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GEOENVIRONMENTAL APPRAISAL

of land at

WHALLEY ROAD, BARROW

Prepared on behalf of LNT Care Developments (3) Limited and THT AND L&Q DEVELOPMENTS LLP

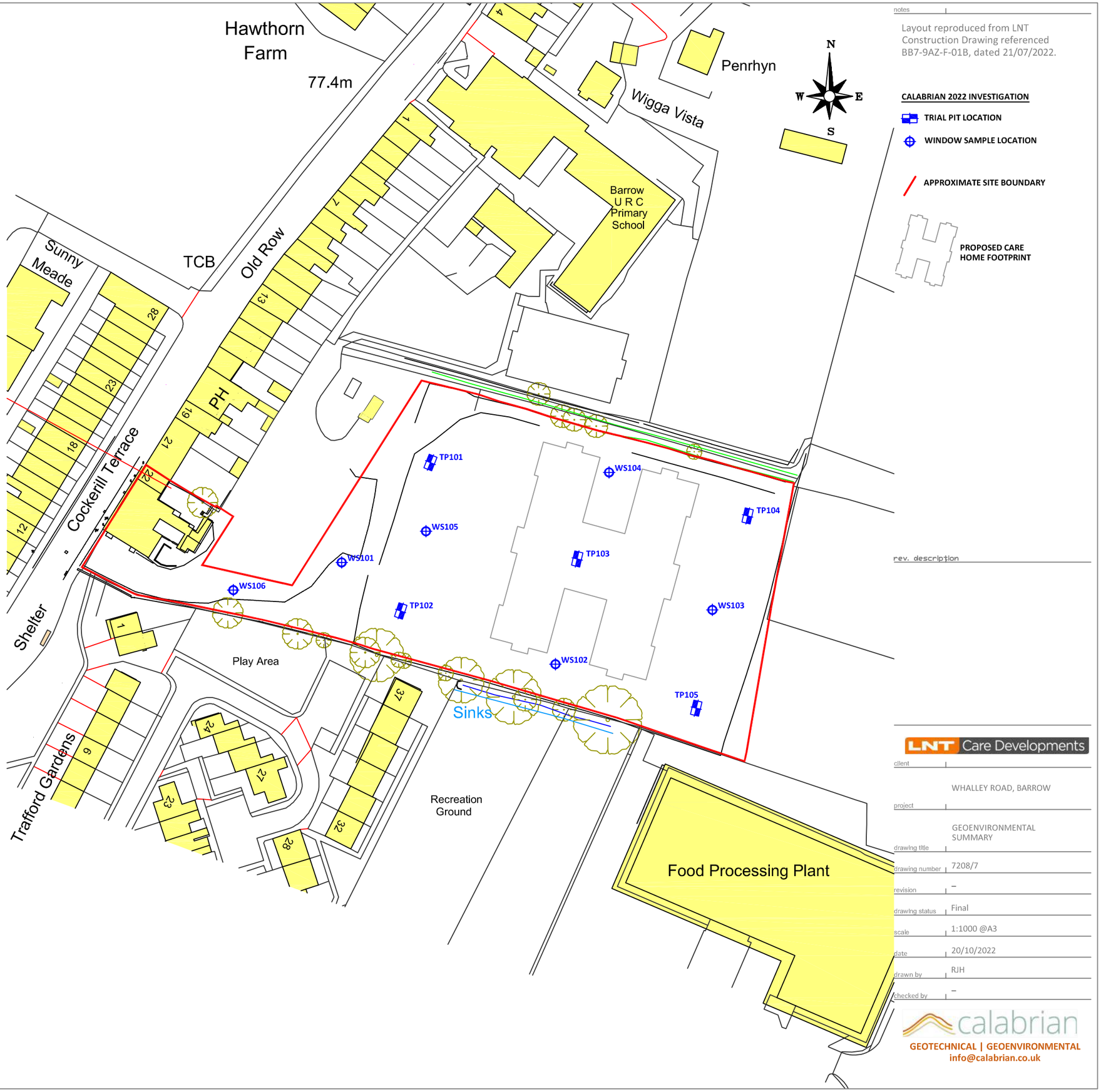
Report 7208/1

October 2022

GEOENVIRONMENTAL SUMMARY

Site Description	The site predominately comprises a roughly square area of rough grassland that slopes gently by around 5m from east down towards the west. This area is generally surrounded by post and wire fencing with sporadic mature trees along the southern boundary. To the south of this main site area lies housing with open grazing land to the east and north. The site is accessed via a hardcore and rough broken asphalt track from Old Roe. A derelict and secured former two-storey public house is located immediately north of the access track and forms part of the future development site access.
History	The majority of the site has essentially remained undeveloped throughout its history. The former 'Dog and Partridge Hotel' has been located on site since at least 1893 but likely as early as 1848.
Made Ground	Within the main development site made ground is limited to occasional brick and sandstone cobbles within the topsoil in the west of the site. In the west beneath the access track made ground was encountered to a maximum depth of 0.45m and comprised asphalt and sand stone fragments.
Natural Ground	Natural ground was encountered to the base of each of the exploratory holes, and typically comprised firm gravelly and cobbly clay.
Contamination & Remediation	In general, the site is greenfield, and no significant contamination has been identified. Made ground used in the construction of the existing hardcore surfaced access track has been found to contain a very low proportion of asbestos fibres (likely associated with demolition rubble) and benzo(a)pyrene within the ash and clinker. Existing made ground will be reused beneath the proposed access road and car park where it will be suitably isolated from end-users and further remediation will not be required.
Hazardous Gas	A former landfill site that only accepted inert was is located within 200m of the site. Therefore, gas monitoring wells have been installed within five boreholes and monitoring will be undertake over a three month period. At this stage gas protection measures are unlikely to be required at the site.
Mining & Quarrying	This site is located beyond the CA's defined coalfields. There are no known quarries on, or within 100m of the site.
Foundations	Conventional strip foundations will be suitable for the two-storey care home founding in the clay deposits at around 1m depth.
Groundwater & Excavations	No significant inflows of groundwater were encountered during the investigation; however, monitoring of wells suggests that excavations left open for an extended period my encountered groundwater. The stability of excavations was good.
Flooding & Drainage	The EA indicate that the site is not located within an indicative floodplain. *Insitu* soakaway testing found negligible infiltrations rates this coupled with shallow groundwater mean that soakaways will not provide a suitable means of surface water discharge at the site.

This brief summary should not be assumed to represent a complete account of all the potential geoenvironmental issues that may exist at the site. As such it is strongly recommended that the report be read in its entirety.



FOREWORD (Geoenvironmental Investigation Report)

This report has been prepared for the sole internal use and reliance of the the Client Care Developments (3) Limited and THT and L&Q Developments LLP. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Calabrian Limited (Calabrian); such authorisation not to be unreasonably withheld. If any unauthorised third party comes into possession of this report, they rely on it at their peril and the authors owe them no duty of care and skill.

The report presents observations and factual data obtained during our site investigation and provides an assessment of geoenvironmental issues with respect to information provided by the Client regarding the proposed development. Further advice should be sought from Calabrian prior to significant revision of the development proposals.

The report should be read in its entirety, including all associated drawings and appendices. Calabrian cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context.

The findings and opinions conveyed in this report (including review of any third-party reports) are based on information obtained from a variety of sources as detailed within this report, and which Calabrian believes are reliable. All reasonable care and skill has been applied in examining the information obtained. Nevertheless, Calabrian cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

The report represents the findings and opinions of experienced geoenvironmental consultants. Calabrian does not provide legal advice and the advice of lawyers may also be required.

Intrusive investigation can only investigate shallow ground beneath a small proportion of the total site area. It is possible therefore that the intrusive investigation undertaken by Calabrian, whilst fully appropriate, may not have encountered all significant subsurface conditions. Consequently, no liability can be accepted for conditions not revealed by the exploratory holes. Any opinion expressed as to the possible configuration of strata between or below exploratory holes is for guidance only and no responsibility is accepted as to its accuracy

It should be borne in mind that the timescale over which the investigation was undertaken may not allow the establishment of equilibrium groundwater levels. Particularly relevant in this context is that groundwater levels are susceptible to seasonal and other variations and may be higher during wetter periods than those encountered during this commission.

Where the report refers to the potential presence of invasive weeds such as Japanese Knotweed, or the presence of asbestos containing materials, it should be noted that the observations are for information only and should be verified by a suitably qualified expert.

This report assumes that ground levels will not change significantly from those existing at present and that the care home will be of two-storey construction. If this is not to be the case, then some modification to this report may be required.

Calabrian cannot be responsible for the consequences of changing practices, revisions to waste management legislation etc that may affect the viability of proposed remediation options.

Calabrian reserve the right to amend their conclusions and recommendations in the light of further information that may become available.

TABLE OF CONTENTS

DRAWINGS	
7208/1	Site Location Plan
7208/2	Proposed Site Layout
7208/3	Existing Site Features
7208/4	Site Photographs
7208/5	Preliminary Conceptual Site Model
7208/6	Exploratory Hole Location Plan
7208/7	Geoenvironmental Summary

ANNEX I	SUMMARY CONTAMINATION DATA (SOILS)
Table A	Summary of Contamination Results (Inorganics)
Table B	Summary of Contamination Results (Organics)

APPENDIX A	COMMISSION
APPENDIX B	HISTORICAL OS PLANS
APPENDIX C	SEARCHES
Landmark	Envirocheck Report
ZeticaUXO	UXO Risk Map
APPENDIX D	EXPLORATORY HOLE RECORDS
Trial Pits	TP101 to TP105
Window Sample Boreholes	WS101 to WS106
APPENDIX E	CHEMICAL TEST RESULTS
APPENDIX F	GEOTECHNICAL TEST RESULTS
APPENDIX G	HAZWASTEONLINE CLASSIFICATIONS
APPENDIX H	GAS MONITORING RESULTS
APPENDIX I	INFILTRATION TESTING

1 INTRODUCTION

1.1 THE COMMISSION AND BRIEF

Calabrian Limited (Calabrian), were commissioned by LNT Care Developments (3) Limited and THT and L&Q Developments LLP (the Client) to carry out a geoenvironmental appraisal of land at Whalley Road, Barrow.

Correspondence regarding Calabrian's appointment, including the brief for this investigation, is included in Appendix A. The agreed scope of works included:

- A site walkover and inspection;
- an assessment of the land use history;
- determination of the site's environmental setting;
- an intrusive ground investigation comprising six trial pits and five boreholes;
- assessment of the geotechnical properties of the near surface deposits to enable provision of foundation and highway recommendations;
- a qualitative assessment of contamination risks; and,
- recommendations for the necessary site preparatory and remediation works.

1.2 OBJECTIVES

Primary aims of this investigation were to identify salient geoenvironmental issues affecting the site to enable the Client to obtain budget costs for the necessary foundation, site preparatory and remediation works, and to support the submission of a planning application to the local authority.

1.3 DEVELOPMENT PROPOSALS

It is understood that consideration is being given to redevelopment of the site with a two-storey residential care home with associated gardens/landscaping, access road and car park. A proposed site layout has been provided by the Client and is copied as Drawing 7208/2.

1.4 REPORT FORMAT AND LIMITATIONS

General notes and limitations relevant to all Calabrian investigations are described in the Foreword and should be read in conjunction with this report. The text of the report draws specific attention to any modification to these procedures and to any other special techniques employed.

2 SITE DESCRIPTION

2.1 GENERAL

Details of the site are given below:

- Location: 11.5km north-east of Blackburn town centre
- Nearest Post Code: BB7 9AZ
- National Grid Reference: SD 738 384
- Area: 0.92 hectares

Known Services:

- Underground electric, water main and sewer (across the proposed access road only); and,
- overhead telecom.

2.2 SITE FEATURES

Calabrian completed a walkover survey of the site on 29th September 2022.

The site predominately comprises a roughly square area of rough grassland that slopes gently by around 5m from east down towards the west. This area is generally surrounded by post and wire fencing with sporadic mature trees along the southern boundary. To the south of this main site area lies housing with open grazing land to the east and north.

The site is accessed via a hardcore and rough broken asphalt surfaced track from Old Row (road). A derelict and secured former two-storey public house is located immediately north of the access track and forms part of the future development site access.

Existing salient features, at the time of the walkover are presented on Drawing No. 7208/3. A selection of site photographs are included on Drawing 7208/4.

3 SITE HISTORY

In order to investigate the development history and previous land uses at the site and immediate surrounding land, site centred extracts from Ordnance Survey (OS) plans dating back to 1848 have been examined. These plans are presented in Appendix B.

Dates	On Site Features	Off Site Feature
1848	Part of a larger open field with northern and southern boundaries similar to the present day. 'Barrow House' located in the western corner of the site fronting Clitheroe Road.	Open fields in all directions. Clitheroe Road with Terraces houses immediately to the west. 'Barrow Printworks' around 200m south including two ponds and a mill race.
1893	'Barrow House' now appears to the 'Dog and Partridge Hotel'.	Further terraced housing to the west of Clitheroe Road. Tanks and Gasometer noted immediately north of the 'Whalley Abbey Print Works'.
1932		'Whalley Abbey Print Works' extended to within 100m of the site with Tennis Ground and Cricket Ground between.
Present		Continued residential development to the south-west of the site from 1950's to 1970'.

It is not the intention of this report to describe in detail all the changes that have occurred on or adjacent to the site. Significant former uses/operations are highlighted in bold text for ease of reference.

4 ENVIRONMENTAL SETTING

4.1 GENERAL

The responses received from ZeticaUXO and Landmark are presented in Appendix C.

Issue Data Reviewed	Remark
Geology 1:50,000 BGS map Borehole Data	Superficial - Glacial Till (likely stiff clay). Solid - Clitheroe Limestone Formation and Hodder Mudstone Formation (mudstone). Shallowest coal seam - None. Strata Dip – Not recorded. Faults – None beneath the site. The nearest archive exploratory hole to the site indicates clay to around 15m depth with limestone beneath.
Mining Coal Authority BGS maps	The site is located beyond the CA's defined coalfields.
Quarrying Landmark Report Historical OS Plans	None within at least 100m.
Radon BRE Report BR211 Landmark	Protective measures are NOT required. The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level).

Issue Data Reviewed	Remark
Hydrogeology Landmark Report Groundwater Vulnerability map	Source Protection Zone? No. Aquifers: Secondary (Superficial); Secondary (Bedrock). Groundwater abstractions? Nearest 309m east. Pollution incidents? None relating to the site.
Hydrology Landmark Report	Nearest watercourse(s) – 5m south. Water quality – Not recorded. Pollution incidents? None relating to the site. Abstractions? Nearest 388m west. Discharge consents? None relating to the site.
Flood Risk Landmark Report	The site lies in Flood Zone 1, where the risk of flooding from rivers or the sea is classified as low.

4.2 LANDFILLS

Known or suspected areas of landfill in the vicinity of the proposed development site are summarised below:

Name (Data Source)	Location	Description
Barrow Lake	Whalley Road, Whalley, Blackburn, Lancashire SD 739 382 (192m south)	Deposited Waste included Inert Waste.

In addition, there are areas of potentially infilled land (water) within 250m of the site.

4.3 UNEXPLODED ORDNANCE (UXO) RISK ASSESSMENT

Military activities including those conducted as part of both the First and Second World Wars have resulted in a legacy of unexploded ordnance (UXO) being present within the shallow soils of the UK.

UXO result from various sources including both allied (military training) and German (bombing raids) with a guide figure of approximately 10% of all munitions failing to function as designed.

The likelihood of UXO being encountered on a development site is influenced by several factors including: the proximity to strategic targets; the nature of the development works being undertaken; and evidence of local damage in the post-war periods amongst others. To determine the likelihood of UXO being present on a site, a stepwise risk assessment process is followed. This process is outlined within CIRIA C681[1].

An initial UXO threat assessment has been undertaken using the ZeticaUXO risk map. The site is located in a low-risk area meaning that there is no greater probability of encountering UXO than anywhere else in the UK; on this basis further assessment is not advocated.

[1] CIRIA C681 Unexploded Ordnance: A Guide for the Construction Industry.

5 GROUND INVESTIGATION DESIGN

5.1 ANTICIPATED GROUND CONDITIONS

Based on the Environmental Setting and previous land use data reviewed anticipated ground conditions are expected to comprise:

- **Made Ground** -.Not anticipated (other than under existing access track).
- **Natural Soils** - Stiff gravelly clay.
- **Bedrock –** Not anticipated at shallow depth.
- **Mineworkings –** Not located within a mining area.
- **Groundwater –** Not anticipated at shallow depth.

5.2 POTENTIAL ISSUES

Based on the data above and that in Sections 2 (Site Description) and 3 (History), potential ground-related issues associated with this site are likely to include:

Potential on-site contamination sources:

1. Possible made ground in and around previously developed areas.

Potential off-site contamination sources:

1. Off-site landfill (hazardous gas only).

Potential geotechnical hazards:

1. None.

5.3 PRELIMINARY CONCEPTUAL SITE MODEL

With the exception of the public house in the extreme west of the site historical plans show that the site has been occupied by likely farmland which is not considered likely to have caused significant ground contamination. Nonetheless, activities such as the discharge of chemicals to ground, unregulated burial, and burning of waste have all occurred on farmland.

Potential pollutants associated with farming activity might include any of the following:

- Carcase burial - Anthrax & other biohazards;
- soil conditioners - Metals, sulphates, PAH;
- equipment maintenance - Hydrocarbons, metals;
- waste burial, land levelling, backfilling ponds\quarries - Methane, metals, PAH etc;
- waste burning - PAH, metals; and,
- possible derelict buildings – Asbestos.

5.4 Investigation Strategy

The preliminary conceptual site model has used as a basis for design of an appropriate ground investigation, the scope of which is summarised below:

Exploratory Hole Type	Purpose
Trail Pits (Machine Excavated)	To determine the general nature of soils underlying the site, including the: • Nature, distribution, and thickness of shallow soils, including any made ground; and, • suitability of the ground for founding structures and pavements.
Window Sample Borehole	To install monitoring wells across the site in order to monitor for hazardous gas and test infiltration rates.

Proposed exploratory hole locations should be selected to provide a representative view of the strata beneath the. A nominal 35m grid spacing should be appropriate, with additional exploratory locations scheduled as necessary in light of the ground conditions actually encountered.

The number of soil samples taken should be reflective of the geological complexity actually encountered, but in general about three samples should be taken from most exploratory holes.

6 FIELDWORK

6.1 Objectives

The original investigation strategy is outlined in Section 5.3 above.

6.2 Exploratory Hole Location Constraints

No access was available beneath the existing (former public house) building.

6.3 Scope of Works

Fieldwork was supervised by Calabrian 29th September 2022 and comprised the exploratory holes listed below.

Technique Type	Exploratory Holes	Final depth(s)	Remarks
Trial pitting (machine dug)	TP101 to TP106	3.5m	Vane tests in cohesive soils
Window Sample boreholes	WS101 to WS 105	5m	Monitoring wells installed in each borehole
Soakaway Tests	WS102 and WS105	1m to 3m	

Exploratory hole logs are presented in Appendix D. These logs include details of the:

- Samples taken;
- descriptions of the solid strata, and any groundwater encountered;
- results of the in-situ testing; and,

- the monitoring wells installed.

Exploratory hole locations are shown on Drawing No. 7208/6.

7 GROUND CONDITIONS

7.1 GENERAL

A complete record of strata encountered beneath the proposed development site is given on the various exploratory hole records, presented in Appendix D.

Typical ground conditions encountered in each of these areas are described below in Sections 7.2 (made ground) and 7.3 (natural ground.

7.2 MADE GROUND

Within the main development site made ground is limited to occasional brick and sandstone cobbles within the topsoil in the west of the site.

In the west beneath the access track made ground was encountered to a maximum depth of 0.45m and comprised asphalt and sandstone fragments.

7.3 NATURAL GROUND

Natural ground was encountered to the base of each of the exploratory holes, and typically comprised firm gravelly and cobbly clay.

7.4 VISUAL & OLFACTORY EVIDENCE OF ORGANIC CONTAMINATION

No evidence of significant organic contamination was noted during the investigation.

7.5 GROUNDWATER

No significant inflows of groundwater were encountered during the investigation.

Groundwater levels recorded in the monitoring wells to date are summarised below.

Exploratory Hole	Response Zone (depth range & stratum)	Standing water level (m bgl)	
		04/10/2022	21/10/2022
WS101	1.0 – 2.8m (Cohesive Glacial Deposits)	1.18	0.37
WS102	1.0 – 2.5m (Cohesive Glacial Deposits)	Dry	1.33
WS103	1.0 – 3.0m (Cohesive Glacial Deposits)	Dry	0.62
WS104	1.0 – 2.5m (Cohesive Glacial Deposits)	1.29	1.25
WS105	1.0 – 3.0m (Cohesive Glacial Deposits)	1.15	0.97

7.6 STABILITY

The stability of excavations was good.

7.7 REVISED CONCEPTUAL GROUND MODEL (GROUND CONDITIONS)

The Preliminary Conceptual Site Model has been revised in light of data obtained during the ground investigation, most notably with respect to:

- The nature and distribution of made ground, including the presence of significant buried obstructions; and,
- the strength, nature, and depth of underlying natural strata.

Further refinement of the Conceptual Site Model is presented in Section 8, where the results of laboratory testing for contaminants have been considered.

8 CONTAMINATION (ANALYSIS, RISK ASSESSMENT & REMEDIATION)

8.1 GENERAL

With the exception of the public house in the extreme west of the site historical plans show that the site has been occupied by likely farmland which is not considered likely to have caused significant ground contamination. Within the main development site made ground is limited to occasional brick and sandstone cobbles within the topsoil in the west of the site. In the west beneath the access track made ground was encountered to a maximum depth of 0.45m and comprised asphalt and sandstone fragments.

An assessment of potential contaminants associated with the former uses has been undertaken; see Section 5.3.

In the context of risks to human health associated with residential development, the Tier 1 Soil Screening Values referenced in this report have been derived by Land Quality Management Limited as their LQM/CIEH S4ULs, but amended, where appropriate, to be more specific to redevelopment within the planning process (see Notes in Annex I).

This site is essentially greenfield, and no evidence of significant contamination was noted. Consequently, the Tier 1 Values used in this report have been derived with reference to a CSM that assumes residential gardens with homegrown produce (Calabrian Scenario A, the most sensitive end-use). In the event that determinands exceed these Tier 1 Values, the results will be reassessed.

8.2 Testing Scheduled

Based on the above assessment, Calabrian submitted a test schedule (summarised in the table below) to a UKAS accredited laboratory.

Type of Sample	No. of Samples	Determinands
Made Ground	2	Asbestos ID, pH, water soluble boron, and total metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc), TOC, banded Total Petroleum Hydrocarbons (TPH) and speciated Poly Aromatic Hydrocarbons (PAH).
Made Ground Topsoil	2	
Topsoil	3	
Cohesive Glacial Deposits	7	

8.3 Soil Contamination Results

The soil contamination test results are summarised in the Tables in Annex I.

Laboratory test certificates as received from the laboratory are presented in Appendix E.

Inorganic Determinands

Of the fourteen samples of natural and made ground analysed for inorganic parameters, none can be classified as contaminated.

Asbestos

Screening for asbestos identified fibres in one sample of made ground from 0.2m depth within WS101. Further analysis (asbestos quantification) found that fibres comprised 0.004% by mass within this sample.

Organic Determinands

Samples have been classified by comparison with Calabrian risk-derived Tier 1 Values. These screening values assume a Soil Organic Matter (SOM) of 6% (equivalent to a TOC of 3.5%). Many organic contaminants are more mobile when the SOM is lower, and consequently lower screening values are then more appropriate for many organic contaminants.

In order to check the validity of Calabrian Tier 1 Values, the average TOC for each common fill type (beyond any areas of obvious hydrocarbon impact) have been determined.

Fill Type	Typical TOC/%	Comparison with revised Screening Value necessary?
Granular Made Ground	13	No
Made Ground Topsoil	>6	
Topsoil	>6	
Ash & Clinker	12	
Cohesive Glacial Deposits	<1.8	Yes, but no significant organic contamination was recorded in this soil type. All determinands well below "6%" screening value; most below limit of detection.

Total Petroleum Hydrocarbons (TPH)

Calabrian have used the CLEA model to derive risk-based screening values for hydrocarbons, in accordance with the methodology detailed by the TPHCWG, and reviewed by a UK workshop of experts with respect to UK adoption of the method.

Calabrian have used the Tier 1 Soil Screening Values referenced in this report have been derived by Land Quality Management Limited as their LQM/CIEH S4ULs.

Assessment of TPH would normally be undertaken in accordance with a 3-step approach. However, given former uses and the absence of visual/olfactory evidence, only a simple banded TPH was scheduled here (compared with full speciation).

None of the fractions exceed their respective Tier 1 criteria, even if it is conservatively assumed all of each fraction is either aliphatic or aromatic.

Poly Aromatic Hydrocarbons (PAH)

Speciated PAH analysis has been undertaken in order to determine concentrations of the key "marker" compounds: benzo(a)pyrene (considered the most toxic of the PAHs); and naphthalene (the most mobile and volatile of the PAHs).

Speciated analysis has confirmed the absence of significant concentrations of naphthalene in the soils beneath this site.

With the exception of the thin layer of ash and clinker within WS106 no concentrations of benzo(a)pyrene were recorded above Calabrian' Tier 1 Value of 3mg/kg; in fact, no samples exceeded 0.2mg/kg.

8.4 Discussion

In general, the site is greenfield, and no significant contamination has been identified. Made ground used in the construction of the existing hardcore surfaced access track has been found to contain a very low proportion of asbestos fibres (likely associated with demolition rubble) and benzo(a)pyrene within the ash and clinker.

Existing made ground will be reused beneath the proposed access road and car park where it will be suitably isolated from end-users and further remediation will not be required.

Asbestos

Fibres were identified in one sample of made ground screened for asbestos. This positive result is associated with the presence of trace amounts of fibre (<0.01%) and are therefore of limited significance. Risks associated with trace amounts are negligible and the proposed hardcover (access road and car park) will isolate end-users.

Nonetheless, made ground soils with only a trace of asbestos still have the potential to be hazardous to human health. This is because soil with a low asbestos content of say 0.001% may contain thousands, possibly hundreds of thousands, of potentially respirable asbestos fibres per gram of soil. However, asbestos fibres only pose a risk if they are allowed to become airborne, and release from soil to air can only occur if the soil is dry and then agitated (e.g. by vehicle movement, excavation, wind etc).

Provided soils are kept damp the risk of airborne fibre release, even during disturbance associated with excavation, should be negligible, and certainly below the control limit (as set by the Control of Asbestos Regulations 2012) of 0.1 f/cm^3 airborne fibres averaged over a 4-hour period.

In our experience, damp soils do not allow the release of asbestos fibres, even from soils that contain concentrations in excess of the hazardous waste threshold (0.1%).

There may be transient risks during the excavation of made ground soils. Exposure to asbestos of personnel involved in these excavation works is considered likely to be sporadic and of low intensity (provided soils are kept damp). Therefore, in accordance with Regulation 3(2) of the Control of Asbestos Regulations (2012), exemption from Regulations: 9 (notification of work with asbestos); 18(1)(a) (asbestos areas); and 22 (health records and medical surveillance) should apply, provided it is 'clear from a suitable and sufficient risk assessment that the control limit of 0.1 f/cm^3 airborne fibres averaged over a 4-hour period will not be exceeded'.

Nonetheless, risks must be mitigated by appropriate measures (principally damping down), working procedures, and PPE. Method Statements and Risk Assessments should be prepared by the Contractor, and then be reviewed by the Client and Calabrian.

Any fragments of asbestos cement sheeting encountered during the excavation works, should be gathered by hand and placed in double sealed bags. Personnel involved in this activity must be equipped with an appropriate respirator (i.e. a FFP3 or better), in addition to their "standard" PPE. The bags of asbestos waste should be placed in a sealed skip for off-site disposal at a suitably licensed landfill site; such material will be classified as hazardous waste.

Also see also in the 'Waste Classification' Section below.

8.5 Waste Classification

Contractors exporting waste from the site should be asked to review the site investigation data and make their own assessment.

Soils at the site have been classified using the HazWasteOnline toolkit™ as summarised in the table below; details of each classification and explanatory notes on waste classification are provided in Appendix G.

Exp Hole	Depth (m)	Classification	WAC Results	
			SNRHW*	Hazardous
TP101	0.1	Potentially Hazardous		
TP101	0.5	Non-Hazardous	Pass	Pass
TP102	0.1	Non-Hazardous		
TP102	0.6	Non-Hazardous		
TP103	0.1	Non-Hazardous		
TP103	0.5	Non-Hazardous		
TP104	0.1	Non-Hazardous		
TP104	0.4	Non-Hazardous		

Exp Hole	Depth (m)	Classification	WAC Results	
			SNRHW*	Hazardous
TP105	0.1	Non-Hazardous		
TP105	0.5	Non-Hazardous		
WS101	0.2	Hazardous		
WS101	0.5	Non-Hazardous	Pass	Pass
WS106	0.2	Potentially Hazardous		
WS106	0.2	Non-Hazardous		

**Stable non-reactive hazardous waste*.

Two samples have been assessed as having potentially hazardous classification due to hazardous property HP3(i): Flammable resulting from concentrations of benzene, toluene, ethylbenzene, xylenes, and total petroleum hydrocarbons (TPH). Environment Agency guidance WM3 states that hazardous property HP3 can be discounted if the waste is solid without a free draining liquid phase. No free phase product was recorded in exploratory hole logs; therefore, it is considered likely that the majority of waste will have a non-hazardous classification.

One sample has been classified as hazardous due to its Total Organic Carbon (TOC) content; this material will very likely remain on site and beneath the proposed new access road and car park.

WAC testing was undertaken on two samples of non-hazardous; the results are presented within Appendix E. The results suggest that the soils here would be classified as inert waste.

Soils containing visible asbestos fragments or proportion greater than 0.1% by mass would be classified as hazardous waste; no soils on site exceeded these parameters.

9 HAZARDOUS GAS

9.1 GENERAL

Consideration of the conceptual site model and potential linkages has enabled a preliminary qualitative assessment of risks associated with gas:- edit Table to suit site-specifics.

Source	Receptors	Hazard	Pathway	Initial Risk
Off-site landfill, located 192m south Deposited Waste included Inert Waste.	Human Health	Asphyxiation & explosion.	Lateral migration, ingress & accumulation	**Very Low**: natural strata to at least 3m depth are generally of very low permeability.
	Buildings	Explosion.		

Given the above, gas monitoring wells have been installed in five boreholes across the site. Details of the installations are given on the borehole logs presented in Appendix D.

The generation potential of the gas source was initially considered to be Very Low, and this has been confirmed by the monitoring results obtained. Consequently, in accordance with CIRIA Report C665, given the proposed residential end use, six visits have been scheduled over a three-month period.

9.2 Scope Of Works

To date, the wells have been monitored on two occasions for groundwater levels and soils-gases and the results are presented in Appendix H.

A standard procedure was followed, in accordance with CIRIA guidance:

- Ambient oxygen concentration;
- atmospheric temperature & pressure;
- methane, oxygen and carbon dioxide concentrations and flow rates using a Geotechnical Instruments GA5000 infra-red gas analyser;
- standing water level using a dipmeter;
- ambient oxygen concentration (check for instrument drift).

9.3 Monitoring Results

The results of the monitoring completed to date are summarised below.

Monitoring Well	Response Zone	Range of Methane Concentrations (% v/v)	Range of Carbon Dioxide Concentrations (% v/v)	Range of Steady Flow Rates (litre/hour)
WS101	1.0 – 2.8m (Cohesive Glacial Deposits)	0.0 – 0.1	0.1	0.2
WS102	1.0 – 2.5m (Cohesive Glacial Deposits)	0.0	1.0 - 1.3	0.0 – 0.2
WS103	1.0 – 3.0m (Cohesive Glacial Deposits)	0.0 – 0.1	0.2 – 0.4	0.1 – 0.3
WS104	1.0 – 2.5m (Cohesive Glacial Deposits)	0.0	1.0 - 1.2	0.1
WS105	1.0 – 3.0m (Cohesive Glacial Deposits)	0.0	0.4 – 0.5	0.0 – 0.2

9.4 Discussion

A hazardous gas risk assessment incorporating all of the results will be issued on completion of monitoring in December. Based on worst-case gas concentrations and flows to date, Gas Screening Values (GSVs) for Methane and Carbon Dioxide are 0.0052l/hr and 0.0039l/hr respectively. These GSVs equate to CHARACTERISTIC SITUATION CS1.

9.5 RADON

BRE Report BR211 (2015 Edition) indicates that radon protection measures are not required for new dwellings at the site. Information from Landmark confirms that the site is in an area where less than 1% of homes are estimated to be above the action level, and that radon protection measures are therefore not required.

10 GEOTECHNICAL TESTING

10.1 GENERAL

A total of five samples of natural soil were delivered to a suitably accredited laboratory with a schedule of geotechnical testing drawn up by Calabrian.

The geotechnical laboratory test results are presented in Appendix F.

10.2 ATTERBERG LIMITS

The plasticity indices of five samples of cohesive soil have been determined; results are summarised below.

Soil type	Range of Plasticity Indices* (Average)	Shrinkability
Cohesive Glacial Deposits	14 to 30 (23)	Medium

** Modified where appropriate in accordance with revised Chapter 4.2 of the NHBC Standards (April 2003).*

Note. The term Shrinkability is equivalent to the term Volume Change Potential used in Chapter 4.2.

For the purposes of foundation design, it is recommended that all cohesive soils be regarded as being of medium shrinkability.

