK GATE
BO	BOLLARD	LL	LOCK LEVEL
BU	BCO UTIL	LP	LAMP POLE
BW	BARBEQUE	LT	LAMP POSTICE
CC	CONCRETE HATCH COVER	MC	MANHOLE COVER
CH	CHIMNEY/TOP OF BRK	MH	MANHOLE
BL	BASEMENT LIGHT	MO	MICROWAVE
BO	BOLLARD	Mch	MACHINERY
BP	BUS POSTICE	MP	MARKER POST
BS	BUS STATION	MS	MARKER POST (ELECTRIC)
CBL	CABLE TELEVISION CHAMBER	MW	MARKER POST (GAS)
CWL	CATENARY LEVEL	MWA	MARKER POST (TELECOM)
CH	CHIMNEY/TOP OF BRK	MWT	MARKER POST (WATER)
CB	CONTROL BOX	MX	MARKER POST
CBe	CONNECTOR BELT	MXS	MARKER POST (WATER)
CC	CCTV CAM	N	NOTE
CL	CHANNEL LEVEL	NL	NOT LOCATED
CN	CABINET	NP	NAME PLATE
CO	COVER LEVEL	OB	OBSERVATION AREA
CL	COVER LEVEL	OBE	OBE O.S.BENCH MARK
CP	CABLE POST	OBS	OBSERVATION SPOT
CP	CABLE PIT	OHCL	OH CABLE (UNIDENTIFIED)
CPo	CABLE POSTICE	OHCT	OVERHEAD CABLE (TELECOM)
Cpit	CAPTIVE PIT	OHEL	OVERHEAD CABLE(ELEC)
CPo	CABLE POSTICE	OHL	OVERHEAD LINE
CR	CABLE RISER	OHT	OVERHEAD CABLE (TELECOM)
CS	CONTROL BOX	OP	OUTLET PIPE
CuP	CULVERT PIPE	P	POST
CWM	CABLE WINDING MACHINERY	PL	PARK BENCH
Dis	DISTRICT	PC	PEDESTRIAN CROSSING
Dis	DIRECTION SIGN	PO	POLE/TRAFFIC LIGHT
EC	ELECTRIC INSPECTION COVER	PF	PITCH FIBER
EG	EARTH GRID	PI	PIT
EOT	END OF RECORD	PL	MOUNDPOT DETECTOR
EP	ELECTRICITY POLE	PP	PHONE POLE (BOX)
EP	ELECTRICITY POLE	PT	PETROL / DIESEL PUMP
ES	ELECTRIC SIGN	PU	PUMP/WELL (GW)
ESw	EMERGENCY SHOWER	PW	POWERPOINT
ESP	ELECTRICITY SUPPLY POINT	PU	PUMP
FB	FLOWER BED/POT	PV	PIPE OVERFALL
FH	FIRE HYDRANT	PVC	PVC (VERTICAL)
FL	FLOOR LEVEL	PZ	PIEZOMETER
FL	FLOOR LEVEL	RB	RAIL BUFFER
G	GULLY	RG	RAIN GAUGE
GP	GAS MAST/TYPE	RM	REMOTE MONITORING PNT
GP	GAS VALVE	RP	RECYCLATION POST
GPS	GPS POINT	RS	RAIL SIGN
GW	TRACED ST.U.F.E.	RSA	RAILWAY SIGNAL POST
GY	GRILLE	RW	RETAINING WALL
H	HOSE	SA	SAMPLE
HP	HANDRAIL	SB	SIGN BOARD
HV	HIGH VOLTAGE	Sca	SAND TER (BUS / TRANS)
HY	HYDRANT MARKER	SL	SIGN LIGHT
IL	INVERT LEVEL	SL	SURVEY LEVEL
JN	JUNCTION	SMP	SETTLEMENT MONITORING PNT
SL	SIGNAL LIGHT		
SP	SHEET PILING		
SP	SIGN POST		
SPr	SAMPLE PORT		
ST	STOP TAP		
SV	STOP VALVE (TURF TOP LEVEL)		
SW	STAND PIPE		
SWP	STAND PIPE		
SW	SIGN WIRE		
TC	TELEPHONE CALL BOX		
TCh	TELECOM CHAMBER COVER		
TEL	TELEPHONE POLE		
TL	TRAFFIC LIGHT		
TP	TELEGRAPH POLE		
TP	TEST POST		
TT	TRENCH		
UTA	UNABLE TO ENTER		
UTCH	UNABLE TO GAIN ACCESS		
UTL	UNABLE TO LIFT		
UTR	UNABLE TO READ		
UTS	UNABLE TO SURVEY		
UTT	UNABLE TO TRACE		
VP	VENT PIPE (U.F.)		
VP	VENT POST		
VR	VANTAGE RECOVERY		
WA	WATER APPARATUS		
WA	VALVE / SLUICE WHEEL		
WC	WATER COURSE		
WL	WATER LEVEL		
WM	WATER METER		
WO	WASH OUT VALVE		
WP	WATER POST		
WL	WEIR LEVEL		
WW	WASTE WATER		
WWP	WASTE WATER PIPE		
FENCE TYPES			
BRF	BARBED WIRE		
CBF	CLOSE BOARDED		
CHF	CHAIN LINK / MESH		
CUF	CHAIN LINK		
HF	HERRAS FENCE		
IRF	IRON RAILING		
PF	POST & RAIL		
PTF	POST & STRAND		
PWF	POST & WIRE		
RF	RAILINGS		
STF	STEEL PALISADE		
WMF	WIRE MESH		

KEY

CCTV	CCTV / CABLE TELEVISION
COMB	COMBINED DRAINAGE
COMMS	COMMUNICATIONS CABLE
AIR	COMPRESSED AIR
ELEC	ELECTRIC
EARTH	EARTH CABLE
ELEC	ELECTRIC CABLE
EOT	END OF TRACE
FOUL	FOUL DRAINAGE
FUEL	FUEL PIPE
GAS	GAS PIPE
GAUGE	GAUGE LINE
HEAT	HEATING
OFFSET	OFFSET FILL PIPE
PUMP	PUMPING MAIN
RADAR	RADAR AREA ANOMALY
GPR	RADAR UTILITY TRACE
SURF	SURFACE DRAINAGE
SURVEY	SURVEY BOUNDARY (Incl. Sub BUFFER ZONE)
TELE	TELECOM CABLE
TL	TRAFFIC LIGHTS
UNID	UNIDENTIFIED
VAPOUR	VAPOUR RECOVERY
VENT	VENT PIPE
WATER	WATER PIPE

O.S BENCH MARK — SURVEY CONTROL STATION

Rev	Date	Drawn	Description	Chk'd
-	-	-	-	-
-	-	-	-	-

SUBSITE SURVEYS

m: +44 (0)7427 401344 o: +44 (0)1302 618690 w: subsitesurveys.co.uk

Registered Office: Willow House, Low Lane, Braithwaite, Doncaster, DN7 5SS

Site: Stirling Centre

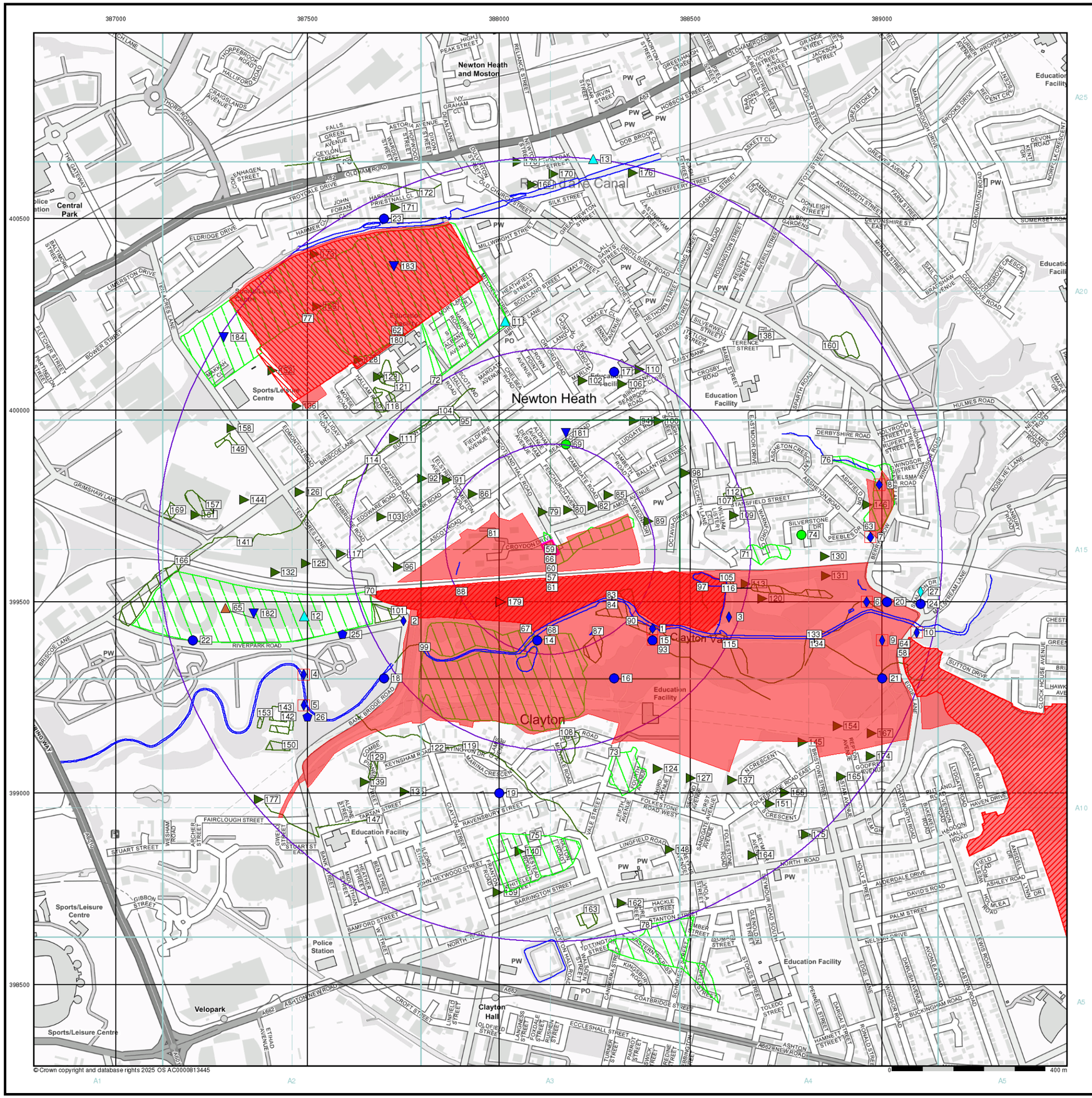
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Title: Combined Topo & Utilities Plan

Surveyed:	CM	Drawn by:	DS
Checked by:	XX	Date:	23.07.2025
Scale [A1 Sheet]	1:100	Drawing Reference	UK25.7470_001
Job No	UK25.7470	Rev	-

APPENDIX D

Surrounding Land Use



Envirocheck®

LANDMARK INFORMATION GROUP®

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Historical Prosecutions
- Prosecutions
- Registered Radioactive Substance
- River Network or Water Feature
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

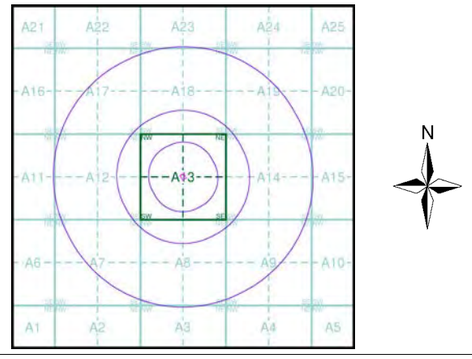
Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Geological

- BGS Recorded Mineral Site

Site Sensitivity Map - Slice A



Order Details

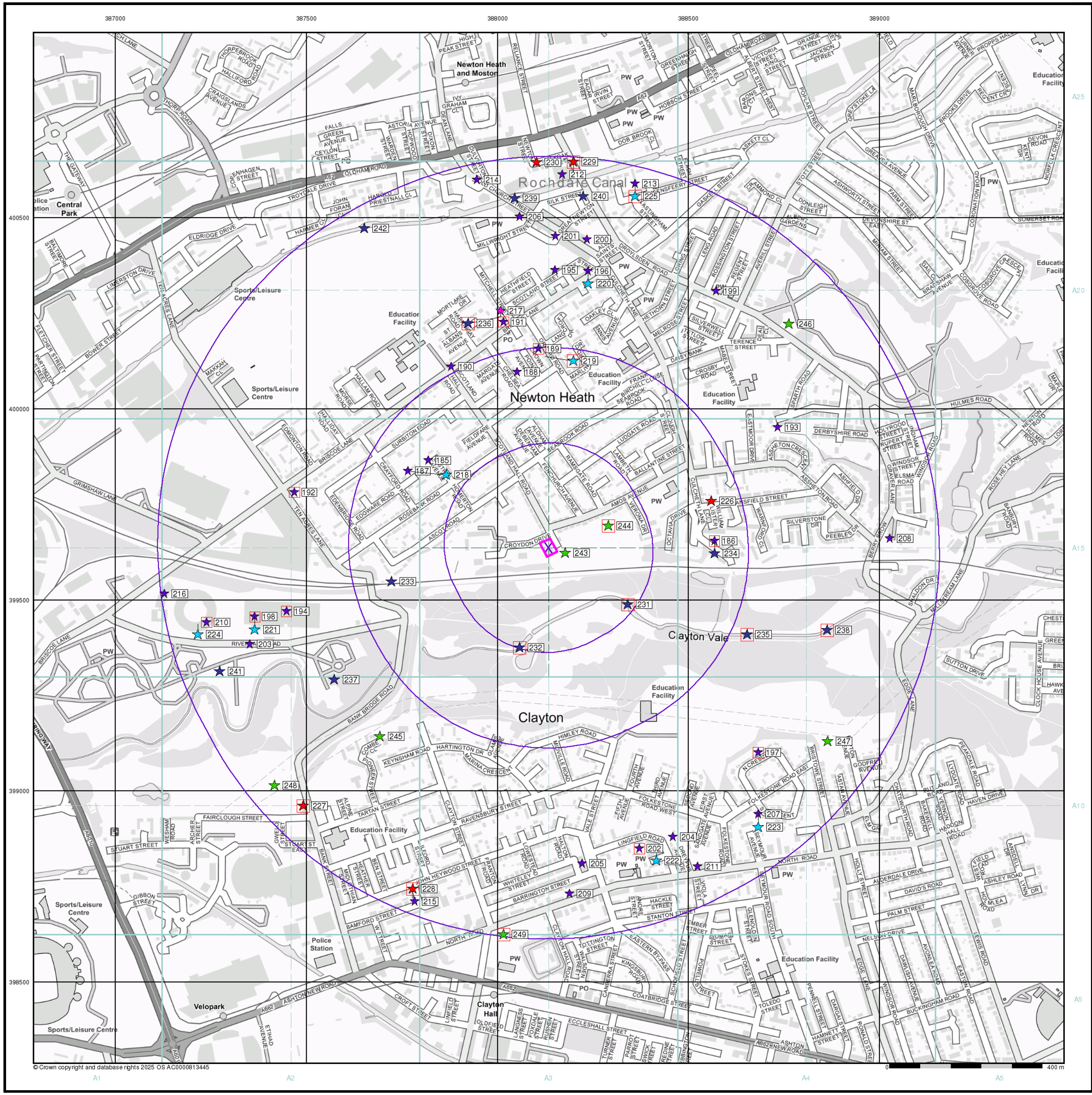
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Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

Site Details

The Stirling Centre, Newton Heath, Manchester, M40 2JT

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Industrial Land Use Map

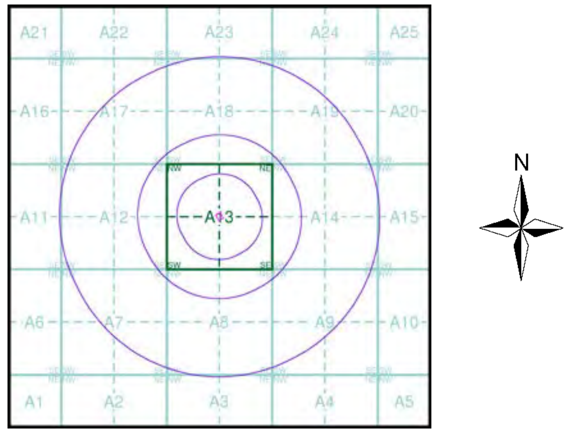
General

Specified Site
Specified Buffer(s)
Bearing Reference Point
Slice
Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

Order Number:	381386819_1_1
Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

Site Details

The Stirling Centre, Newton Heath, Manchester, M40 2JT

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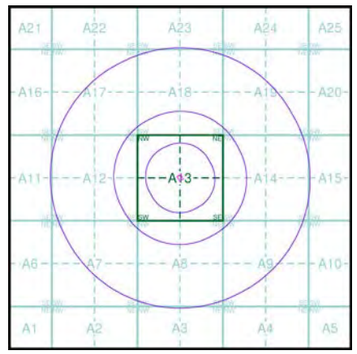
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



N

Order Details

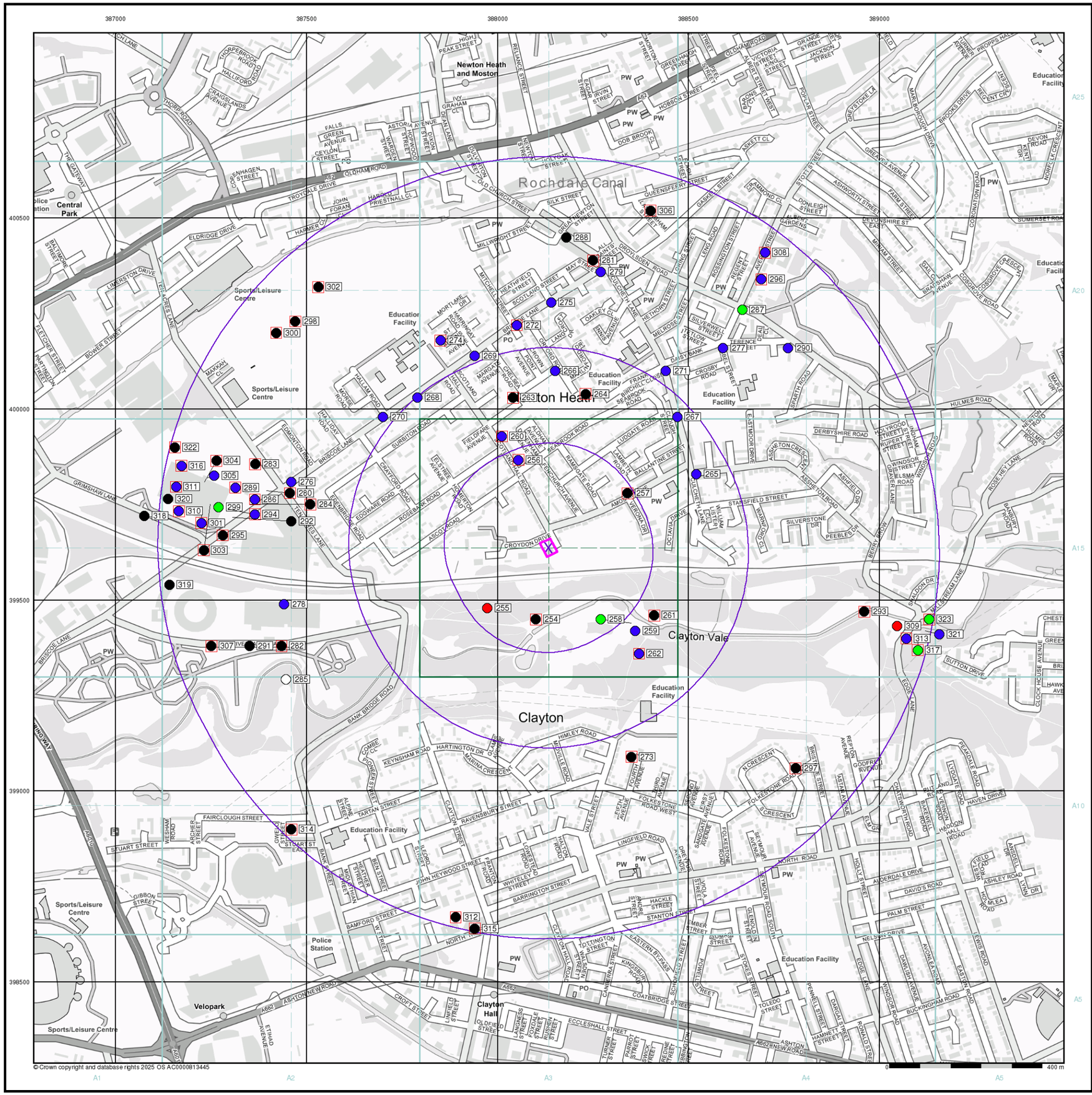
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Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

Site Details

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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

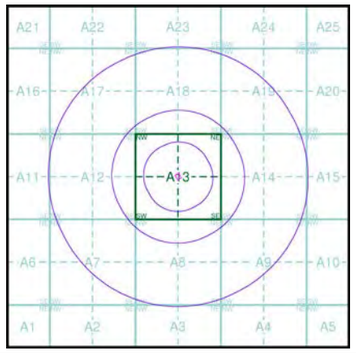
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



Order Details

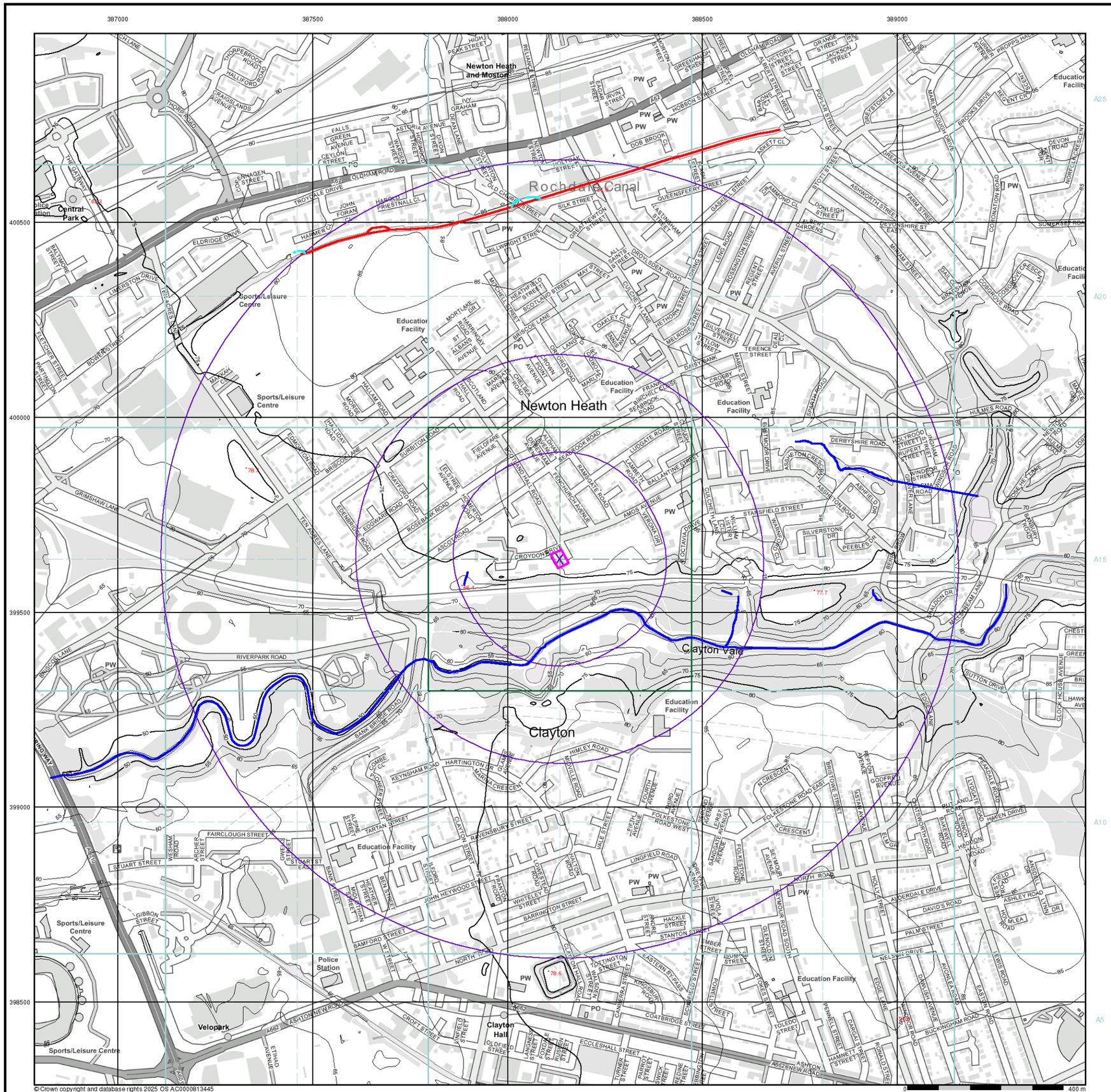
Order Number:	381386819_1_1
Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

