PHASE 1 AND 2 GEOENVIRONMENTAL INVESTIGATION FOR RESIDENTIAL DEVELOPMENT ON LAND AT WATER'S EDGE, WHITEHAVEN

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EXECUTIVE SUMMARY

Current Site Status		Derelict industrial land.
Location / Topography		Site situated 3.1 km east of Carlisle, is 5.1 hectares in size and slopes from 42 m AOD in the east to 27 m AOD in the west. The site centred on National Grid Reference 296680E, 516290N is located approximately 3 km to the south of the town of Whitehaven. The site is generally flat-lying at an elevation of around 95 m AOD. Three stockpiles comprising demolition fill are present in the central and southwestern areas.
History	Site	•Pre-1850s to 1920s - Agricultural land. •1920s - Railway/sidings constructed in the southwest of the site. •1938 to 1957 - Building constructed in the north of the site as part of the development of the Rhodia chemical works, extending beyond the site boundary to the north, which is indicated to be a steel frame warehouse and an office, with adjacent ancillary 'works' buildings and possible tanks/storage silos in the southeast and west •Possible tanks/storage silos in the southeast and west have been removed by 1976 along with a number of the ancillary 'works' buildings in these areas. •Railway/sidings in the southwest of the site have been removed by 1983. •We understand that the main site operations ceased in 2005 and the majority of the former works buildings and infrastructure had been demolished and removed by 2012.
	Adjacent Land	•Pre-1850s to 1920s - Agricultural land. •1920s - Railway/sidings constructed to the west of the site. •1925 – Ladysmith Coal Pit located 100 m to the south of the site. •1938 – Residential development to the east and Rhodia chemical works extend north and south of the site. •Railway/sidings in the southwest of the site have been removed by 1983. •Rhodia chemical works demolished by 2012.
Geology		Granular and cohesive made ground of between 0.3 and 1.5 m thick was proven across the site. Locally in the southeast and southwest made ground extended to depths of up to 3.5 m bgl associated with the former tanks / silos and railway, respectively. Glacial Till was encountered beneath the made ground and was proven to extend to depths of up to 4.45 m bgl. Weathered sandstone bedrock recovered as clayey gravelly sand was encountered between 0.4 and 1.6 m bgl in the southeast and 1 to 2.4 m bgl in the east of the site. Competent sandstone bedrock was encountered between 0.8 and 2.4 m bgl in the southeast and 1.1 and 2.5 m bgl in the east. Groundwater was encountered at depths between 0.3 and 1.2 m bgl and is anticipated to be shallow perched groundwater within granular made ground and granular horizons in cohesive made ground and Glacial Till deposits with a hydraulic gradient to the south / southwest of the site.
Water Environment	Surface Water	The nearest surface water body is the Irish Sea located 375 m to the northwest.
	Ground Water	Groundwater was encountered at depths between 0.3 and 1.2 m bgl and is anticipated to be shallow perched groundwater within granular made ground and granular horizons in cohesive made ground and Glacial Till deposits with a hydraulic gradient to the south / southwest.
Principal Contamination Issues (See Drawing 8190OD01 Rev1)	Ground	General granular made ground and cohesive made ground samples across the site (H1) recorded elevated concentrations of sulphate aqueous extract. Cohesive stockpiled made ground (H2) recorded elevated concentrations of sulphate aqueous extract. Made ground in the areas of the former tanks / silos (H3) recorded elevated benzo(b)fluorene, benzo(a)pyrene, dibenzo(a,h)anthracene and sulphate aqueous extract in the west and sulphate aqueous extract in the south of the site. Made ground in the area of the former railway (H4) recorded elevated sulphate aqueous extract in the southwest of the site. Elevated sulphate aqueous and TPH aromatic C12-16, 16-21 and 21-35 was encountered locally in the southwest of the site (H5).
	Gas and Vapour	Elevated levels of carbon dioxide (11.2% max.) and methane (1.3% max.) and depleted oxygen (0.60% min) with a maximum flow of 0.6 l/hr
	Waste Characterisation	13 made ground samples retrieved from stockpiles in the north, centre and west of the site from the stockpiles is characterised as 'Non-Hazardous'. Waste Acceptance Criteria (WAC) testing (Appendix 9) classifies the stockpiled made ground as predominantly 'Inert', although the total organic carbon content of two samples (5.2 to 7.6%) and sulphate aqueous extract of one sample is elevated (2451 mg/kg) which would push this out of the inert classification.

Principal Geotechnical Constraints		The following geotechnical issues have been identified that require consideration in the design of the proposed development:- •Variable heterogeneous cohesive and granular made ground was encountered throughout the site extending to depths between 0.3 to 1.5 m bgl, and locally >2.5 m bgl in the area of the former railway in the southwest and the former tanks / silos in the south of the site. •The superficial deposits underlying the made ground comprise an upper predominantly firm clay to a depth of up to 2.3 m bgl, underlain by a lower stiff to a depth of 2 to >4.45 m bgl. Locally in the south and southeast of the site, the upper clay comprises a water softened clay with peaty horizons/pockets underlain by firm clay or shallow weathered sandstone bedrock. •Shallow destructured sandstone bedrock was encountered at depths of between 0.4 and 1.6 m bgl in the southeast and 1 to 2.4 m bgl in the east of the site. •Shallow competent sandstone bedrock was encountered at depths between 0.8 and 2.4 m bgl in the southeast and 1.1 and 2.5 m bgl in the east. •Groundwater seepages anticipated to be representative of a shallow perched groundwater within the granular made ground and granular horizons in the cohesive made ground and Glacial Till deposits were encountered at depths between 0.3 and 1.2 m bgl.
Expected Ground Engineering Solutions	Foundations	•Assuming strip trench foundations will be used of up to 0.6 m wide and taken below all topsoil, made ground and softened clay bearing onto the firm clay at a minimum depth of 0.75 m (in accordance with NHBC guidance for low volume change potential clays, an allowable bearing capacity of around 100 kN/m^2 can be determined at which settlement will be expected to be less than 25 mm. •Where higher foundation loads are required, or foundation depths have to be deepened to accommodate for the variable depth of made ground expected across the site or the water softened clays in the south/southeast of the site, foundations could be taken deeper into the firm to stiff clays at depths of around 1.5 to 2 m bgl. •Where deep made ground (>2.5m) is encountered in the area of the former railway/sidings in the southwest of the site, and the former tanks / silos in the south, normal shallow strip foundations are unlikely to be appropriate and alternative foundation solutions such as deep trench, ground improvement, reinforced rafts or piled foundations may need to be considered. •Where shallow bedrock is encountered at foundation level in the south/southeast of the site, consideration should be given to placing the whole foundation on rock in order to avoid differential settlement. An assumed allowable bearing value of 250 kN/m^2 should be suitable for the bedrock at which settlement will be less than 25 mm.
	Road Pavement	A CBR design value of <2% can be adopted for the cohesive made ground and <5% for granular made ground.
	Mineral Stability	No mineral instability risks have been identified.
	Infiltration Drainage	The low permeability Glacial Till deposits across the site will not be suitable for infiltration/sustainable drainage systems.
	Contamination Remediation	**<u>Clean soil covers</u>** A clean soil cover system of minimum thickness of 450 mm in landscaped areas and 1 m thick areas for rooting balls for tree planting should be adopted in accordance with BRE 465 to isolate future and end users from localised PAH and TPH aromatic C12-16, 26-21 and 21-35 contamination associated with the former tanks / silos and hydrocarbon contamination in the southwest within the made ground. Following the principles of CIRIA C733 (Ref. 25), an anti-dig layer comprising compacted engineered fill and/or a geotextile membrane should be installed in all domestic gardens and soft landscaped in the southwest of the site to mitigate the risk from asbestos. A capping layer comprised of at least 0.6 m thick inert material should be installed above the anti-dig layer. **<u>Materials for in ground services</u>** In-ground concrete in contact with made ground should be designed for Sulphate Class DS-2 ACEC Class AC-2. Hydrocarbon resistant in ground plastic drinking water pipes will be required within the made ground in the northern and southern part of the site. **<u>Stockpile Disposal</u>** Waste Acceptance Criteria (WAC) testing classifies the stockpiled made ground as predominantly 'Inert', although the total organic carbon content of two samples (5.2 to 7.6%) and sulphate aqueous extract of one sample is elevated (2451 mg/kg) which would push this out of the inert classification. It is recommended that waste materials varying from the samples tested and intended to be removed from site are tested individually to determine the classification of the waste.
	Soil Gas / Radon	Characteristic Situation 2 gas conditions have been determined across the site and as such gas protection measures will be required for the proposed development. A hydrocarbon resistant membrane is also required along the south/southwestern boundary. No radon protection measures are required.
Supplementary Investigation		UKWIR testing should be carried out along the route of the finalised water supply pipework to confirm the most suitable materials for use within the development.

PHASE I AND II GEOENVIRONMENTAL INVESTIGATION FOR RESIDENTIAL DEVELOPMENT ON LAND AT WATER'S EDGE, WHITEHAVEN

1 INTRODUCTION

FWS Consultants Ltd (FWS) carried out a Phase I and II Ground Investigation for land at Water's Edge, Whitehaven (the 'Site') for Gleeson Homes (the Client) to provide information for a proposed residential development with domestic gardens and road infrastructure. The site location is shown on the Client's Site Plan, Appendix 1.2.

This report presents the results of the Phase I Preliminary Contamination Risk Assessment and the Phase II Ground Investigations carried out between 22 and 23 August 2019 and subsequently 20 to 23 January 2020, which has been undertaken in accordance with the principles of current guidance including BS10175:2011+A1:2013 "Code of Practice for the Investigation of Potentially Contaminated Sites" (Ref. 1) and BS5930:2015 "Code of Practice for Ground Investigations" (Ref. 2), DEFRA and Environment Agency's guidance document "Model Procedures for the Management of Land Contamination" (CLR 11 2004) (Ref. 3) and Land Contamination Risk Management Guidance 2019 (Ref. 4), the NHBC "Guidance of Land Quality" (2017) (Ref. 5) and DEFRA "Environmental Protection Act 1990: Part 2A, Contaminated Land Statutory Guidance" (2012) (Ref. 6).

A Due Diligence report (Ref. 7) was carried out by FWS in April 2019 which identified potential contamination and soil gas risks from the former chemical works. A Coal Mining Risk Assessment (Ref. 8) also undertaken by FWS in April 2019 highlighted that whilst mitigation of mineral instability or mine gas emission was not expected; further enquiries should take place to confirm the date, method of extraction and records of subsidence associated with coal seams underlying the site at depths of 140 to 170 m.

The objectives of the Phase I and II Geoenvironmental Investigations were to:-

- Determine the past and present land uses of the site and immediate surrounding area.
- Assess the environmental, geological, mineral and hydrogeological setting of the site.
- Undertake preliminary enquiries with the fire protection / petroleum officer, Environment Agency and Local Authority to confirm plant processes and the presence of buried tanks / service ducts onsite.
- provide information on contamination within the made ground, natural soils and groundwater associated with the former chemical works, as well as waste classification testing of stockpiled demolition arisings;
- provide information on the soil gas conditions within the made ground and natural soils onsite;
- provide a qualitative contamination risk assessment in relation to the proposed development and wider environment;
- provide geotechnical information for foundation, road pavement subgrade and infiltration design; and,
- provide preliminary comment on remedial measures to be adopted and recommendations on further investigations, where necessary.

The following sources of information were utilised in the preparation of this report:-

- FWS, Due Diligence report, April 2019 (Ref. 7)
- FWS, Coal Mining Risk Assessment, April 2019 (Ref. 8)
- Historical Ordnance Survey Maps (Appendix 2)
- British Geological Survey, NX91NE, 1:10,000 scale, Solid Edition (Ref. 9)
- Envirocheck Report (Appendix 3)
- A site specific Coal Authority Mining Report, dated 19 March 2019 (Appendix 4)
- Site Walkover Inspection undertaken on 22 March 2019 (Photographs in Appendix 5)
- Local Authority, Petroleum Officer and Environment Agency Enquiries (Appendix 6)
- URS Corporation Ltd, Former Albright & Wilson Works, Whitehaven, Cumbria (Ref. 10)
- Integra Consulting Engineers, Geotechnical Ground Investigation Report (Ref. 11)
- Client Reference Documents (Appendix 1.2)

2 DEVELOPMENT PROPOSALS

The proposed development is for a residential development comprising 42 No. detached and semi-detached properties with domestic gardens and associated road infrastructure. At this stage, there are currently no proposals for infiltration drainage or Sustainable Urban Drainage Systems (SUDS). The development layout as proposed is shown in Drawing BP001, Appendix 1.2.

3 SITE DESCRIPTION

3.1 Location

The 1.4 ha site at National Grid Reference 296680E, 516290N is located off High Road at Water's Edge, Whitehaven, as shown on the Client's Site Plan, Appendix 1.2.

3.2 Topography and Site Features

The site is generally flat-lying at an elevation of around 95 m AOD and is surfaced by demolition fill with localised hardstanding in the southeast. Three stockpiles (Stockpile 1 approx. 65 x 254 x 3 m, Stockpile 2 approx. 45 x 20 x 3 m and Stockpile 3 approx. 70 x 30 x 5 m) comprising demolition fill are present in the central and southwestern areas as shown in Drawing 8190OD01Rev1, Appendix 1.1. The site is bordered by residential development to the north and east with derelict open space to the south and west (Ref. 7).

4 HISTORICAL DEVELOPMENT OF THE SITE

The history of the site was reviewed using historical maps (Appendix 2), enquiries to the Environmental Agency (Appendix 6) and the historical site investigation report (Ref. 10). The site history is summarised below and the principle land uses are illustrated in Drawing 8190OD01Rev1, Appendix 1.1:

- Pre-1850s to 1920s - Agricultural land.
- 1920s - Railway/sidings constructed in the southwest of the site.

- 1938 to 1957 - Building constructed in the north of the site as part of the development of the Rhodia chemical works, extending beyond the site boundary to the north, which is indicated to be a steel frame warehouse. 'L' shaped building constructed in the southeast of the site and indicated to be an office (Ref. 10), with adjacent ancillary 'works' buildings and possible tanks/storage silos in the southeast and west as shown on Drawing 8190OD01Rev1, Appendix 1.1.
- Possible tanks/storage silos in the southeast and west have been removed by 1976 along with a number of the ancillary 'works' buildings in these areas.
- Railway/sidings in the southwest of the site have been removed by 1983.
- We understand (Ref. 10) that the main site operations ceased in 2005 and the majority of the former works buildings and infrastructure had been demolished and removed by 2012.

It is understood that the wider Rhodia Chemical Works extending to the south of the current development site manufactured naphthalene and coal distillate firelighters, sulphuric acid, cement plant, phosphate, phosphoric acid, fatty alcohol, surfactants and oil additives. It is unknown what specific process activities were undertaken within the site boundary of the current proposed development. Review of the available records implies the site was predominantly utilised as office, warehouse and storage space with the main chemical works to the south.

5 ENVIRONMENTAL SETTING

5.1 Geology

5.1.1 Made Ground and Superficial Geology

Made ground, relict structures and demolition fill is anticipated across the site associated with the previous industrial development of the site and subsequent demolition of the main office/warehouse/works buildings. Stockpiles comprising cohesive made ground and granular demolition arisings were recorded in the northern, central and western areas of the site as shown in Drawing 8190OD01Rev1, Appendix 1.1.

The site is underlain by Glacial Till anticipated to be between 1 to 5 m thick.

5.1.2 Solid Geology

The solid geology comprises sandstones, mudstone and siltstones within thin coals belonging to the Whitehaven Sandstone Formation dipping in a northwesterly direction. The Bannock Band and Main Band Coals are anticipated at depths of 140 to 170 m, respectively (Ref. 8).

5.2 Mining and Quarrying

As detailed in the previous Coal Mining Risk Assessment (Ref. 8), the Bannock Band Coal (up to 2.5 m thick) and the Main Band Coal (up to 4.0 m thick) are indicated to underlie the site at depths of 140 to 170 m (50 to 80 BOD), respectively. Therefore, the cover of competent rock strata is greater than ten times the height of the reported workings (i.e. 25 and 40 m, respectively) and, as such, only a low mineral instability risk is anticipated.

Due to the significant thickness of reported extraction, additional enquiries were made to the Coal Authority regarding extraction methods and records of subsidence associated with the Bannock Band Coal and the Main Band Coal beneath the site. The Coal Authority report that the seams were recorded to have been extracted with pillar and stall methods and there is no record of subsidence associated with these seams in the wider area.

There is no evidence of quarrying having been carried out on or within 250 m of the site.

5.3 Hydrology and Flooding

The nearest surface water body is the Irish Sea located 375 m to the northwest. There are no surface water abstractions or discharge consents within 250 m.

There have been three pollution incidents to controlled waters between 130 and 190 m of the site and are all classified as Category 3 Minor Incidents.

The site does not fall into an area of Extreme Flooding from Rivers or Sea without Defences or Flooding from Rivers or Sea without Defences.

5.4 Hydrogeology

It is anticipated that shallow perched groundwater will be present within the made ground and within granular lenses in the cohesive superficial deposits (classified as secondary undifferentiated aquifer). The main water table is expected at a depth within the underlying Whitehaven Sandstone Formation bedrock and is classified as a Secondary A Aquifer.

There are no Groundwater Source Protection Zones or groundwater abstractions within 1 km of the site.

5.5 Licenced Authorisations and Health and Safety Executive/Planning Department Information

There are 43 No. Integrated Pollution Controls and 3 No. Integrated Prevention and Controls located between 50 and 150 m to the south and southwest of the site relating to acid, inorganic, combustible and organic chemical processes associated with Huntsman Surface Sciences UK Ltd, Albright and Wilson Ltd and Albemarle Chemicals UK Ltd. 2 No. Planning Hazardous Substance Consents and 1 No. Notification of installations Handling Hazardous Substances are located 150 to 155 m south of the site associated with hazardous substance, sulphur trioxide at the Whitehaven Works.

There are no active fuel stations or Contemporary Trade Directories within 250 m of the site.

5.6 Landfill Sites

The Envirocheck Report indicates there are no recorded landfills within 400 m of the site.

5.7 Radon

Current guidance (Ref. 12) on protective measures for new buildings indicates that the site does not fall within an area for which basic or full radon protection measures should be provided. The property is in a lower probability radon area, as less than 1% of buildings are above the action level.

5.8 Ecological Receptors and Sensitive Landuse

There are no ecological receptors or sensitive land uses within 250 m of the site.

5.9 Additional Enquiries

Environment Agency

Additional enquiries were made to the Environment Agency and a summary of their response is included below.

The Environment Agency identified the site is a Chemical works which manufactured chemicals, acids and surfactants. The site was determined as a contaminated land site by Copeland Borough Council and as a 'Special Site' by the Environment Agency. As such the company Rhodia agreed to voluntarily remediate the site under a Remediation Statement, which was completed to remove the pollutant linkage to identified controlled water receptors. All that remains on site now are remnants and foundations of roads, plant and buildings (Appendix 6).

Due to the size of the remediation statement and validation documents (numerous volumes covering the wider chemical works site, not just the current proposed development) the Environment Agency were not able to provide an electronic copy for review as part of the initial combined report which was issued in October.

Local Authority/Petroleum Officer

An enquiry was sent to Environmental Officer at the Copeland Borough Council on the 8 August 2019 and is included in Appendix 6. The remediation statement for the site was posted to us in January 2020 and a summary of the findings are included below.

The Former Albright & Wilson Works Remediation Statement (Ref. 11) have identified the development site was not part of the main processing areas of the Chemical Works and did not require any specific remediation works. It implies the site was predominantly utilised as office, warehouse and storage space.

The Remediation Statement (Ref. 11) split the adjacent chemical works site up into different Plots (A-G) as shown on Drawing SB/SQ/MCH, Appendix 1.2. The closest 2 plots to the site are Plot B to the southwest and Plot F to the southeast.

- Plot B is located to the southwest of the site boundary at an elevation of around 93 m AOD (i.e. down hydraulic gradient) and historically comprised the former coking works and imidazoline plant. It is reported in the remediation statement (Ref. 11) that given the historical land uses it was considered likely to contain contaminated soils and groundwater. Typically,

coking works contamination comprises elevated concentrations of phenols, thiocyanate, cyanide, sulphate, sulphide, sulphur, and heavy metals. It was concluded (Ref. 11) that the ground conditions encountered did not present a significant risk to controlled waters as it was underlain by Whitehaven Sandstone which is not thought to be in connectivity to the rapid pathway to the coast via the St Bees Evaporites which are recorded further south. Also, it did not present a significant risk to human health as there were thick concrete slabs over most of the area and as such there is no pathway for the contaminants. As no significant pollution linkages were identified no remediation was undertaken for this Plot B area.

- Plot F is located to the southeast of the site boundary at an elevation of around 94 m AOD (i.e. down hydraulic gradient) and historically comprised an areas used for the storage of fuels, dyes and perfumes and subsequently for surfactant manufacturing. It is reported (Ref. 11) that during previous investigations of this area that localised groundwater contamination was present. As such, remediation works were undertaken in 2003 to address a historical spillage of fuel oils. Slightly elevated TPHs were subsequently recorded within the groundwater, however, the risks were reported to be marginal and further remediation of this area was considered to be impractical. However, observations made during the investigation suggest there is the potential for free phase oils to be locally present in the shallow perched groundwater. As such, no remediation was undertaken for this Plot.

6 PREVIOUS INVESTIGATIONS

Previous investigations of this site are summarised below:-

- 2013 - Integra Consulting Engineers, Geotechnical Ground Investigation including a review of previous URS 2001 and 2003 ground investigations (6 window sample boreholes and one rotary open hole borehole) and supplementary geotechnical investigations including 47 trial pits, 6 cable percussive boreholes and 9 rotary open hole boreholes and geotechnical SPT and U100 testing (Ref. 10).

The text of the main report and an exploratory hole location plan (which shows that the investigations were from a larger area than the current proposed development) have been provided for review. However, none of supporting appendices such as borehole logs, insitu or laboratory geotechnical testing data were available at the time of preparing this report. Therefore, we only provide an outline review of the factual data presented within the text of the main report, which is summarised in the table below.

Table 1: Summary of Previous Investigations

Material	Conditions
Made Ground	Typically, either topsoil up to 0.2 m thick with brick, slag and concrete fragments or reinforced concrete slab of between 0.05 to 0.35 m thickness underlain by granular subbase. This is underlain by predominantly cohesive made ground with inclusions of ash, coal, sand and humic silt between 0.4 to 1 m thick, although noted to extend to up to 4.9 m bgl in the southwestern/western area (former railway/sidings).
Relict Structures	No relict structures were specifically noted/encountered.
Superficial Deposits	Cohesive Glacial Till comprising an upper soft to firm, brown slightly gravelly clay up to 1 m bgl, becoming stiff, mottled and friable to depths between 3 to 5 m bgl.
Bedrock	The superficial deposits are underlain by hard cemented, fine/medium grained, light brown to pinkish sandstone (Whitehaven Sandstone).
Groundwater	Perched groundwater was encountered at variable depths across the site from 0.3 to 2.30 m bgl, with a deeper groundwater recorded within the sandstone bedrock at a depth of 29.60 m bgl.
Geotechnical Properties	Insitu Standard Penetration Tests (SPTs) within the granular made ground at a depth of between 1.2 to 3 m bgl determined values of 2 to 26 (very loose to medium dense). Insitu Standard Penetration Tests (SPTs) within the cohesive Glacial Till at a depth of between 1.2 to 7 m bgl determine values of between 14 to >50 (stiff to very stiff). Undrained shear strengths obtained from multistage triaxial testing of clays between 2.5 to 5 m bgl from across the wider investigation area determined values between 162 to 269 kN/m^2. Insitu Standard Penetration Tests (SPTs) within the sandstone bedrock at a depth of between 4.8 to 7.6 m bgl determined values of 27 to >50 (variably weak to moderately strong)

7 GROUND INVESTIGATION

7.1 Design Objectives

The ground investigation was carried out to determine the following geotechnical and environmental conditions shown on Drawing 8190OD01Rev1, Appendix 1.1 in relation to the proposed development:-

Geotechnical

- the extent, depth and geotechnical conditions of the made ground associated with the former chemical works across the site and railway/sidings in the southwest in relation to the development;
- the extent, depth and geotechnical conditions of the superficial and shallow bedrock deposits in relation to the development; and,

- the depth of groundwater within the made ground and superficial deposits beneath the site.

Contamination

- Determine the chemical properties of insitu made ground across the site (Hazard 1), stockpiled arisings (Hazard 2), potential contamination associated with the possible tanks/storage silos in the west and southeast (Hazard 3), made ground in the area of the former railway in the southwest (Hazard 4) and the natural deposits across the site;
- Further delineate the extent of contamination associated with the former drainage along the south/southwestern boundary of the site (Hazard 5)
- Determine the chemical properties and waste characteristics of stockpiled made ground deposits (Hazard 2); and,
- Determine the soil gas conditions associated with the made ground onsite (Hazard 1) and the potential for landfill gas migration from the backfilled coal pit located 100 m south of the site (Hazard 6).

7.2 Constraints to Ground Investigation

TP2 and WS2 could not be progressed deeper than 1.5 and 2.0 m bgl due to perched groundwater inundation and a sandstone cobble, respectively.

TP104 and 105 could not be progressed beyond 2.8 m bgl depth due to the presence of a concrete slab obstruction in the southwest of the site.

7.3 Investigation Works Undertaken

The following ground investigation was undertaken between 22 and 23 of August 2019 and 20 and 23 January 2020. Borehole and trial pit locations in relation to specific geotechnical or environmental conditions are presented in Drawing 8190OD02Rev01, Appendix 1.1 and summarised below. The exploratory logs are provided in Appendix 7.

- Partial clearance of stockpiles to investigate the ground conditions and obtain samples of the soils beneath.
- 38 Trial pits to a depth of between 0.8 to 3.5 m to enable the made ground (Hazard 1) and natural soils to be examined and buried obstructions to be identified.
- 21 machine excavated inspection pits in the three stockpiles were progressed to enable the made ground/demolition arisings (Hazard 2) to be examined.
- TP102 and 103 in the west and TP4, 117, 118 and 125 in the south were specifically located to investigate the area of the possible tanks and storage silos (Hazard 3), respectively.
- TP101 and 104 were specifically located in the southwest of the site to investigate the area of the former railway (Hazard 4).
- TP105, 106, 126 and 127 were specifically located in the southwest of the site to further delineate the extent of hydrocarbon contamination associated with the relict drainage in this area (Hazard 5).
- 5 mini percussion boreholes with Standard Penetration Testing (SPT) to a depth of between 2 to 4.45 m to enable the made ground (Hazard 1) and natural soils to be examined.

- Chemical and geotechnical testing of the stockpiled made ground, insitu made ground and natural soils.
- Installation of monitoring wells to enable subsequent groundwater and gas measurements (Hazard 1 and Hazard 6).

7.4 Insitu Testing

During drilling of the mini rig boreholes, SPTs were undertaken at one metre intervals and the results are presented on the logs in Appendix 7.

7.5 Monitoring Undertaken

Details of the standpipes installed for ground gas and groundwater monitoring are summarised below.

Table 2: Summary of Monitoring

Targeted Area / Feature	BH No.	Strata/Unit	Response Zone (m bgl)
H1 - Made ground – Demolition fill associated with the demolition of the former Chemical Works	WS2	Granular Made Ground	0.5 to 1.2
	WS3	Cohesive Made Ground	0.5 to 1.3
H1 - Made ground – Demolition fill associated with the demolition of the former Chemical Works; and, H6 - Backfilled coal pit located 100 m to the south	WS5	Granular Made Ground	0.5 to 1.0

The soil gas monitoring of the three standpipes was carried out for methane, carbon dioxide, oxygen, barometric pressure, gas flow and water level, using a Geotechnical Instruments Infra-Red Gas Analyser (GFM436-1) with internal flow measurement. Observations of the prevailing weather conditions and measured atmospheric pressure were also recorded. Monitoring has been undertaken on nine occasions and the results of these visits are presented in Appendix 8.

Gas monitoring was undertaken on four occasions of low and falling pressure.

Groundwater level readings within the made ground deposits were taken within the boreholes during the monitoring visits. The results are also presented in Appendix 8.

7.6 Laboratory Testing

7.6.1 Chemical Analysis

As summarised below, chemical testing was carried out on selected soil samples and the results are included in Appendix 9. The following chemical soil analysis has been carried out by a MCERTS/UKAS accredited laboratory:-

- Made ground – 26 samples of insitu made ground (Hazard 1; 13 granular made ground, 10 cohesive and one topsoil) at depths of between 0.1 to 0.7 m bgl, including two samples from the area of the possible tanks in the west (Hazard 3), four samples from the possible tanks/storage silos in the southeast (Hazard 3), two samples from the area of the former railway in the southwest (Hazard 4), six samples in the area of the localised hydrocarbon

hotspot in the southwest (three made ground and three natural clay), at depths between 0.3 and 2 m bgl, for Schedule 1.
- 13 samples of stockpiled made ground (Hazard 2; 12 cohesive and one granular) for Schedule 1, from which four samples were tested for Schedule 2
- Natural Glacial Till – Three sample at depths between 0.7 to 2 m bgl in the vicinity of the broken fireclay pipe and strong hydrocarbon odour for Schedule 1.

Schedule 1 – Contamination suite including - arsenic, boron, total cadmium, total chromium, hexavalent chromium, copper, lead, mercury, nickel, zinc, pH, cyanide (total), organic matter content, chloride, sulphate (total and water soluble), TPH CWG (Ali/Aro split), BTEX & MTBE, PAH (USEPA 16), total phenols and asbestos ID.

Schedule 2 – Waste Characterisation and 10:1 Leachate Assessment suite including - heavy metals, dissolved organic carbon, phenols, dissolved solids PAH, TPH C10-C40, BTEX, PCB EC7, pH, conductivity and loss of ignition.

7.6.2 Geotechnical Analysis

Geotechnical analysis comprising moisture contents and Atterberg limits, were carried out on 12 samples of Glacial Till and one sample of cohesive made ground by a UKAS accredited laboratory and the results are presented in Appendix 13.

7.6.3 Quality Assurance and Quality Control

Quality assurance and control of the investigation was implemented in accordance with the following standards and industry guidance:

- Site Investigation Protocols the fieldwork was carried out following the principles of BS 10175:2011+A1:2013 (Ref. 1), BS 5930:2015 (Ref. 2) and BS EN ISO 14688 (Ref. 13).
- Sampling Protocols were carried out following the principles of BS 5930:2015 (Ref. 2).
- Insitu testing was carried out following the principles of BS 5930:2015 (Ref. 2) and SPT testing to BS EN ISO 22476-3:2005+A1:2011 (Ref. 14) and BS EN ISO 14688-1:2002 (Ref. 13).
- Soil gas monitoring and reporting was undertaken following the principles of CIRIA 665 (Ref. 15) and BS 8485 (Ref. 16).
- The environmental testing was undertaken by DETs Ltd, a MCERTS/UKAS accredited laboratory.
- The geotechnical testing was undertaken by MATtest Ltd, a UKAS accredited laboratory.

7.7 Ground Conditions

7.7.1 General

The ground investigation determined granular and cohesive made ground typically between 0.3 to 1.5 m thick across the majority of the site, although locally thicker up to 3.1 m in the area of the former tanks/storage silos in the southeast of the site, underlain by Glacial Till proven to extend to depths of up to 4.45 m bgl. Weathered sandstone bedrock was recovered as clayey gravelly fine to coarse sand was encountered at depths between 0.4 and 1.6 m bgl in the southeast and 1 to 2.4 m bgl in the east of the site.

7.7.2 Hardstanding and Below Ground Structures

A buried relict concrete slab was recorded within TP105 and 106 at depths between 2.6 and 2.8 m bgl, which may be associated with the former railway or ancillary buildings in the southwest of the site. An old fireclay pipe was encountered at 1.5 m depth within TP6 in the southwest of the site and although further investigations were undertaken in the vicinity the alignment and location was not proven within the additional holes. Although no other significant below ground relict structures were noted across the site during these investigations, given the extensive industrial history of the site unrecorded relict structures, foundations and drainage should be anticipated.

7.7.3 Topsoil

Dark brown clayey gravelly sandy topsoil with brick fragments was encountered locally in the northwest, centre and south of the site to a depth of up to 0.3 m bgl.

7.7.4 Made Ground

Heterogeneous cohesive and granular made ground containing brick, burnt mudstone, slag, concrete, ash, plastic, wood and metal was encountered across the site and extended to depths of over 1.5 m bgl. Locally in the southeast (storage silos) and southwest (former railway) made ground extended to depths of between 2.6 to 3.5 m bgl. Faint hydrocarbon odours were recorded in in the northwest (TP9) and the northeast (TP1) of the site between 0.4 and 0.6 m depth, whilst a strong solvent odour was recorded in the southwest (TP106 and 127) at depths of 0.3 to 1.5 m bgl where a fireclay pipe was encountered.

7.7.5 Superficial Deposits

The superficial deposits underlying the made ground comprise an upper predominantly firm sandy gravelly clay to a depth of up to 2.3 m bgl, and then stiff reddish-brown mottled grey slightly sandy gravelly clay to a depth of 2 to >4.45 m bgl. Locally in the south and southeast of the site (TP4 and 5), the upper clay comprises a water softened Till with peaty horizons/pockets to a depth of between 1.5 to 2 m bgl that is then underlain by firm Glacial Till or shallow weathered sandstone bedrock. A strong solvent odour was recorded in TP6 at a depth of 1.5 m bgl where a fireclay pipe was encountered in the southwest of the site.

7.7.6 Bedrock

Weathered sandstone bedrock comprising clayey gravelly fine to coarse sand with low cobble content was encountered from depths between 0.4 and 1.6 m bgl in the southeast and 1 to 2.4 m bgl in the east of the site. Competent bedrock was proven from depths between 0.8 to 2.4 m bgl in the southeast and 1.1 to 2.5 m bgl in the east but was not encountered across the remainder of the site.

7.7.7 Groundwater

Groundwater seepages anticipated to be representative of a shallow perched groundwater within the granular made ground and granular horizons in the cohesive made ground and Glacial Till deposits were encountered at depths between 0.3 and 1.2 m bgl.

The first monitoring visit was undertaken on 6 September 2019, during which groundwater was recorded at depths between 0.5 and 0.8 m bgl. From the groundwater conditions encountered during the ground investigation and monitoring, it is determined that perched groundwater exists within granular made ground and isolated pockets within the granular horizons of the cohesive made ground and Glacial Till and is expected to have a hydraulic gradient (based on topographic levels; where shallow perched groundwaters are interconnected) to the south and southwest of the site.

8 MATERIAL PROPERTIES

8.1 Chemical Properties

8.1.1 General

The results of all chemical testing have been compiled into data tables, which are presented in Appendix 10. These tables present the minimum, mean, maximum and US_{95} (where applicable) concentrations of determinands for contaminants detected during the ground investigations and highlight determinands that exceed the Generic Assessment Criteria (Appendix 11) for contaminants detected during the ground investigations.

In accordance with CL:AIRE (Ref. 17), a statistical analysis of the chemical results has been undertaken to identify "outlier" concentrations indicative of hotspots, and Upper Confidence Level 95th percentile concentrations (US_{95} values). Where insufficient data exists, maximum concentrations are provided.

Based on the statistical analysis, no outliers or evidence of hotspots have been identified by the testing that can be attributed to a specific contamination source, with the exception of the localised hydrocarbon contamination along the south/southwestern boundary (Hazard 6) associated with relict drainage.

8.1.2 Visual/Olfactory Evidence of Contamination

Slag and ash were recorded within the made ground throughout the site. Localised hydrocarbon odours were recorded in made ground within TP1 and 9 (northeast and northwestern areas, respectively) at depths between 0.4 and 0.6 m bgl. A strong solvent odour was recorded in TP6, 106 and 127 at depths of 0.3 to 1.5 m bgl along the south/southwestern boundary where a relict fireclay pipe was encountered.

8.1.3 Soils - Total Concentrations

The results of the chemical testing programme for total concentrations within the cohesive and granular made ground and Glacial Till have been assessed to determine the main contaminants recorded at concentrations above Generic Assessment Criteria (Appendix 11).

None of the made ground topsoil or granular stockpiled made ground samples tested contained concentrations of contaminants above the generic assessment criteria.

General granular made ground and cohesive made ground samples across the site (Hazard 1) recorded elevated concentrations of sulphate aqueous extract which pose a risk to the proposed properties.

Cohesive stockpiled made ground (Hazard 2) recorded elevated concentrations of sulphate aqueous extract however, these materials are to be removed from site and as such will not pose a risk to the proposed development.