10.3 SOLUBLE SULPHATE AND PH

In accordance with BRE Special Digest 1:2005, this site has been classified as greenfield with a mobile groundwater regime.

It is envisaged foundations will extend to depths of about 1m into natural strata and samples taken from this depth range have been submitted for pH and water-soluble sulphate (2:1 soil/water extract).

The concentrations of sulphate in the aqueous natural soil extracts of five samples were determined.

The highest water-soluble sulphate concentration and the lowest pH value for each soil type analysed are shown in the Table below.

Soil type	Lowest pH values	Highest Soluble Sulphate Concentration (mg/l)
Cohesive Glacial Deposits	7.0	210

pH values were all above 5.5, therefore concentrations of chloride and nitrate are considered insignificant.

In accordance with Tables C1 and C2 of SD1, sub-surface concrete should be Design Sulphate Class DS-1, with the site allocated an ACEC Classification of AC-1.

10.4 Undrained Shear Strength Testing

Hand Shear Vane Testing

Hand shear vane testing was undertaken from larger blocks of excavated. The undrained shear ranged from 58kPa to 100kPa.

10.5 Soakaway Tests

In accordance with CIRIA C753, The SuDS Manual soakaway tests were carried out at two borehole locations in general accordance with BS EN ISO 22282-2[2]. Infiltration rates were calculated using the method detailed in BRE365.

Infiltration Rates

Tests were undertaken with the borehole monitoring wells of WS102 and WS105 using the falling head (variable head) test method. Water was rapidly injected into teach well up to a level of 1m below ground level.

In each case over the following five hours the water level did not fall more than 20mm. Given these extremely slow head reductions infiltration rates for the low permeability soils could not be calculated.

Copies of the *insitu* test are presented in Appendix I.

The guidance within BRE365 and CIRIA C753 states the following:

- '*falling head tests should be repeated three times*'. Given that the water level did not fall at all it would be impossible to repeat the test three times over a single or subsequent days.
- "*The soakaway should discharge from full to half-volume within 24 hours in readiness for subsequent storm inflow*." Evidently, the test conducted on site could not achieve half full volume within 24 hours and the soakaway would be ineffective.
- "*Groundwater should not rise to the level of 1m below the base of the soakaway during annual variations in the water table*." Groundwater has been recorded within the monitoring wells across the site at around 1.2m depth well above the base of any potential permanent soakaway.

Due to very slow infiltrations rates recorded on site and more importantly shallow groundwater soakaways will not provide a suitable drainage solution for the discharge of surface water run-off at the site and therefore there may be a need for surface water balancing.

[2] *BS EN ISO 22282-2:2012 Geotechnical investigation and testing. Geohydraulic testing Water permeability tests in a borehole using open systems.*

11 GEOTECHNICAL ISSUES

11.1 CONCEPTUAL SITE MODEL

Within the main development site made ground is limited to occasional brick and sandstone cobbles within the topsoil in the west of the site. In the west beneath the access track made ground was encountered to a maximum depth of 0.45m and comprised asphalt and sandstone fragments.

Natural ground was encountered to the base of each of the exploratory holes, and typically comprised firm gravelly and cobbly clay.

11.2 MINING & QUARRYING

This site is located beyond the CA's defined coalfields.

There are no known quarries on, or within 500m of the site.

11.3 FOUNDATION RECOMMENDATIONS

General

Foundation recommendations assume that development will be two-storey construction and that line loads will not exceed 110kN/m run. If this is not the case significant alteration to these recommendations will be required.

We have assumed that final development levels will not differ significantly from ground levels existing at the time of investigation. Any digital terrain modelling undertaken or commissioned by Client should consider implications for the foundation recommendations outlined below.

Sub-surface concrete in contact with the natural ground should be Design Sulphate Class DS-1, with the site allocated an ACEC Classification of AC-1.

Strip/Trench Fill Footings

It is considered that shallow strip or deepened trench fill footings will be the most suitable foundation solution for the proposed two-storey care home. This solution is viable where stiff clay is the founding material.

Clay/Cohesive Soils

The care home has an assumed maximum foundation line load of 110kN/m run, a foundation geometry of length = 50m, breadth = 0.6m, thickness = 225mm, founding below 1m depth and assuming an undrained shear strength of 80kPa for the stiff clay then theoretical safe bearing capacities as detailed below can be calculated:

- Meyerhof (Factor of Safety) Approach = >150kPa (FoS=2.5)
- Lumped Factor of Safety = >150kPa (FoS=2.5)

A Eurocode 7 approach provides the following ultimate bearing capacities including the use of depth factors. Applying 75mm of eccentricity to the line load has negligible effect in either case:

- DA1 Combination 1 = >150kPa (ultimate)
- DA2 Combination 2 = >150kPa

However, consideration should also be given to the effect of settlement on the above safe bearing capacities in order to assess meaningful allowable bearing capacities. Assuming the foundation geometry detailed above minimal settlements would be anticipated.

Clay classification tests suggest that natural cohesive soils at the site should be regarded as being of medium shrinkability. A medium founding depth of 900mm is therefore recommended for all soils on the site where strip footings are proposed.

General

Reinforcement, as a precaution against differential settlement, is recommended only where foundation excavations encounter significant lateral and vertical variations in strata. One layer of B385 mesh placed 75mm above the base of the footing is likely to provide suitable reinforcement, but further advice should be sought from the Structural Engineer.

Founding depths are from original or finished ground level, whichever is the lower, to the underside of the footing.

Foundations should be deepened near trees in accordance with NHBC Standards Chapter 4.2. Overdeepened foundations should be stepped in accordance with NHBC Standards, Chapter 4.4.

The Client or their groundworker should seek further advice from Calabrian if unexpected ground conditions are encountered in foundation or sewer excavations.

11.4 Designated Concrete Mixes

The following designated mixes in accordance with BRE Special Digest SD1 and BS 8500: Part 1: 2006 will be suitable for use on this site.

Application	DS-1 conditions ACEC Class AC-1
Unreinforced strip/trench fill footings	GEN1
Reinforced strip/ trench fill footings (mesh reinforcement)	RC28/35
Pads, rafts, and ground beams	RC28/35

11.5 Excavations

Based on the results of the investigation it is unlikely that major groundwater flows will be encountered in shallow excavations; however, monitoring of wells suggests that excavations left open for an extended period my encountered groundwater.

Excavations should remain stable in the short term but if left open for any significant period of time may require shoring.

11.6 Drainage

Based on *insitu* testing undertaken during the investigation soakaways will not provide a suitable drainage solution for surface water run-off at the site. Consequently, it will be necessary to consider alternative sustainable drainage systems (SUDS), and there may be a need for surface water balancing.

Any damage to the existing land drainage system caused by foundation or sewer excavations should be made good; this may require diversion and re-connection.

It is recommended that the developer contact the local water services company with respect to capacity in existing foul and surface water sewers in the vicinity of the development area.

11.7 Pavements

Based on visual inspection of the natural materials at the site, published tables (Interim Advice Note 73/06 Revision 1 (2009), Chapter 5. Characterisation of Materials Design Guidance for Road Pavement Foundations - Draft HD25) PDF p25 indicate that the chalk deposits will have a CBR value of at least 3%. These values should be verified prior to or during construction.

11.8 External Works

Any digital terrain modelling undertaken or commissioned by Client should be made available to their Engineering Designer prior to issue of an External Works Drawing.

12 REDEVELOPMENT ISSUES

12.1 General

This report has presented options with respect to foundation solutions and contamination assessment that are considered technically feasible and in line with current good practice. Consequently, we would expect to obtain regulatory approval for whichever option is adopted, although this cannot be guaranteed. Copies of this report should be forwarded to the relevant regulatory authorities (Local Authority) for their comment/approval.

12.2 Preparation Works

Given the absence of any significant contamination, a remediation strategy is not considered necessary. Nonetheless, some preparatory works will be required, most notably:

- General site clearance of surface materials, unprotected trees, and vegetation; and,
- topsoil strip & stockpile.

Existing made ground in the west of the site should remain beneath the proposed access road and car park and not be relocated into garden/landscaped areas or beneath the proposed care home building.

It should be ensured that the groundworker understands the need for good materials management. Most notably the importance of not mixing different materials within a given stockpile; i.e. there should be separate stockpiles of topsoil and natural ground.

No areas of gross contamination were encountered during the site investigation. However, if any buried drums, "oily", odorous, brightly coloured etc. materials are encountered, further advice should be sought from Calabrian. Further advice should also be sought if deep foundations etc associated with the former building (highly unlikely) are encountered during the preparatory works; such obstructions might necessitate revised foundation design.

12.3 Health & Safety Issues - Construction Workers

Access into excavations etc. must be controlled and only undertaken in accordance with the Confined Spaces Regulations 1997. The atmosphere in shored trenches in excess of 1.2m should be monitored for oxygen and hazardous gas (methane & carbon dioxide), prior to personnel entering such excavations. Monitoring should continue whilst personnel are working in deep excavations.

Before site operations are started, the necessary COSHH statements and Health & Safety Plan should be drafted in accordance with the CDM regulations.

12.4 New Utilities

It is strongly recommended that all statutory service bodies are consulted at an early stage with respect to the ground conditions within which they will lay services in order to enable them to assess at an early stage any potential abnormal costs.

This site is essentially greenfield, and no previous or current usage of the site or its immediate surroundings is likely to have resulted in ground contamination. Furthermore, no significant made ground was encountered in any of the exploratory holes during the ground investigation.

Consequently, the use of 'standard' polyethylene water supply pipes should be acceptable, although Client should consult the local water company at the earliest opportunity to confirm this.

13 CONCLUSIONS & RECOMMENDATIONS

13.1 General

Consideration is being given to development of the site with a two-storey residential care home with associated gardens/landscaping, access road and car parking.

13.2 History

The majority of the site has essentially remained undeveloped throughout its history. The former 'Dog and Partridge Hotel' has been located on site since at least 1893 but likely as early as 1848.

13.3 Ground Conditions

Within the main development site made ground is limited to occasional brick and sandstone cobbles within the topsoil in the west of the site. In the west beneath the access track made ground was encountered to a maximum depth of 0.45m and comprised asphalt and sandstone fragments.

Natural ground was encountered to the base of each of the exploratory holes, and typically comprised firm gravelly and cobbly clay.

13.4 Hazardous Gas

A hazardous gas risk assessment incorporating all of the results will be issued on completion of monitoring in December. Based on worst-case gas concentrations and flows to date the site would be CHARACTERISTIC SITUATION CS1.

The site is in an area where less than 1% of homes are estimated to be above the radon action level.

As such, no special precautions against hazardous gas are required.

13.5 Mining

This site is beyond the CA's defined coalfields.

There are no quarries within 500m of the site.

13.6 Contamination & Remediation

In general, the site is greenfield, and no significant contamination has been identified. Made ground used in the construction of the existing hardcore surfaced access track has been found to contain a very low proportion of asbestos fibres (likely associated with demolition rubble) and benzo(a)pyrene within the ash and clinker.

Existing made ground will be reused beneath the proposed access road and car park where it will be suitably isolated from end-users and further remediation will not be required.

13.7 Foundations

Conventional strip foundations will be suitable for the two-storey care home founding in the clay at around 1m depth deepened near to the existing trees/hedgerow.

13.8 Flooding

The EA indicate that the site is not located within an indicative floodplain.

13.9 Drainage

Soakaways would not provide a suitable drainage solution for surface water run-off at the site. Consequently, it will be necessary to consider alternative sustainable drainage systems (SUDS), and there may be a need for surface water balancing.

13.10 PAVEMENTS

The natural clay deposits will have a CBR value of at least 3%. These values should be verified prior to or during construction.

DRAWINGS	
7208/1	Site Location Plan
7208/2	Proposed Site Layout
7208/3	Existing Site Features
7208/4	Site Photographs
7208/5	Preliminary Conceptual Site Model
7208/6	Exploratory Hole Location Plan
7208/7	Geoenvironmental Summary

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LNT Care Developments

client	
	WHALLEY ROAD, BARROW
project	
	SITE LOCATION
drawing title	
drawing number	7208/1
revision	–
drawing status	Final
scale	1:25,000 @ A4
date	27/09/2022
drawn by	RJH
checked by	–

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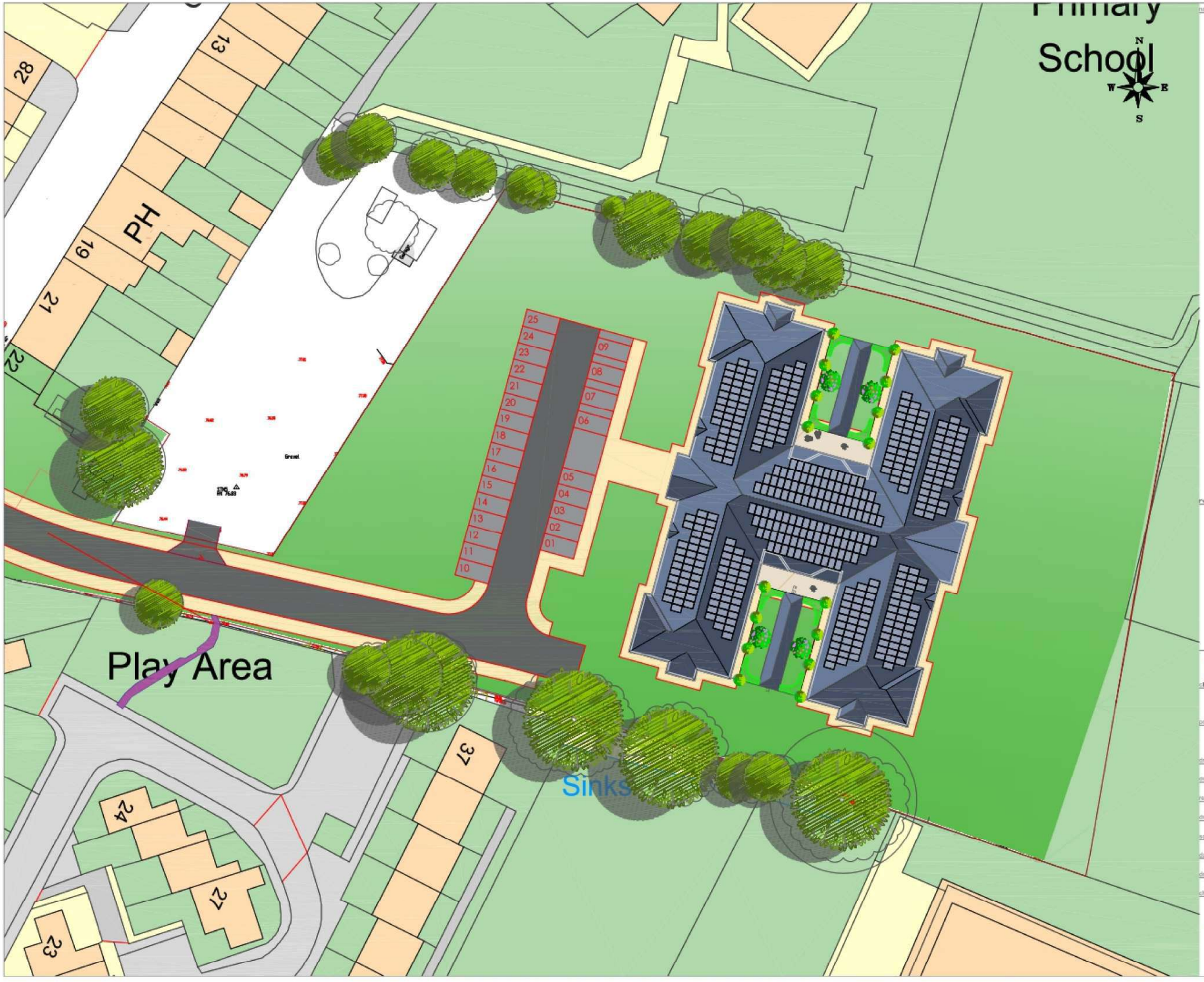

notes

Layout reproduced from LNT Construction Drawing referenced BB7-9AZ-F-01B, dated 21/07/2022.

rev. description

LNT Care Developments

client

WHALLEY ROAD, BARROW

project

PROPOSED LAYOUT

drawing title

drawing number 7208/2

revision –

drawing status Final

scale 1:500 @A3

date 27/09/2022

drawn by RJH

checked by –

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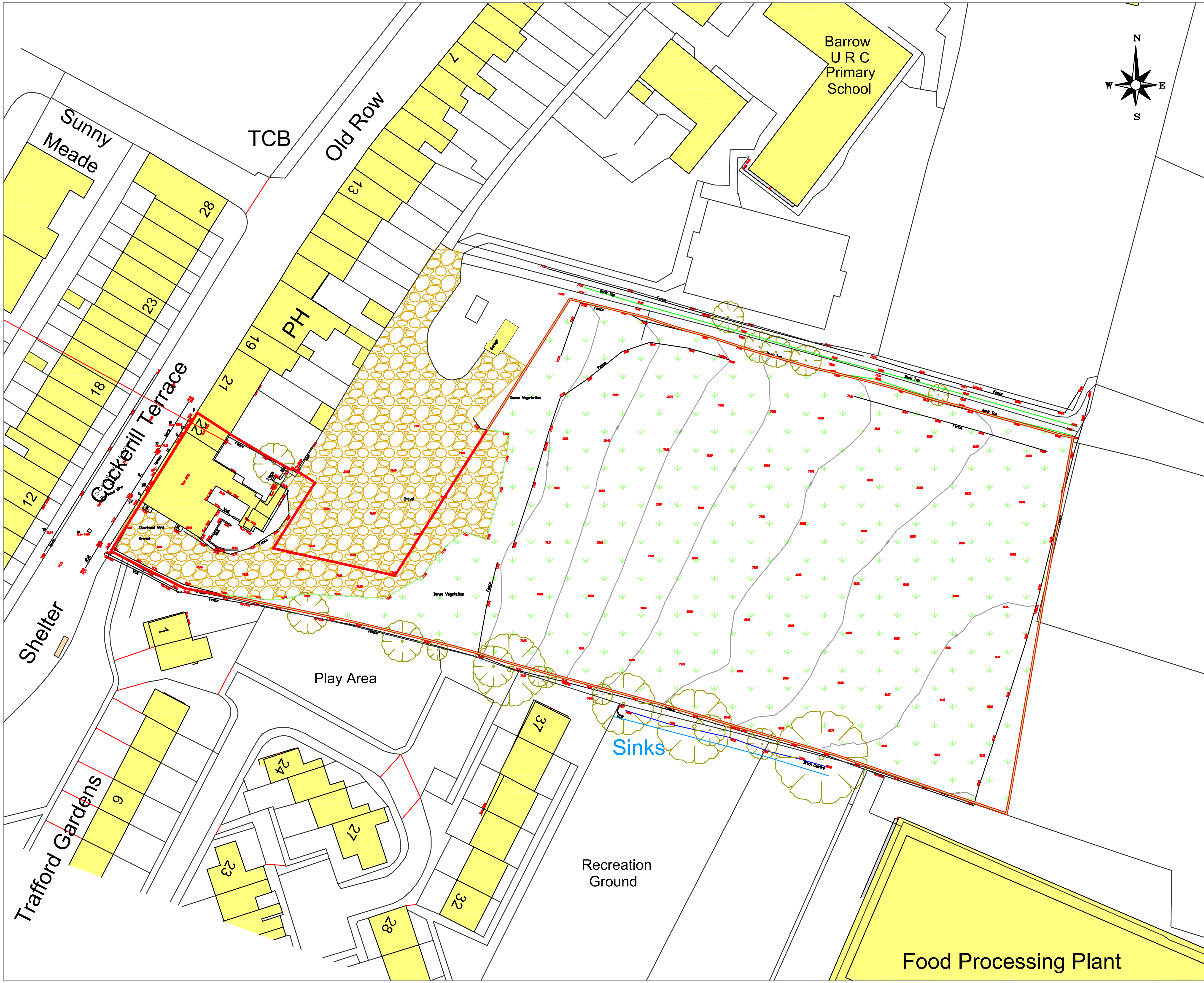

notes

- GRASS & OVERGROWN AREAS
- BUILDING
- GRAVEL OR HARDCORE SURFACING
- APPROXIMATE SITE BOUNDARY

rev. description

LNT Care Developments

client	
project	WHALLEY ROAD, BARROW
drawing title	SITE FEATURES
drawing number	7208/3
revision	–
drawing status	Final
scale	1:500 @A3
date	20/10/2022
drawn by	RJH
checked by	–

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Hawthorn Farm

Penrhyn

Wigga Vista

Sunny Meade

TCB

Old

PH

Cockerill Terrace

Play Area

Sinks

Recreation Ground

N

W E

S

notes

APPROXIMATE SITE BOUNDARY

LOCATION & ORIENTATION OF PHOTOGRAPH

rev. description

LNT Care Developments

client

WHALLEY ROAD, BARROW

project

PHOTOGRAPHS

drawing title

drawing number	7208/4
revision	–
drawing status	Final
scale	1:1000 @A3
date	20/10/2022
drawn by	RJH
checked by	–

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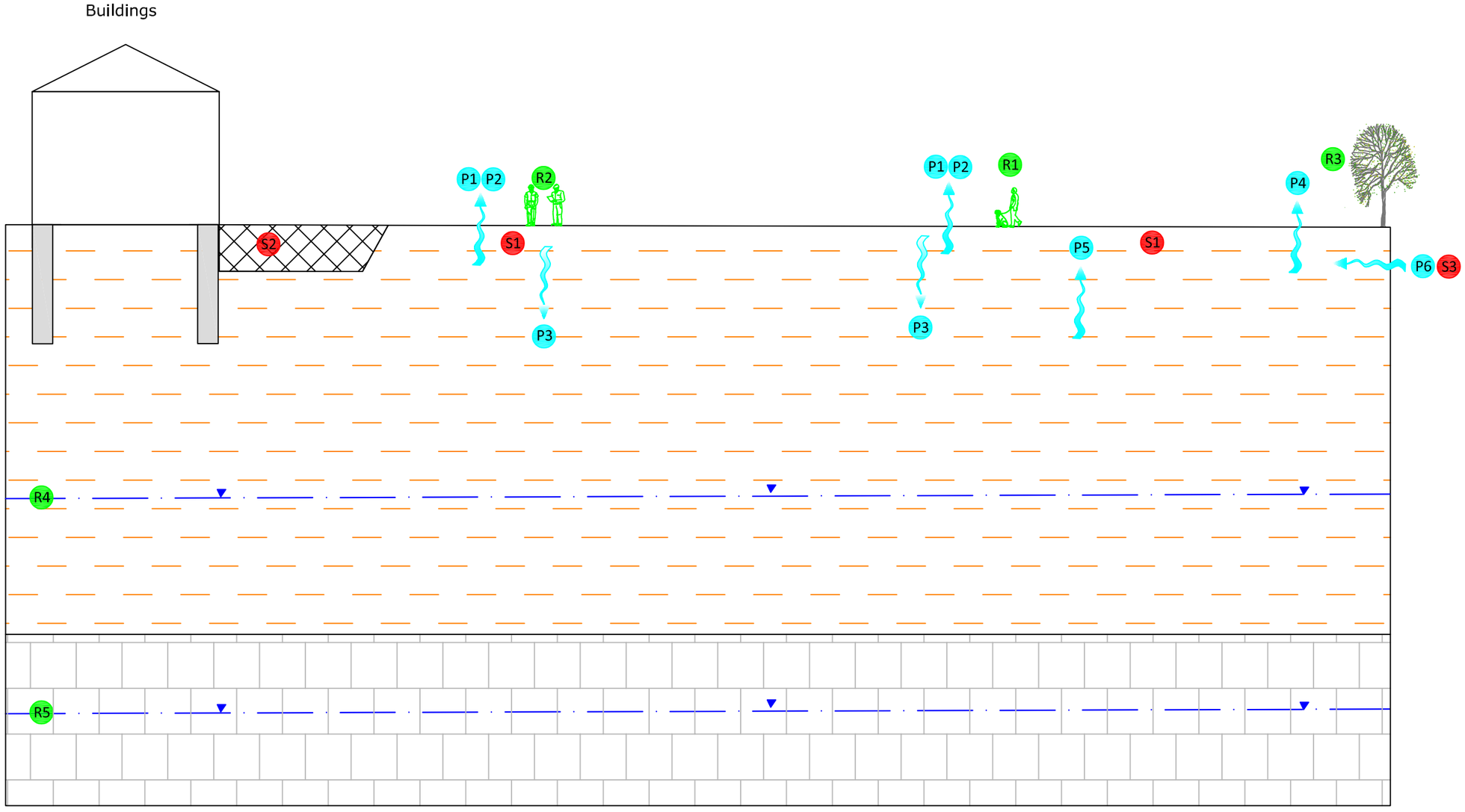

GEOLOGY

- **MADE GROUND**
- **GLACIAL TILL** (likely stiff gravelly clay)
- **CLITHEROE LIMESTONE FORMATION AND HODDER MUDSTONE FORMATION** (mudstone)

SOURCES

- S1 **AGRICULTURAL USES** (inorganics, organics, asbestos)
- S2 **MADE GROUND** (inorganics, organics, asbestos)
- S3 **LANDFILL SITE** (Hazardous gas)

POTENTIAL PATHWAYS

- P1 **DERMAL CONTACT**
- P2 **INGESTION\INHALATION**
- P3 **LEACHING OF CONTAMINANTS**
- P4 **UPTAKE BY PLANTS**
- P5 **VOLATILISATION**
- P6 **MIGRATION OF GAS** (Off-site inert landfill)

SIGNIFICANT RECEPTORS

- R1 **END USERS (RESIDENTS)**
- R2 **SITE WORKERS**
- R3 **VEGETATION**
- R4 **SECONDARY AQUIFER - SUPERFICIAL**
- R5 **SECONDARY AQUIFER - BEDROCK**

notes

rev. description

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WHALLEY ROAD, BARROW

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PRELIMINARY CONCEPTUAL SITE MODEL

drawing title

drawing number 7208/5

revision –

drawing status Final

scale Not to Scale

date 25/09/2022

drawn by RJH

checked by –

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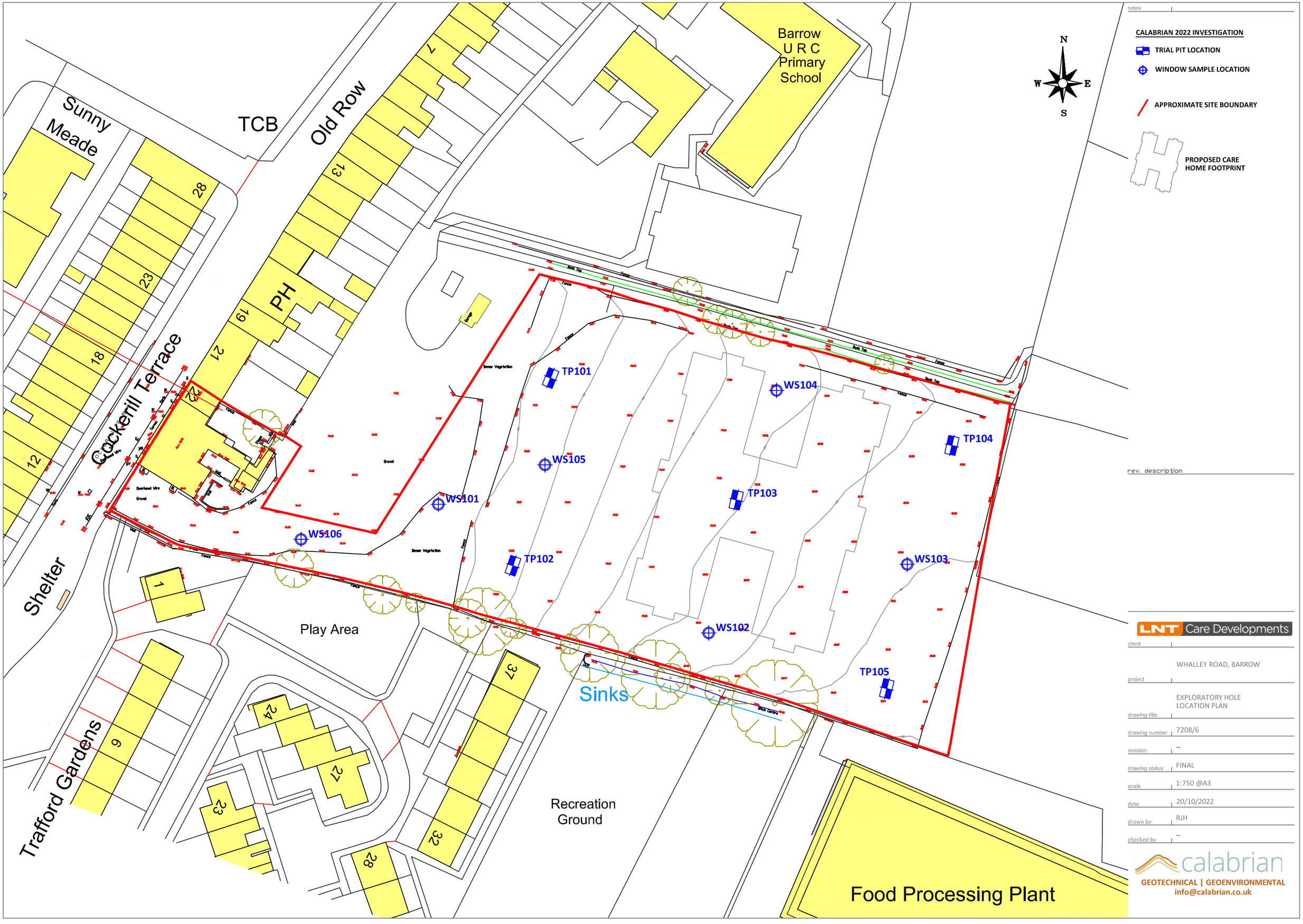

notes

CALABRIAN 2022 INVESTIGATION

- TRIAL PIT LOCATION
- WINDOW SAMPLE LOCATION
- APPROXIMATE SITE BOUNDARY
- PROPOSED CARE HOME FOOTPRINT

rev. description

LNT Care Developments

client

WHALLEY ROAD, BARROW

project

EXPLORATORY HOLE LOCATION PLAN

drawing title

drawing number	7208/6
revision	–
drawing status	FINAL
scale	1:750 @A3
date	20/10/2022
drawn by	RJH
checked by	–

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ANNEX I	SUMMARY CONTAMINATION DATA (SOILS)
Table A	Summary of Contamination Results (Inorganics)
Table B	Summary of Contamination Results (Organics)

Summary of Degree of Ground Contamination (Inorganics)

Expl Hole	Depth (m)	Material	Concentrations in mg/kg unless otherwise stated. Results are quoted to 1 decimal place if <10, and whole numbers if >10. Trigger Level Concentrations are shown in **BLACK** and assume a **residential with homegrown produce end-use (Calabrian Scenario A).**											
			pH	As	B	Cd	Cr (III)	Cu	Pb	Hg (inorganic)	Ni	Se	Zn	Asbestos
				37	290	11	910	2400	200	40	130	250	3700	Indentification / Quantity (% mass)
TP101	0.1	Made Ground Topsoil	6.3	16	0.7	0.7	21	46	80	0.21	20	< 0.5	160	Not Identified
TP101	0.5	Cohesive Glacial Deposits	7.3	11	0.2	0.4	30	33	23	< 0.05	41	< 0.5	84	Not Identified
TP102	0.1	Made Ground Topsoil	5.4	16	0.8	0.8	23	36	74	0.18	24	0.6	110	Not Identified
TP102	0.6	Cohesive Glacial Deposits	8.3	7.4	< 0.2	0.9	14	21	19	< 0.05	28	< 0.5	100	Not Identified
TP103	0.1	Topsoil	5.1	15	0.7	0.6	23	31	68	0.16	21	< 0.5	120	Not Identified
TP103	0.5	Cohesive Glacial Deposits	7	15	< 0.2	1.4	25	33	38	0.06	49	0.6	150	Not Identified
TP104	0.1	Topsoil	5.3	19	0.8	0.9	28	99	89	0.23	26	0.7	110	Not Identified
TP104	0.4	Cohesive Glacial Deposits	6.6	13	0.3	0.4	28	30	21	< 0.05	39	0.7	75	Not Identified
TP105	0.1	Topsoil	4.9	22	1	0.8	26	65	110	0.32	23	0.8	100	Not Identified
TP105	0.5	Cohesive Glacial Deposits	7.3	12	0.3	0.3	31	32	23	< 0.05	38	0.9	70	Not Identified
WS101	0.2	Granular Made Ground	11.9	37	0.4	0.5	12	27	56	0.07	26	0.8	84	**Chrysotile** / **0.004**
WS101	0.5	Cohesive Glacial Deposits	7.3	12	0.6	0.8	26	18	23	< 0.05	35	0.6	68	Not Identified
WS106	0.2	Ash & Clinker	9.8	5.9	0.4	0.3	11	26	16	< 0.05	13	0.8	92	Not Identified
WS106	0.2	Cohesive Glacial Deposits	10.2	9.4	0.4	0.8	19	26	17	< 0.05	35	0.7	81	Not Identified

KEY

36	Parameter tested for and found to be in excess of Tier 1 concentration
179	Parameter tested for and found to be > 5 x Tier 1 concentration
12	Parameter tested for but not found to be in excess of Tier 1 concentration

Summary of Degree of Ground Contamination (Organics)

Expl Hole	Depth (m)	Material	Concentrations in mg/kg. Results are quoted to 1 decimal place if <10, and whole numbers if >10. Trigger Level Concentrations are shown in **BLACK** and assume a **residential with homegrown produce end use** (Calabrian scenario A)									
			% TOC	Benzene	Toluene	Ethyl Benzene	Xylenes	PAH		TPH - C6 to C40		
								B(a)P	Naphth-alene	GRO~ C_6 to C_{10}	DRO◊ C_{10} to C_{20}	LRO C_{20} to C_{40}
				0.37	660	260	310	3	13	42	130	1000
TP101	0.1	Made Ground Topsoil	8	< 0.01	< 0.01	< 0.01	< 0.01	0.07	< 0.03	< 0.1	< 10	29
TP101	0.5	Cohesive Glacial Deposits	0.9	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.03	< 0.1	< 10	< 10
TP102	0.1	Made Ground Topsoil	6	< 0.01	< 0.01	< 0.01	< 0.01	0.08	0.06	< 0.1	< 10	< 10
TP102	0.6	Cohesive Glacial Deposits	1.8					< 0.03	< 0.03			
TP103	0.1	Topsoil	6	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.03	< 0.1	< 10	< 10
TP103	0.5	Cohesive Glacial Deposits	0.8					< 0.03	< 0.03			
TP104	0.1	Topsoil	7.4	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.03	< 0.1	< 10	< 10
TP104	0.4	Cohesive Glacial Deposits	1.1					< 0.03	< 0.03			
TP105	0.1	Topsoil	8.2	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.03	< 0.1	< 10	< 10
TP105	0.5	Cohesive Glacial Deposits	1.1					< 0.03	< 0.03			
WS101	0.2	Granular Made Ground	13	< 0.01	< 0.01	< 0.01	< 0.01	0.2	< 0.03	< 0.1	34	110
WS101	0.5	Cohesive Glacial Deposits	1.2	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.03	< 0.1	< 10	< 10
WS106	0.2	Ash & Clinker	12	< 0.01	< 0.01	< 0.01	< 0.01	**7**	0.09	< 0.1	79	256
WS106	0.2	Cohesive Glacial Deposits	2.6	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.03	< 0.1	< 10	< 10

KEY

36	Parameter tested for and found to be in excess of Tier 1 concentration
179	Parameter tested for and found to be > 5 x Tier 1 concentration
12	Parameter tested for but not found to be in excess of Tier 1 concentration

Soil Screening Values used by Calabrian

In March 2002 DEFRA and the Environment Agency published a series of technical papers (R&D Publications CLR 7, 8, 9 and 10) outlining the UK approach to the assessment of risk to human health from land contamination. In 2008 CLR 7, 9 and 10 and all corresponding SGV and Tox reports were withdrawn and superseded by new guidance including:

- Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration- CL:AIRE, 2020
- Evaluation of models for predicting plant uptake of chemicals from soil - Science Report – SC050021/SR
- Human health toxicological assessment of contaminants in soil - Science Report: SC050021/SR2
- Updated technical background to the CLEA model - Science Report: SC050021/SR3
- CLEA Software (Version 1.05) Handbook Science report: SC050021/SR4
- Compilation of data for priority organic pollutants for derivation of Soil Guideline Values - Science Report: SC050021/SR7

The approach set out in these documents represents current scientific knowledge and thinking; and includes the Contaminated Land Exposure Model (CLEAv1.06). The Environment Agency are in the process of using this updated approach to regenerate a selection of Soil Guideline Values (SGVs).