OS Water Network Data

- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

Contours (height in meters)

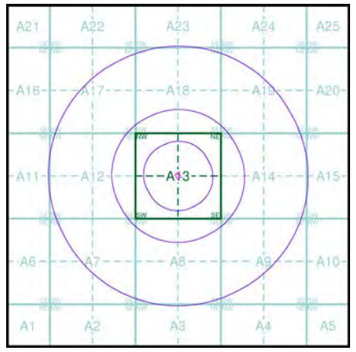
Standard Contour 105 100 95

Master Contour

Spot Height 167.3

- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



Order Details

Order Number:	381386819_1_1
Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

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General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Risk of Flooding from Surface Water

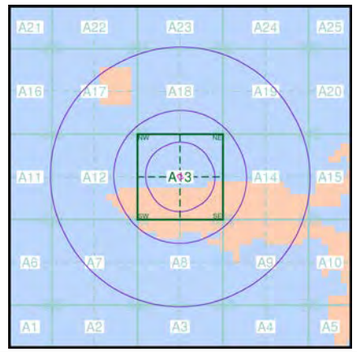
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

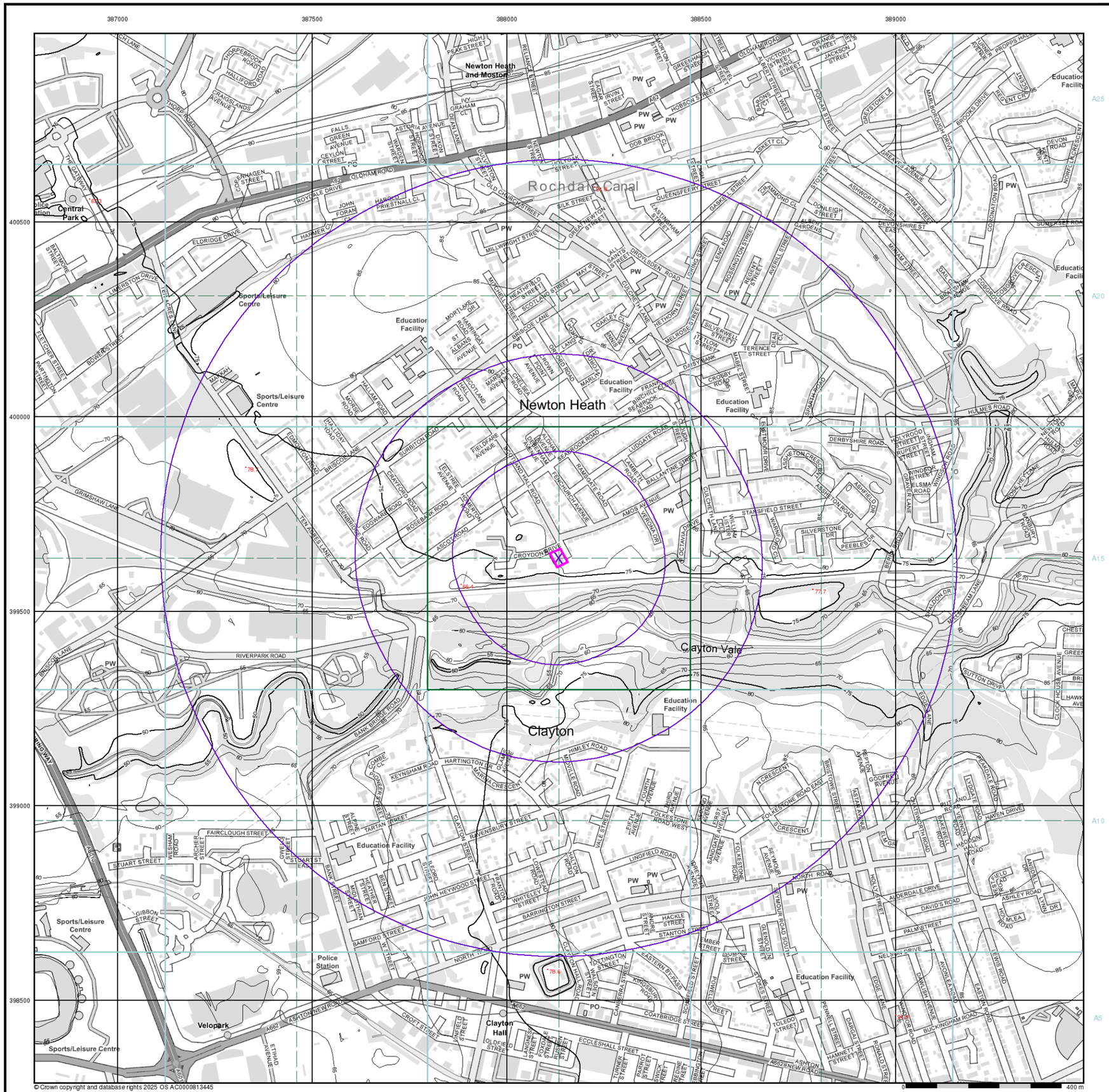
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Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
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Search Buffer (m):	1000

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WFD Surface Waters Map

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Water Framework Directive - Surface Water Quality

- High
- Good
- Moderate
- Poor
- Bad

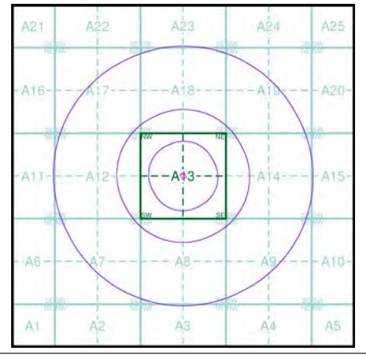
Contours (height in meters)

Standard Contour 105 100 95 — MLW Mean Low Water

Master Contour — MHW Mean High Water

Spot Height * 167.3

WFD Surface Waters Map - Slice A



Order Details

Order Number:	381386819_1_1
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National Grid Reference:	388130, 399640
Slice:	A
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APPENDIX E

Geological Context

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene
	WGR	Worked Ground (Undivided)	Void	Not Supplied - Holocene
	SLIP	Landslide Deposit	Unknown/Unclassified Entry	Not Supplied - Quaternary

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	TILLD	Till, Devensian	Diamicton	Not Supplied - Devensian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	CHES	Chester Formation	Sandstone	Not Supplied - Olenekian
	MM	Manchester Marls Formation	Mudstone	Not Supplied - GUADALUPIAN
	CS	Collyhurst Sandstone Formation	Sandstone	Not Supplied - Cisuralian
	HTS	Holt Town Sandstone Bed	Sandstone	Not Supplied - Westphalian
	HA	Halesowen Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	GML	Great Mine Limestone	Limestone	Not Supplied - Westphalian
	PUCM	Pennine Upper Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	NHSS	Newton Heath Sandstone	Sandstone	Not Supplied - Westphalian
	OPS	Openshaw Sandstone	Sandstone	Not Supplied - Westphalian
	PMCM	Pennine Middle Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ETM	Etruria Formation	Sandstone and Mudstone	Not Supplied - Westphalian
		Faults		
		Rock Segments		

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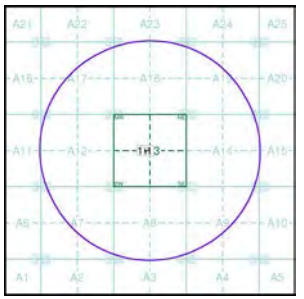
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	**1**
Map Sheet No:	**085**
Map Name:	**Manchester**
Map Date:	**2010**
Bedrock Geology:	**Available**
Superficial Geology:	**Not Available**
Artificial Geology:	**Not Available**
Faults:	**Not Supplied**
Landslip:	**Not Available**
Rock Segments:	**Not Supplied**

Geology 1:50,000 Maps - Slice A



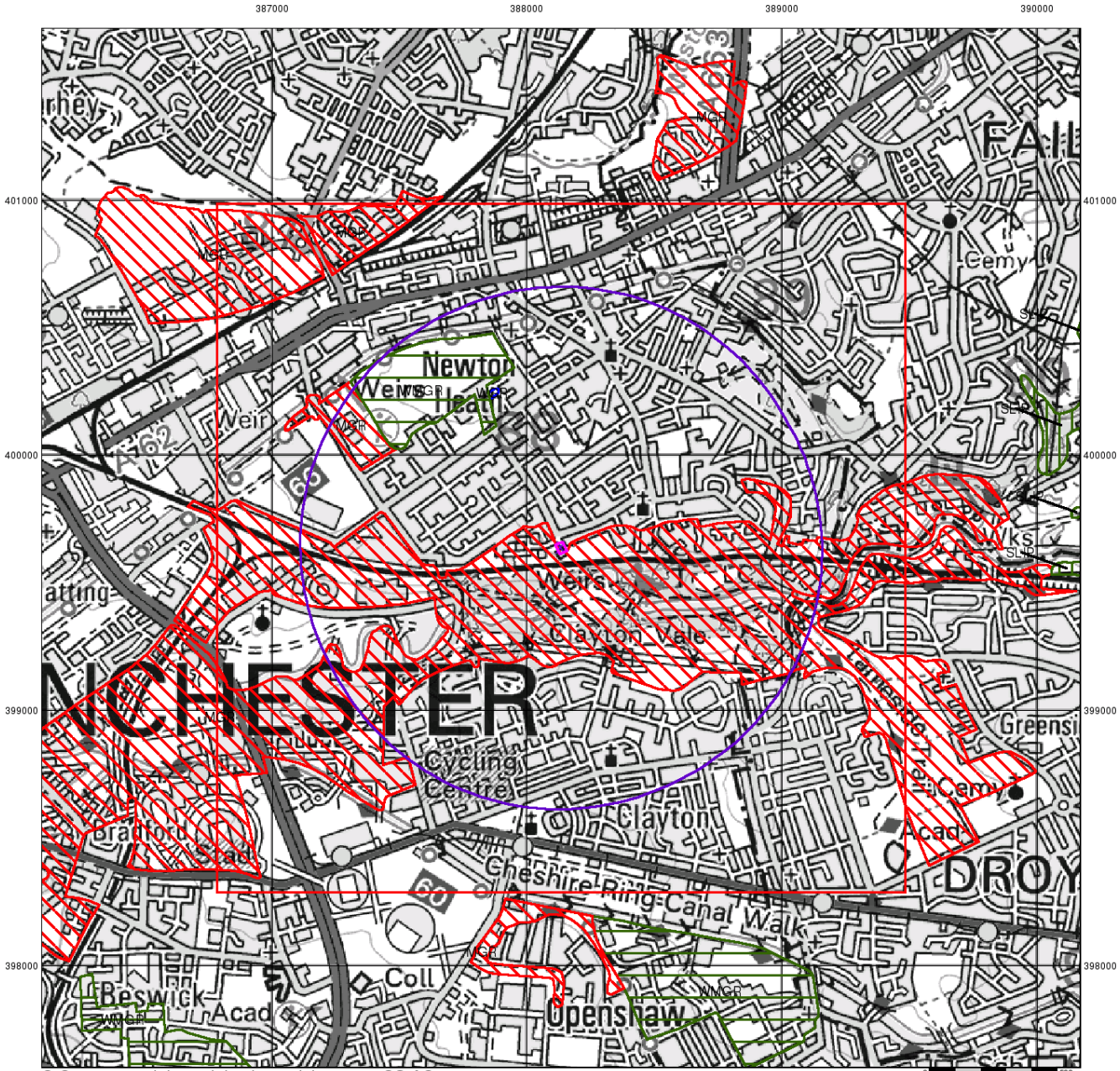
Order Details:

Order Number:	381386819_1_1
Customer Reference:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

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Artificial Ground and Landslip

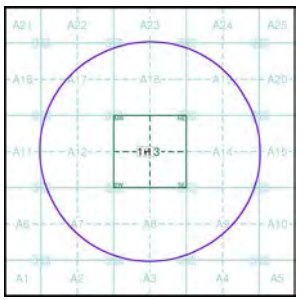
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



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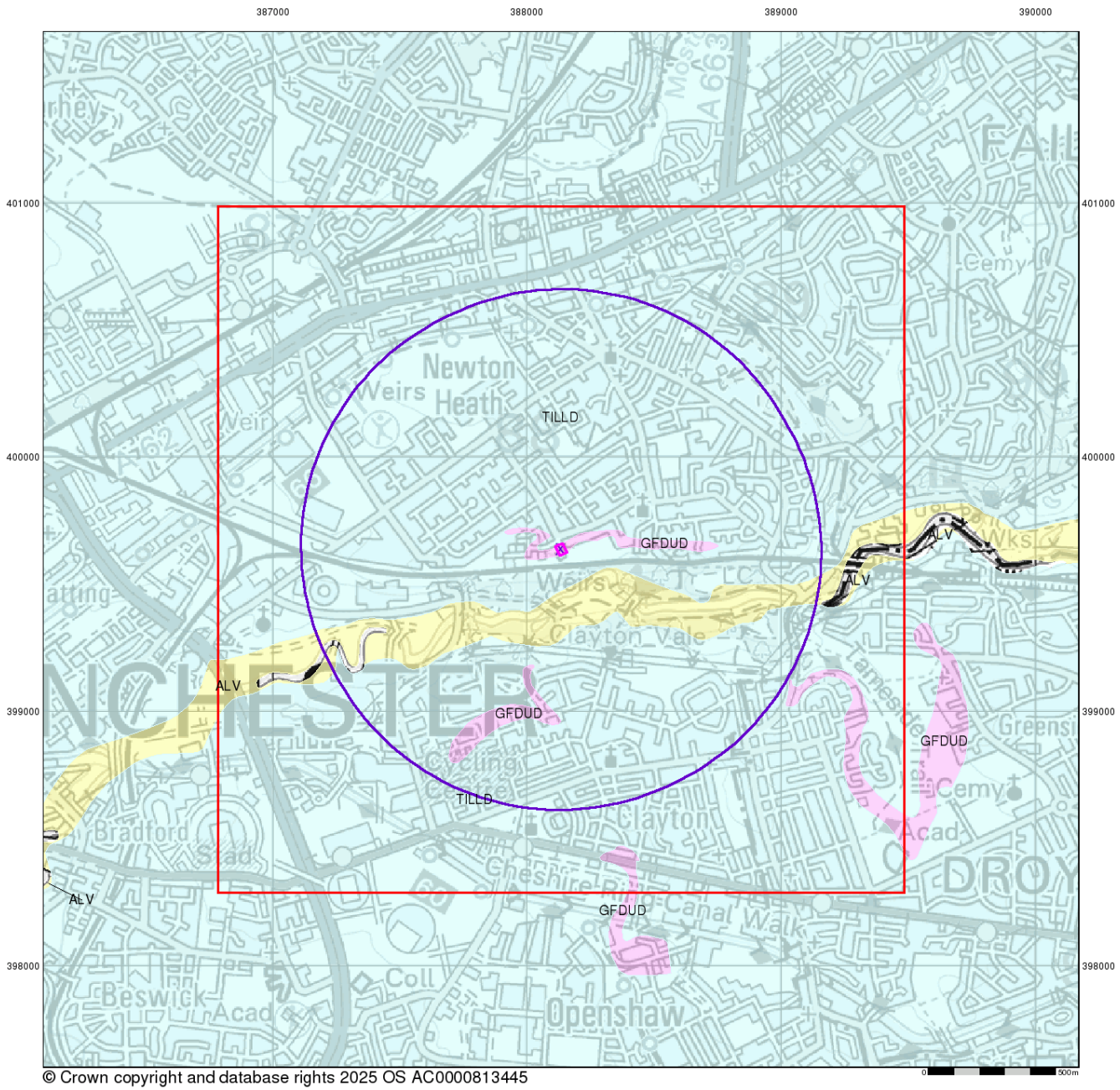
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Customer Reference:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

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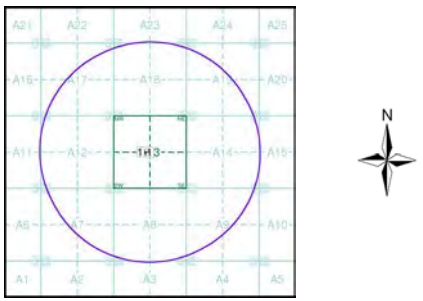
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details:

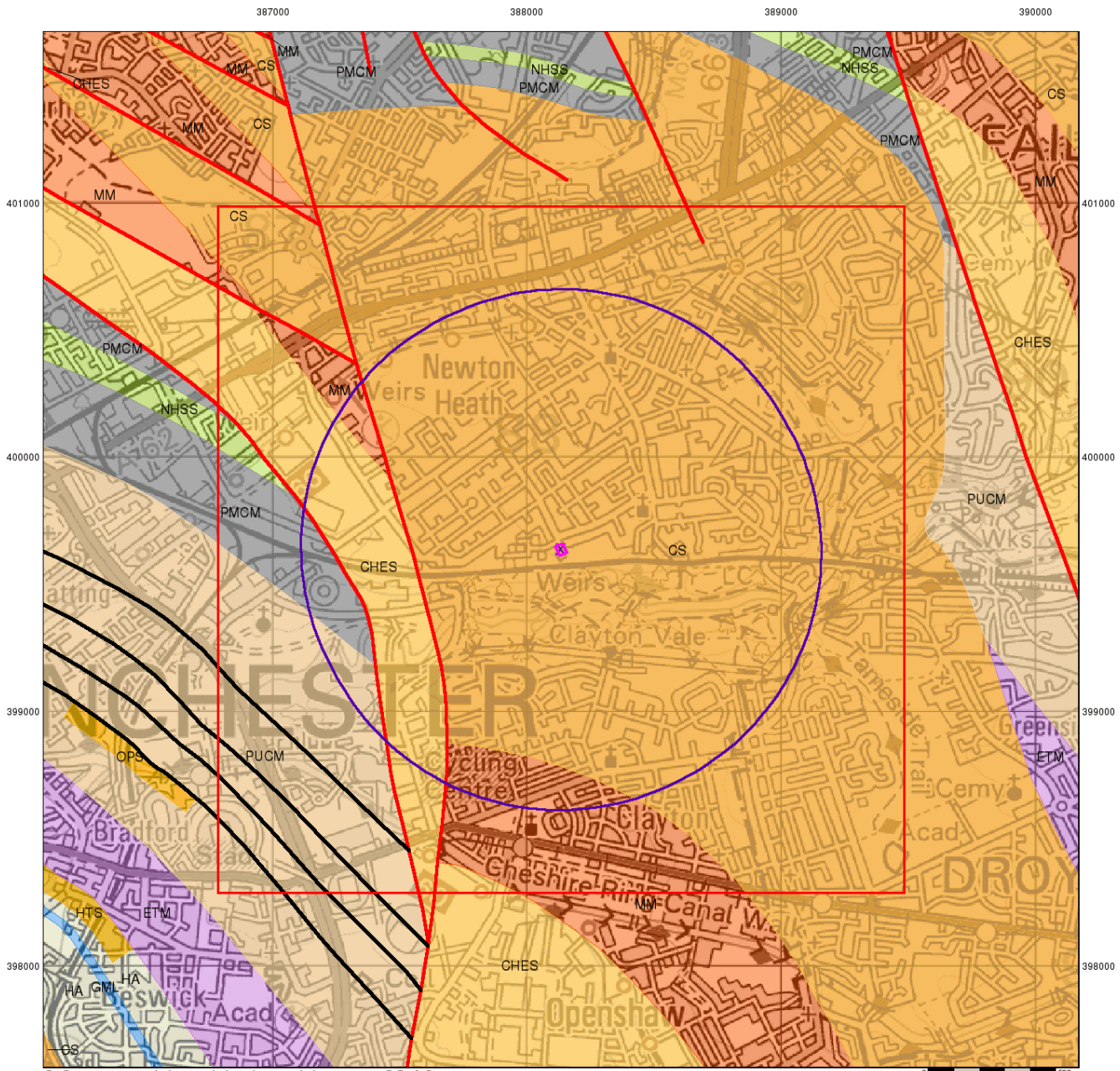
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Customer Reference:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

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Bedrock and Faults

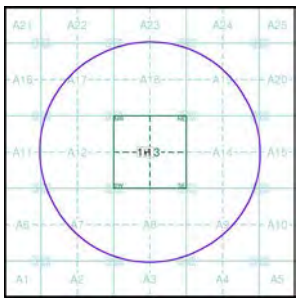
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