Made ground in the areas of the former tanks / silos (H3) recorded elevated benzo(b)fluorene, benzo(a)pyrene, dibenzo(a,h)anthracene and sulphate aqueous extract in the west (TP102 and 103) and sulphate aqueous extract in the south of the site (TP117, 118 and 125) which pose a risk to human health and the proposed properties, respectively.

Made ground in the area of the former railway (H4) recorded elevated sulphate aqueous extract in the southwest of the site which pose a risk to the proposed properties.

The initial phase of the investigation encountered a strong solvent odour and elevated TPHs within TP6 along the south/southwestern boundary associated with relict drainage in this area and, as such, further investigation was undertaken to delineate the extent of the localised hydrocarbon contamination. Samples of the made ground recorded elevated TPH Aromatic C12-16, 16-21 and 21-35 which pose a risk to human health. Elevated sulphate aqueous extract was also recorded within the made ground and the underlying natural clay which pose a risk to the proposed properties.

8.1.4 Asbestos in Soils

Asbestos screening tests were undertaken on 23 samples of insitu made ground (14 granular and 10 cohesive), 13 samples of stockpiled made ground (one granular and 12 cohesive) and one sample of the natural clay. Bundles of chrysotile and a small bundle of amosite fibres were present within TP101 and 104, respectively in the southwest of the site in the area of the former railway (Hazard 4). Asbestos was not reported to be present in any of the remaining screened samples.

8.1.5 Waste Acceptance Criteria Testing

The chemical analysis of total concentrations was carried out using HazWaste Online (Ref. 18) for 13 No. made ground samples retrieved from stockpiles in the north, centre and west of the site. The made ground from the stockpiles is characterised as 'Non-Hazardous' and the results are included in Appendix 9.

Waste Acceptance Criteria (WAC) testing (Appendix 9) classifies the stockpiled made ground as predominantly 'Inert', although the total organic carbon content of two samples (5.2 to 7.6%) and sulphate aqueous extract of one sample is elevated (2451 mg/kg) which would push this out of the inert classification.

8.1.6 Soil Gas/Vapours

Granular and cohesive made ground recorded to depths of up to 1.5 m bgl across the site comprised reworked sandy gravelly clay, gravelly sand and sandy gravel with ash, slag, wood and

local pockets of hydrocarbon odours in the northeast and northwest of the site between 0.4 and 0.6 m depth. This material provides a potential source of soil gas and vapour emissions.

The table below presents a summary of the ground gas conditions recorded onsite.

Table 3: Summary of Soil Gas Conditions

Source Area and Materials	CH_4	CO_2	O_2	Flow Rate	Dates of readings during a period low and falling pressure	Gas Screening Value (GSV) and Characteristic Situation (CS)
	Min and max values					GSV=Flow*(Gas Conc/100)
H1 - Made ground – Demolition fill associated with the demolition of the former Chemical Works (WS2 and 3)	<0.1%	<0.1% to 3.2%	13.5% to 20.7%	<0.1 and 0.6 l/hr	25/09/19 08/10/2019 25/11/2019 19/12/2019	GSV=0.6*(3.2/100) (CO_2) GSV=0.02 CS1
H1 - Made ground – Demolition fill associated with the demolition of the former Chemical Works; and, H5 - Backfilled coal pit located 100 m to the south (WS5)	<0.1% to 1.3%	0.2 to 11.2%	0.6 to 20.9%	<0.1 to 0.4 l/hr		GSV=0.4*(11.2/100) (CO_2) GSV=0.04 CS1 (However, as CO_2 is >5% must be raised to CS2 (Ref. 15)

8.2 Geotechnical Properties

8.2.1 General

The geotechnical results from the ground investigations are presented in Appendix 13 and summarised below.

8.2.2 Made Ground

No laboratory geotechnical testing has been undertaken on these made ground materials. The values for water soluble sulphate, total sulphate and pH values from 23 tests are:-

Table 4: Concrete Classification for Insitu Granular and Cohesive Made Ground

Parameter	Data Evaluation	Characteristic Design Value
pH and Sulphate	The values for water soluble sulphate, total sulphate and pH values at depths between 0.1 to 0.7 m bgl are:- • Water soluble sulphate 67 to 1,500 mg/l • Total sulphate 0.1 to 12% • pH 7.6 to 11	DS-2, AC-2

8.2.3 Superficial Deposits

Table 5: Summary of Firm Glacial Till Geotechnical Properties

<table>
<tr><th>Parameter</th><th colspan="6">Data Evaluation</th><th>Characteristic Design Value</th></tr>
<tr><td>Moisture Content</td><td colspan="6">Results from six tests determined the natural moisture to range between 16% and 25% with an average of 21.4%.</td><td>Average MC = 21.4%</td></tr>
<tr><td rowspan="4">Plasticity Indices</td><td></td><td>Moisture Content %</td><td>Liquid Limit %</td><td>Plastic Limit %</td><td>Modified Plasticity Index</td><td>Consistency Index</td><td rowspan="4">The Index test results indicate that the firm Till is a low to intermediate clay of low volume change potential.</td></tr>
<tr><td>Minimum</td><td>16</td><td>32</td><td>16</td><td>12</td><td>0.72</td></tr>
<tr><td>Maximum</td><td>25</td><td>42</td><td>25</td><td>16.4</td><td>1.00</td></tr>
<tr><td>Average</td><td>21.4</td><td>37.3</td><td>19.1</td><td>14.1</td><td>0.88</td></tr>
<tr><td>Undrained Shear Strength</td><td colspan="6">From the index test results, a consistency index of between 0.72 and 1.00 (firm to stiff) can be calculated for these clays which correlates closely with the site descriptions.

Based on visual observation and empirical correlations, the locally water softened clays in the south/southeast of the site are expected to have shear strengths less than 30 kN/m^2. The firm clay across the rest of the site are expected to have shear strengths of around 40 and 72 kN/m^2.

Standard Penetration Tests determined ‘N’ value of 8 at a depth of 1.2 m bgl. Using the relationship between SPT ‘N’ values and the Plasticity Index (Ref. 19), undrained shear strength of 53 kN/m^2, indicating this material to be moderate in strength.</td><td>For design purposes, the following characteristic undrained shear strengths are considered appropriate: -

• Cu = <30 kN/m^2 for the water softened clay in the south/southeast,
• 40 kN/m^2 for the firm upper clay.</td></tr>
<tr><td>Coefficient of Compressibility</td><td colspan="6">From empirical correlations between shear strength and SPT N (Ref. 19), Mv values ranging between 0.13 and 0.24 m^2/MN have been determined for the firm clay and 0.35 m^2/MN for the water softened clay in the south / southeast.</td><td>For design purposes, the following characteristic Mv values are considered appropriate: -

• Mv = 0.35 m^2/MN for the water softened clay in the south /southeast,
• 0.24 m^2/MN for the firm upper clay.</td></tr>
<tr><td>pH and Sulphate</td><td colspan="6">The values for water soluble sulphate, total sulphate and pH values at depths between 0.7 to 2.0 m bgl are:-
• Water soluble sulphate 450 to 610 mg/l
• Total sulphate 0.39 to 0.47%
• pH 8.7 to 10.3</td><td>DS-2 AC-1s</td></tr>
</table>

Table 6: Summary of Stiff Glacial Till Geotechnical Properties

Parameter	Data Evaluation						Characteristic Design Value
Moisture Content	Results from six tests determined the natural moisture to range between 13% and 29% with an average of 20.9%.						Average MC = 20.9%
Plasticity Indices		**Moisture Content %**	**Liquid Limit %**	**Plastic Limit %**	**Modified Plasticity Index**	**Consistency Index**	The Index test results indicate that the Till is a low to intermediate clay of low volume change potential.
	Minimum	13	29	16	9.2	0.55	
	Maximum	29	41	21	16.2	1.23	
	Average	20.2	35.3	18.3	12.9	0.93	
Undrained Shear Strength	From the index test results, a consistency index of between 0.55 and 1.23 (firm to very stiff) can be calculated for these clays which correlates closely with the site descriptions. Standard Penetration Tests determined 'N' values in the range of 12 to 50 (with an average value of 26) for depths generally ranging from 1.2 m to 4.45 m bgl. Using the relationship between SPT 'N' values and the Plasticity Index (Ref. 19), undrained shear strength ranges from 83 to >150 kN/m^2, indicating this material to be high to very high in strength.						For design purposes, a characteristic undrained shear strength of 75 kN/m^2 is considered appropriate for the stiff lower clay.
Coefficient of Compressibility	From empirical correlations between shear strength and SPT N (Ref. 19), Mv values ranging between 0.03 and 0.11 m^2/MN have been determined.						For design purposes, a characteristic Mv value of 0.11 m^2/MN is considered appropriate for the stiff lower clay.
pH and Sulphate	The value for water soluble sulphate, total sulphate and pH value at a depth of 1.4 m bgl is:- • Water soluble sulphate 120 mg/l • Total sulphate 0.08% • pH 7.9						DS-1 AC-1s

Bedrock

Bedrock was encountered in the south/southeast of the site at a depth of between 1.4 and 2.3 m bgl and comprises weathered (variably weak to moderately strong) sandstone (recovered as a clayey gravelly fine to coarse sand, with low cobble content). An angle of shearing resistance value of between 27 and 34^o is considered suitable for design purposes (Ref. 20).

9 CONTAMINANT ASSESSMENT AND CONCEPTUAL SITE MODEL

9.1 Conceptual Site Model

A Conceptual Site Model for the proposed residential development has been prepared in accordance with current guidance (Ref. 3) by consideration of the site-specific Contamination Sources, Receptors and Pathways described in the following sections. A schematic conceptual model of the site is presented in Drawing 8190OD03Rev1, Appendix 1.1.

9.2 Contamination Sources

9.2.1 General

The presence of significant contamination hazards have been identified by evaluation of the contaminant concentrations in relation to Generic Assessment Criteria developed for this residential development, as presented in Appendix 11. Direct comparison is made between the assessment criteria and the US95 or maximum concentrations and hot spot values to determine which contaminants in which materials present a risk of harm or pollution. In addition, consideration is also given to the potential sources of contamination, identified from the desk study, walk over and visual and olfactory evidence from the site investigation and soil gas concentrations detected.

9.2.2 Hazards Identified

None of the made ground topsoil or granular stockpiled made ground samples tested contained concentrations of contaminants above the generic assessment criteria.

General granular made ground and cohesive made ground samples across the site (Hazard 1) recorded elevated concentrations of sulphate aqueous extract which pose a risk to the proposed properties.

Cohesive stockpiled made ground (Hazard 2) recorded elevated concentrations of sulphate aqueous extract however, these materials are to be removed from site and as such will not pose a risk to the proposed development.

Made ground in the areas of the former tanks / silos (Hazard 3) recorded elevated benzo(b)fluorene, benzo(a)pyrene, dibenzo(a,h)anthracene and sulphate aqueous extract in the west (TP102 and 103) and sulphate aqueous extract in the south of the site (TP117, 118 and 125) which pose a risk to human health and the proposed properties, respectively.

Made ground in the area of the former railway (Hazard 4) recorded elevated sulphate aqueous extract and chrysotile/amosite asbestos fibres in the southwest/west of the site which pose a risk to human health and the proposed properties.

Localised granular made ground (Hazard 1) along the southern boundary recorded elevated concentrations of TPH aromatic 12-16, 16-21 and 21-35 hydrocarbons and sulphate aqueous extract which pose a risk to human health and the proposed properties, respectively.

Elevated concentrations of soil gas (Hazard 1 and 5) have been recorded in the south of the site that would present a risk to future users in confined spaces and proposed properties.

9.3 Receptor Characterisation

Based on environmental conditions determined, the following site-specific receptors have been identified and are considered within the Conceptual Site Model Drawing 8190OD03Rev1, Appendix 1.1:-

Table 7: Receptors

Part 2A Classification	Group		Receptor
Part 2A Receptors	R1	Human Health	Future site endusers in buildings and landscaped areas
	R2	Property	Proposed development comprising low rise residential dwellings with domestic gardens and road infrastructure
			Services
	R3	Controlled Waters	Rivers/Surface water - Irish Sea located 375 m west of the site
	R4		Glacial Till deposits classified as Secondary Undifferentiated aquifer Whitehaven Sandstone Formation bedrock is classified as a Secondary A Aquifer.
Non Part 2A Receptors	R5	Construction workers	
	R6	Plants and landscaped areas	

9.4 Pathway Characterisation

From the site conditions and development layout the following potential pathways by which receptors might be exposed to contaminants, as illustrated in the Conceptual Site Model Drawing 8190OD03Rev1, Appendix 1.1:-

Table 8: Pathways

Pathway		Receptor
P1	Inhalation, ingestion and dermal contact	Human Health
P2	Direct contact	Plants
P3	Soil gas or soil vapours pooling within the structures	Buildings, Property and Services
	Contact with aggressive or acidic soils or hydrocarbon impacted soils (made ground)	
P4	Leaching of contaminants from the soil migrating vertically or laterally to groundwater	Water Environment

9.5 Qualitative Environmental Risk Assessment

The Conceptual Site Model outlined above and illustrated in Drawing 8190OD03Rev1, Appendix 1.1, has been used to undertake a semi quantitative contamination risk assessment for the development site. Details of the approach adopted for this Risk Assessment are presented in Appendix 12.

From this risk assessment, and reference to the DEFRA Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance 2012 (Ref. 6), the following contaminant linkages have been identified to human health, property, controlled waters and to non Part 2A receptors including plants and landscaped areas:-

9.5.1 Human Health

Based on this CSM, potentially unacceptable risks to human health from localised elevated concentrations of hydrocarbons sourced from made ground in the southwest and PAHs in the area of the possible tank /silo in the west of the site (Hazard 3) have been identified. Localised

disseminated chrysotile and amosite asbestos fibres were also recorded in made ground associated with the former railway in the southwest/west of the site (Hazard 4).

The gas monitoring undertaken has identified Characteristic Situation 2 conditions and, therefore, gas protection measures should be adopted in accordance with current guidance (Refs. 15 and 16).

9.5.2 Property

Locally elevated concentrations of sulphates and localised hydrocarbons within the general made ground (Hazard 1), made ground associated with the potential tanks / silos in the south and west (Hazard 3) and the former railway (Hazard 4), pose a risk to property below ground and services.

The gas monitoring undertaken has identified Characteristic Situation 2 conditions and, therefore, gas protection measures should be adopted in accordance with current guidance (Refs. 15 and 16).

9.5.3 Controlled Waters

No gross widespread contamination has been proven and, therefore, the ground and groundwater conditions are expected to present a low risk to Controlled Waters.

9.5.4 Plants and Landscaped Areas

The made ground and natural soils on site contained no significant concentrations of contaminants that present a phytotoxic risk to plants and landscaped areas. However, the made ground materials are not considered to be suitable as a growing medium for plants in domestic gardens or landscaped areas.

9.6 Recommendations on Remedial Mitigation Measures

9.6.1 Additional Investigations

UKWIR testing should be carried out along the route of the finalised water supply pipework to confirm the most suitable materials for use within the development.

9.6.2 Health and Safety Considerations During Construction

Normal brownfield health and safety precautions should be adopted as a minimum to protect workers from the general contamination present within the made ground onsite.

Due to the presence of asbestos containing materials and potentially loose disseminated fibres within the made ground in the southwest, the site health and safety file should be updated to highlight the potential for asbestos to be encountered during intrusive site works. This information should be made available to all future construction and maintenance workers that may come into contact with the made ground materials onsite. All future construction works should be undertaken in accordance with the current CIRIA guidance document C733 - Asbestos in soil and made ground: a guide to understanding and managing risks (Ref. 25).

9.6.3 Measures within Preparatory / Advance Works

Relict foundations and concrete slabs which still remain on site in areas of former buildings may need to be broken out and stabilised as part of site preparatory works as detailed below:

- Any redundant services and drainage which remain on site will need to be removed and 'grubbed-out' and if significant visual or olfactory evidence of contamination is noted during these works, then these areas should be further investigated prior to redevelopment.
- Concrete and locally contaminated granular made ground in the southwest of the site will need to be broken out and stabilised prior to redevelopment. If significant visual or olfactory evidence of contamination is noted during these works, then this area should be further investigated prior to redevelopment.
- The 3 No. large stockpiles will need to be removed and disposed of at a suitably licensed landfill facility.
- The possibility exists that localised asbestos may be present within the made ground across the site and, therefore, it is advised that a 'watching brief' is undertaken during the construction works and advice sought if asbestos is found or suspected.

9.6.4 Measures within Built Development

Clean soil covers

Future garden and landscaped areas should incorporate a designed soil cover system in accordance with BRE 465 (Ref. 21) to isolate future end users from localised hydrocarbon contamination within made ground onsite. In addition, the made ground materials are not considered to be suitable as a growing medium for plants in domestic gardens or landscaped areas. As a minimum the clean cover soil layer in garden areas should comprise 0.45 m thick subsoil and 0.15 m thick topsoil and in landscaped areas should comprise 0.3 m of subsoil and 0.15 m of topsoil.

Following the principles of CIRIA C733 (Ref. 25), an anti-dig layer comprising compacted engineered fill and/or a geotextile membrane should be installed in all domestic gardens and soft landscaped in the southwest/west of the site to mitigate the risk from asbestos. A capping layer comprised of at least 0.6 m thick inert material should be installed above the anti-dig layer.

Materials for in ground services

Based on sulphate results from the current investigation in accordance with Ref. 22, in-ground concrete should be designed for Sulphate Class DS-2, ACEC Class AC-2 for future structures in contact with the made ground.

Polyethylene (PE) and polyvinyl chloride (PVC) water supply pipework is unlikely suitable for use on site due to the localised hydrocarbon contamination within the made ground. As such, subject to the additional investigation detailed in Section 9.6.1, above, and approval from the Statutory Water Authority, the water supply pipework will either need to be hydrocarbon resistant, or alternatively the service corridor backfilled with inert materials.

Gas protection measures from BS 8489

The gas monitoring undertaken to date has identified Characteristic Situation 2 conditions and therefore, buildings across this site will require gas preventive measures in accordance with BS8485 (Ref. 16) for the residential buildings and fitted following the principles of CIRIA C735 (Ref. 26). Localised hydrocarbon contamination was recorded in the south/south of the site and as such, hydrocarbon resistant membranes should be installed within proposed buildings in this area.

A combination of the following protection measures should be used:-

- Structural barrier of the floor slab;
- Ventilation protection measures (pressure relief pathway/dispersal layer); and,
- Gas resistant membrane.

Depleted oxygen levels have been recorded that could present an asphyxiation risk to construction workers entering below ground excavations. As such, it would be prudent for all deep excavations to be monitored for oxygen, carbon dioxide, methane and hydrocarbons vapours (along the south/southwestern boundary) prior to any man-entry into them.

9.6.5 Waste Characterisation

Waste Acceptance Criteria (WAC) testing (Appendix 9) classifies the stockpiled made ground as predominantly 'Inert', although the total organic carbon content of two samples (5.2 to 7.6%) and sulphate aqueous extract of one sample is elevated (2451 mg/kg) which would push this out of the inert classification.

It should be noted that the above conclusions relate to the specific samples tested during this investigation, and therefore, material excavated during re-development will not necessarily have the same classification. It is recommended that waste materials varying from the samples tested and intended to be removed from site are tested individually to determine the classification of the waste.

10 ENGINEERING ASSESSMENT

10.1 Design Elements and Requirements

Although no final development layout plan has been provided, we understand that the proposed outline development is to include the following:-

- Outline proposals for detached and semi-detached properties with domestic gardens and road infrastructure.
- The residential properties will be two-storey properties with assumed minimum design loads for normal foundations of 100 kN/m^2 with maximum total and differential settlements of 25 mm and 1 in 300 respectively.
- It has been assumed that the development will be carried out at current ground levels, with assumed finished floor levels and construction of roadways across the site at around 95 m AOD.

- At this stage, there are currently no proposals for infiltration drainage or Sustainable Urban Drainage Systems (SUDS).

10.2 Geotechnical Considerations for Proposed Development

From the ground conditions determined onsite, the following geotechnical issues have been identified that require consideration in the design of the proposed development:-

- Variable heterogeneous cohesive and granular made ground was encountered throughout the site extending to depths between 0.3 to 1.5 m bgl locally in the southeast and southwest made ground of up to 3.5 m bgl was encountered associated with the former tanks / silos and railway, respectively.
- The superficial deposits underlying the made ground generally comprise an upper predominantly firm clay of between 0.3 to 1.5 m thick, underlain by a lower stiff to very stiff clay to depths of 2 to >4.45 m bgl. Locally in the south and southeast of the site, the upper clay comprises a water softened clay with peaty horizons/pockets underlain by firm clay or shallow weathered sandstone bedrock.
- Shallow weathered sandstone bedrock was encountered in the southeast/east of the site at depths of between 0.8 and 2.5 m bgl.
- Groundwater seepages anticipated to be representative of a shallow perched groundwater within the granular made ground and granular horizons in the cohesive made ground and Glacial Till deposits were encountered at depths between 0.3 and 1.2 m bgl, with a hydraulic gradient to the south/southwest of the site.

10.3 Mining

The site is not in an area affected by shallow coal mining.

10.4 Preliminary Comments on Foundation Design

At present there are no final development proposals, detailed layout or design levels available for review and only preliminary/indicative foundation loads and, therefore, the following comments are preliminary only.

10.4.1 Foundation Design

The site is generally underlain by variable cohesive and granular made ground of between 0.3 and 1.5 m, underlain by firm to stiff sandy gravelly clay which becomes stiffer with depth. Locally deeper made ground was encountered in the southwest associated with the former railway and southeast associated with the former tanks and silos to depths of up to 3.5 m bgl. Soft sandy gravelly clay was also locally recorded in the south of the site to depths of between 1.5 and 2 m bgl. Medium dense clayey gravelly sand was recorded in the southeast at depths between 0.4 and 1.6 m extending to depths of up to 2.5 m bgl in the east of the site, which is assumed to be weathered sandstone bedrock. Competent sandstone bedrock was encountered at depths between 0.8 and 2.3 m bgl in the southeast and 1.1 to 2.5 in the east of the site.

The upper firm clay is of low volume change potential and low to intermediate plasticity, with a minimum design shear strength of 40 kN/m^2 and a coefficient of compressibility of 0.24 m^2/MN.

The lower stiff clay is of low volume change potential and low to intermediate plasticity, with a minimum design shear strength of 75 kN/m^2 and a coefficient of compressibility of 0.11 m^2/MN.

As such, normal shallow foundations and deep trench foundations should be taken below all made ground to found in the underlying firm to stiff clays as detailed below:-

- Assuming strip trench foundations will be used of up to 0.6 m wide and taken below all topsoil, made ground and softened clay bearing onto the firm clay at a minimum depth of 0.75 m (in accordance with NHBC guidance for low volume change potential clays, Ref. 5) an allowable bearing capacity of around 100 kN/m^2 can be determined at which settlement will be expected to be less than 25 mm.
- Where higher foundation loads are required, or foundation depths have to be deepened to accommodate for the variable depth of made ground expected across the site or the water softened clays in the south/southeast of the site, foundations could be taken deeper into the firm to stiff clays at a depth of around 1.5 to 2 m bgl.
- Where locally deep made ground (>2.5m) is present in the area of the former railway/sidings in the southwest of the site and the former silos / tanks in the south, normal shallow strip foundations are unlikely to be appropriate and alternative foundation solutions such as deep trench, ground improvement, reinforced rafts or piled foundations may need to be considered.
- Where shallow bedrock is encountered at foundation level in the southeast/east of the site, consideration should be given to placing the whole foundation on rock in order to avoid differential settlement. An assumed allowable bearing value of 250 kN/m^2 should be suitable for the bedrock at which settlement will be less than 25 mm (Ref. 20).

Foundations should be designed in accordance with NHBC guidance (Ref. 5) as trees could impact on soil moisture conditions within the clays adjacent to these areas. Therefore, it is recommended that during the detailed design stage that a tree survey is undertaken to identify existing trees, a tree retention, removal or new planting scheme is prepared and then foundations are designed in accordance with NHBC guidance.

Given the considerable variability of the made ground and natural deposits both laterally and vertically, a detailed foundation schedule will be required for the proposed development. The foundation schedule should provide plot-specific recommendations of foundation type together with the minimum founding depth, taking into account relevant factors including tree influence and founding strata.

It should be recognised that clay rich soils can deteriorate fairly rapidly on exposure, particularly in periods of wet weather and frost. It would be prudent to protect all exposed soils in foundation excavations with a concrete blinding layer, particularly if they are likely to remain open for extended period of time.

It is recommended that an adequate drainage system for surface water be installed by a competent contractor in order to prevent surface water ponding or collecting during and post construction, which may in turn lead to deterioration of the founding stratum.

If the founding stratum is found to be variable, and particularly if it is found to consist both of clay and sand, the foundations should be reinforced to limit differential settlement.

10.4.2 Floor Slabs

Due to the presence of a deep made ground across much of the site, ground bearing slabs are unlikely to be suitable for new structures and suspended ground floors are therefore recommended.

Where significantly desiccated soil is present, or where foundation depths are to be increased to more than 1.5m due to the presence of trees, a suspended ground floor slab construction should be adopted. The suspended slab should have a minimum void height in accordance with NHBC guidance.

10.5 Pavement Design for Car Parking and Roadways

The predominant subgrade of the car parks and roadways will be granular or cohesive made ground which are anticipated to have a CBR design value of <5% and <2%, respectively (Ref. 23).

10.6 Chemical Attack on Buried Concrete

Based on sulphate results from the current investigation in accordance with Ref. 22, in-ground concrete should be designed for Sulphate Class DS-2, ACEC Class AC-2 for future structures in contact with made ground and Sulphate Class DS-2, ACEC Class AC-1s for future structures in contact with Glacial Till.

11 CONCLUSIONS

11.1 Environmental Considerations

- Normal brownfield health and safety precautions should be adopted as a minimum to protect workers from the general contamination present within the made ground onsite.

- Due to the presence of asbestos containing materials and potentially loose disseminated fibres within the made ground in the southwest, the site health and safety file should be updated to highlight the potential for asbestos to be encountered during intrusive site works. This information should be made available to all future construction and maintenance workers that may come into contact with the made ground materials onsite. All future construction works should be undertaken in accordance with the current CIRIA guidance document C733 - Asbestos in soil and made ground: a guide to understanding and managing risks (Ref. 25).

- Any redundant services and drainage which remain on site will need to be removed and 'grubbed-out' and if significant visual or olfactory evidence of contamination is noted during these works, then these areas should be further investigated prior to redevelopment.

- Future garden and landscaped areas should incorporate a designed soil cover system in accordance with BRE 465 (Ref. 21) to isolate future end users from localised hydrocarbon contamination within made ground onsite. As a minimum the clean cover soil layer in garden areas should comprise 0.45 m thick subsoil and 0.15 m thick topsoil and in landscaped areas should comprise 0.3 m of subsoil and 0.15 m of topsoil.

- Following the principles of CIRIA C733 (Ref. 25), an anti-dig layer comprising compacted engineered fill and/or a geotextile membrane should be installed in all domestic gardens and soft landscaped in the southwest of the site to mitigate the risk from asbestos. A capping layer comprised of at least 0.6 m thick inert material should be installed above the anti-dig layer.

- In-ground concrete in contact with made ground should be designed for Sulphate Class DS-2, ACEC Class AC-2. Hydrocarbon resistant in ground plastic drinking water pipes will be required within the made ground in the northern and southern part of the site.

- Due to the Characteristic Situation 2 soil gas conditions determined for the proposed residential development, gas protection measures need to be selected in accordance with BS 8485 (Ref. 16) for the residential building and fitted following the principles of CIRIA C735 (Ref. 26). Hydrocarbon resistant membranes are also required along the south/southwestern boundary of the site.

- The stockpiled made ground are classified as 'Inert' for offsite disposal, although the total organic carbon content of two samples (5.2 to 7.6%) and sulphate aqueous extract of one sample is elevated (2,451 mg/kg) which would push this out of the inert classification. It is recommended that waste materials varying from the samples tested and intended to be removed from site are tested individually to determine the classification of the waste.

11.2 Geotechnical Considerations

- At present there are no final development proposals, detailed layout or design levels available for review and only preliminary/indicative foundation loads and, therefore, the following comments are preliminary only.

- Foundations:

    - Assuming strip trench foundations will be used of up to 0.6 m wide and taken below all topsoil, made ground and softened clay bearing onto the firm clay at a minimum depth of 0.75 m (in accordance with NHBC guidance for low volume change potential clays, Ref. 5) an allowable bearing capacity of around 100 kN/m^2 can be determined at which settlement will be expected to be less than 25 mm.

    - Where higher foundation loads are required, or foundation depths have to be deepened to accommodate for the variable depth of made ground expected across the site or the water softened clays in the south/southeast of the site, foundations could be taken deeper into the firm to stiff clays at a depth of around 1.5 to 2 m bgl.

    - Where locally deep made ground (>2.5m) is present in the area of the former railway/sidings in the southwest of the site and the former silos / tanks in the south, normal shallow strip foundations are unlikely to be appropriate and alternative foundation solutions such as deep trench, ground improvement, reinforced rafts or piled foundations may need to be considered.

    - Where shallow bedrock is encountered at foundation level in the south/southeast of the site, consideration should be given to placing the whole foundation on rock in order to

avoid differential settlement. An assumed allowable bearing value of 250 kN/m^2 should be suitable for the bedrock at which settlement will be less than 25 mm (Ref. 20).

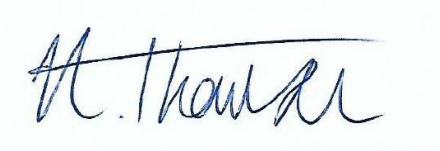
- From the ground conditions determined, the predominant subgrade of the car parks and roadways will be the granular or cohesive made ground for which CBR design values are expected of between >5 % to <2 % respectively.

- In-ground concrete should be designed for Sulphate Class DS-2, ACEC Class AC-2 for future structures in contact with made ground and Sulphate Class DS-2, ACEC Class AC-1s for future structures in contact with Glacial Till.

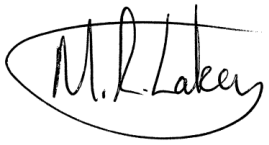
- Observations made during the fieldwork indicate groundwater flows would be anticipated in shallow excavations. However, the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities. Therefore, water levels significantly higher than those found during this investigation may be encountered.

- Excavation sides should be designed, constructed and supported in accordance with the recommendations given in CIRIA Report No. 97 (Ref. 24).

- It is recommended that an adequate drainage system for surface water be installed by a competent contractor in order to prevent surface water ponding or collecting during and post construction, which may in turn lead to deterioration of the founding stratum.



N THOMSON
GEO-ENVIRONMENTAL ENGINEER



M LAKEY
DIRECTOR

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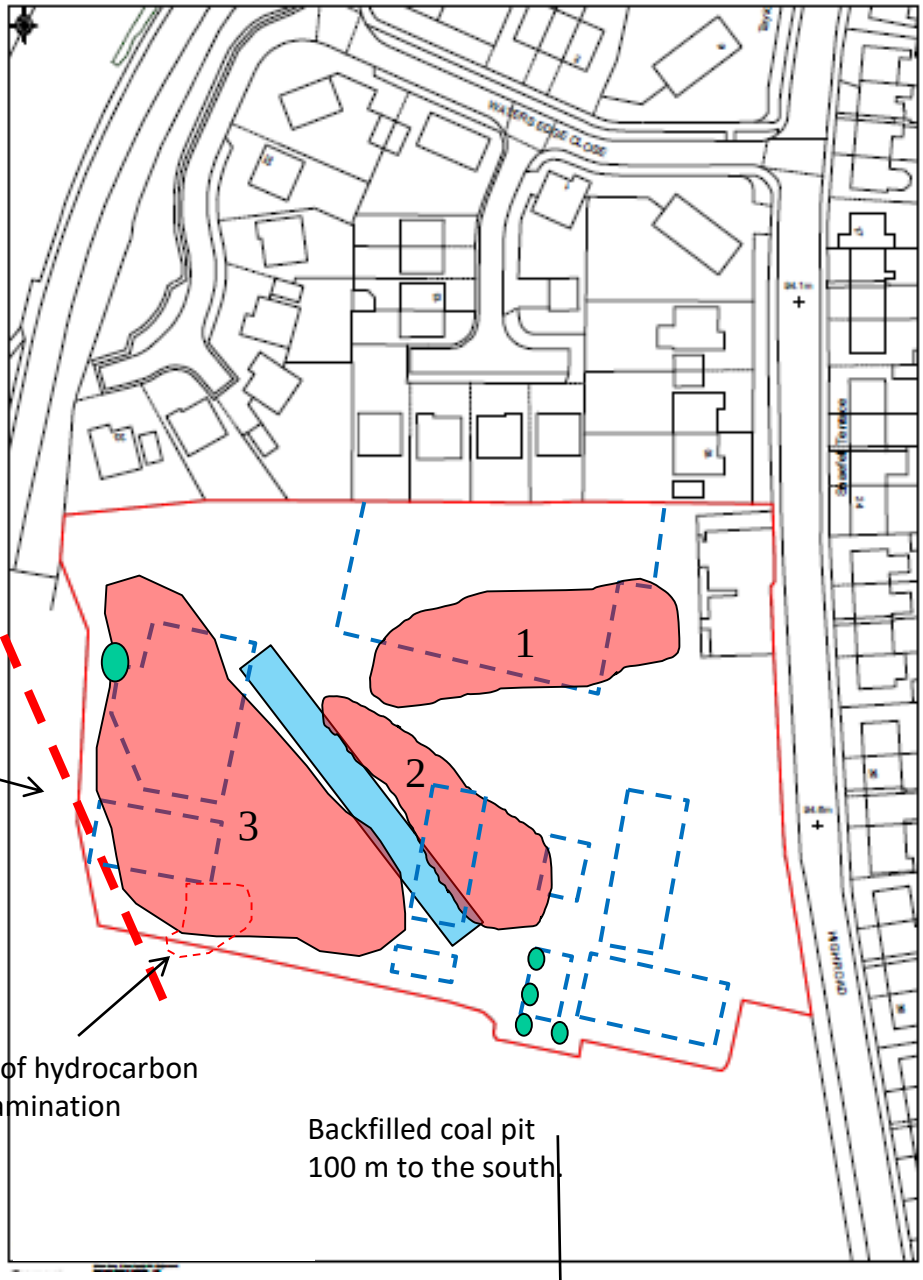
APPENDIX 1.1

DRAWINGS

N



NOTES / KEY

SITE LOCATION

FOOTPRINT OF HISTORIC BUILDINGS

DEMOLITION STOCKPILES

WATERLOGGED GROUND

FORMER TANKS

DRAWING TITLE

SITE FEATURES

PROJECT TITLE

WATER'S EDGE, WHITEHAVEN

CLIENT

GLEESON HOMES CUMBRIA

STATUS	PROJECT NUMBER
FINAL	8190
DRAWN BY	DATE
GH	April 2019
SCALE	DRG. No.
NOT TO SCALE	8190OD01Rev1

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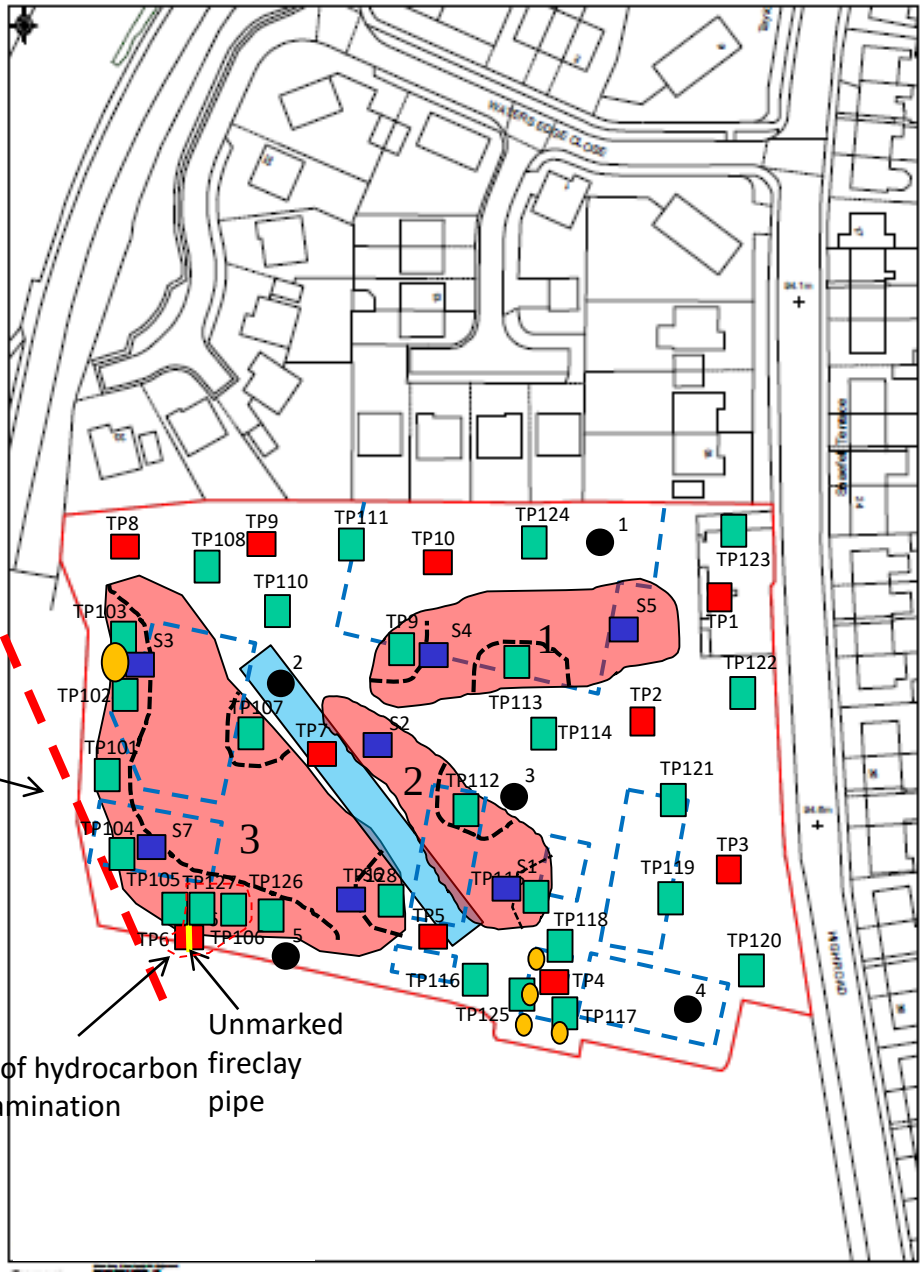