CLEA SGVs were derived for standard land use scenarios predominantly in the context of Part IIA, using a conceptual site model (CSM) defined in SR3. Calabrian have incorporated amendments to the CSM used to derive SGVs that more accurately reflect redevelopment within the planning regime; consequently, Calabrian have not necessarily adopted any published SGV as a screening value.

The CLEA conceptual site model assumes a source located in a sandy loam, with 6% soil organic matter (SOM) - equivalent to 3.5% total organic carbon (TOC). Calabrian consider it reasonable to adopt the CLEA default TOC for made ground. However, where the average TOC value for a particular soil type is significantly lower than the 3.5%, Calabrian adopt refined Screening Values.

In March 2014 DEFRA published Category 4 Screening Levels (C4SLs) for six substances (arsenic, cadmium, chromium IV, lead, benzene & benzo(a)pyrene) for four generic land-uses comprising residential, commercial, allotments and public open space.

The methodology for deriving both the previous Soil Guideline Values and the new Category 4 Screening Levels is based on the Environment Agency's Contaminated Land Exposure Assessment (CLEA) methodology. Development of Category 4 Screening Levels has been achieved by modifying the toxicological and\or exposure parameters used within CLEA (while maintaining current exposure parameters).

The Part 2A Statutory Guidance was developed on the basis that Category 4 Screening Levels could be used under the planning regime. However, policy responsibility for the National Planning Policy Framework falls to the Department for Communities and Local Government. Defra anticipate that, where they exist, C4SLs will be used as generic screening criteria, and Calabrian consider C4SLs to be suitable for use as Tier 1 Screening Values. Calabrian have discussed this matter with both NHBC and YAHPAC (collection of Yorkshire & Humberside local authorities) and received confirmation that they are satisfied with this approach.

In general Calabrian have adopted the use of the LQM/CIEH Suitable 4 Use Levels (S4ULs) as Tier 1 Screening Criteria.

Calabrian have adopted Tier 1 Screening Criteria for five different CSMs (Scenarios); these are:

- A - Residential with homegrown produce.
- B - Residential without homegrown produce.
- C – Residential apartments with landscaping/public open space (POS).
- D - Commercial/industrial with landscaping.
- E - Dedicated sports grounds or parkland/ public open space (POS).

The **exposure** pathways considered for each scenario are detailed in the Table below.

Scenario	Land use	Pathways	Justification
A	Residential with homegrown produce	• Direct ingestion of soil • Dermal contact • Consumption of vegetables and soil attached to vegetables • Inhalation of indoor vapours and dust • Inhalation of outdoor vapours and dust	Minimal cover – insufficient to break any pathways therefore all exposure pathways are relevant
B	Residential apartments with landscaped areas	• Direct ingestion of soil • Dermal contact • Inhalation of indoor vapours and dust • Inhalation of outdoor vapours and dust	All pathways applicable due to possible exposure from landscaped areas. However consumption of home grown produce not included as unlikely to be grown in landscaped areas. Where vegetables are to be grown site specific QRA may be required.
C	Grassed area or play park in close proximity to housing.	• Direct ingestion of soil • Dermal contact • Inhalation of outdoor vapours and dust	All pathways applicable due to possible exposure from landscaped areas. Assumes an area where some children play regularly and others less.
D	Commercial/ industrial with landscaped areas no cover	• Direct ingestion of soil • Dermal contact • Inhalation of indoor vapours and dust • Inhalation of outdoor vapours and dust	All pathways applicable due to possible exposure from landscaped areas. Assumed the commercial development consists of offices to provide a conservative assessment.
E	Dedicated sports grounds	• Direct ingestion of soil • Dermal contact • Inhalation of outdoor vapours and dust	All pathways applicable due to possible exposure from landscaped areas. Assumes an where exposure only occurs to players and grounds staff

The Soil Screening Values referred to in this document are **not** intended to be used when considering potential risks associated with:

- Existing land uses in the context of Part IIA of the Environment Protection Act 1990;
- end uses such as allotments, sports fields, children's playgrounds, care homes, hospitals etc; and
- controlled waters.

With respect to **inorganic** determinands, Calabrian derived Tier 1 values for the four Scenarios A to E are presented below:

Inorganic Contaminant	Source	C4SL*	LQM/ CIEH S4UL	Tier 1 Assessment Criteria (mg/kg) for Scenarios A to E					Comments/Notes
				A	B	C	D	E	
As	CLEA	37	37	37	40	79	640	170	LQM/CIEH S4UL adopted.
Cd	CLEA	26	11	11	85	120	190	532	LQM/CIEH S4UL adopted.
Cr	CLEA		910	910	910	1,500	8,600	33,000	LQM/CIEH S4UL adopted. Assumes Cr is CrIII.
Pb	CLEA	200		200	310	630	2,330	1,300	C4SLs adopted.
Ni	CLEA		130	130	180	230	980	3,400	LQM/CIEH S4UL. Assessment of health risk only.
				60 (pH<6), 75 (pH6-7), 110 (pH>7)					*Phytotoxicity.*
Se	CLEA		250	250	430	1,100	12,000	1,800	LQM/CIEH S4UL adopted.
Hg	CLEA		40	40	56	120	11,000	240	LQM/CIEH S4UL. Assumes in an inorganic compound.
B	Drinking		290	290	11,000	21,000	240,000	46,000	LQM/CIEH S4UL adopted.
Cu	EPA		2,400	2,400	7100	12,000	68,000	44,000	LQM/CIEH S4UL adopted. Assessment of health risk only.
				100 (pH<6), 135 (pH6-7), 200 (pH>7)					*Phytotoxicity.*
Zn	DoE		3,700	3,700	40,000	81,000	73,000	170,000	LQM/CIEH S4UL adopted. Assessment of health risk only.
				200 (300 if pH >7.0)					Phytotoxicity.
Cyanide	CLEA			527	530		14,000		SSV

* *For a residential end use*

With respect to **organic** determinands, Calabrian derived Tier 1 values (assuming 6% SOM) for the four Scenarios A to E are presented below:

Organic Contaminant (all sourced via CLEA)	Tier 1 Assessment Criteria (mg/kg) for Scenarios A to E					Comments/Notes
	A	B	C	D	E	
Benzene	0.37	1.4	73	90	110	LQM/CIEH S4UL adopted.
Toluene	660	3900	56,000	180,000^{VAP} (4,360)	100,000^{vap} (4,360)	LQM/CIEH S4UL adopted.
Ethyl Benzene	260	440	25,000	27,000^{VAP} (2,840)	27,000^{VAP} (2,840)	LQM/CIEH S4UL adopted.
Xylenes	310	430	43,000	30,000^{sol} (3,170)	31,000^{sol} (3,170)	LQM/CIEH S4UL adopted (assumes worst-case p-xylene).
Phenol	412	557	557	38,700		
PCBs	1.7	1.8	1.8	1.8		Based on toxicity of EC7.
Benzo(a)pyrene	3.0	3.2	5.7	36	13	LQM/CIEH S4UL adopted.
Naphthalene	13	13	4,900	1,100	3,000	LQM/CIEH S4UL adopted.
Gasoline Range Organics# C_6 -C_{10}	150	150	150	1,000	1,000	Tier 1 assumes lowest aliphatic or aromatic value within speciated carbon range. If Tier 1 exceeded, then **3-step** assessment of TPH should be undertaken as below.
Diesel Range Organics# C_{10}-C_{21}	760	770	770	5,000	1,000	
Lubricating Range Org# C_{21}-C_{40}	1,000	1,000	1,000	5,000	1,000	

* *For a residential end use*

\# *LQM/CIEH S4UL adopted, 6% SOM*

Note: **PAH** cannot be assessed as a single "total" value, as each individual PAH compound has different toxicity and mobility in the environment. Speciated analysis is required to determine the concentrations of the various compounds, most notably the key PAHs: Benzo(a)Pyrene (considered the most toxic of the PAHs); and Naphthalene (the most mobile and volatile of the PAHs).

Similarly, **TPH** cannot be assessed as a single "total" value, and reference has been made to the Environment Agency's document P5-080/TR3, "*The UK approach for evaluating human health risks from petroleum hydrocarbons in soils*". This document supports the assumptions and recommendations made by the US Total Petroleum Hydrocarbons Criteria Working Group (TPHCWG). The TPHCWG have broken down "TPH" into thirteen representative constituent fractions or "EC Bandings". The TPHCWG have derived a series of physiochemical and toxicological parameters for each of the thirteen bandings. The significance of speciated TPH results can be assessed by following the 3 steps outlined in the below.

Step	Result	Action
1. Consider indicator compounds: Are BTEX, Naphthalene, Benzo(a)pyrene above their respective Tier 1 values?	Yes	Remediation or DQRA required
	No	Proceed to Step 2
2. Consider individual TPH fractions: are they above respective screening values?	Yes	Remediation or DQRA required
	No	Proceed to Step 3
3. Assess Cumulative effects: Is the calculated Hazard Index for each source >1	Yes	Remediation or DQRA required
	No	TPH compounds pose no significant risk

Step 1 *- Assessing indicator compounds*

TPH fraction Indicator compound	End use specific screening value (mg/kg)			
	A: Residential no cover	B: Residential with 600mm cover	C: Residential no gardens	D: Commercial\ Industrial
Benzene	0.37	1.4	1.4	90
Toluene	660	3900	3900	$180{,}000^{VAP}$ (4,360)
Ethyl Benzene	260	440	440	$27{,}000^{VAP}$ (2,840)
Xylenes	310	430	430	$30{,}000^{sol}$ (3,170)
Naphthalene	13	13	13	1,100

Step 2 *- Assessing individual TPH fractions*

TPH fraction		End use specific screening value [S4UL] (mg/kg) assuming 1% SOM				
		A	B	C	D	E
Aliphatic 5-6	GRO	42	42	5,000^	5,000^	5,000^
Aliphatic 6-8	GRO	100	100			
Aliphatic 8-10	GRO	27	27			
Aliphatic 10-12	DRO	130	130			
Aliphatic 12-16	DRO	1,100	1,100			
Aliphatic 16-21	DRO	5,000^	5,000^			
Aliphatic 21-35	LRO					
Aromatic 5-7	GRO	70	370			
Aromatic 7-8	GRO	130	860	1,000^	1,000^	1,000^
Aromatic 8-10	GRO	34	47	5,000^	5,000^	5,000^
Aromatic 10-12	DRO	74	250			
Aromatic 12-16	DRO	140	1,800			
Aromatic 16-21	DRO	260	1,900	3,800		
Aromatic 21-35	LRO	1,100	1,900			

^ Calculated Screening Value close to soil saturation limit, screening value selected by Calabrian considering visual and olfactory impacts.

[S4UL] LQM/CIEH S4UL adopted, 1% SOM

Step 3 *- Assessing Cumulative Effects*

$$HI = \sum_{F_i=1}^{16} HQ\ F_i = \frac{Measured\ concentration\ F_i\ (mg\ kg^{-1})}{SGV\ F_i\ (mg\ kg^{-1})}$$

where HI = Hazard Index
HQ = Hazard Quotient
F_i = Fraction $_i$
SGV = Soil Guideline Value

With respect to the interpretation of the **calorific values**, at present there are no accepted methods to assess whether a sample is combustible and under what circumstances it might smoulder. Some guidance is given in ICRCL Note 61/84 "Notes on the fire hazards of contaminated land" which states that:

"In general … it seems likely that materials whose CV's exceed 10MJ/kg are almost certainly combustible, while those with values below 2MJ/kg are unlikely to burn".

Tier 1 **groundwater** risk assessments are undertaken by comparing leachate or groundwater concentrations with the appropriate water quality standard. Tier 1 Screening Values have been discussed with the Environment Agency, and typically those in **bold** below are adopted.

Analyte	Source of Tier 1 Screening Value (µg/l)			
	Surface Water (Abstraction for Drinking) 1996	Water Supply Regulations. 2000	Water Framework Directive	Environment Agency Advice
Arsenic	50	10	**50**	
Selenium	10	**10**		
Cadmium	5	5	**1.5**	
Chromium	50	50	**32**	
Copper	50	2,000	**28**	
Lead	50	10	**7.2**	
Nickel		20	**20**	
Zinc	3,000		**125**	
Boron		**1,000**		
Mercury	1	1	**0.05**	
Polyromantic Hydrocarbons		0.01~	**0.002#**	
Petroleum Hydrocarbons				10
1,1,1-Trichloroethane			100	
1,1 Dichloroethane				100
1,2-Dichloroethane		3	10	
1,1-Dichloroethene				100
Benzene		1	10	
Ethylbenzene				10
Tetrachloroethene		10	10	
Toluene			50	
Trichloroethene		10	10	
Vinyl Chloride		0.5		
Trichloromethane			2.5	
Xylenes			30	
Chloroethane				**100**

~ sum of benzo(g,h,i)perylene + indeno(1,2,3-cd)pyrene
# sum of Benzo(b)fluoranthene + Benzo(k)fluoranthene + Benzo(g,h,i)perylene + Indeno(1,2,3-cd)pyrene

Possible Action in event of Tier 1 exceedance

Should any of the Tier 1 criteria detailed above be exceeded, then three potential courses of action are available. (The first is only applicable in terms of human health, but the second and third could also be applied to groundwater or landfill gas).

1. Undertake further statistical analysis following the approach set out in "*Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration- CL:AIRE, 2020*" in order to determine whether contaminant concentrations of inorganic contaminants within soil\fill actually present a risk (only applicable to assessing the risk to human health).
2. Carry out a more detailed quantitative risk assessment in order to determine whether contamination risks actually exist.
3. Based on a qualitative risk assessment, advocate an appropriate level of remediation to "break" the pollutant linkage - for example the removal of the contaminated materials or the provision of a clean cover.

Prior to undertaking any statistical analysis the issue of the **averaging area** requires further consideration. The CL:AIRE\CIEH document still refers to CLR 7, which suggests averaging area should reflect receptor behaviour and therefore might be a single garden, or an open area used by the local community as a play area. This approach to averaging areas is considered applicable within the context of Part IIA of the Environmental Protection Act (EPA) 1990, in terms of an existing residential development.

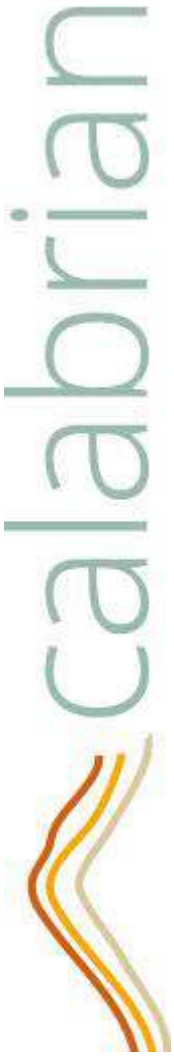
However, Calabrian consider the concept of a single garden as an averaging area to be inappropriate with respect to brownfield redevelopment, which is regulated by the planning regime. In this context, contamination across the entire site needs to be characterised by reference to the Conceptual Site Model. Consequently, Calabrian gather and analyse sample results by fill type, and\or by former use in a given sub-area of the site, before undertaking statistical analysis; ie the averaging area is associated with the extent of a particular fill type, or an area affected by spillage\leakage.

In terms of brownfield redevelopment, this is considered a more appropriate methodology which provides a more representative sample population for statistical analysis. As such the entire site is considered in terms of the proposed end use, be this residential with, or without gardens.

Analysis by soil\fill type is appropriate for essentially immobile contaminants associated with a particular fill type, for example arsenic in colliery spoil, metals in ash & clinker, sulphate in plaster-rich demolition rubble etc.

Analysis by former use is appropriate where more mobile contaminants have entered the ground, for example diesel associated with leakage from a former fuel tank, downward migration of leachable metals through granular materials, various soluble contaminants present in a wastewater leaking into the ground via a fractured sewer etc. In these circumstances, it may be appropriate to undertake statistical analysis of sample results from a variety of different soil\fill types. However, consideration would have to be given to factors such as porosity which might influence impregnation of a mobile contaminant into the soil mass; ie contamination would normally be more pervasive and significant in granular soils than cohesive soils.

APPENDIX A COMMISSION



7209/002/RJH/rjh

7th September 2022

S Rose
LNT Care Developments
Helios 47
Leeds
West Yorkshire
LS25 2DY

Dear Sam

Old Row, Whalley Road, Barrow, BB7 9AZ

Please find enclosed our fee proposal for undertaking a site investigation on the above land in general accordance with your standard brief.

Your drawing suggests that the site consists of a single parcel of land with a plan area of approximately 0.92 hectares. The site currently comprises an area of open rough grassland.

Your proposed layout referenced BB7-9AZ-F-01A and dated 21st July 2022 indicates a two-storey residential care home development with associated gardens/landscaping, access road and car park.

A brief review of our archives and publically available data suggests the site:

- Appears to have remained undeveloped throughout its history;
- Is located within 200m of an area of known historical landfilling;
- is located beyond the Coal Authority's defined coalfields; and,
- is not within a source protection zone.

The geological map for the area suggests the site is underlain by glacial Till (likely stiff clay) with Clitheroe Limestone Formation And Hodder Mudstone Formation (mudstone) at depth. The nearest archive exploratory hole to the site indicates clay to around 15m depth with limestone beneath.

Our site investigation proposal allows for the following works:

Phase 1 Desk Study

Environmental search data and historical maps (obtained from Landmark) will be reviewed in order to determine whether any past land uses have had any effect on the proposed development. We will also visit site to undertake a walkover survey.

Preliminary and detailed unexploded ordnance (UXO) risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'. An initial UXO threat assessment has been undertaken using the ZeticaUXO risk map. The site is located in a low-risk area meaning that there is no greater probability of encountering UXO than anywhere else in the UK; on this basis further assessment is not advocated.

Fieldwork

We have allowed for one day's trial pitting (around six trial pits) and one day's window sampling (six boreholes) using a mini percussion drilling rig, equipped with a concrete corer. All trial pits and boreholes will be supervised and logged by an experienced geoenvironmental engineer.

Given that soakaways are very highly unlikely to be feasible at the site due to the low permeability of the glacial Till we have allowed for some initial falling head permeability tests in accordance with BS EN ISO 22282-2:2012[1] within the boreholes to discount their effectiveness. As suggested by CIRIA C753:2015 Chapter 25[2] each test will be repeat three times where possible.

Representative soil samples of natural and man-made ground, including any contaminated samples, will be taken during the works. In-situ shear strengths of any cohesive soils encountered will be determined by the use of a hand-held shear vane.

We will make every effort to compact arisings and 'sweep' them over each pit. However, you should be aware that on completion of the investigation, "graves" of spoil (each about 3m long by 1m wide) unsuitable for trafficking, will be left up to 400mm proud at each trial pit location. At this stage, no allowance has been made for any further reinstatement such as removal of excess arisings, replacement of turf.

Given the likely presence of an area of landfill (former mill reservoir) within 250m of the site, we have allowed for the installation of wells in each of the five boreholes and monitoring for hazardous gas (and any shallow groundwater).

The generation potential of this gas source is considered likely to be Very Low. Therefore, in accordance with CIRIA Report C665, we have initially allowed for six visits over a three-month period. A hazardous gas risk assessment will be issued on completion of monitoring.

This proposal has been put together without a visit to the site and it has been assumed that access is available for a JCB 3CX-type/5-Tonne tracked excavator along with a mini-track mounted drilling.

Soils Testing: This will comprise routine geotechnical soils analysis, typical of that normally required for greenfield sites. Although no allowance has been made for in-situ or laboratory CBR testing, CBR values will be estimated from the strata descriptions and classification test results, where appropriate (ie. if no significant regrading or reworking of made ground is proposed).

The site is understood to be essentially Greenfield; we have allowed for the analysis of twelve sampled for a suite including asbestos, heavy metals, TPH and PAH. In the event that ground contamination is more significant or different to that anticipated, it might be necessary to carry out additional chemical testing.

'Full Two Stage' Waste Acceptance Criteria (WAC) analysis will be undertaken on two samples of soils that are likely to require removal from site to landfill.

[1] *BS EN ISO 22282-2:2012 Geotechnical investigation and testing. Geohydraulic testing Water permeability tests in a borehole using open systems.*
[2] The SuDS manual, CIRIA, 2015.

Reporting & Timescales

In order to provide you with sufficient information to enable assessment of abnormal costs at the earliest opportunity we will issue a concise overview report within five days of fieldwork completion.

On completion of the desk study, fieldwork and laboratory testing a comprehensive, factual, and interpretative report will be issued. This will contain detailed engineering records, laboratory test results, copies of all relevant correspondence and drawings of the site. The report will include qualitative risk assessment with respect to both controlled waters and human health.

The report will also provide technically feasible options for redevelopment of the site with a care home, including consideration of foundation types and treatment\removal of contamination.

Fieldwork could be commenced within two to three weeks of receipt of your written instruction to proceed. Our comprehensive geoenvironmental appraisal report will be issued within four weeks of fieldwork completion. This report will comment on issues associated with hazardous gas, but the gas risk assessment will not be issued until monitoring is completed.

A copy of the final report will be issued to the relevant regulatory authorities on receipt of written instruction from yourselves.

Invoicing: The attached proposal provides a breakdown of the costs associated with this project. This breakdown is for information only and the proposal can be regarded as a lump sum price of £**,*** plus VAT. Variation will only occur in the event that a given item is not undertaken or that substantial additional works are recommended, in which case we will inform you immediately, provide costs for the required works, and seek your prior consent.

Our proposal allows for submission of the report to the Local Authority and for submission of a single piece of subsequent correspondence with each regulator to address any queries they may have. Any further meetings, correspondence etc, would be chargeable.

The investigation should be considered to comprise three elements. Each will be invoiced on completion of the relevant report as defined below:

1. Items A to D within five days of fieldwork completion, with exploratory hole logs and an interim letter report outlining our initial findings and Preliminary Recommendations Report;
2. Items E to Hon issue of the comprehensive geoenvironmental appraisal report; and,
3. Item I after completion of the gas monitoring/issue of the Hazardous Gas risk Assessment Report.

Health, Safety & Welfare

The works outlined above will be carried out in accordance with Calabrian task- and site- specific Risk Assessments and Method Statements.

Details of welfare will be included within the Method Statements.

Utility plans are required in order to protect operatives from the hazards associated with striking buried services and avoid potentially substantial disruption\repair costs. We will make every effort not to damage any services (including review of utility plans and use of a CAT detector).

Calabrian will obtain copies of the necessary utility plans in a Landmark Utility Report; however, if you already hold these it would be appreciated if you could forward these prior to the proposed fieldworks.

Terms & Conditions

This work will be undertaken in accordance with our Standard Terms and Conditions, a copy of which are enclosed.

Should you require any further information, please contact the undersigned.

Yours sincerely

Richard Hey - Managing Director
for and on behalf of
CALABRIAN LIMITED

enc

Calabrian Limited
8 l'Anson Close | Leyburn | DL8 5LF | Tel: 01969 623803
email: info@calabrian.co.uk

Terms and Conditions for the Appointment of Calabrian Limited

1 DEFINITIONS AND INTERPRETATION

1.1 In this Agreement, unless the context otherwise requires, the following words and expressions have the following meanings:

"Agreement" shall mean these Terms (entitled "Terms and Conditions for the Appointment of Calabrian Limited"), the Proposal, any document recording the Client's unequivocal acceptance of the Proposal and any other documents or parts of other documents expressly referred to in any of the foregoing:

"Client" shall mean the party for whom the Services are being provided by Calabrian;

"Documents" shall mean all documents of any kind and includes plans, drawings, reports, programmes, specifications, Bills of Quantities, calculations, letters, e-mails, faxes, memoranda, films, and photographs (including negatives), or any other form of record prepared or provided or received by, or on behalf of Calabrian, and whether in paper form or stored electronically or on disk, or otherwise;

"Calabrian" shall mean Calabrian Limited whose registered office is at Spring Royd, Clapham Road, Austwick, Lancaster, LA2 8BE.

"Intellectual Property" includes all rights to, and any interests in, any patents, designs, trademarks,

right, know-how, trade secrets and any other proprietary rights or forms of intellectual property (protectable by registration or not) in respect of any technology, concept, idea, data, programme, or other software (including source and object codes), specification, plan, drawing, schedule, minutes, correspondence, scheme, programme, design, system, process logo, mark, style, or other matter or thing, existing or conceived, used, developed, or produced by any person;

"Parties" shall mean the Client and Calabrian

"Project" shall mean the project described in the Proposal and any enquiry from the Client on which Calabrian has based its Proposal;

"Proposal" means the offer document prepared by Calabrian in response to an enquiry or otherwise, in connection with the proposed provision of the Services;

"Services" means the work and services relating to the Project to be provided by Calabrian pursuant to the Agreement and as set out in the Proposal and shall include any additions or amendments thereto made in accordance with these Terms;

"Terms" means these terms entitled "Calabrian Terms of Appointment";

1.2 Words importing the singular only shall also include the plural and vice versa, where the context requires.

1.3 Words importing persons or parties shall include firms, corporations and any organisation having legal capacity and vice versa, where the context requires; and words importing a particular gender include all genders.

1.4 The sub-headings to the clauses of these Terms are for convenience only and shall not affect the construction of the Agreement.

1.5 A reference to legislation includes that legislation as from time to time amended, re-enacted or substituted and any Orders in Council, orders, rules, regulations, schemes, warrants, by-laws, directives or codes of practice issued under any such legislation.

1.6 In the event of conflict between the documents forming part of the Agreement, the Proposal shall prevail, followed by the Terms.

2 APPOINTMENT

2.1 The Client agrees to engage Calabrian and Calabrian agrees to provide the Services in accordance with the provisions of the Agreement.

3 OBLIGATIONS OF CALABRIAN

3.1 Calabrian shall perform the Services using the reasonable standard of skill and care normally exercised by similar professional Environmental firms in performing similar services under similar conditions.

3.2 Calabrian shall perform the Services in accordance with all relevant environmental and safety legislation at the time of undertaking the project.

4 OBLIGATIONS OF THE CLIENT

4.1 Throughout the period of this Agreement the Client shall afford to Calabrian or procure the affording to Calabrian of access to any site where access is required for the performance of the Services.

4.2 The Client accepts responsibility for ensuring that Calabrian is notified in writing of all special site and/or plant conditions, including without prejudice to the generality of the foregoing, the existence and precise location of all underground services, cables, pipes, drains or underground buildings, constructions or any hazards known or suspected by the Client, which the Client shall clearly mark on the ground or identify on accurate location plans supplied to Calabrian prior to the commencement of the Services. The Client shall also inform Calabrian in writing of any relevant operating procedures including any site safe operating procedures and any other regulations relevant to the carrying out of the Services. The Client shall indemnify Calabrian against all costs, claims, demands and expenses arising as a result of any non-disclosure in this respect, including but not limited to indemnification against any action brought by the owner of the land or otherwise.

4.3 If the Client discovers any conflict, defect or other fault in the information or designs provided by Calabrian pursuant to the Agreement, he will advise Calabrian in writing of such defect, conflict or other fault and Calabrian shall have the right to rectify the same or where necessary, to design the solution for rectification of any works carried out by others pursuant the conflicting, defective or in any other way faulty information or designs. Calabrian shall indemnify the client against all costs claims demands and expenses arising as a result of any conflict, defect, or other fault in this respect.

5 INTELLECTUAL PROPERTY

5.1 The copyright in all Intellectual Property prepared by or on behalf of Calabrian in connection with the Project for delivery to the Client shall remain vested in Calabrian.

5.2 The Client shall have a non-exclusive licence to copy and use such Intellectual Property for purposes directly related to the Project. Such licence shall enable the Client to copy and use the Intellectual Property but solely for its own purposes in connection with the Project and such use shall not include any licence to reproduce any conceptual designs or professional opinions contained therein nor shall it include any license to amend any drawing, design or other Intellectual Property produced by Calabrian.

5.3 Should the Client wish to use such Intellectual Property in connection with any other works or for any other purpose not directly related to the Project or wish to pass any Intellectual Property to any third party, it must obtain the prior written consent of Calabrian. The giving of such consent shall be at the discretion of Calabrian and shall be upon such terms as may be required by Calabrian. Calabrian shall not be liable for the use by any person of such Intellectual Property for any purpose other than that for which the same were prepared by or on behalf of Calabrian.

5.4 Ownership of any proposals submitted to the Client that are not subsequently confirmed as part of the Services to be provided for the Client remain with Calabrian and such proposals must not be used as the basis for any future work undertaken by the Client or a third party and no liability can be accepted howsoever arising from such proposals.

5.5 In the event of the Client being in default of payment of any fees or other amounts due, Calabrian may suspend further use of the licence on that Project on giving 2 days' notice of the intention to do so. Use of the licence may be resumed on receipt of the outstanding amounts.

6 TITLE

6.1 Calabrian shall transfer only such title or rights in respect of the Documents as it has, and if any part is purchased from a third-party Calabrian shall transfer only such title or rights as that party had and has transferred to Calabrian.

6.2 Title in the Documents shall remain with and shall not pass to the Client until the amount due under the invoice(s) (including interest and costs) has been paid in full.

6.3 Until title passes, the Client shall hold the Documents as bailee for Calabrian and shall store or mark them so that they can at all times be identified as the property of Calabrian.

6.4 At any time before title passes (save and except where payment is not due), but only after prior consultation with the Client, Calabrian may without any liability to the Client repossess and use or sell all or any of part of the Documents and by doing so terminate the right of the Client to use, sell or otherwise deal in the Documents.

6.5 Calabrian may maintain an action for the price of the Documents notwithstanding that title in them has not passed to the Client.

7 CONFIDENTIALITY

7.1 Calabrian undertakes not to divulge or disclose to any third party without the written consent of the Client information which is designated confidential by the Client or which can reasonably be considered to be confidential and arises during the performance of the Services unless required to do so by law or necessary in the proper performance of its duties in relation to the Project, or in order to make full frank and proper disclosure to its insurers or intended insurers, or to obtain legal or accounting advice.

7.2 Subject to the above and to the advance prior written consent of the Client, Calabrian shall be permitted to use information related to the Services it provides in connection with the Project for the purposes of marketing its services and in proposals for work of a similar type.

8 THIRD PARTIES

8.1 The Agreement or any part thereof or any benefit or interest thereunder may not be assigned by the Client without the prior written consent of Calabrian. The giving of such consent shall be at the discretion of Calabrian and Calabrian will only agree to an assignment on its terms and in return for payment of a fee by the Client to Calabrian to cover Calabrian's legal and other costs associated with any assignment.