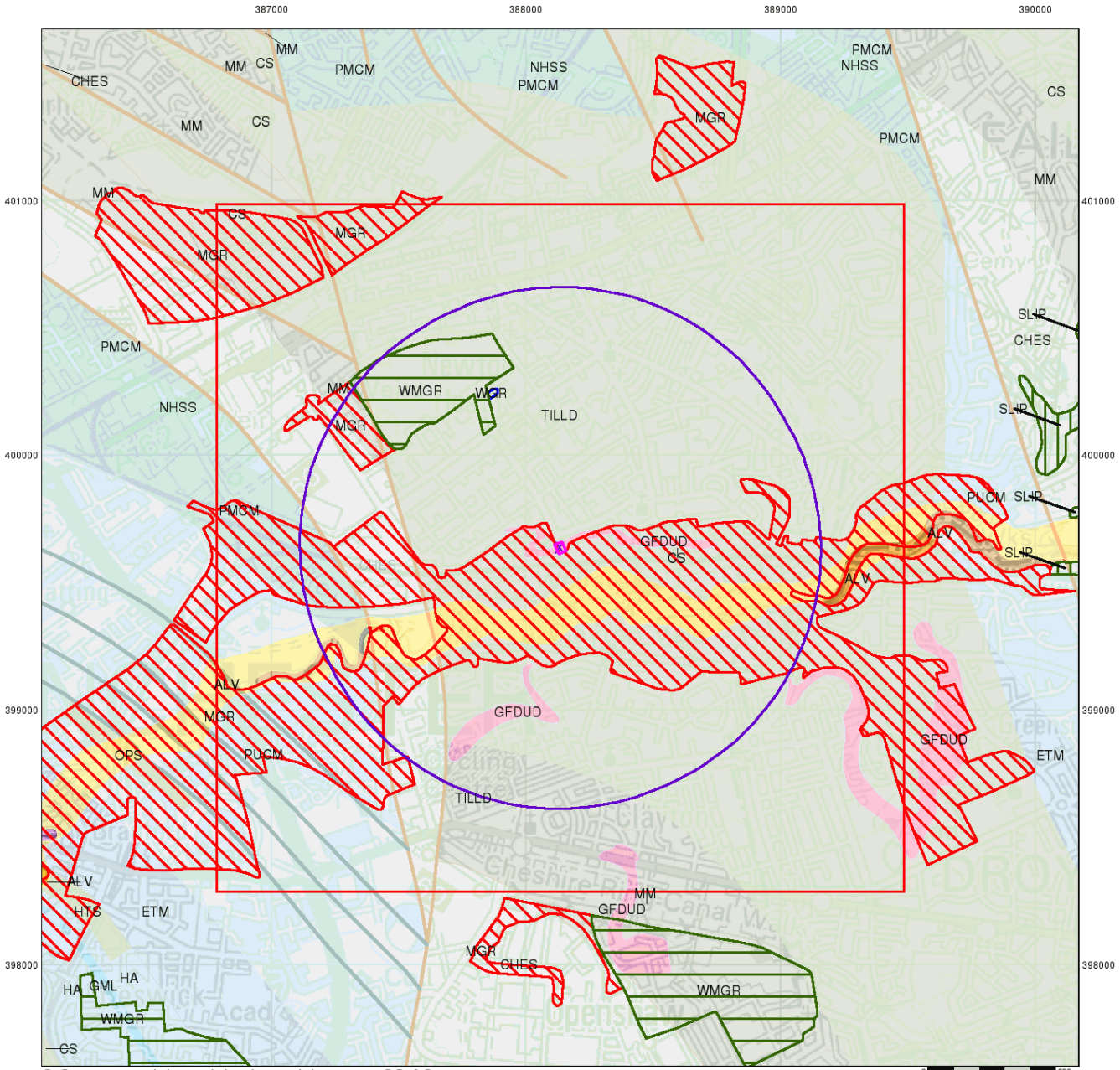
Order Details:

Order Number:	381386819_1_1
Customer Reference:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

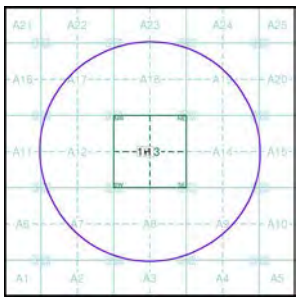
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number:	381386819_1_1
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National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

Site Details:

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Borehole Log

AB-BT1-1011

Project Name: Transpennine Route Upgrade SI/GI Project No: 314Q

Borehole ID: AB-BT1-1011

Location: Manchester to Leeds Co-ords (British National Grid): 388110.85 - 399568.19 Level: 71.47

Hole Type: WS Logged By: Dates: -

Client: Transpire Alliance Contractor: BAM Ritchies Project Engineer: Transpire Alliance

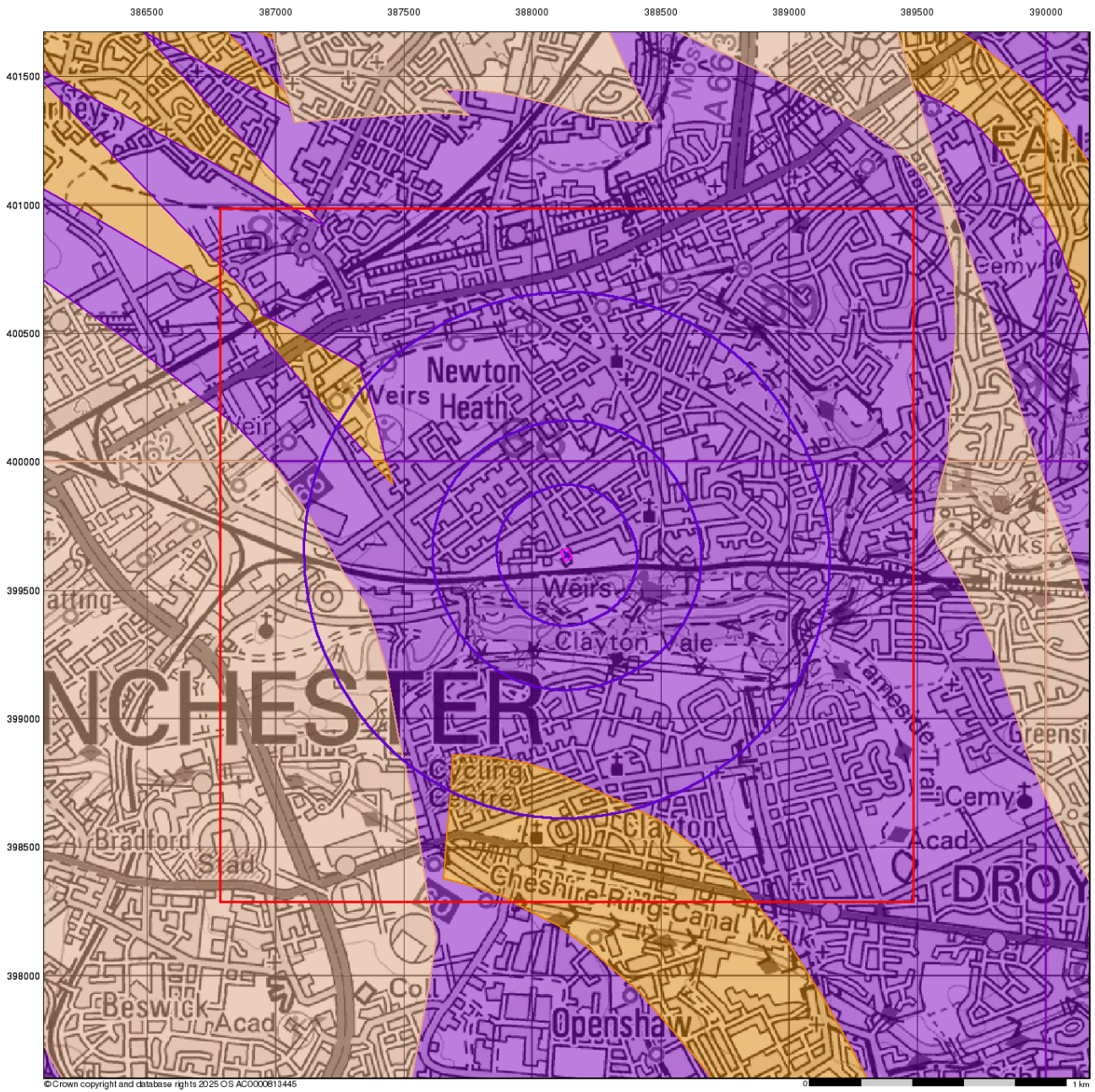
Plant Used: SPT Hammer Serial No:

Well	Water	Samples Depth (m)	Samples Type	Result	Depth (m)	Level (m)	Legend	Stratum Description	Depth m
		0.2	B D ES		0.20	71.27		Rail construction	
		0.2 - 1.2	Liner						
		0.3	D					MADE GROUND Grey with occasional pinkish grey slightly sandy angular medium and coarse GRAVEL 10 105mm of granite Sand is medium to coarse	0.5
		0.5	D						
					0.70	70.77			
		0.8	D						
		1.0	ES						1.0
					1.15	70.32		MADE GROUND Dark grey slightly silty slightly gravelly fine to coarse SAND of ash Gravel is subangular fine to medium of clinker	
		1.2 - 2.2	Liner						
					1.35	70.12			
		1.45	D						1.5
					1.55	69.92			
		1.7	D						
					1.85	69.62			
					1.95	69.52		MADE GROUND Dark brownish grey slightly silty slightly gravelly fine to medium SAND Gravel is subangular fine to medium of predominantly sandstone	2.0
		2.0	ES						
					2.20	69.27			
									2.5
								MADE GROUND Brown slightly silty fine to medium SAND	
									3.0
								MADE GROUND Soft to firm brown with occasional small dark grey patches slightly silty slightly gravelly sandy CLAY Gravel is subrounded fine to medium of mudstone and quartz	
									3.5
									4.0
								MADE GROUND Soft dark grey organic CLAY with traces of decomposing organic matter organic odour noted	
									4.5
								Brown slightly silty fine to medium SAND	

IMPORTANT: This is a basic log auto-generated from AGS data held by the National Geoscience Data Centre (NGDC) and does not necessarily include all of the information supplied in the original AGS file. If you wish to deposit AGS files to the NGDC please see www.bgs.ac.uk/services/ngdc. Generated 10-09-2025 at 08:36. BGS Reference 2025040215571513112

APPENDIX F

Groundwater Vulnerability and Flood Risk Maps



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Bedrock Aquifer Designation

General

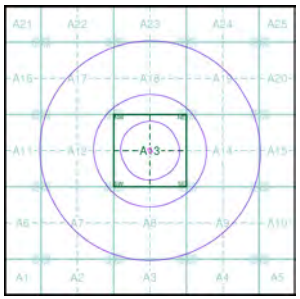
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



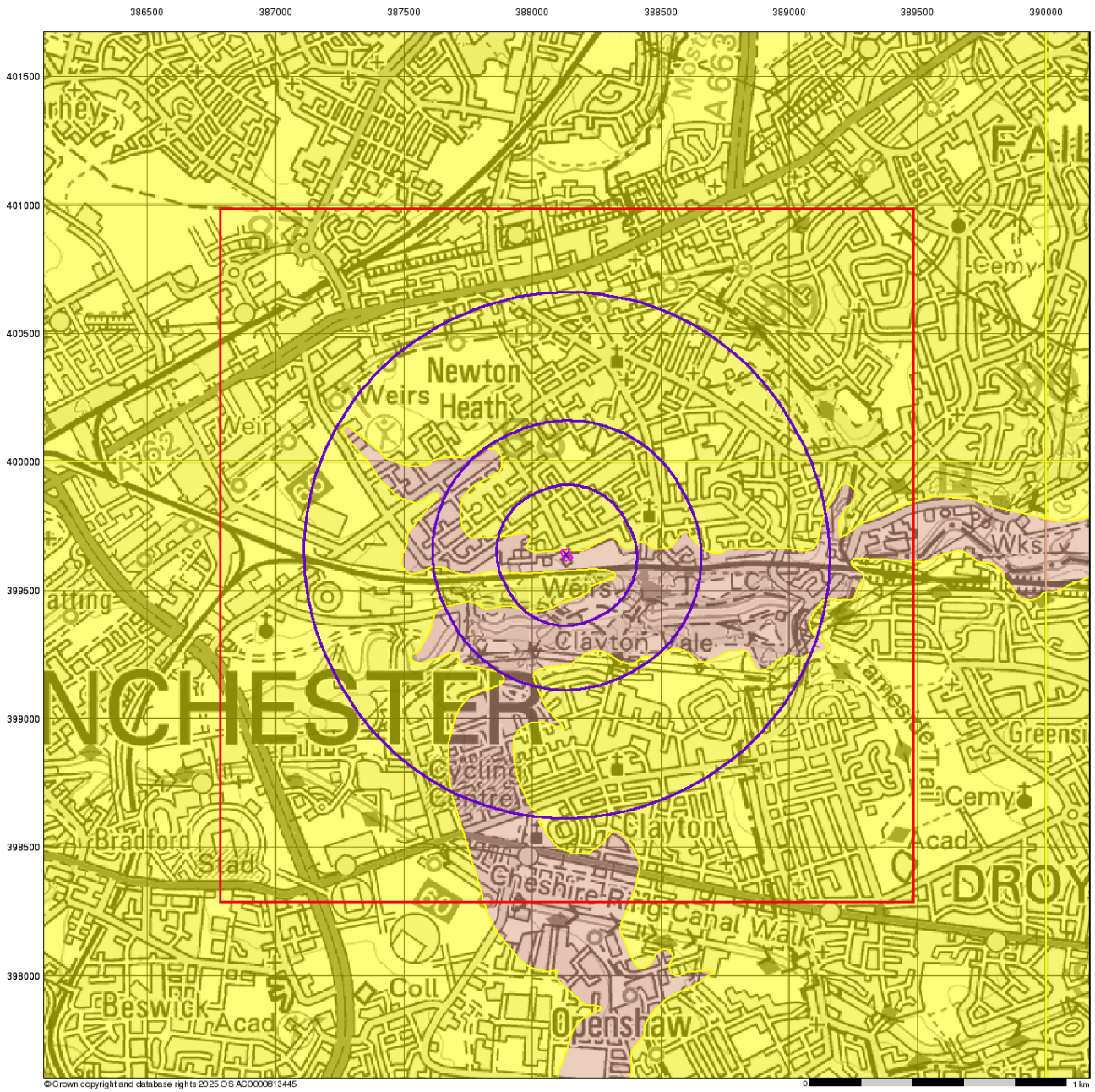
Order Details

Order Number:	381386819_1_1
Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
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Superficial Aquifer Designation

General

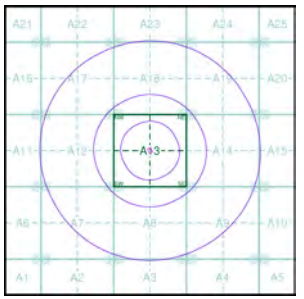
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



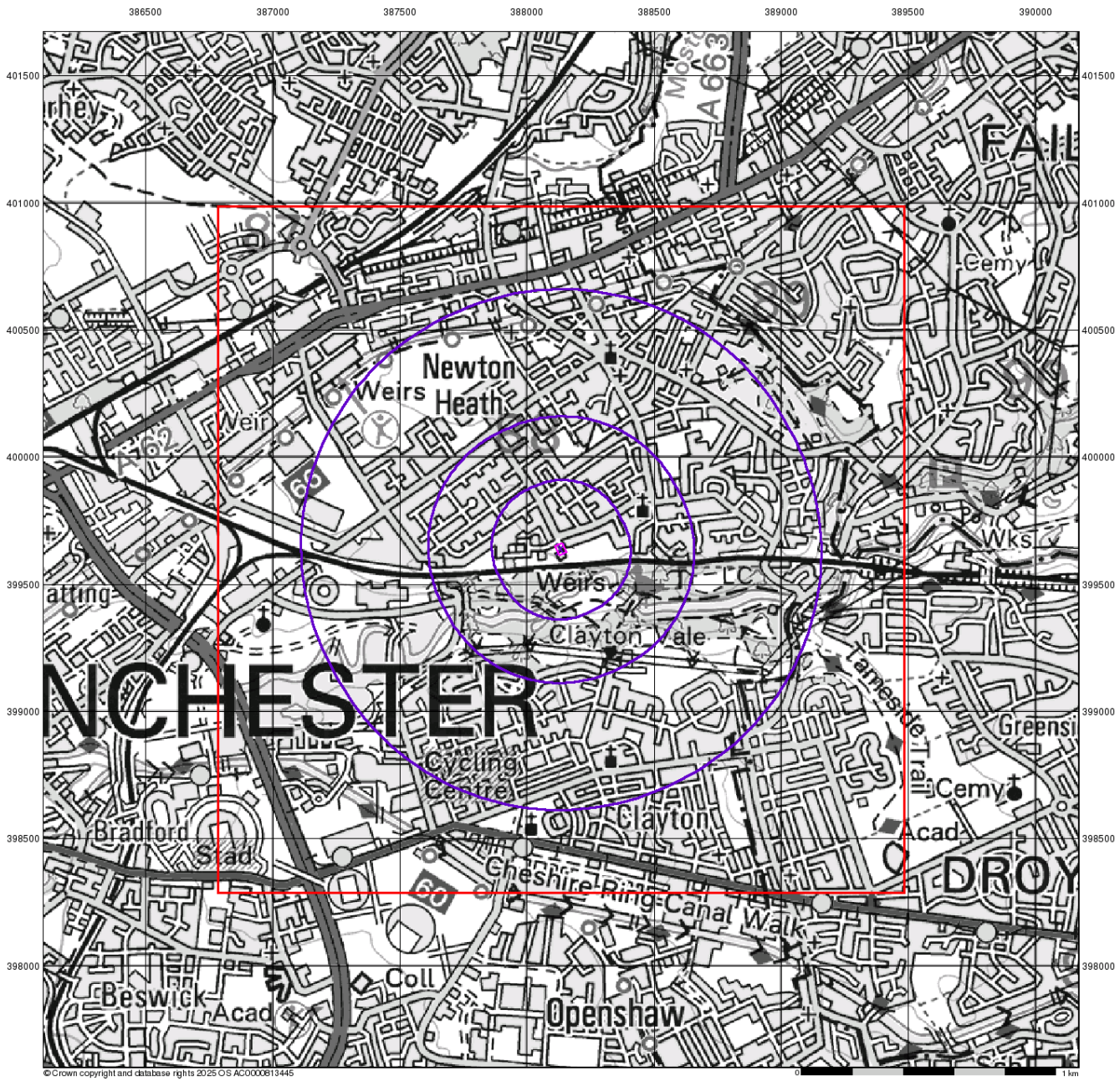
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Source Protection Zones

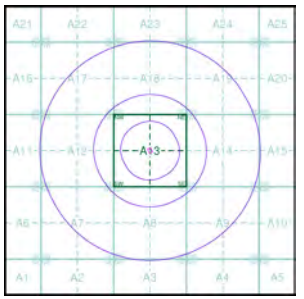
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



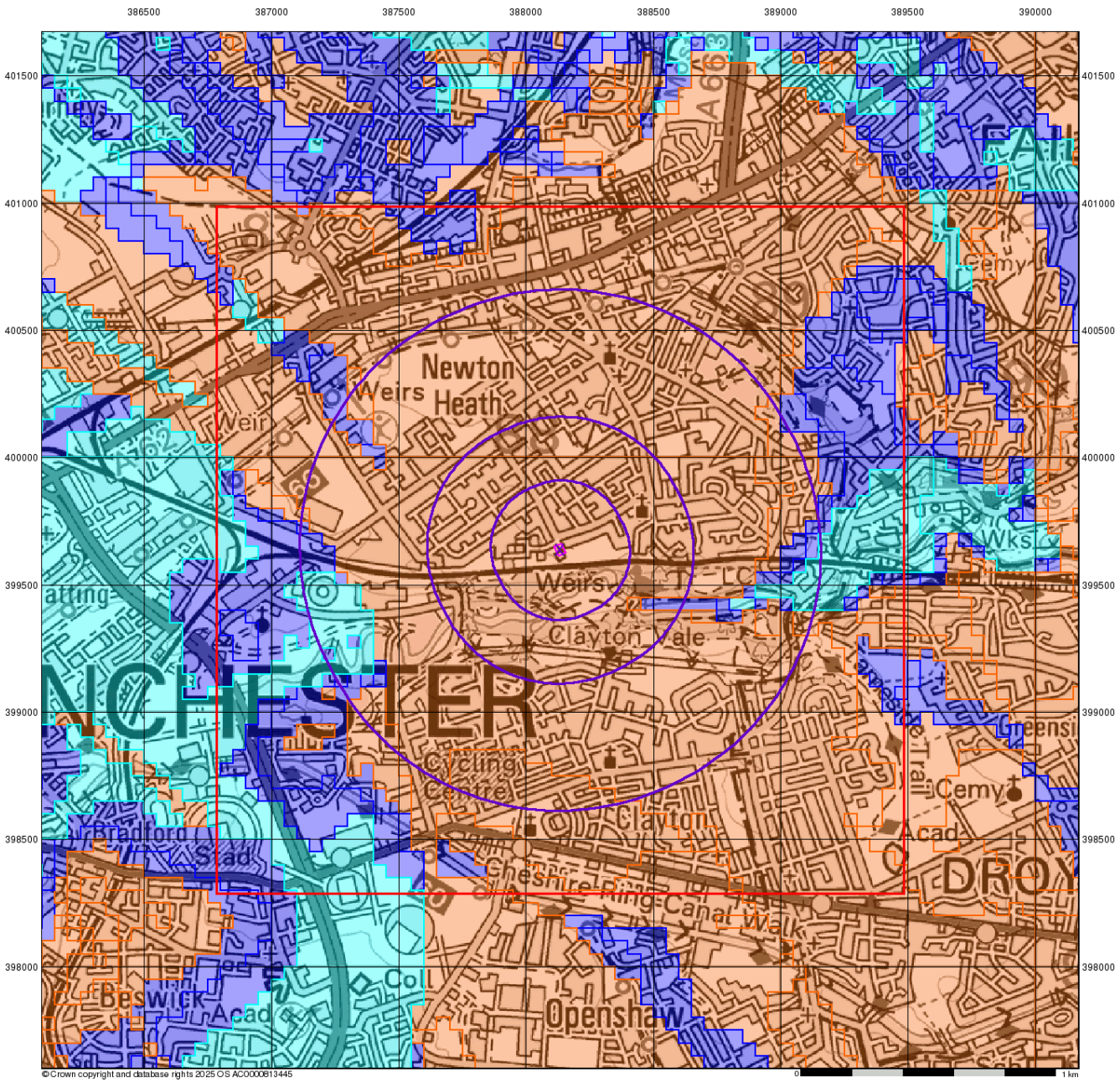
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Order Number:	381386819_1_1
Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

Site Details

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BGS Flood GFS Data

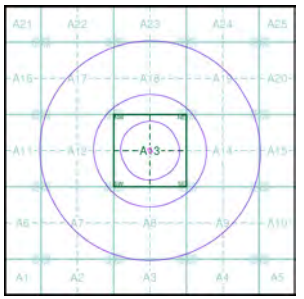
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	381386819_1_1
Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
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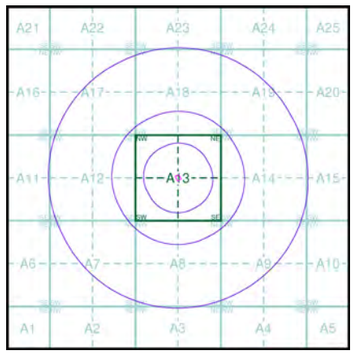
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



Order Details

Order Number:	381386819_1_1
Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	1000

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APPENDIX G

Preliminary UXO Risk Assessment



Preliminary
Unexploded Ordnance (UXO)
Risk Assessment

Project Name	The Stirling Centre, Newton Heath
Client	EPS (Leeds) Ltd
Site Address	The Stirling Centre, Newton Heath, Manchester, M40 2JT
Report Reference	PA22300-00
Date	18/07/2025
Author	MT
Quality Assurance	AT

1st Line Defence
3 Maple Park, Essex Road, Hoddesdon. EN11 0EX
Tel +44 (0) 1992 245 020 Email info@1stlinedefence.co.uk
Web www.1stlinedefence.co.uk Company Reg No. 07717863

1ST LINE DEFENCE

Assessment Objective

This preliminary unexploded ordnance (UXO) risk assessment is a qualitative screening exercise to assess the likely potential of encountering UXO at the The Stirling Centre, Newton Heath site. The assessment involves the consideration of the basic factors that affect the potential for UXO to be present at a site as outlined in Stage One of the UXO risk management process.