NOTES / KEY

SITE LOCATION

FOOTPRINT OF HISTORIC BUILDINGS

DEMOLITION STOCKPILES

WATERLOGGED GROUND

TRIAL PITS (Aug 2019) TP1

TRIAL PITS (Jan 2020) TP101

SOIL BOREHOLES 1

STOCKPILE PITS S1

FORMER TANKS

DRAWING TITLE

EXPLORATORY HOLE LOCATION PLAN

PROJECT TITLE

WATER'S EDGE, WHITEHAVEN

CLIENT

GLEESON HOMES

STATUS	PROJECT NUMBER
FINAL	8190
DRAWN BY	DATE
NT	February 2020
SCALE	DRG. No.
NOT TO SCALE	8190OD02Rev1

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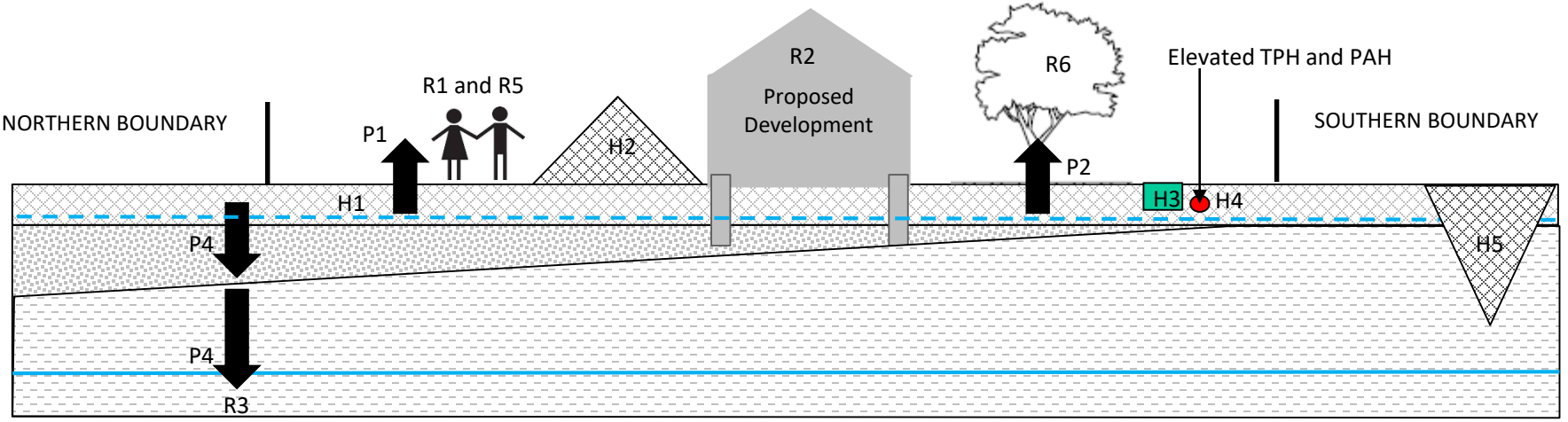

Source of Hazard / Pollutant		Pathway		Receptor		Severity of Consequence	Probability of Occurrence	Level of Risk
H1	Made ground associated with the demolition of the former chemical works including hydrocarbon contamination recorded in the southwest	P1	Inhalation, ingestion and dermal contact	R1 R5	Future End Users Construction Workers	Severe	Likely	High
		P2	Direct contact	R6	Plants/Landscaping (If proposed on future development)	Medium	Low Likelihood	Low
		P4	Leaching of contaminants vertically or laterally to groundwater	R3 R4	Perched Groundwaters Whitehaven Sandstone Formation - Secondary A Aquifer	Medium	Low Likelihood	Low
		P3	Soil gas or soil vapours pooling within the structures	R2	Property (Human Health in confined spaces)	Medium	Likely	Moderate
H2	Stockpiled made ground in the centre, north and west of the site	P1	Inhalation, ingestion and dermal contact	R1 R5	Future End Users Construction Workers	Severe	Likely	High
		P2	Direct contact	R6	Plants/Landscaping (If proposed on future development)	Medium	Low Likelihood	Low
H3	Elevated PAHs associated with the former tanks / silos in the west and southeast of the site	P1	Inhalation, ingestion and dermal contact	R1 R5	Future End Users Construction Workers	Severe	Likely	High
		P2	Direct contact	R6	Plants/Landscaping (If proposed on future development)	Medium	Likely	Moderate
		P4	Leaching of contaminants vertically or laterally to groundwater	R3 R4	Perched Groundwaters Whitehaven Sandstone Formation - Secondary A Aquifer	Medium	Low Likelihood	Low
		P3	Soil gas or soil vapours pooling within the structures	R2	Property (Human Health in confined spaces)	Mild	Likely	Low

NOTES / KEY

MADE GROUND

GLACIAL TILL

WHITEHAVEN SANDSTONE FORMATION

STOCKPILE

DRAWING TITLE

CONCEPTUAL SITE MODEL AND PRELIMINARY RISK ASSESSMENT

PROJECT TITLE

WATER'S EDGE, WHITEHAVEN

CLIENT

GLEESON HOMES CUMBRIA

STATUS	PROJECT NUMBER
FINAL	8190
DRAWN BY	DATE
NT	Sept 2019
SCALE	DRG. No.
NOT TO SCALE	8190OD03Rev1

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Source of Hazard / Pollutant		Pathway		Receptor		Severity of Consequence	Probability of Occurrence	Level of Risk
H4	Contaminated made ground associated with the former railway in the southwest of the site including sulphate aqueous extract and asbestos	P1	Inhalation, ingestion and dermal contact	R1 R5	Future End Users Construction Workers	Severe	Likely	High
		P2	Direct contact	R6	Plants/Landscaping (If proposed on future development)	Medium	Low Likelihood	Low
		P4	Leaching of contaminants vertically or laterally to groundwater	R3 R4	Perched Groundwaters Whitehaven Sandstone Formation - Secondary A Aquifer	Medium	Low Likelihood	Low
		P3	Soil gas or soil vapours pooling within the structures	R2	Property (Human Health in confined spaces)	Medium	Likely	Moderate
H5	Landfill gas migration sourced form the backfilled coal pit to the south	P3	Soil gas or soil vapours pooling within the structures	R2	Property (Human Health in confined spaces)	Medium	Low Likelihood	Low

NOTES / KEY

MADE GROUND

GLACIAL TILL

WHITEHAVEN SANDSTONE FORMATION

STOCKPILE

DRAWING TITLE

CONCEPTUAL SITE MODEL AND PRELIMINARY RISK ASSESSMENT

PROJECT TITLE

WATER'S EDGE, WHITEHAVEN

CLIENT

GLEESON HOMES CUMBRIA

STATUS	PROJECT NUMBER
FINAL	8190
DRAWN BY	DATE
NT	Sept 2019
SCALE	DRG. No.
NOT TO SCALE	8190OD03Rev01

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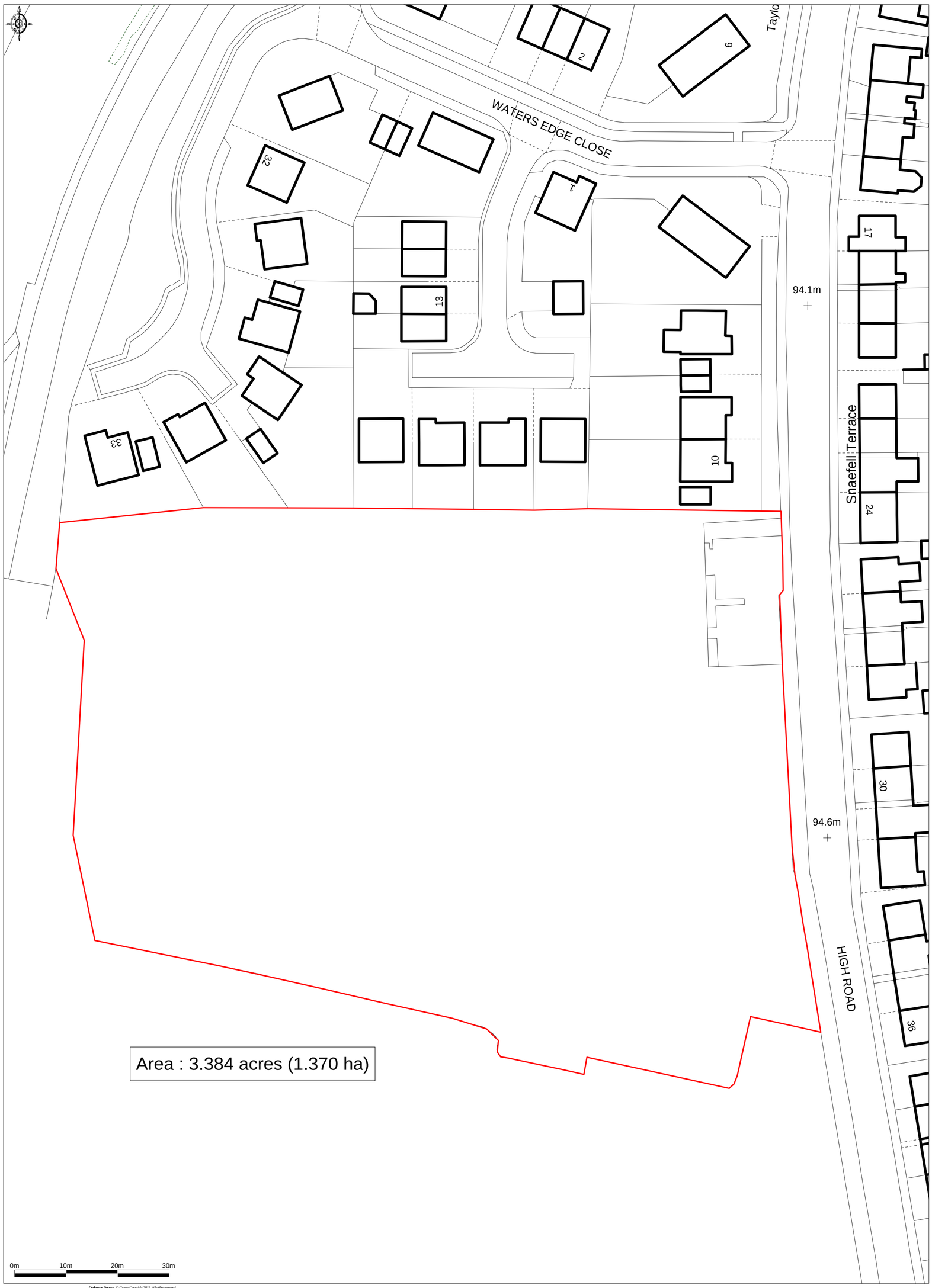
APPENDIX 1.2

THIRD PARTY DRAWINGS

Water's Edge, High Road, Whitehaven CA28 9PD



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Site plan - A2 scale 1 to 500

NOTES AND AMENDMENTS

This drawing is copyright ©. Figured dimensions are to be followed in preference to scaled dimensions and particulars are to be taken from the actual work where possible. Any discrepancy must be reported to the architect immediately and before proceeding.

REVISIONS

Rev	Description	Drawn	Date

House Type	Quantity
201	3
212	1
301	9
309	5
307	4
315	4
310	6
435	6
436	4
Total#	42

ASHWOOD DESIGN ASSOCIATES LTD
12A Clifford Court, Parkhouse Business Park, Carlisle CA3 0JG
t 01228 510616 e admin@ashwooddesign.co.uk
f 01228 520861 w www.ashwooddesign.co.uk

Purpose: Concept

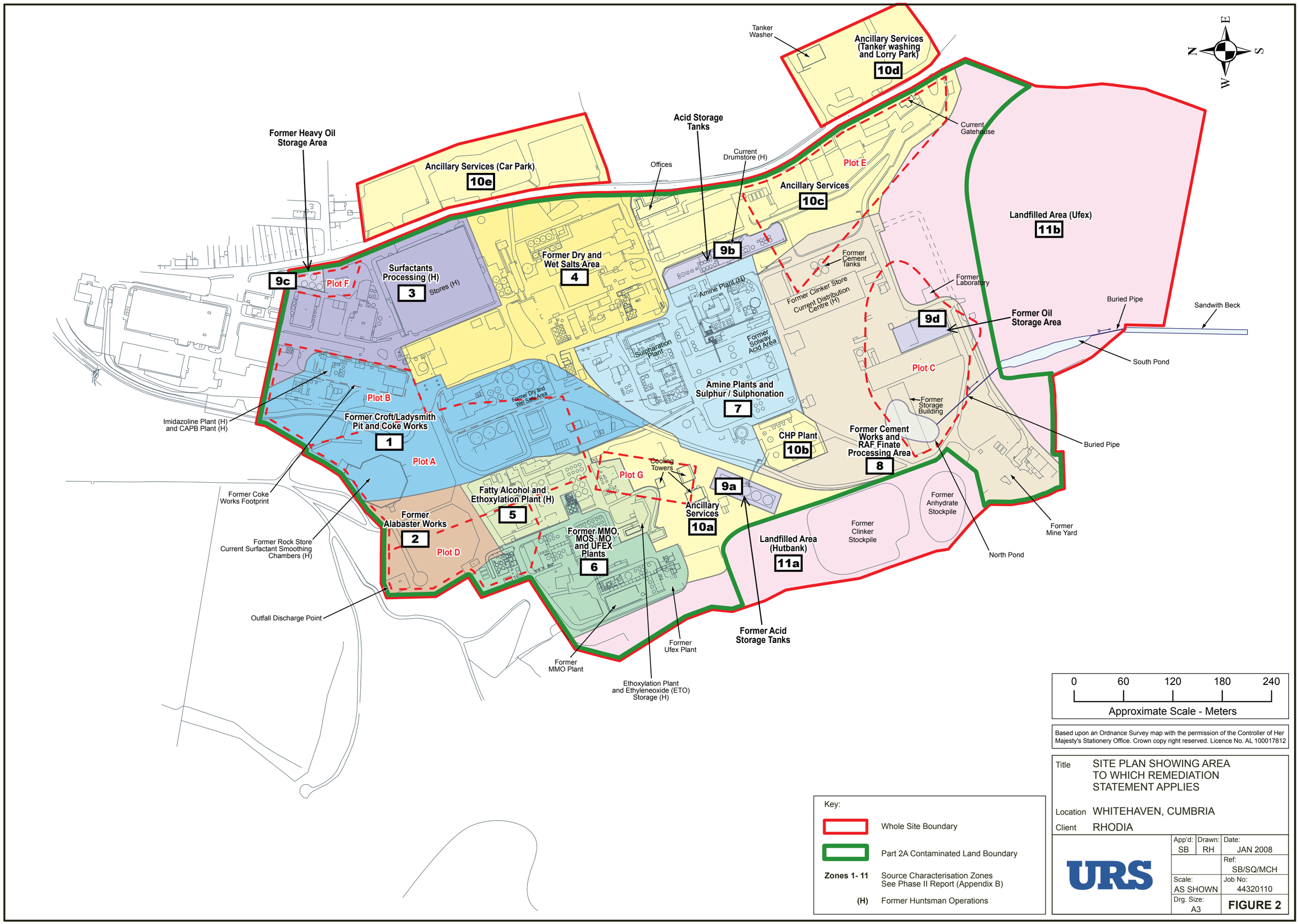
Client: Gleeson Homes

Project: Waters Edge

Title: Block Plan

Scale:	Sheet Size:	Drawn:	Date:
1:500	A3	jc	03/2019

Project No:	Drawing No:	Revision:
1839	BP001	-



0 60 120 180 240

Approximate Scale - Meters

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Key:

- Whole Site Boundary
- Part 2A Contaminated Land Boundary
- **Zones 1- 11** Source Characterisation Zones See Phase II Report (Appendix B)
- **(H)** Former Huntsman Operations

Title: SITE PLAN SHOWING AREA TO WHICH REMEDIATION STATEMENT APPLIES

Location: WHITEHAVEN, CUMBRIA

Client: RHODIA

URS

App'd:	Drawn:	Date:
SB	RH	JAN 2008
		Ref: SB/SQ/MCH
Scale: AS SHOWN		Job No: 44320110
Drg. Size: A3		**FIGURE 2**

0 60 120 180 240

Approximate Scale - Meters

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Key:

- Part 2A Contaminated Land Boundary
- PLOT B — Source Characterisation Zones
- Source requiring remediation
- Source requiring assessment

Note: The remediation area in Plot C is a voluntary action by Rhodia and is not a requirement of Part 2A

Title: POTENTIAL SOURCES OF CONTAMINATION REQUIRING FURTHER ASSESSMENT AND / OR REMEDIATION

Location: WHITEHAVEN, CUMBRIA

Client: RHODIA

URS

App'd:	Drawn:	Date:
SB	RH	JAN 2008
		Ref: SB/SQ/MCH
Scale: AS SHOWN		Job No: 44320110
Drg. Size: A3		**FIGURE 3**

APPENDIX 2

RECENT AND HISTORICAL OS MAPS

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy.
County Borough Boundary (England)
Co. Burgh Bdy.
County Burgh Boundary (Scotland)
R.D. Bdy.
Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Pylon
Electricity Transmission Line
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Mud
Sand
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

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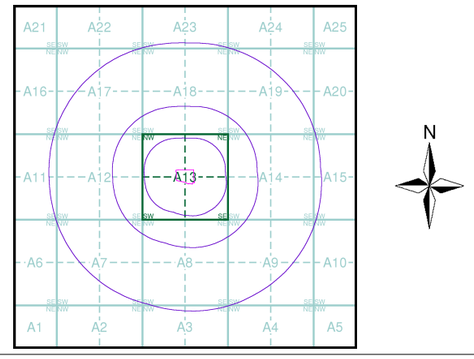
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Cumberland	1:10,560	1867	2
Cumberland	1:10,560	1900	3
Cumberland	1:10,560	1926	4
Cumberland	1:10,560	1938	5
Ordnance Survey Plan	1:10,000	1957	6
Ordnance Survey Plan	1:10,000	1967	7
Ordnance Survey Plan	1:10,000	1979	8
Ordnance Survey Plan	1:10,000	1988	9
Ordnance Survey Plan	1:10,000	1993	10
10K Raster Mapping	1:10,000	2000	11
Street View	Variable		12

Historical Map - Slice A



Order Details

Order Number: 197332733_1_1
Customer Ref: 8190
National Grid Reference: 296680, 516290
Slice: A
Site Area (Ha): 1.37
Search Buffer (m): 1000

Site Details

1, Taylors Way, WHITEHAVEN, CA28 9PD

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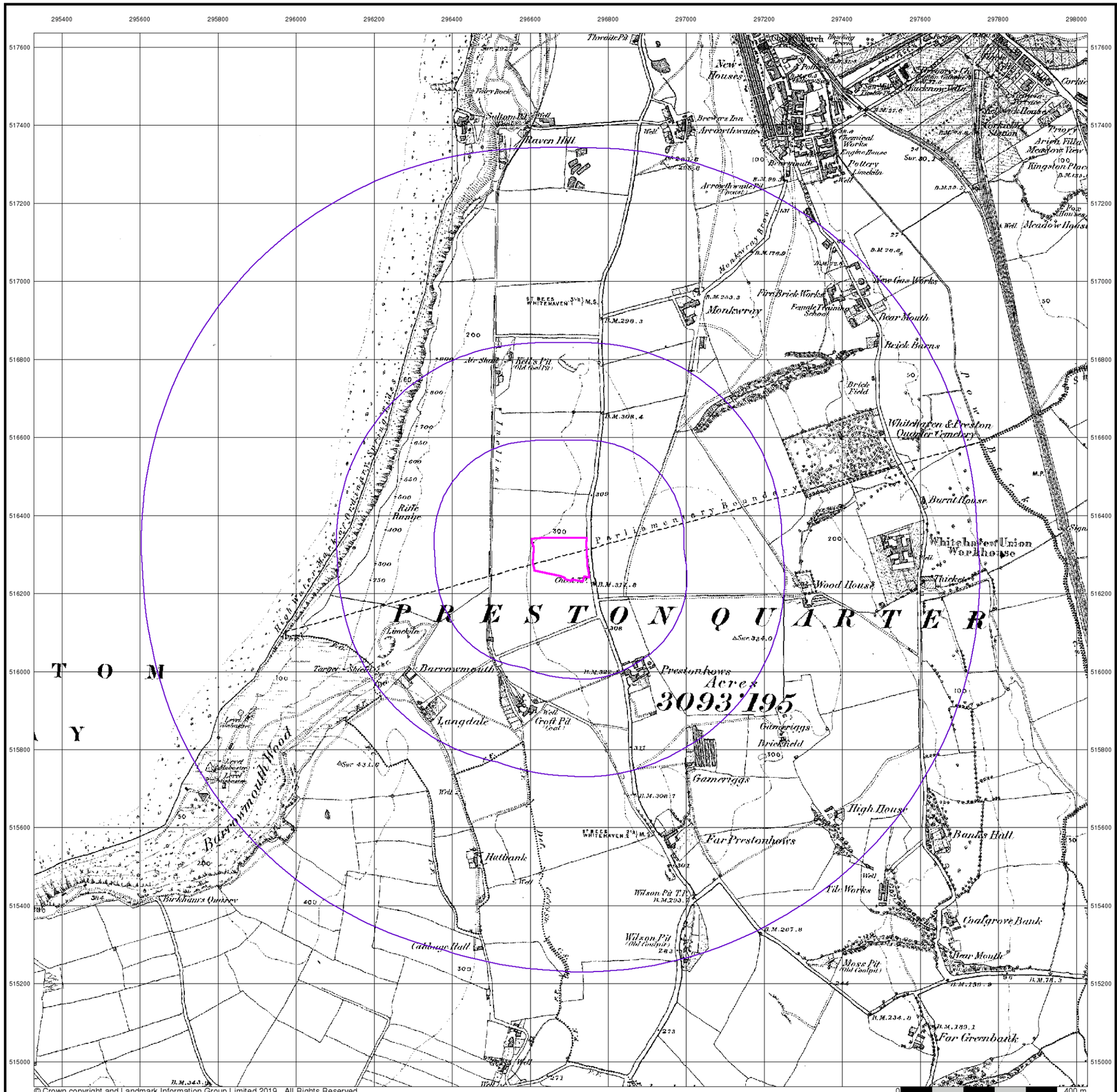

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Cumberland

Published 1867

Source map scale - 1:10,560

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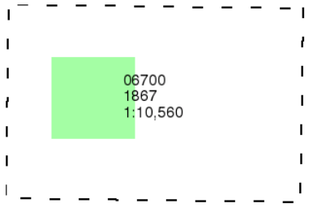
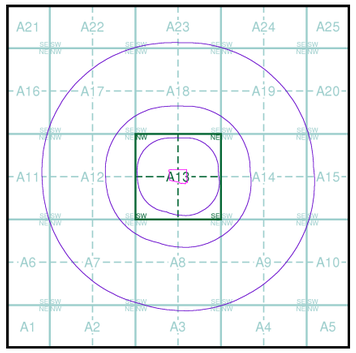
Map Name(s) and Date(s)



Historical Map - Slice A



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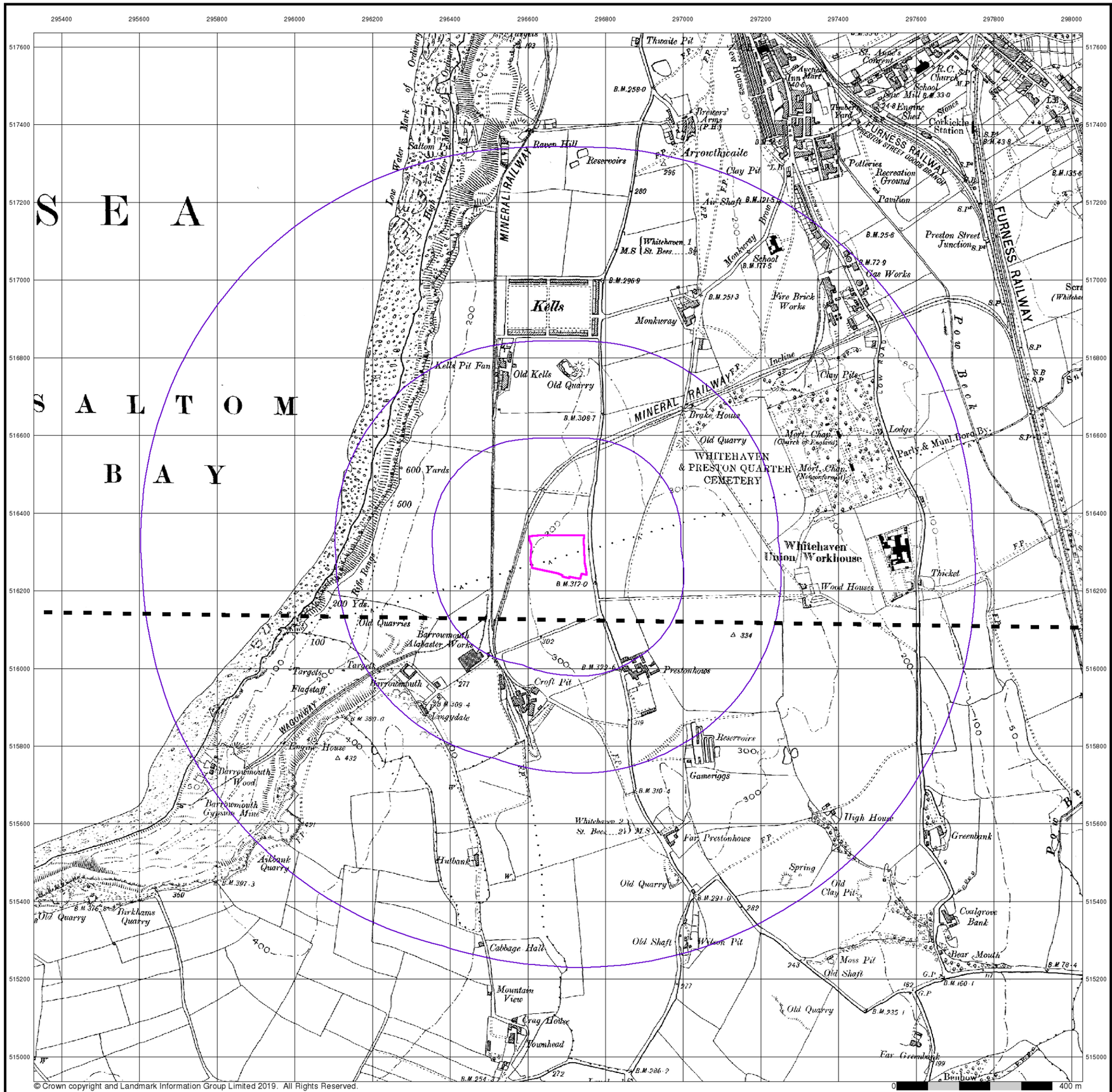
SEA
SALTOM
BAY
MINERAL RAILWAY
FURNESS RAILWAY
Kells
Monkwray
Old Kells
Old Quarry
Kells Pit Fan
Brake House
WHITEHAVEN & PRESTON QUARTER CEMETERY
Mort. Chap. (Church of England)
Mort. Chap. (Nonconformist)
Whitehaven Union Workhouse
Wood Houses
Thicket
Lodge
Parly. & Mun. Boro. By.
Clay Pits
Incline
Fire Brick Works
Gas Works
Pottery
Recreation Ground
Pavilion
Preston Street Junction
Corkickle Station
Engine Shed
Saw Mill
Timber Yard
Stones
Arrowthwaite
Clay Pit
Air Shaft
Reservoirs
Raven Hill
Saltom Pit
Thwaite Pit
Brewers' Arms (P.H.)
Inn
Avenue Cottage
St. Mary's Convent
R.C. Sch.
Church
School
Monkwray Brook
Pow Beck
Low Water Mark of Ordinary Tides
High Water Mark of Ordinary Tides
New Houses
Whitehaven 1 M.S
St. Bees 3½ M.S
Whitehaven 2 M.S
St. Bees 2½ M.S
600 Yards
500
900 Yds.
Rifle Range
Old Quarries
Barrowmouth Alabaster Works
Barrowmouth
Barrowmouth Wood
Barrowmouth Gypsum Mine
Targets
Flagstaff
WAGGONWAY
Linacre House
Longydale
Croft Pit
Prestonhouse
Far Prestonhouse
Gamerigg
Reservoirs
Hullbank
Askbank Quarry
Parkhams Quarry
Cabbage Hall
Mountain View
Crag House
Townhead
Old Shaft
Wilson Pit
Old Clay Pit
Spring
Moss Pit
Old Shaft
Bear Mouth
Coalgrove Bank
High House
Greenbank
Fax
Greenbank
Benbow
B.M.258·0
B.M.296·9
B.M.251·3
B.M.308·7
B.M.312·0
B.M.392·6
B.M.309·4
B.M.310·4
B.M.294·0
B.M.316·2
B.M.397·3
B.M.286·7
B.M.254·3
B.M.78·4
B.M.160·1
B.M.935·1
B.M.25·6
B.M.72·9
B.M.135·6
B.M.43·8
B.M.33·0
B.M.24·8
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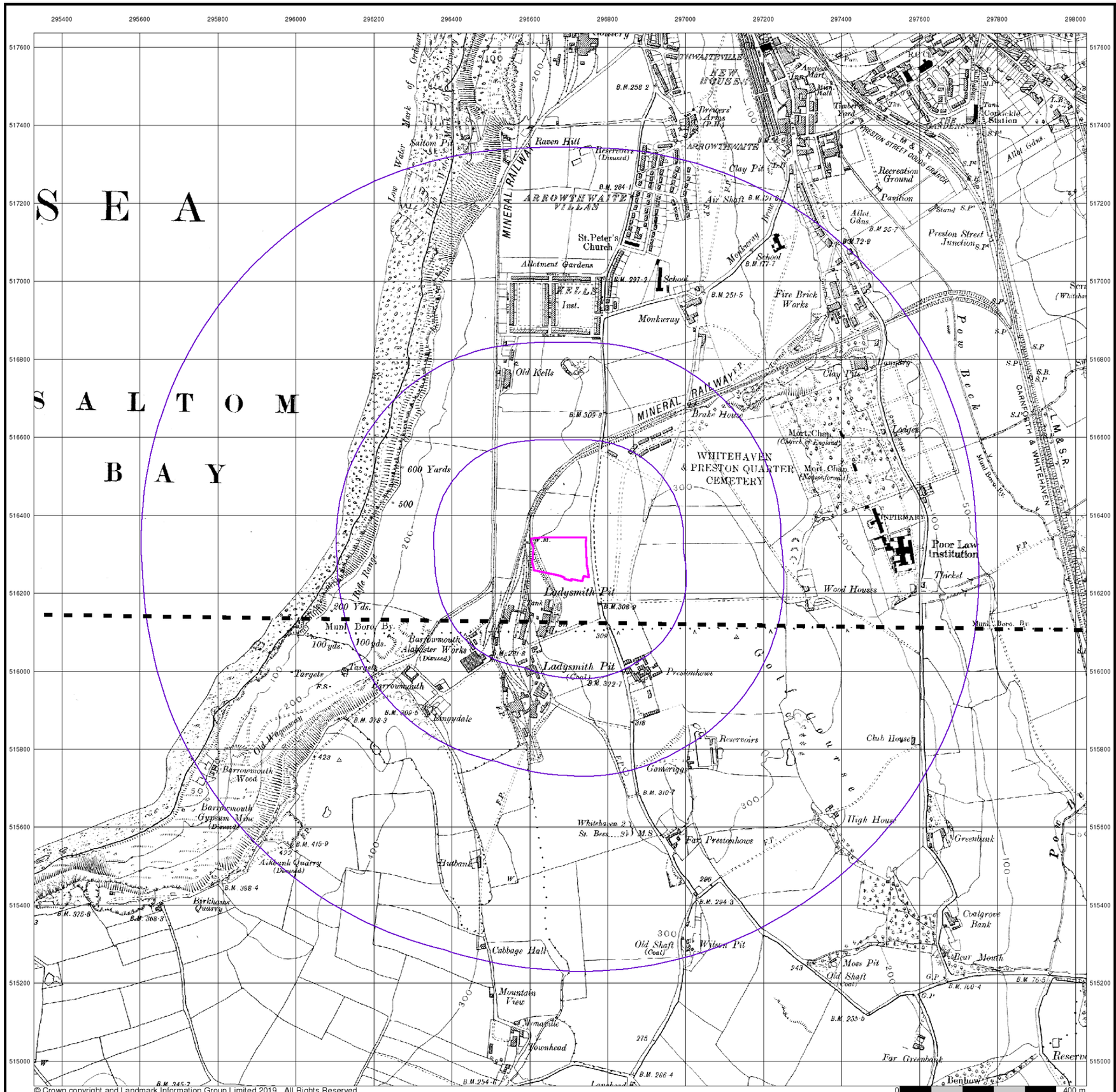
B.M.177·5
B.M.389·0
B.M.432
Old Quarry
Old Quarry
Old Quarry



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LANDMARK INFORMATION GROUP®

Cumberland

Published 1926

Source map scale - 1:10,560

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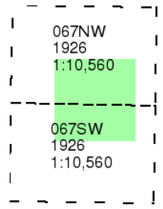
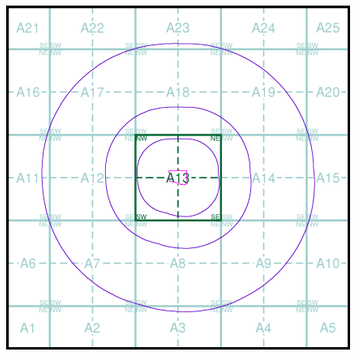
Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	197332733_1_1
Customer Ref:	8190
National Grid Reference:	296680, 516290
Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	1000

Site Details

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Cumberland

Published 1938

Source map scale - 1:10,560

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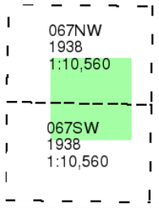
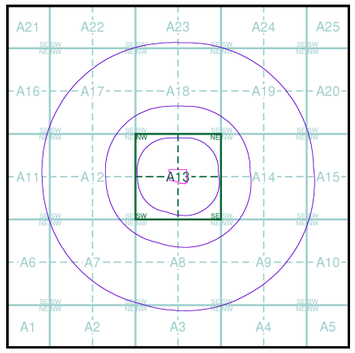


Historical Map - Slice A



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Ordnance Survey Plan

Published 1957

Source map scale - 1:10,000

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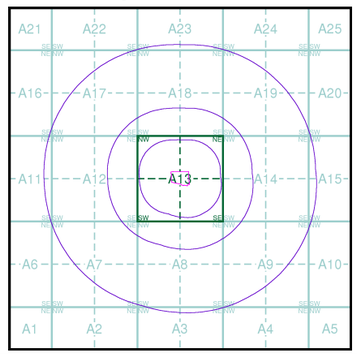
Map Name(s) and Date(s)