8.2 The Agreement shall not confer and shall not purport to confer on any third party any benefit or any right to enforce any term of this Agreement for the purposes of the Contracts (Rights of Third Parties) Act 1999 or otherwise.

8.3 Calabrian will consent to any reasonable request from the Client for Calabrian to enter a collateral warranty or provide a letter of reliance with/to a tenant, funder, or purchaser with regard to the Services provided under the Agreement. Calabrian will only enter a collateral warranty or provide a letter of reliance on its terms and in return for payment of a fee by the Client to Calabrian to cover Calabrian's legal and other costs associated with any collateral warranty or letter of reliance.

9 INSURANCE

9.1 Calabrian warrants to the Client that there is in force a policy of Professional Indemnity insurance covering its liabilities for negligence under this Agreement, with a limit of indemnity of £5,000,000 (FIVE MILLION POUNDS) any one Single Claim, Defence Costs in addition. This policy is annually renewable and whilst renewal is not automatic, Calabrian agrees to use reasonable endeavours to maintain such insurance at all times until six years from the date of the completion (or termination) of the Services under the Agreement, provided such insurance is available at commercially reasonable rates having regard, inter alia, to premiums required and policy terms obtainable.

9.2 If for any period such insurance is not available at commercially reasonable rates, Calabrian shall forthwith inform the Client and shall obtain in respect of such period such reduced level of Professional Indemnity insurance as is available and as would be fair and reasonable in the circumstances for Calabrian to obtain.

10 LIMITATIONS ON LIABILITY

10.1 Calabrian's liability under or in connection with the Agreement whether in contract, tort, negligence, breach of statutory duty or otherwise (other than in respect of personal injury or death) shall not exceed five million pounds in the aggregate.

10.2 No action or proceedings under or in respect of the Agreement whether in contract, tort, negligence, under statute or otherwise shall be commenced against Calabrian after the expiry of a period of six years from the date of the completion (or termination) of the Services under the Agreement.

10.3 Whilst Calabrian will scan all potential exploratory locations with a Cable Avoidance Tool, Calabrian shall not be liable for any damage to underground services, cables, pipes, drains or underground buildings, constructions and the like which were either not marked on site or for which accurate plans were not provided.

10.4 Calabrian shall not be liable for the cost of rectifying any defect, conflict or other fault in the information or designs provided by Calabrian or for the cost of designing a solution for and rectifying any subsequent works carried out by others pursuant to the conflicting, defective or in any other way faulty information or designs, unless Calabrian has been advised in writing of the same by the Client and has been given the opportunity to rectify the same or where necessary, to design the solution for rectification of any subsequent works carried out by others pursuant to the same. Calabrian shall indemnify the client against all costs claims demands and expenses arising as a result of any conflict, defect, or other fault in this respect.

11 PAYMENT

11.1 Invoices for services rendered will be submitted for payment in accordance with the Proposal.

11.2 The due date for payment is the date of the invoice and the final date for payment is 28 days from the date of the invoice.

11.3 If the Client disputes the amount included for payment in an invoice a written notice must be served on Calabrian by the Client not later than 14 days before the final date for payment. If no notice is given the amount due shall be the amount stated in the invoice.

11.4 In the event of failure on the part of the Client to pay any monies in accordance with the foregoing payment provisions, Calabrian will be entitled to charge interest on any monies owed to it by the Client, such interest to be at a rate of 8% above the base rate of a clearing bank from time to time calculated from the final date for payment to the date of actual payment on a compound basis.

12 DELAY

12.1 Calabrian will comply with any timescale agreed for completion of the Services unless delayed or prevented by circumstances beyond its reasonable control and in the event of any such circumstances arising Calabrian undertakes to complete the Services within a reasonable period but will not be liable to the Client for any delay as a result.

13 TERMINATION

13.1 The Agreement may be determined by either party in the event of the other making a composition or arrangement with its creditors, becoming bankrupt, or being a company, making a proposal for a voluntary arrangement for a composition of debts, or has a provisional liquidator appointed, or has a winding-up order made, or passes a resolution for voluntary winding-up (except for the purposes of a bona fide scheme of amalgamation or reconstruction), or has an administrator or an administrative receiver appointed to the whole or any part of its assets. Notice of determination must be given to the party which is insolvent by the other party.

13.2 If for any reason the performance of the Services by Calabrian is suspended for a period in excess of three calendar months then Calabrian shall be entitled to determine its appointment in respect of the Services by seven days written notice to the Client.

13.3 If the Client shall fail to pay in full any sum due under the terms of the Agreement by the final date for payment for that sum and no effective notice of intention to withhold payment has been issued, Calabrian may serve written notice on the Client demanding payment within 14 days of such notice. If the Client shall fail to comply with such notice, Calabrian shall be entitled to terminate its employment under the Agreement forthwith.

13.4 Any determination of the appointment of Calabrian howsoever caused shall be without prejudice to the right of Calabrian to require payment for all services performed up to the date of such determination including but not limited to payment of a fair and reasonable proportion of any figure identified in the Proposal or otherwise for fees in respect of a particular service which Calabrian has started, but not completed.

14 NOTICES

14.1 Any notice provided for in the Agreement shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post to the address of the relevant party as may have been notified by each party to the other or, in the absence of notification, to the address of Calabrian set out above or to the registered address of the Client.

14.2 Such notice shall be deemed to have been received on the day of delivery if delivered by hand or on the second working day after the day of posting if sent by first class post.

15 ENTIRE AGREEMENT

15.1 The Agreement constitutes the complete and entire agreement between the Client and Calabrian with respect to the Services and supersedes any prior oral and/or written warranties, terms, conditions, communications, and representations, whether express or implied and any claim against Calabrian in respect of the Services can only be made in contract under the provisions of the Agreement and not otherwise under the law or tort or otherwise.

15.2 No amendments, modifications or variation of the Agreement shall be valid unless made in writing and agreed to by both the Client and Calabrian; such agreement must be recorded in writing by at least one of the Parties.

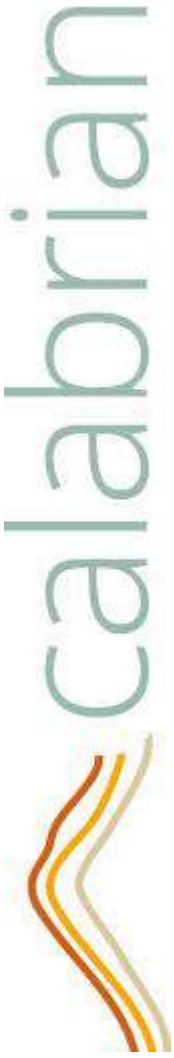
15.3 Calabrian will not be bound by any standard or printed terms or conditions furnished by the Client in any of its documents unless Calabrian specifically states in writing separately from such documents that it intends such terms and conditions to apply.

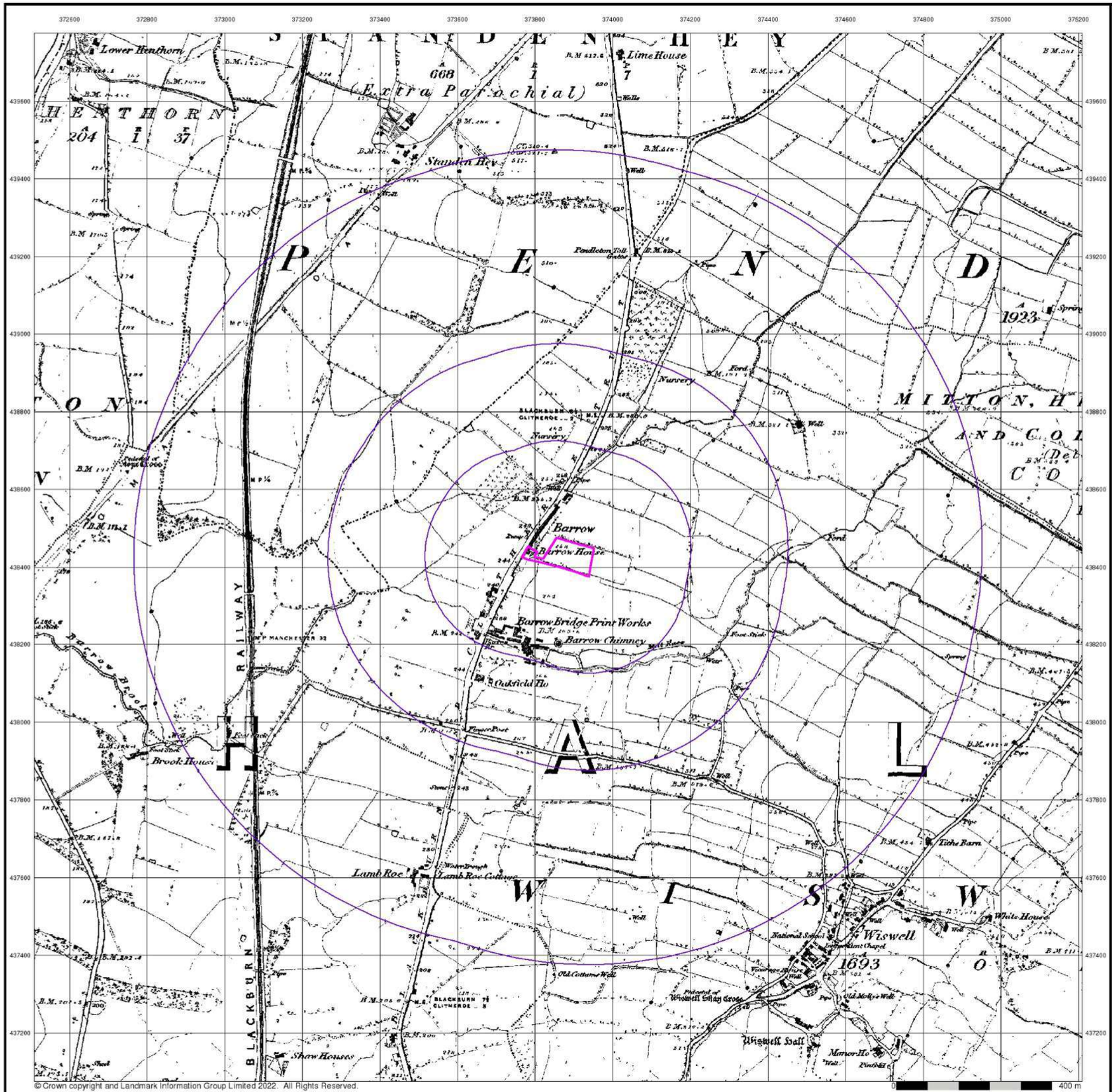
16 DISPUTES AND GOVERNING LAW

16.1 The Agreement shall be governed by and construed in accordance with English law and the Parties irrevocably and unconditionally submit to the jurisdiction of the English Courts.

16.2 Where the Housing Grants, Construction and Regeneration Act 1996 applies, any dispute between the Parties may be referred to adjudication in accordance with The Scheme for Construction Contracts Regulations 1998 or any amendment or modification thereof being in force at the time of the dispute, as applicable to England, Wales, Scotland, and Northern Ireland.

APPENDIX B HISTORICAL OS PLANS





calabrian

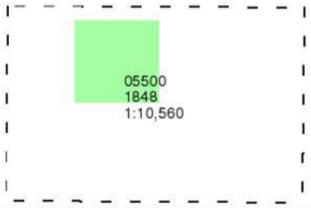
Lancashire And Furness

Published 1848

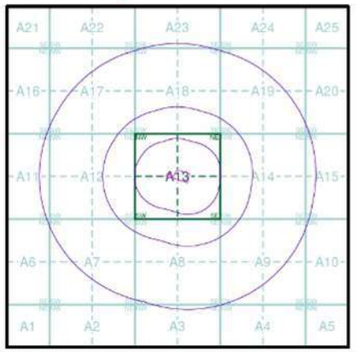
Source map scale - 1:10,560

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



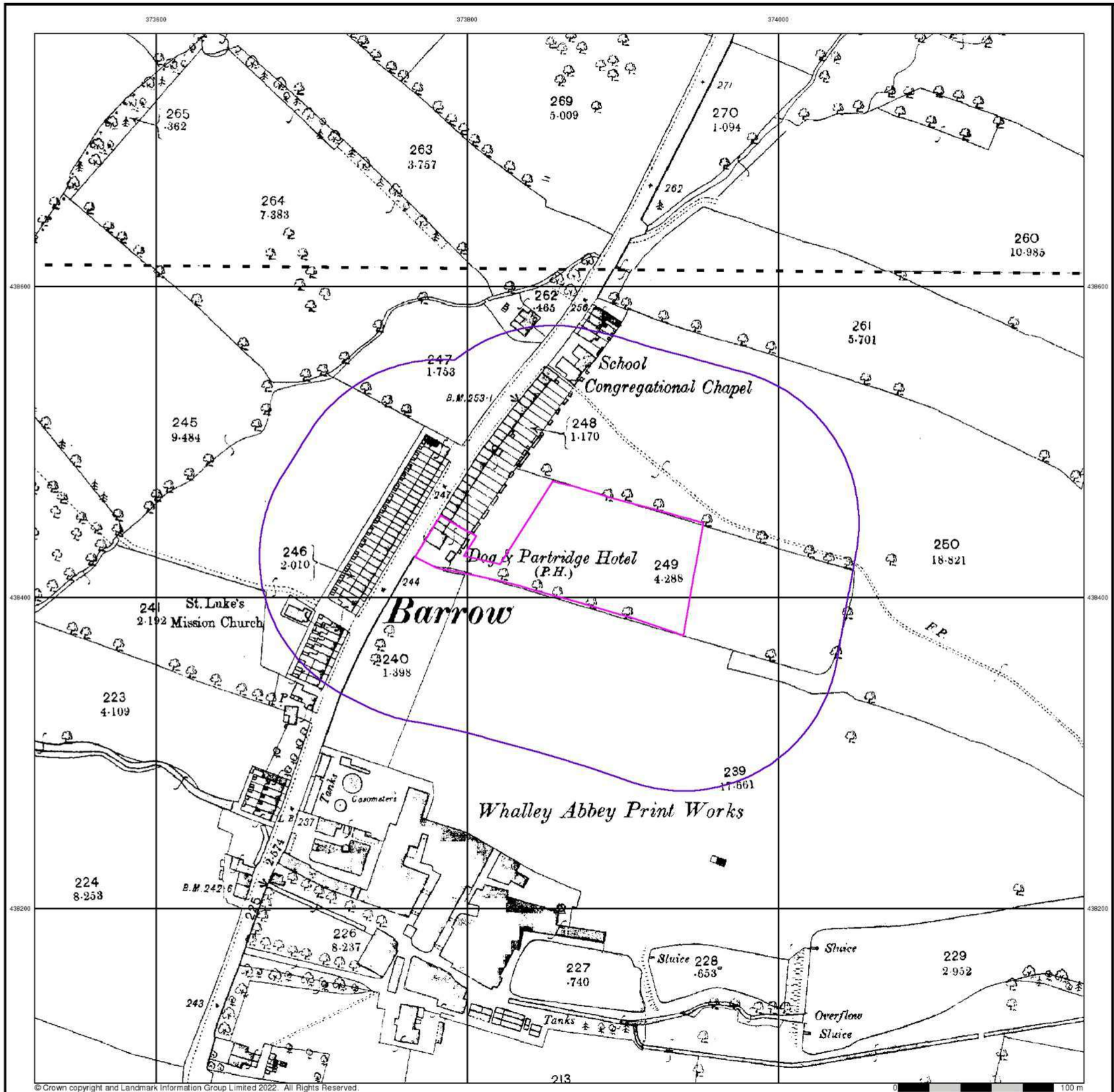
Order Details

Order Number:	301809759_1_1
Customer Ref:	7208
National Grid Reference:	373870, 438430
Slice:	A
Site Area (Ha):	0.92
Search Buffer (m):	1000

Site Details

Site at 373859,438425

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



calabrian

Lancashire And Furness

Published 1893

Source map scale - 1:2,500

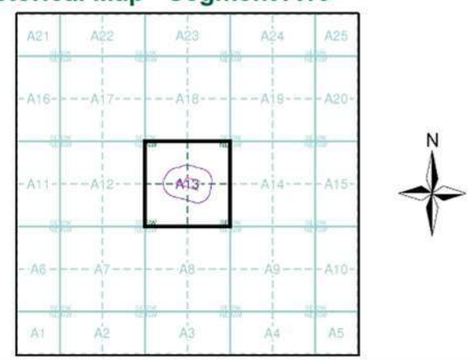
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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)

055_02
1893
1:2,500

055_06
1893
1:2,500

Historical Map - Segment A13



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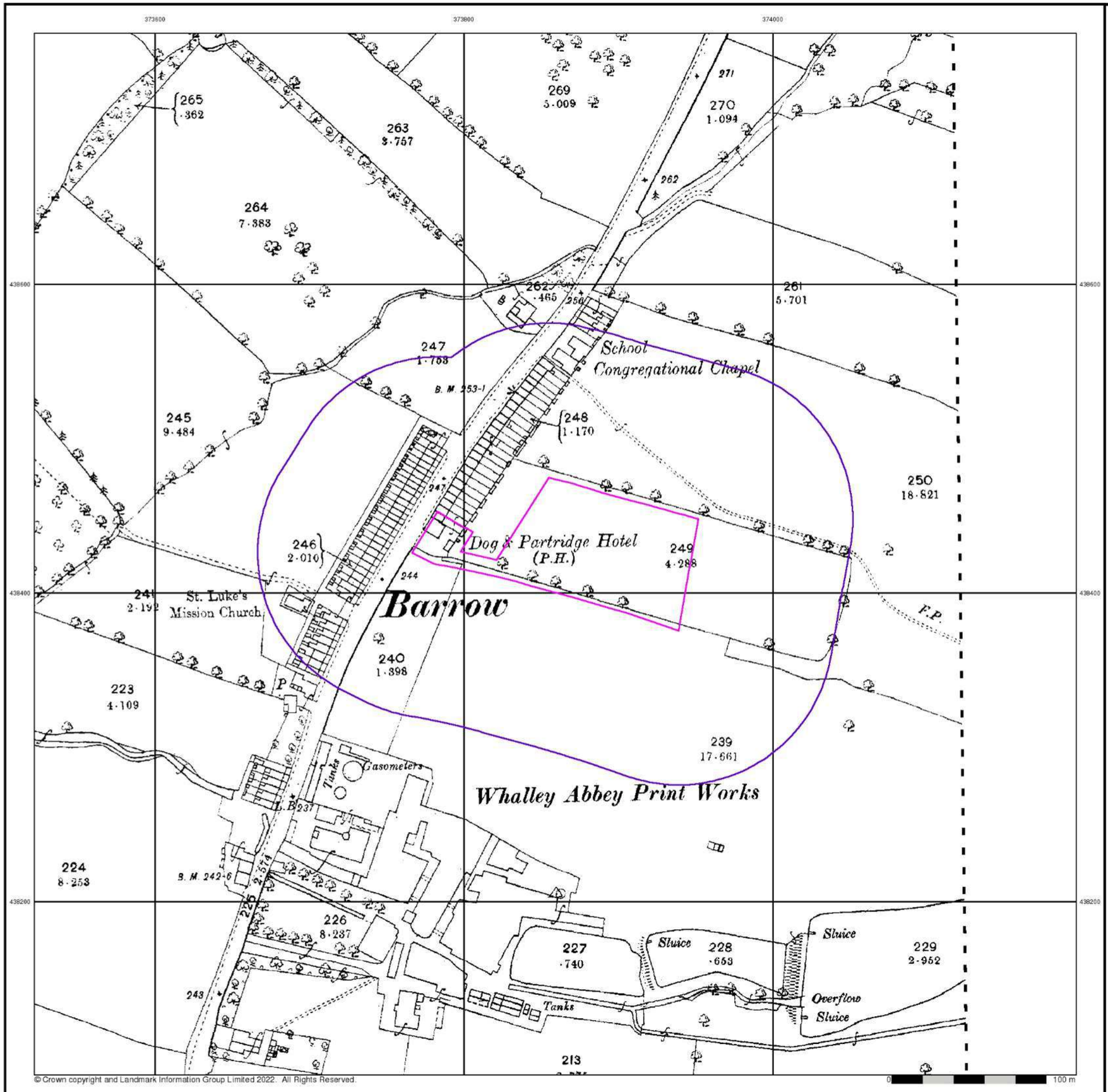

calabrian

Yorkshire

Published 1894

Source map scale - 1:2,500

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.

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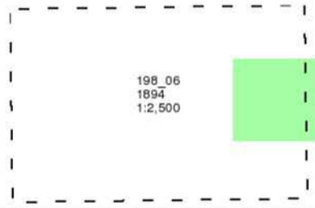
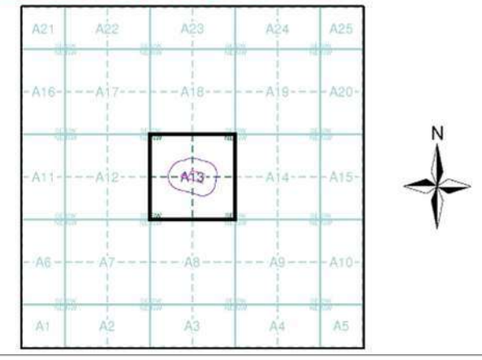


Historical Map - Segment A13



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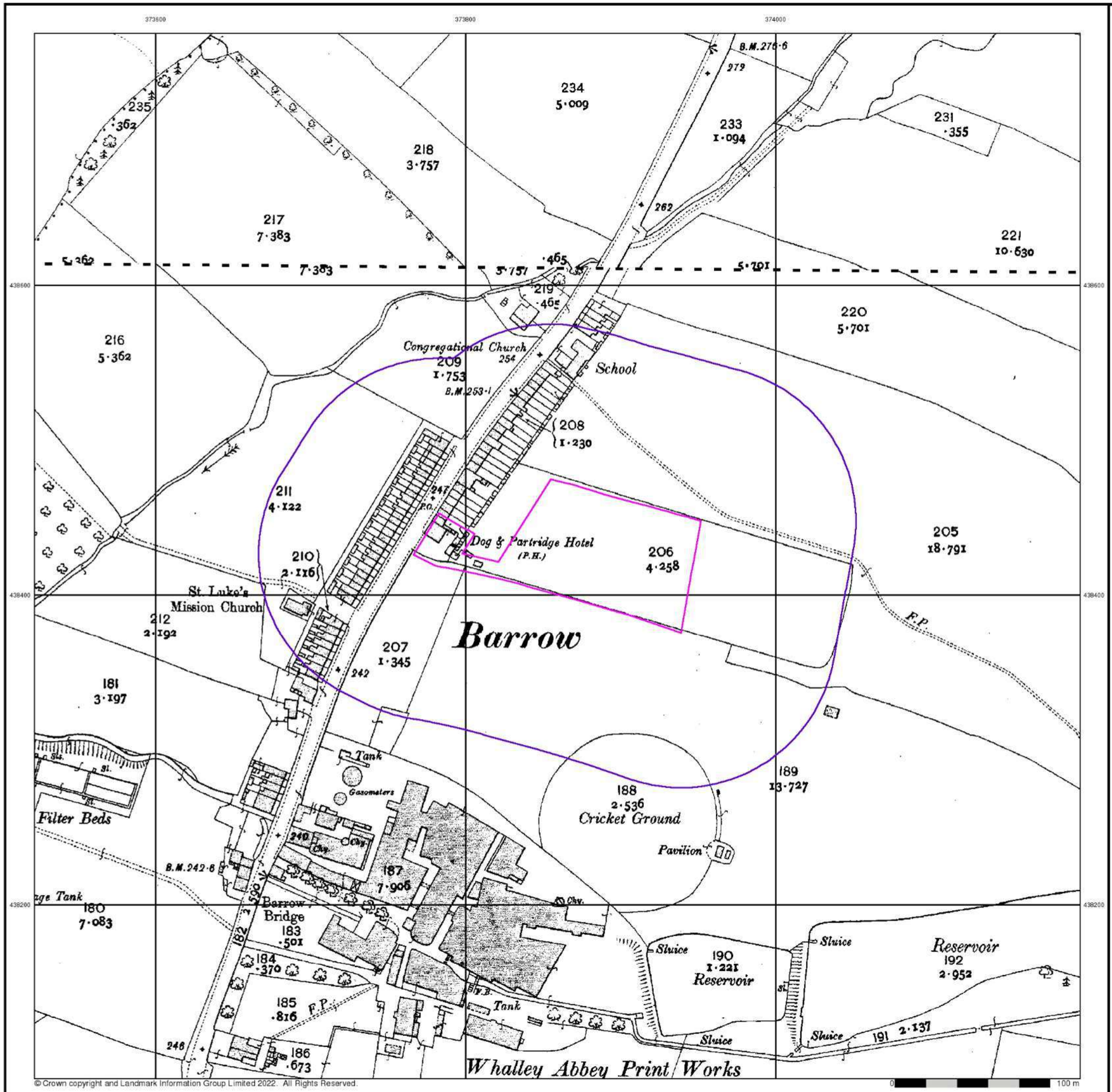

calabrian

Lancashire And Furness

Published 1912

Source map scale - 1:2,500

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.

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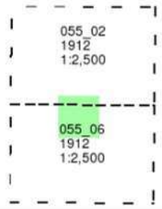
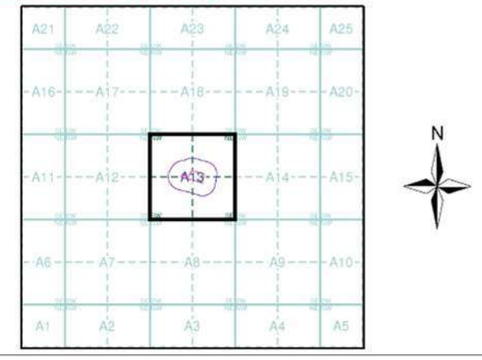


Historical Map - Segment A13



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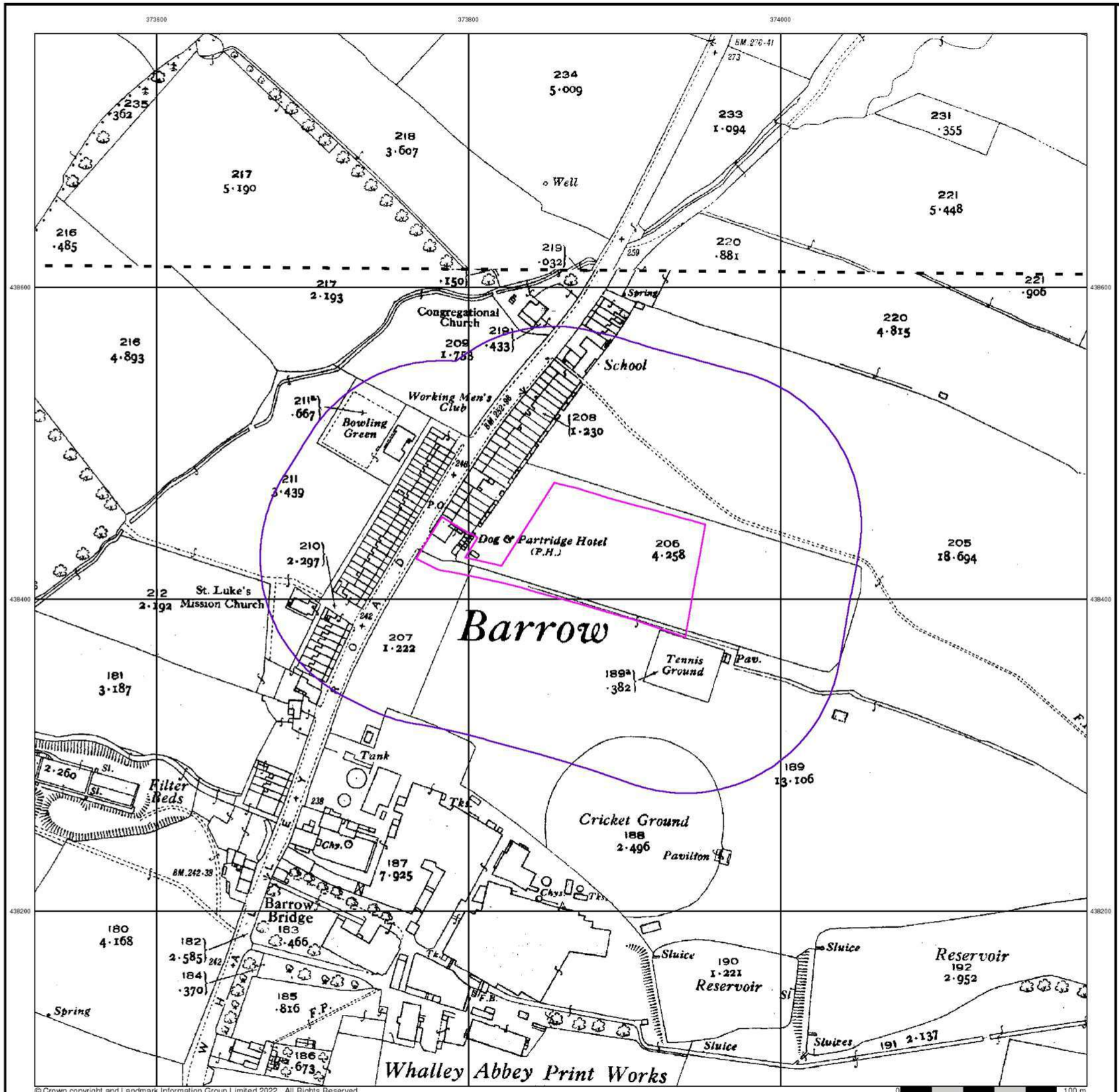


calabrian

Lancashire And Furness

Published 1932

Source map scale - 1:2,500

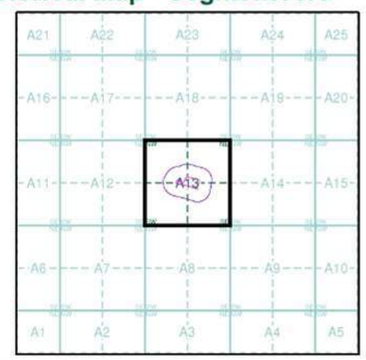
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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)

055_02
1932
1:2,500

055_06
1932
1:2,500

Historical Map - Segment A13



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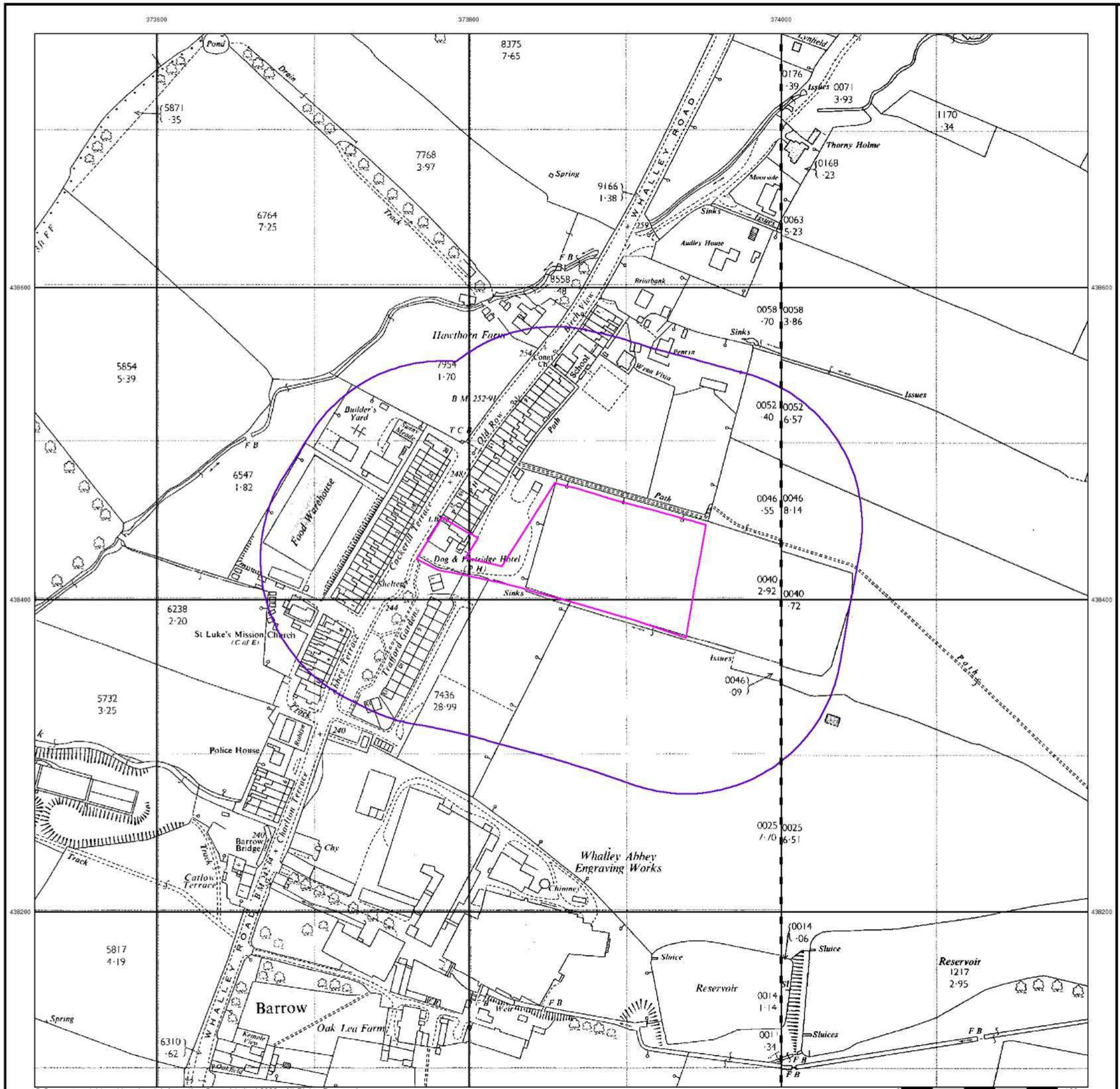
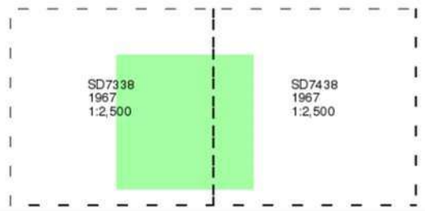


calabrian

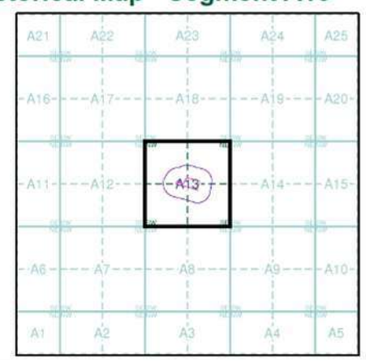
Ordnance Survey Plan
Published 1967
Source map scale - 1:2,500