Background

This assessment uses the sources of information available in-house to 1st Line Defence Ltd to enable the placement of a development site in context with events that may have led to the presence of German air-delivered or Allied military UXO. The report will identify any immediate necessity for risk mitigation or additional research in the form of a Detailed UXO Risk Assessment. It makes use of 1st Line Defence's extensive historical archives, library and unique geo-databases, as well as internet resources, and is researched and compiled by UXO specialists and graduate researchers.

The assessment directly follows CIRIA C681 guidelines "Unexploded Ordnance, a Guide for the Construction Industry". The document will therefore assess the following factors:

- Basic Site Data
- Previous Military Use
- Indicators of potential aerial delivered UXO threat
- Consideration of any Mitigating Factors
- Extent of Proposed Intrusive Works
- Any requirement for Further Work

It should be noted that the vast majority of construction sites in the UK will have a low or negligible risk of encountering UXO and should be able to be screened out at this preliminary stage. The report is meant as a common sense 'first step' in the UXO risk management process. The content of the report and conclusions drawn are based on basic, preliminary research using the information available to 1st Line Defence at the time this report was produced. It should be noted that the only way to entirely negate risk from UXO to a project would be to support the works proposed with appropriate UXO risk mitigation measures. It is rarely possible to state that there is absolutely 'no' risk from UXO to a project.

Site Boundary



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Risk Assessment Considerations	
Site location and description/current use	The site is located in Newton Heath, within thew county of Greater Manchester. Recent aerial photography shows the site to consist of a single building and its associated grounds. The site is bordered to the north by Croydon Drive, to the east by Scotland Hall Road, to the south by a play area and to the west by open ground. The site is approximately centred on the OS grid reference: **SJ 88136 99644.**
Are there any indicators of current/historical military activity on/close to the site?	No information could be found in-house to indicate that the site location has any former or current association with any military features. No features such as WWII defensive positions, encampments or firing ranges are recorded to have been located at the site. In addition, no information on ordnance being stored, produced, or disposed of within the proposed site boundary could be found. The closest recorded Heavy Anti-Aircraft (HAA) battery was situated approximately 1.8km to the east of the site in the vicinity of Brookdale Park. The conditions in which unexploded anti-aircraft ordnance may have fallen unrecorded within the proposed site are generally analogous to that of German aerial delivered ordnance – see below for further information.
What was the pre- and post-WWII history of the site?	Pre-war OS mapping dated 1932 shows the site to be occupied by open ground and an embankment. The site is bordered to the north, south and west by further open ground and to the east by Scotland Hill Road. Post-war OS mapping dated 1949 shows the site's composition to have remained mostly unchanged, with the embankment within the site now labelled as a Refuse Heap. The site's direct surroundings have also remained unchanged.
Was the area subject to bombing during WWII?	During WWII, the site was situated within the County Borough of Manchester, which sustained an overall low density of bombing, with an average of 27.1 items of ordnance recorded per 1,000 acres according to official Home Office bombing statistics. This amounted to 712 high explosive (HE) bombs, 18 parachute mines, seven oil bombs and one V-1 Flying Bomb; totalling 728 incidents over an area of 27,255 acres. No positive evidence has been found during the preliminary research undertaken for this report to suggest that any bombing incidents occurred within or bordering the site boundary. The closest recorded bombing incident is plotted approximately 230m to the north-west of the site.
Is there any evidence of bomb damage on/close to the site?	WWII-era aerial photography from 1953, available in-house on this occasion, shows the site to be occupied undeveloped land and by a number of small buildings in the central and northern sections of the site, with no obvious evidence of bomb damage, such as ruins, cratering or ground disturbances, visible within the site boundary.
To what degree would the site have been subject to access?	Given that the site was occupied by undeveloped land during the war, levels of access and monitor are likely to have been inconsistent. Lower levels of access increases the likelihood that evidence of UXO would have gone unnoticed and unreported.
To what degree has the site been developed post-WWII?	The site has undergone significant post-war development since 1953, with all buildings on site being removed and a singe property with associated grounds being constructed at some point between 1953 and 2000.

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What is the nature and extent of the intrusive works proposed?	The exact nature of the proposed works was not known at the time of writing this report.

Summary and Conclusions

During WWII, the site was situated within the County Borough of Manchester, which sustained an overall low density of bombing, with an average of 27.1 items of ordnance recorded per 1,000 acres according to official Home Office bombing statistics.

No positive evidence has been found during the preliminary research undertaken for this report to suggest that any bombing incidents occurred within or bordering the site boundary. The closest recorded bombing incident is plotted approximately 230m to the north-west of the site.

WWII-era aerial photography from 1953, available in-house on this occasion, shows the site to be occupied undeveloped land and by a number of small buildings in the central and northern sections of the site, with no obvious evidence of bomb damage, such as ruins, cratering or ground disturbances, visible within the site boundary.

Recommendations

Given the findings of this preliminary report, the risk from UXO on site is not considered to be significantly elevated above the 'background level' for this part of the country. Whilst it would be possible to conduct further research in the form of a Detailed UXO Risk Assessment for this site, it is not thought likely to significantly alter the findings of this report. It is therefore recommended that **no further research** be taken at this site.

If the client has any anecdotal or empirical evidence of UXO risk on site, please contact 1st Line Defence.

It should be noted that although the risk from unexploded ordnance on this site has been assessed as low/minimal, this does not mean there is 'no' risk of encountering UXO. This preliminary report has been undertaken with due diligence, and all reasonable care has been taken to access and analyse relevant historical information. By necessity, when dealing with historical evidence, and when making assessments of UXO risk, various assumptions have to be made which we have discussed and justified within this report. Our reports take a common-sense and practical approach to the assessment of UXO risk, and we strive to be reasonable and pragmatic in our conclusions. As referenced, it would be possible to undertake further research into this site, but based on the evidence to hand, this is not deemed strictly necessary, and no reasonably justifiable requirement for proactive on-site mitigation has been identified.

It should however be stressed that if any suspect items are encountered during the proposed works, 1st Line Defence should be contacted for advice/assistance, and to re-assess the risk as necessary. Furthermore, we would recommend that ground personnel are always made aware of the potential for encountering UXO, what to look out for and what to do in the unlikely event that a suspect item is encountered, and that a UXO Risk Management Plan is put together for the proposed works. We would be happy to provide a template and guidance for this – contact us on 01992 245020. Should the scope of works change or additional works be proposed, 1st Line Defence should be contacted to re-evaluate the risk.

This report has been prepared by 1st Line Defence Limited with all reasonable care and skill. The report contains historical data and information from third party sources. 1st Line Defence Limited has sought to verify the accuracy and comprehensiveness of this information where possible but cannot be held accountable for any inherent errors. Furthermore, whilst every reasonable effort has been made to locate and access all relevant historical information, 1st Line Defence cannot be held responsible for any changes to risk level or mitigation recommendations resulting from documentation or other information which may come to light at a later date.

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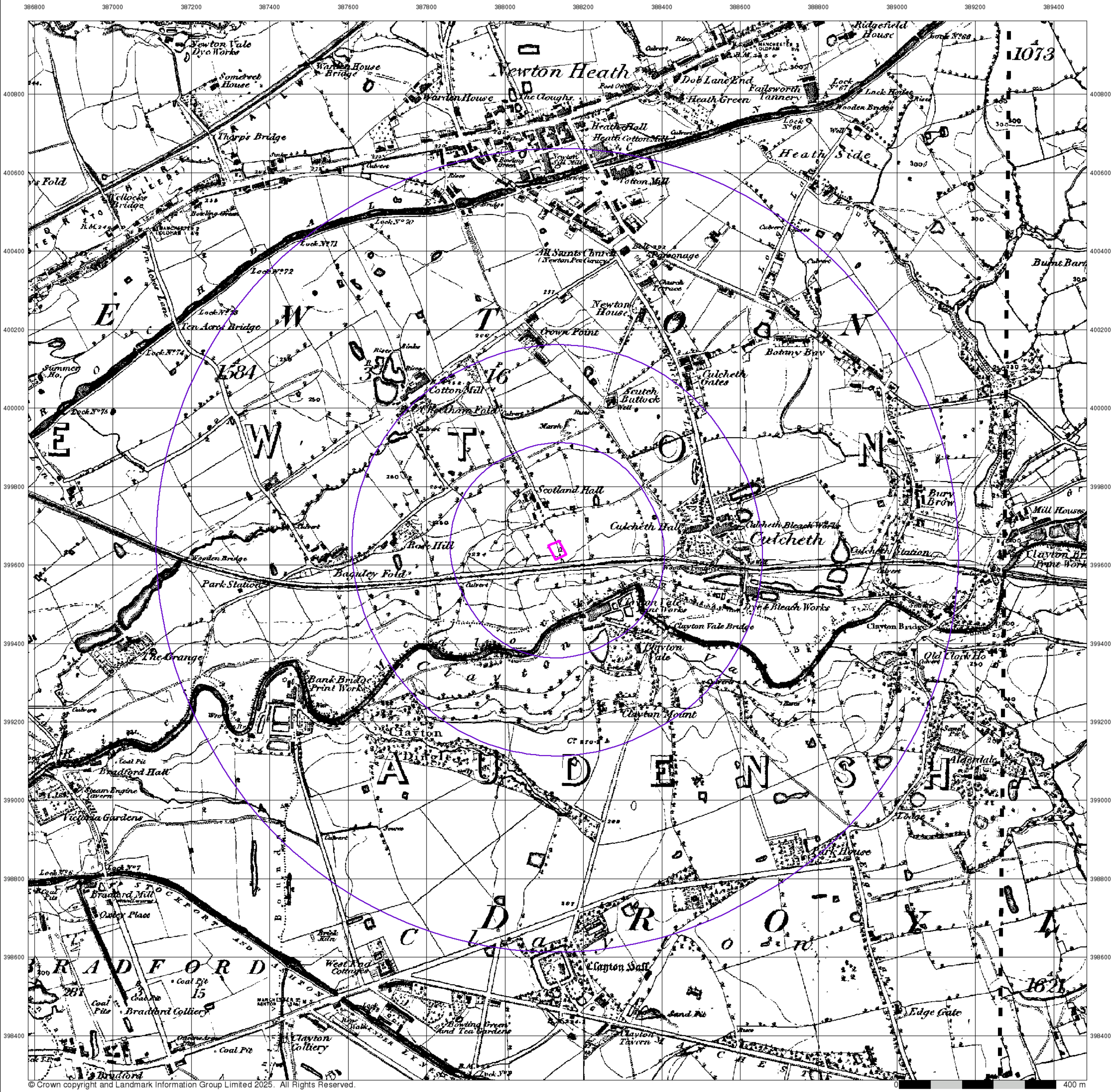
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Front cover image credit: London County Council Bomb Damage Mapping (London Metropolitan Archives)

APPENDIX H

Selection of Historic Maps



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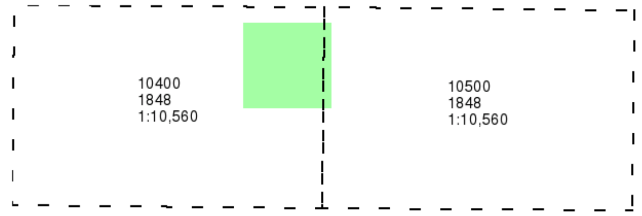
Lancashire And Furness

Published 1848

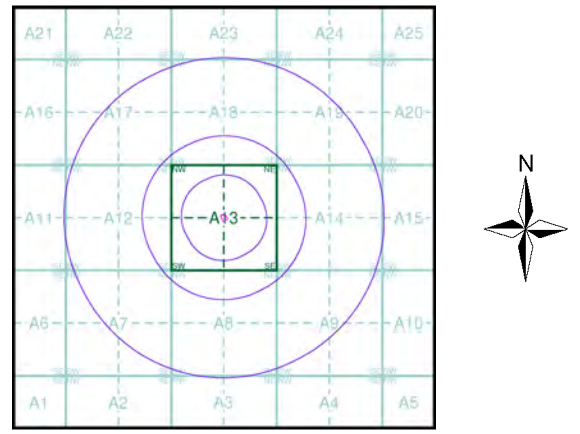
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

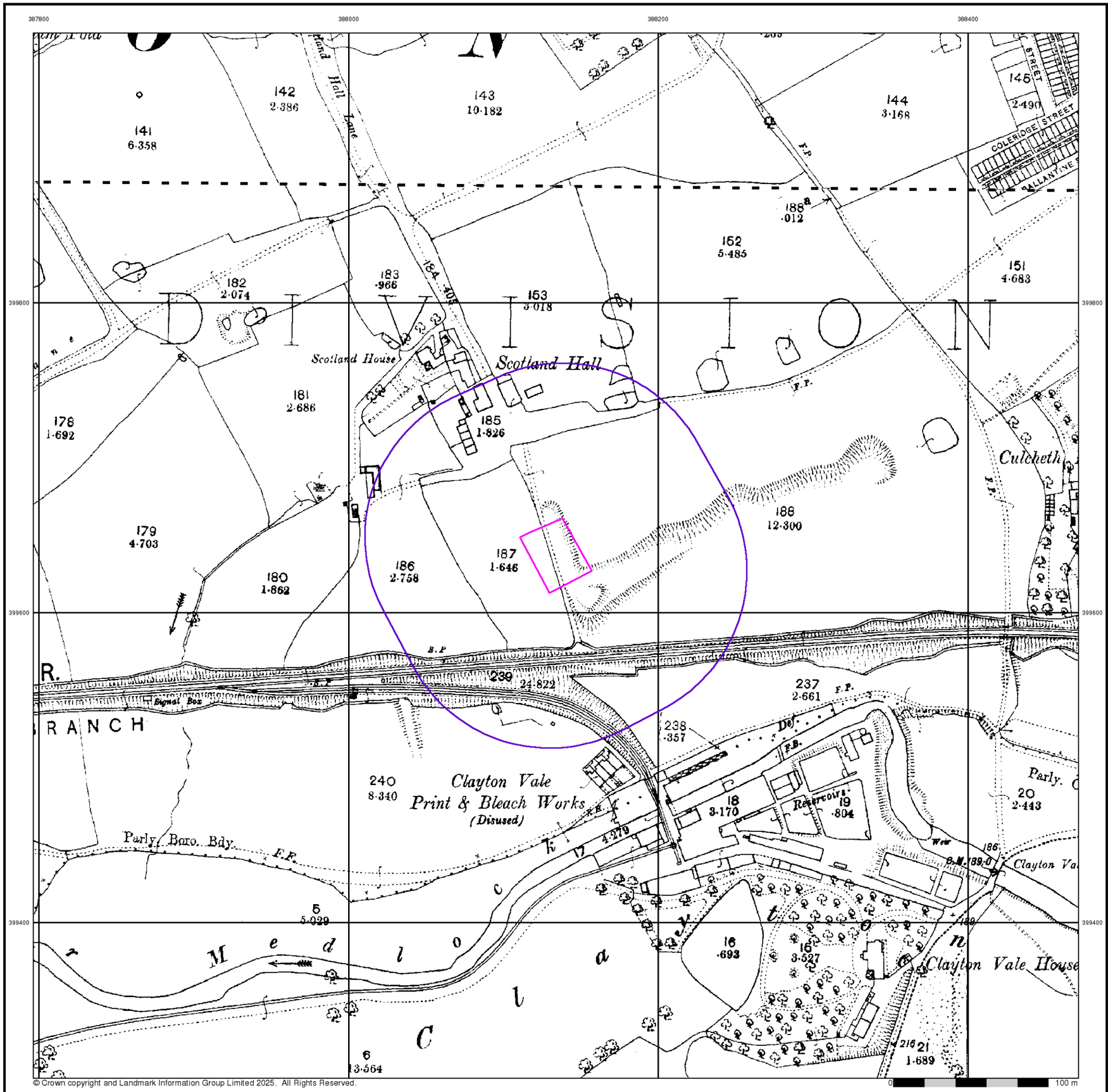
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National Grid Reference: 388130, 399640
Slice: A
Site Area (Ha): 0.13
Search Buffer (m): 1000

Site Details

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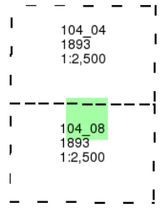
Lancashire And Furness

Published 1893

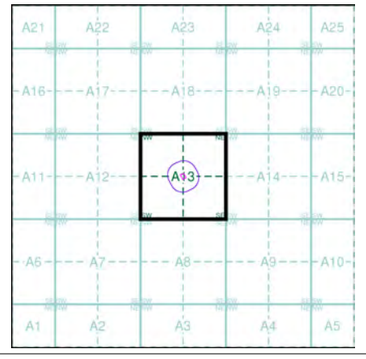
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



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National Grid Reference:	388130, 399640
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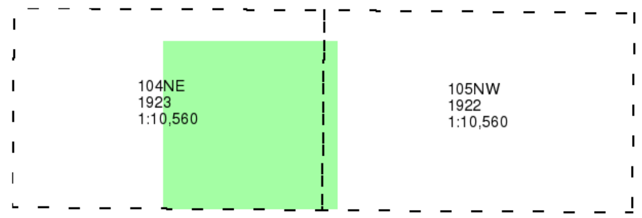
Lancashire And Furness

Published 1922 - 1923

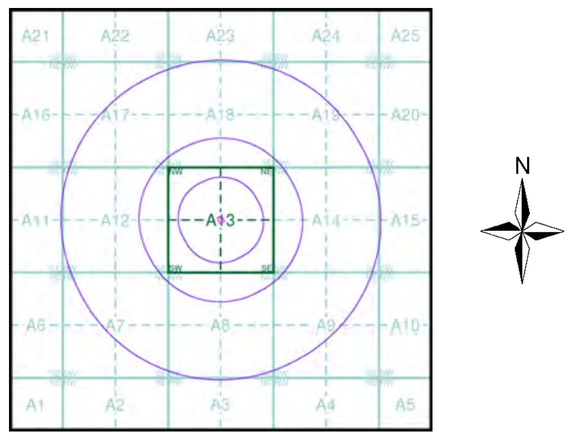
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Map Name(s) and Date(s)



Historical Map - Slice A



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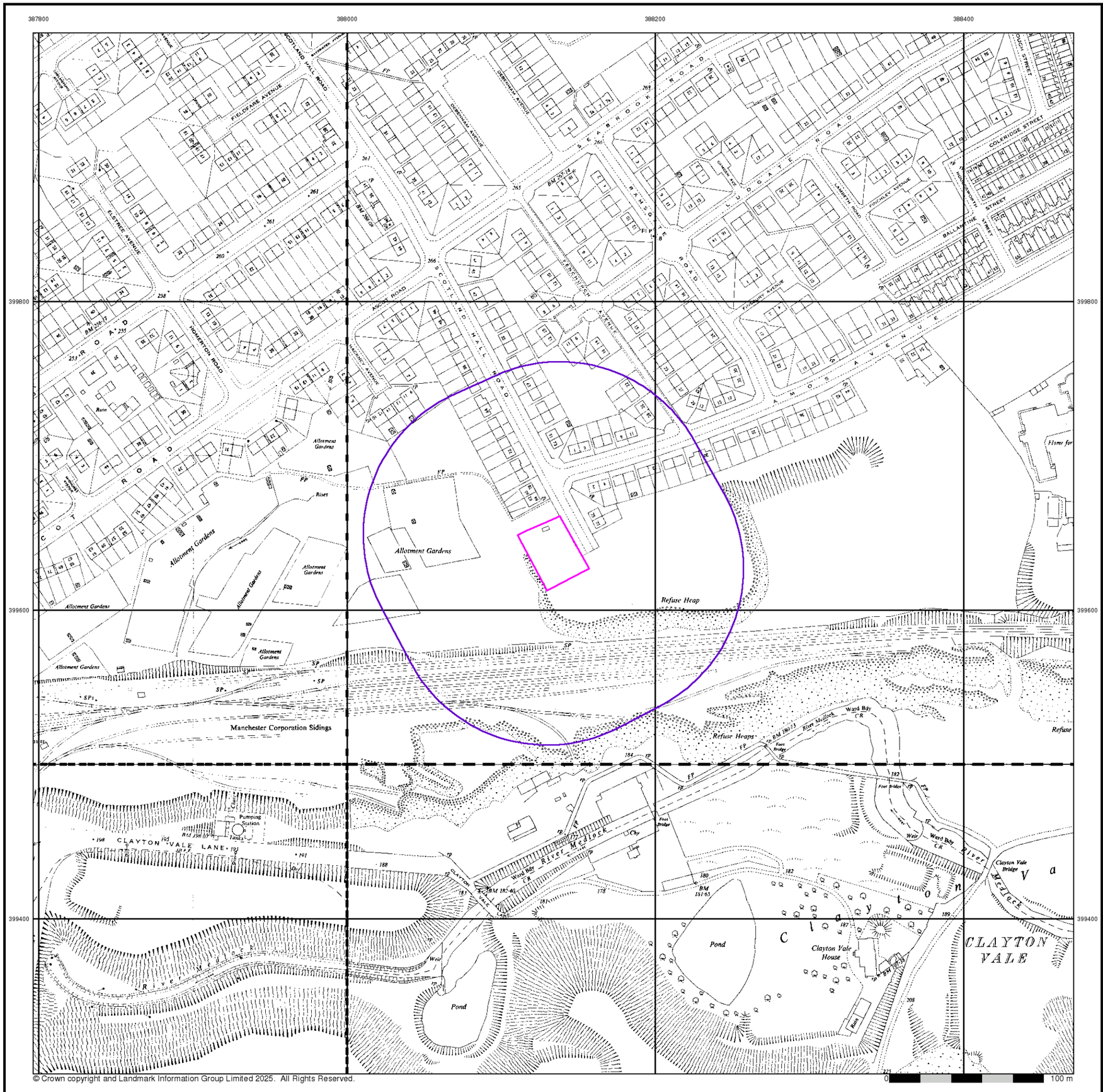
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Ordnance Survey Plan

Published 1949 - 1951

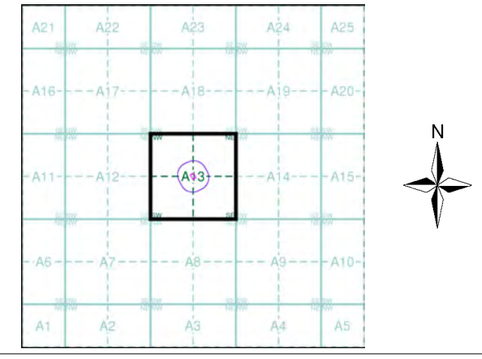
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Map Name(s) and Date(s)