NX91NE
1957
1:10,560

NX91SE
1957
1:10,560

Historical Map - Slice A



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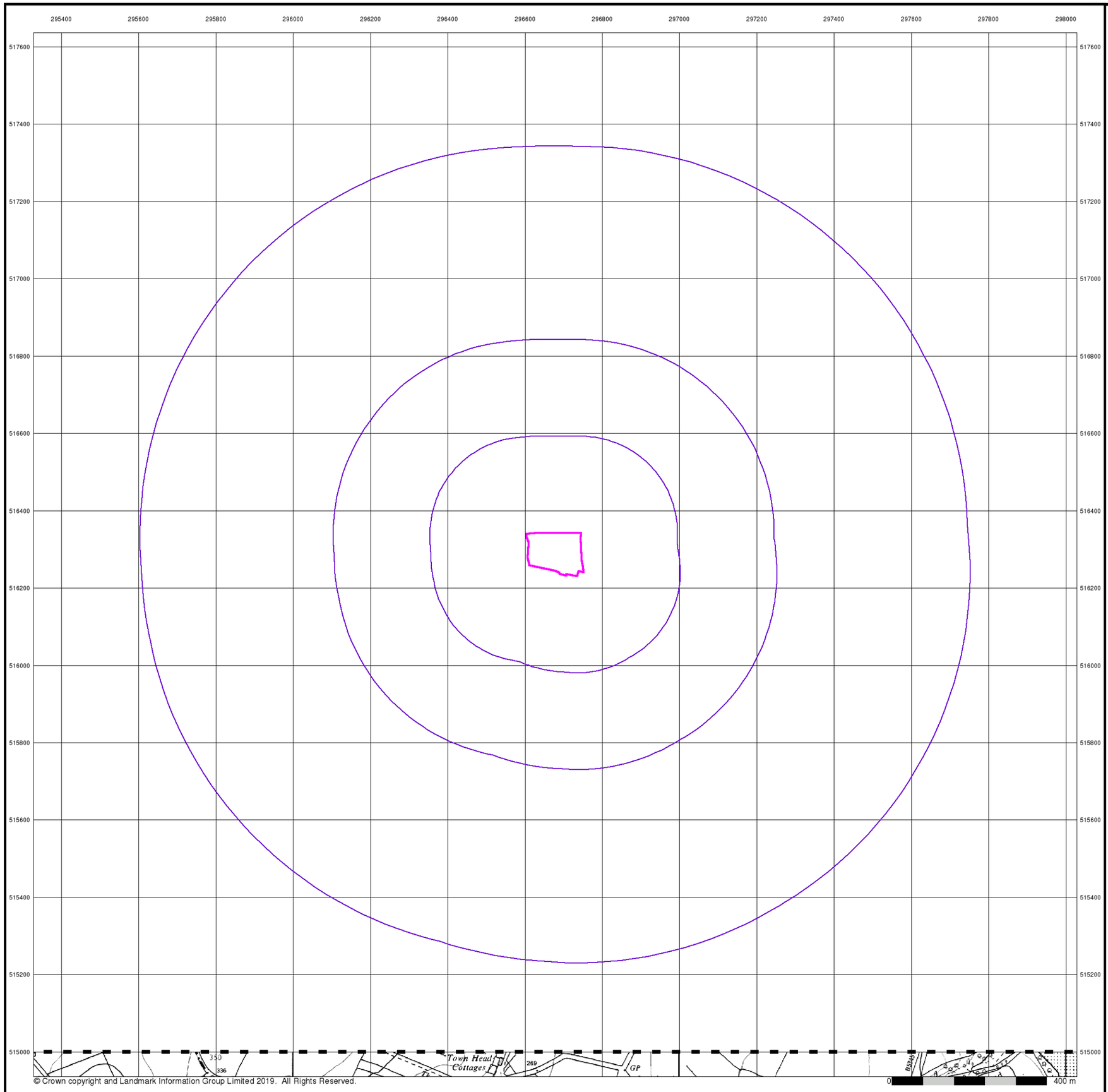

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Ordnance Survey Plan

Published 1967

Source map scale - 1:10,000

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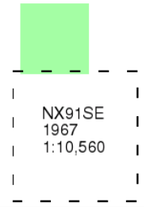
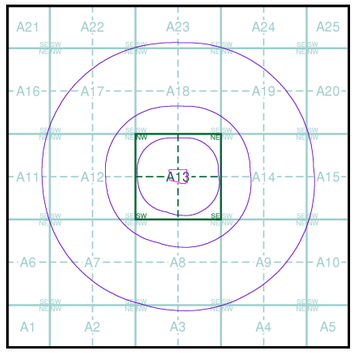


Historical Map - Slice A



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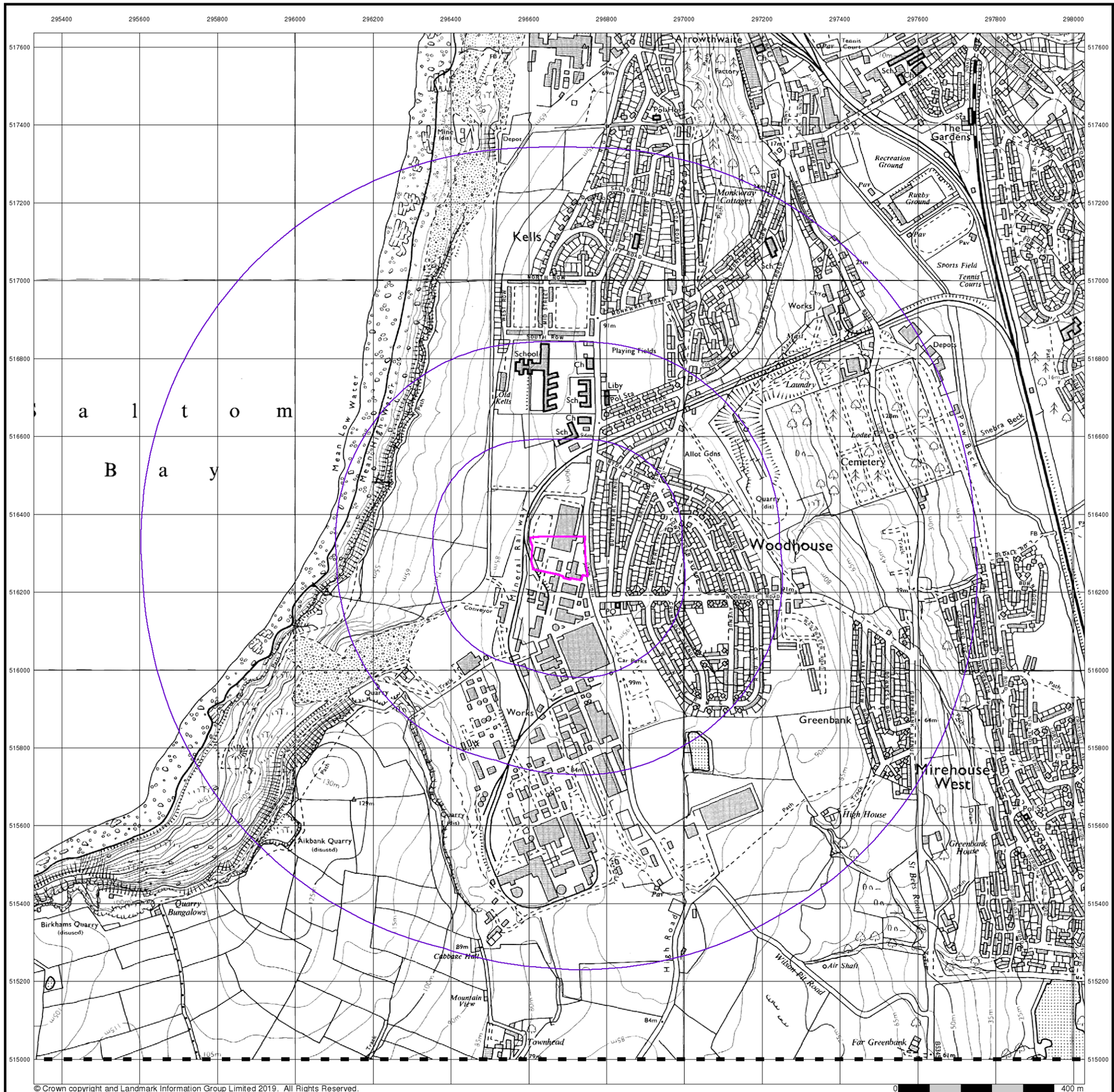

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Ordnance Survey Plan

Published 1979

Source map scale - 1:10,000

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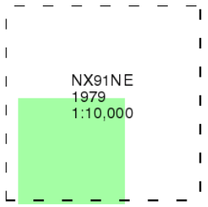
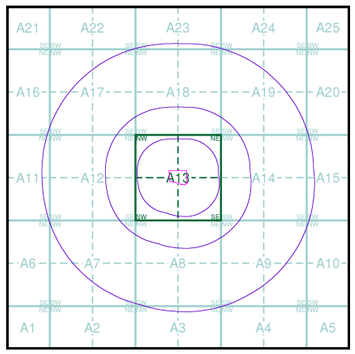


Historical Map - Slice A



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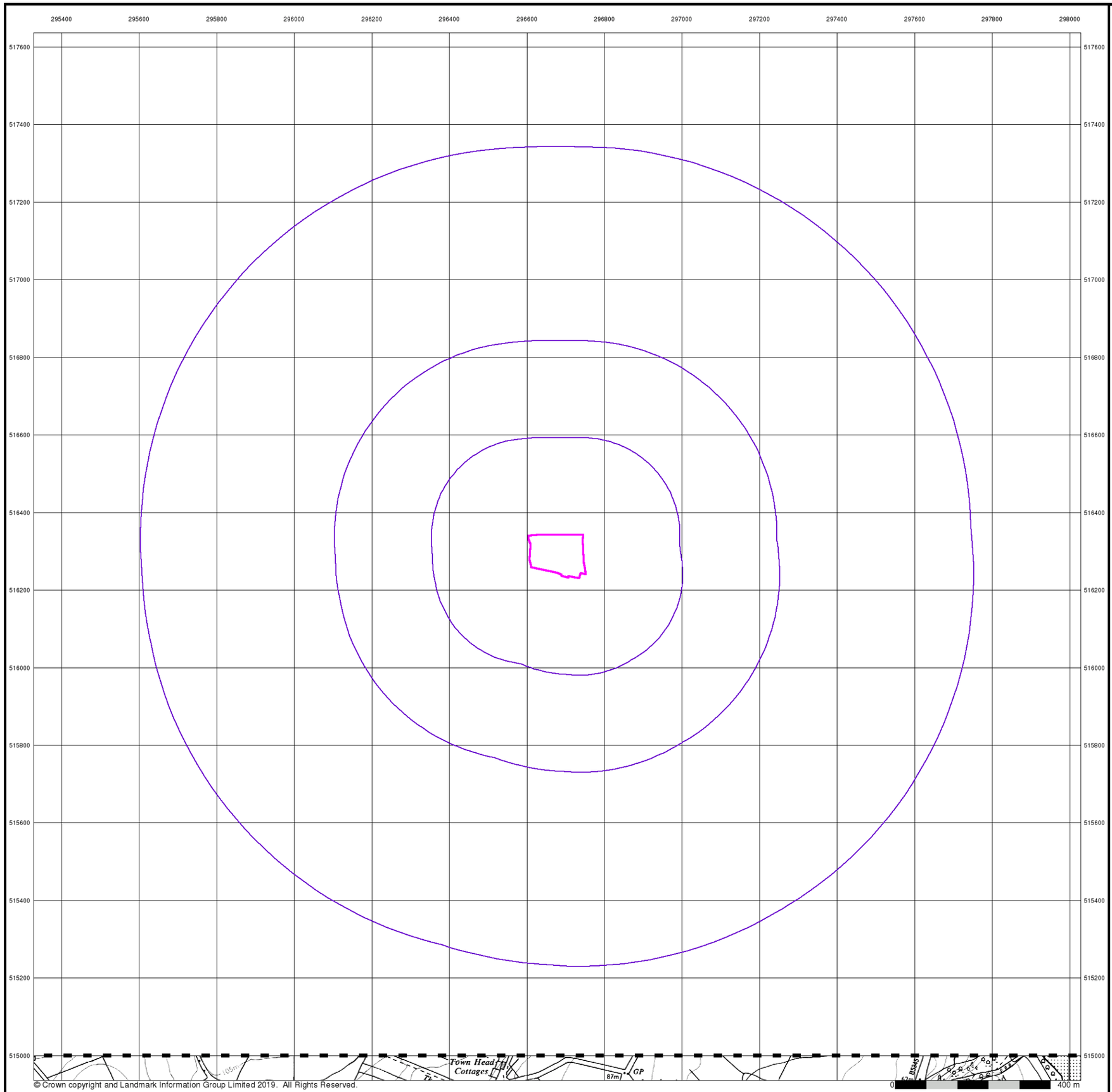

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Ordnance Survey Plan

Published 1988

Source map scale - 1:10,000

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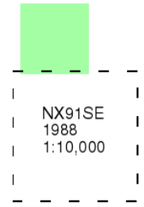
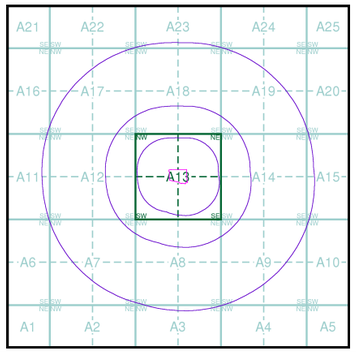


Historical Map - Slice A



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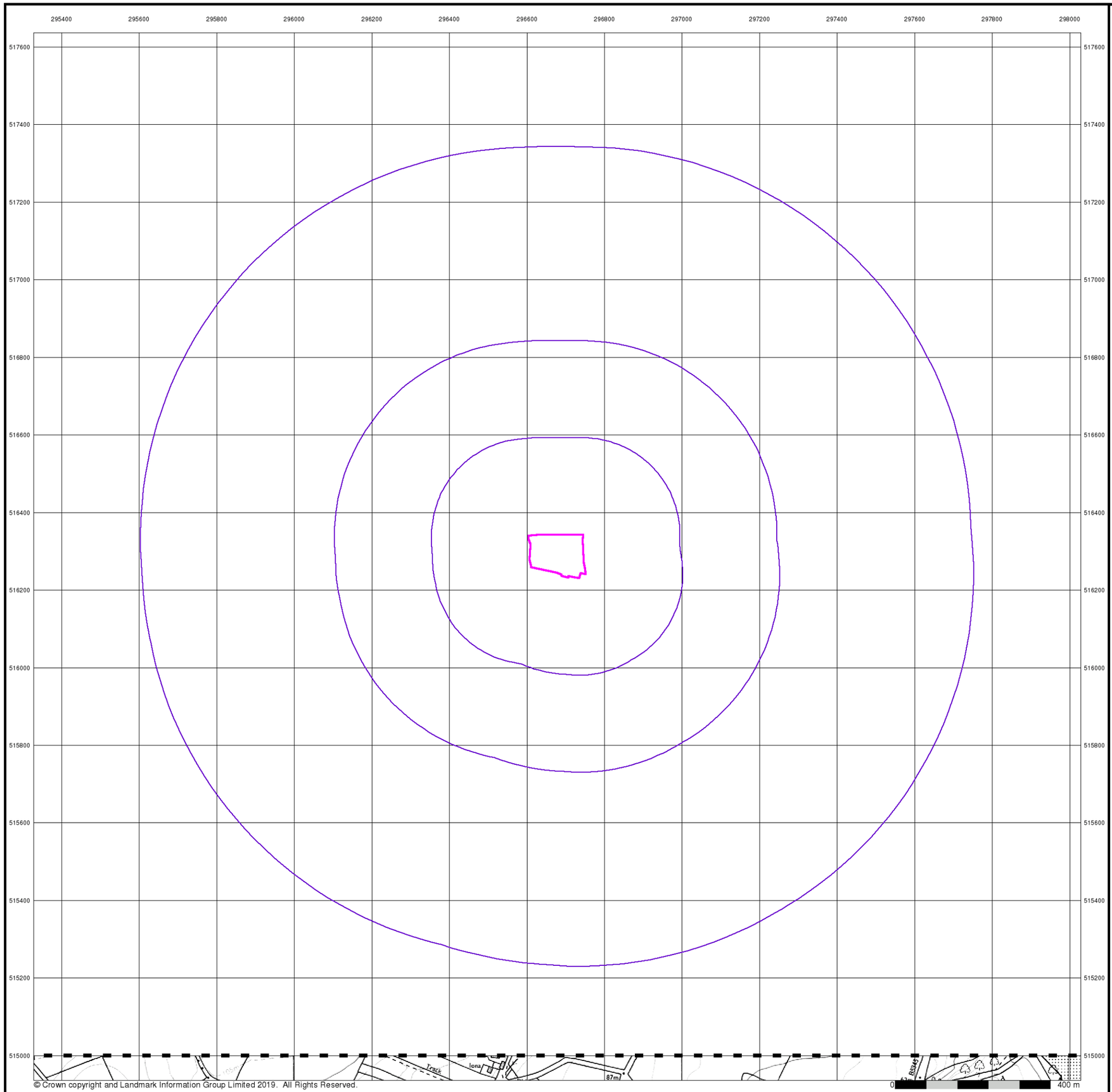

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Ordnance Survey Plan

Published 1993

Source map scale - 1:10,000

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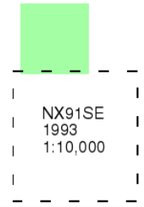
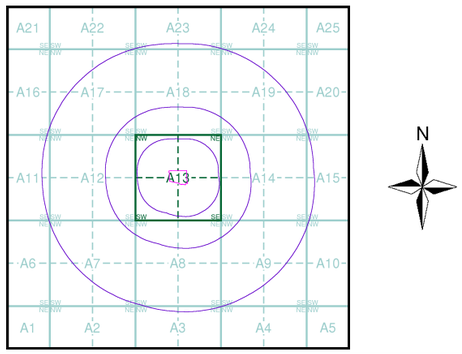


Historical Map - Slice A



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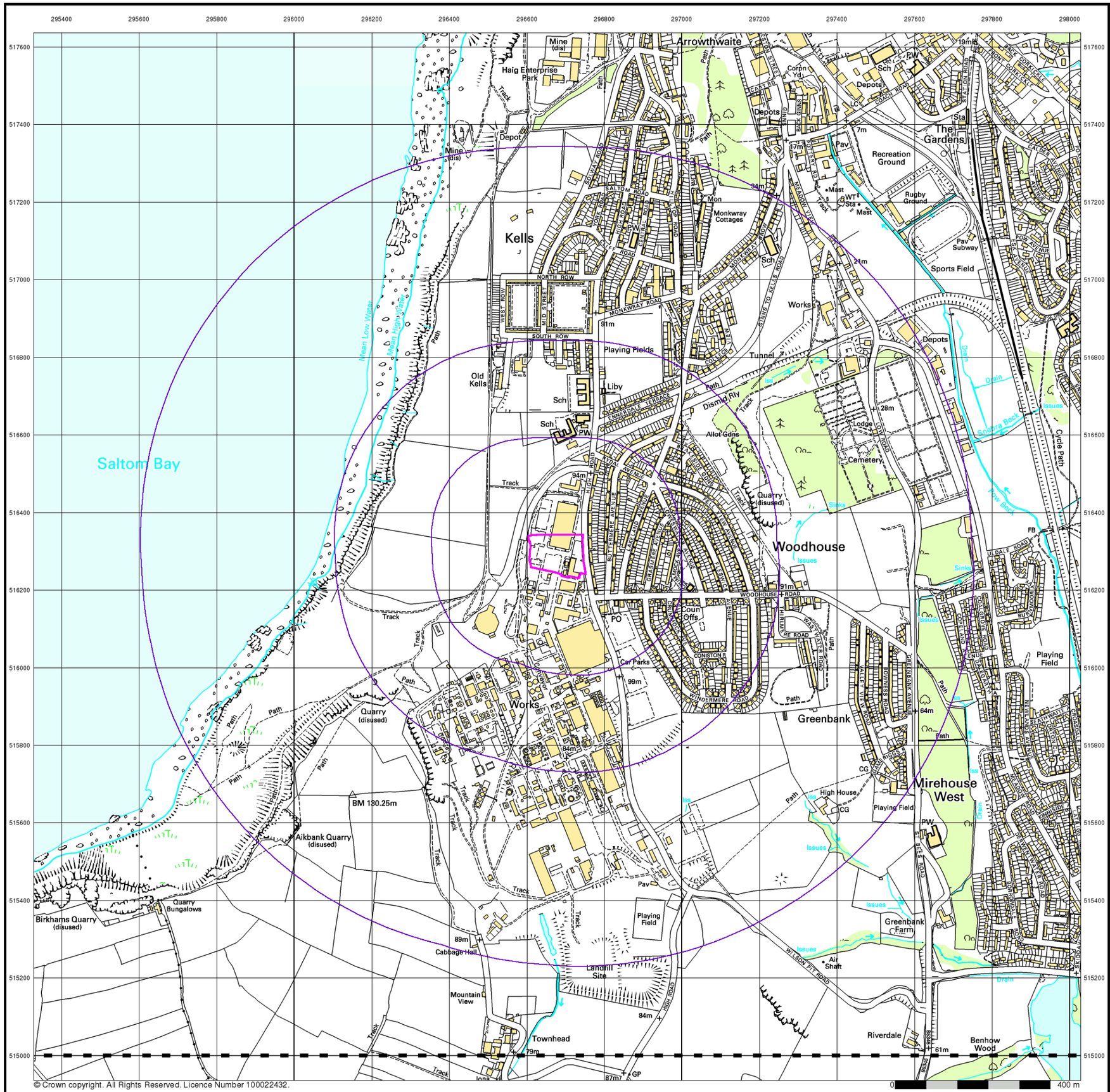

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10k Raster Mapping

Published 2000

Source map scale - 1:10,000

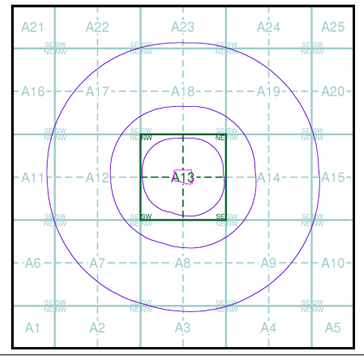
The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

NX91NE
2000
1:10,000

NX91SE
2000
1:10,000

Historical Map - Slice A



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Order Details

Order Number:	197332733_1_1
Customer Ref:	8190
National Grid Reference:	296680, 516290
Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	1000

Site Details

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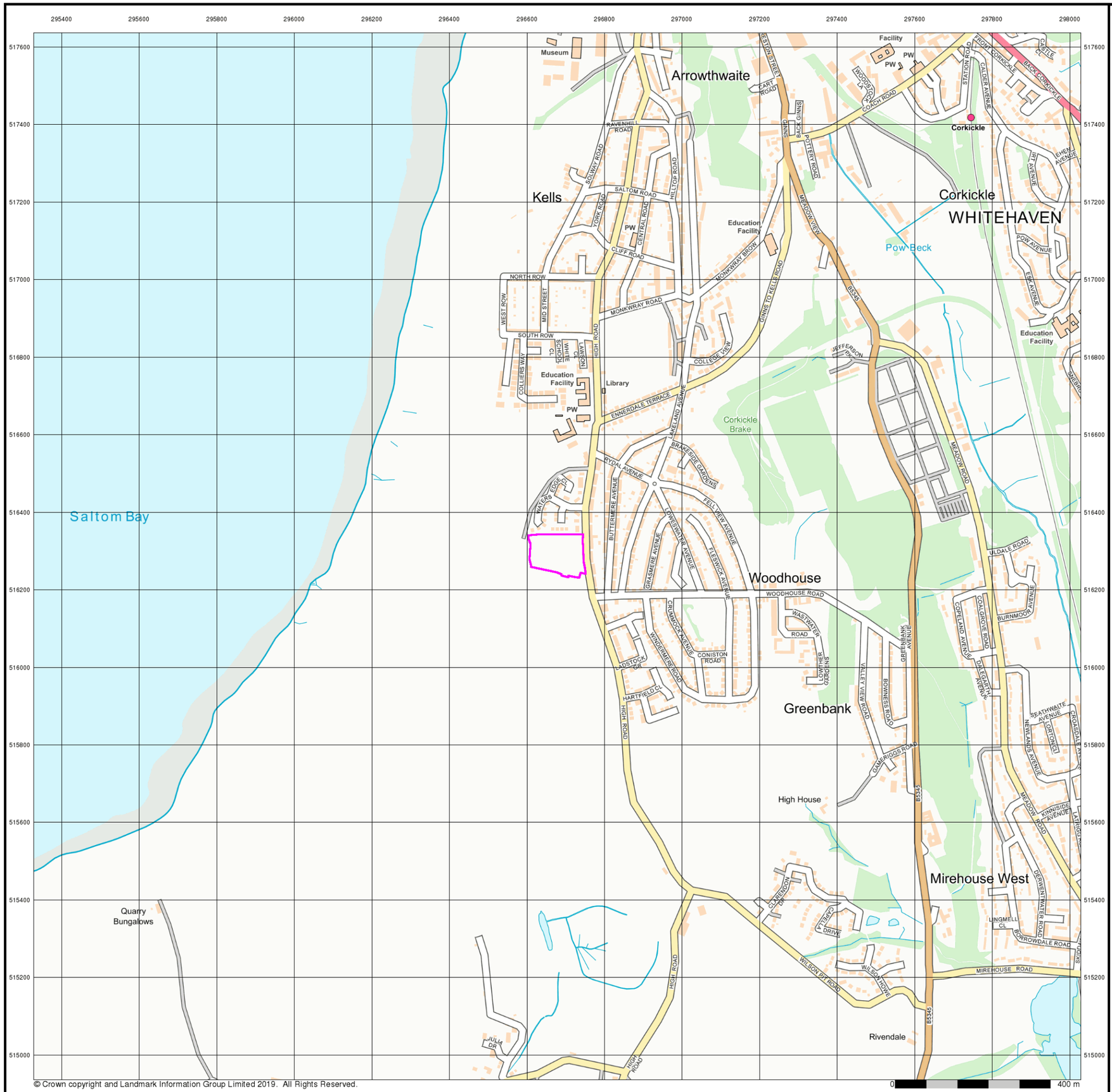

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Street View

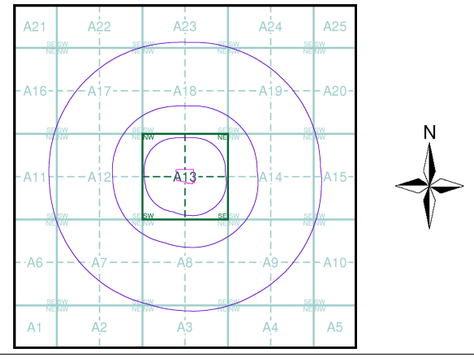
Published 2019

Source map scale - 1:10,000

Street View is a street-level map for the whole of Great Britain produced by the Ordnance Survey. These maps are provided at a nominal scale of 1:10,000

Map Name(s) and Date(s)

Street View Map - Slice A



Order Details

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Slice:	A
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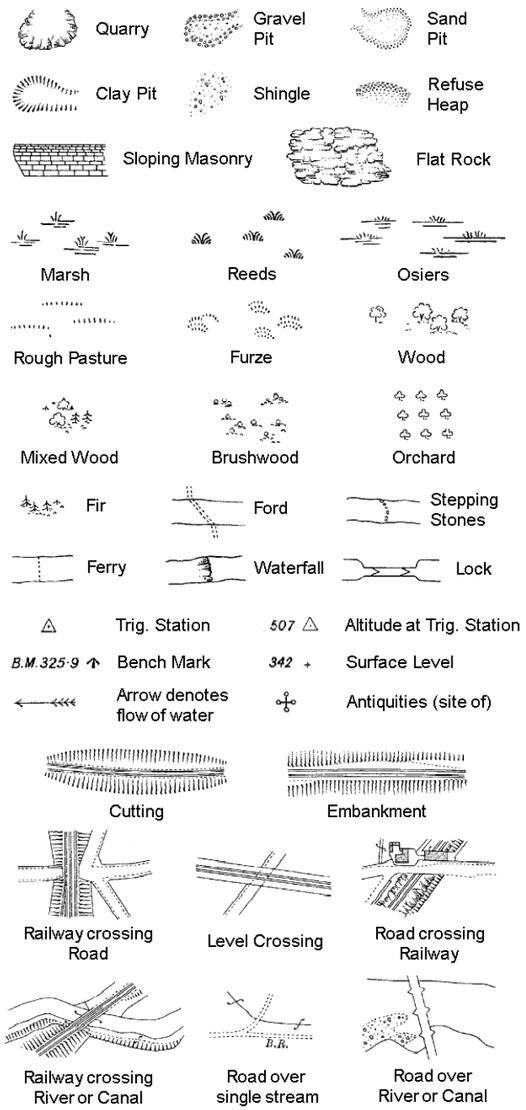
Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)

County & Civil Parish Boundary

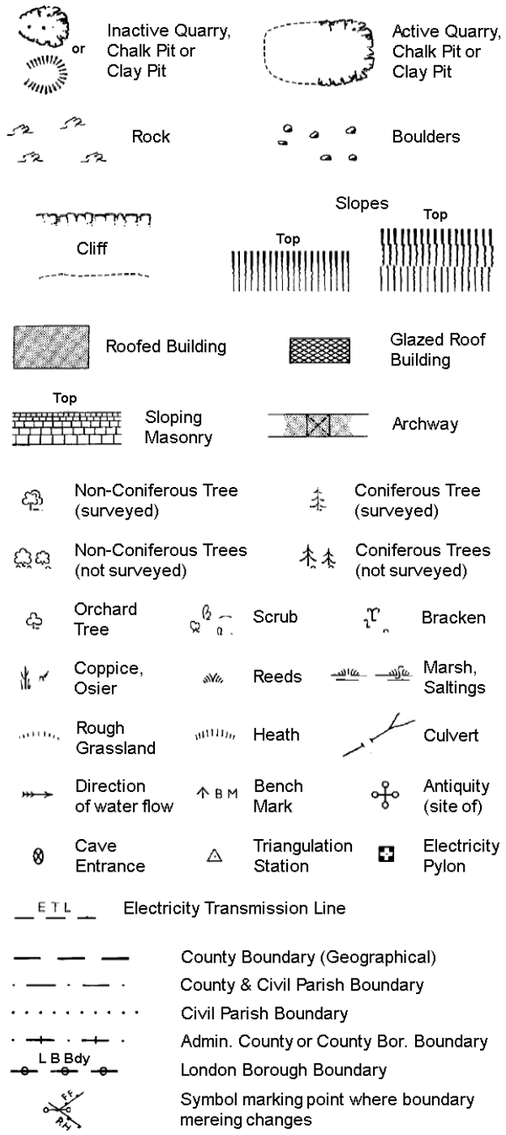
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

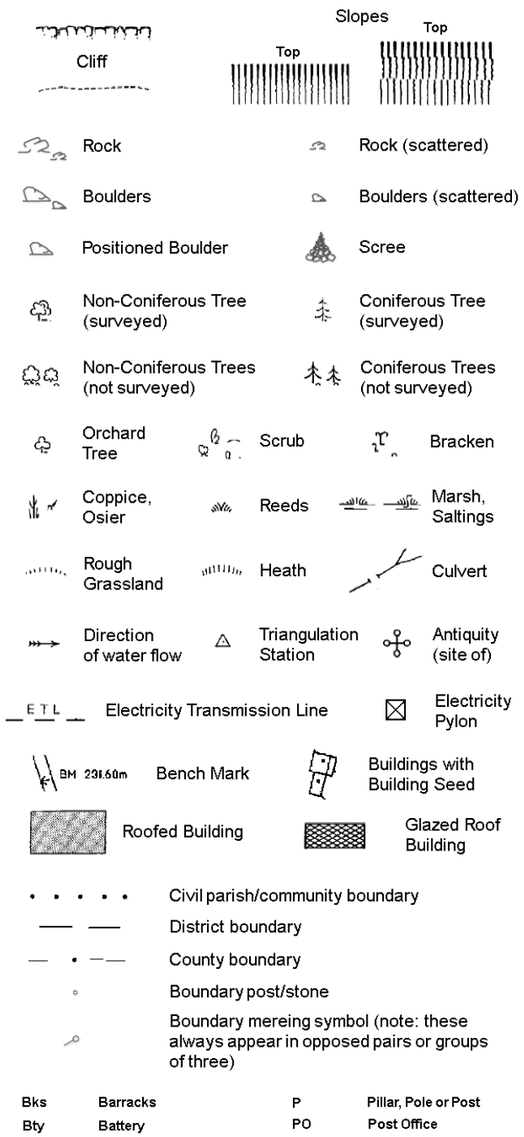
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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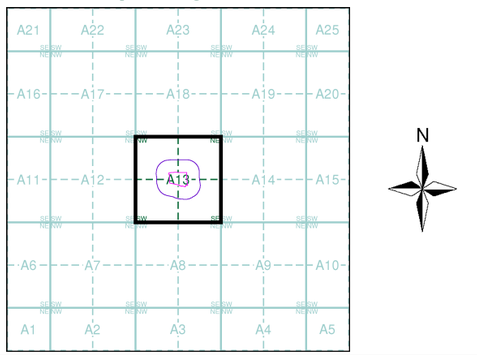
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Cumberland	1:2,500	1865 - 1879	2
Cumberland	1:2,500	1899	3
Cumberland	1:2,500	1925	4
Cumberland	1:2,500	1938	5
Ordnance Survey Plan	1:1,250	1961 - 1962	6
Ordnance Survey Plan	1:2,500	1962 - 1963	7
Ordnance Survey Plan	1:1,250	1968 - 1976	8
Additional SIMs	1:1,250	1983 - 1993	9
Additional SIMs	1:1,250	1993	10
Large-Scale National Grid Data	1:1,250	1994	11
Large-Scale National Grid Data	1:1,250	1994 - 1995	12

Historical Map - Segment A13



Order Details

Order Number:	197332733_1_1
Customer Ref:	8190
National Grid Reference:	296680, 516290
Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	100

Site Details

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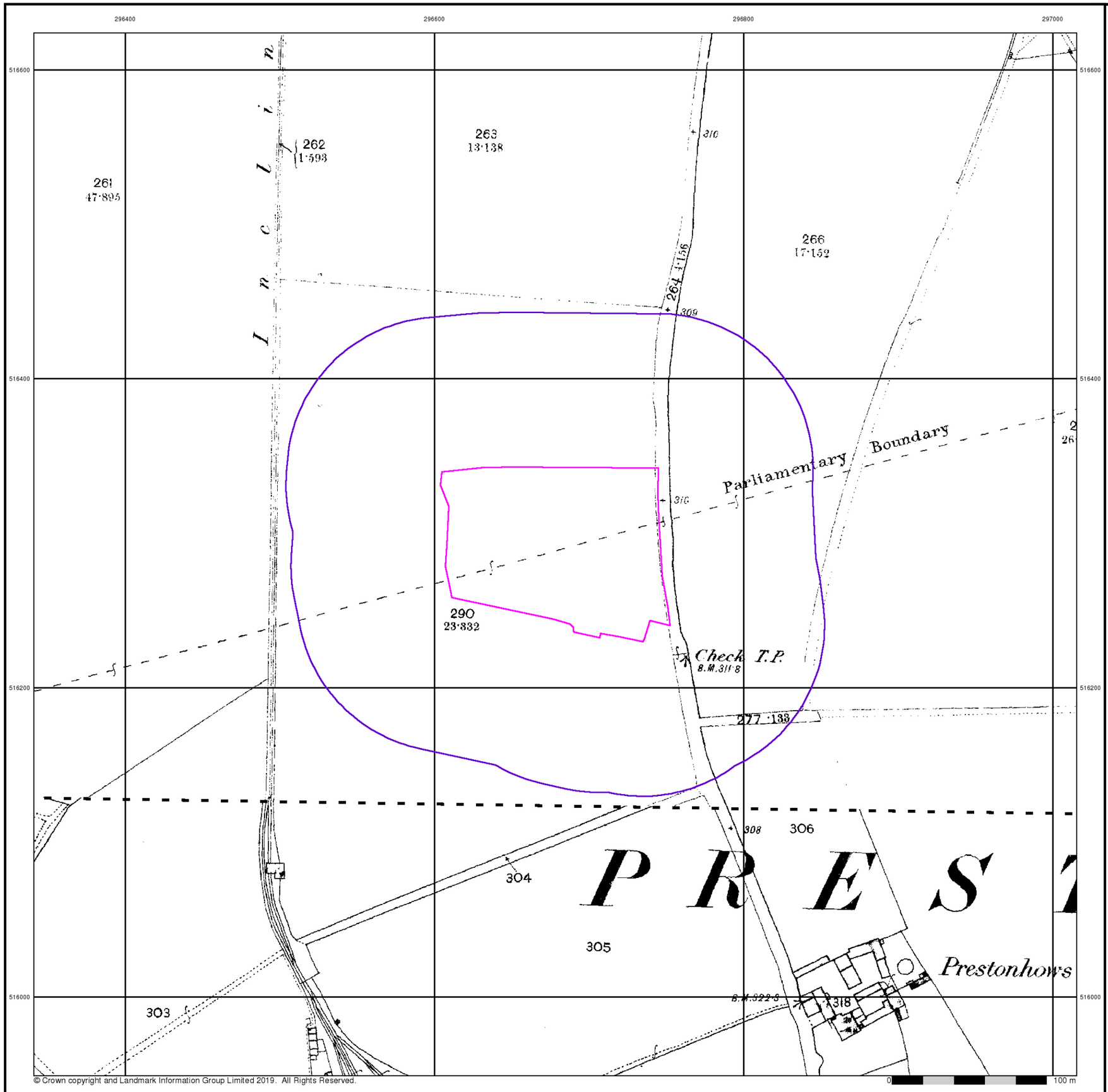