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)



Historical Map - Segment A13



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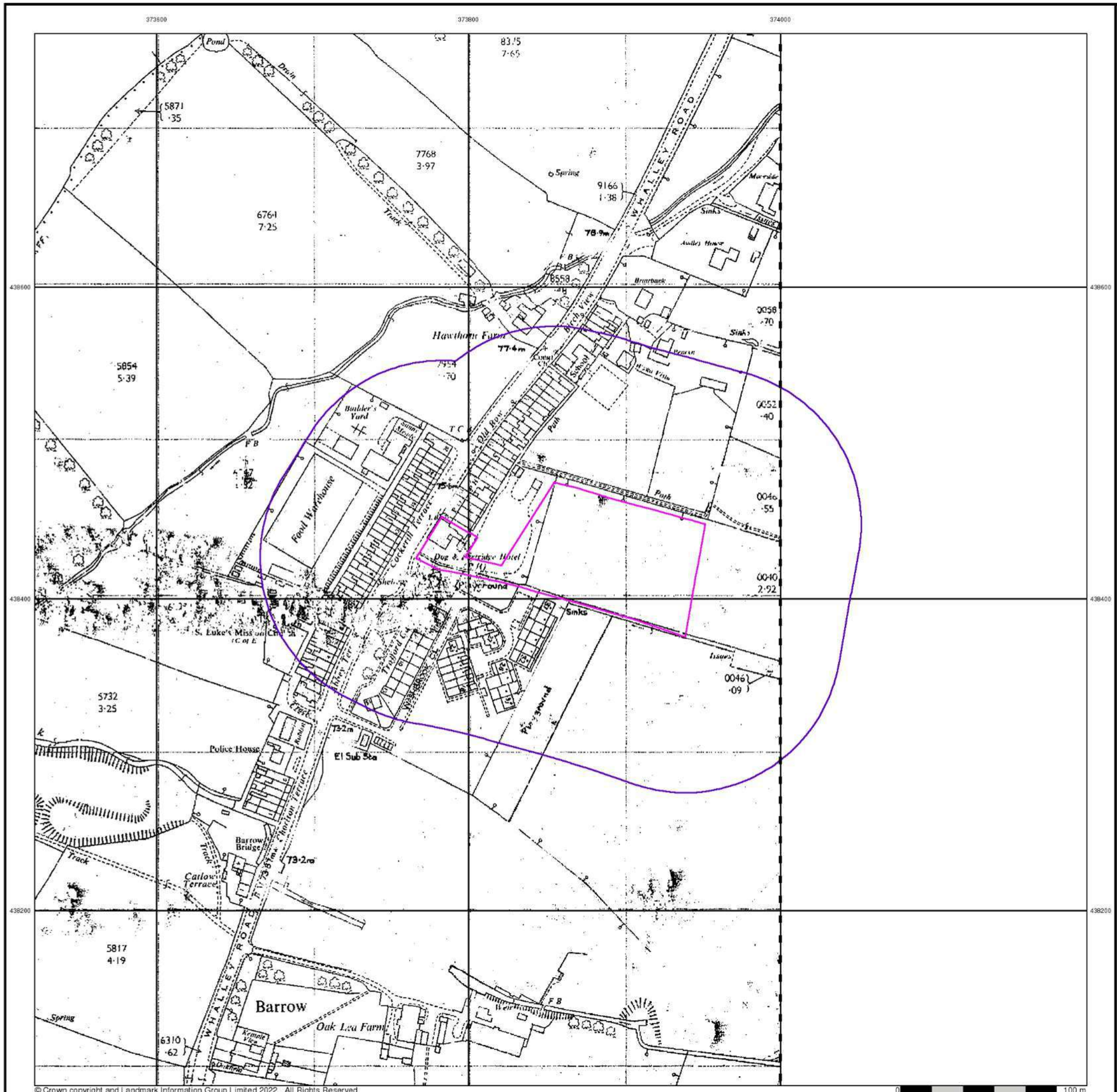


calabrian

Additional SIMs

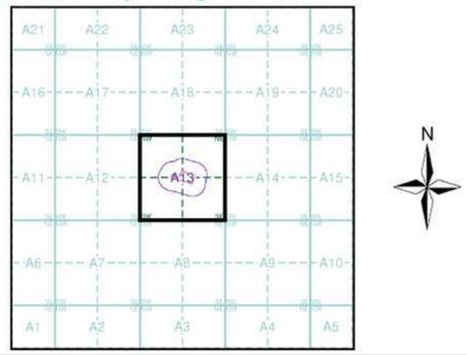
Published 1983

Source map scale - 1:2,500

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

Historical Map - Segment A13



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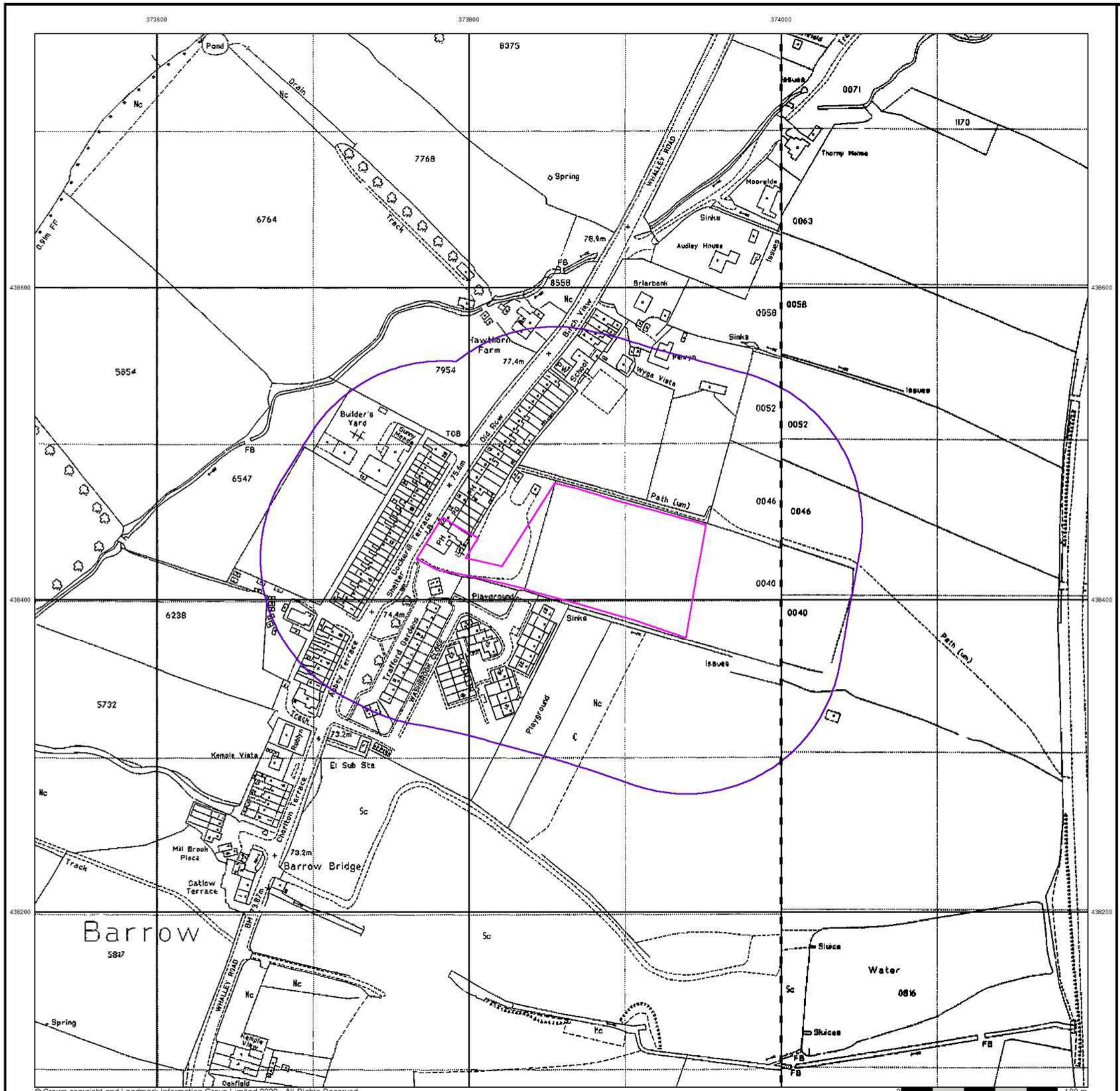


calabrian

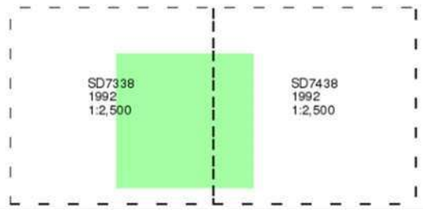
Large-Scale National Grid Data

Published 1992

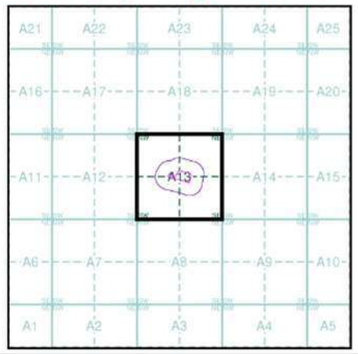
Source map scale - 1:2,500

'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)



Historical Map - Segment A13



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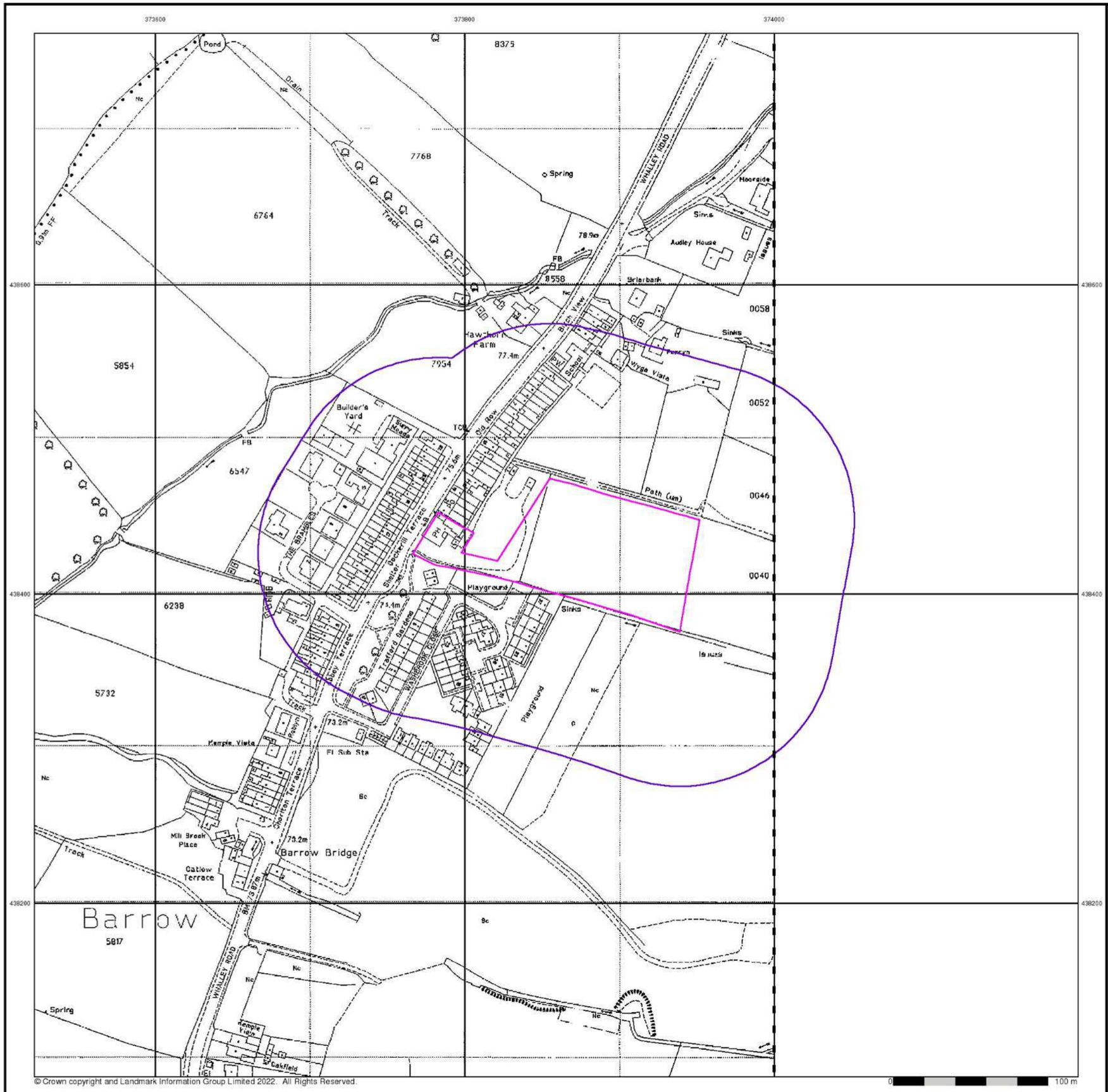


calabrian

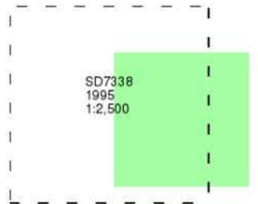
Large-Scale National Grid Data

Published 1995

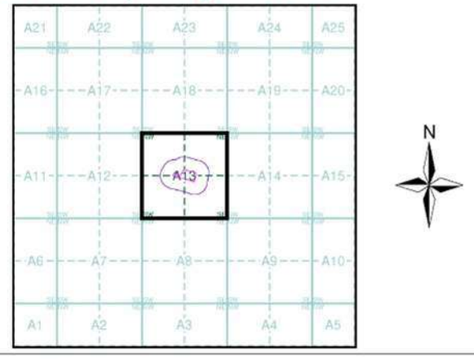
Source map scale - 1:2,500

'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)



Historical Map - Segment A13



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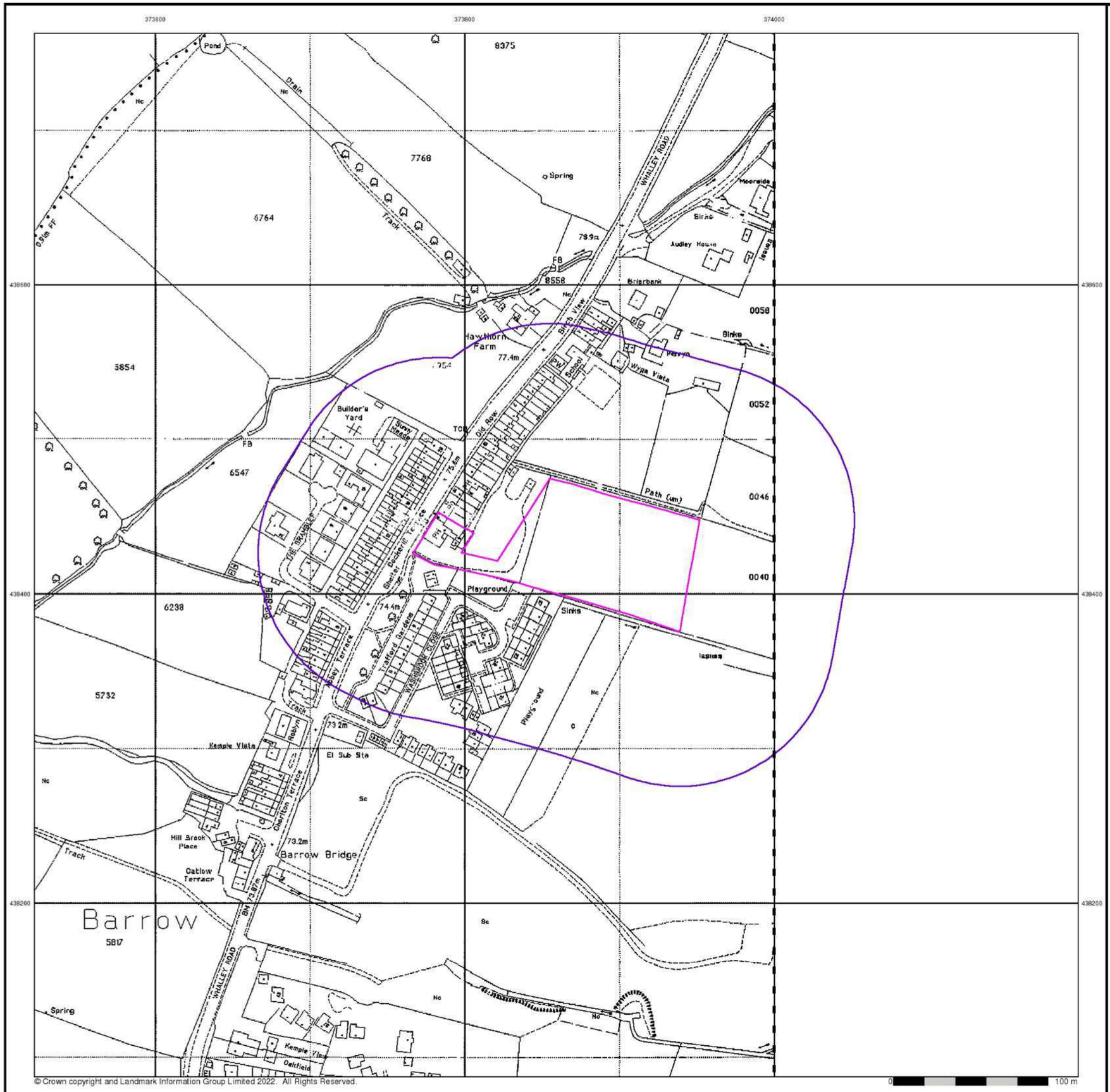

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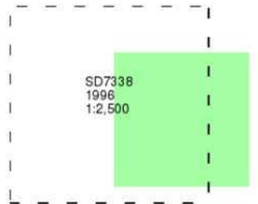
Large-Scale National Grid Data

Published 1996

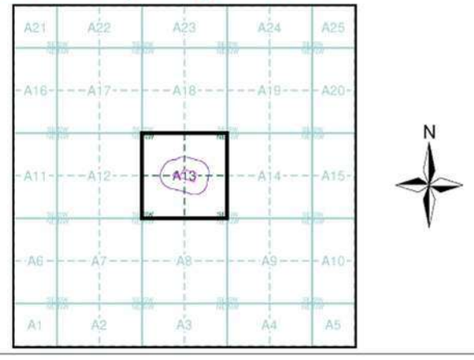
Source map scale - 1:2,500

'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)



Historical Map - Segment A13



Order Details

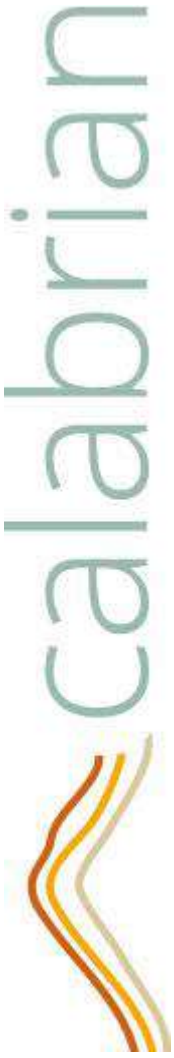
Order Number:	301809759_1_1
Customer Ref:	7208
National Grid Reference:	373870, 438430
Slice:	A
Site Area (Ha):	0.92
Search Buffer (m):	100

Site Details

Site at 373859,438425

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

APPENDIX C	SEARCHES
Landmark	Envirocheck Report
ZeticaUXO	UXO Risk Map



Envirocheck® Report:

Datasheet

Order Details:

Order Number:
301809759_1_1

Customer Reference:
7208

National Grid Reference:
373870, 438430

Slice:
A

Site Area (Ha):
0.92

Search Buffer (m):
1000

Site Details:

Site at 373859,438425

Client Details:

Mr R Hey
Calabrian Limited
8 L'Anson Close
Leyburn
DL8 5LF

Prepared For:

LNT Care Developments

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 2			8	4
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 5		Yes		
Pollution Incidents to Controlled Waters	pg 5		5	7	5
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
Substantiated Pollution Incident Register	pg 8			1	1
River Quality Chemistry Sampling Points					
Water Abstractions	pg 8			5	7 (*4)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 12	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 12	1	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 12	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 12	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 13		24	33	151

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 37		1		
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 37	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)	pg 37		3	2	5
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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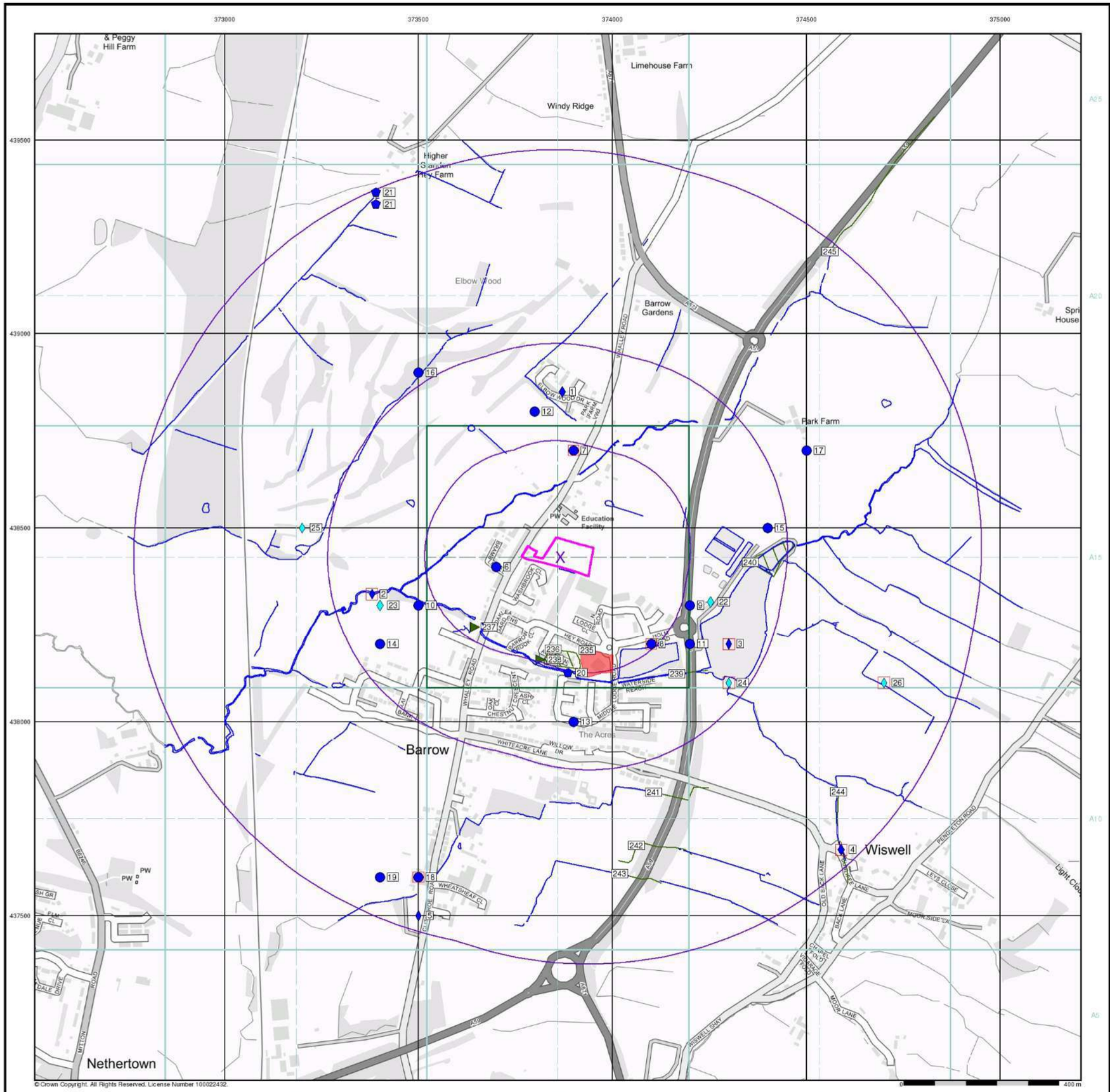
Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 38	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 38	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 39	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 39	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 39	Yes		n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 39	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 39	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 39	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 40		7		24
Fuel Station Entries	pg 42		1		1
Points of Interest - Commercial Services	pg 43		5		6
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 44		1	1	3
Points of Interest - Public Infrastructure	pg 44		3	3	1
Points of Interest - Recreational and Environmental	pg 45		4		
Gas Pipelines					
Underground Electrical Cables					

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 46			1	
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					



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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
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Hazardous Substances

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

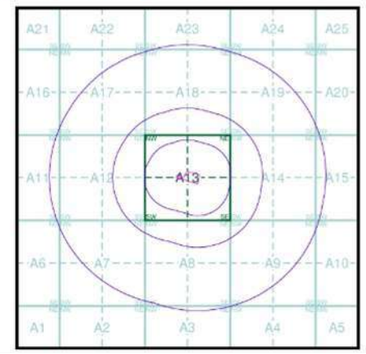
Geological

- BGS Recorded Mineral Site

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

Site Sensitivity Map - Slice A



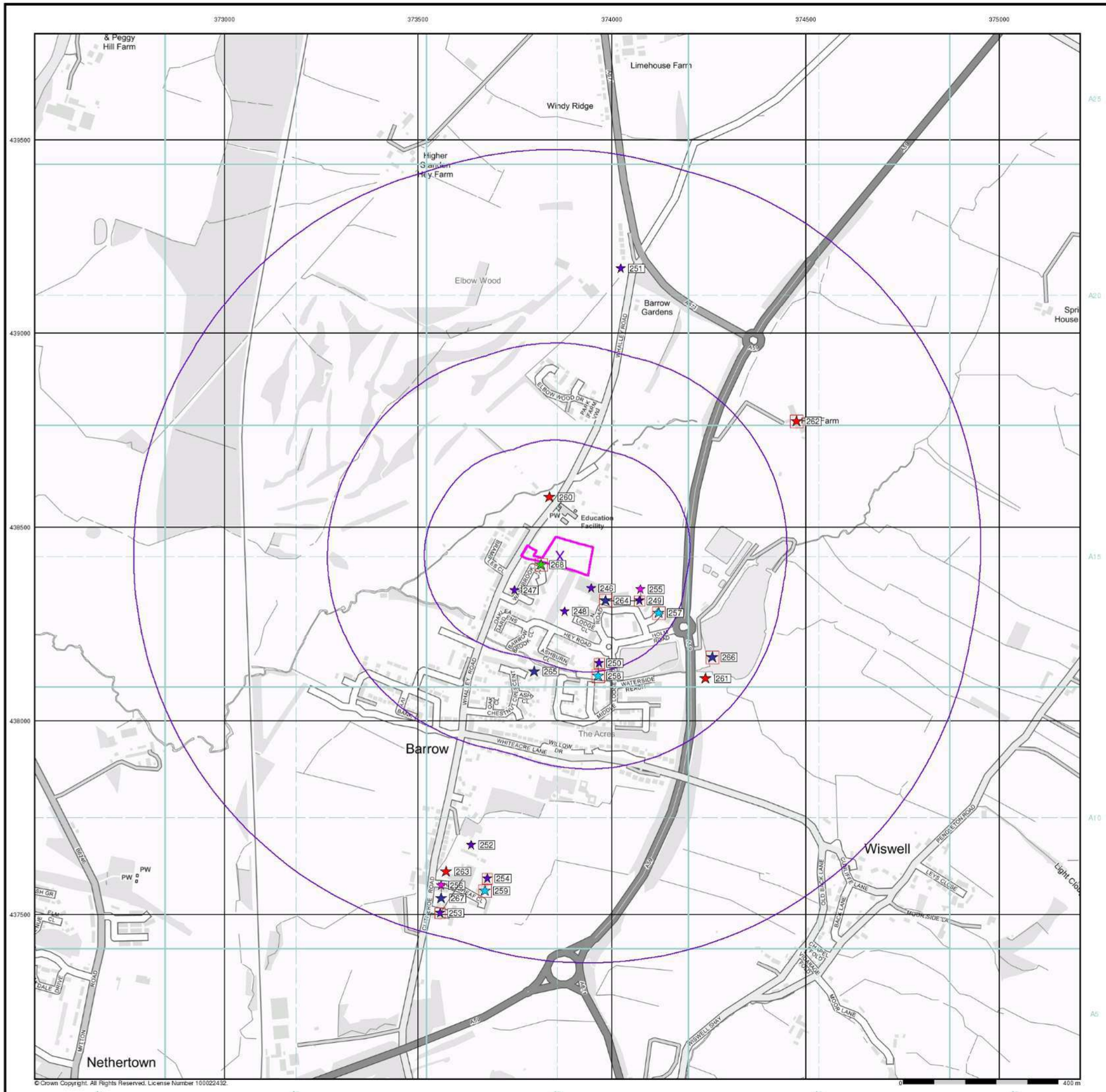
Order Details

Order Number:	301809759_1_1
Customer Ref:	7208
National Grid Reference:	373870, 438430
Slice:	A
Site Area (Ha):	0.92
Search Buffer (m):	1000

Site Details

Site at 373859,438425

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



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Industrial Land Use Map

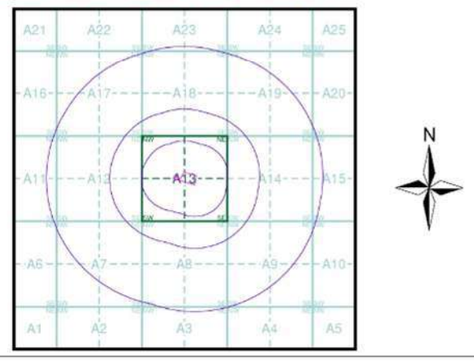
General

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

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- 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:	301809759_1_1
Customer Ref:	7208
National Grid Reference:	373870, 438430
Slice:	A
Site Area (Ha):	0.92
Search Buffer (m):	1000

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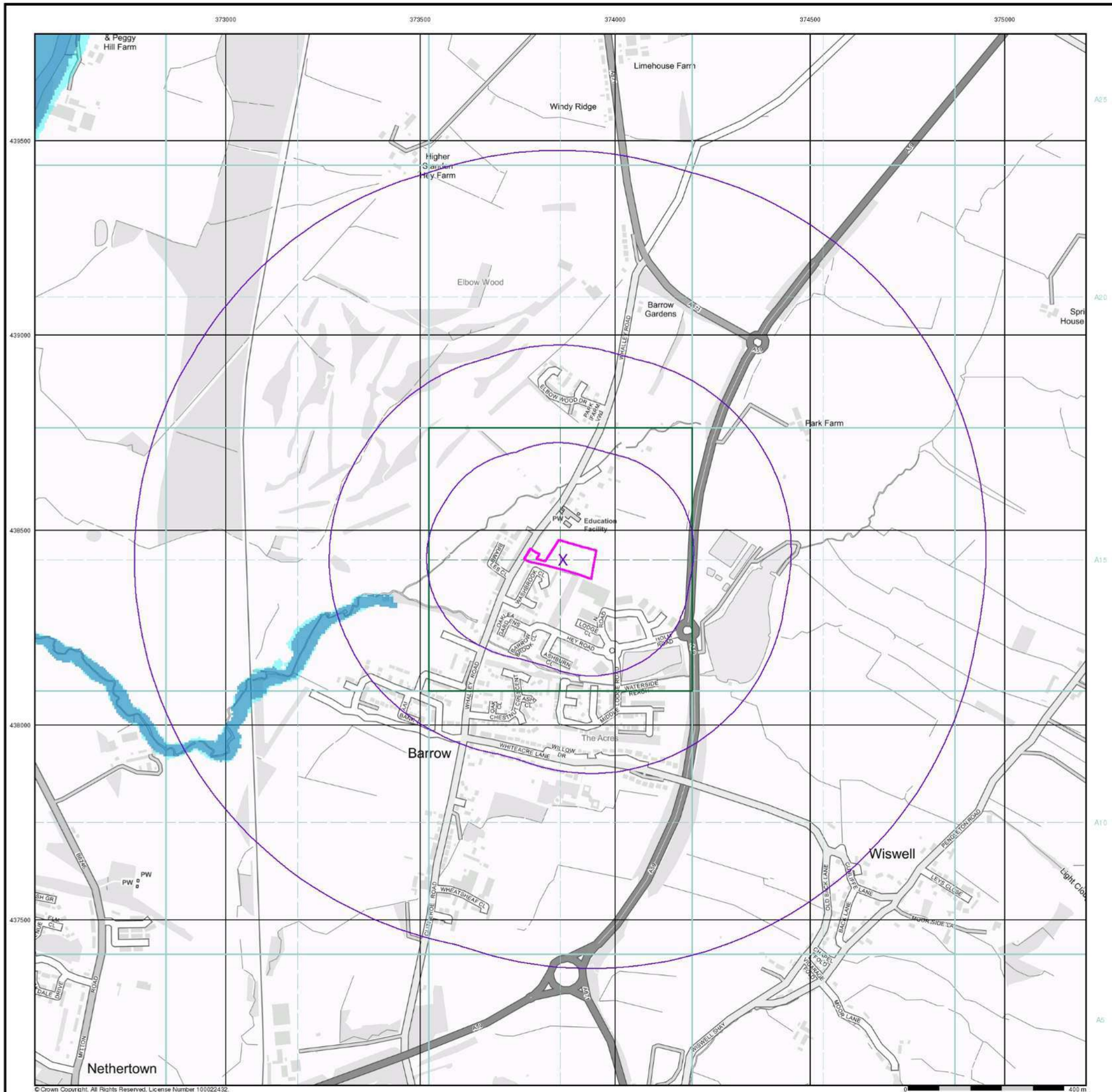