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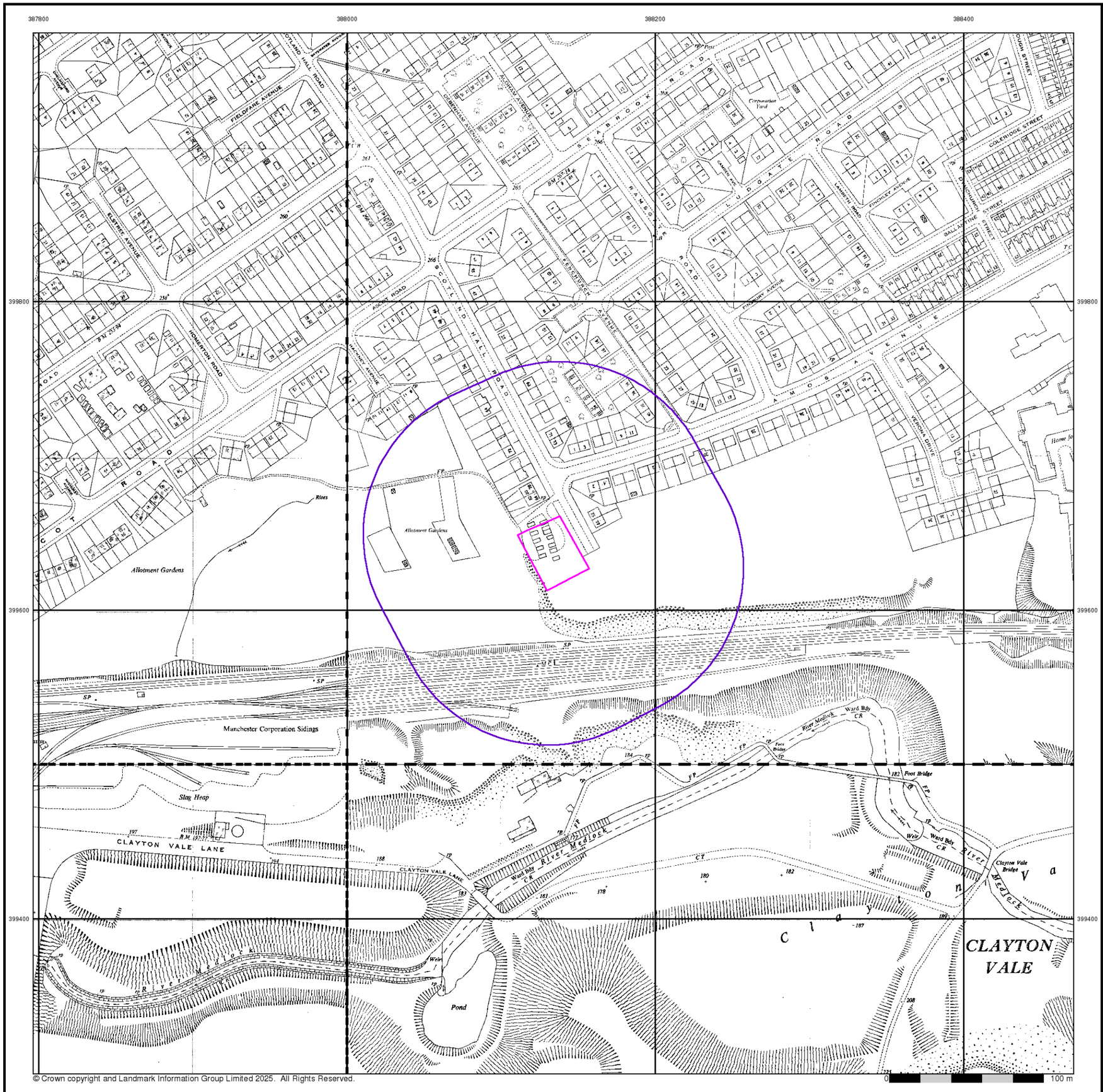
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Search Buffer (m):	100

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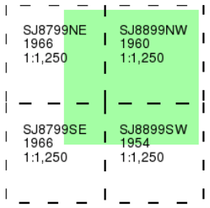
Ordnance Survey Plan

Published 1954 - 1966

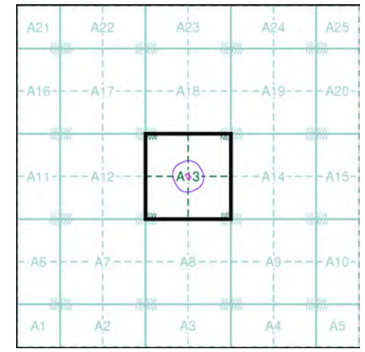
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Map Name(s) and Date(s)



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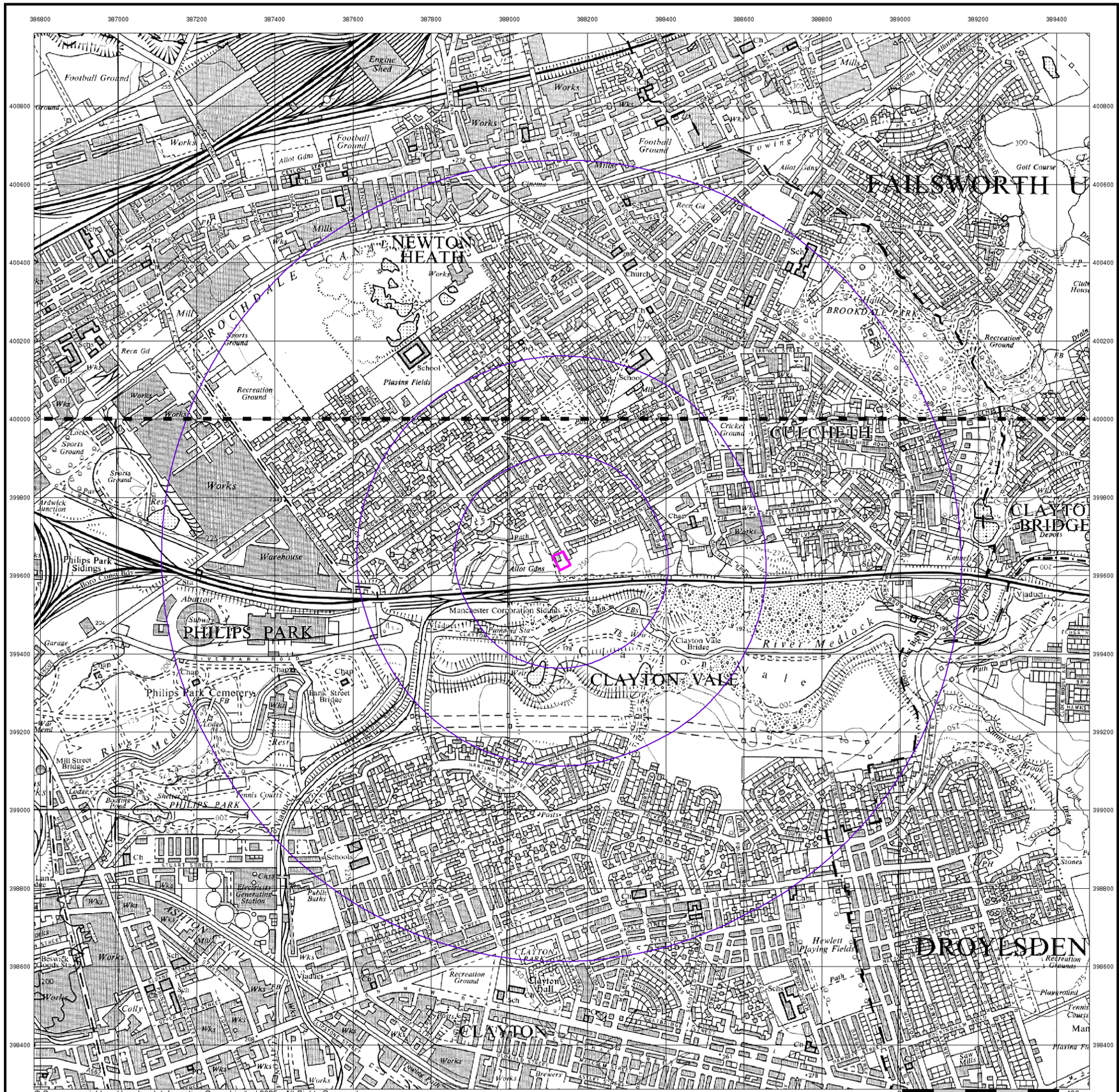
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Ordnance Survey Plan

Published 1966 - 1968

Source map scale - 1:10,000

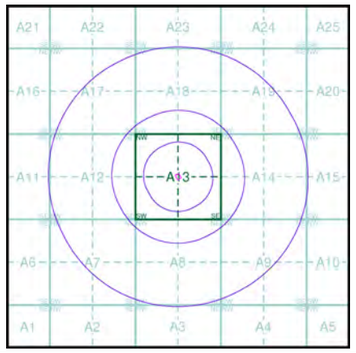
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Map Name(s) and Date(s)

SD80SE
1966
1:10,560

SJ89NE
1968
1:10,560

Historical Map - Slice A



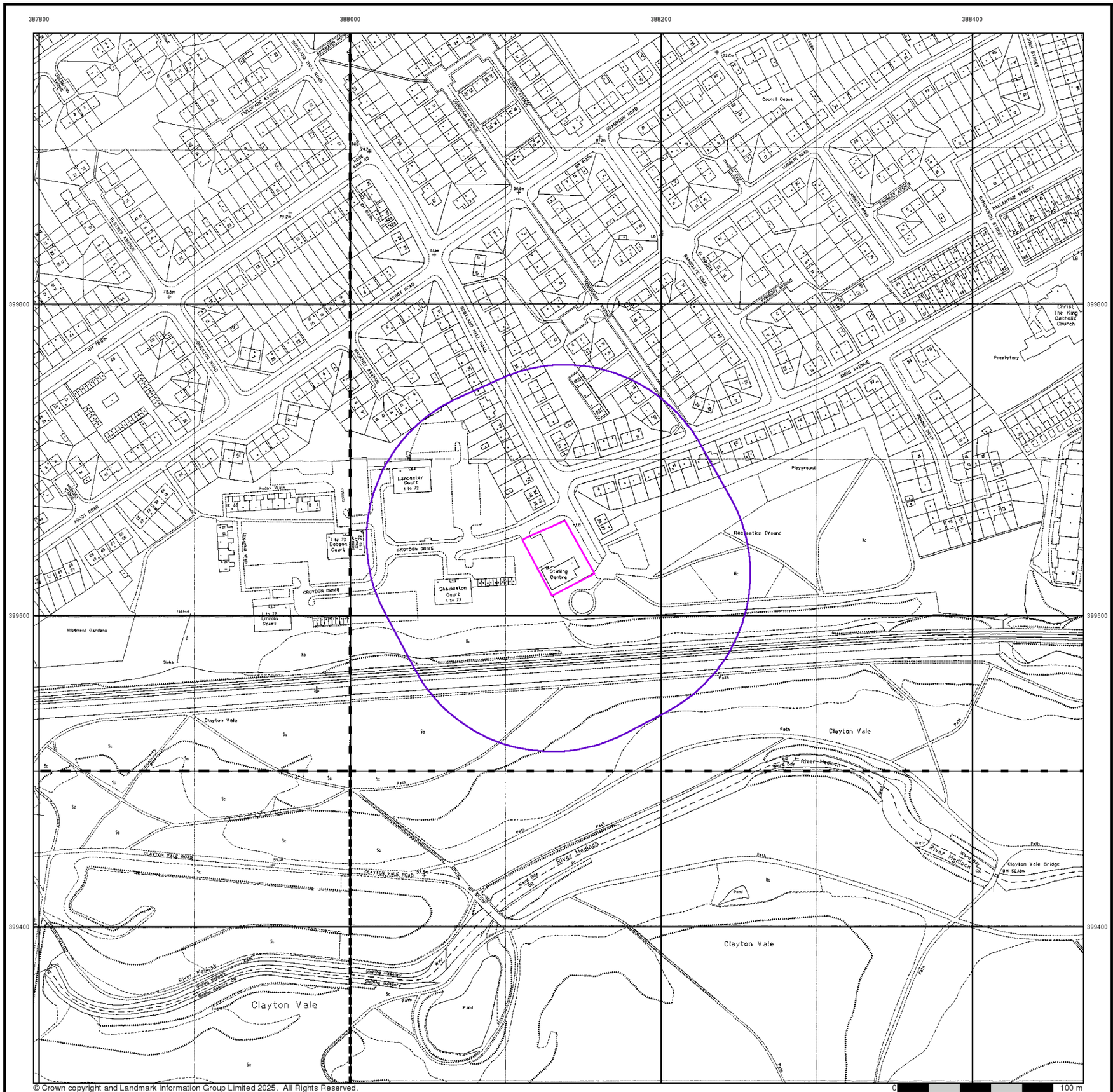
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Large-Scale National Grid Data

Published 1992

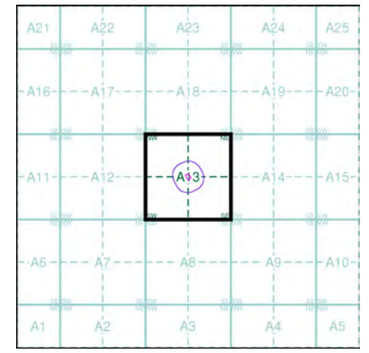
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SJ8799NE 1992 1:1,250	SJ8899NW 1992 1:1,250
SJ8799SE 1992 1:1,250	SJ8899SW 1992 1:1,250

Historical Map - Segment A13



Order Details

Order Number:	381386819_1_1
Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	100

Site Details

The Stirling Centre, Newton Heath, Manchester, M40 2JT

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

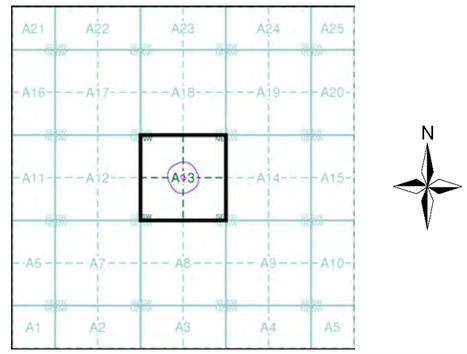
LANDMARK INFORMATION GROUP®

Historical Aerial Photography

Published 2000

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



Order Details

Order Number:	381386819_1_1
Customer Ref:	UK25.7470
National Grid Reference:	388130, 399640
Slice:	A
Site Area (Ha):	0.13
Search Buffer (m):	100

Site Details

The Stirling Centre, Newton Heath, Manchester, M40 2JT

APPENDIX I

Site Specific Borehole Logs

Dynamic (Windowless) Sampler

WS01

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WLS	388131.00	399640.00	80.96	1:25

Project Name	Project No.	Start Date	End Date
The Stirling Center, Manchester, M40 2RE	UK25.7470	04.08.25	04.08.25

Client
Premier Modular

Consultant
AW

Contractor
EPS

Inst/ Backfill	Water Levels	Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Legend	Description
					80.93	(0.03)		
						0.03		MADE GROUND: Bitumen hardstanding.
						(0.12)		
					80.81	0.15		MADE GROUND: Reinforced concrete with geotextile at base.
						(0.15)		
					80.66	0.30		MADE GROUND: Cream, grey, slightly clayey, sandy GRAVEL. Gravel is fine to coarse, subangular to angular. Subbase.
		0.40	PID	31.60 (ppmv)				MADE GROUND: Black, ashy, sandy GRAVEL, with fragments of brick, concrete and tile.
		0.60-0.80	ES ES1					*Brick fragments. (0.50 - 0.60m)*
								Brick fragments. (0.80 - 1.00m)
		1.00	SPT	N=7 (1,1/1,1,2,3)				
		1.50-2.00	D D1					
						(3.20)		
		2.00	SPT	N=4 (2,1/1,1,1,1)				
								Increase in clay content. (2.30m)
		2.50	PID	132.50 (ppmv)				
		3.00	SPT	N=15 (4,3/4,3,4,4)				*Hydrocarbon odour. (3.00 - 3.50m)*
		3.30-3.50	ES ES2					
					77.46	3.50		Brown mottled orange and grey, silty CLAY. Rare gravel. Gravel is fine, subangular.
		3.80-4.00	D D2					
		4.00	SPT	N=19 (2,3/3,4,6,6)				
						(1.50)		
								Increase in sand content. Sand is fine to coarse. (4.50m)
		4.80-5.00	ES ES3					
		5.00	SPT	N=34 (5,6/6,9,9,10)	75.96	5.00		*End of Borehole at 5.00m*

Remarks

Method, Plant, Stability, Dimensions
0.00 - 5.00m

Logger
AW

Checked By: JB **Approved By:** SB

Created using Pebble Geo

Dynamic (Windowless) Sampler

WS02
Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WLS	388149.00	399643.00	81.34	1:25

Project Name	Project No.	Start Date	End Date
The Stirling Center, Manchester, M40 2RE	UK25.7470	04.08.25	04.08.25

Client
Premier Modular

Consultant
AW

Contractor
EPS

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
		0.30-0.70	ES ES1					MADE GROUND: Initial layer of grass and rootlets (0.05m) covering black, ashy, sandy GRAVEL, with fragments of brick, concrete and tile.
		0.30-0.70	D D1			(1.50)		
		1.00	SPT	N=9 (2,1/2,2,3,2)				
		1.40	PID	1.70 (ppmv)				
					79.84	1.50		Brown mottled orange and grey, silty CLAY. Rare gravel. Gravel is fine, subangular.
		1.70-1.90	ES ES2					
		2.00	SPT	N=12 (2,3/3,3,3,3)				
		2.10-2.70	B B1					
		2.70-2.80	D D1					
		3.00	SPT	N=26 (3,4/4,6,8,8)				
						(3.50)		
		3.80	PID	2.30 (ppmv)				
		4.00	SPT	N=30 (6,7/7,8,7,8)				
		5.00	SPT	N=28 (6,6/7,6,7,8)	76.34	5.00		*End of Borehole at 5.00m*

Remarks

Method, Plant, Stability, Dimensions
0.00 - 5.00m

Logger
AW

Checked By: JB **Approved By:** SB

Dynamic (Windowless) Sampler

WS03

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WLS	388137.00	399655.00	81.27	1:25

Project Name	Project No.	Start Date	End Date
The Stirling Center, Manchester, M40 2RE	UK25.7470	04.08.25	04.08.25

Client
Premier Modular

Consultant
AW

Contractor
EPS

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
		0.30-0.50	ES ES1					MADE GROUND: Initial layer of grass and rootlets (0.05m) covering black, ashy, sandy GRAVEL, with fragments of brick, concrete and tile.
		1.00	SPT	N=6 (1,2/1,1,2,2)		(2.50)		
		2.00 2.00-2.50	SPT D D1	N=16 (2,3/4,4,4,4)				
					78.77	2.50		Brown mottled orange and grey, silty CLAY. Rare gravel. Gravel is fine, subangular.
		3.00	SPT	N=18 (3,4/6,4,4,4)		(1.50)		
		3.80-4.00	ES ES2					
					77.27	4.00		*End of Borehole at 4.00m*

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks

Method, Plant, Stability, Dimensions
0.00 - 5.00m

Logger
AW

Checked By: JB **Approved By:** SB

Created using Pebble Geo

Dynamic (Windowless) Sampler

WS04

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WLS	388134.00	399643.00	81.17	1:25

Project Name	Project No.	Start Date	End Date
The Stirling Center, Manchester, M40 2RE	UK25.7470	04.08.25	04.08.25

Client
Premier Modular

Consultant
AW

Contractor
EPS

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
		0.30-0.80	ES ES1					MADE GROUND: Initial layer of grass and rootlets (0.05m) covering black, ashy, sandy GRAVEL, with fragments of brick, concrete and tile.
		0.80	PID	5.50 (ppmv)				
		1.00	SPT	N=23 (3,4/6,5,6,6)				
						(3.50)		
		2.00	SPT	N=1 (1,0/0,1,0,0)				
		3.00	SPT	N=4 (1,1/1,1,1,1)				
		3.50-4.00	ES ES2		77.67	3.50		
		3.50-4.00	D D1					Brown mottled orange and grey, silty CLAY. Rare gravel. Gravel is fine, subangular.
		3.80	PID	5.70 (ppmv)				
		4.00	SPT	N=16 (3,4/3,4,5,4)				
						(1.50)		
		4.80-5.00	D D2					
		4.90	PID	2.40 (ppmv)				
		5.00	SPT	N=19 (4,5/5,4,5,5)	76.17	5.00		*End of Borehole at 5.00m*

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks

Method, Plant, Stability, Dimensions
0.00 - 5.00m

Logger
AW

Checked By: JB **Approved By:** SB

Created using Pebble Geo

Trial Pit

TP01

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP	388133.00	399646.00	81.07	1:25

Project Name	Project No.	Start Date	End Date
The Stirling Center, Manchester, M40 2RE	UK25.7470	04.08.25	04.08.25

Client
Premier Modular

Consultant
AW

Contractor
EPS

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
		0.35-0.60	D ES1			(1.85)		MADE GROUND: Initial layer of grass and rootlets (0.05m) covering dark grey, ashy, sandy GRAVEL, with fragments of brick, concrete and tile.
					79.22	1.85		*End of Trial Pit at 1.85m*

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0

Remarks

Method, Plant, Stability, Dimensions
0.00 - 1.85m
Stable
L = 1.80m
W = 0.50m

Logger
JB

Checked By: JB **Approved By:** SB

Trial Pit

TP02

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP	388134.00	399653.00	81.11	1:25

Project Name	Project No.	Start Date	End Date
The Stirling Center, Manchester, M40 2RE	UK25.7470	04.08.25	04.08.25

Client
Premier Modular

Consultant
AW

Contractor
EPS

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.25)		MADE GROUND: Initial layer of grass and rootlets (0.05m) covering black, ashy, sandy GRAVEL, with fragments of brick, concrete and tile.
					80.86	0.25		
						(0.15)		MADE GROUND: Grey subangular GRAVEL subbase.
					80.71	0.40		
		0.60-1.20	B B1					MADE GROUND: Dark Grey, ashy, slightly clayey sandy GRAVEL with fragments of brick, concrete,glass, tile and bitumonous material *Pockets of Dark Grey slightly sandy slightly gravelly silty CLAY mixed in with the predominantly GRAVEL MG (0.60 - 1.60m)*
						(1.20)		*Bitumen odour (1.20 - 1.60m)*
					79.51	1.60		*End of Trial Pit at 1.60m*

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks

Method, Plant, Stability, Dimensions
0.00 - 1.60m
Stable
L = 1.80m
W = 0.50m

Logger
JB

Checked By: JB **Approved By:** SB

APPENDIX J

Laboratory Results - Environmental

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

EPS Ltd
7B Caxton House
Broad Street
Cambourne
Cambridgeshire
United Kingdom
CB23 6JN

Attention :	Ashleigh Watson
Date :	8th September, 2025
Your reference :	UK25.7470
Our reference :	Test Report 25/12824 Batch 1
Location :	The Stirling Centre, Manchester
Date samples received :	6th August, 2025
Status :	Final Report
Issue :	202509080908

Ten samples were received for analysis on 6th August, 2025 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 27.005 kg of CO2

Scope 1&2&3 emissions - 63.82 kg of CO2

Authorised By:

Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: EPS Ltd
Reference: UK25.7470
Location: The Stirling Centre, Manchester
Contact: Ashleigh Watson
EMT Job No: 25/12824