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Cumberland

Published 1865 - 1879

Source map scale - 1:2,500

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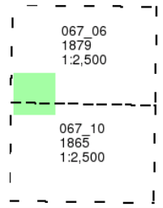
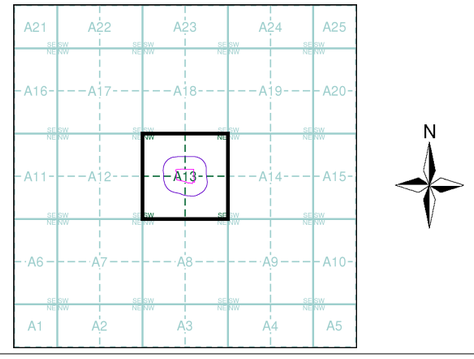
Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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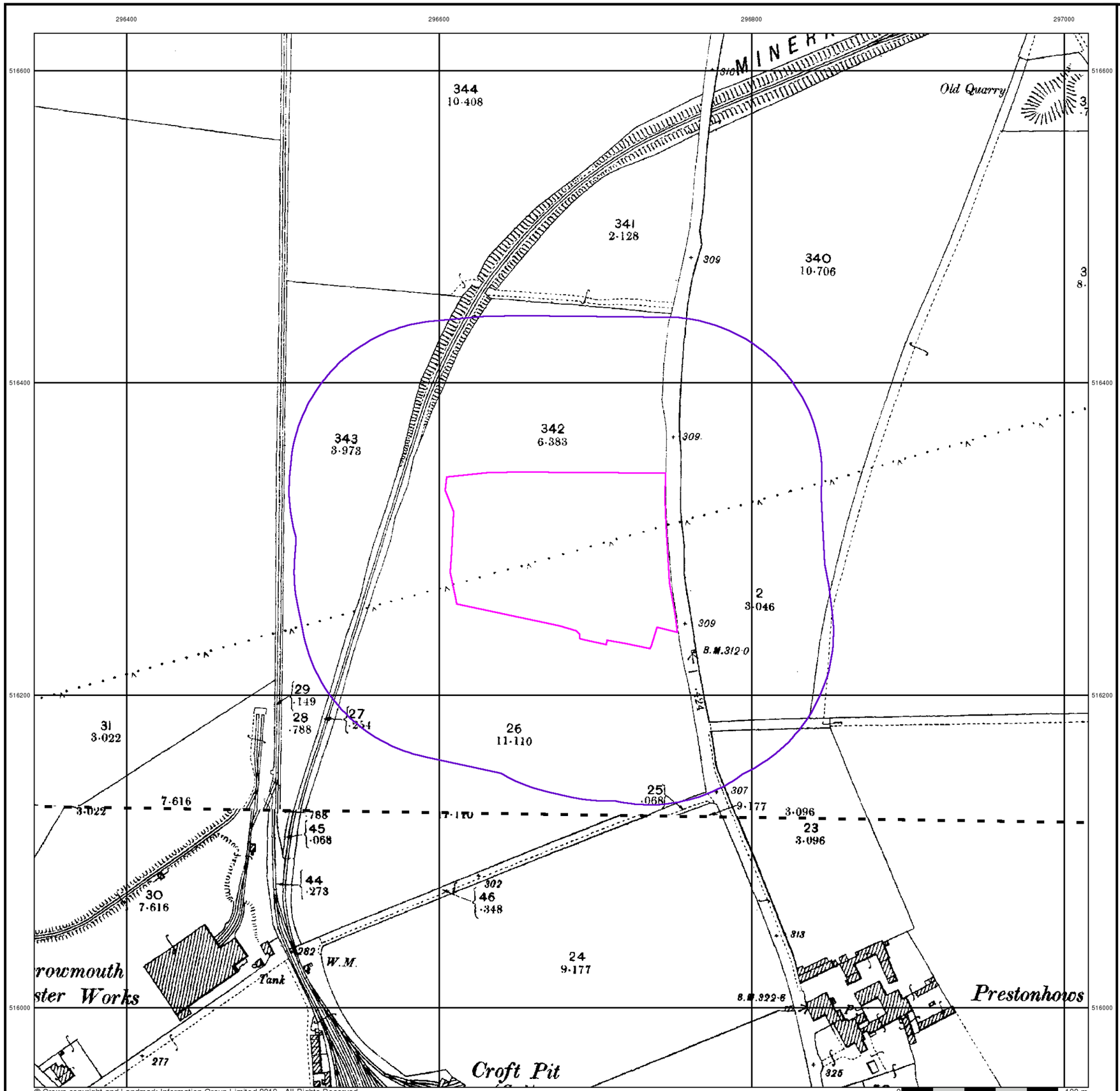

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Cumberland

Published 1899

Source map scale - 1:2,500

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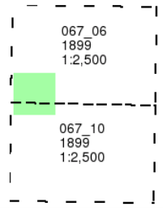
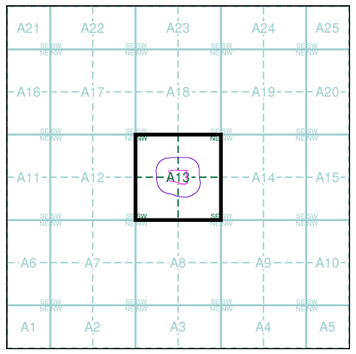
Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	197332733_1_1
Customer Ref:	8190
National Grid Reference:	296680, 516290
Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	100

Site Details

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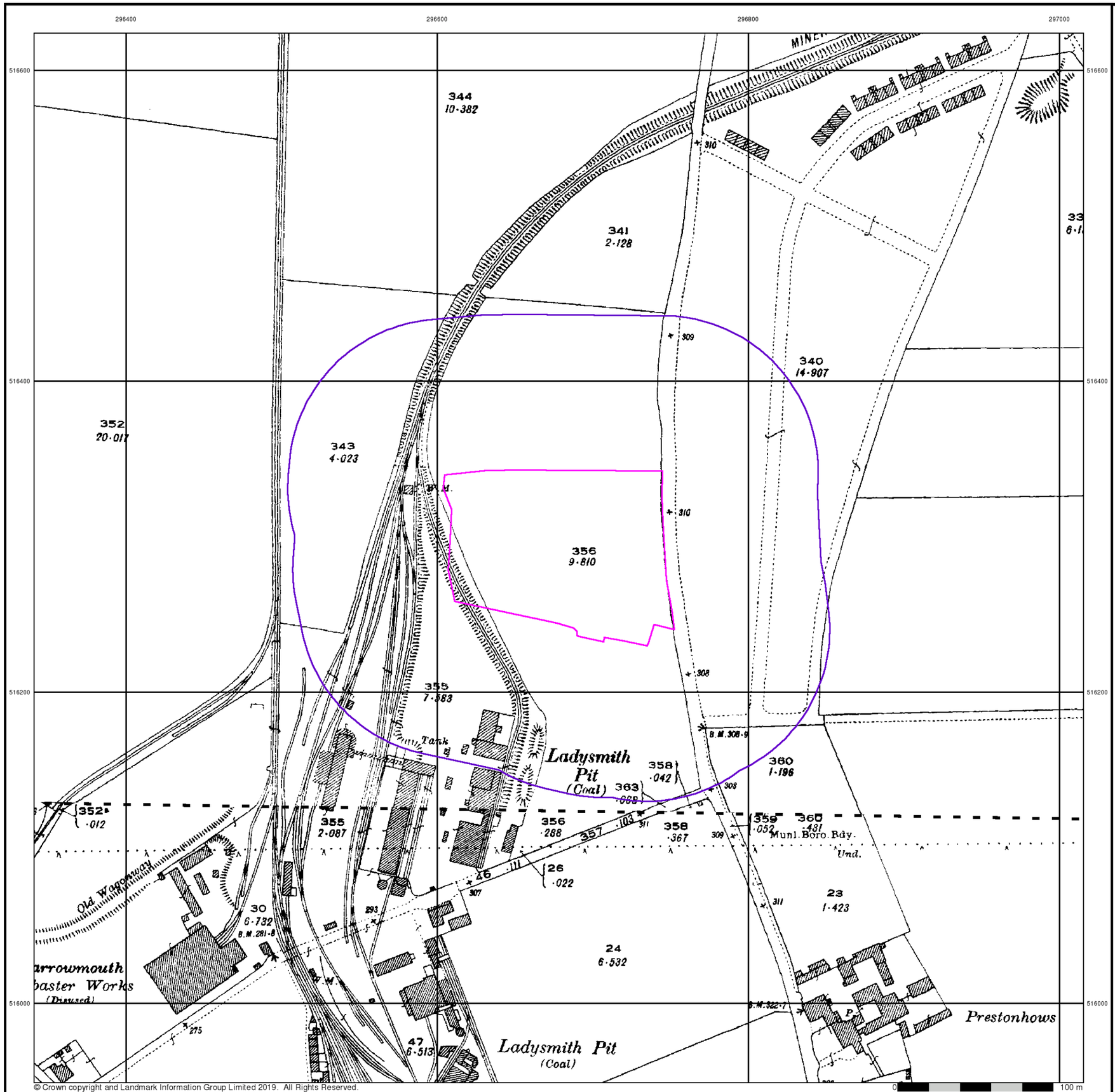

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Cumberland

Published 1925

Source map scale - 1:2,500

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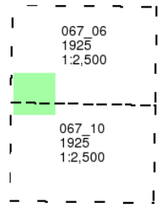
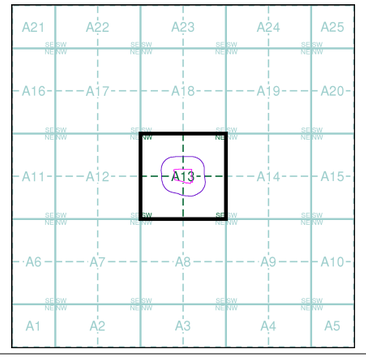
Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	197332733_1_1
Customer Ref:	8190
National Grid Reference:	296680, 516290
Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	100

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296400 296600 296800 297000

516600 516400 516200 516000

School
St. Mary's R.C. Church
SEACLIFF
RYDAL AVENUE
BUTTERMERE AVENUE
LAKELAND AVENUE
Clinic
LOWESWATER AVENUE
GRASMERE AVENUE
CRUMMOCK AVENUE
WINDERMERE RD.
Club
Ladysmith Pit (Coal)
Chy
Barrownouth Alabaster Works (Dis.)
Ladysmith Pit (Coal)
P
Prestonhows

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0 100 m

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Cumberland

Published 1938

Source map scale - 1:2,500

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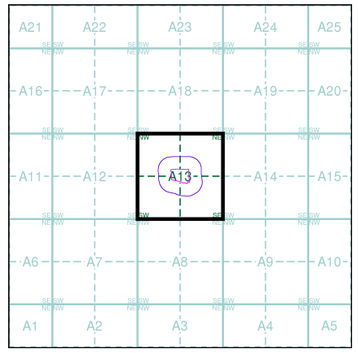
Map Name(s) and Date(s)

067_06
1938
1:2,500

067_10
1938
1:2,500

Historical Map - Segment A13



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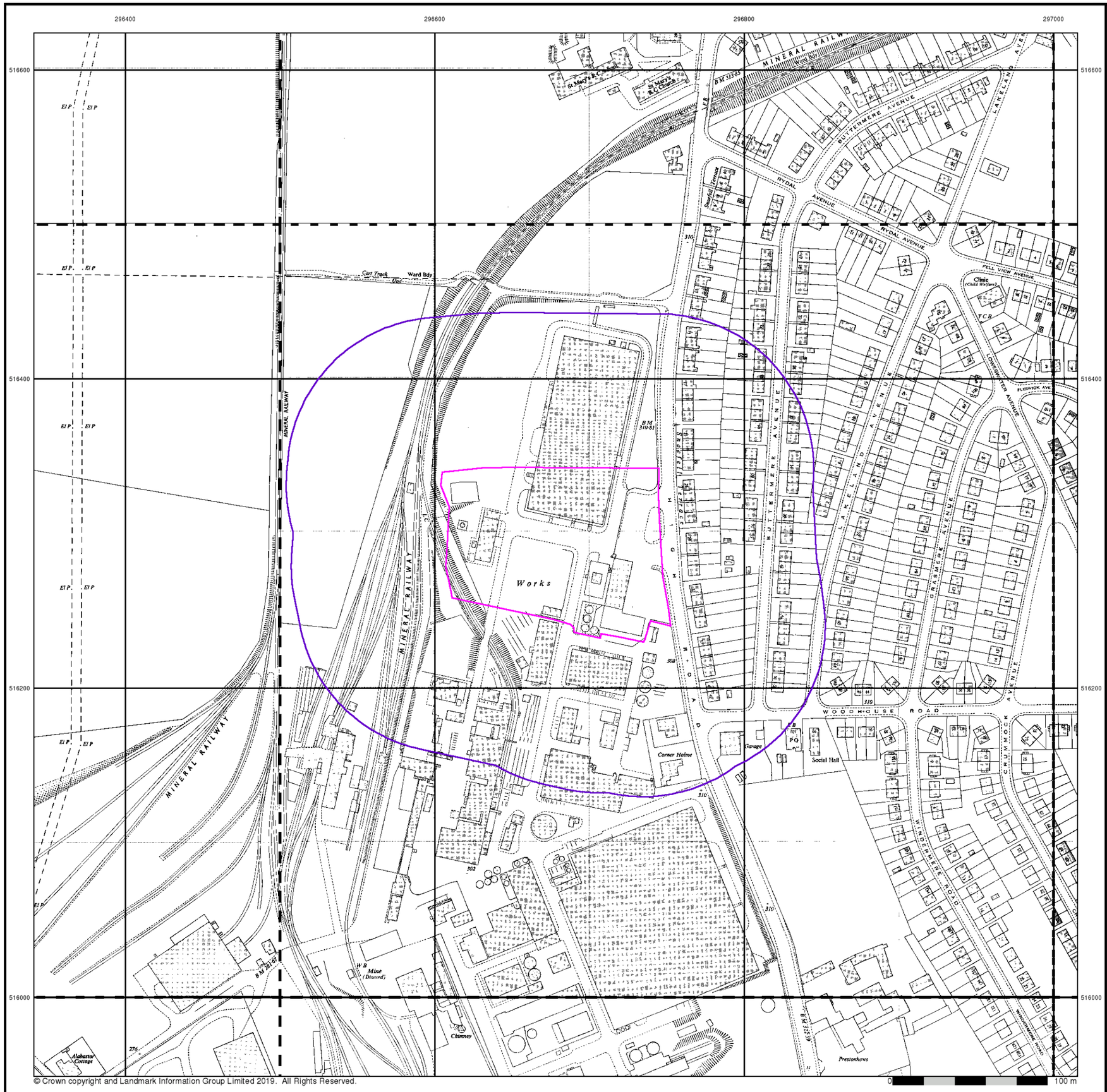

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Ordnance Survey Plan

Published 1961 - 1962

Source map scale - 1:1,250

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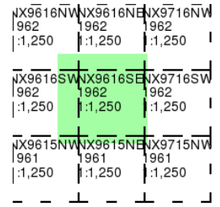
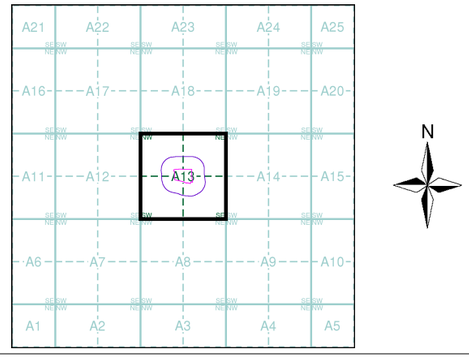


Historical Map - Segment A13



Order Details

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National Grid Reference:	296680, 516290
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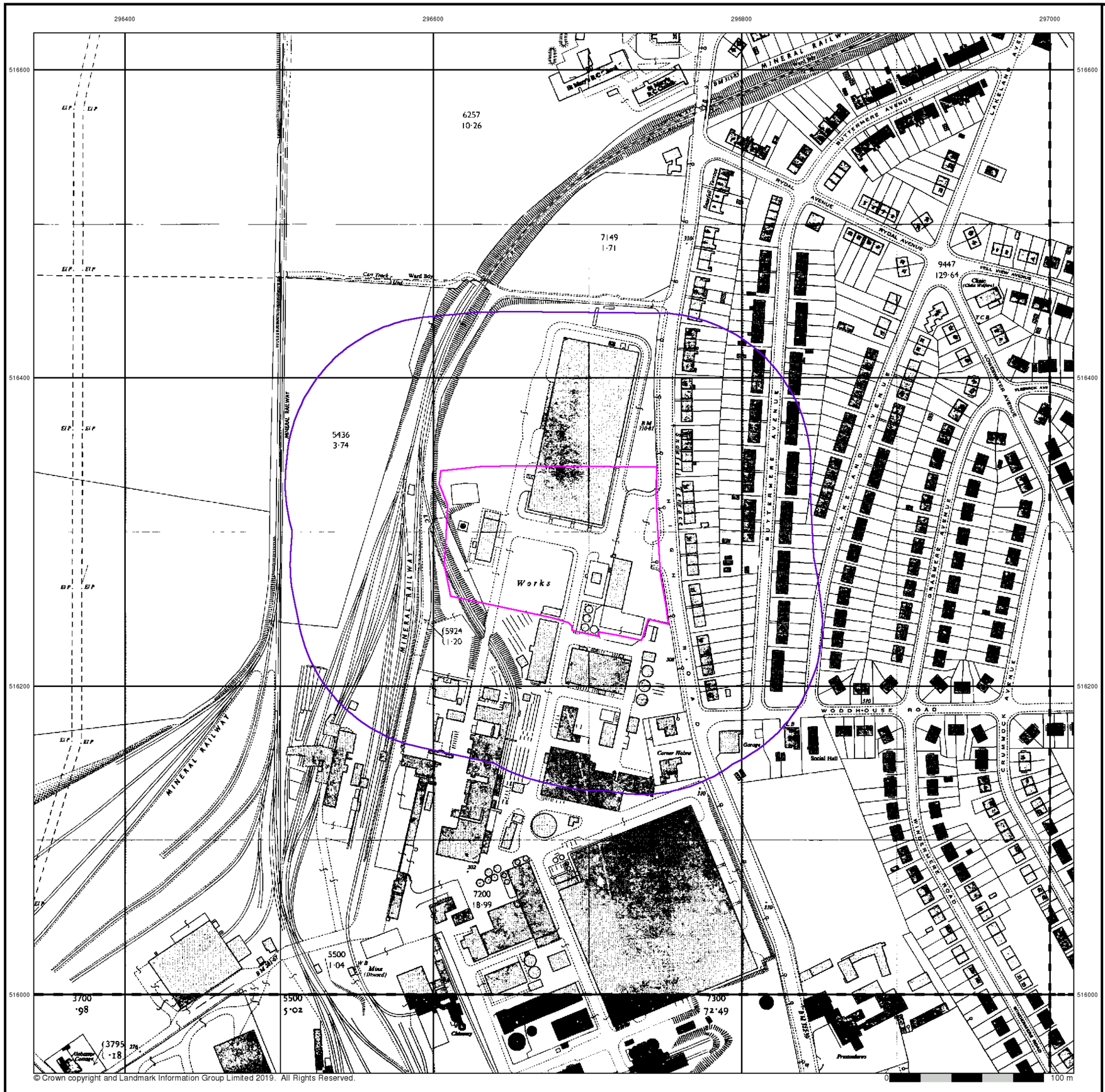

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Ordnance Survey Plan

Published 1962 - 1963

Source map scale - 1:2,500

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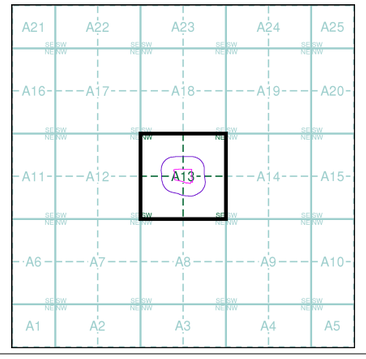
Map Name(s) and Date(s)

NX9616 1963 1:2,500	NX9716 1963 1:2,500
NX9615 1962 1:2,500	NX9715 1962 1:2,500

Historical Map - Segment A13



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Search Buffer (m):	100

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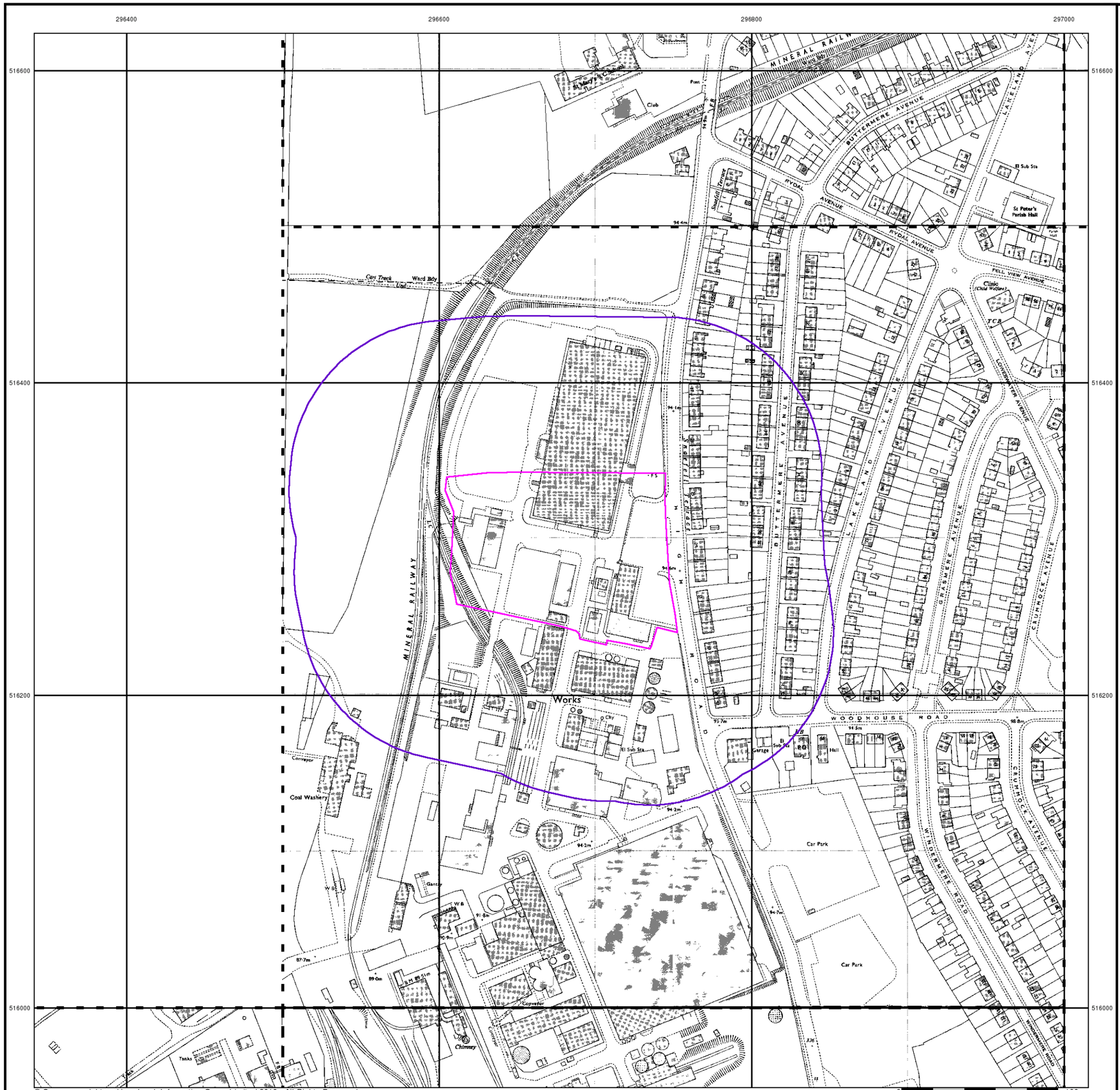

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Ordnance Survey Plan

Published 1968 - 1976

Source map scale - 1:1,250

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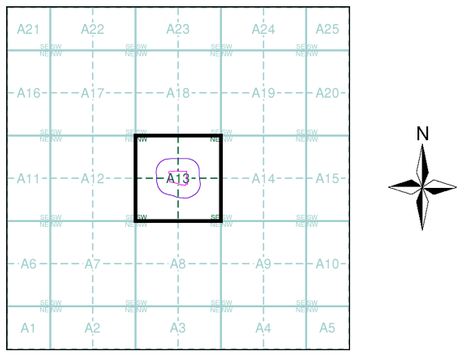
Map Name(s) and Date(s)

Historical Map - Segment A13



Order Details

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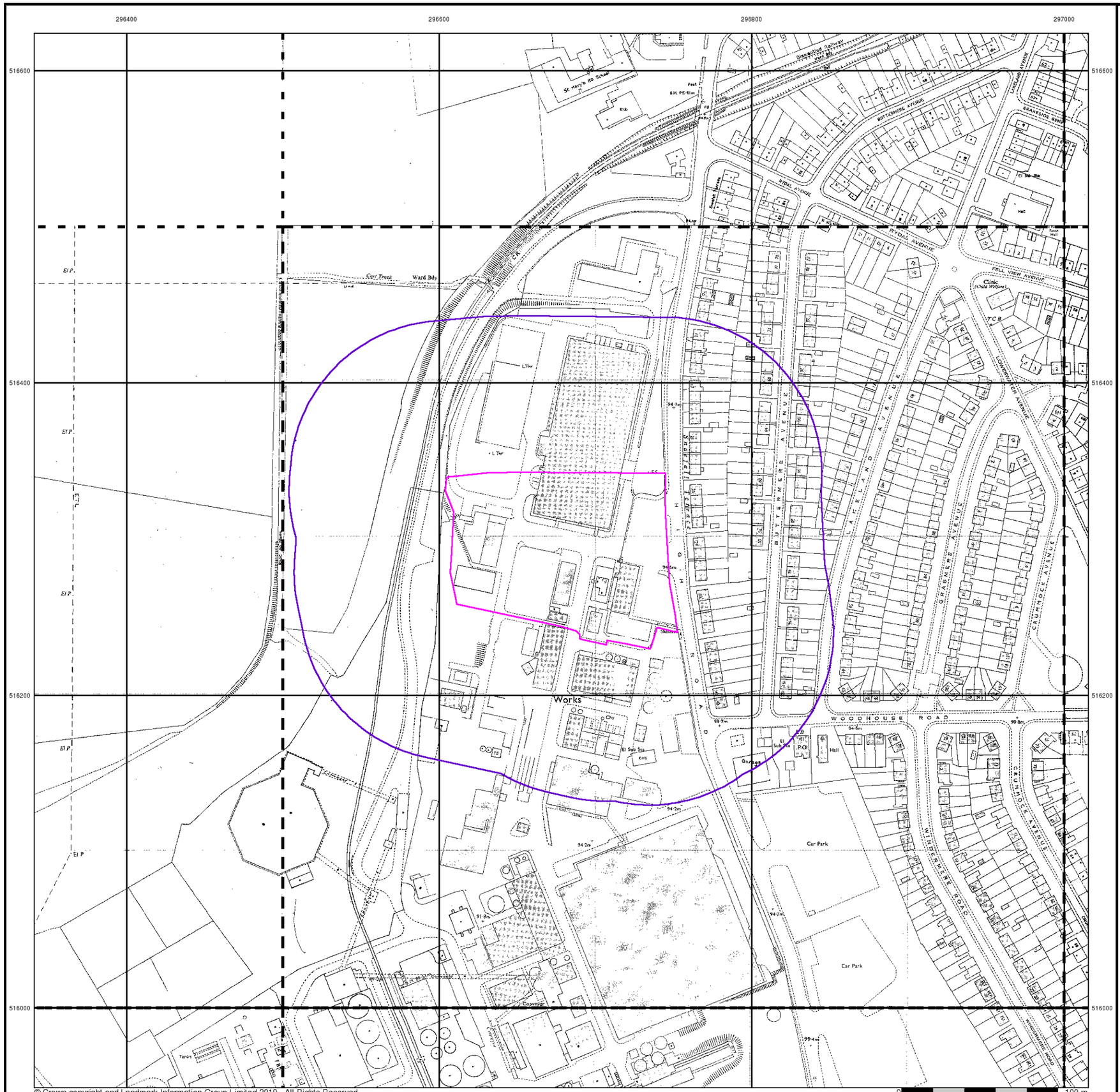

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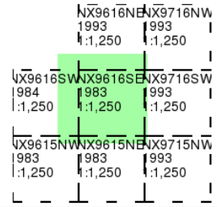
Additional SIMs