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General

- ⬠ Specified Site
- ⬠ Specified Buffer(s)
- X 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:	301809759_1_1
Customer Ref:	7208
National Grid Reference:	373870, 438430
Slice:	A
Site Area (Ha):	0.92
Search Buffer (m):	1000

Site Details

Site at 373859,438425

Landmark INFORMATION GROUP

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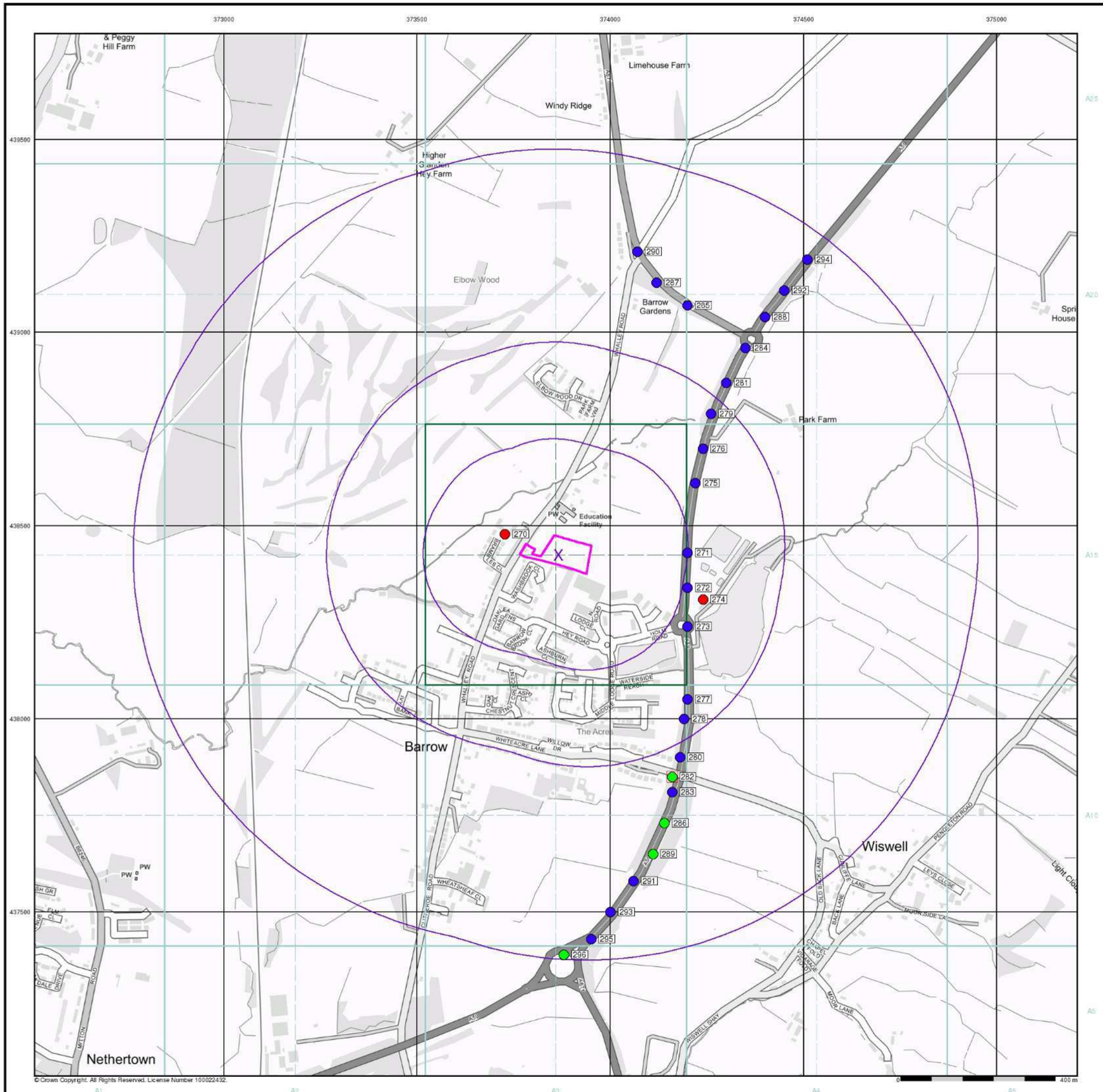
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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General

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

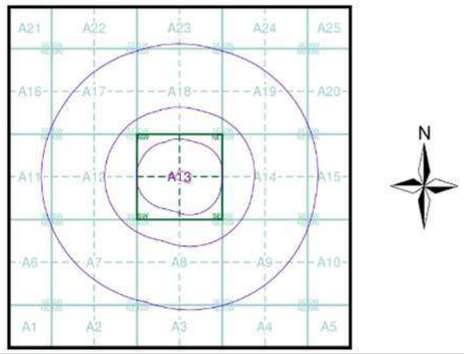
Agency and Hydrological (Boreholes)

- 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

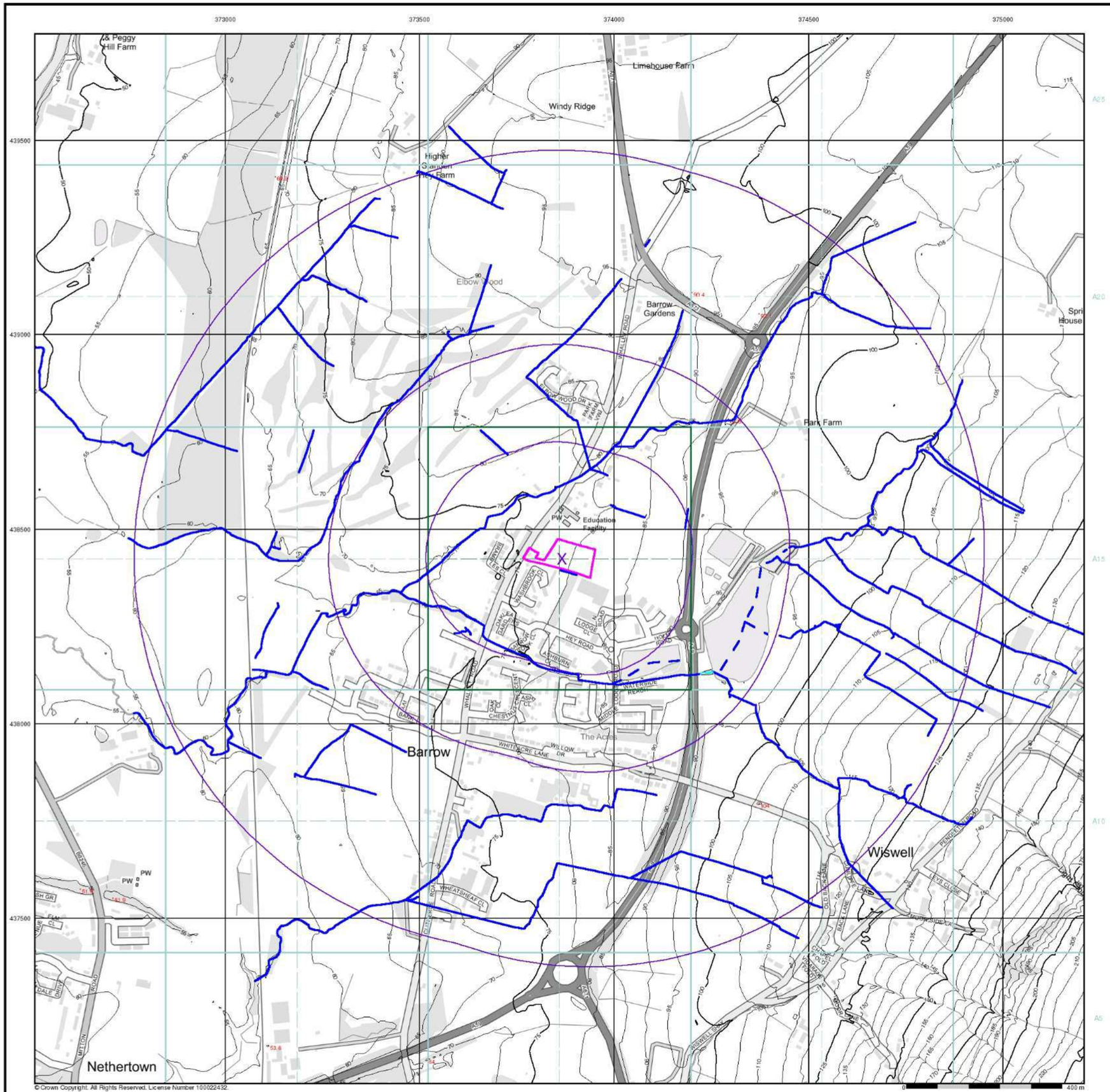


Order Details

Order Number:	301809759_1_1
Customer Ref:	7208
National Grid Reference:	373870, 438430
Slice:	A
Site Area (Ha):	0.92
Search Buffer (m):	1000

Site Details

Site at 373859,438425



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General

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

OS Water Network Data

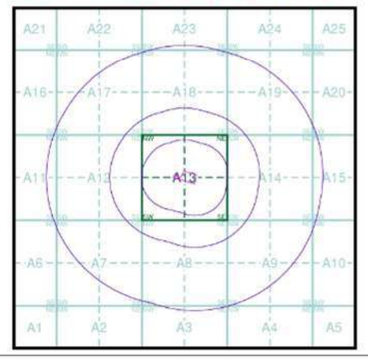
- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

Contours (height in meters)

Standard Contour 105
Master Contour 100 95
Spot Height 167.3

- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



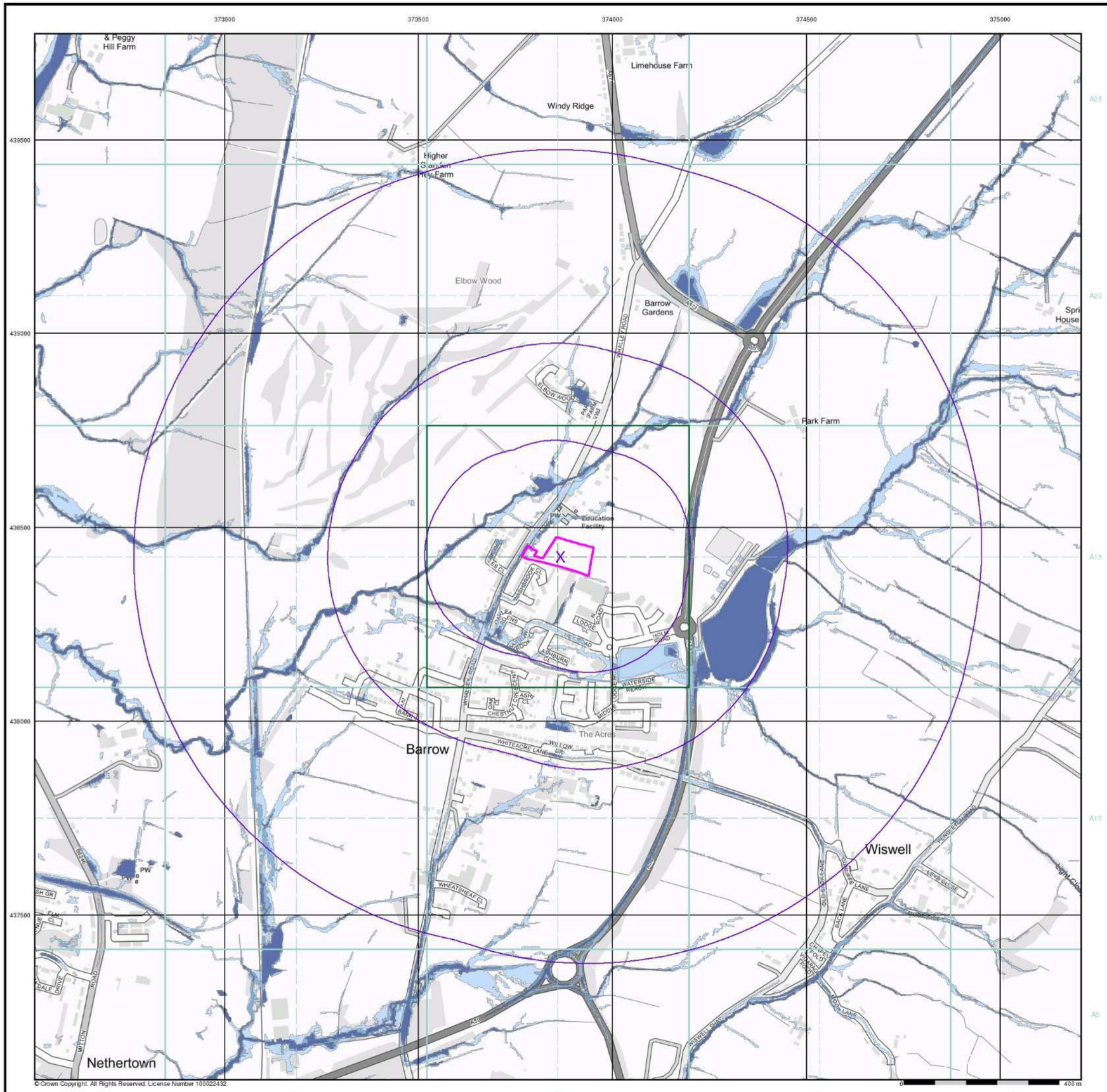
Order Details

Order Number:	301809759_1_1
Customer Ref:	7208
National Grid Reference:	373870, 438430
Slice:	A
Site Area (Ha):	0.92
Search Buffer (m):	1000

Site Details

Site at 373859,438425

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



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General

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

Risk of Flooding from Surface Water

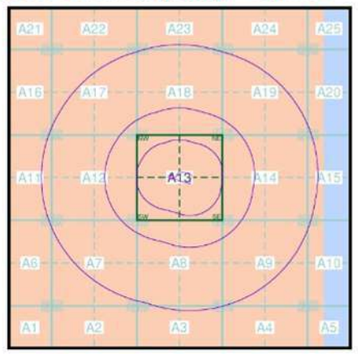
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

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

Order Number:	301809759_1_1
Customer Ref:	7208
National Grid Reference:	373870, 438430
Slice:	A
Site Area (Ha):	0.92
Search Buffer (m):	1000

Site Details

Site at 373859,438425

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

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Location: BB7 9AZ,
Map Centre: 373823,438502

LEGEND

High: Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.

Moderate: Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.

Low: Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

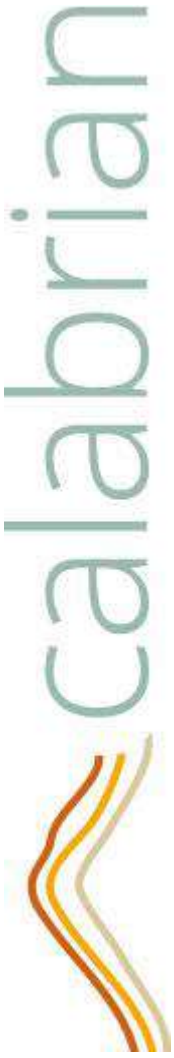
web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

APPENDIX D	EXPLORATORY HOLE RECORDS
Trial Pits	TP101 to TP105
Window Sample Boreholes	WS101 to WS106



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Trial Pit Log

Trialpit No
TP101
Sheet 1 of 1

Project Name: Whalley Road	Project No. 7208	Co-ords: 373857.00 - 438453.00 Level: 78.20	Date 29/09/2022
Location: Barrow, BB7 9AZ		Dimensions (m): Depth 2.60	Scale 1:25
Client: LNT Care Developments			Logged RJH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	J,K&T		0.25	77.95		MADE GROUND: Soft slightly friable slightly organic brown clay with rare brick cobbles. MADE GROUND TOPSOIL
	0.50	J,K&T					Firm brown and grey mottled CLAY with rare subangular to rounded fine to coarse gravel of mixed lithologies. COHESIVE GLACIAL DEPOSITS
	0.90	D	HVP=60	1.00	77.20		Firm brown locally grey mottled CLAY with some subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. COHESIVE GLACIAL DEPOSITS
				2.10	76.10		Firm grey slightly sandy CLAY with some subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. Rare rounded and subrounded boulders <350mm. COHESIVE GLACIAL DEPOSITS
				2.60	75.60		End of pit at 2.60 m

1
2
3
4
5

Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion.

Stability:

AGS

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Trial Pit Log

Trialpit No
TP102
Sheet 1 of 1

Project Name: Whalley Road	Project No. 7208	Co-ords: 373849.00 - 438415.00 Level: 78.30	Date 29/09/2022
Location: Barrow, BB7 9AZ		Dimensions (m): Depth 2.50	Scale 1:25
Client: LNT Care Developments			Logged RJH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	J,K&T		0.25	78.05		MADE GROUND: Soft slightly friable slightly organic brown clay with rare flat tabular sandstone cobbles. MADE GROUND TOPSOIL
	0.60	J,K&T					Firm orange brown, brown and grey mottled CLAY with some subangular to rounded fine to coarse gravel of mixed lithologies. Rare subrounded and rounded cobbles. COHESIVE GLACIAL DEPOSITS
	1.00	D		1.10	77.20		Firm grey brown slightly sandy CLAY with some subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. Rare rounded and subrounded boulders <350mm. COHESIVE GLACIAL DEPOSITS
				2.50	75.80		End of pit at 2.50 m

1
2
3
4
5

Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion.

Stability:

AGS

calabrian

Trial Pit Log

Trialpit No
TP103
Sheet 1 of 1

Project Name: Whalley Road	Project No. 7208	Co-ords: 373895.00 - 438428.00 Level: 79.95	Date 29/09/2022
Location: Barrow, BB7 9AZ		Dimensions (m): Depth 2.00	Scale 1:25
Client: LNT Care Developments			Logged RJH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	J,K&T		0.20	79.75		Soft slightly friable slightly organic brown clay with rare subangular to rounded fine to coarse gravel of mixed lithologies. TOPSOIL
	0.50	J,K&T					Firm orange brown grey mottled CLAY with a little subangular to rounded fine to coarse gravel of mixed lithologies. COHESIVE GLACIAL DEPOSITS
	1.20	D		1.00	78.95		Firm grey locally brown CLAY with some subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. Rare rounded and subrounded boulders <350mm. COHESIVE GLACIAL DEPOSITS
				2.00	77.95		*At 2.0m, some rounded boulders <350mm. Unable to progress deeper due to lack of teeth of excavator bucket.* End of pit at 2.00 m

1
2
3
4
5

Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion.

Stability:

AGS

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Trial Pit Log

Trialpit No
TP104
Sheet 1 of 1

Project Name: Whalley Road	Project No. 7208	Co-ords: 373940.00 - 438439.00 Level: 80.70	Date 29/09/2022
Location: Barrow, BB7 9AZ		Dimensions (m): Depth 2.50	Scale 1:25
Client: LNT Care Developments			Logged RJH

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10	J,K&T		0.20	80.50		Soft slightly friable slightly organic brown clay with rare subangular to rounded fine to coarse gravel of mixed lithologies. TOPSOIL
	0.40	J,K&T					Firm orange brown, brown and grey mottled CLAY with a little subangular to rounded fine to coarse gravel of mixed lithologies. COHESIVE GLACIAL DEPOSITS
			HVP=58	1.00	79.70		Firm grey brown CLAY with rare subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. COHESIVE GLACIAL DEPOSITS
	1.20	D					
			HVP=62	2.50	78.20		End of pit at 2.50 m

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Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion.

Stability:

AGS

calabrian

Trial Pit Log

Trialpit No
TP105
Sheet 1 of 1

Project Name: Whalley Road	Project No. 7208	Co-ords: 373926.00 - 438389.00 Level: 81.15	Date 29/09/2022
Location: Barrow, BB7 9AZ		Dimensions (m): Depth 2.50	Scale 1:25
Client: LNT Care Developments			Logged RJH

Water Strike	Samples and In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	J,K&T		0.20	80.95		Soft slightly friable slightly organic brown clay with rare subangular to rounded fine to coarse gravel of mixed lithologies. TOPSOIL
	0.50	J,K&T		0.60	80.55		Firm orange brown, brown and grey mottled CLAY with a little subangular to rounded fine to coarse gravel of mixed lithologies. COHESIVE GLACIAL DEPOSITS
	1.00	D	HVP=100 HVP=78	1.80	79.35		Firm grey brown CLAY with rare subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. COHESIVE GLACIAL DEPOSITS
				2.50	78.65		Stiff grey CLAY with a little predominately rounded fine to coarse gravel of mixed lithologies. COHESIVE GLACIAL DEPOSITS End of pit at 2.50 m

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Remarks: 1. Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during excavation. 3. The sides of the trial pit remained stable during excavation. 4. Backfilled with materials arising upon completion.

Stability:

AGS

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Borehole Log

Borehole No.
WS101
Sheet 1 of 1

Project Name:	Whalley Road	Project No. 7208	Co-ords:	373834.00 - 438427.00	Hole Type WS
Location:	Barrow, BB7 9AZ		Level:	77.60	Scale 1:20
Client:	LNT Care Developments		Dates:	29/09/2022 - 29/09/2022	Logged By RJH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	J,K&T		0.10	77.50		MADE GROUND: Soft slightly friable slightly organic brown clay with rare brick cobbles. MADE GROUND TOPSOIL
		0.50	J,K&T		0.25	77.35		MADE GROUND: Compact black and grey angular gravel sized asphalt fragments. GRANULAR MADE GROUND
								Firm blue grey and brown mottled CLAY. COHESIVE GLACIAL DEPOSITS
					1.10	76.50		Firm brown locally grey mottled CLAY with a little subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. COHESIVE GLACIAL DEPOSITS
					1.60	76.00		Firm grey slightly sandy CLAY with some subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. Rare rounded and subrounded boulders <350mm. COHESIVE GLACIAL DEPOSITS
					2.80	74.80		End of borehole at 2.80 m

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Remarks
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling.

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Borehole Log

Borehole No.
WS102
Sheet 1 of 1

Project Name:	Whalley Road	Project No. 7208	Co-ords:	373890.00 - 438401.00	Hole Type WS
Location:	Barrow, BB7 9AZ		Level:	80.10	Scale 1:20
Client:	LNT Care Developments		Dates:	29/09/2022 - 29/09/2022	Logged By RJH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	79.90		Soft slightly friable slightly organic brown clay with rare subangular to rounded fine to coarse gravel of mixed lithologies. TOPSOIL
								Firm orange brown grey mottled CLAY with a little subangular to rounded fine to coarse gravel of mixed lithologies. COHESIVE GLACIAL DEPOSITS
					1.00	79.10		Firm grey locally brown CLAY with some subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. Rare rounded and subrounded boulders <350mm. COHESIVE GLACIAL DEPOSITS
					2.50	77.60		End of borehole at 2.50 m

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Remarks
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling.

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Borehole Log

Borehole No.
WS103
Sheet 1 of 1

Project Name:	Whalley Road	Project No. 7208	Co-ords:	373931.00 - 438415.00	Hole Type WS
Location:	Barrow, BB7 9AZ		Level:	80.90	Scale 1:20
Client:	LNT Care Developments		Dates:	29/09/2022 - 29/09/2022	Logged By RJH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	80.70		Soft slightly friable slightly organic brown clay with rare subangular to rounded fine to coarse gravel of mixed lithologies. TOPSOIL
								Firm orange brown, brown and grey mottled CLAY with a little subangular to rounded fine to coarse gravel of mixed lithologies. COHESIVE GLACIAL DEPOSITS
					1.00	79.90		Firm grey brown CLAY with rare subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. COHESIVE GLACIAL DEPOSITS
					3.00	77.90		End of borehole at 3.00 m

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Remarks
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling.

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Borehole Log

Borehole No.
WS104
Sheet 1 of 1

Project Name:	Whalley Road	Project No. 7208	Co-ords:	373904.00 - 438451.00	Hole Type WS
Location:	Barrow, BB7 9AZ		Level:	79.80	Scale 1:20
Client:	LNT Care Developments		Dates:	29/09/2022 - 29/09/2022	Logged By RJH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	79.60		Soft slightly friable slightly organic brown clay with rare subangular to rounded fine to coarse gravel of mixed lithologies. TOPSOIL
								Firm orange brown grey mottled CLAY with a little subangular to rounded fine to coarse gravel of mixed lithologies. COHESIVE GLACIAL DEPOSITS
					1.00	78.80		Firm grey locally brown CLAY with some subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. Rare rounded and subrounded boulders <350mm. COHESIVE GLACIAL DEPOSITS
					2.50	77.30		End of borehole at 2.50 m

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Remarks
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling.

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Borehole Log

Borehole No.
WS105
Sheet 1 of 1

Project Name:	Whalley Road	Project No. 7208	Co-ords:	373856.00 - 438435.00	Hole Type WS
Location:	Barrow, BB7 9AZ		Level:	78.40	Scale 1:20
Client:	LNT Care Developments		Dates:	29/09/2022 - 29/09/2022	Logged By RJH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								MADE GROUND: Soft slightly friable slightly organic brown clay with rare flat tabular sandstone cobbles. MADE GROUND TOPSOIL
					0.25	78.15		Firm orange brown, brown and grey mottled CLAY with some subangular to rounded fine to coarse gravel of mixed lithologies. Rare subrounded and rounded cobbles. COHESIVE GLACIAL DEPOSITS
					1.10	77.30		Firm grey brown slightly sandy CLAY with some subangular to rounded fine to coarse gravel and cobbles of mixed lithologies. Rare rounded and subrounded boulders <350mm. COHESIVE GLACIAL DEPOSITS
					3.00	75.40		End of borehole at 3.00 m

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Remarks
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling.

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Borehole Log

Borehole No.
WS106
Sheet 1 of 1

Project Name:	Whalley Road	Project No. 7208	Co-ords:	373806.00 - 438420.00	Hole Type WS
Location:	Barrow, BB7 9AZ		Level:	76.40	Scale 1:20
Client:	LNT Care Developments		Dates:	29/09/2022 - 29/09/2022	Logged By RJH

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	J,K&T		0.20	76.20		MADE GROUND: Compact black and grey angular gravel sized asphalt fragments. GRANULAR MADE GROUND
					0.45	75.95		MADE GROUND: Loose black fine to coarse sand and gravel sized clinker. ASH & CLINKER
					0.80	75.60		MADE GROUND: Compact brown angular gravel and cobble sized sandstone fragments. GRANULAR MADE GROUND
		1.00	J,K&T					Stiff brown CLAY with a little predominately rounded fine to coarse gravel of mixed lithologies. COHESIVE GLACIAL DEPOSITS
					1.50	74.90		End of borehole at 1.50 m

1 2 3 4

Remarks
1. Prior to drilling a Cable Avoidance Tool (CAT) survey was carried out. 2. Groundwater was not apparent during drilling.

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APPENDIX E CHEMICAL TEST RESULTS

Certificate of Analysis

Certificate Number 22-19683 *Issued:* 12-Oct-22

Client Calabrian Ltd
8 I'Anson Close
Leyburn
DL8 5LF

Our Reference 22-19683

Client Reference 7208

Order No PO7208

Contract Title Whalley Road, Barrow, BB7 9AZ

Description 14 Soil samples, 4 Leachate samples.

Date Received 03-Oct-22

Date Started 03-Oct-22

Date Completed 12-Oct-22

Test Procedures Identified by prefix DETSn (details on request).