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	33-36	37-40			LOD/LOR	Units	Method No.
Sample ID	TP01 ES1	WS01	WS01 ES2	WS01 ES3	WS02 ES1	WS02 ES2	WS04 ES1	WS04 ES2					
Depth	0.35-0.60	0.60-0.80	3.30-3.50	4.80-5.00	0.30-0.70	1.70-1.90	0.30-0.80	3.50-4.00					
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T					
Sample Date	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025					
Sample Type	Clayey Loam	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Clay	Sandy Clay	Clay					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025					
Arsenic #M	25.6	29.6	-	-	9.0	10.4	-	-			<0.5	mg/kg	TM30/PM15
Cadmium #M	<0.3	<0.3	-	-	<0.3	<0.3	-	-			<0.3	mg/kg	TM30/PM15
Chromium #M	34.8	52.5	-	-	74.5	51.9	-	-			<0.5	mg/kg	TM30/PM15
Copper #M	105	45	-	-	60	22	-	-			<1	mg/kg	TM30/PM15
Lead #M	484	113	-	-	60	24	-	-			<5	mg/kg	TM30/PM15
Mercury #M	0.3	0.1	-	-	<0.1	0.2	-	-			<0.1	mg/kg	TM30/PM15
Nickel #M	27.2	19.1	-	-	27.2	27.1	-	-			<0.7	mg/kg	TM30/PM15
Selenium #M	<1	<1	-	-	<1	<1	-	-			<1	mg/kg	TM30/PM15
Sulphur as S	-	0.07	0.60	<0.01	-	-	-	0.07			<0.01	%	TM30/PM15
Total Sulphate as SO4 #M	1282	1287	15136$_{AA}$	92	-	213	-	281			<50	mg/kg	TM50/PM29
Zinc #M	393	121	-	-	57	50	-	-			<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #M	5.57$_{AB}$	1.26	-	-	4.20$_{AB}$	<0.04	-	-			<0.04	mg/kg	TM4/PM8
Acenaphthylene	1.96$_{AB}$	0.11	-	-	5.31$_{AB}$	<0.03	-	-			<0.03	mg/kg	TM4/PM8
Acenaphthene #M	16.50$_{AB}$	2.45	-	-	6.44$_{AB}$	<0.05	-	-			<0.05	mg/kg	TM4/PM8
Fluorene #M	11.46$_{AB}$	1.39	-	-	4.28$_{AB}$	<0.04	-	-			<0.04	mg/kg	TM4/PM8
Phenanthrene #M	120.70$_{AB}$	12.31	-	-	54.56$_{AB}$	<0.03	-	-			<0.03	mg/kg	TM4/PM8
Anthracene #	37.50$_{AB}$	2.85	-	-	25.69$_{AB}$	<0.04	-	-			<0.04	mg/kg	TM4/PM8
Fluoranthene #M	181.40$_{AB}$	15.89	-	-	130.59$_{AB}$	0.06	-	-			<0.03	mg/kg	TM4/PM8
Pyrene #	141.32$_{AB}$	12.45	-	-	108.49$_{AB}$	0.05	-	-			<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	78.75$_{AB}$	6.49	-	-	67.20$_{AB}$	<0.06	-	-			<0.06	mg/kg	TM4/PM8
Chrysene #M	76.12$_{AB}$	6.56	-	-	63.62$_{AB}$	<0.02	-	-			<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #M	128.97$_{AB}$	10.47	-	-	108.73$_{AB}$	<0.07	-	-			<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	86.33$_{AB}$	6.85	-	-	73.80$_{AB}$	<0.04	-	-			<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #M	58.01$_{AB}$	4.75	-	-	46.38$_{AB}$	<0.04	-	-			<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	12.56$_{AB}$	0.93	-	-	10.68$_{AB}$	<0.04	-	-			<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	39.54$_{AB}$	3.09	-	-	29.08$_{AB}$	<0.04	-	-			<0.04	mg/kg	TM4/PM8
Coronene	-	0.85	-	-	7.56$_{AB}$	<0.04	-	-			<0.04	mg/kg	TM4/PM8
PAH 16 Total	996.7$_{AB}$	87.9	-	-	739.1$_{AB}$	<0.6	-	-			<0.6	mg/kg	TM4/PM8
PAH 17 Total	-	88.70	-	-	746.61$_{AB}$	<0.64	-	-			<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	92.86$_{AB}$	7.54	-	-	78.29$_{AB}$	<0.05	-	-			<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	36.11$_{AB}$	2.93	-	-	30.44$_{AB}$	<0.02	-	-			<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	110$_{AB}$	97	-	-	103$_{AB}$	97	-	-			<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	-	62	-	-	169	<30	-	-			<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: EPS Ltd
Reference: UK25.7470
Location: The Stirling Centre, Manchester
Contact: Ashleigh Watson
EMT Job No: 25/12824

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	33-36	37-40			LOD/LOR	Units	Method No.
Sample ID	TP01 ES1	WS01	WS01 ES2	WS01 ES3	WS02 ES1	WS02 ES2	WS04 ES1	WS04 ES2					
Depth	0.35-0.60	0.60-0.80	3.30-3.50	4.80-5.00	0.30-0.70	1.70-1.90	0.30-0.80	3.50-4.00					
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T					
Sample Date	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025					
Sample Type	Clayey Loam	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Clay	Sandy Clay	Clay					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025					
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #M	-	<0.1	<0.1	-	<0.1	<0.1	<0.1 SV	-			<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #M	-	<0.1	0.2	-	<0.1	<0.1	<0.1 SV	-			<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	-	<0.1	2.8	-	<0.1	<0.1	<0.1 SV	-			<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #M	-	<0.2	63.1	-	<0.2	<0.2	<0.2	-			<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #M	-	10	219	-	28	<4	14	-			<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #M	-	13	219	-	46	<7	37	-			<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #M	-	39	499	-	95	<7	163	-			<7	mg/kg	TM5/PM8/PM16
>C35-C40 (EH_CU_1D_AL)	-	<7	45	-	<7	<7	28	-			<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40 (EH_CU+HS_1D_AL)	-	62	1048	-	169	<26	242	-			<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	-	<0.1	<0.1	-	<0.1	<0.1	<0.1 SV	-			<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	-	<0.1	0.1	-	<0.1	<0.1	<0.1 SV	-			<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #M	-	<0.1	0.9	-	<0.1	<0.1	<0.1 SV	-			<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	-	<0.2	345.5	-	9.3	<0.2	<0.2	-			<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	-	41	1313	-	74	<4	57	-			<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	-	143	3729	-	559	<7	470	-			<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	-	307	6602	-	1590	<7	1307	-			<7	mg/kg	TM5/PM8/PM16
>EC35-EC40 (EH_CU_1D_AR)	-	169	938	-	317	<7	363	-			<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40 (EH_CU+HS_1D_AR)	-	660	12929	-	2549	<26	2197	-			<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40) (EH_CU+HS_1D_Total)	-	722	13977	-	2718	<52	2439	-			<52	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE #	-	<5	<5	-	<5	<5	<5 SV	-			<5	ug/kg	TM36/PM12
Benzene #	-	<5	18	-	<5	<5	<5 SV	-			<5	ug/kg	TM36/PM12
Toluene #	-	7	126	-	<5	16	6 SV	-			<5	ug/kg	TM36/PM12
Ethylbenzene #	-	<5	148	-	<5	<5	<5 SV	-			<5	ug/kg	TM36/PM12
m/p-Xylene #	-	<5	493	-	<5	<5	<5 SV	-			<5	ug/kg	TM36/PM12
o-Xylene #	-	<5	280	-	<5	<5	<5 SV	-			<5	ug/kg	TM36/PM12
PCB 28 #	-	<5	-	-	<50 AB	<5	-	-			<5	ug/kg	TM17/PM8
PCB 52 #	-	<5	-	-	<50 AB	<5	-	-			<5	ug/kg	TM17/PM8
PCB 101 #	-	<5	-	-	<50 AB	<5	-	-			<5	ug/kg	TM17/PM8
PCB 118 #	-	<5	-	-	<50 AB	<5	-	-			<5	ug/kg	TM17/PM8
PCB 138 #	-	<5	-	-	<50 AB	<5	-	-			<5	ug/kg	TM17/PM8
PCB 153 #	-	<5	-	-	<50 AB	<5	-	-			<5	ug/kg	TM17/PM8
PCB 180 #	-	<5	-	-	<50 AB	<5	-	-			<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	<35	-	-	<350 AB	<35	-	-			<35	ug/kg	TM17/PM8
Total Phenols HPLC	<0.15	-	-	-	-	<0.15	-	-			<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	13.5	20.8	18.6	-	12.0	21.2	23.8	-			<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	-	-	<0.3	<0.3	-	-			<0.3	mg/kg	TM38/PM20

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: EPS Ltd
Reference: UK25.7470
Location: The Stirling Centre, Manchester
Contact: Ashleigh Watson
EMT Job No: 25/12824

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5-8	9-12	13-16	17-20	21-24	33-36	37-40			LOD/LOR	Units	Method No.
Sample ID	TP01 ES1	WS01	WS01 ES2	WS01 ES3	WS02 ES1	WS02 ES2	WS04 ES1	WS04 ES2					
Depth	0.35-0.60	0.60-0.80	3.30-3.50	4.80-5.00	0.30-0.70	1.70-1.90	0.30-0.80	3.50-4.00					
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T					
Sample Date	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025	04/08/2025					
Sample Type	Clayey Loam	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Clay	Sandy Clay	Clay					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025	06/08/2025					
Sulphate as SO4 (2:1 Ext) #M	0.1725	0.0464	1.4679	0.0218	-	0.0635	-	<0.0015			<0.0015	g/l	TM38/PM20
Chromium III	34.8	52.5	-	-	74.5	51.9	-	-			<0.5	mg/kg	NONE/NONE
Total Cyanide #M	0.9	-	-	-	-	<0.5	-	-			<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	6.72	-	-	7.12	0.57	-	-			<0.02	%	TM21/PM24
Organic Matter	13.8	-	-	-	-	1.1	-	-			<0.2	%	TM21/PM24
Loss on Ignition #	-	4.5	-	-	5.3	4.6	-	-			<1.0	%	TM22/PM0
pH #M	8.25	8.60	7.87	8.19	8.40	6.98	-	7.55			<0.01	pH units	TM73/PM11
Sample Type	Clayey Loam	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Clay	Sandy Clay	Clay				None	PM13/PM0
Sample Colour	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown				None	PM13/PM0
Other Items	stones and vegetation	stones	stones	none	stones	none	stones and brick	none				None	PM13/PM0

Please see attached notes for all abbreviations and acronyms

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All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: EPS Ltd
Reference: UK25.7470
Location: The Stirling Centre, Manchester
Contact: Ashleigh Watson
EMT Job No: 25/12824

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	5-8	17-20	21-24									
Sample ID	WS01	WS02 ES1	WS02 ES2									
Depth	0.60-0.80	0.30-0.70	1.70-1.90									
COC No / misc												
Containers	V J T	V J T	V J T									
Sample Date	04/08/2025	04/08/2025	04/08/2025									
Sample Type	Sandy Clay	Sandy Clay	Clay									
Batch Number	1	1	1									
Date of Receipt	06/08/2025	06/08/2025	06/08/2025									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Mass of raw test portion	0.1048	0.0988	0.1095									kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09									kg	NONE/PM17

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	0.1048	Moisture Content Ratio (%) =	16.9
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	85.5
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**25/12824**			
Sample No	**7**			
Client Sample No	**WS01**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**0.60-0.80**			
Sample Date	**04/08/2025**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	6.72	3	5	6
Loss on Ignition (%)	4.5	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	62	500	-	-
PAH Sum of 17(mg/kg)	88.70	100	-	-
pH (pH Units)	8.60	-	>6	-
ANC to pH 7 (mol/kg)	-	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.0044	0.044	0.5	2	25
Barium	0.022	0.22	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	0.0018	0.018	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.007	0.07	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	0.003	0.03	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	<0.3	<3	800	15000	25000
Fluoride	1.0	10	10	150	500
Sulphate as SO4	8.5	85	1000	20000	50000
Total Dissolved Solids	71	710	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	<2	<20	500	800	1000

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All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	0.0988	Moisture Content Ratio (%) =	9.3
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	91.5
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**25/12824**			
Sample No	**19**			
Client Sample No	**WS02 ES1**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**0.30-0.70**			
Sample Date	**04/08/2025**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	7.12	3	5	6
Loss on Ignition (%)	5.3	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-	-
Sum of 7 PCBs (mg/kg)	<0.350	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	169	500	-	-
PAH Sum of 17(mg/kg)	746.61	100	-	-
pH (pH Units)	8.40	-	>6	-
ANC to pH 7 (mol/kg)	-	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	0.0035	0.035	0.5	2	25
Barium	0.035	0.35	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	<0.0015	<0.015	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	0.005	0.05	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	<0.002	<0.02	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	<0.003	<0.03	4	50	200
Chloride	<0.3	<3	800	15000	25000
Fluoride	0.6	6	10	150	500
Sulphate as SO4	8.1	81	1000	20000	50000
Total Dissolved Solids	49	490	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	2	20	500	800	1000

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All solid results are expressed on a dry weight basis unless stated otherwise.

CEN 10:1 LEACHATE RESULTS BS EN 12547-2

Mass of sample taken (kg)	0.1095	Moisture Content Ratio (%) =	22.3
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	81.8
Particle Size <4mm =	>95%		

		Landfill Waste Acceptance Criteria Limits		
EMT Job No	**25/12824**			
Sample No	**23**			
Client Sample No	**WS02 ES2**	**Inert Waste Landfill**	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Depth/Other	**1.70-1.90**			
Sample Date	**04/08/2025**			
Batch No	**1**			
Solid Waste Analysis				
Total Organic Carbon (%)	0.57	3	5	6
Loss on Ignition (%)	4.6	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30	500	-	-
PAH Sum of 17(mg/kg)	<0.64	100	-	-
pH (pH Units)	6.98	-	>6	-
ANC to pH 7 (mol/kg)	-	-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated	to be evaluated

Eluate Analysis	**10:1 conc^{n} leached**		**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg**		
	C_{10}	**A_{10}**			
	mg/l	**mg/kg**	**mg/kg**		
Arsenic	<0.0025	<0.025	0.5	2	25
Barium	<0.003	<0.03	20	100	300
Cadmium	<0.0005	<0.005	0.04	1	5
Chromium	<0.0015	<0.015	0.5	10	70
Copper	<0.007	<0.07	2	50	100
Mercury	<0.001	<0.01	0.01	0.2	2
Molybdenum	<0.002	<0.02	0.5	10	30
Nickel	<0.002	<0.02	0.4	10	40
Lead	<0.005	<0.05	0.5	10	50
Antimony	<0.002	<0.02	0.06	0.7	5
Selenium	<0.003	<0.03	0.1	0.5	7
Zinc	0.006	0.06	4	50	200
Chloride	0.5	5	800	15000	25000
Fluoride	1.1	11	10	150	500
Sulphate as SO4	8.9	89	1000	20000	50000
Total Dissolved Solids	<35	<350	4000	60000	100000
Phenol	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	5	50	500	800	1000

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All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: EPS Ltd

Reference: UK25.7470

Location: The Stirling Centre, Manchester

Contact: Ashleigh Watson

Matrix : Solid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	EPH Interpretation
25/12824	1	WS01	0.60-0.80	5-8	PAHs & Possible diesel
25/12824	1	WS01 ES2	3.30-3.50	9-12	PAHs, Diesel & Lubricating oil
25/12824	1	WS02 ES1	0.30-0.70	17-20	PAHs & Diesel
25/12824	1	WS02 ES2	1.70-1.90	21-24	No interpretation possible
25/12824	1	WS04 ES1	0.30-0.80	33-36	PAHs, Lubricating oil & Possible diesel

Client Name: EPS Ltd
Reference: UK25.7470
Location: The Stirling Centre, Manchester
Contact: Ashleigh Watson

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
25/12824	1	TP01 ES1	0.35-0.60	4	Michael Reilly	13/08/2025	**General Description (Bulk Analysis)**	Brown soil, stones
					Michael Reilly	13/08/2025	**Asbestos Fibres**	Fibre Bundles
					Michael Reilly	13/08/2025	**Asbestos ACM**	NAD
					Michael Reilly	13/08/2025	**Asbestos Type**	Chrysotile
					Michael Reilly	20/08/2025	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Michael Reilly	20/08/2025	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Michael Reilly	20/08/2025	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
					Miriam Silverlock	20/08/2025	**Asbestos PCOM Quantification (Fibres)**	<0.001 (mass %)
					Miriam Silverlock	20/08/2025	**Asbestos Gravimetric & PCOM Total**	<0.001 (mass %)
25/12824	1	WS01	0.60-0.80	8	Catherine Coles	13/08/2025	**General Description (Bulk Analysis)**	soil,brick, debris
					Catherine Coles	13/08/2025	**Asbestos Fibres**	NAD
					Catherine Coles	13/08/2025	**Asbestos ACM**	NAD
					Catherine Coles	13/08/2025	**Asbestos Type**	NAD
25/12824	1	WS02 ES1	0.30-0.70	20	Catherine Coles	13/08/2025	**General Description (Bulk Analysis)**	brown soil, brick, debris
					Catherine Coles	13/08/2025	**Asbestos Fibres**	Fibre Bundles
					Catherine Coles	13/08/2025	**Asbestos Fibres (2)**	Free Fibres
					Catherine Coles	13/08/2025	**Asbestos ACM**	NAD
					Catherine Coles	13/08/2025	**Asbestos ACM (2)**	NAD
					Catherine Coles	13/08/2025	**Asbestos Type**	Chrysotile
					Catherine Coles	13/08/2025	**Asbestos Type (2)**	Amosite
					Catherine Coles	18/08/2025	**Total ACM Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Michael Reilly	20/08/2025	**Total Detailed Gravimetric Quantification (% Asb)**	<0.001 (mass %)
					Michael Reilly	20/08/2025	**Total Gravimetric Quantification (ACM + Detailed) (% Asb)**	<0.001 (mass %)
					Miriam Silverlock	20/08/2025	**Asbestos PCOM Quantification (Fibres)**	0.002 (mass %)
					Miriam Silverlock	20/08/2025	**Asbestos Gravimetric & PCOM Total**	0.002 (mass %)
25/12824	1	WS02 ES2	1.70-1.90	24	Mathew Day	13/08/2025	**General Description (Bulk Analysis)**	Brown soil/clay
					Mathew Day	13/08/2025	**Asbestos Fibres**	NAD
					Mathew Day	13/08/2025	**Asbestos ACM**	NAD
					Mathew Day	13/08/2025	**Asbestos Type**	NAD

Client Name: EPS Ltd

Matrix : Solid

Reference: UK25.7470

Location: The Stirling Centre, Manchester

Contact: Ashleigh Watson

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
25/12824	1	WS02 ES2	1.70-1.90	21-24	EPH, GRO, PCB	Sample holding time exceeded

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 25/12824

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).
Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitively, with a matrix specific limit of detection. Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution
AB	x10 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 25/12824

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35 degrees Celsius or 105 degrees Celsius. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No

Please include all sections of this report if it is reproduced

EMT Job No: 25/12824

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			AD	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes
TM22	Modified BS1377-3:1990 Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (35C-440C). On request modified ASTM D2974-00 LOI (105C-440C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 degrees Celsius. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 degrees Celsius. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes

EMT Job No: 25/12824

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes	Yes	AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes	Yes	AD	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No

EMT Job No: 25/12824

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes	Yes	AR	Yes
TM131	Quantification of Asbestos Fibres and ACM based on HSG 248 Second edition:2021, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35 degrees Celsius or 105 degrees Celsius. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

APPENDIX K

Waste Classification Report

Waste Classification Report

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

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

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

T5G5Q-QHAYP-WWN2I

Report is invalid if pages are removed.

Job name

The Stirling Centre, Manchester

Description/Comments

Project

UK25.7470

Site

The Stirling Centre, Manchester

Classified by

Name:
Michael Judson
Date:
22 Aug 2025 10:04 GMT
Telephone:
01954 710 666

Company:
Environmental Strategies Ltd EPS
7B Caxton House, Broad Street, Cambourne
Cambridge
CB23 6JN

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

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	08 Dec 2016
Most recent 3 year Refresher	03 Dec 2024

Next 3 year Refresher due by Dec 2027

Purpose of classification

2 - Material Characterisation

Address of the waste

The Stirling Centre Newton Heath Manchester **Post Code** M40 2RE

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

The site is currently a youth club.

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

Waste soils excavated during construction of a new scout hut

Description of the waste

Waste soils comprising made ground and underlying natural soils.

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP01 ES1-04/08/2025-0.35-0.60m		Non Hazardous		3
2	WS01-04/08/2025-0.60-0.80m		Non Hazardous		5
3	WS01 ES2-04/08/2025-3.30-3.50m		Hazardous	HP 3(i), HP 7, HP 11	8
4	WS02 ES1-04/08/2025-0.30-0.70m		Hazardous	HP 3(i), HP 7, HP 11	10
5	WS02 ES2-04/08/2025-1.70-1.90m		Non Hazardous		13
6	WS04 ES1-04/08/2025-0.30-0.80m		Hazardous	HP 3(i), HP 7, HP 11	15

Related documents

#	Name	Description
1	EMT-25-12824-Batch-1-202508201607.HWOL	Element .hwol file used to populate the Job
2	EPS Waste Stream	waste stream template used to create this Job

Report

Created by: Michael Judson

Created date: 22 Aug 2025 10:04 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	17
Appendix B: Rationale for selection of metal species	19
Appendix C: Version	19

Classification of sample: TP01 ES1-04/08/2025-0.35-0.60m

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

Sample details

Sample name:
TP01 ES1-04/08/2025-0.35-0.60m
Moisture content:
13.5%
(dry weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13.5% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		25.6 mg/kg	1.534	34.597 mg/kg	0.00346 %	✓	
2	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }	048-001-00-5			1	<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<**LOD**
3	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		34.8 mg/kg	1.462	44.812 mg/kg	0.00448 %	✓	
4	copper { copper sulphate }	029-004-00-0	231-847-6	7758-98-7		105 mg/kg	2.512	232.36 mg/kg	0.0232 %	✓	
5	lead { lead di(acetate) }	082-005-00-8	206-104-4	301-04-2	1	484 mg/kg	1.57	669.453 mg/kg	0.0426 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.3 mg/kg	1.353	0.358 mg/kg	0.0000358 %	✓	
7	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		27.2 mg/kg	2.637	63.188 mg/kg	0.00632 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<**LOD**
9	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		393 mg/kg	1.245	430.989 mg/kg	0.0431 %	✓	
10	naphthalene	601-052-00-2	202-049-5	91-20-3		5.57 mg/kg		4.907 mg/kg	0.000491 %	✓	
11	acenaphthylene		205-917-1	208-96-8		1.96 mg/kg		1.727 mg/kg	0.000173 %	✓	
12	acenaphthene		201-469-6	83-32-9		16.5 mg/kg		14.537 mg/kg	0.00145 %	✓	
13	fluorene		201-695-5	86-73-7		11.46 mg/kg		10.097 mg/kg	0.00101 %	✓	
14	phenanthrene		201-581-5	85-01-8		120.7 mg/kg		106.344 mg/kg	0.0106 %	✓	
15	anthracene		204-371-1	120-12-7		37.5 mg/kg		33.04 mg/kg	0.0033 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		fluoranthene		205-912-4	206-44-0		181.4	mg/kg		159.824	mg/kg	0.016 %	✓	
17		pyrene		204-927-3	129-00-0		141.32	mg/kg		124.511	mg/kg	0.0125 %	✓	
18		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		78.75	mg/kg		69.383	mg/kg	0.00694 %	✓	
19		chrysene	601-048-00-0	205-923-4	218-01-9		76.12	mg/kg		67.066	mg/kg	0.00671 %	✓	
20		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		86.33	mg/kg		76.062	mg/kg	0.00761 %	✓	
21		indeno[123-cd]pyrene		205-893-2	193-39-5		58.01	mg/kg		51.11	mg/kg	0.00511 %	✓	
22		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		12.56	mg/kg		11.066	mg/kg	0.00111 %	✓	
23		benzo[ghi]perylene		205-883-8	191-24-2		39.54	mg/kg		34.837	mg/kg	0.00348 %	✓	
24		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		92.86	mg/kg		81.815	mg/kg	0.00818 %	✓	
25		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		36.11	mg/kg		31.815	mg/kg	0.00318 %	✓	
26		chromium in Cr(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<**LOD**
27		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
28		pH			PH		8.25	pH		8.25	pH	8.25 pH		
29		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				0.9	mg/kg	1.884	1.494	mg/kg	0.000149 %	✓	
											Total:	0.211 %		