Published 1983 - 1993

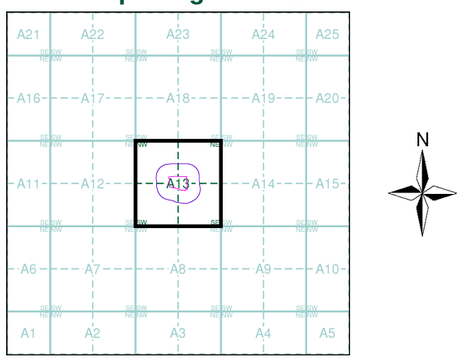
Source map scale - 1:1,250

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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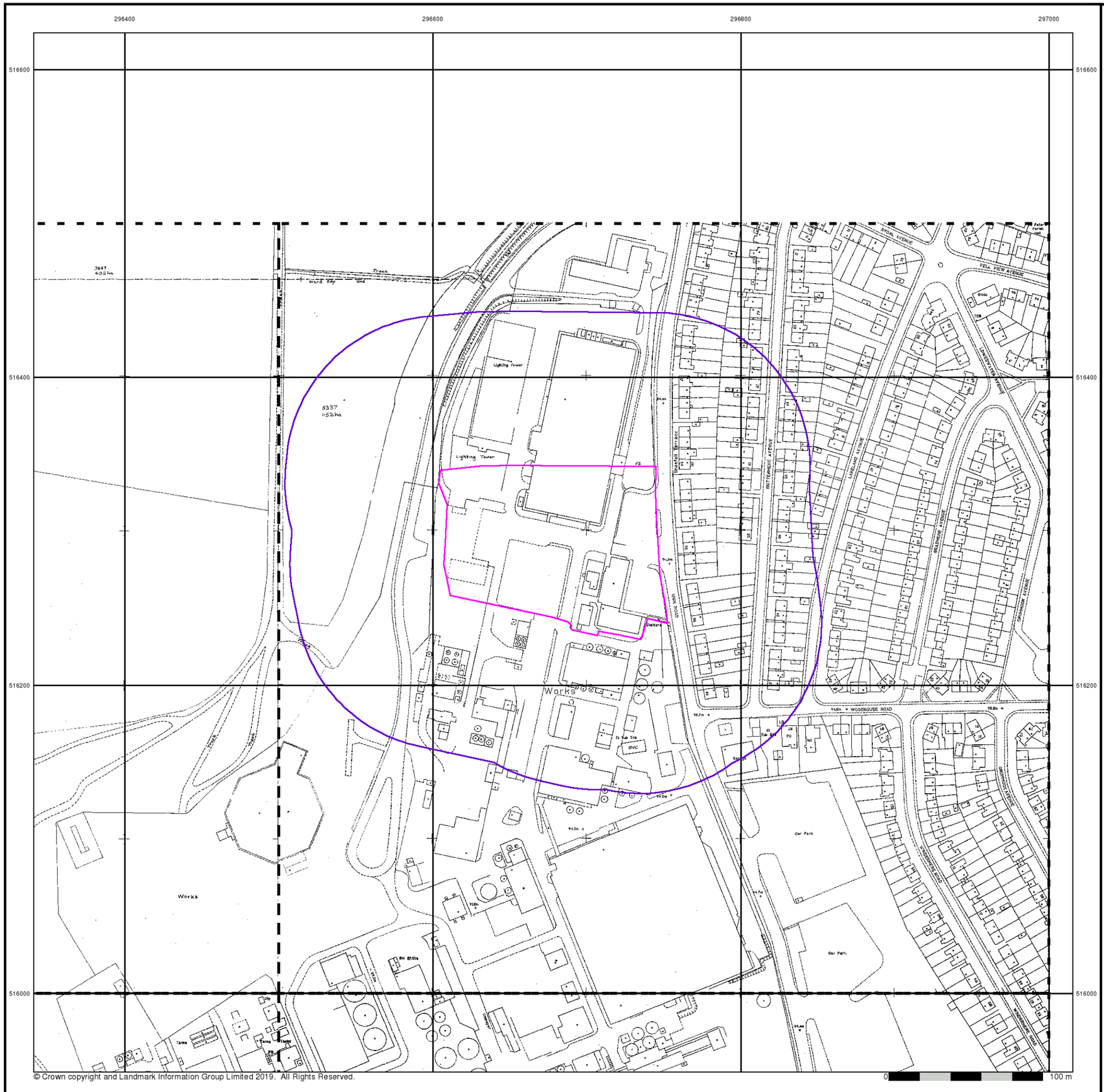
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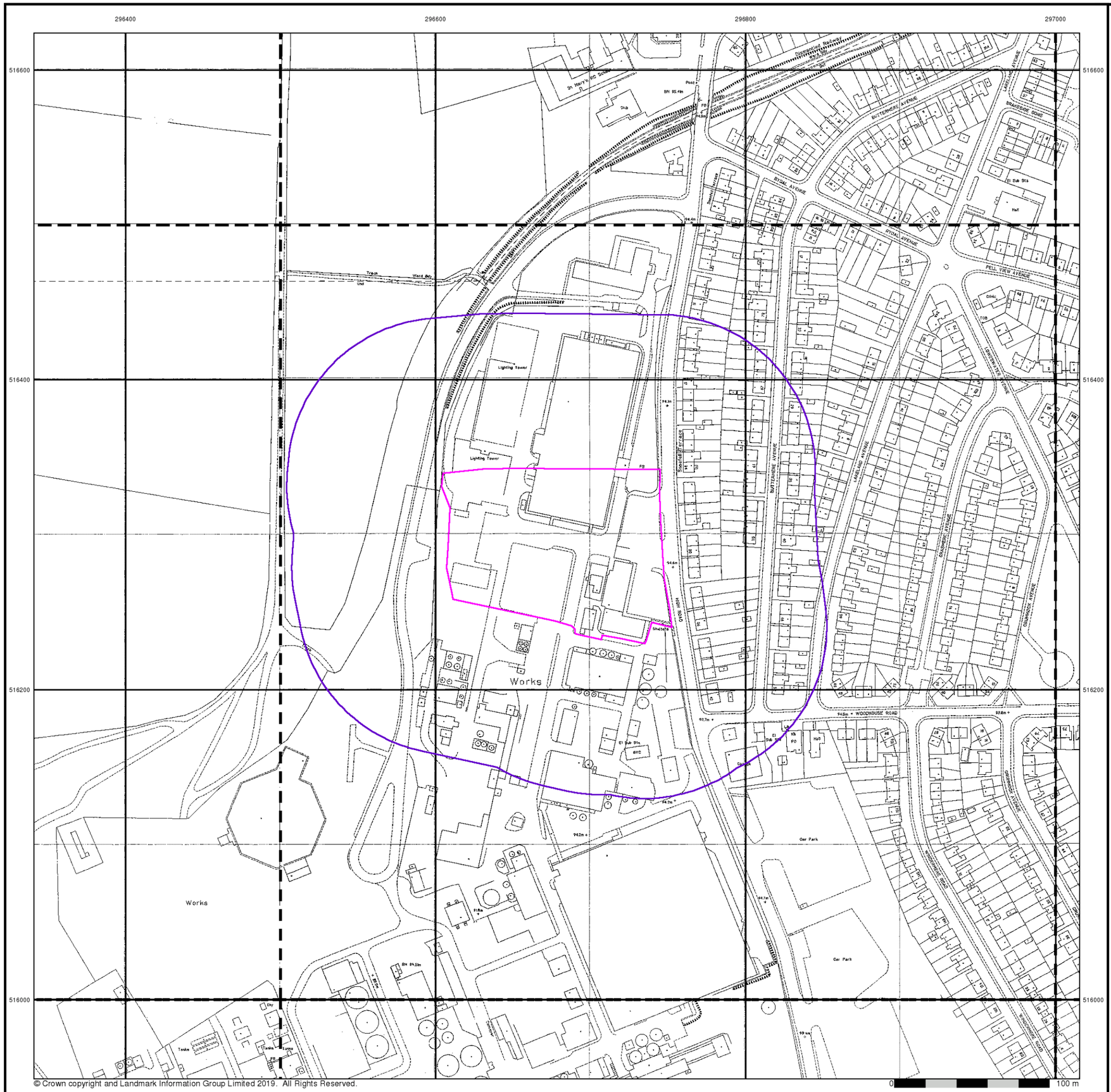
296600
296800
297000
516600
516400
516200
516000
Lighting Tower
Lighting Tower
Works
Works
Car Park
Car Park
WOODHOUSE ROAD
ROYAL AVENUE
FELL VIEW AVENUE
LONSDALE AVENUE
BUTTERMERE AVENUE
LANGDALE AVENUE
OAKSMERE AVENUE
WINDERMERE ROAD
Tanks
Tanks
Tanks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Lighting Tower
Lighting Tower
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BUTTERMERE AVENUE
RYDAL AVENUE
FELL VIEW AVENUE
GRASMERE DRIVE
LANGDALE AVENUE
DERWENTWATER AVENUE
WINDERMERE ROAD
GRANROCK AVENUE
St. Mary's RC Church
Club
Tanks
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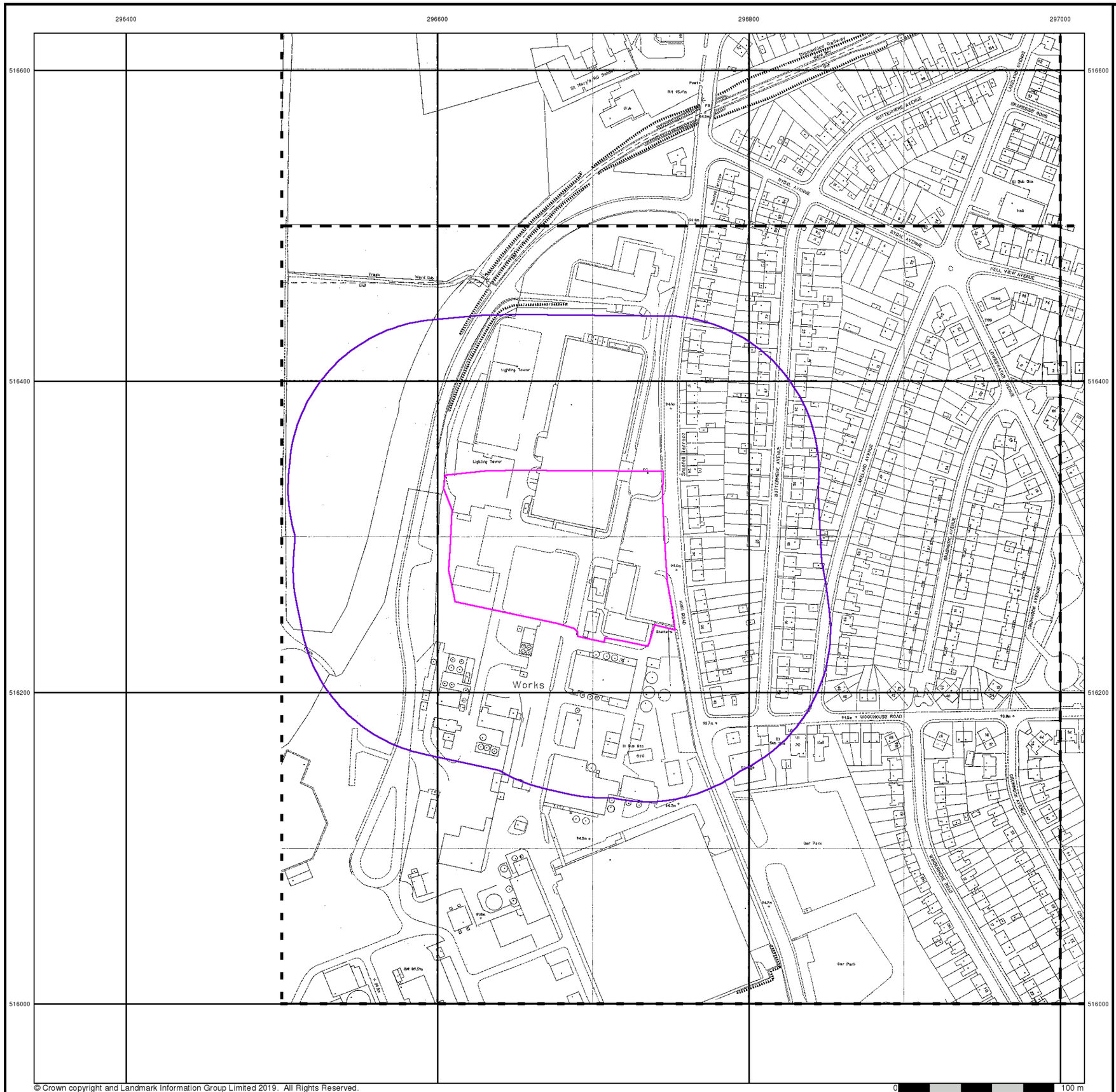
Shelters
Track
Ward Bdy
Disused Railway
Gardens
Garden
Allot Gdns
Sub Sta
Sub Sta
Sub Sta



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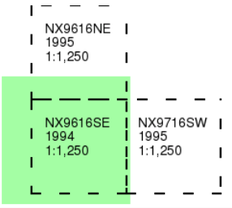
Large-Scale National Grid Data

Published 1994 - 1995

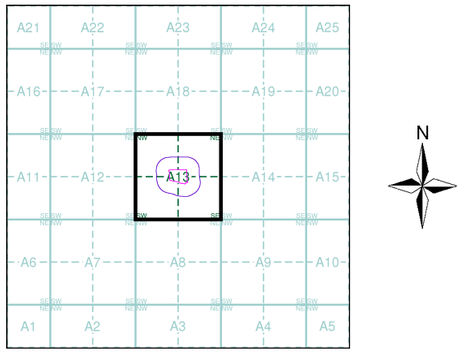
Source map scale - 1:1,250

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

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	197332733_1_1
Customer Ref:	8190
National Grid Reference:	296680, 516290
Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	100

Site Details

1, Taylors Way, WHITEHAVEN, CA28 9PD

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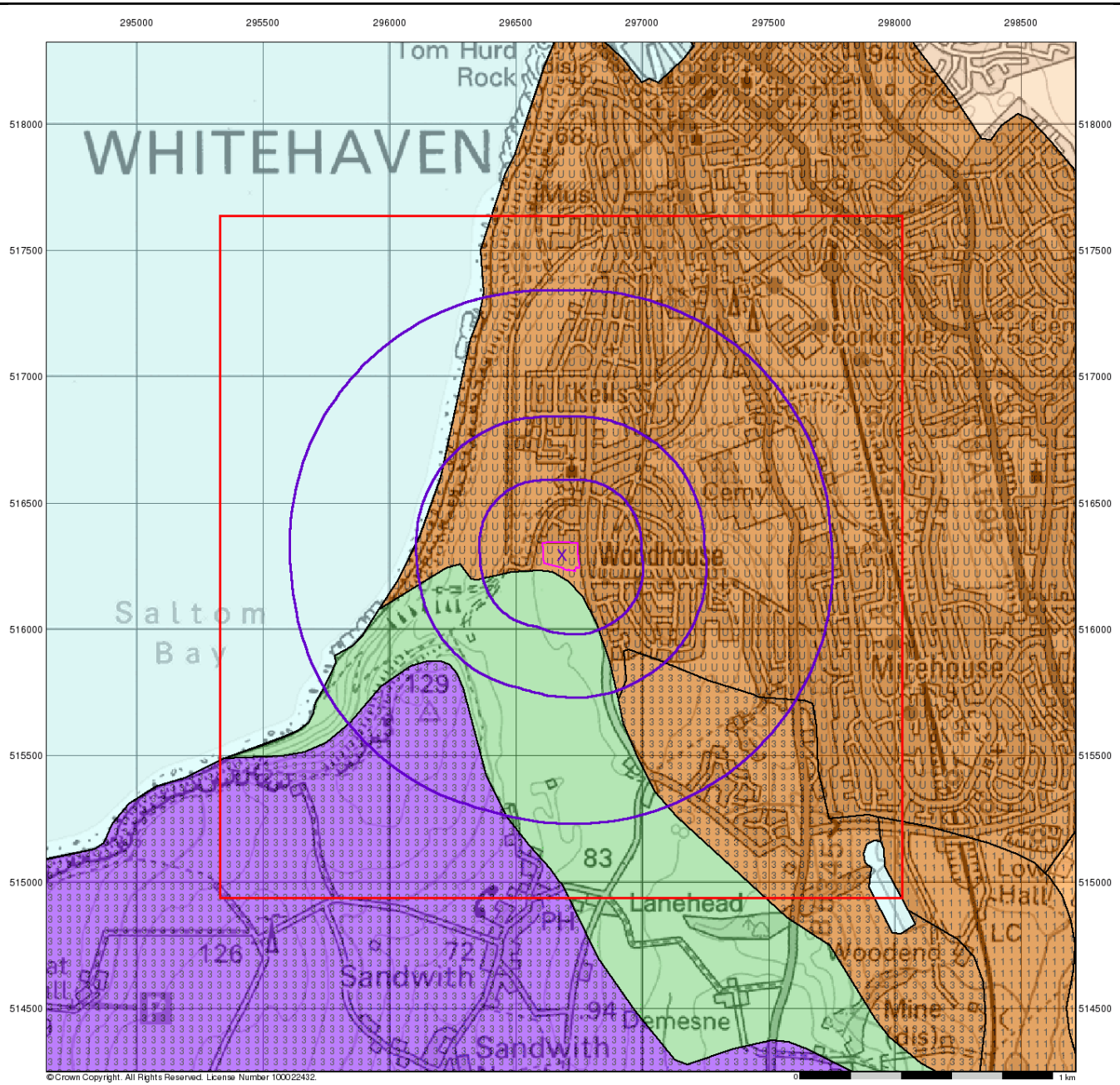
APPENDIX 3

LANDMARK ENVIROCHECK REPORT



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Groundwater Vulnerability

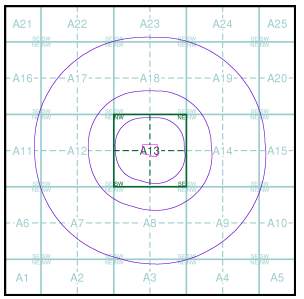
General

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

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice A



Order Details

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National Grid Reference:	296680, 516290
Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	1000

Site Details

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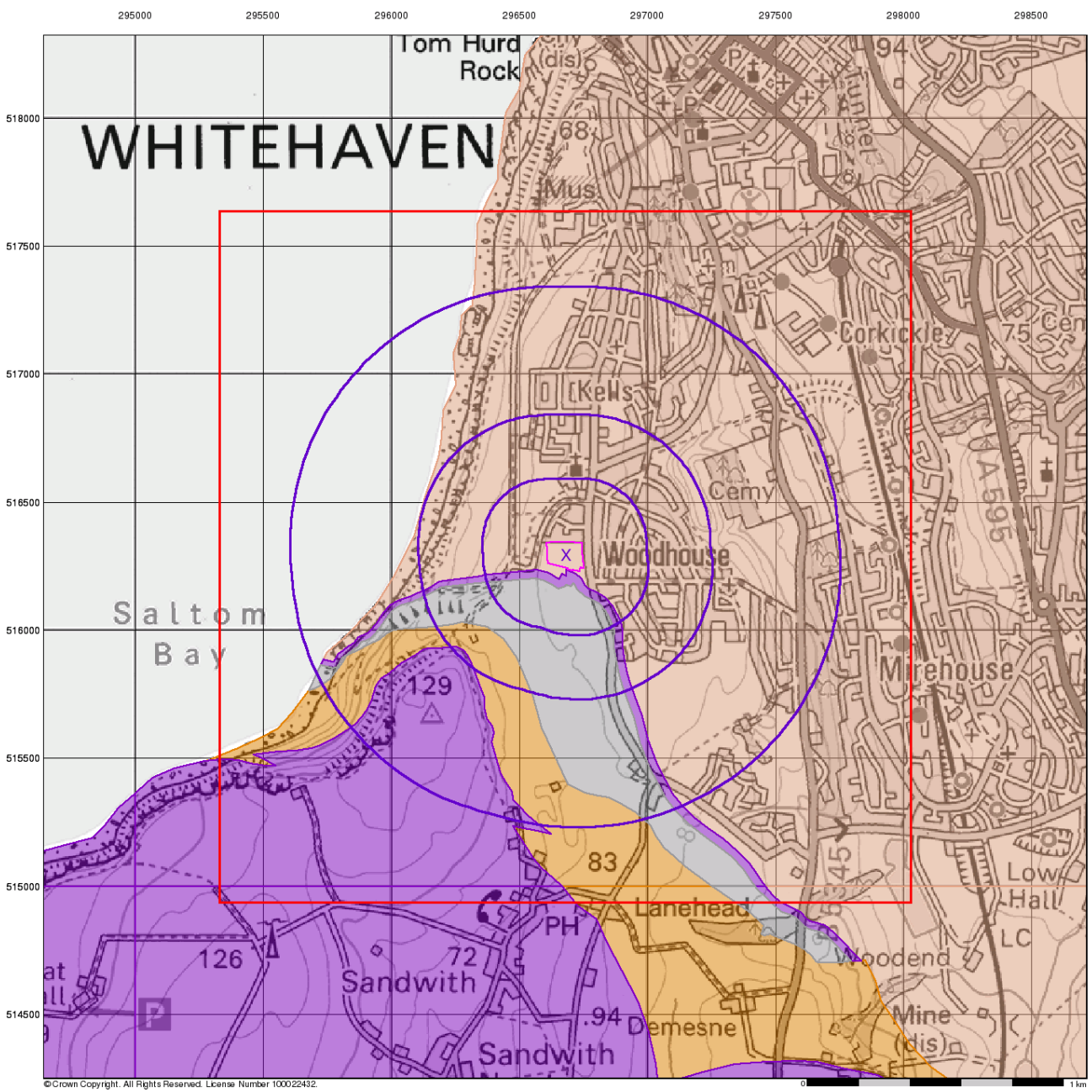

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Bedrock Aquifer Designation

General

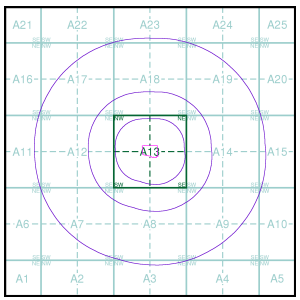
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



Order Details

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Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	1000

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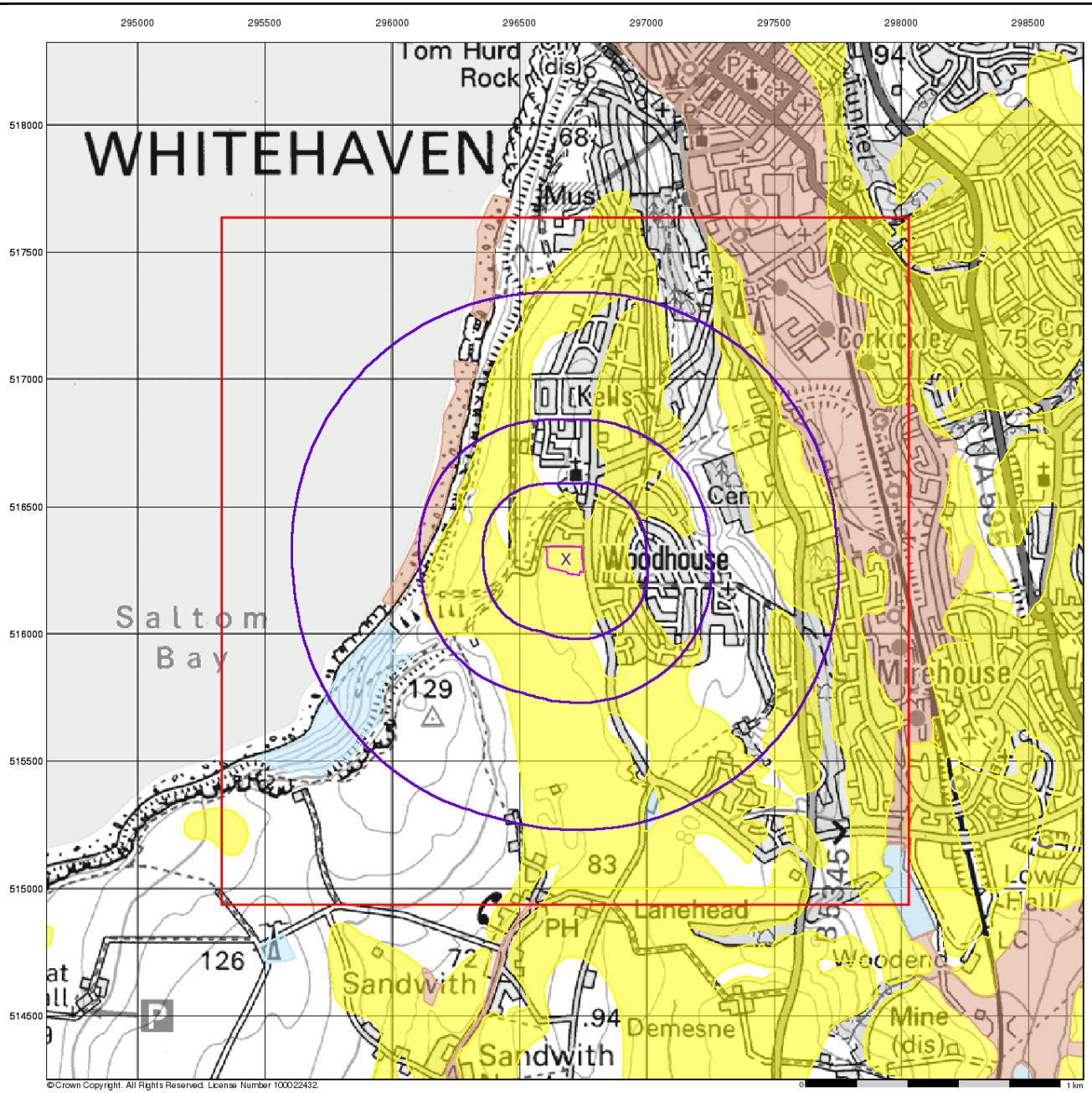

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Superficial Aquifer Designation

General

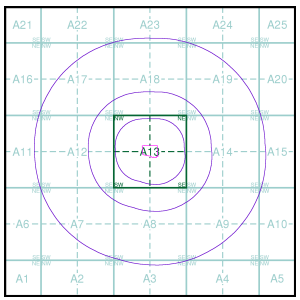
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



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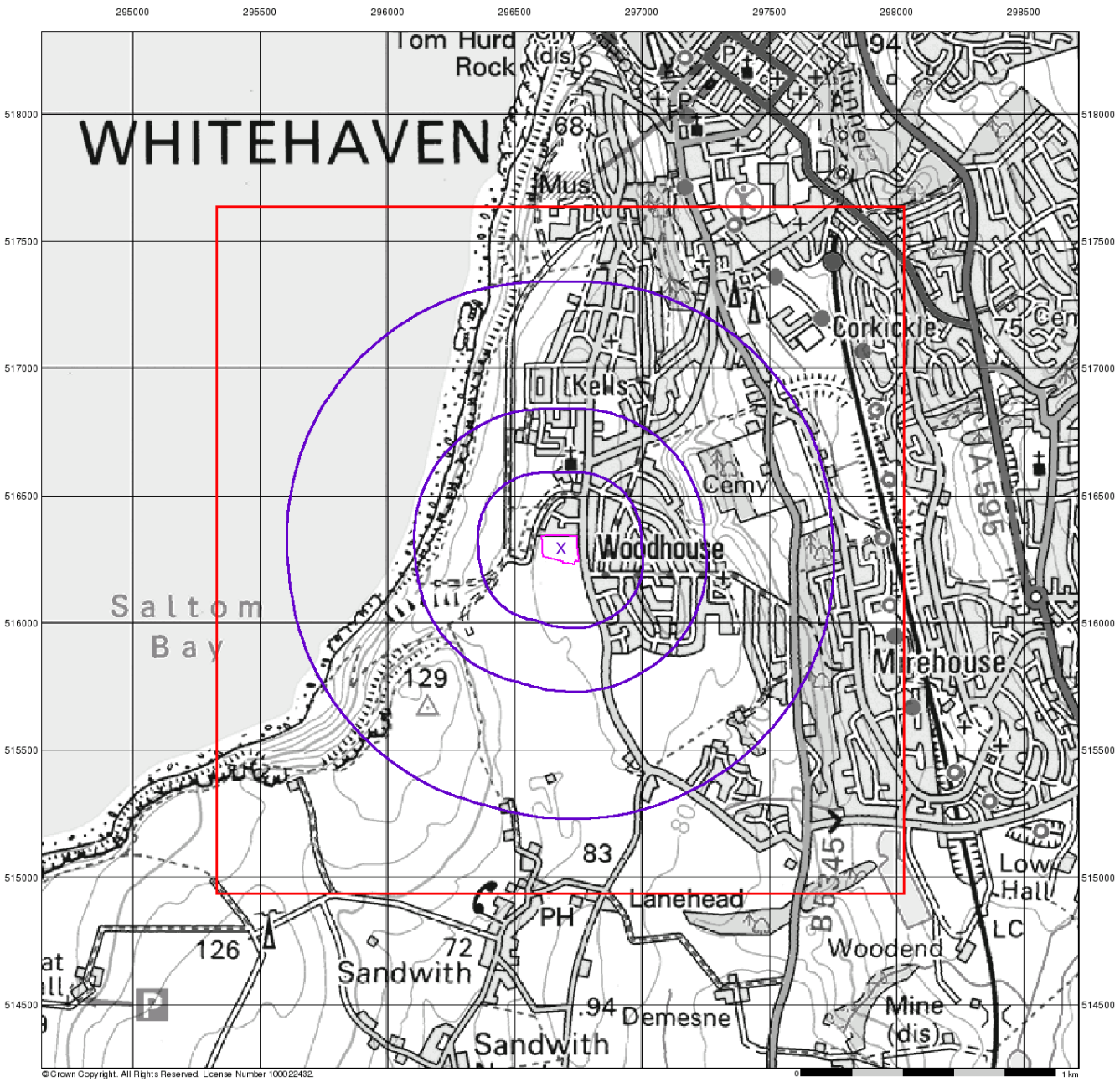

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Source Protection Zones

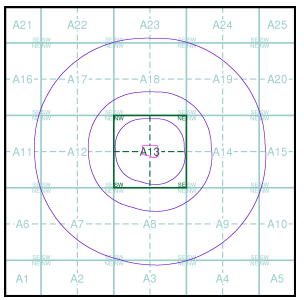
General

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

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A



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Customer Ref:	8190
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Slice:	A
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Search Buffer (m):	1000

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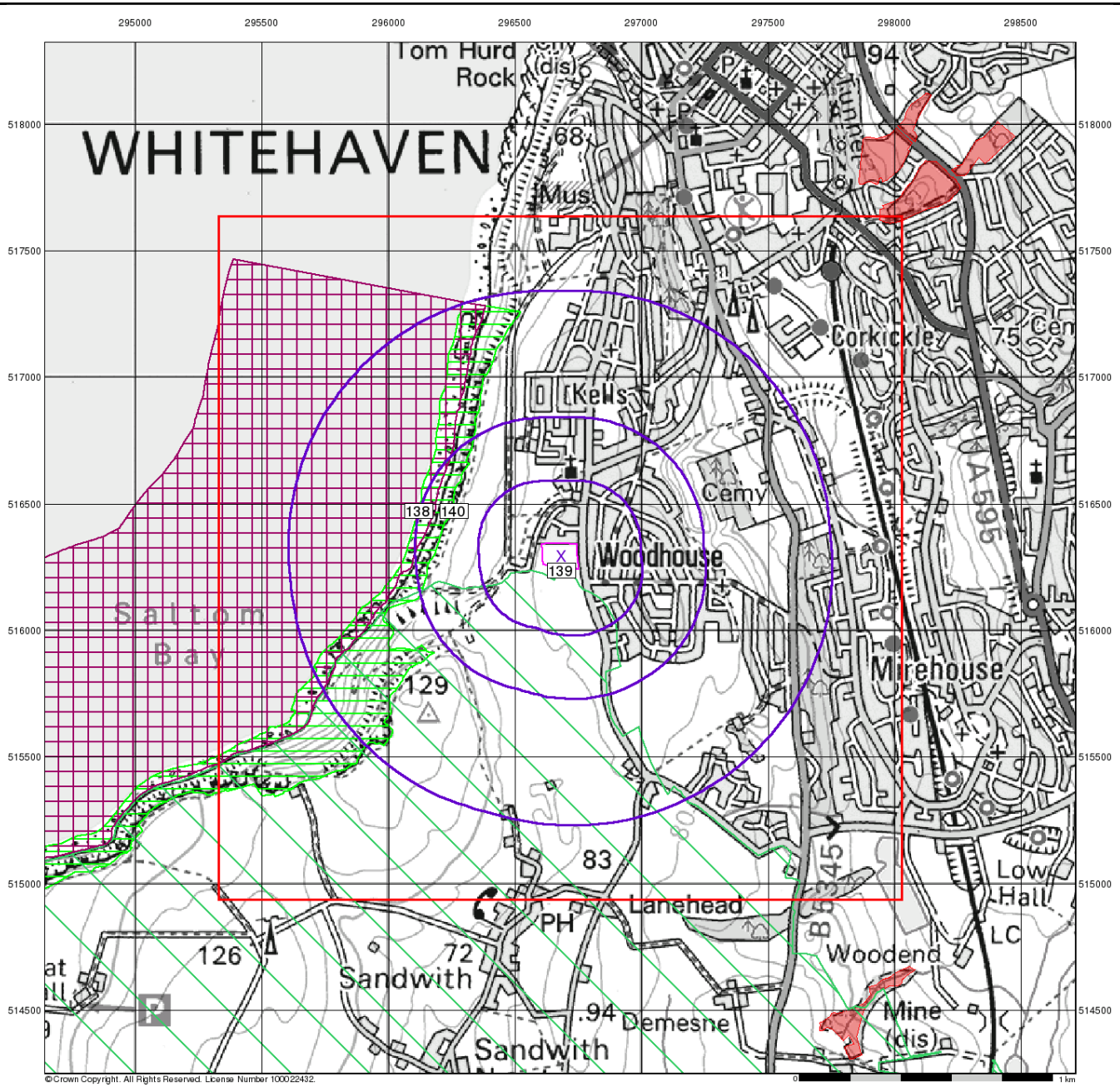

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Sensitive Land Uses

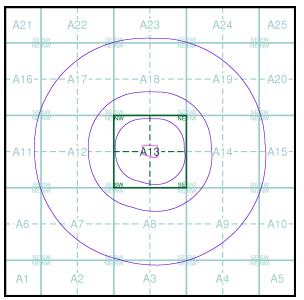
General

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

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



Order Details

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National Grid Reference:	296680, 516290
Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	1000

Site Details

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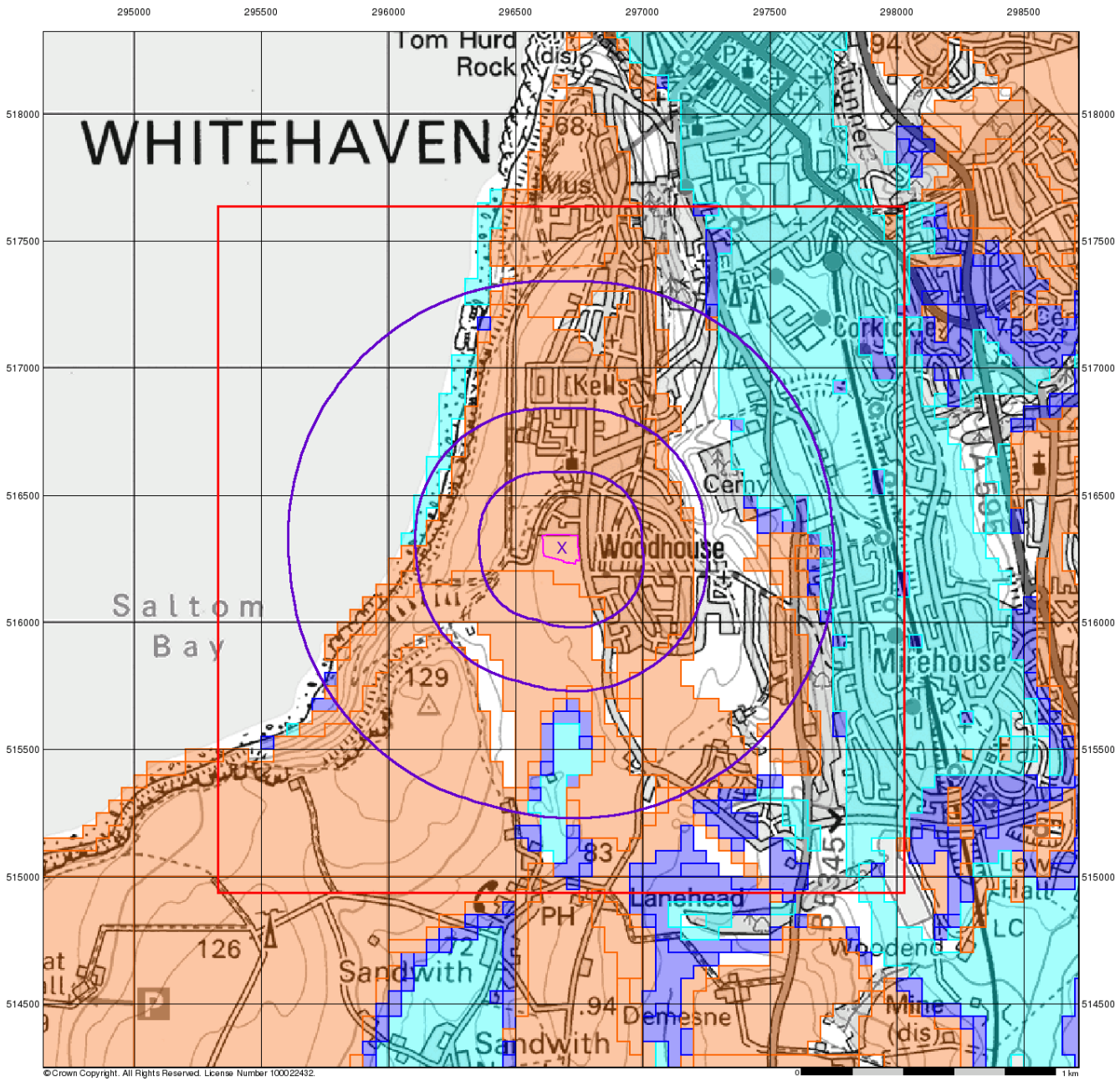

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BGS Flood GFS Data

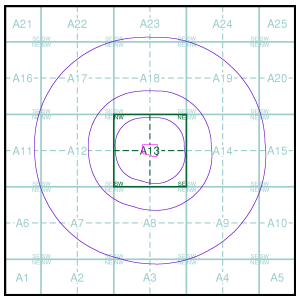
General

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

Agency and Hydrological (Flood)

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

Site Sensitivity Context Map - Slice A



Order Details

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National Grid Reference:	296680, 516290
Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	1000

Site Details

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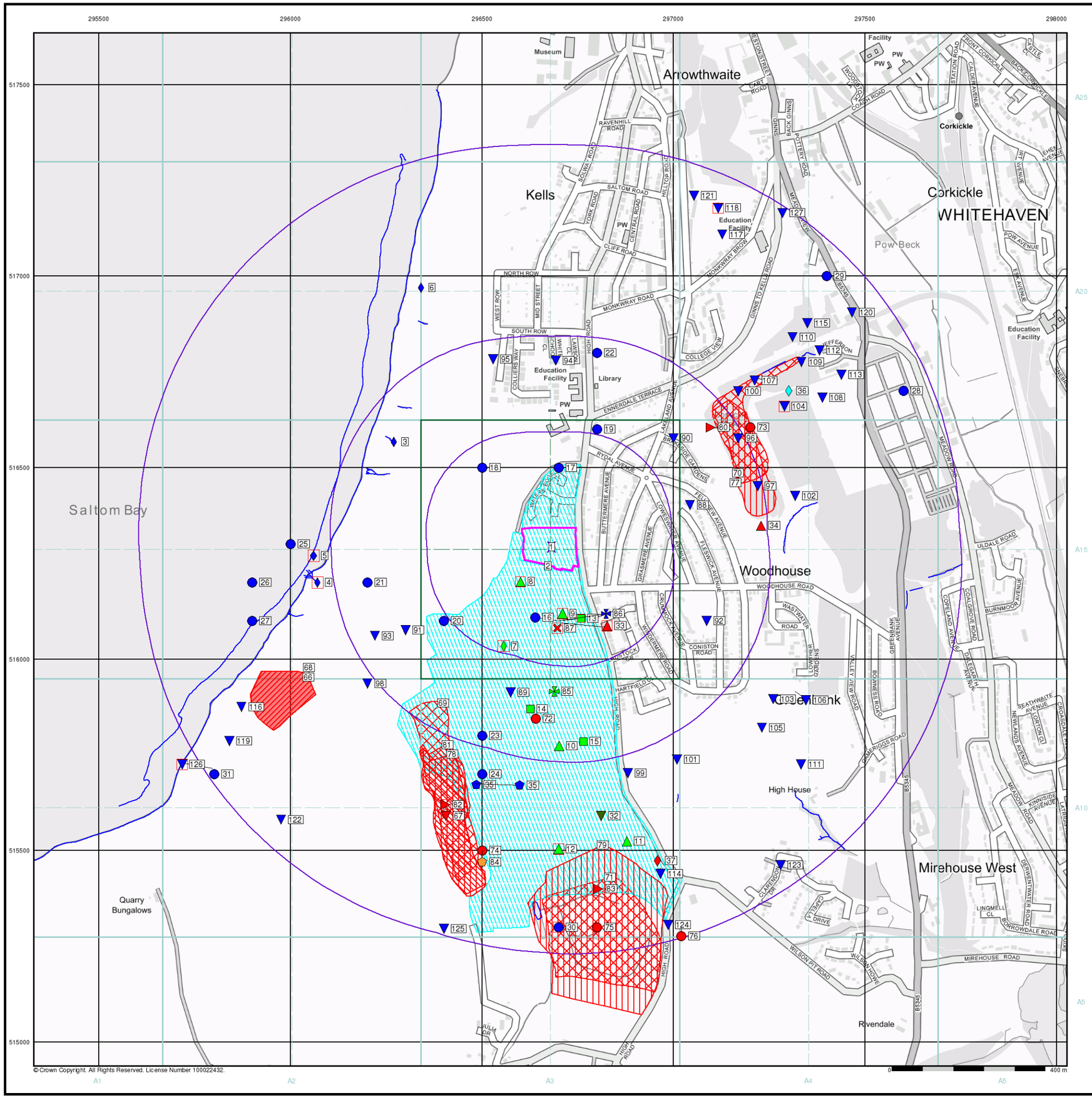

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General

- 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

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

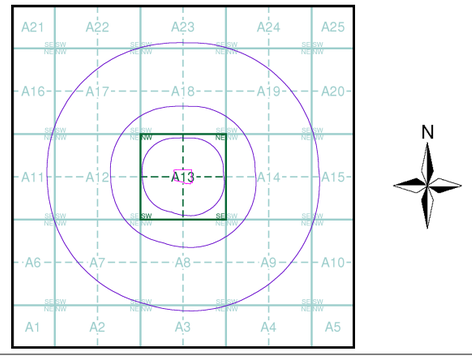
Waste

- 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
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