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

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 22-19683
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ

			Lab No	2066399	2066400	2066401	2066402	2066403	2066404
			.Sample ID	TP101	TP101	TP102	TP102	TP103	TP103
			Depth	0.10	0.50	0.10	0.60	0.10	0.50
			Other ID	1	2	1	2	1	2
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	29/09/2022	29/09/2022	29/09/2022	29/09/2022	29/09/2022	29/09/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	16	11	16	7.4	15	15
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.7	0.2	0.8	< 0.2	0.7	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.7	0.4	0.8	0.9	0.6	1.4
Chromium	DETSC 2301#	0.15	mg/kg	21	30	23	14	23	25
Chromium III	DETSC 2301*	0.15	mg/kg	21	30	23	14	23	25
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	46	33	36	21	31	33
Lead	DETSC 2301#	0.3	mg/kg	80	23	74	19	68	38
Mercury	DETSC 2325#	0.05	mg/kg	0.21	< 0.05	0.18	< 0.05	0.16	0.06
Nickel	DETSC 2301#	1	mg/kg	20	41	24	28	21	49
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	0.6	< 0.5	< 0.5	0.6
Zinc	DETSC 2301#	1	mg/kg	160	84	110	100	120	150
Inorganics									
pH	DETSC 2008#		pH	6.3	7.3	5.4	8.3	5.1	7.0
Total Organic Carbon	DETSC 2084#	0.5	%	8.0	0.9	6.0	1.8	6.0	0.8
Petroleum Hydrocarbons									
EPH (C6-C10): HS_1D_Total	DETSC 3321*	0.1	mg/kg	< 0.1	< 0.1	< 0.1		< 0.1	
EPH (C10-C12): EH_1D_Total	DETSC 3311	10	mg/kg	< 10	< 10	< 10		< 10	
EPH (C12-C16): EH_1D_Total	DETSC 3311	10	mg/kg	< 10	< 10	< 10		< 10	
EPH (C16-C21): EH_1D_Total	DETSC 3311	10	mg/kg	< 10	< 10	< 10		< 10	
EPH (C21-C35): EH_1D_Total	DETSC 3311	10	mg/kg	29	< 10	< 10		< 10	
EPH (C35-C40): EH_1D_Total	DETSC 3311	10	mg/kg	< 10	< 10	< 10		< 10	
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01		< 0.01	
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01		< 0.01	
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01		< 0.01	
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01		< 0.01	
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01		< 0.01	
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.06	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.04	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.07	< 0.03	0.23	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	0.04	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.13	< 0.03	0.31	< 0.03	0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.13	< 0.03	0.28	< 0.03	0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.06	< 0.03	0.11	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.08	< 0.03	0.13	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.11	< 0.03	0.11	< 0.03	0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.05	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.07	< 0.03	0.08	< 0.03	< 0.03	< 0.03

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-19683
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ

			Lab No	2066399	2066400	2066401	2066402	2066403	2066404
			.Sample ID	TP101	TP101	TP102	TP102	TP103	TP103
			Depth	0.10	0.50	0.10	0.60	0.10	0.50
			Other ID	1	2	1	2	1	2
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	29/09/2022	29/09/2022	29/09/2022	29/09/2022	29/09/2022	29/09/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03	0.05	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.05	< 0.03	0.04	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.74	< 0.10	1.5	< 0.10	< 0.10	< 0.10

Summary of Chemical Analysis
Soil Samples

Our Ref 22-19683
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ

			Lab No	2066405	2066406	2066407	2066408	2066409	2066410
			.Sample ID	TP104	TP104	TP105	TP105	WS101	WS101
			Depth	0.10	0.40	0.10	0.50	0.20	0.50
			Other ID	1	2	1	2	1	2
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	29/09/2022	29/09/2022	29/09/2022	29/09/2022	29/09/2022	29/09/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	19	13	22	12	37	12
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.8	0.3	1.0	0.3	0.4	0.6
Cadmium	DETSC 2301#	0.1	mg/kg	0.9	0.4	0.8	0.3	0.5	0.8
Chromium	DETSC 2301#	0.15	mg/kg	28	28	26	31	12	26
Chromium III	DETSC 2301*	0.15	mg/kg	28	28	26	31	12	26
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	99	30	65	32	27	18
Lead	DETSC 2301#	0.3	mg/kg	89	21	110	23	56	23
Mercury	DETSC 2325#	0.05	mg/kg	0.23	< 0.05	0.32	< 0.05	0.07	< 0.05
Nickel	DETSC 2301#	1	mg/kg	26	39	23	38	26	35
Selenium	DETSC 2301#	0.5	mg/kg	0.7	0.7	0.8	0.9	0.8	0.6
Zinc	DETSC 2301#	1	mg/kg	110	75	100	70	84	68
Inorganics									
pH	DETSC 2008#		pH	5.3	6.6	4.9	7.3	11.9	7.3
Total Organic Carbon	DETSC 2084#	0.5	%	7.4	1.1	8.2	1.1	13	1.2
Petroleum Hydrocarbons									
EPH (C6-C10): HS_1D_Total	DETSC 3321*	0.1	mg/kg	< 0.1		< 0.1		< 0.1	< 0.1
EPH (C10-C12): EH_1D_Total	DETSC 3311	10	mg/kg	< 10		< 10		< 10	< 10
EPH (C12-C16): EH_1D_Total	DETSC 3311	10	mg/kg	< 10		< 10		< 10	< 10
EPH (C16-C21): EH_1D_Total	DETSC 3311	10	mg/kg	< 10		< 10		34	< 10
EPH (C21-C35): EH_1D_Total	DETSC 3311	10	mg/kg	< 10		< 10		110	< 10
EPH (C35-C40): EH_1D_Total	DETSC 3311	10	mg/kg	< 10		< 10		< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01		< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01		< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01		< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01		< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01		< 0.01		< 0.01	< 0.01
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.03	< 0.03	0.04	< 0.03	0.12	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.07	< 0.03	0.09	< 0.03	0.30	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.07	< 0.03	0.08	< 0.03	0.27	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.03	< 0.03	0.04	< 0.03	0.12	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.04	< 0.03	0.05	< 0.03	0.20	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03	0.04	< 0.03	0.23	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.07	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.20	< 0.03

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-19683
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ

			Lab No	2066405	2066406	2066407	2066408	2066409	2066410
			.Sample ID	TP104	TP104	TP105	TP105	WS101	WS101
			Depth	0.10	0.40	0.10	0.50	0.20	0.50
			Other ID	1	2	1	2	1	2
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	29/09/2022	29/09/2022	29/09/2022	29/09/2022	29/09/2022	29/09/2022
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.07	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	0.09	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.22	< 0.10	0.35	< 0.10	1.7	< 0.10

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-19683
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ

			Lab No	2066411	2066412
			.Sample ID	WS106	WS106
			Depth	0.20	0.20
			Other ID	1	2
			Sample Type	SOIL	SOIL
			Sampling Date	29/09/2022	29/09/2022
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	5.9	9.4
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.4	0.4
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.8
Chromium	DETSC 2301#	0.15	mg/kg	11	19
Chromium III	DETSC 2301*	0.15	mg/kg	11	19
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	26	26
Lead	DETSC 2301#	0.3	mg/kg	16	17
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	13	35
Selenium	DETSC 2301#	0.5	mg/kg	0.8	0.7
Zinc	DETSC 2301#	1	mg/kg	92	81
Inorganics					
pH	DETSC 2008#		pH	9.8	10.2
Total Organic Carbon	DETSC 2084#	0.5	%	12	2.6
Petroleum Hydrocarbons					
EPH (C6-C10): HS_1D_Total	DETSC 3321*	0.1	mg/kg	< 0.1	< 0.1
EPH (C10-C12): EH_1D_Total	DETSC 3311	10	mg/kg	< 10	< 10
EPH (C12-C16): EH_1D_Total	DETSC 3311	10	mg/kg	< 10	< 10
EPH (C16-C21): EH_1D_Total	DETSC 3311	10	mg/kg	79	< 10
EPH (C21-C35): EH_1D_Total	DETSC 3311	10	mg/kg	240	< 10
EPH (C35-C40): EH_1D_Total	DETSC 3311	10	mg/kg	16	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01
PAHs					
Naphthalene	DETSC 3303#	0.03	mg/kg	0.09	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.14	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	0.19	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	0.22	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	2.8	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	0.94	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	11	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	12	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	5.1	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	5.7	0.04
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	7.4	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	3.0	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	7.0	< 0.03

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 22-19683
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ

			Lab No	2066411	2066412
			.Sample ID	WS106	WS106
			Depth	0.20	0.20
			Other ID	1	2
			Sample Type	SOIL	SOIL
			Sampling Date	29/09/2022	29/09/2022
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	2.8	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.71	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	3.0	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	62	< 0.10

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 22-19683
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ
Sample Id TP101 2 0.50

Sample Numbers 2066400 2066413 2066414
Date Analysed 11/10/2022

Test Results On Waste

Determinand and Method Reference	Units	Result	WAC Limit Values: Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	0.9	3	5	6
DETSC 2003# Loss On Ignition	%	5.2	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	2.0	100	n/a	n/a
DETSC 2008# pH	pH Units	7.3	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate

Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached* mg/kg		WAC Limit Values (Limit values for LS10 Leachate): Inert Waste	SNRHW	Hazardous Waste
	2:1	8:1	LS2	LS10			
DETSC 2306 Arsenic as As	0.31	< 0.16	< 0.002	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	3.3	1.7	< 0.02	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	0.038	< 0.030	< 0.004	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	< 0.25	0.66	< 0.02	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	2.9	4.5	0.006	0.043	2	50	100
DETSC 2306 Mercury as Hg	0.029	< 0.010	< 0.0004	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	3.3	< 1.1	< 0.02	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	< 0.50	< 0.02	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.45	0.25	< 0.01	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	0.23	< 0.17	< 0.01	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	1.2	0.48	< 0.006	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	1.4	1.4	0.003	0.014	4	50	200
DETSC 2055 Chloride as Cl	1200	1300	< 20	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	110	< 100	0.22	0.17	10	150	500
DETSC 2055 Sulphate as SO4	2300	2300	< 20	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	20000	11000	40	123.8	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	5100	4600	10.2	< 50	500	800	1000

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive Hazardous Waste

Additional Information

DETSC 2008 pH	6.8	6.7
DETSC 2009 Conductivity uS/cm	28.4	16.1
* Temperature*	17.0	16.0

Mass of Sample Kg*	0.140
Mass of dry Sample Kg*	0.110

Stage 1

Volume of Leachant L2*	0.191
Volume of Eluate VE1*	0.169

Stage 2

Volume of Leachant L8*	0.882
Volume of Eluate VE2*	0.83

Disclaimer: *The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.*

V.2.06 ** DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.*

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 22-19683
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ
Sample Id WS101 2 0.50

Sample Numbers 2066410 2066415 2066416
Date Analysed 10/10/2022

Test Results On Waste

Determinand and Method Reference	Units	Result	WAC Limit Values: Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.2	3	5	6
DETSC 2003# Loss On Ignition	%	6.8	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	2.1	100	n/a	n/a
DETSC 2008# pH	pH Units	7.3	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate

Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached* mg/kg		WAC Limit Values (Limit values for LS10 Leachate): Inert Waste	SNRHW	Hazardous Waste
	2:1	8:1	LS2	LS10			
DETSC 2306 Arsenic as As	0.41	0.5	< 0.002	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	9	4.7	< 0.02	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.030	< 0.030	< 0.004	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	< 0.25	0.97	< 0.02	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	3	2.6	0.006	0.027	2	50	100
DETSC 2306 Mercury as Hg	< 0.010	< 0.010	< 0.0004	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	< 1.1	< 1.1	< 0.02	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	< 0.50	0.87	< 0.02	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.42	1.1	< 0.01	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	< 0.17	< 0.17	< 0.01	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	0.58	0.35	< 0.006	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	2.7	2.2	0.005	0.023	4	50	200
DETSC 2055 Chloride as Cl	1900	1200	< 20	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	120	< 100	0.24	0.19	10	150	500
DETSC 2055 Sulphate as SO4	30000	10000	60	131	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	87000	36000	174	439.1	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	5600	5900	11.2	58.5	500	800	1000

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive Hazardous Waste

Additional Information

DETSC 2008 pH	6.3	6.5
DETSC 2009 Conductivity uS/cm	124.0	52.0
* Temperature*	17.0	16.0

Mass of Sample Kg*	0.140
Mass of dry Sample Kg*	0.112

Stage 1

Volume of Leachant L2*	0.197
Volume of Eluate VE1*	0.174

Stage 2

Volume of Leachant L8*	0.898
Volume of Eluate VE2*	0.845

Disclaimer: *The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.*

V.2.06 ** DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.*

Summary of Asbestos Analysis
Soil Samples

Our Ref 22-19683
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2066399	TP101 1 0.10	SOIL	NAD	none	Vicky Convery
2066400	TP101 2 0.50	SOIL	NAD	none	Vicky Convery
2066401	TP102 1 0.10	SOIL	NAD	none	Vicky Convery
2066402	TP102 2 0.60	SOIL	NAD	none	Vicky Convery
2066403	TP103 1 0.10	SOIL	NAD	none	Vicky Convery
2066404	TP103 2 0.50	SOIL	NAD	none	Vicky Convery
2066405	TP104 1 0.10	SOIL	NAD	none	Vicky Convery
2066406	TP104 2 0.40	SOIL	NAD	none	Vicky Convery
2066407	TP105 1 0.10	SOIL	NAD	none	Vicky Convery
2066408	TP105 2 0.50	SOIL	NAD	none	Vicky Convery
2066409	WS101 1 0.20	SOIL	Chrysotile	Chrysotile present as fibre bundles	Vicky Convery
2066410	WS101 2 0.50	SOIL	NAD	none	Vicky Convery
2066411	WS106 1 0.20	SOIL	NAD	none	Vicky Convery
2066412	WS106 2 0.20	SOIL	NAD	none	Vicky Convery

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 22-19683
Client Ref 7208
Contract Whalley Road, Barrow, BB7 9AZ

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2066399	TP101 0.10 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066400	TP101 0.50 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066401	TP102 0.10 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066402	TP102 0.60 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066403	TP103 0.10 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066404	TP103 0.50 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066405	TP104 0.10 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066406	TP104 0.40 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066407	TP105 0.10 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066408	TP105 0.50 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066409	WS101 0.20 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066410	WS101 0.50 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066411	WS106 0.20 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066412	WS106 0.20 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066413	TP101 0.50 LEACHATE	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066414	TP101 0.50 LEACHATE	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066415	WS101 0.50 LEACHATE	29/09/22	GJ 250ml, GJ 60ml, PT 1L		
2066416	WS101 0.50 LEACHATE	29/09/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

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

Det	Acronym
EPH (C6-C10)	HS_1D_Total
EPH (C10-C12)	EH_1D_Total
EPH (C12-C16)	EH_1D_Total
EPH (C16-C21)	EH_1D_Total
EPH (C21-C35)	EH_1D_Total
EPH (C35-C40)	EH_1D_Total
TPH (C10-C40)	EH_1D_Total

End of Report

Certificate of Analysis

Certificate Number	22-20481	*Issued:*	17-Oct-22
Client	Calabrian Ltd 8 I'Anson Close Leyburn DL8 5LF		

Our Reference	22-20481
Client Reference	7208
Order No	PO7208
Contract Title	Whalley Road, Barrow, BB7 9AZ
Description	One Soil sample.
Date Received	03-Oct-22
Date Started	12-Oct-22
Date Completed	17-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Asbestos Analysis

Samples

Our Ref 22-20481
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ

Lab No	Sample ID	Sample Location	Material Type	Result	Comment*	Analyst

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis
Soil Samples

Our Ref 22-20481
Client Ref 7208
Contract Title Whalley Road, Barrow, BB7 9AZ

Lab No	2070437
.Sample ID	WS101
Depth	0.20
Other ID	1
Sample Type	
Sampling Date	29/09/2022
Sampling Time	

Test	**Method**	**Units**	
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	**0.004**
Gravimetric Quantification (a)	DETSC 1102	Mass %	na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	0.004
Quantification by PCOM (c)	DETSC 1102	Mass %	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na
Breakdown of Gravimetric Analysis (a)			
Mass of Sample		g	255.83
ACMs present*		type	
Mass of ACM in sample		g	
% ACM by mass		%	
% asbestos in ACM		%	
% asbestos in sample		%	
Breakdown of Detailed Gravimetric Analysis (b)			
% Amphibole bundles in sample		Mass %	na
% Chrysotile bundles in sample		Mass %	0.004
Breakdown of PCOM Analysis (c)			
% Amphibole fibres in sample		Mass %	na
% Chrysotile fibres in sample		Mass %	na
Breakdown of Potentially Respirable Fibre Analysis (d)			
Amphibole fibres		Fibres/g	na
Chrysotile fibres		Fibres/g	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Information in Support of the Analytical Results

Our Ref 22-20481
Client Ref 7208
Contract Whalley Road, Barrow, BB7 9AZ

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2070437	WS101 0.20 SOIL	29/09/22	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

APPENDIX F GEOTECHNICAL TEST RESULTS

calabrian

LABORATORY REPORT

4043

Contract Number: PSL22/6382

Report Date: 14 October 2022

Client's Reference: 7208

Client Name: Calabrian

For the attention of: Richard Hey

Contract Title: Whalley Road, Barrow, BB7 9AZ

Date Received: 3/10/2022
Date Commenced: 3/10/2022
Date Completed: 14/10/2022

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

M Fennell
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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP101		D	0.90	3.00	Brown slightly sandy CLAY.
TP102		D	1.00	3.00	Brown very gravelly very sandy CLAY.
TP103		D	1.20	3.00	Brown slightly gravelly slightly sandy CLAY.
TP104		D	1.20	3.00	Brown slightly sandy CLAY.
TP105		D	1.00	3.00	Brown slightly sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP101		D	0.90	3.00	29			51	24	27	100	High Plasticity CH
TP102		D	1.00	3.00	15			32	15	17	79	Low Plasticity CL
TP103		D	1.20	3.00	31			44	24	20	95	Intermediate Plasticity CI
TP104		D	1.20	3.00	30			53	25	28	100	High Plasticity CH
TP105		D	1.00	3.00	23			55	25	30	100	High Plasticity CH

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

Whalley Road, Barrow, BB7 9AZ

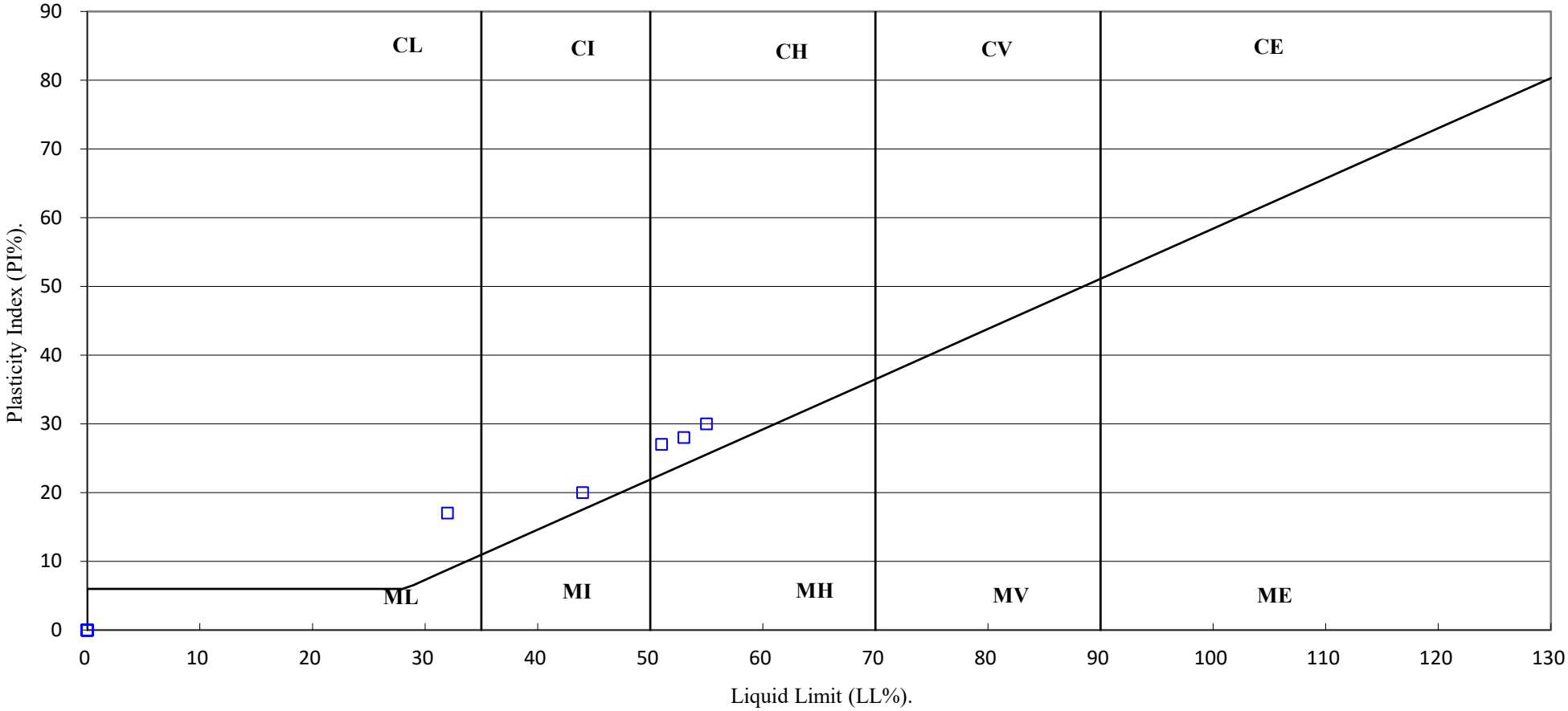
Contract No:

PSL22/6382

Client Ref:

7208

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	Whalley Road, Barrow, BB7 9AZ	Contract No: PSL22/6382 Client Ref: 7208

Certificate of Analysis

Certificate Number	22-20560	*Issued:*	17-Oct-22

Client Professional Soils Laboratory Ltd
5/7 Hexthorpe Road
Hexthorpe
DN4 0AR

Our Reference	22-20560
Client Reference	PSL22/6382
Order No	(not supplied)
Contract Title	Whalley Road, Barrow, BB7 9AZ
Description	5 Soil samples.
Date Received	13-Oct-22
Date Started	13-Oct-22
Date Completed	17-Oct-22
Test Procedures	Identified by prefix DETSn (details on request).

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

Approved By

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-20560
Client Ref PSL22/6382
Contract Title Whalley Road, Barrow, BB7 9AZ

			Lab No	2070917	2070918	2070919	2070920	2070921
			.Sample ID	TP101	TP102	TP103	TP104	TP105
			Depth	0.90	1.00	1.20	1.20	1.00
			Other ID					
			Sample Type	D	D	D	D	D
			Sampling Date	n/s	n/s	n/s	n/s	n/s
			Sampling Time	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
Inorganics								
pH	DETSC 2008#		pH	7.0	7.8	7.2	7.3	7.8
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	210	99	17	11	12

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 22-20560
Client Ref PSL22/6382
Contract Whalley Road, Barrow, BB7 9AZ

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2070917	TP101 0.90 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2070918	TP102 1.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2070919	TP103 1.20 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2070920	TP104 1.20 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2070921	TP105 1.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

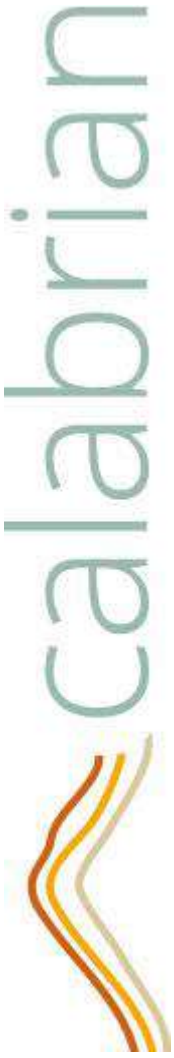
Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

APPENDIX G HazWasteOnline™ CLASSIFICATION



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.

A7M4I-DY7DK-3Z60X

Job name

7208

Description/Comments

Project

7208

Site

Whalley Road, Barrow, BB7 9AZ

Classified by

Name:
Richard Hey
Date:
19 Oct 2022 15:39 GMT
Telephone:
01969 623803

Company:
Calabrian Limited
8 I'Anson Close
Leyburn

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

HazWasteOnline™ Certification: -

Course	Date
Hazardous Waste Classification	-

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	WAC Results			Page
					Inert	SNRHW	Hazardous	
1	TP101 1/0.10/2022-09-29		Potentially Hazardous	HP 3(i)	N/A	-	-	3
2	TP101 2/0.50/2022-09-29		Non Hazardous		N/A	Pass	Pass	6
3	TP102 1/0.10/2022-09-29		Non Hazardous		N/A	-	-	9
4	TP102 2/0.60/2022-09-29		Non Hazardous		N/A	-	-	12
5	TP103 1/0.10/2022-09-29		Non Hazardous		N/A	-	-	15
6	TP103 2/0.50/2022-09-29		Non Hazardous		N/A	-	-	18
7	TP104 1/0.10/2022-09-29		Non Hazardous		N/A	-	-	21
8	TP104 2/0.40/2022-09-29		Non Hazardous		N/A	-	-	24
9	TP105 1/0.10/2022-09-29		Non Hazardous		N/A	-	-	27
10	TP105 2/0.50/2022-09-29		Non Hazardous		N/A	-	-	30
11	WS101 1/0.20/2022-09-29		Hazardous	HP 3(i), HP 8	N/A	-	-	33
12	WS101 2/0.50/2022-09-29		Non Hazardous		N/A	Pass	Pass	37
13	WS106 1/0.20/2022-09-29		Potentially Hazardous	HP 3(i)	N/A	-	-	40
14	WS106 2/0.20/2022-09-29		Non Hazardous		N/A	-	-	43

Related documents

#	Name	Description
1	7208 HWOL.hwol	DETS North .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

WAC results

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate the samples in this Job: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

Report

Created by: Richard Hey

Created date: 19 Oct 2022 15:39 GMT

Classification of sample: TP101 1/0.10/2022-09-29

Potentially Hazardous Waste
Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP101 1/0.10/2022-09-29

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

Hazard properties (substances considered hazardous until shown otherwise)

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.: 0.0029%)

Determinands

Moisture content: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		16 mg/kg	1.32	21.125 mg/kg	0.00211 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	2.254 mg/kg	0.000225 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.7 mg/kg	1.142	0.8 mg/kg	0.00008 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21 mg/kg	1.462	30.693 mg/kg	0.00307 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		46 mg/kg	1.126	51.791 mg/kg	0.00518 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	80 mg/kg	1.56	124.785 mg/kg	0.008 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.21 mg/kg	1.353	0.284 mg/kg	0.0000284 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		20 mg/kg	2.976	59.525 mg/kg	0.00595 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<0.5 mg/kg	2.554	<1.277 mg/kg	<0.000128 %		<**LOD**
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		160 mg/kg	2.774	443.863 mg/kg	0.0444 %		
12	TPH (C6 to C40) petroleum group			TPH		29 mg/kg		29 mg/kg	0.0029 %		
13	confirm TPH has NOT arisen from diesel or petrol					☑					
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<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									
15		benzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		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]									
19		pH				6.3	pH		6.3	pH	6.3 pH		
				PH									
20		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
			201-581-5	85-01-8									
25		anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			205-912-4	206-44-0									
27		pyrene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
			205-883-8	191-24-2									
										Total:	0.0724 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Potentially 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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP101 1/0.10/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	8	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	0.74	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Inert WAC criteria fail
	Missing WAC determinand value
	SNRHW WAC criteria fail
	Hazardous WAC criteria fail

Classification of sample: TP101 2/0.50/2022-09-29

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

Sample details

Sample name:
TP101 2/0.50/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		11 mg/kg	1.32	14.524 mg/kg	0.00145 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.2 mg/kg	3.22	0.644 mg/kg	0.0000644 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4 mg/kg	1.142	0.457 mg/kg	0.0000457 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		30 mg/kg	1.462	43.847 mg/kg	0.00438 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		33 mg/kg	1.126	37.154 mg/kg	0.00372 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	23 mg/kg	1.56	35.876 mg/kg	0.0023 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		41 mg/kg	2.976	122.027 mg/kg	0.0122 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<0.5 mg/kg	2.554	<1.277 mg/kg	<0.000128 %		<LOD
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		84 mg/kg	2.774	233.028 mg/kg	0.0233 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
14	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	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

#		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									
18		pH				7.3	pH		7.3	pH	7.3 pH		
				PH									
19		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
21		acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-469-6	83-32-9									
22		fluorene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-695-5	86-73-7									
23		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-581-5	85-01-8									
24		anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-371-1	120-12-7									
25		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-912-4	206-44-0									
26		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-883-8	191-24-2									
35		polychlorobiphenyls; PCB				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0489 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP101 2/0.50/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria.

The sample PASSES the Hazardous (Hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	0.9	3	5	6
2	LOI (loss on ignition)	%	5.2	-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.01	1	-	-
5	Mineral oil (C10 to C40)	mg/kg	<10	500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	2	100	-	-
7	pH	pH	7.3	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg	<1	-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg	<0.01	0.5	2	25
10	barium	mg/kg	<0.1	20	100	300
11	cadmium	mg/kg	<0.02	0.04	1	5
12	chromium	mg/kg	<0.1	0.5	10	70
13	copper	mg/kg	0.04	2	50	100
14	mercury	mg/kg	<0.002	0.01	0.2	2
15	molybdenum	mg/kg	<0.1	0.5	10	30
16	nickel	mg/kg	<0.1	0.4	10	40
17	lead	mg/kg	<0.05	0.5	10	50
18	antimony	mg/kg	<0.05	0.06	0.7	5
19	selenium	mg/kg	<0.03	0.1	0.5	7
20	zinc	mg/kg	0.014	4	50	200
21	chloride	mg/kg	<100	800	15,000	25,000
22	fluoride	mg/kg	0.17	10	150	500
23	sulphate	mg/kg	<100	1,000	20,000	50,000
24	phenol index	mg/kg	<1	1	-	-
25	DOC (dissolved organic carbon)	mg/kg	<50	500	800	1,000
26	TDS (total dissolved solids)	mg/kg	123.8	4,000	60,000	100,000

Key

	User supplied data
	Not applicable

Classification of sample: TP102 1/0.10/2022-09-29

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

Sample details

Sample name:
TP102 1/0.10/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		16 mg/kg	1.32	21.125 mg/kg	0.00211 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.8 mg/kg	3.22	2.576 mg/kg	0.000258 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23 mg/kg	1.462	33.616 mg/kg	0.00336 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		36 mg/kg	1.126	40.532 mg/kg	0.00405 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	74 mg/kg	1.56	115.426 mg/kg	0.0074 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.18 mg/kg	1.353	0.244 mg/kg	0.0000244 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		24 mg/kg	2.976	71.43 mg/kg	0.00714 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.6 mg/kg	2.554	1.532 mg/kg	0.000153 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		110 mg/kg	2.774	305.156 mg/kg	0.0305 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
14	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	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

#		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									
18		pH		PH		5.4	pH		5.4	pH	5.4 pH		
19		naphthalene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
21		acenaphthene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
			201-469-6	83-32-9									
22		fluorene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-695-5	86-73-7									
23		phenanthrene				0.23	mg/kg		0.23	mg/kg	0.000023 %		
			201-581-5	85-01-8									
24		anthracene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
			204-371-1	120-12-7									
25		fluoranthene				0.31	mg/kg		0.31	mg/kg	0.000031 %		
			205-912-4	206-44-0									
26		pyrene				0.28	mg/kg		0.28	mg/kg	0.000028 %		
			204-927-3	129-00-0									
27		benzo[a]anthracene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				0.08	mg/kg		0.08	mg/kg	0.000008 %		
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
			205-883-8	191-24-2									
										Total:	0.0565 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP102 1/0.10/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	6	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	1.5	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Inert WAC criteria fail
	Missing WAC determinand value
	SNRHW WAC criteria fail
	Hazardous WAC criteria fail

Classification of sample: TP102 2/0.60/2022-09-29

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

Sample details

Sample name:
TP102 2/0.60/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		7.4	mg/kg	1.32	9.77	mg/kg	0.000977 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.2	mg/kg	3.22	<0.644	mg/kg	<0.0000644 %		<LOD
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.9	mg/kg	1.142	1.028	mg/kg	0.000103 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14	mg/kg	1.462	20.462	mg/kg	0.00205 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1	mg/kg	2.27	<2.27	mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		21	mg/kg	1.126	23.644	mg/kg	0.00236 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	19	mg/kg	1.56	29.636	mg/kg	0.0019 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		28	mg/kg	2.976	83.335	mg/kg	0.00833 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<0.5	mg/kg	2.554	<1.277	mg/kg	<0.000128 %		<LOD
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		100	mg/kg	2.774	277.415	mg/kg	0.0277 %		
12	pH			PH		8.3	pH		8.3	pH	8.3 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
14	acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
15	acenaphthene		201-469-6	83-32-9		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
16	fluorene		201-695-5	86-73-7		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
17	phenanthrene		201-581-5	85-01-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
18	anthracene		204-371-1	120-12-7		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
19	fluoranthene		205-912-4	206-44-0		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<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									
20		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0									
21		benzo[a]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
26		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
27		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
28		benzo[ghi]perylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-883-8	191-24-2									
										Total:	0.0439 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP102 2/0.60/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	1.8	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.1	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: TP103 1/0.10/2022-09-29

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

Sample details

Sample name:
TP103 1/0.10/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		15 mg/kg	1.32	19.805 mg/kg	0.00198 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	2.254 mg/kg	0.000225 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.6 mg/kg	1.142	0.685 mg/kg	0.0000685 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23 mg/kg	1.462	33.616 mg/kg	0.00336 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		31 mg/kg	1.126	34.903 mg/kg	0.00349 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	68 mg/kg	1.56	106.067 mg/kg	0.0068 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.16 mg/kg	1.353	0.217 mg/kg	0.0000217 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		21 mg/kg	2.976	62.502 mg/kg	0.00625 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<0.5 mg/kg	2.554	<1.277 mg/kg	<0.000128 %		<**LOD**
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		120 mg/kg	2.774	332.898 mg/kg	0.0333 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
14	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
15	toluene	601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
17	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**

#		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									
18		pH				5.1	pH		5.1	pH	5.1 pH		
				PH									
19		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
21		acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-469-6	83-32-9									
22		fluorene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-695-5	86-73-7									
23		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-581-5	85-01-8									
24		anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-371-1	120-12-7									
25		fluoranthene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
			205-912-4	206-44-0									
26		pyrene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-883-8	191-24-2									
										Total:	0.0569 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP103 1/0.10/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	6	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.1	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Inert WAC criteria fail
	Missing WAC determinand value
	SNRHW WAC criteria fail
	Hazardous WAC criteria fail

Classification of sample: TP103 2/0.50/2022-09-29

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

Sample details

Sample name:
TP103 2/0.50/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		15	mg/kg	1.32	19.805	mg/kg	0.00198 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.2	mg/kg	3.22	<0.644	mg/kg	<0.0000644 %		<LOD
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.4	mg/kg	1.142	1.599	mg/kg	0.00016 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25	mg/kg	1.462	36.539	mg/kg	0.00365 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1	mg/kg	2.27	<2.27	mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		33	mg/kg	1.126	37.154	mg/kg	0.00372 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	38	mg/kg	1.56	59.273	mg/kg	0.0038 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.06	mg/kg	1.353	0.0812	mg/kg	0.00000812 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		49	mg/kg	2.976	145.837	mg/kg	0.0146 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.6	mg/kg	2.554	1.532	mg/kg	0.000153 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		150	mg/kg	2.774	416.122	mg/kg	0.0416 %		
12	pH			PH		7	pH		7	pH	7pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
14	acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
15	acenaphthene		201-469-6	83-32-9		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
16	fluorene		201-695-5	86-73-7		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
17	phenanthrene		201-581-5	85-01-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
18	anthracene		204-371-1	120-12-7		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
19	fluoranthene		205-912-4	206-44-0		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<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									
20	●	pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0									
21		benzo[a]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
26	●	indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
27		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
28	●	benzo[ghi]perylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-883-8	191-24-2									
										Total:	0.07 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP103 2/0.50/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	0.8	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.1	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: TP104 1/0.10/2022-09-29

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

Sample details

Sample name:
TP104 1/0.10/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		19 mg/kg	1.32	25.086 mg/kg	0.00251 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.8 mg/kg	3.22	2.576 mg/kg	0.000258 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.9 mg/kg	1.142	1.028 mg/kg	0.000103 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		28 mg/kg	1.462	40.924 mg/kg	0.00409 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		99 mg/kg	1.126	111.463 mg/kg	0.0111 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	89 mg/kg	1.56	138.824 mg/kg	0.0089 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.23 mg/kg	1.353	0.311 mg/kg	0.0000311 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		26 mg/kg	2.976	77.383 mg/kg	0.00774 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.7 mg/kg	2.554	1.788 mg/kg	0.000179 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		110 mg/kg	2.774	305.156 mg/kg	0.0305 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
14	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	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

#		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									
18		pH				5.3	pH		5.3	pH	5.3 pH		
				PH									
19		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
21		acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-469-6	83-32-9									
22		fluorene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-695-5	86-73-7									
23		phenanthrene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
			201-581-5	85-01-8									
24		anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-371-1	120-12-7									
25		fluoranthene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
			205-912-4	206-44-0									
26		pyrene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
			204-927-3	129-00-0									
27		benzo[a]anthracene				0.03	mg/kg		0.03	mg/kg	0.000003 %		
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-883-8	191-24-2									
										Total:	0.0668 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP104 1/0.10/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	7.4	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	0.22	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Inert WAC criteria fail
	Missing WAC determinand value
	SNRHW WAC criteria fail
	Hazardous WAC criteria fail