Key

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

Classification of sample: WS01-04/08/2025-0.60-0.80m

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

Sample details

Sample name:
WS01-04/08/2025-0.60-0.80m
Moisture content:
20.8%
(dry weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 20.8% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		29.6 mg/kg	1.534	37.585 mg/kg	0.00376 %	✓	
2	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }	048-001-00-5			1	<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<**LOD**
3	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		52.5 mg/kg	1.462	63.52 mg/kg	0.00635 %	✓	
4	copper { copper sulphate }	029-004-00-0	231-847-6	7758-98-7		45 mg/kg	2.512	93.565 mg/kg	0.00936 %	✓	
5	lead { lead di(acetate) }	082-005-00-8	206-104-4	301-04-2	1	113 mg/kg	1.57	146.853 mg/kg	0.00935 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.1 mg/kg	1.353	0.112 mg/kg	0.0000112 %	✓	
7	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		19.1 mg/kg	2.637	41.689 mg/kg	0.00417 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<**LOD**
9	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		121 mg/kg	1.245	124.677 mg/kg	0.0125 %	✓	
10	naphthalene	601-052-00-2	202-049-5	91-20-3		1.26 mg/kg		1.043 mg/kg	0.000104 %	✓	
11	acenaphthylene		205-917-1	208-96-8		0.11 mg/kg		0.0911 mg/kg	0.00000911 %	✓	
12	acenaphthene		201-469-6	83-32-9		2.45 mg/kg		2.028 mg/kg	0.000203 %	✓	
13	fluorene		201-695-5	86-73-7		1.39 mg/kg		1.151 mg/kg	0.000115 %	✓	
14	phenanthrene		201-581-5	85-01-8		12.31 mg/kg		10.19 mg/kg	0.00102 %	✓	
15	anthracene		204-371-1	120-12-7		2.85 mg/kg		2.359 mg/kg	0.000236 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		fluoranthene		205-912-4	206-44-0		15.89	mg/kg		13.154	mg/kg	0.00132 %	✓	
17		pyrene		204-927-3	129-00-0		12.45	mg/kg		10.306	mg/kg	0.00103 %	✓	
18		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		6.49	mg/kg		5.373	mg/kg	0.000537 %	✓	
19		chrysene	601-048-00-0	205-923-4	218-01-9		6.56	mg/kg		5.43	mg/kg	0.000543 %	✓	
20		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		6.85	mg/kg		5.671	mg/kg	0.000567 %	✓	
21		indeno[123-cd]pyrene		205-893-2	193-39-5		4.75	mg/kg		3.932	mg/kg	0.000393 %	✓	
22		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.93	mg/kg		0.77	mg/kg	0.000077 %	✓	
23		benzo[ghi]perylene		205-883-8	191-24-2		3.09	mg/kg		2.558	mg/kg	0.000256 %	✓	
24		coronene		205-881-7	191-07-1		0.85	mg/kg		0.704	mg/kg	0.0000704 %	✓	
25		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		7.54	mg/kg		6.242	mg/kg	0.000624 %	✓	
26		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		2.93	mg/kg		2.425	mg/kg	0.000243 %	✓	
27		TPH (C6 to C40) petroleum group			TPH		722	mg/kg		597.682	mg/kg	0.0598 %	✓	
28		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD
29		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
30		toluene	601-021-00-3	203-625-9	108-88-3		0.007	mg/kg		0.0057	mg/kg	0.000000579 %	✓	
31		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
32		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
33		chromium in Cr(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<LOD
34		pH			PH		8.6	pH		8.6	pH	8.6 pH		
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
36		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		700	mg/kg		579.47	mg/kg	0.0579 %	✓	
											Total:	0.171 %		

Key

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

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: WM3 states that the Hazard Statement HP 3 (first and fourth indents) can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene (conc.: 5.79e-07%)

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.0598%)

Classification of sample: WS01 ES2-04/08/2025-3.30-3.50m

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS01 ES2-04/08/2025-3.30-3.50m
Moisture content:
18.6%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinands:

benzene (conc.: 1.52e-06%)
toluene (conc.: 0.00001%)
ethylbenzene (conc.: 0.00001%)

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

Because of determinands:

TPH (C6 to C40) petroleum group (conc.: 1.178%)
xylene (conc.: 0.00006%)

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 1.178%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 1.178%)

Determinands

Moisture content: 18.6% Dry Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		TPH (C6 to C40) petroleum group		TPH		13977 mg/kg		11784.992 mg/kg	1.178 %	✓	
2		benzene				0.018 mg/kg		0.0152 mg/kg	0.00000152 %	✓	
		601-020-00-8	200-753-7	71-43-2							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
3		toluene				0.126	mg/kg		0.106	mg/kg	0.0000106 %	✓	
		601-021-00-3	203-625-9	108-88-3									
4		ethylbenzene				0.148	mg/kg		0.125	mg/kg	0.0000125 %	✓	
		601-023-00-4	202-849-4	100-41-4									
5		xylene				0.773	mg/kg		0.652	mg/kg	0.0000652 %	✓	
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
6		pH				7.87	pH		7.87	pH	7.87 pH		
				PH									
7		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
8		sulfur { sulfur }				6000	mg/kg		5059.022	mg/kg	0.506 %	✓	
		016-094-00-1	231-722-6	7704-34-9									
										Total:	1.684 %		

Key

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

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: WM3 states that the Hazard Statement HP 3 (first and fourth indents) can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinands:

benzene (conc.: 1.52e-06%)
toluene (conc.: 0.00001%)
ethylbenzene (conc.: 0.00001%)

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

Because of determinands:

TPH (C6 to C40) petroleum group (conc.: 1.178%)
xylene (conc.: 0.00006%)

Classification of sample: WS02 ES1-04/08/2025-0.30-0.70m

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS02 ES1-04/08/2025-0.30-0.70m
Moisture content:
12%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.243%)

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.243%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.243%)

Determinands

Moisture content: 12% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		9 mg/kg	1.534	12.326 mg/kg	0.00123 %	✓	
2	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }	048-001-00-5			1	<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<**LOD**
3	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		74.5 mg/kg	1.462	97.22 mg/kg	0.00972 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
4		copper { copper sulphate }	029-004-00-0	231-847-6	7758-98-7		60	mg/kg	2.512	134.555	mg/kg	0.0135 %	✓	
5		lead { lead di(acetate) }	082-005-00-8	206-104-4	301-04-2	1	60	mg/kg	1.57	84.102	mg/kg	0.00536 %	✓	
6		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
7		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		27.2	mg/kg	2.637	64.034	mg/kg	0.0064 %	✓	
8		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
9		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		57	mg/kg	1.245	63.347	mg/kg	0.00633 %	✓	
10		naphthalene	601-052-00-2	202-049-5	91-20-3		4.2	mg/kg		3.75	mg/kg	0.000375 %	✓	
11		acenaphthylene		205-917-1	208-96-8		5.31	mg/kg		4.741	mg/kg	0.000474 %	✓	
12		acenaphthene		201-469-6	83-32-9		6.44	mg/kg		5.75	mg/kg	0.000575 %	✓	
13		fluorene		201-695-5	86-73-7		4.28	mg/kg		3.821	mg/kg	0.000382 %	✓	
14		phenanthrene		201-581-5	85-01-8		54.56	mg/kg		48.714	mg/kg	0.00487 %	✓	
15		anthracene		204-371-1	120-12-7		25.69	mg/kg		22.938	mg/kg	0.00229 %	✓	
16		fluoranthene		205-912-4	206-44-0		130.59	mg/kg		116.598	mg/kg	0.0117 %	✓	
17		pyrene		204-927-3	129-00-0		108.49	mg/kg		96.866	mg/kg	0.00969 %	✓	
18		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		67.2	mg/kg		60	mg/kg	0.006 %	✓	
19		chrysene	601-048-00-0	205-923-4	218-01-9		63.62	mg/kg		56.804	mg/kg	0.00568 %	✓	
20		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		73.8	mg/kg		65.893	mg/kg	0.00659 %	✓	
21		indeno[123-cd]pyrene		205-893-2	193-39-5		46.38	mg/kg		41.411	mg/kg	0.00414 %	✓	
22		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		10.68	mg/kg		9.536	mg/kg	0.000954 %	✓	
23		benzo[ghi]perylene		205-883-8	191-24-2		29.08	mg/kg		25.964	mg/kg	0.0026 %	✓	
24		coronene		205-881-7	191-07-1		7.56	mg/kg		6.75	mg/kg	0.000675 %	✓	
25		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		78.29	mg/kg		69.902	mg/kg	0.00699 %	✓	
26		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		30.44	mg/kg		27.179	mg/kg	0.00272 %	✓	
27		TPH (C6 to C40) petroleum group			TPH		2718	mg/kg		2426.786	mg/kg	0.243 %	✓	
28		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.35	mg/kg		<0.35	mg/kg	<0.000035 %		<LOD
29		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
30		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
31		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
32		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]									
33		chromium in Cr(VI) compounds { chromium(VI) oxide }				<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<**LOD**
		024-001-00-0	215-607-8	1333-82-0									
34		asbestos				<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
35		pH				8.4	pH		8.4	pH	8.4 pH		
				PH									
36		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
										Total:	0.352 %		

Key

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

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: WM3 states that the Hazard Statement HP 3 (first and fourth indents) can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.243%)

Classification of sample: WS02 ES2-04/08/2025-1.70-1.90m

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

Sample details

Sample name:
WS02 ES2-04/08/2025-1.70-1.90m
Moisture content:
21.2%
(dry weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 21.2% Dry Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		10.4 mg/kg	1.534	13.162 mg/kg	0.00132 %	✓	
2	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }	048-001-00-5			1	<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<**LOD**
3	chromium in Cr(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		51.9 mg/kg	1.462	62.586 mg/kg	0.00626 %	✓	
4	copper { copper sulphate }	029-004-00-0	231-847-6	7758-98-7		22 mg/kg	2.512	45.592 mg/kg	0.00456 %	✓	
5	lead { lead di(acetate) }	082-005-00-8	206-104-4	301-04-2	1	24 mg/kg	1.57	31.087 mg/kg	0.00198 %	✓	
6	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.2 mg/kg	1.353	0.223 mg/kg	0.0000223 %	✓	
7	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		27.1 mg/kg	2.637	58.956 mg/kg	0.0059 %	✓	
8	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<**LOD**
9	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		50 mg/kg	1.245	51.35 mg/kg	0.00513 %	✓	
10	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
11	acenaphthylene		205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<**LOD**
12	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13	fluorene		201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**
14	phenanthrene		201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<**LOD**
15	anthracene		204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		fluoranthene				0.06	mg/kg		0.0495	mg/kg	0.00000495 %	✓	
			205-912-4	206-44-0									
17		pyrene				0.05	mg/kg		0.0413	mg/kg	0.00000413 %	✓	
			204-927-3	129-00-0									
18		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
19		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
20		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
21		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			205-893-2	193-39-5									
22		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
23		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<**LOD**
			205-883-8	191-24-2									
24		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
25		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
26		chromium in Cr(VI) compounds { chromium(VI) oxide }				<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<**LOD**
		024-001-00-0	215-607-8	1333-82-0									
27		pH				6.98	pH		6.98	pH	6.98 pH		
				PH									
28		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
										Total:	0.0252 %		

Key

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

Classification of sample: WS04 ES1-04/08/2025-0.30-0.80m

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS04 ES1-04/08/2025-0.30-0.80m
Moisture content:
23.8%
(dry weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene (conc.: 4.85e-07%)

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.197%)

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.197%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.197%)

Determinands

Moisture content: 23.8% Dry Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		TPH (C6 to C40) petroleum group			TPH		2439 mg/kg		1970.113 mg/kg	0.197 %	✓	
2		benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**
3		toluene	601-021-00-3	203-625-9	108-88-3		0.006 mg/kg		0.0048 mg/kg	0.000000485 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
4		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
5		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
										Total:	0.197 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1000 mg/kg (0.1%) because: WM3 states that the Hazard Statement HP 3 (first and fourth indents) can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene (conc.: 4.85e-07%)

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

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.197%)

Appendix A: Classifier defined and non GB MCL determinands

cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex

GB MCL index number: 048-001-00-5
Description/Comments: Worst Case: IARC considers cadmium compounds Group 1; Carcinogenic to humans
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

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

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

lead di(acetate) (EC Number: 206-104-4, CAS Number: 301-04-2)

GB MCL index number: 082-005-00-8
Description/Comments: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers many simple lead compounds to be Carcinogenic category 2.
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- **pH** (CAS Number: PH)

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

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

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

- **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

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

Description/Comments: Unknown Oil

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

- **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

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

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic pentoxide}

Worst Case

cadmium {cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex}

Using elemental Cadmium with no CrVI

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

Worst case species

copper {copper sulphate}

Worst Case Species

lead {lead di(acetate)}

Worst Case Species

mercury {mercury dichloride}

Worst Case Species

nickel {nickel sulfate}

Worst Case Species considered likely to be present on most brownfield land sites.

selenium {nickel selenate}

Worst Case Species

zinc {zinc oxide}

Elemental Zinc with no CrVI

chromium in Cr(VI) compounds {chromium(VI) oxide}

Worst case species

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

Only available species.

sulfur {sulfur}

No onsite source of sulphur dioxide or sulphur dichloride.

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2025.231.6753.12253 (19 Aug 2025)
HazWasteOnline Database: 2025.227.6750.12249 (16 Aug 2025)

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

APPENDIX L

Laboratory Results - Geotechnical

GFQ-008-74
Issue 02 - Nov 23

Summary of Classification Test Results

Project No.
J320851

Project Name
The Stirling Centre, Manchester

Hole No.	Sample				Soil Description	Density bulk Mg/m³	Density dry Mg/m³	w %	Passing 425µm %	LL %	If 1 Point Test Pen 1	If 1 Point Test Pen 2	If 1 Point Test CF	PL %	PI %	Particle density Mg/m³	Remarks
	Ref	Top	Base	Type													
TP02	1	0.60	1.20	B	Dark grey slightly sandy slightly gravelly silty CLAY			21.5	70-w	36 -1pt	17	17	1.042	23	13		
WS01	2	3.80	4.00	D	Brown slightly sandy slightly gravelly CLAY			23.3	97-hp	41 -1pt	18	18	1.039	21	20		
WS02	1	2.10	2.70	B	Brown slightly sandy slightly gravelly CLAY			20.3	99-hp	37 -1pt	20	20	1	19	18		
WS04	2	4.80	5.00	D	Brown slightly sandy slightly gravelly CLAY			18.9	98-hp	35 -1pt	17	17	1.042	19	16		

Key

Density tests:
Linear measurement unless :
wd - water displacement
wi - immersion in water

w - water content

Atterberg:
4pt cone unless :
cas - Casagrande method
1pt - single point test
CF - Correlation Factor

Liquid limit test: i - increasing moisture content, d - decreasing moisture content

Atterberg sample prep: n - Natural, HP - Hand Picked, w - Washed

Particle density:
sp - fluid pycnometer

Test Standards:

Bulk Density Tests - BS EN ISO 17892-2:2014
Water Content - BS EN ISO 17892-1:2014+A1:2022
Liquid & Plastic Limits - BS EN ISO 17892-12:2018+A2:2022
Particle Density - BS EN ISO 17892-3:2015

Date Printed:
20/08/2025

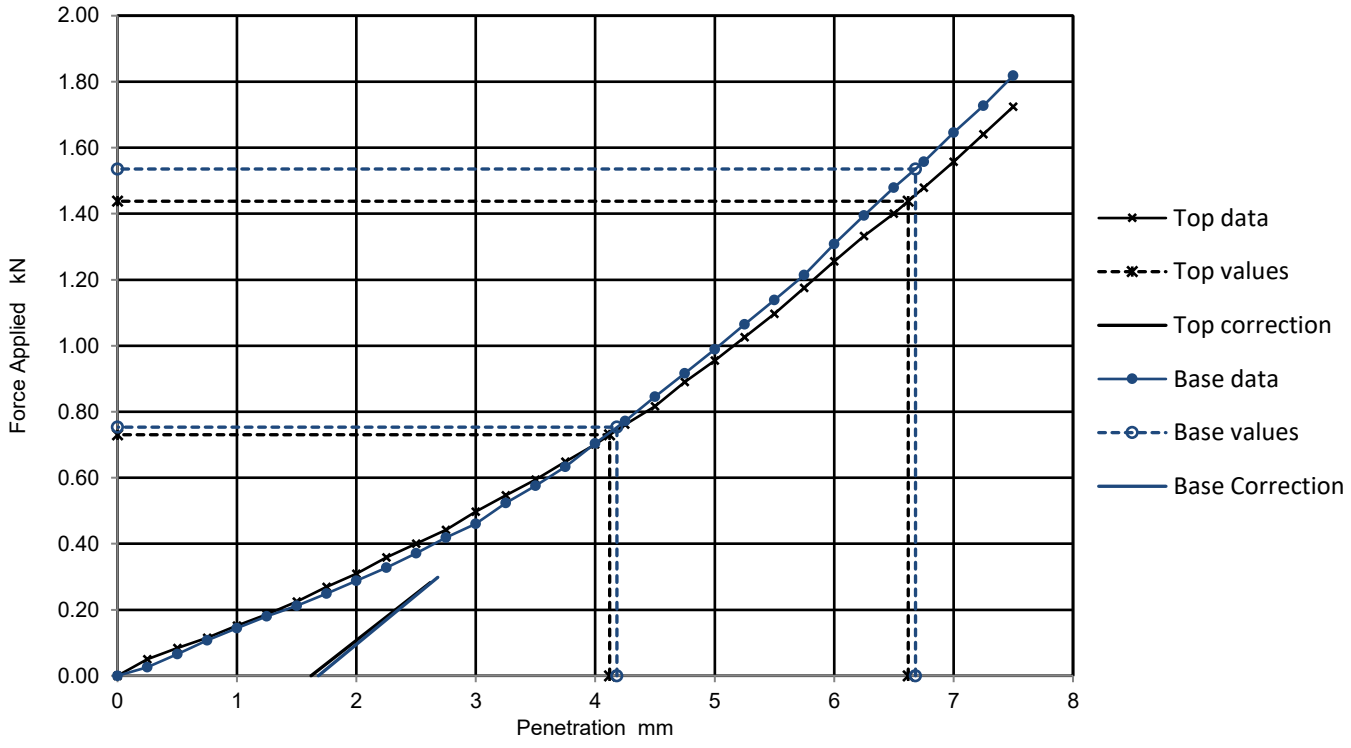
ISO INDX

GQF-008-36 Issue 02 - June 24	**California Bearing Ratio (CBR)**			Job Ref	J320851
				Borehole/Pit No.	TP02
Project Name	The Stirling Centre, Manchester			Sample No.	1
Soil Description	Dark grey slightly sandy slightly gravelly silty CLAY			Depth m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	TTLP2025082026
Test Method	BS1377-2: 2022			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		11	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	1.83	Mg/m^3	Surcharge applied	15	kg
	Dry density	1.51	Mg/m^3		9	kPa
	Moisture content	21.5	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	Yes	5.5	7.2	7.2	7.4	22.1
BASE	Yes	5.7	7.7	7.7		22.6

Remarks

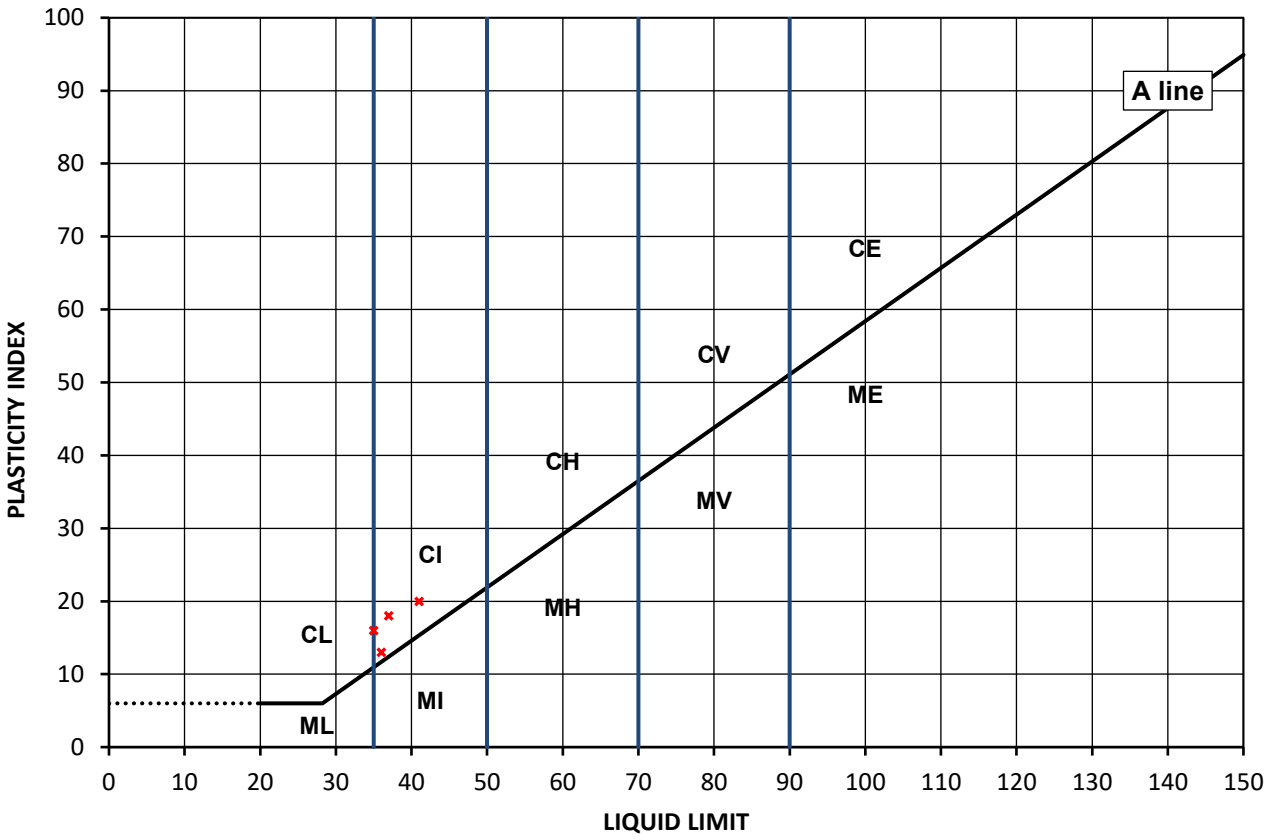
Date Printed	20/08/2025

7758

CBR

Plasticity (A-line) Chart

Project No.	Project Name
J320851	The Stirling Centre, Manchester



Legend, based on BS 5930:1999 +A2: 2010 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Notes	Date Printed	Approved By	Table
Classifications vary between countries and codes of practice. Laboratory tests to ISO 17892-12 include 4pt and 1 pt tests, see individual results for more details. 'A' line derivation above PI of 6, PI = 0.73(LL-20)	20/08/2025		1 sheet 1