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

Site Sensitivity Map - Slice A



Order Details

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Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	1000

Site Details

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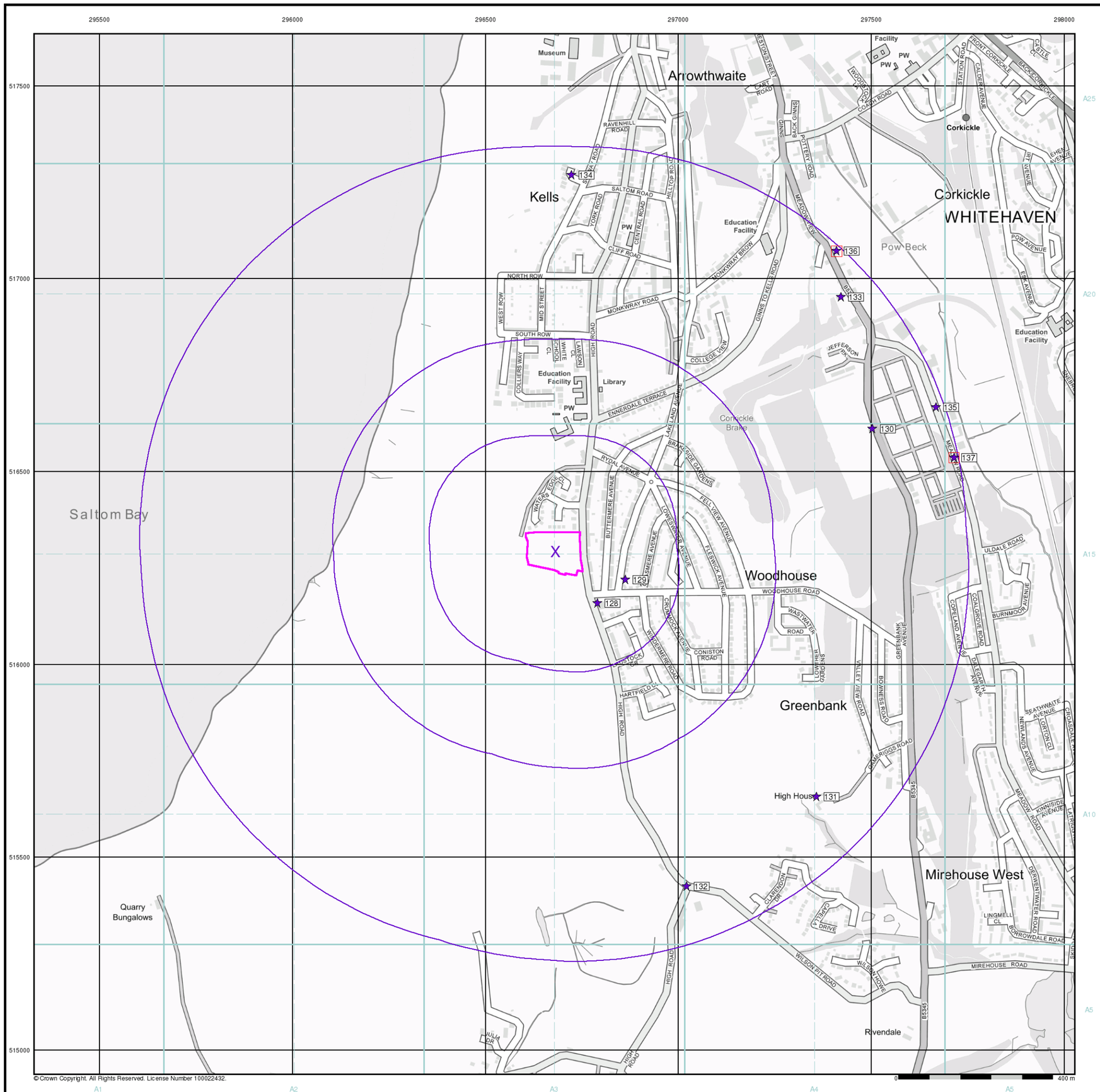

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Industrial Land Use Map

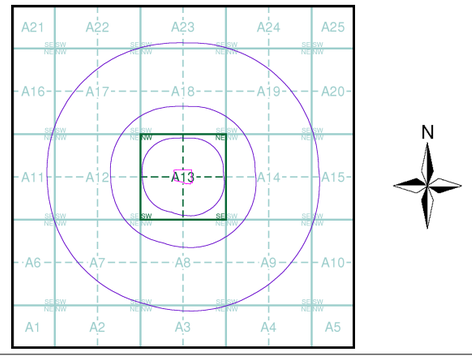
General

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

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Underground Electrical Cables

Industrial Land Use Map - Slice A



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National Grid Reference:	296680, 516290
Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	1000

Site Details

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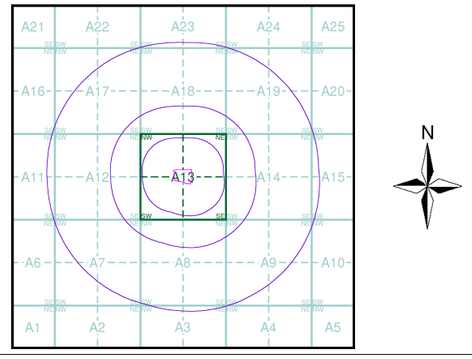
General

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

Agency and Hydrological (Flood)

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

Flood Map - Slice A



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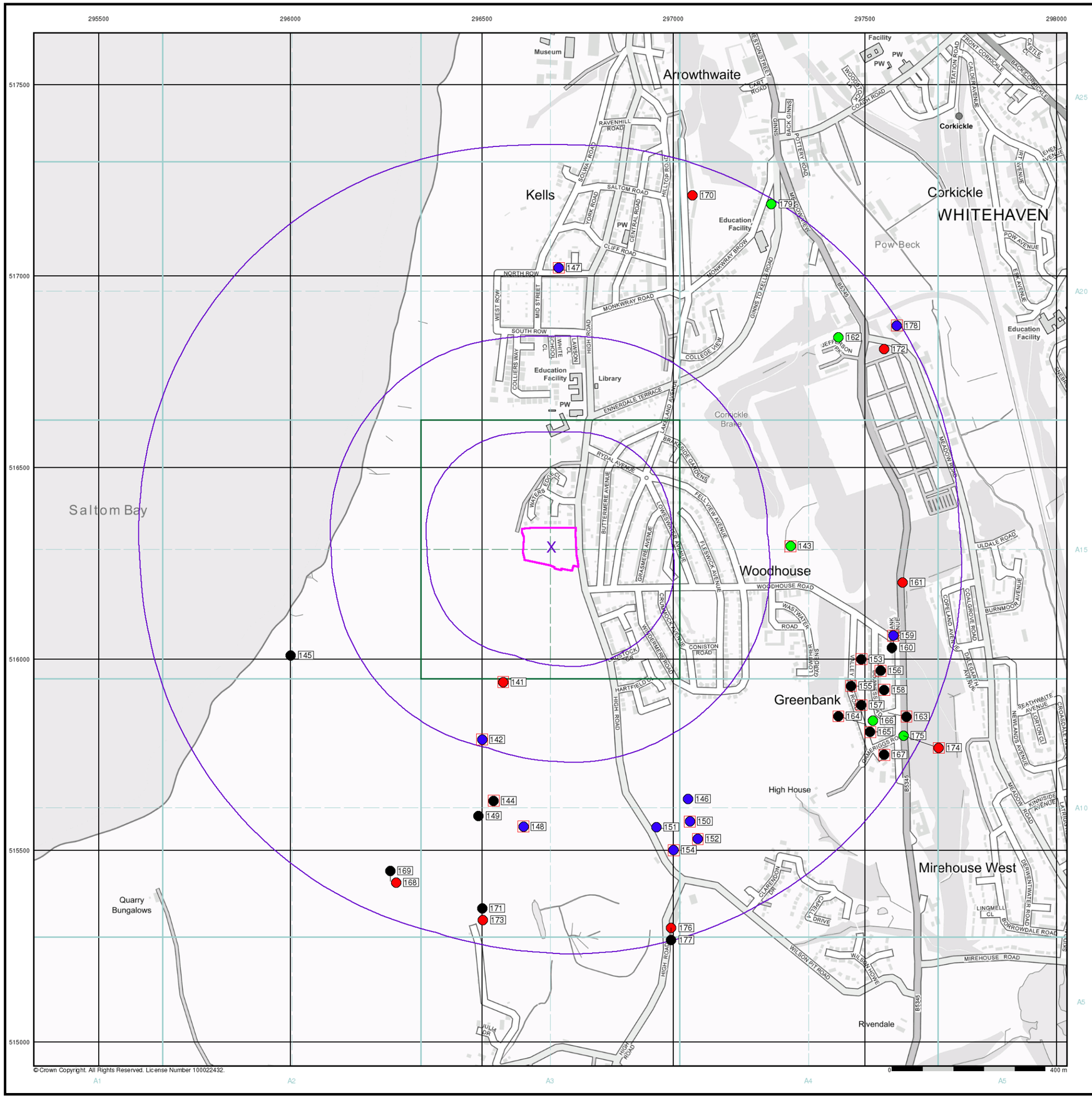

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General

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

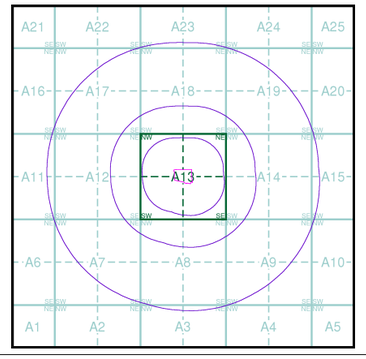
Agency and Hydrological (Boreholes)

- 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



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Search Buffer (m):	1000

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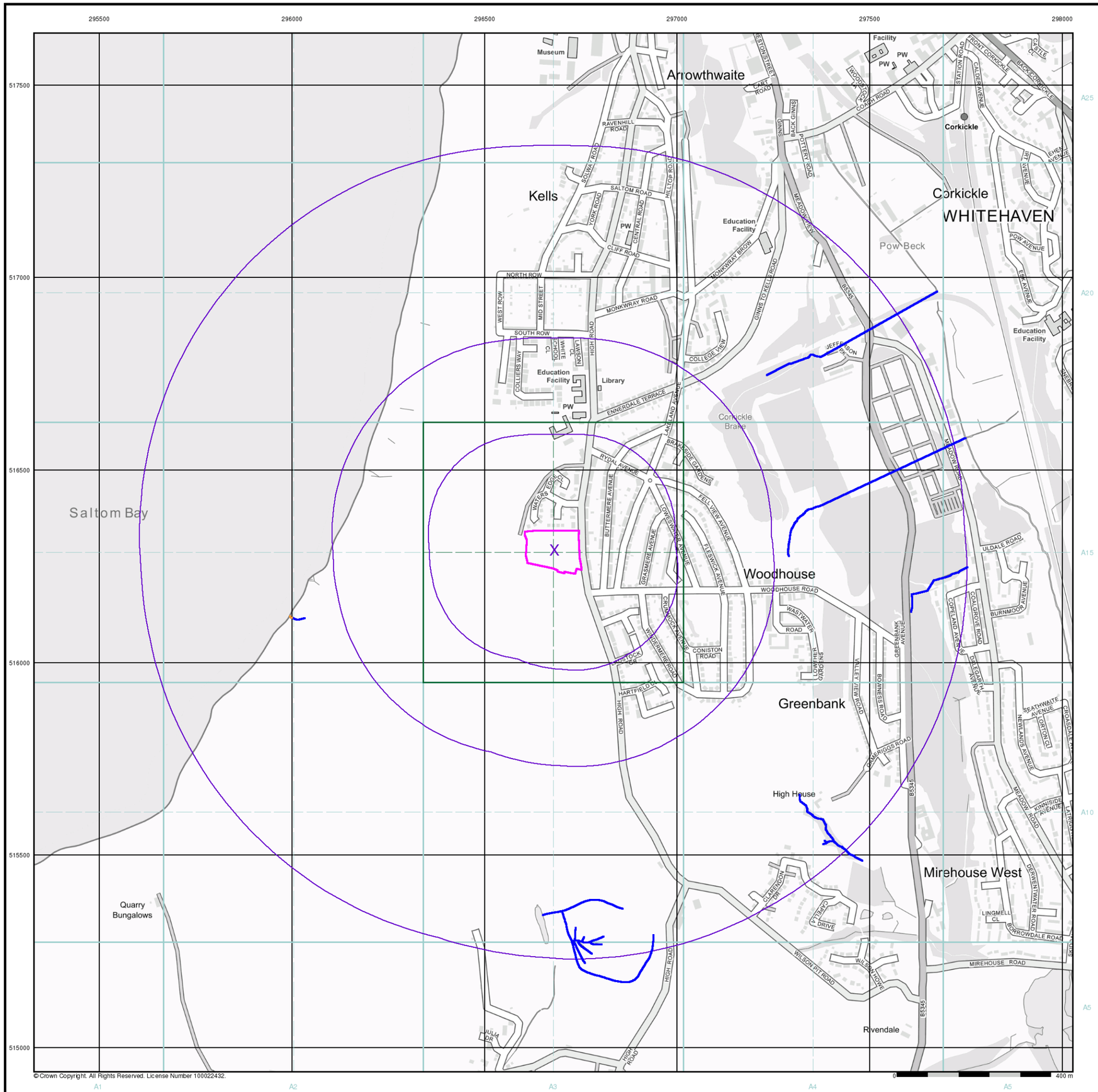

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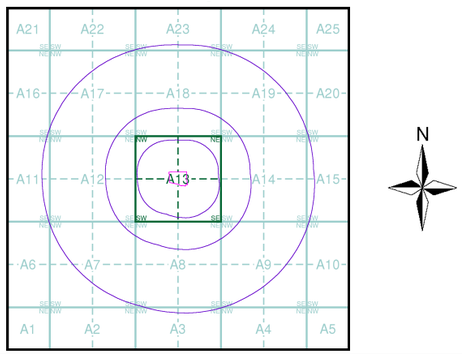
General

- 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

OS Water Network Map - Slice A



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Customer Ref:	8190
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Slice:	A
Site Area (Ha):	1.37
Search Buffer (m):	1000

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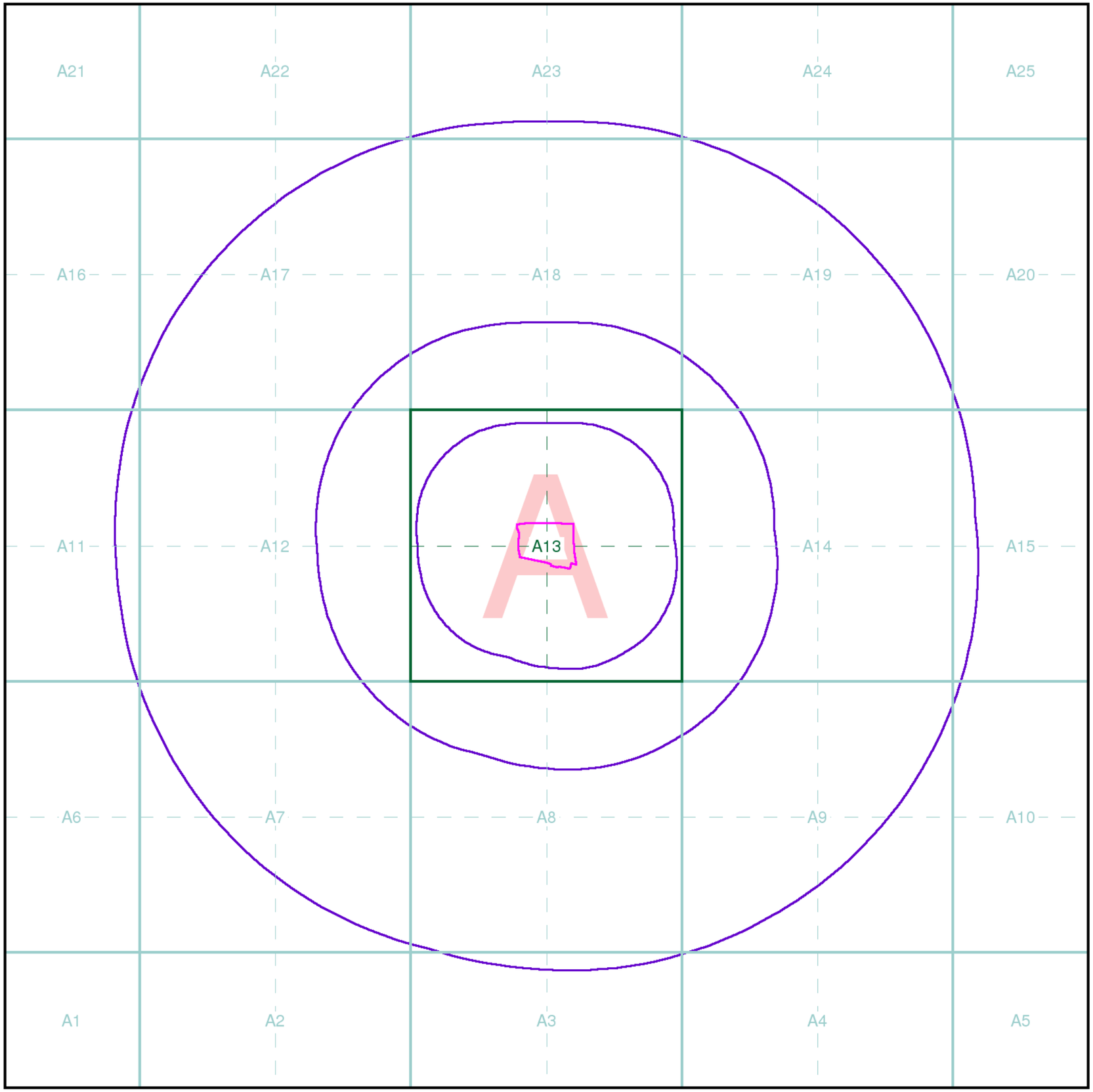

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Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:

Map data

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

NATURAL ENGLAND

Envirocheck reports are compiled from 136 different sources of data.

Client Details

Ms L Ellis, FWS Consultants Ltd, Merrington House, Merrington Lane Trading Estate, Spennymoor, County Durham, DL16 7UT

Order Details

Order Number:	197332733_1_1
Customer Ref:	8190
National Grid Reference:	296680, 516290
Site Area (Ha):	1.37
Search Buffer (m):	1000

Site Details

1, Taylors Way, WHITEHAVEN, CA28 9PD

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Envirocheck® Report:

Datasheet

Order Details:

Order Number:
197332733_1_1

Customer Reference:
8190

National Grid Reference:
296680, 516290

Slice:
A

Site Area (Ha):
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Search Buffer (m):
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Site Details:

1, Taylors Way
WHITEHAVEN
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Client Details:

Ms L Ellis
FWS Consultants Ltd
Merrington House
Merrington Lane Trading Estate
Spennymoor
County Durham
DL16 7UT

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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Summary

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Potential for Ground Dissolution Stability Hazards	pg 40		Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 40	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 40	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 40	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

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Summary

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Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	0	1	296681 516293
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	50	1	296650 516200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (NE)	389	1	297100 516500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (NE)	400	1	297050 516600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	410	1	297150 516400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12NE (W)	420	1	296200 516450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A9NW (SE)	453	1	297050 515900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A7NE (SW)	475	1	296300 515900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (S)	480	1	296700 515750
1	**Contaminated Land Register Entries and Notices** Location: Former Marchon Works, High Road, Kells, Whitehaven, Cumbria Notice Type: Revocation of Notice of Determination Reference: Csl1 Dated: 20th August 2014 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A13NE (N)	0	2	296681 516293
2	**Contaminated Land Register Entries and Notices** Location: Former Marchon Works, High Road, Kells, Whitehaven, Cumbria Notice Type: Remediation Statement - Remediation Work Completed Reference: Csl1 Dated: 29th August 2013 Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A13SW (S)	1	2	296671 516243
3	**Discharge Consents** Operator: Mr John Urwin Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Cliff Top Pharmacy High Road, Kells, Whitehaven, Cumbria, Ca28 9pg Authority: Environment Agency, North West Region Catchment Area: Ehen Reference: Eprfp3229gv Permit Version: 1 Effective Date: 22nd December 2010 Issued Date: 22nd December 2010 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Saltom Bay - Irish Sea **Status: New issued under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A12NE (NW)	406	3	296269 516567

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017490110 Permit Version: 5 Effective Date: 15th December 1993 Issued Date: Not Supplied Revocation Date: 31st March 1995 Discharge Type: Storm /emergency overflow Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	543	3	296070 516200
4	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Duddon Reference: 017490110 Permit Version: 6 Effective Date: 1st April 1995 Issued Date: Not Supplied Revocation Date: 15th September 1995 Discharge Type: Storm /emergency overflow Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	543	3	296070 516200
5	**Discharge Consents** Operator: Whitehaven Developments Limited Property Type: WASTE COLLECTION/TREATMENT/DISPOSAL/MATERIALS RECOVERY Location: Ufex And Hutbank Landfills, Rhodia Uk Ltd, Whitehaven Works, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Ehen Reference: 017490484 Permit Version: 1 Effective Date: 2nd February 2007 Issued Date: 2nd February 2007 Revocation Date: Not Supplied Discharge Type: Trade Discharge - Process Water Discharge Environment: Controlled Sea Receiving Water: Saltom Bay (Irish Sea) **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	547	3	296061 516271
5	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017490110 Permit Version: 2 Effective Date: 6th February 1991 Issued Date: Not Supplied Revocation Date: 19th December 1991 Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	548	3	296060 516270

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017490110 Permit Version: 4 Effective Date: 14th December 1993 Issued Date: Not Supplied Revocation Date: 14th December 1993 Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	548	3	296060 516270
5	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017490110 Permit Version: 5 Effective Date: 15th December 1993 Issued Date: Not Supplied Revocation Date: 31st March 1995 Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	548	3	296060 516270
5	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017490110 Permit Version: 6 Effective Date: 1st April 1995 Issued Date: Not Supplied Revocation Date: 15th September 1995 Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	548	3	296060 516270
5	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017490110 Permit Version: 1 Effective Date: 12th August 1988 Issued Date: Not Supplied Revocation Date: 5th February 1991 Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 100m	A12SE (W)	548	3	296060 516270

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017490110 Permit Version: 3 Effective Date: 20th December 1991 Issued Date: Not Supplied Revocation Date: 13th December 1993 Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	548	3	296060 516270
5	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017490110 Permit Version: 1 Effective Date: 12th August 1988 Issued Date: Not Supplied Revocation Date: 5th February 1991 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Manually corrected supplier location	A12SE (W)	548	3	296060 516270
5	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017490110 Permit Version: 2 Effective Date: 6th February 1991 Issued Date: Not Supplied Revocation Date: 19th December 1991 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Manually corrected supplier location	A12SE (W)	548	3	296060 516270
5	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017490110 Permit Version: 3 Effective Date: 20th December 1991 Issued Date: Not Supplied Revocation Date: 13th December 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Manually corrected supplier location	A12SE (W)	548	3	296060 516270

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: Albright & Wilson Ltd Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Albright & Wilson Ltd, Whitehaven Works, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017490110 Permit Version: 4 Effective Date: 14th December 1993 Issued Date: Not Supplied Revocation Date: 14th December 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Coastal Receiving Water: Saltom Bay (Irish Sea) **Status: Authorisation revoked** Positional Accuracy: Manually corrected supplier location	A12SE (W)	548	3	296060 516270
6	**Discharge Consents** Operator: United Utilities Water Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Old Kells Outfall, Copeland, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017470157 Permit Version: 1 Effective Date: 22nd February 1993 Issued Date: Not Supplied Revocation Date: 22nd February 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Coastal Receiving Water: Irish Sea **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	684	3	296340 516970
7	**Prosecutions Relating to Controlled Waters** Location: Whitehaven Works, Whitehaven, Cumbria Prosecution Text: Spilling 350 tonnes of sulphuric acid into the byerstead fault Prosecution Act: Wra91 S85(1) Hearing Date: 5th August 2004 Verdict: Guilty Fine: 40000 Cost: 8152 Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	231	3	296558 516034
7	**Prosecutions Relating to Controlled Waters** Location: Whitehaven Works, Whitehaven, Cumbria Prosecution Text: Spilling 350 tonnes of sulphuric acid into the byerstead fault Prosecution Act: Wra91 S85(1) Hearing Date: 5th August 2004 Verdict: Guilty Fine: 40000 Cost: 8152 Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	232	3	296556 516034
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AL2322 Dated: 6th December 1993 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	49	3	296615 516208
8	**Integrated Pollution Controls** Name: Albright And Wilson (uk) Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BB2348 Dated: 8th June 1998 Process Type: IPC major (substantial) variation Description: 4.2 A (J) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Application has met the requirements for authorisation (but not yet authorised)** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	50	3	296610 516208

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AU9543 Dated: 8th March 1996 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	52	3	296600 516208
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AX7466 Dated: 4th April 1997 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	54	3	296595 516208
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BE9926 Dated: 11th March 1999 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.5 A (I) Inorganic Chemical processes within the Chemical Industry **Status: Revoked - Now IPPC** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	57	3	296600 516203
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AY9286 Dated: 6th February 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	58	3	296595 516203
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AO0679 Dated: 7th December 1994 Process Type: IPC new application Description: 4.5 A (I) Inorganic Chemical processes within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	60	3	296610 516198
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Br6635 Dated: 26th March 2003 Process Type: IPC major (substantial) variation Description: 4.2 A (C) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Revoked - Now IPPC** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Bm4791 Dated: 21st February 2002 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (C) Manufacture and use of Organic Chemicals within the Chemical Industry **Status:** **Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Bl8554 Dated: 15th November 2001 Process Type: IPC major (substantial) variation Description: 4.2 A (J) Manufacture and use of Organic Chemicals within the Chemical Industry **Status:** **Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Bl6438 Dated: 6th September 2001 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.3 A (G) Acid processes within the Chemical Industry **Status:** **Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Bk1007 Dated: 30th March 2001 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.3 A (G) Acid processes within the Chemical Industry **Status:** **Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BF6604 Dated: 11th August 1999 Process Type: IPC major (substantial) variation Description: 4.3 A (G) Acid processes within the Chemical Industry **Status:** **Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BC2408 Dated: 25th March 1999 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.3 A (G) Acid processes within the Chemical Industry **Status:** **Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BE2832 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (C) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BD7162 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.3 A (A) Acid processes within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BD0508 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (J) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BA4442 Dated: 20th February 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (C) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AY1277 Dated: 17th March 1997 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (C) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AW8386 Dated: 30th October 1996 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.3 A (A) Acid processes within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AQ9910 Dated: 5th December 1995 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (C) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AL9009 Dated: 27th March 1995 Process Type: IPC application for process that was regulated by HMIP for air releases under previous legislation Description: 4.3 A (A) Acid processes within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AP3606 Dated: 19th January 1995 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (J) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AK8686 Dated: 22nd March 1994 Process Type: IPC application for process that was regulated by HMIP for air releases under previous legislation Description: 4.2 A (C) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AK8651 Dated: 22nd March 1994 Process Type: IPC new application Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198
8	**Integrated Pollution Controls** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AK8660 Dated: 14th March 1994 Process Type: IPC new application Description: 4.2 A (J) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	62	3	296600 516198

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AK8694 Dated: 23rd March 1994 Process Type: IPC application for process that was regulated by HMIP for air releases under previous legislation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	64	3	296615 516193
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AE9034 Dated: 26th May 1992 Process Type: IPC major (substantial) variation Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	65	3	296610 516193
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AA2984 Dated: 3rd September 1991 Process Type: IPC new application Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	66	3	296605 516193
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AY4802 Dated: 20th June 1997 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	68	3	296595 516193
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AK8678 Dated: 15th March 1994 Process Type: IPC new application Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	69	3	296615 516188
8	**Integrated Pollution Controls** Name: Albright And Wilson (UK) Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BA6151 Dated: 30th January 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.3 A (A) Acid processes within the Chemical Industry **Status: Application has met the requirements for authorisation (but not yet authorised)** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	71	3	296605 516188

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AF4313 Dated: 4th September 1992 Process Type: IPC new application Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	72	3	296600 516188
8	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AY4896 Dated: 18th June 1997 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.5 A (I) Inorganic Chemical processes within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	78	3	296595 516183
9	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: P.O.Box 15, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Permit Reference: Bm4813 Dated: 21st February 2002 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	105	3	296749 516126
9	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Po Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BD8509 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	118	3	296705 516115
9	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Po Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BD9955 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	118	3	296700 516115
9	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Po Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BC7167 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	118	3	296695 516115
9	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: P.O.Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BA4434 Dated: 20th February 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	118	3	296710 516115

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: P.o.box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BC3013 Dated: 26th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	120	3	296685 516115
9	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: P.o.box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BE2824 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	125	3	296685 516110
9	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Po Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BD9360 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.5 A (I) Inorganic Chemical processes within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	130	3	296685 516105
9	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, Po Box 15, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Permit Reference: Bt3471 Dated: 17th October 2002 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Revoked - Now IPPC** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	148	3	296685 516086
10	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: Po Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Bs8001 Dated: 15th August 2002 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Revoked - Now IPPC** Positional Accuracy: Manually positioned to the address or location	A8NE (S)	463	3	296701 515769
11	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: P.O.Box 15, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency, North West Region Permit Reference: Bt6993 Dated: 6th January 2003 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (E) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Revoked - Now IPPC** Positional Accuracy: Manually positioned to the address or location	A8SE (S)	725	3	296878 515520
12	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: P.O.Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Bk0183 Dated: 21st March 2001 Process Type: IPC major (substantial) variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Located by supplier to within 100m	A8SE (S)	731	3	296700 515500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Integrated Pollution Controls** Name: Huntsman Surface Sciences Uk Ltd Location: P.O.Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Bi9189 Dated: 1st September 2000 Process Type: IPC minor (non-substantial) variation to previous variation Description: 4.2 A (D) Manufacture and use of Organic Chemicals within the Chemical Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Located by supplier to within 100m	A8SE (S)	731	3	296700 515500
13	**Integrated Pollution Prevention And Control** Name: Huntsman Surface Sciences Uk Ltd Location: Po Box 15, Whitehaven Works, Whitehaven, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: RP3038LM Original Permit Ref: Bm4180ir Effective Date: 26th March 2007 **Status: Surrender Effective** Application Type: Surrender App. Sub Type: Whole Positional Accuracy: Located by supplier to within 100m Activity Code: 4.1 A(1) (A) (XI) Activity Description: Organic Chemicals; Surface-Active Agents Primary Activity: N Activity Code: 4.1 A(1) (A) (IV) Activity Description: Organic Chemicals; Nitrogen Containing Compounds Eg Amines Primary Activity: N Activity Code: 0.0 Associated Process Activity Description: Associated Process Primary Activity: N Activity Code: 4.1 A(1) (A) (II) Activity Description: Organic Chemicals; Oxygen Containing Compounds Eg Alcohols Primary Activity: Y Activity Code: 4.1 A(1) (A) (III) Activity Description: Organic Chemicals; Sulphur Containing Compounds Eg Sulphides Primary Activity: N	A13SE (S)	133	3	296700 516100
13	**Integrated Pollution Prevention And Control** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, Po Box 15, Whitehaven Works, Whitehaven, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Bm4180ir Original Permit Ref: Bm4180ir Effective Date: 25th March 2004 **Status: Superseded By Variation** Application Type: Application App. Sub Type: New Positional Accuracy: Located by supplier to within 100m Activity Code: 0.0 Associated Process Activity Description: Associated Process Primary Activity: N Activity Code: 4.1 A(1) (A) (II) Activity Description: Organic Chemicals; Oxygen Containing Compounds Eg Alcohols Primary Activity: Y Activity Code: 4.1 A(1) (A) (XI) Activity Description: Organic Chemicals; Surface-Active Agents Primary Activity: N Activity Code: 4.1 A(1) (A) (IV) Activity Description: Organic Chemicals; Nitrogen Containing Compounds Eg Amines Primary Activity: N Activity Code: 4.1 A(1) (A) (III) Activity Description: Organic Chemicals; Sulphur Containing Compounds Eg Sulphides Primary Activity: N	A13SE (S)	133	3	296700 516100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
13	**Integrated Pollution Prevention And Control** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, Po Box 15, Whitehaven Works,,, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BP3934UG Original Permit Ref: Bm4180ir Effective Date: 26th March 2007 **Status:** **Surrender Effective** Application Type: Surrender App. Sub Type: Whole Positional Accuracy: Manually positioned to the address or location Activity Code: 0.0 Associated Process Activity Description: Associated Process Primary Activity: N Activity Code: 4.1 A(1) (A) (XI) Activity Description: Organic Chemicals; Surface-Active Agents Primary Activity: N Activity Code: 4.1 A(1) (A) (IV) Activity Description: Organic Chemicals; Nitrogen Containing Compounds Eg Amines Primary Activity: N Activity Code: 4.1 A(1) (A) (III) Activity Description: Organic Chemicals; Sulphur Containing Compounds Eg Sulphides Primary Activity: N Activity Code: 4.1 A(1) (A) (II) Activity Description: Organic Chemicals; Oxygen Containing Compounds Eg Alcohols Primary Activity: Y	A13SE (S)	141	3	296710 516092
14	**Integrated Pollution Prevention And Control** Name: Huntsman Surface Sciences Uk Ltd Location: Whitehaven Works, PO Box 15, Whitehaven Works, Whitehaven, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: PP3139LX Original Permit Ref: Bm4180ir Effective Date: 13th March 2006 **Status:** **Superseded By Variation** Application Type: Variation App. Sub Type: Minor Positional Accuracy: Manually positioned within the geographical locality Activity Code: 4.1 A(1) (A) (II) Activity Description: Organic Chemicals; Oxygen Containing Compounds Eg Alcohols Primary Activity: Y Activity Code: 0.0 Associated Process Activity Description: Associated Process Primary Activity: N Activity Code: 4.1 A(1) (A) (XI) Activity Description: Organic Chemicals; Surface-Active Agents Primary Activity: N Activity Code: 4.1 A(1) (A) (IV) Activity Description: Organic Chemicals; Nitrogen Containing Compounds Eg Amines Primary Activity: N Activity Code: 4.1 A(1) (A) (III) Activity Description: Organic Chemicals; Sulphur Containing Compounds Eg Sulphides Primary Activity: N	A8NW (S)	372	3	296626 515870
15	**Integrated Pollution Prevention And Control** Name: Npower Cogen Ltd Location: WHITEHAVEN WORKS, PO Box 15, Whitehaven, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: FP3031UF Original Permit Ref: Bu3680id Effective Date: 30th March 2008 **Status:** **Surrender Effective** Application Type: Surrender App. Sub Type: Installation never operated Positional Accuracy: Manually positioned within the geographical locality Activity Code: 4.1 A(1) (A) (II) Activity Description: Organic Chemicals; Oxygen Containing Compounds Eg Alcohols Primary Activity: Y Activity Code: 0.0 Associated Process Activity Description: Associated Process Primary Activity: N	A8NE (S)	446	3	296764 515785
	Nearest Surface Water Feature	A12NE (NW)	374	-	296260 516483