Classification of sample: TP104 2/0.40/2022-09-29

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

Sample details

Sample name:
TP104 2/0.40/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		13 mg/kg	1.32	17.164 mg/kg	0.00172 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.3 mg/kg	3.22	0.966 mg/kg	0.0000966 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4 mg/kg	1.142	0.457 mg/kg	0.0000457 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		28 mg/kg	1.462	40.924 mg/kg	0.00409 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30 mg/kg	1.126	33.777 mg/kg	0.00338 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	21 mg/kg	1.56	32.756 mg/kg	0.0021 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		39 mg/kg	2.976	116.074 mg/kg	0.0116 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.7 mg/kg	2.554	1.788 mg/kg	0.000179 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		75 mg/kg	2.774	208.061 mg/kg	0.0208 %		
12	pH			PH		6.6 pH		6.6 pH	6.6 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
14	acenaphthylene		205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
15	acenaphthene		201-469-6	83-32-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
16	fluorene		201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene		201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
18	anthracene		204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene		205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<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									
20	●	pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0									
21		benzo[a]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
26	●	indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
27		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
28	●	benzo[ghi]perylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-883-8	191-24-2									
										Total:	0.0443 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP104 2/0.40/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	1.1	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.1	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: TP105 1/0.10/2022-09-29

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

Sample details

Sample name:
TP105 1/0.10/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		22 mg/kg	1.32	29.047 mg/kg	0.0029 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1 mg/kg	3.22	3.22 mg/kg	0.000322 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		26 mg/kg	1.462	38 mg/kg	0.0038 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		65 mg/kg	1.126	73.183 mg/kg	0.00732 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	110 mg/kg	1.56	171.58 mg/kg	0.011 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.32 mg/kg	1.353	0.433 mg/kg	0.0000433 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23 mg/kg	2.976	68.454 mg/kg	0.00685 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.8 mg/kg	2.554	2.043 mg/kg	0.000204 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		100 mg/kg	2.774	277.415 mg/kg	0.0277 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
14	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	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

#		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									
18		pH		PH		4.9	pH		4.9	pH	4.9 pH		
19		naphthalene	202-049-5	91-20-3		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-052-00-2											
20		acenaphthylene	205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
21		acenaphthene	201-469-6	83-32-9		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
22		fluorene	201-695-5	86-73-7		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
23		phenanthrene	201-581-5	85-01-8		0.04	mg/kg		0.04	mg/kg	0.000004 %		
24		anthracene	204-371-1	120-12-7		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
25		fluoranthene	205-912-4	206-44-0		0.09	mg/kg		0.09	mg/kg	0.000009 %		
26		pyrene	204-927-3	129-00-0		0.08	mg/kg		0.08	mg/kg	0.000008 %		
27		benzo[a]anthracene	200-280-6	56-55-3		0.04	mg/kg		0.04	mg/kg	0.000004 %		
		601-033-00-9											
28		chrysene	205-923-4	218-01-9		0.05	mg/kg		0.05	mg/kg	0.000005 %		
		601-048-00-0											
29		benzo[b]fluoranthene	205-911-9	205-99-2		0.04	mg/kg		0.04	mg/kg	0.000004 %		
		601-034-00-4											
30		benzo[k]fluoranthene	205-916-6	207-08-9		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-036-00-5											
31		benzo[a]pyrene; benzo[def]chrysene	200-028-5	50-32-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-032-00-3											
32		indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
33		dibenz[a,h]anthracene	200-181-8	53-70-3		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2											
34		benzo[ghi]perylene	205-883-8	191-24-2		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
										Total:	0.0616 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP105 1/0.10/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	8.2	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	0.35	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Inert WAC criteria fail
	Missing WAC determinand value
	SNRHW WAC criteria fail
	Hazardous WAC criteria fail

Classification of sample: TP105 2/0.50/2022-09-29

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

Sample details

Sample name:
TP105 2/0.50/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.3 mg/kg	3.22	0.966 mg/kg	0.0000966 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3 mg/kg	1.142	0.343 mg/kg	0.0000343 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		31 mg/kg	1.462	45.308 mg/kg	0.00453 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		32 mg/kg	1.126	36.028 mg/kg	0.0036 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	23 mg/kg	1.56	35.876 mg/kg	0.0023 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		38 mg/kg	2.976	113.098 mg/kg	0.0113 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.9 mg/kg	2.554	2.298 mg/kg	0.00023 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		70 mg/kg	2.774	194.19 mg/kg	0.0194 %		
12	pH			PH		7.3 pH		7.3 pH	7.3 pH		
13	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
14	acenaphthylene		205-917-1	208-96-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
15	acenaphthene		201-469-6	83-32-9		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
16	fluorene		201-695-5	86-73-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
17	phenanthrene		201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
18	anthracene		204-371-1	120-12-7		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	fluoranthene		205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<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									
20		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0									
21		benzo[a]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
22		chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
23		benzo[b]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
24		benzo[k]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
25		benzo[a]pyrene; benzo[def]chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
26		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
27		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
28		benzo[ghi]perylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-883-8	191-24-2									
										Total:	0.0434 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: TP105 2/0.50/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	1.1	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg		6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.1	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Classification of sample: WS101 1/0.20/2022-09-29

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

Sample details

Sample name:
WS101 1/0.20/2022-09-29

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 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.9 pH)

Hazard properties (substances considered hazardous until shown otherwise)

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.: 0.011%)

Determinands

Moisture content: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		37 mg/kg	1.32	48.852 mg/kg	0.00489 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.4 mg/kg	3.22	1.288 mg/kg	0.000129 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.571 mg/kg	0.0000571 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		12 mg/kg	1.462	17.539 mg/kg	0.00175 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		27 mg/kg	1.126	30.399 mg/kg	0.00304 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	56 mg/kg	1.56	87.35 mg/kg	0.0056 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.07 mg/kg	1.353	0.0947 mg/kg	0.00000947 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		26 mg/kg	2.976	77.383 mg/kg	0.00774 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.8 mg/kg	2.554	2.043 mg/kg	0.000204 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		84 mg/kg	2.774	233.028 mg/kg	0.0233 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
12		TPH (C6 to C40) petroleum group			TPH		110	mg/kg		110	mg/kg	0.011 %		
13		confirm TPH has NOT arisen from diesel or petrol					☑							
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
18		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**
19		pH			PH		11.9	pH		11.9	pH	11.9 pH		
20		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
21		acenaphthylene		205-917-1	208-96-8		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
22		acenaphthene		201-469-6	83-32-9		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
23		fluorene		201-695-5	86-73-7		<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
24		phenanthrene		201-581-5	85-01-8		0.12	mg/kg		0.12	mg/kg	0.000012 %		
25		anthracene		204-371-1	120-12-7		0.03	mg/kg		0.03	mg/kg	0.000003 %		
26		fluoranthene		205-912-4	206-44-0		0.3	mg/kg		0.3	mg/kg	0.00003 %		
27		pyrene		204-927-3	129-00-0		0.27	mg/kg		0.27	mg/kg	0.000027 %		
28		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.12	mg/kg		0.12	mg/kg	0.000012 %		
29		chrysene	601-048-00-0	205-923-4	218-01-9		0.2	mg/kg		0.2	mg/kg	0.00002 %		
30		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.23	mg/kg		0.23	mg/kg	0.000023 %		
31		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.07	mg/kg		0.07	mg/kg	0.000007 %		
32		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.2	mg/kg		0.2	mg/kg	0.00002 %		
33		indeno[123-cd]pyrene		205-893-2	193-39-5		0.07	mg/kg		0.07	mg/kg	0.000007 %		
34		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.03	mg/kg		0.03	mg/kg	0.000003 %		
35		benzo[ghi]perylene		205-883-8	191-24-2		0.09	mg/kg		0.09	mg/kg	0.000009 %		
											Total:	0.0581 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Potentially 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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS101 1/0.20/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	13	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	1.7	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Inert WAC criteria fail
	Missing WAC determinand value
	SNRHW WAC criteria fail
	Hazardous WAC criteria fail

Classification of sample: WS101 2/0.50/2022-09-29

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

Sample details

Sample name:
WS101 2/0.50/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.6 mg/kg	3.22	1.932 mg/kg	0.000193 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		26 mg/kg	1.462	38 mg/kg	0.0038 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		18 mg/kg	1.126	20.266 mg/kg	0.00203 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	23 mg/kg	1.56	35.876 mg/kg	0.0023 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		35 mg/kg	2.976	104.169 mg/kg	0.0104 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.6 mg/kg	2.554	1.532 mg/kg	0.000153 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		68 mg/kg	2.774	188.642 mg/kg	0.0189 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
14	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	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

#		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									
18		pH				7.3	pH		7.3	pH	7.3 pH		
				PH									
19		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
21		acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-469-6	83-32-9									
22		fluorene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-695-5	86-73-7									
23		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-581-5	85-01-8									
24		anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-371-1	120-12-7									
25		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-912-4	206-44-0									
26		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-883-8	191-24-2									
35		polychlorobiphenyls; PCB				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0407 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS101 2/0.50/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria.

The sample PASSES the Hazardous (Hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	1.2	3	5	6
2	LOI (loss on ignition)	%	6.8	-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.01	1	-	-
5	Mineral oil (C10 to C40)	mg/kg	<10	500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	2.1	100	-	-
7	pH	pH	7.3	-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg	<1	-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg	<0.01	0.5	2	25
10	barium	mg/kg	<0.1	20	100	300
11	cadmium	mg/kg	<0.02	0.04	1	5
12	chromium	mg/kg	<0.1	0.5	10	70
13	copper	mg/kg	0.03	2	50	100
14	mercury	mg/kg	<0.002	0.01	0.2	2
15	molybdenum	mg/kg	<0.1	0.5	10	30
16	nickel	mg/kg	<0.1	0.4	10	40
17	lead	mg/kg	<0.05	0.5	10	50
18	antimony	mg/kg	<0.05	0.06	0.7	5
19	selenium	mg/kg	<0.03	0.1	0.5	7
20	zinc	mg/kg	0.023	4	50	200
21	chloride	mg/kg	<100	800	15,000	25,000
22	fluoride	mg/kg	0.19	10	150	500
23	sulphate	mg/kg	131	1,000	20,000	50,000
24	phenol index	mg/kg	<1	1	-	-
25	DOC (dissolved organic carbon)	mg/kg	58.53	500	800	1,000
26	TDS (total dissolved solids)	mg/kg	439.1	4,000	60,000	100,000

Key

	User supplied data
	Not applicable

Classification of sample: WS106 1/0.20/2022-09-29

Potentially Hazardous Waste
Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS106 1/0.20/2022-09-29

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

Hazard properties (substances considered hazardous until shown otherwise)

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.: 0.0256%)

Determinands

Moisture content: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		5.9 mg/kg	1.32	7.79 mg/kg	0.000779 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.4 mg/kg	3.22	1.288 mg/kg	0.000129 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3 mg/kg	1.142	0.343 mg/kg	0.0000343 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		11 mg/kg	1.462	16.077 mg/kg	0.00161 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		26 mg/kg	1.126	29.273 mg/kg	0.00293 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	16 mg/kg	1.56	24.957 mg/kg	0.0016 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		13 mg/kg	2.976	38.691 mg/kg	0.00387 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.8 mg/kg	2.554	2.043 mg/kg	0.000204 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		92 mg/kg	2.774	255.221 mg/kg	0.0255 %		
12	TPH (C6 to C40) petroleum group			TPH		256 mg/kg		256 mg/kg	0.0256 %		
13	confirm TPH has NOT arisen from diesel or petrol					☑					
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<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									
15		benzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		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]									
19		pH				9.8	pH		9.8	pH	9.8 pH		
				PH									
20		naphthalene				0.09	mg/kg		0.09	mg/kg	0.000009 %		
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				0.14	mg/kg		0.14	mg/kg	0.000014 %		
			205-917-1	208-96-8									
22		acenaphthene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
			201-469-6	83-32-9									
23		fluorene				0.22	mg/kg		0.22	mg/kg	0.000022 %		
			201-695-5	86-73-7									
24		phenanthrene				2.8	mg/kg		2.8	mg/kg	0.00028 %		
			201-581-5	85-01-8									
25		anthracene				0.94	mg/kg		0.94	mg/kg	0.000094 %		
			204-371-1	120-12-7									
26		fluoranthene				11	mg/kg		11	mg/kg	0.0011 %		
			205-912-4	206-44-0									
27		pyrene				12	mg/kg		12	mg/kg	0.0012 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				5.1	mg/kg		5.1	mg/kg	0.00051 %		
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				5.7	mg/kg		5.7	mg/kg	0.00057 %		
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				7.4	mg/kg		7.4	mg/kg	0.00074 %		
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				3	mg/kg		3	mg/kg	0.0003 %		
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				7	mg/kg		7	mg/kg	0.0007 %		
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				2.8	mg/kg		2.8	mg/kg	0.00028 %		
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				0.71	mg/kg		0.71	mg/kg	0.000071 %		
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				3	mg/kg		3	mg/kg	0.0003 %		
			205-883-8	191-24-2									
										Total:	0.0687 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Potentially 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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS106 1/0.20/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	12	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	62	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Inert WAC criteria fail
	Missing WAC determinand value
	SNRHW WAC criteria fail
	Hazardous WAC criteria fail

Classification of sample: WS106 2/0.20/2022-09-29

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

Sample details

Sample name:
WS106 2/0.20/2022-09-29

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: 0% No 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 trioxide }	033-003-00-0	215-481-4	1327-53-3		9.4 mg/kg	1.32	12.411 mg/kg	0.00124 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.4 mg/kg	3.22	1.288 mg/kg	0.000129 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		26 mg/kg	1.126	29.273 mg/kg	0.00293 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	17 mg/kg	1.56	26.517 mg/kg	0.0017 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		35 mg/kg	2.976	104.169 mg/kg	0.0104 %		
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		0.7 mg/kg	2.554	1.788 mg/kg	0.000179 %		
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		81 mg/kg	2.774	224.706 mg/kg	0.0225 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
14	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
16	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	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

#		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									
18		pH				10.2	pH		10.2	pH	10.2 pH		
				PH									
19		naphthalene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-917-1	208-96-8									
21		acenaphthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-469-6	83-32-9									
22		fluorene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-695-5	86-73-7									
23		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			201-581-5	85-01-8									
24		anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-371-1	120-12-7									
25		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-912-4	206-44-0									
26		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<**LOD**
			205-883-8	191-24-2									
										Total:	0.0432 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: WS106 2/0.20/2022-09-29

WAC Settings: samples in this Job constitute a single population.

WAC limits used to evaluate this sample: "UK"
The WAC used in this report are the WAC defined for the inert, stable non-reactive hazardous and hazardous classes of landfill in the UK. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample cannot be evaluated against the SNRHW (Stable non-reactive hazardous waste in non-hazardous landfill) criteria because of missing determinand values.

The sample cannot be evaluated against the Hazardous (Hazardous waste landfill) criteria because of missing determinand values.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits		
#	Determinand		User entered data	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill
1	TOC (total organic carbon)	%	2.6	3	5	6
2	LOI (loss on ignition)	%		-	-	10
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg		1	-	-
5	Mineral oil (C10 to C40)	mg/kg		500	-	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.1	100	-	-
7	pH	pH		-	>6	-
8	ANC (acid neutralisation capacity)	mol/kg		-	-	-
Eluate Analysis 10:1						
9	arsenic	mg/kg		0.5	2	25
10	barium	mg/kg		20	100	300
11	cadmium	mg/kg		0.04	1	5
12	chromium	mg/kg		0.5	10	70
13	copper	mg/kg		2	50	100
14	mercury	mg/kg		0.01	0.2	2
15	molybdenum	mg/kg		0.5	10	30
16	nickel	mg/kg		0.4	10	40
17	lead	mg/kg		0.5	10	50
18	antimony	mg/kg		0.06	0.7	5
19	selenium	mg/kg		0.1	0.5	7
20	zinc	mg/kg		4	50	200
21	chloride	mg/kg		800	15,000	25,000
22	fluoride	mg/kg		10	150	500
23	sulphate	mg/kg		1,000	20,000	50,000
24	phenol index	mg/kg		1	-	-
25	DOC (dissolved organic carbon)	mg/kg		500	800	1,000
26	TDS (total dissolved solids)	mg/kg		4,000	60,000	100,000

Key

	User supplied data
	Not applicable
	Missing WAC determinand value

Appendix A: Classifier defined and non GB MCL determinands

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

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

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

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
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

- **confirm TPH has NOT arisen from diesel or petrol**

Description/Comments: Chapter 3, section 4b requires a positive confirmation for benzo[a]pyrene to be used as a marker in evaluating Carc. 1B; H350 (HP 7) and Muta. 1B; H340 (HP 11)
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

boron {diboron trioxide; boric oxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

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

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

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

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

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

selenium {nickel selenate}

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

zinc {zinc chromate}

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

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2022.263.5340.9974 (20 Sep 2022)
HazWasteOnline Database: 2022.273.5362.10003 (03 Oct 2022)

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

WASTE CLASSIFICATION

Is Soil Waste?

Any soils intended for disposal off-site at a landfill are waste.

Some excess arisings (topsoil & subsoil) may be generated by excavations for foundations, sewers etc. If these are intended for retention and reuse on the site, they would be classed as clean naturally occurring soils and would not be considered waste, under the Waste Framework Directive.

In accordance with the CL:AIRE Code of Practice[1] any excess natural soil arisings should be suitable for Direct Transfer to another development site, for use either as clean cover material, or bulk fill for use, without the need for waste legislation to be applied.

Basic Waste Characterisation

Government's aim of reducing reliance on landfill as a disposal option and minimising the impacts of landfills on the environment and human health has meant the introduction of more stringent regulatory procedures. In accordance with the Landfill Regulations[2] and Waste Framework Directive (WFD) (2008/98/EC), it is a statutory requirement that a waste is characterised and also meets specific Waste Acceptance Criteria (WAC) prior to disposal at a landfill site. The waste producer has a Duty of Care[3] to ensure that the waste is characterised, and the landfill operator must also be satisfied that a Basic Characterisation, is properly completed before the waste is accepted.

If arisings from construction works are intended for disposal, then there is a requirement to determine prior to disposal whether these would classify as **Hazardous** or **Non-Hazardous** (this is not the same as 'risk' posed to remaining on-site).

The Environment Agency's technical guidance 'Waste Classification (WM3, 1st edition 2015)' which came into force on 1st July 2015, sets out the requirement for the classification. It also provides the basis for the methodology to employ in order to ensure compliance with the regulations.

The classification assesses the composition of the material and determines the concentrations of the hazardous substances in the material. The assessment of contaminated soil (excavated soil) to determine whether it is hazardous waste is dependent on the presence of "hazardous substances" exceeding particular thresholds.

In the case of contaminated soil, the basic characterisation requires testing for potential contaminants, derived from the knowledge of the site history (see sections above).

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[1] *The Definition of Waste: Development Industry Code of Practice. CL:AIRE, 2011.*
[2] *The Landfill (England and Wales) Regulations 2005*
[3] *Duty of Care requirements contained in Section 34 of the Environmental Protection Act 1990 and The Waste (England and Wales) Regulations 2011.*

Waste Acceptance Criteria

Landfills are classified according to whether they can accept hazardous, non-hazardous, or inert wastes. Wastes can only be accepted at a landfill if they meet the waste acceptance criteria (WAC) for that class of landfill.

The WAC laboratory analysis includes solids and leachate testing to assess which class of landfill the waste can be accepted at.

Currently there are only acceptance criteria for inert, stable-non-reactive hazardous and hazardous landfills. This means that WAC testing is only required for wastes destined for Inert, Stable Non-Reactive Hazardous (SNRH) and Hazardous landfills.

If material is classified as non-hazardous, there is a choice of sending the material to a non-hazardous or an inert landfill (subject to meeting inert waste acceptance levels). Where the material is classified as hazardous, WAC analysis will be required to demonstrate that it meets the acceptance levels for hazardous landfill or SNRH landfill.

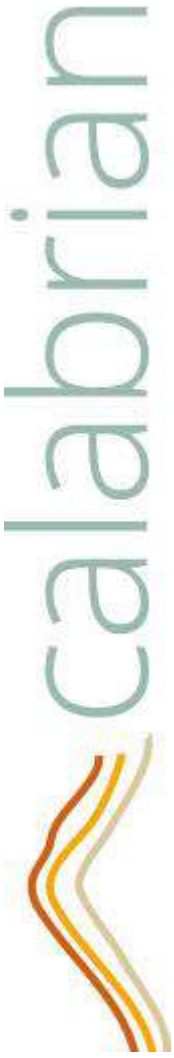
Asbestos

With respect to asbestos, waste soils will be classed hazardous if the soil mass contains more than 0.1% asbestos fibres that are free and dispersed. However, where the waste contains identifiable pieces of asbestos (i.e., any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye), then the waste is hazardous if the concentration of asbestos in the pieces alone is 0.1%. If a stockpile of soil contained rare fragments of broken asbestos-cement sheeting, the whole stockpile would be classed as hazardous unless all the fragments could be picked-out (even though the concentration of asbestos in the soil mass might be an orders of magnitude less than 0.1%).

Tarmac/Road Asphalt

Older tarmac typically comprised coal tar which is potentially a hazardous substances. Benzo[a]pyrene (BaP) is typically used as a marker compound for the presence of coal tar. Where the concentration of benzo[a]pyrene is at or above 50mg/kg (within the binding material and excluding the aggregate) then the material would be classed hazardous.

APPENDIX H GAS MONITORING RESULTS



GAS & GROUNDWATER MONITORING

Project Name	Whalley Road, Barrow, BB7 9AZ
Project Number	7208
Client	LNT Care Developments
Date	04/10/2022
Start/Finish Time	17:10 - 17:35
Operator	RJH

Weather	
Raining/Dry	Rain
Cloud Cover (%)	100
Temperature (°C)	13
Pressure (mb)	991
Weather Station Trend	Falling

Key	
ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

Monitoring Point	Base of well	Groundwater level	Concentrations					Gas Flow Rates			Remarks
			Initial / Highest		Steady		Lowest	Initial / Maximum	Steady	Time to fall from highest to steady	
			CH_4	CO_2	CH_4	CO_2	O_2				
	m	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	
WS101		1.18	0.1	0.1	0.1	0.1	19.8		0.2		
WS102		Dry	0.0	1.3	0.0	1.3	19.8		0.0		
WS103		Dry	0.0	0.9	0.0	0.9	19.5		0.3		
WS104		1.29	0.0	1.2	0.0	1.2	19.8		0.1		
WS105		1.15	0.0	0.5	0.0	0.5	20.6		0.2		

Equipment:
Gas Data GFM430 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

	CH_4	CO_2	O_2
Trigger level 1	1	5	16
Trigger level 2	5	10	10

GAS & GROUNDWATER MONITORING

Project Name	Whalley Road, Barrow, BB7 9AZ
Project Number	7208
Client	LNT Care Developments
Date	21/10/2022
Start/Finish Time	13:45 - 14:15
Operator	RJH

Weather	
Raining/Dry	Dry
Cloud Cover (%)	100
Temperature (°C)	11
Pressure (mb)	976
Weather Station Trend	Falling

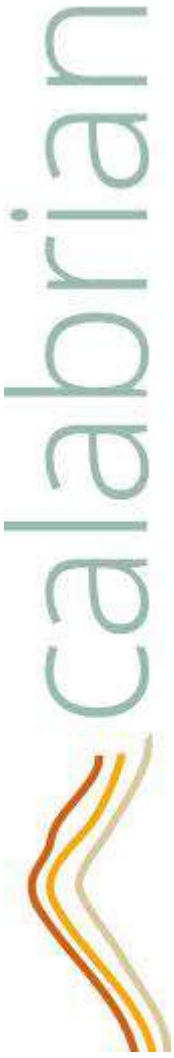
Key	
ND	None Detected
NR	Not Recorded
1.0	Recorded value does not breach trigger levels
5.0	Recorded value breaches trigger level 1
10.0	Recorded value breaches trigger level 2

Monitoring Point	Base of well	Groundwater level	Concentrations					Gas Flow Rates			Remarks
			Initial / Highest		Steady		Lowest	Initial / Maximum	Steady	Time to fall from highest to steady	
			CH_4	CO_2	CH_4	CO_2	O_2				
	m	(m) bgl	% v/v	(%)	% v/v	(%)	(%)	litre/hr	litre/hr	secs	
WS101		0.37									Water level too high to monitor for gas.
WS102		1.33	0.0	1.0	0.0	1.0	19.6	0.3	0.2		
WS103		0.62	0.1	0.2	0.0	0.1	20.3	0.4	0.1		
WS104		1.25	0.0	1.0	0.0	1.0	19.5	0.2	0.1		
WS105		0.97	0.0	0.4	0.0	0.4	20.0	0.3	0.0		

Equipment:
Gas Data GFM430 Infrared Gas Analyser
Geotechnical Instruments Dipmeter

	CH_4	CO_2	O_2
Trigger level 1	1	5	16
Trigger level 2	5	10	10

APPENDIX I INFILTRATION TEST RESULTS



SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Project Name:	Whalley Road, Barrow
Project No.:	7208

Borehole No.	WS102
Test No.	1

Time	Elpsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
10:04	0	1.00	1000
	6	1.01	1010
	21	1.01	1010
	52	1.01	1010
	139	1.01	1010
	185	1.02	1020
	210	1.02	1020
	239	1.02	1020
	301	1.02	1020

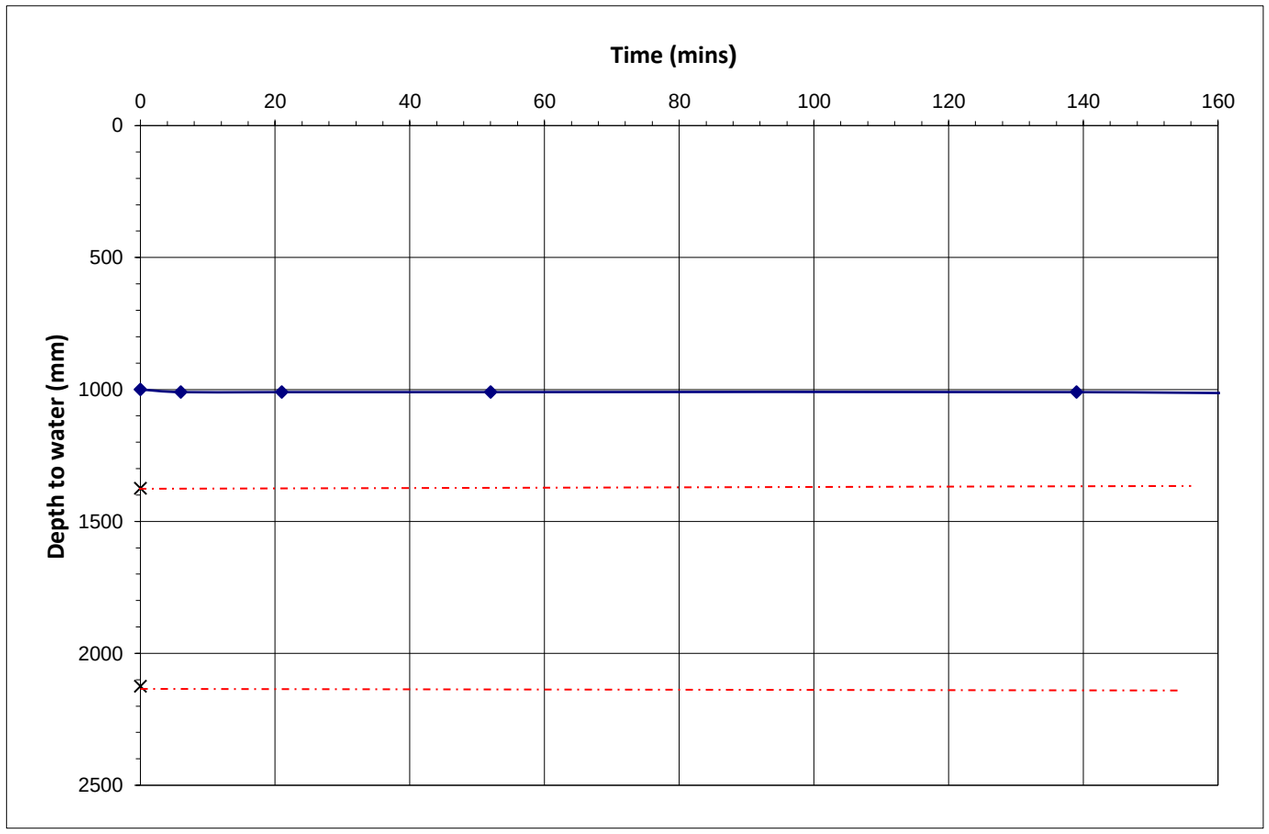
SOAKAWAY BOREHOLE		
Dimensions	**(m)**	**(mm)**
Radius	0.05	50.00
Depth	2.5	2500.00

Effective Depth	**mm**	**m**
25%	2125.0	2.13
50%	1750.0	1.75
75%	1375.0	1.38

Depth at start of test (mm)	1000.00
Depth at end of test (mm)	1020.00

Base area of borehole	0.0079
a_{p50} - 50% int. surface area	0.2435
V_{p75-25} - Volume 75 - 25%	0.0059

Read from the graph:	
$t_{p\ 75}$ (min)	N/A
$t_{p\ 25}$ (min)	N/A



Test did not attain even 75% Effective depth. Unable to calculate soil infiltration rate

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 1991

Project Name:	Whalley Road, Barrow
Project No.:	7208

Borehole No.	WS105
Test No.	1

Time	Elpsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
10:10	0	1.00	1000
	8	1.00	1000
	24	1.00	1000
	50	1.01	1010
	145	1.01	1010
	192	1.01	1010
	211	1.02	1020
	248	1.02	1020
	306	1.02	1020

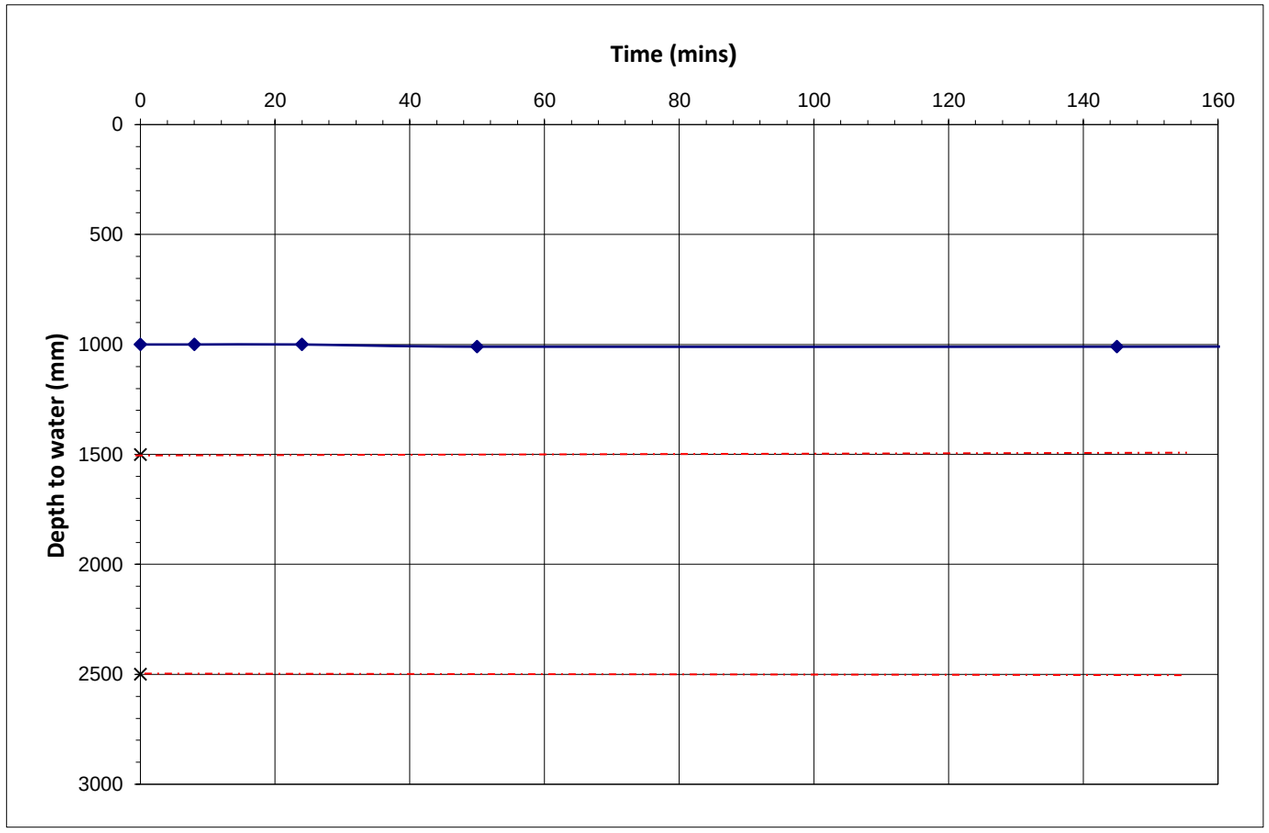
SOAKAWAY BOREHOLE		
Dimensions	**(m)**	**(mm)**
Radius	0.05	50.00
Depth	3.0	3000.00

Effective Depth	mm	m
25%	2500.0	2.50
50%	2000.0	2.00
75%	1500.0	1.50

Depth at start of test (mm)	1000.00
Depth at end of test (mm)	1020.00

Base area of borehole	0.0079
a_{p50} - 50% int. surface area	0.3220
V_{p75-25} - Volume 75 - 25%	0.0079

Read from the graph:	
$t_{p\ 75}$ (min)	N/A
$t_{p\ 25}$ (min)	N/A



Test did not attain even 75% Effective depth. Unable to calculate soil infiltration rate