APPENDIX M

Plate Load CBR Results

Hull and Yorkshire Construction Materials Testing.
Laboratory - Unit 1 Factory Industrial Estate., Swann Street., Kingston upon Hull, HU
Tel: 01482 231253

PLATE LOADING TEST REPORT

in accordance with BS 1377 : Part 9 Cl. 4.1 : 1990
Incremental loading test

Project	The Stirling Centre	**Test No:**	EPS-PB070825-1
Client	EPS	**Lab Ref No:**	
		Date Reported	05.08.25
		Weather Conditions	Rainy
Technician	Liam C	**Air Temperature °C**	15

Date Tested	04.08.2025	**Plate Dia (mm)**	600
Location	1	**m to excavation wall**	0
GPS Coord's	W 2°10'49.94', N 53°29'36.14'	**Depth (m)**	0
Material Type	Tarmac	**Reaction Type**	8T Excavator
No Cycles	1	**App Weight (kg)**	60

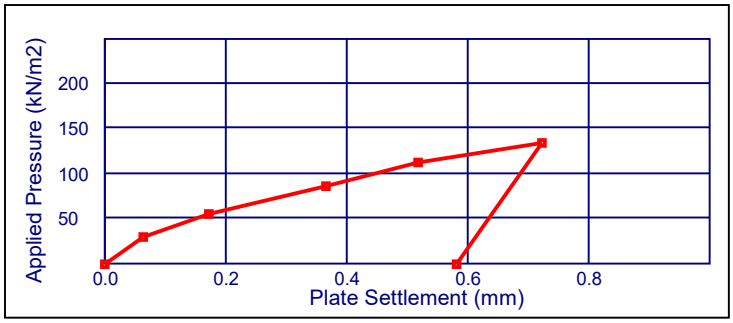
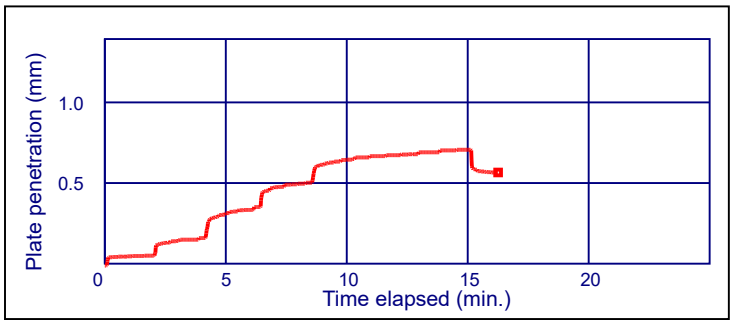


Plate Settlement (mm)	Applied Pressure (kN/m2)
0.00	0.0
0.06	30.5
0.17	56.1
0.37	87.0
0.52	113.2
0.72	134.9
0.58	0.0



	Cycle 1
Maximum Applied Pressure (kPa):	**137**
Maximum deformation (mm):	**0.72**
Modulus of subgrade reaction K (MN/m3):	**152.8**
K762 (MN/m3):	**122.9**
Estimated CBR (%):	**40**

Comments:

Approved Signature
Hull and Yorkshire Ltd.
Liam Carr
Technician

Hull and Yorkshire Construction Materials Testing.
Laboratory - Unit 1 Factory Industrial Estate., Swann Street., Kingston upon Hull, HU
Tel: 01482 231253

PLATE LOADING TEST REPORT

in accordance with BS 1377 : Part 9 Cl. 4.1 : 1990
Incremental loading test

Project	The Stirling Centre	**Test No:**	EPS-PB070825-2
Client	EPS	**Lab Ref No:**	
		Date Reported	05.08.25
		Weather Conditions	Rainy
Technician	Liam C	**Air Temperature °C**	15

Date Tested	04.08.2025	**Plate Dia (mm)**	600
Location	2	**m to excavation wall**	0
GPS Coord's	W 2°10'49.58', N 53°29'35.93'	**Depth (m)**	0
Material Type	Tarmac	**Reaction Type**	8T Excavator
No Cycles	1	**App Weight (kg)**	60

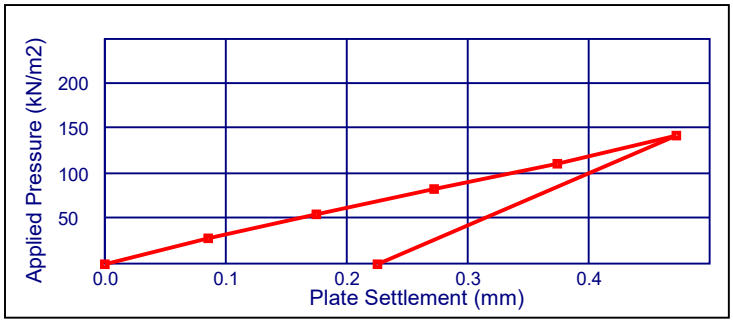
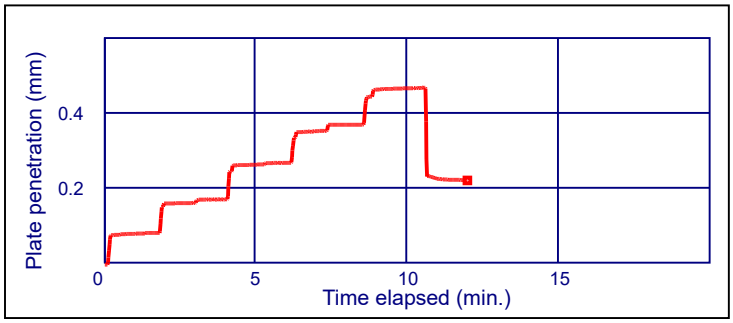


Plate Settlement (mm)	Applied Pressure (kN/m2)
0.00	0.0
0.09	29.1
0.17	55.6
0.27	83.9
0.37	112.1
0.47	143.2
0.23	0.0



	Cycle 1
Maximum Applied Pressure (kPa):	**145**
Maximum deformation (mm):	**0.47**
Modulus of subgrade reaction K (MN/m3):	**311.3**
K762 (MN/m3):	**250.4**
Estimated CBR (%):	**138**

Comments:

Approved Signature
Hull and Yorkshire Ltd.
Liam Carr
Technician

Hull and Yorkshire Construction Materials Testing.
Laboratory - Unit 1 Factory Industrial Estate., Swann Street., Kingston upon Hull, HU
Tel: 01482 231253

PLATE LOADING TEST REPORT

in accordance with BS 1377 : Part 9 Cl. 4.1 : 1990
Incremental loading test

Project	The Stirling Centre	**Test No:**	EPS-PB070825-3
Client	EPS	**Lab Ref No:**	
		Date Reported	05.08.25
		Weather Conditions	Rainy
Technician	Liam C	**Air Temperature °C**	15

Date Tested	04.08.2025	**Plate Dia (mm)**	600
Location	3	**m to excavation wall**	0
GPS Coord's	W 2°10'47.80', N 53°29'35.67'	**Depth (m)**	0
Material Type	Tarmac	**Reaction Type**	8T Excavator
No Cycles	1	**App Weight (kg)**	60

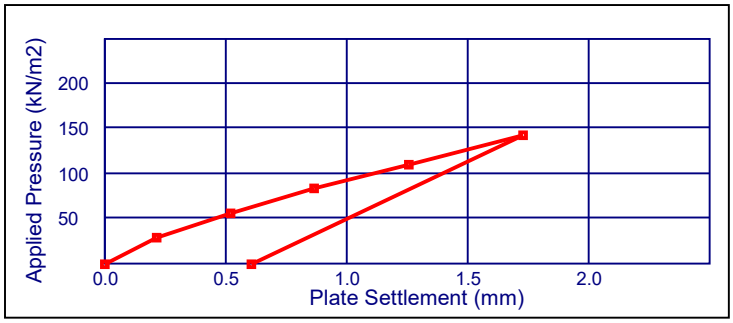
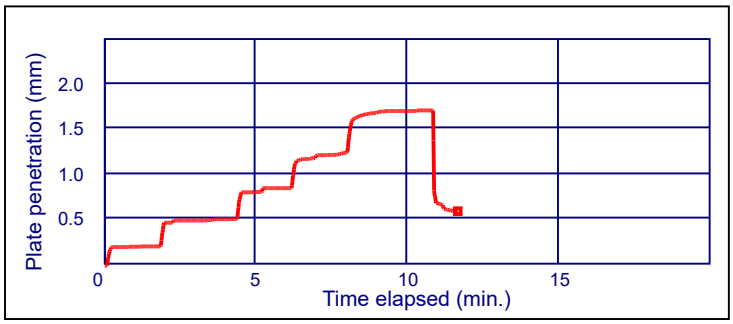


Plate Settlement (mm)	Applied Pressure (kN/m2)
0.00	0.0
0.21	29.5
0.52	56.8
0.86	84.6
1.26	111.0
1.73	143.5
0.61	0.0



	Cycle 1
Maximum Applied Pressure (kPa):	**146**
Maximum deformation (mm):	**1.73**
Modulus of subgrade reaction K (MN/m3):	**88.5**
K762 (MN/m3):	**71.2**
Estimated CBR (%):	**16**

Comments:

Approved Signature
Hull and Yorkshire Ltd.
Liam Carr
Technician

Hull and Yorkshire Construction Materials Testing.
Laboratory - Unit 1 Factory Industrial Estate., Swann Street., Kingston upon Hull, HU
Tel: 01482 231253

PLATE LOADING TEST REPORT

in accordance with BS 1377 : Part 9 Cl. 4.1 : 1990
Incremental loading test

Project	The Stirling Centre	**Test No:**	EPS-PB070825-4
Client	EPS	**Lab Ref No:**	
		Date Reported	05.08.25
		Weather Conditions	Rainy
Technician	Liam C	**Air Temperature °C**	15

Date Tested	04.08.2025	**Plate Dia (mm)**	600
Location	4	**m to excavation wall**	0
GPS Coord's	W 2°10'47.93', N 53°29'36.20'	**Depth (m)**	0
Material Type	Tarmac	**Reaction Type**	8T Excavator
No Cycles	1	**App Weight (kg)**	60

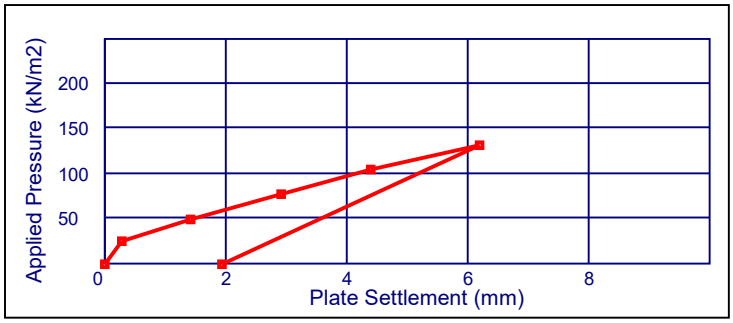
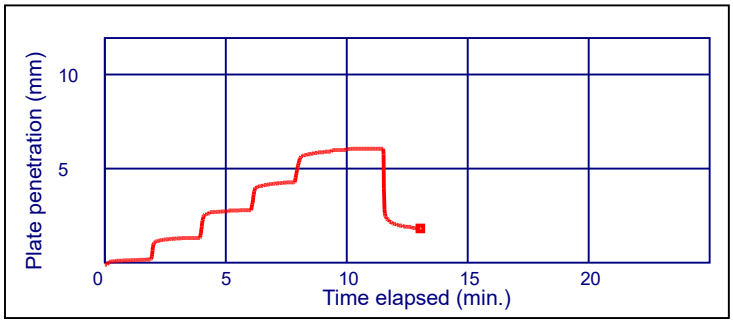


Plate Settlement (mm)	Applied Pressure (kN/m2)
0.00	0.0
0.28	25.8
1.42	50.1
2.91	78.2
4.40	105.5
6.20	132.5
1.94	0.0



	Cycle 1
Maximum Applied Pressure (kPa):	**135**
Maximum deformation (mm):	**6.20**
Modulus of subgrade reaction K (MN/m3):	**37.3**
K762 (MN/m3):	**30.0**
Estimated CBR (%):	**3.5**

Comments:

Approved Signature
Hull and Yorkshire Ltd.
Liam Carr
Technician

APPENDIX N

Generic Screening Criteria

EPS Generic Quantitative Risk Assessment

Generic Screening Criteria (C4SLs) - All Land Uses

Contaminant	Soil Targets					
	Residential		Allotments	Commercial	Public Open Spaces	
	With Home Grown Produce	Without Home Grown Produce			Residential	Parks
Unit	mg/kg					
Arsenic	37	40	49	640	79	168
Benzene	0.87	3.3	0.18	98	140	230
Benzo(a)pyrene	5	5.3	5.7	76	10	21
Cadmium	26	149	4.9	410	220	880
Chromium (VI)	21	21	170	49	23	250
Lead	200	310	80	2330	630	1300
Chloroethene (Vinyl Chloride)	0.0064	0.015	0.0017	1.1	7.8	18
Trichloroethene (TCE)	0.0093	0.097	0.032	0.73	76	41
Tetrachloroethene (PCE)	0.31	0.32	2	24	3200	1400
cis-1,2 Dichloroethene	0.46	0.5	0.89	38	3800	2000
Naphthalene	15	15	65	1600	11000	800
PFOS	0.013	0.041	0.0027	0.6	0.079	0.17
PFOA	0.0076	0.041	0.0014	0.6	0.079	0.17

Notes:

Targets for Human Health have been taken from the publicly available Category 4 Screening Levels (C4SLs) for assessment of land affected by contamination issued by DEFRA/CL:AIRE between December 2013 and May 2024.

Within the modelling for the original six C4SLs (Arsenic, Benzene, Benzo(a)pyrene, Cadmium, Chromium VI, Lead), a Soil Organic Matter content of 6% was used. This differs from the older Suitable for Use Levels (S4ULs) which modelled contaminants with 1%, 2.5% and 6% SOM, with the latter the least conservative. These numbers are therefore not particularly conservative, however sensitivity analysis has shown that a change in SOM only makes a notable difference for Benzene and therefore caution should be taken when using the value for Benzene. For the remaining, newer C4SLs, these were modelled in all SOM and therefore the most conservative 1% values have been used. Reference to site-specific data should be made where possible.

Aug-25

EPS Generic Quantitative Risk Assessment - Public Open Space (parks)

Contaminant	Soil Targets			Groundwater Targets		
	Human Health	Controlled Waters		Human Health	Controlled Waters	
		Surface Water	Groundwater		Surface Water	Groundwater
Unit	**mg/kg**			**µg/l**		
Arsenic	See C4SL	n/c	n/c	-	50	10
Cadmium	See C4SL	n/c	n/c	-	1.5	5
Chromium III	33000	n/c	n/c	-	15	50
Chromium VI	See C4SL	n/c	n/c	-	3.4	
Copper	44000	n/c	n/c	-	93.1#	2000
Mercury (elemental)	30	n/c	n/c	-	0.07	1
Nickel	3400	n/c	n/c	-	14.8#	20
Lead	See C4SL	n/c	n/c	-	27.7#	10
Selenium	1800	n/c	n/c	-	10	10
Zinc	170000	n/c	n/c	-	373#	3000
Benzene	See C4SL	0.020	0.0020	-	10	1
Toluene	87000(869)*	0.399	3.77	-	74	700
Ethylbenzene	17000(518)*	0.23	3.4	-	20	300
Xylene (para)	17000(576)**	0.351	5.86	-	30	500
MTBE	73	0.00864		-	15	15
Benzo(a)Pyrene	See C4SL	n/c	n/c	-	0.27	0.01
Naphthalene	See C4SL	n/c	n/c	-	2	2
Aliphatic C5-C6	95000(304)**	7.67		-	300‡	300†
Aliphatic C6-C8	150000(144)**	32.4		-	300†	300†
Aliphatic C8-C10	14000(78)**	241		-	300	300
Aliphatic C10-C12	21000(48)**	1,890		-	300	300
Aliphatic C12-C16	25000(24)**	37,600		-	300	300
Aliphatic C16-C35	450000f	n/c		-	-	-
Aromatic C8-C10	7200(613)*	12		-	300	300
Aromatic C10-C12	9200(364)**	5.67		-	90	90
Aromatic C12-C16	10000	11.3		-	90	90
Aromatic C16-C21	7600f	35.6		-	90	90
Aromatic C21-C35	7800f	284		-	90	90
Tetrachloroethene	See C4SL	0.07		-	10	10
Trichloroethene	See C4SL	0.04		-	10	10
cis-1,2 Dichloroethene	See C4SL	0.0657		-	-	-
Vinyl Chloride	See C4SL	0.0005		-	0.5	0.5
PFOS	See C4SL	0.000956		-	0.1	0.1
PFOA	See C4SL	0.000314		-	0.1	0.1
Asbestos##	0.001%	-	-	-	-	-

Notes:

* = S4UL exceeds vapour saturation limit (in brackets) ** = S4UL exceeds solubility saturation limit (in brackets)

n/c = not calculated. Under normal conditions contaminant exhibits low solubility /volatility, therefore risks from leaching and or vapour pathways are considered low.

To establish suitable compliance criteria for Surface Water, review of basline groundwater quality in England and Wales was completed following research reported in Shand, P, Edmunds, W M, Lawrence, A R, Smedle y, P L, and Burke, S. 2007. The natural (baseline) quality of groundwater in England and Wales. British Geological Survey Research Report No. RR/07/06. Where compliance criteria was found below the 97.7 percentile of baseline value, the latter was adopted as GAC.

Where assessment of the risk to human health from asbestos in soil is concerned there is no nationally recognised suitable for use /generic screening value commonly referred to through the planning system. As such, EPS has adopted a conservative value of 0.001% as a screening tool for initial risk assessment, although this should be supplemented with a qualitative assessment of the risk.

Soil Targets

Targets for Human Health have been taken from *S4ULs 'Suitable For Use Levels for Human Health Risk Assessment' – LQM and CIEH (2014)* derived using standard sandy loam soil with 1% SOM, except (*) = *EIC/AGS/CL:AIRE GAC 'Soil Generic Assessment Criteria' (2010)* . For sites where ground conditions differ significantly from sandy loam or site-specific SOM and pH are available, the generic human health targets may be revised.

Targets for Controlled waters have been derived using EA Remedial Targets Worksheet (v3.1) - using standard Sandy Loam ground conditions as described in Science Report SC050021/SR3, literature values for chemical parameters and with criteria of EQS or UKDWS for Surface Water and Groundwater respectively (see notes for GW targets).

Groundwater Targets

For Surface Water, targets have been taken as Freshwater EQS, using the annual avergae where available, or else the maximum allowable concentration. For MTBE, in the absence of UK EQS, the UKDWS has been used. For individual TPH fractions, in absence of UK EQS, the WHO Drinking Water Standards have been used.

For Groundwater, targets have been taken as UKDWS where available. In the absence of UK targets internationally recognised criteria were adopted, notably WHO Drinking Water Standards for individual TPH fractions, BTEX and MTBE. ‡ = Aliphatic C5-C8 ranges have utilised the longer chain values on a conervsative basis (300ug/l compared to the published 15,000ug/l).

May-25

APPENDIX O

Cover Soils Checklist

ADVISORY NOTE:

SOILS FOR USE IN COVER SYSTEMS

EPS' simple soil-based cover systems are designed in general accordance *'BRE465 - Cover Systems for Land Regeneration, Thickness of Cover Systems for Contaminated Land (2004)'*. Local Authority guidance may also apply, including the National Contaminated Land Officers Group (NCLOG) '*A Regulator's Guide to Cover Systems and their Verification*' (2024). Input from the local authority is welcomed on the use of BRE465 and whether an alternative approach would be preferred in their district, as EPS acknowledge it is not universally accepted (albeit not withdrawn).

Where a specific thickness has been defined, it is what EPS considers sufficient to mitigate the risks from underlying contamination through complete intermixing with the clean cover soils over time, balanced against the realistic quality of soils available in the UK and the overall sustainability of the scheme. The aim being that an acceptable reduction in exposure to contamination is achieved, rather than absolute prevention.

EPS usually carry out a verification exercise of your site to demonstrate that the cover system has been implemented as intended in order to satisfy the planning process, where the visual quality and thickness will need to be checked on-site. If you wish EPS to do this, please call us before purchasing soil and read the following advisory:

Pre-Verification Check:

EPS' strongly recommends soils are sourced from British Sugar (i.e. Landscape 20 product) with evidence provided of delivery direct to your site and the accompanying Tim O'Hare Associates Soil Quality Report. British Sugar soil from beet washings is usually high quality and that is confirmed at source, although generally only available in East Anglia & the South East.

If other soils have been used (i.e. recycled/screened), EPS will need to inspect and test them. This should be done from a stockpile prior to installation. If the soils are put into gardens before testing, it may need to all be removed later so this is not advisable. Often recycled soils are not suitable for use in cover systems.

EPS Contact Details:
Tel: 01954 710666 Email: info@epstrategies.co.uk

APPENDIX P

Method Statement for Encountering Unexpected Contamination

METHOD STATEMENT

ACTIONS TO BE TAKEN IN THE EVENT OF DISCOVERING UNEXPECTED CONTAMINATION DURING INTRUSIVE GROUNDWORKS

If at any point during intrusive groundworks at a site, evidence of unforeseen contamination is encountered in the form of significant noxious odours, discolouration, or instability within soils or sheen/ discolouration in groundwater, the following actions will be taken:

- Intrusive works in the immediate area of the impacted ground will be suspended and the continuation of work in other areas of the site will be considered within the context of the site specific health & safety plan.
- Environmental Protection Strategies Ltd (EPS) will be contacted and appraised of the situation so that arrangements can be made to characterise the impact and determine what action may be necessary in addition to the scheduled site works. Where possible / health & safety plan permits, digital photographs of the impacted ground will be taken and emailed to EPS at the address below to assist in the initial assessment
- It may well be necessary for EPS to attend site to undertake visual inspection and obtain samples for field and/or laboratory analysis, although the actions taken will be dependent on the nature of what is encountered
- In cases where EPS consider the unforeseen contamination likely to pose a significant risk of significant harm to adjacent site users or local environmental receptors, the local authority and the Environment Agency will be informed of the situation and the actions being taken
- Once appropriate action has been agreed and undertaken, a written summary will be produced by EPS for submission to the Local Authority, (and where relevant, the Environment Agency) in accordance with planning requirements. The submission will include details of work undertaken, analytical results of investigative and validation samples obtained and conclusions and recommendations for any further actions considered necessary
- Where regulatory bodies have been involved, site works should only recommence following their agreement and in all cases should only recommence when the site manager considers it safe to do so within the context of the site specific health & safety plan.

EPS Contact Details:

Marcus Bell	Director	Tel: 0787 206 9979
Will Evans	Director	Tel: 0781 253 9655
Steve Bullock	Director	Tel: 0786 694 9221

Email: info@epstrategies.co.uk (Automatically forwarded to the above and office-based personnel)

EPS (Leeds) Ltd
10-12 East Parade
Leeds
LS1 2BH

T +44 (0) 113 873 0211
E info@epstrategies.co.uk
W www.epstrategies.co.uk

Registered Number: 12124295
Registered Address: 7b Caxton House, Broad Street, Cambourne, Cambridge CB23 6JN