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**Pollution Incidents to Controlled Waters** Property Type: Manufacturing: Chemical Manufacture Location: Sea, Cumbria Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: Not Supplied Incident Date: 30th July 1999 Incident Reference: 30784 Catchment Area: Not Defined Receiving Water: Not Given Cause of Incident: Climatic Conditions : Other Conditions Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SE (S)	133	3	296700 516100
17	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Diesel (Including Agricultural) Note: Pow Beck Incident Date: 6th March 1995 Incident Reference: 95120028 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Accidental Spillage/Leakage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (N)	158	3	296700 516500
18	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Industrial Effluent Note: Detergent Incident Date: 18th February 1993 Incident Reference: 93120022 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	192	3	296500 516500
19	**Pollution Incidents to Controlled Waters** Property Type: Spillage; Accident In Transit Location: Cumbria Authority: Environment Agency, North West Region Pollutant: Chemicals - Acid Note: Irish Sea Coastal; Spillage Incident Date: 3rd January 1996 Incident Reference: 96120003 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Accidental Spillage/Leakage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (N)	264	3	296800 516600
20	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Foam Note: Not Supplied Incident Date: 22nd October 1994 Incident Reference: 94120129 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Poor Operational Practice Incident Severity: Category 1 - Major Incident Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	265	3	296400 516100
21	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Cumbria Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: Irish Sea; Foam Incident Date: 14th June 1996 Incident Reference: 96120063 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SE (W)	415	3	296200 516200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
22	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Industrial Effluent Note: Not Supplied Incident Date: 5th August 1993 Incident Reference: 93120081 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A18SE (N)	462	3	296800 516800
23	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Industrial Effluent Note: Irish Sea; Yard Runoff Incident Date: 20th April 1993 Incident Reference: 93120050 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NW (S)	472	3	296500 515800
24	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: Not Supplied Incident Date: 19th August 1995 Incident Reference: 95120122 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NW (S)	569	3	296500 515700
25	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Industrial Effluent Note: Detergent Incident Date: 9th February 1993 Incident Reference: 93120013 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	605	3	296000 516300
26	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Cumbria Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: Irish Sea; Foam Incident Date: 1st March 1996 Incident Reference: 96120017 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	712	3	295900 516200
27	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: Not Supplied Incident Date: 26th March 1994 Incident Reference: 94120031 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	729	3	295900 516100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
28	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Waste Oil Note: Pow Beck Incident Date: 7th February 1995 Incident Reference: 95120035 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Leaking Underground Pipe Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	928	3	297600 516700
29	**Pollution Incidents to Controlled Waters** Property Type: Spillage; Accident In Transit Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chemicals - Acid Note: Phosphoric Acid Incident Date: 3rd November 1992 Incident Reference: 92120116 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NE (NE)	929	3	297400 517000
30	**Pollution Incidents to Controlled Waters** Property Type: Tip Drainage Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Inert Suspended Solids Note: Rottington Beck Incident Date: 28th April 1992 Incident Reference: 92120035 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	931	3	296700 515300
30	**Pollution Incidents to Controlled Waters** Property Type: Tip Drainage Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Tip Leachate Note: Rottington Beck Incident Date: 14th May 1992 Incident Reference: 92120048 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	936	3	296700 515295
31	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Cumbria Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: Irish Sea; Foam Incident Date: 16th September 1996 Incident Reference: 96120103 Catchment Area: Irish Sea Coastal Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	985	3	295800 515700
32	**Prosecutions Relating to Authorised Processes** Location: Marchon Works, PO Box 15, Whitehaven, Cumbria, CA28 9QQ Prosecution Text: EA News Release 10/12/1998, Failing to prevent a leak of waste acid from a container taken from it's Whitehaven plant. Prosecution Act: EPA90 s34(1b) Hearing Date: 10th December 1998 Verdict: Guilty Fine: 10000 Costs: 3500 Positional Accuracy: Manually positioned within the geographical locality	A8SE (S)	640	3	296810 515595

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
33	**Registered Radioactive Substances** Name: Albemarle Chemicals Uk Ltd Location: P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AS3633 Dated: 22nd March 1996 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	128	3	296695 516105
33	**Registered Radioactive Substances** Name: Albemarle Chemicals Uk Ltd Location: P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AJ5924 Dated: 9th September 1993 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	128	3	296705 516105
33	**Registered Radioactive Substances** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, Po Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Bi2524 Dated: 25th July 2000 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation either revoked or cancelled** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	133	3	296700 516100
33	**Registered Radioactive Substances** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, Po Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: BA6143 Dated: 12th March 1998 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	133	3	296705 516100
33	**Registered Radioactive Substances** Name: Albemarle Chemicals Uk Ltd Location: P O Box 15, High Road, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AC8207 Dated: 31st March 1991 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	133	3	296695 516100
33	**Registered Radioactive Substances** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, PO Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: AY7445 Dated: 18th June 1997 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	138	3	296705 516095
34	**Registered Radioactive Substances** Name: Albemarle Chemicals Uk Ltd Location: Whitehaven Works, Po Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Environment Agency, North West Region Permit Reference: Aj6084 Dated: 31st March 1991 Process Type: Not Supplied Description: Authorisation under RSA **Status: Authorisation either revoked or cancelled** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	484	3	297228 516344

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
35	**Substantiated Pollution Incident Register** Authority: Environment Agency - North West Region, North Area Incident Date: 6th October 2002 Incident Reference: 112884 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Inorganic Chemicals : Acids	A8NW (S)	599	3	296485 515674
36	**Water Abstractions** Operator: Whitehaven Brick & Tile Co Ltd Licence Number: 2774002003 Permit Version: Not Supplied Location: Inland Water At Fire Brick Works, WHITEHAVEN, Cumbria Authority: Environment Agency, North West Region Abstraction: Manufacturing Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 1 Yearly Rate (m3): 455 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	661	3	297300 516700
37	**Water Industry Act Referrals** Name: Tdg Plc Location: WILSON PIT CORNER, WILSON PIT ROAD, HIGH ROAD, WHITEHAVEN, CUMBRIA, CA28 9QJ Authority: Environment Agency, North West Region Permit Reference: Bi7925 Dated: 14th June 2000 Process Type: Permissions or amendments to discharge under the Water Industry Act 1991 Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations **Status: Application received by the EA but is not yet authorised** Positional Accuracy: Manually positioned to the address or location	A8SE (S)	790	3	296958 515473
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 6 South West Cumbria Scale: 1:100,000	A13NE (N)	0	3	296681 516293
	Drift Deposits Drift Deposit: Low permeability drift deposits occuring at the surface and overlying Major and Minor Aquifers are head, clay-with-flints, brickearth, peat, river terrace deposits and marine and estuarine alluvium Map Sheet: Sheet 6 South West Cumbria Scale: 1:100,000	A13NE (N)	0	3	296681 516293
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NE (N)	0	4	296681 516293
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A13NE (N)	0	4	296681 516293
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 175.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A14NW (E)	538	5	297288 516287
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A12SE (W)	596	5	296033 516115
40	**OS Water Network Lines** Watercourse Form: Marsh Watercourse Length: 6.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A12SW (W)	628	5	296000 516116
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 412.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A14NE (E)	634	5	297375 516408
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 152.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A19SW (NE)	634	5	297233 516746
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A19SE (NE)	773	5	297371 516794
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 346.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A19SE (NE)	774	5	297373 516794
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 163.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A9NW (SE)	814	5	297318 515656
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 166.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	848	5	296779 515383

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 214.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A14SE (E)	859	5	297609 516177
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 51.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	877	5	296701 515354
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 82.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	877	5	296701 515354
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	920	5	296737 515311
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	944	5	296759 515287
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 36.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	945	5	296809 515288
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A9SE (SE)	945	5	297383 515537
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A9SE (SE)	949	5	297379 515528
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	953	5	296734 515277

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	953	5	296735 515278
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	953	5	296742 515278
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	953	5	296742 515278
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A9SE (SE)	953	5	297389 515533
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	954	5	296731 515277
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 64.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	954	5	296731 515277
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 351.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	955	5	296727 515276
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 22.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	956	5	296753 515275
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A8SE (S)	957	5	296775 515275

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 91.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ehen-Calder Primacy: 1	A9SE (SE)	962	5	297407 515536

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
66	**BGS Recorded Landfill Sites** Site Name: Marchon Tip Location: Barrowmouth Kells, WHITEHAVEN, Cumbria Authority: British Geological Survey, National Geoscience Information Service Ground Water: Information not available Surface Water: Information not available Geology: N/A Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate	A12SE (SW)	642	-	296047 515953
67	**BGS Recorded Landfill Sites** Site Name: Marchon Tip Location: Lingydale, Kells, WHITEHAVEN, Cumbria Authority: British Geological Survey, National Geoscience Information Service Ground Water: Information not available Surface Water: Information not available Geology: N/A Positional Accuracy: Unknown Boundary Accuracy: Not Applicable	A8SW (S)	695	-	296405 515595
68	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Barrowmouth Kells, Whitehaven, Cumbria Name: Marchon Tip Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD31992 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: 24 Other Ref: Not Supplied	A12SE (SW)	641	3	296048 515953
69	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Hutbank Landfill Licence Number: 57028 Location: Hutbank Quarry Landfill, P O Box 15, Whitehaven, Cumbria, CA28 9QQ Licence Holder: Whitehaven Developments Ltd Authority: Environment Agency - North West Region, North Area Site Category: Industrial Waste Landfills Max Input Rate: Not Supplied **Licence Status: Modified** Issued: 31st August 1977 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A8NW (SW)	430	3	296398 515886
70	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Woodhouse Quarry Licence Number: 57167 Location: Woodhouse Quarry, Low Road, Whitehaven, Cumbria, CA28 9HS Licence Holder: Eotl2 Ltd Authority: Environment Agency - North West Region, North Area Site Category: Landfills Taking Non-biodegradeable Wastes (Not Construction) Max Input Rate: Not Supplied **Licence Status: Expired** Issued: 13th January 1992 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A14NW (E)	441	3	297169 516461
71	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Ufex Landfill Licence Number: 57181 Location: Land / Premises At, Off High Road, Whitehaven, Cumbria, C28 9QJ Licence Holder: Whitehaven Developments Ltd Authority: Environment Agency - North West Region, North Area Site Category: Industrial Waste Landfills Max Input Rate: Not Supplied **Licence Status: Modified** Issued: 22nd May 1992 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A8SE (S)	806	3	296834 515431

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
72	**Licensed Waste Management Facilities (Locations)** Licence Number: 400343 Location: Whitehaven Developments Site Restoration, High Road, Mirehouse, Whitehaven, Cumbria, CA28 9QQ Operator Name: Whitehaven Developments Limited Operator Location: Not Supplied Authority: Environment Agency - North West Region, North Area Site Category: Use of waste in a deposit for recovery op **Licence Status: Modified** Issued: 17th October 2013 Last Modified: 1st September 2014 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8NW (S)	389	3	296640 515850
73	**Licensed Waste Management Facilities (Locations)** Licence Number: 57167 Location: Woodhouse Quarry, Low Road, Whitehaven, Cumbria, CA28 9HS Operator Name: Eotl2 Ltd Operator Location: Not Supplied Authority: Environment Agency - North West Region, North Area Site Category: Landfills Taking Non-biodegradeable Wastes (Not Construction) **Licence Status: Expired** Issued: 13th January 1992 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14NW (NE)	524	3	297200 516600
74	**Licensed Waste Management Facilities (Locations)** Licence Number: 57028 Location: Hutbank Quarry Landfill, P O Box 15, Whitehaven, Cumbria, CA28 9QQ Operator Name: Whitehaven Developments Ltd Operator Location: Not Supplied Authority: Environment Agency - North West Region, North Area Site Category: Industrial Waste Landfills **Licence Status: Modified** Issued: 31st August 1977 Last Modified: 4th February 2015 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A8SW (S)	761	3	296500 515500
75	**Licensed Waste Management Facilities (Locations)** Licence Number: 57181 Location: Land / Premises At, Off High Road, Whitehaven, Cumbria, C28 9QJ Operator Name: Whitehaven Developments Ltd Operator Location: Not Supplied Authority: Environment Agency - North West Region, North Area Site Category: Industrial Waste Landfills **Licence Status: Modified** Issued: 22nd May 1992 Last Modified: 4th February 2015 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A8SE (S)	933	3	296800 515300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
76	**Licensed Waste Management Facilities (Locations)** Licence Number: 101717 Location: Wilson Put Yard, Sandwith, Whitehaven, Cumbria, CA28 9QJ Operator Name: West Coast Composting Ltd Operator Location: Not Supplied Authority: Environment Agency - North West Region, North Area Site Category: HCI Waste TS + treatment **Licence Status: Issued** Issued: 6th July 2010 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9SW (S)	973	3	297020 515300
	Local Authority Landfill Coverage Name: Copeland Borough Council - Has supplied landfill data		0	2	296681 516293
	Local Authority Landfill Coverage Name: Cumbria County Council - Had landfill data but passed it to the relevant environment agency		0	6	296681 516293
77	**Local Authority Recorded Landfill Sites** Location: Woodhouse Quarry, Whitehaven Reference: 167 Authority: Copeland Borough Council, Environmental Health Department **Last Reported Status: Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A14NW (E)	435	2	297162 516461
78	**Local Authority Recorded Landfill Sites** Location: Hutbank Quarry Reference: 28 Authority: Copeland Borough Council, Environmental Health Department **Last Reported Status: Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A8NW (SW)	541	2	296423 515751
79	**Local Authority Recorded Landfill Sites** Location: Marchon Works, Whitehaven Reference: 181 Authority: Copeland Borough Council, Environmental Health Department **Last Reported Status: Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A8SE (S)	721	2	296815 515514

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
80	**Registered Landfill Sites** Licence Holder: Newdale Construction Ltd Licence Reference: 167/M4 Site Location: Woodhouse Quarry, Low Road, Whitehaven, Cumbria, Ca28 9hs Licence Easting: 297150 Licence Northing: 516600 Operator Location: 4 King Street, Aspatria, Cumbria, Ca6 3et Authority: Environment Agency - North West Region, North Area Site Category: Landfill Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Site not yet started Dated: 13th January 1992 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: H'Core,Concrete,Brick,Slate,Glass,Cera Inert Mat'L Consisting Of Max.Waste Permitted By Licence Soil,Sand,Clay,Stone Prohibited Waste: Animal Flesh Clinical - As In Coll/Disp.Regs Of '88 Difficult Wastes As In Doe Wmp No.26 Foodstuffs Hard Bonded Asbestos From Constr/Demol Leachate Forming Mat'Ls Incl. Liquid Wastes Metal Objects Paper/Cardboard Waste Plasterboard/Plaster Plastic Objects Sawdust Spec.Waste (Epa'90:S62/1996 Regs) Textiles Vegetable Matter Waste In Demountable Containers Wood/Timber	A14NW (NE)	481	3	297150 516600
81	**Registered Landfill Sites** Licence Holder: Albright & Wilson Ltd Licence Reference: 28/M3 Site Location: Hutbank Quarry, Whitehaven, Cumbria Licence Easting: Not Supplied Licence Northing: Not Supplied Operator Location: Whitehaven Works Po Box 15, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency - North West Region, North Area Site Category: Landfill Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: Waste produced/controlled by licence holder Status: Record supersededSuperseded Dated: 31st August 1977 Preceded By Licence: Not Given Superseded By Licence: 28/M4 Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate Authorised Waste: Asbestos Sheeting & Lagging Calcium Sulphate Canteen Waste Construction And Demolition Wastes Contam.Fatty Alcohol Prods,Non-Haz. Contaminated Non-Haz Detergent Comp Controlled Wastes Dicalite Filter Media Mineral Lagging Miscellaneous Inorganic Waste Paper/Cardboard Waste Soda Ash Environment Agency must give specific authorisation for this waste to be acceptedWaste requires prior approval: Special Wastes	A8NW (SW)	524	3	296410 515776

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
82	**Registered Landfill Sites** Licence Holder: Albright & Wilson Ltd Licence Reference: 28/M6 Site Location: Hutbank Quarry, Whitehaven, Cumbria Licence Easting: 296400 Licence Northing: 515600 Operator Location: Whitehaven Works Po Box 15, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency - North West Region, North Area Site Category: Landfill Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source Restrictions: Waste produced/controlled by licence holder Status: Site Closed Dated: 1st November 1996 Preceded By Licence: 28/M4 Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Bitum./Asphaltic Mat'L Ex Road/Carpark Concrete,Brick,Slate,Glass,Ceramic Inert Mat'L Consisting Of Max.Waste Permitted By Licence Soil,Sand,Clay,Stone Prohibited Waste: Animal Flesh Clinical - As In Control.Waste Regs'92 Difficult Wastes (As In Wmp.26) Foodstuffs Hard/Bonded Asbestos Prods Leachate Forming Mat'Ls Liquid Wastes Metal Objects Paper/Cardboard Waste Plasterboard/Plaster Plastic Objects Spec.Waste (Epa'90:S62/1996 Regs) Textiles Vegetable Matter Waste In Demountable Containers Wood, Timber, Sawdust	A8SW (S)	692	3	296400 515600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
82	**Registered Landfill Sites** Licence Holder: Albright & Wilson Ltd Licence Reference: 28/M4 Site Location: Hutbank Quarry, Whitehaven, Cumbria Licence Easting: 296400 Licence Northing: 515600 Operator Location: Whitehaven Works Po Box 15, Whitehaven, Cumbria, Ca28 9qq Authority: Environment Agency - North West Region, North Area Site Category: Landfill Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source Restrictions: Waste produced/controlled by licence holder Status: Record supersededSuperseded Dated: 1st April 1994 Preceded By Licence: 28/M3 Superseded By Licence: 28/M6 Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Bitum./Asphaltic Mat'L Ex Road/Carpark Concrete,Brick,Slate,Glass,Ceramic Hard/Bonded Asbestos Prods Inert Mat'L Consisting Of Max.Waste Permitted By Licence Soil,Sand,Clay,Stone Prohibited Waste: Animal Flesh Clinical - As In Control.Waste Regs'92 Difficult Wastes (As In Wmp.26) Foodstuffs Leachate Forming Mat'Ls Liquid Wastes Metal Objects Paper/Cardboard Waste Plasterboard/Plaster Plastic Objects Special Wastes Textiles Vegetable Matter Waste In Demountable Containers Wood, Timber, Sawdust	A8SW (S)	692	3	296400 515600
83	**Registered Landfill Sites** Licence Holder: Rhodia Consumer Specialities Ltd Licence Reference: 181/M3 Site Location: Ufex Raffinate Landfill, Marchon Works, WHITEHAVEN, Cumbria, CA28 9QQ Licence Easting: 296800 Licence Northing: 515400 Operator Location: As Site Address Authority: Environment Agency - North West Region, North Area Site Category: Landfill Max Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year) Waste Source Restrictions: Only waste produced on site Status: Operational as far as is knownOperational Dated: 29th May 1992 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Inert Sub/Topsoil,Clay Max.Waste Permitted By Licence Ufex Raffinate Waste Ex Marchon Wks Prohibited Waste: Clinical - As In Coll/Disp.Regs Of '88 Difficult Wastes (As In Wmp 26) General Builders Waste Liquid/Slurry/Sludge Wastes Spec.Waste (Epa'90:S62/1996 Regs)	A8SE (S)	833	3	296800 515400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
84	**Registered Waste Treatment or Disposal Sites** Licence Holder: Albright & Wilson Licence Reference: 165/M1 Site Location: Whitehaven Works, WHITEHAVEN, Cumbria, CA28 9QQ Operator Location: As Site Address Authority: Environment Agency - North West Region, North Area Site Category: Storage Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source Restrictions: Only waste produced on site Licence Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st December 1991 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Max.Storage Permitted By Licence Spent Copper Chromite Catalyst & Straight-Chain Primary Fatty Alcohol Prohibited Waste: Waste N.O.S. Environment Agency must give specific authorisation for this waste to be acceptedWaste requires prior approval: Mat'L Contam Copper Chromite Catalyst	A8SW (S)	761	3	296500 515500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
85	**Control of Major Accident Hazards Sites (COMAH)** Name: Huntsman Surface Sciences (Uk) Limited Location: Whitehaven Works, Po Box 15, WHITEHAVEN, Cumbria, CA28 9QQ Reference: 15927 Type: Upper Tier **Status: Record Ceased To Be Supplied Under COMAH Regulations** Positional Accuracy: Manually positioned to the address or location	A8NE (S)	317	7	296688 515916
86	**Notification of Installations Handling Hazardous Substances (NIHHS)** Name: Albright & Wilson Limited Location: Marchon Works, WHITEHAVEN, Cumbria, CA28 9QQ **Status: Not Active** Positional Accuracy: Unknown	A13SE (S)	133	7	296700 516100
87	**Planning Hazardous Substance Consents** Name: Albright & Wilson Ltd Location: Whitehaven Works, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Copeland Borough Council, Planning Application Ref: 4/92/0956/0H1 Hazardous Substance: Part A, Toxic Substance, Sulphur trioxide (including the sulphur trioxide content in oleum), where amount held is greater than or equal to 15 tonnes Maximum Quantity: 200 Application date: 30th November 1992 **Decision: Deemed consent granted between June 1992 and November 1992Granted** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	152	8	296696 516081
87	**Planning Hazardous Substance Consents** Name: Albright & Wilson Ltd Location: Whitehaven Works, WHITEHAVEN, Cumbria, CA28 9QQ Authority: Copeland Borough Council, Planning Application Ref: 4/92/0956/0H1 Hazardous Substance: Part B, Highly Reactive and Explosive Substance, Ethylene oxide, where amount held is greater than or equal to 5 tonnes Maximum Quantity: 40 Application date: 30th November 1992 **Decision: Deemed consent granted between June 1992 and November 1992Granted** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	157	8	296696 516076

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Warwickshire Group	A13NE (N)	0	1	296681 516293
	BGS 1:625,000 Solid Geology Description: Permian Rocks (Undifferentiated)	A13SE (S)	0	1	296701 516235
88	**BGS Recorded Mineral Sites** Site Name: Fish Pit Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225761 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14NW (E)	304	1	297042 516406
89	**BGS Recorded Mineral Sites** Site Name: Croft Pit, Ladysmith Shaft Location: Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 11794 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NW (S)	340	1	296574 515917
90	**BGS Recorded Mineral Sites** Site Name: Brake House Location: Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140709 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Whitehaven Sandstone Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	349	1	296999 516581
91	**BGS Recorded Mineral Sites** Site Name: Barrowmouth Location: Sandwith, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147892 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Permian Geology: St Bees Evaporite Formation (Magnesian Limestone) Commodity: Dolomite Positional Accuracy: Located by supplier to within 10m	A12SE (SW)	359	1	296300 516080
92	**BGS Recorded Mineral Sites** Site Name: Hinde Pit Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147905 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14SW (SE)	361	1	297086 516104

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
93	**BGS Recorded Mineral Sites** Site Name: Barrowmouth Location: Sandwith, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140649 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Permian Geology: St Bees Evaporite Formation (Magnesian Limestone) Commodity: Dolomite Positional Accuracy: Located by supplier to within 10m	A12SE (SW)	437	1	296220 516065
94	**BGS Recorded Mineral Sites** Site Name: Kells Location: Kells, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140708 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Whitehaven Sandstone Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A18SE (N)	442	1	296692 516784
95	**BGS Recorded Mineral Sites** Site Name: Kells Pit Location: Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225751 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18SW (N)	454	1	296528 516787
96	**BGS Recorded Mineral Sites** Site Name: Howgill Head Clay Pits Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225775 Type: Opencast **Status: Ceased** Operator: Whitehaven Brick & Tile Co., Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	486	1	297168 516581
97	**BGS Recorded Mineral Sites** Site Name: Howgill Head Clay Pits Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225776 Type: Opencast **Status: Ceased** Operator: Whitehaven Brick & Tile Co., Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A14NW (E)	488	1	297219 516456
98	**BGS Recorded Mineral Sites** Site Name: Barrowmouth Brickworks Location: Barrowmouth, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 16689 Type: Opencast **Status: Ceased** Operator: Whitehaven Brick & Tile Co., Ltd. Operator Location: Not Supplied Periodic Type: Permian Geology: St Bees Shales Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	521	1	296200 515940

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
99	**BGS Recorded Mineral Sites** Site Name: Fox Pit Location: Sandwith, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147900 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NE (S)	544	1	296880 515706
100	**BGS Recorded Mineral Sites** Site Name: Howgill Head Clay Pits Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225774 Type: Opencast **Status: Ceased** Operator: Whitehaven Brick & Tile Co., Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	557	1	297168 516703
101	**BGS Recorded Mineral Sites** Site Name: Old Gameriggs Pit Location: Greenbank, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147904 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	560	1	297008 515742
102	**BGS Recorded Mineral Sites** Site Name: Knockmurton Pit Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225768 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Bannock Coal (Cumbria) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14NW (E)	579	1	297317 516430
103	**BGS Recorded Mineral Sites** Site Name: Bank Pit Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147906 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Main Coal (Cumbria) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	612	1	297260 515900
104	**BGS Recorded Mineral Sites** Site Name: Senhouse Rise Pit Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225766 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Bannock Coal (Cumbria) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	633	1	297289 516664

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
104	**BGS Recorded Mineral Sites** Site Name: Bell Pit Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225767 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Bannock Coal (Cumbria) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	646	1	297319 516637
105	**BGS Recorded Mineral Sites** Site Name: Gameriggs Brickfield Location: Greenbank, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147901 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Till, Devensian Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	634	1	297230 515825
106	**BGS Recorded Mineral Sites** Site Name: Baxter Pit Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147907 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	652	1	297317 515915
107	**BGS Recorded Mineral Sites** Site Name: Howgill Head Clay Pits Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225773 Type: Opencast **Status: Ceased** Operator: Whitehaven Brick & Tile Co., Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	654	1	297271 516730
108	**BGS Recorded Mineral Sites** Site Name: Rise Pit Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225769 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	730	1	297388 516687
109	**BGS Recorded Mineral Sites** Site Name: Howgill Head Clay Pits Location: Kells, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 16705 Type: Opencast **Status: Ceased** Operator: Whitehaven Brick & Tile Co., Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	734	1	297333 516780

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
110	**BGS Recorded Mineral Sites** Site Name: Howgill Head Clay Pits Location: Kells, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 16706 Type: Opencast **Status: Ceased** Operator: Whitehaven Brick & Tile Co., Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	757	1	297310 516845
111	**BGS Recorded Mineral Sites** Site Name: Watson Pit Location: Greenbank, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147908 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Main Coal (Cumbria) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	774	1	297332 515729
112	**BGS Recorded Mineral Sites** Site Name: Howgill Pit Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225772 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	790	1	297381 516810
113	**BGS Recorded Mineral Sites** Site Name: Wood Houses Brick Field Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225760 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary, Devensian Geology: Till, Devensian Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	803	1	297438 516747
114	**BGS Recorded Mineral Sites** Site Name: Far Prestonhows Location: Sandwith, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140651 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Permian Geology: St Bees Evaporite Formation (Magnesian Limestone) Commodity: Dolomite Positional Accuracy: Located by supplier to within 10m	A8SE (S)	809	1	296965 515455
115	**BGS Recorded Mineral Sites** Site Name: Fox Pit Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225771 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	810	1	297349 516881

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
116	**BGS Recorded Mineral Sites** Site Name: Barrowmouth Gypsum Mine Location: Sandwith, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147897 Type: Underground **Status: Ceased** Operator: Joseph Robinson & Co. Ltd. Operator Location: Not Supplied Periodic Type: Permian Geology: St Bees Evaporite Formation Commodity: Gypsum Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	832	1	295871 515879
117	**BGS Recorded Mineral Sites** Site Name: Double Pit Location: Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225758 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	861	1	297127 517113
118	**BGS Recorded Mineral Sites** Site Name: Swinburn Pit Location: Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225765 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Bannock Coal (Cumbria) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	888	1	297100 517156
118	**BGS Recorded Mineral Sites** Site Name: Radcliffe Band Pit Location: Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225764 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Bannock Coal (Cumbria) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	928	1	297116 517192
119	**BGS Recorded Mineral Sites** Site Name: Barrowmouth Gypsum Mine Location: Sandwith, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147896 Type: Underground **Status: Ceased** Operator: Joseph Robinson & Co. Ltd. Operator Location: Not Supplied Periodic Type: Permian Geology: St Bees Evaporite Formation Commodity: Gypsum Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	903	1	295840 515790
120	**BGS Recorded Mineral Sites** Site Name: Kell Bearmouth Location: Woodhouse, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225770 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	917	1	297465 516909

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
121	**BGS Recorded Mineral Sites** Site Name: Arrowthwaite Pit Location: Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225756 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19NW (N)	925	1	297053 517214
122	**BGS Recorded Mineral Sites** Site Name: Aikbank Quarry Location: Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 11796 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Triassic Geology: St Bees Sandstone Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A7SW (SW)	927	1	295975 515585
123	**BGS Recorded Mineral Sites** Site Name: County Pit Location: Greenbank, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147909 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Main Coal (Cumbria) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	937	1	297279 515466
124	**BGS Recorded Mineral Sites** Site Name: Wilson Pit Location: Greenbank, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147910 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8SE (S)	954	1	296985 515310
125	**BGS Recorded Mineral Sites** Site Name: Sandwith Mine Location: Sandwith, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 16688 Type: Underground **Status: Ceased** Operator: Albright & Wilson Ltd Operator Location: Not Supplied Periodic Type: Permian Geology: St Bees Evaporite Formation ('B' Bed) Commodity: Anhydrite Positional Accuracy: Located by supplier to within 100m	A8SW (S)	981	1	296400 515300
126	**BGS Recorded Mineral Sites** Site Name: Barrowmouth Gypsum Mine Location: Sandwith, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147894 Type: Underground **Status: Ceased** Operator: Joseph Robinson & Co. Ltd. Operator Location: Not Supplied Periodic Type: Permian Geology: St Bees Evaporite Formation Commodity: Gypsum Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	981	1	295795 515715

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
126	**BGS Recorded Mineral Sites** Site Name: Barrowmouth Gypsum Mine Location: Sandwith, Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 147895 Type: Underground **Status: Ceased** Operator: Joseph Robinson & Co. Ltd. Operator Location: Not Supplied Periodic Type: Permian Geology: St Bees Evaporite Formation Commodity: Gypsum Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	981	1	295795 515715
127	**BGS Recorded Mineral Sites** Site Name: Burnt Pit Location: Whitehaven, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 225757 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	988	1	297284 517169
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13NE (N)	0	9	296681 516293
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13NE (N)	0	-	296681 516293
	Mining Instability Mining Evidence: Inconclusive Evaporites Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13NE (N)	0	-	296681 516293
	Man-Made Mining Cavities Easting: 296000 Northing: 515800 Distance: 765 Quadrant Reference: A7 Quadrant Reference: NW Bearing Ref: SW Cavity Type: Adit Entry Alabaster Mine Commodity: Gypsum Solid Geology Detail: New Red Sandstone Superficial Geology Detail: No Details	A7NW (SW)	765	10	296000 515800
	Man-Made Mining Cavities Easting: 296500 Northing: 515300 Distance: 956 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Anhydrite Mine Entry Adits/Drifts Commodity: Anhydrite Solid Geology Detail: New Red Sandstone Superficial Geology Detail: Glacial Till	A8SW (S)	956	10	296500 515300
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	0	1	296681 516293
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	0	1	296681 516293
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	200	1	296430 516174

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	0	1	296681 516293
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	26	1	296701 516208
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	0	1	296681 516293
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	174	1	296432 516358
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	0	1	296681 516293
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	97	1	296761 516437
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	128	1	296477 516348
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	175	1	296920 516337
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	180	1	296812 516068
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	0	1	296681 516293
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	97	1	296761 516437
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	128	1	296477 516348
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	175	1	296920 516337
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	180	1	296812 516068
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	0	1	296681 516293
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	0	1	296681 516293

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
128	**Contemporary Trade Directory Entries** Name: Seacliff Garage Location: Seacliffe Garage, Woodhouse Road, Whitehaven, Cumbria, CA28 9QD Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	91	-	296790 516158
129	**Contemporary Trade Directory Entries** Name: Responsive Ltd Location: 63, Lakeland Avenue, Whitehaven, Cumbria, CA28 9PY Classification: Engineering Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	112	-	296862 516220
130	**Contemporary Trade Directory Entries** Name: Whitehaven Cemetery Location: Low Road, Whitehaven, Cumbria, CA28 9HU Classification: Cemeteries & Crematoria **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NE (E)	805	-	297503 516610
131	**Contemporary Trade Directory Entries** Name: T Ferguson Location: Greenbank, Whitehaven, Cumbria, CA28 9RB Classification: Mechanical Engineers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A9NE (SE)	841	-	297357 515656
132	**Contemporary Trade Directory Entries** Name: Tankfreight Ltd Location: Wilson Pitt Rd,High Rd, Whitehaven, Cumbria, CA28 9QJ Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A9SW (S)	856	-	297021 515424
133	**Contemporary Trade Directory Entries** Name: J R Services Location: Castle Garage, Low Road, WHITEHAVEN, Cumbria, CA28 9HS Classification: Mot Testing Centres **Status: Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	911	-	297421 516952
134	**Contemporary Trade Directory Entries** Name: Pondfield Garage Ltd Location: Solway Road, WHITEHAVEN, Cumbria, CA28 9AW Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	926	-	296722 517268
135	**Contemporary Trade Directory Entries** Name: C G Ford Location: Meadow Rd, Whitehaven, Cumbria, CA28 9HX Classification: Car Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19SE (E)	979	-	297668 516666
136	**Contemporary Trade Directory Entries** Name: West-Ways Location: Low Road, Whitehaven, CA28 9HS Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NE (NE)	987	-	297410 517071
136	**Contemporary Trade Directory Entries** Name: West-Ways Services Location: Westways, Low Road, Whitehaven, Cumbria, CA28 9HS Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NE (NE)	997	-	297388 517103
137	**Contemporary Trade Directory Entries** Name: Stephenson Auto Body Repairs Location: Meadow Rd, Whitehaven, Cumbria, CA28 9HX Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A15NW (E)	987	-	297708 516554
137	**Contemporary Trade Directory Entries** Name: Auto Spares & Repairs Ltd Location: unit 25 Meadow Rd, Whitehaven, Cumbria, CA28 9HX Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A15NW (E)	988	-	297711 516544

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
137	**Contemporary Trade Directory Entries** Name: Rapid Fit Location: County Garage,Meadow Rd, Whitehaven, Cumbria, CA28 9HX Classification: Exhaust & Shock Absorber Centres **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A15NW (E)	989	-	297714 516536

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
138	**Marine Nature Reserves** Name: Cumbria Coast Multiple Area: Y Area (m2): 18096616.3 Source: Natural England	A12NE (W)	440	11	296185 516470
139	**Nitrate Vulnerable Zones** Name: St Bees Description: Groundwater Source: Environment Agency, Head Office	A13SE (S)	5	4	296683 516234
140	**Sites of Special Scientific Interest** Name: St. Bees Head Multiple Areas: Y Total Area (m2): 1572402.43 Source: Natural England Reference: 1001877 Designation Details: Geological Conservation Review Designation Date: 28th November 1995 Date Type: Notified Designation Details: Heritage Coast Designation Date: 28th November 1995 Date Type: Notified Designation Details: RSPB Reserve Designation Date: 28th November 1995 Date Type: Notified Designation Details: Site Of Special Scientific Interest Designation Date: 28th November 1995 Date Type: Notified	A12NE (NW)	371	11	296259 516472

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Copeland Borough Council - Environmental Health Department	October 2014	Annual Rolling Update
Discharge Consents Environment Agency - North West Region	January 2019	Quarterly
Enforcement and Prohibition Notices Environment Agency - North West Region	March 2013	Annual Rolling Update
Integrated Pollution Controls Environment Agency - North West Region	October 2008	Variable
Integrated Pollution Prevention And Control Environment Agency - North West Region	January 2019	Quarterly
Local Authority Integrated Pollution Prevention And Control Copeland Borough Council - Environmental Health Department	February 2015	Variable
Local Authority Pollution Prevention and Controls Copeland Borough Council - Environmental Health Department	February 2015	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Copeland Borough Council - Environmental Health Department	February 2015	Variable
Nearest Surface Water Feature Ordnance Survey	January 2019	
Pollution Incidents to Controlled Waters Environment Agency - North West Region	January 2000	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - North West Region	March 2013	Annual Rolling Update
Prosecutions Relating to Controlled Waters Environment Agency - North West Region	March 2013	Annual Rolling Update
Registered Radioactive Substances Environment Agency - North West Region	June 2016	
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register Environment Agency - North West Region - North Area	January 2019	Quarterly
Water Abstractions Environment Agency - North West Region	January 2019	Quarterly
Water Industry Act Referrals Environment Agency - North West Region	October 2017	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Source Protection Zones Environment Agency - Head Office	January 2019	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	February 2019	Quarterly

Agency & Hydrological	Version	Update Cycle
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	February 2019	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	February 2019	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	February 2019	Quarterly
Flood Defences		
Environment Agency - Head Office	February 2019	Quarterly
OS Water Network Lines		
Ordnance Survey	October 2018	Quarterly
BGS Groundwater Flooding Susceptibility		
British Geological Survey - National Geoscience Information Service	May 2013	Annually
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Head Office	July 2018	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - North West Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - North West Region - North Area	July 2018	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - North West Region - North Area	January 2019	Quarterly
Local Authority Landfill Coverage		
Copeland Borough Council - Environmental Health Department	May 2000	Not Applicable
Cumbria County Council - Economy And Environment Department	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Copeland Borough Council - Environmental Health Department	May 2000	Not Applicable
Cumbria County Council - Economy And Environment Department	May 2000	Not Applicable
Registered Landfill Sites		
Environment Agency - North West Region - North Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - North West Region - North Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - North West Region - North Area	March 2003	Not Applicable
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Copeland Borough Council - Planning	February 2016	Variable
Cumbria County Council - Development Control	February 2016	Variable
Planning Hazardous Substance Consents		
Copeland Borough Council - Planning	February 2016	Variable
Cumbria County Council - Development Control	February 2016	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2018	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	Annually
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	January 2019	Quarterly
Fuel Station Entries Catalist Ltd - Experian	March 2019	Quarterly
Gas Pipelines National Grid	July 2014	
Underground Electrical Cables National Grid	December 2015	

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	August 2018	Bi-Annually
Areas of Outstanding Natural Beauty Natural England	August 2018	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	August 2018	Bi-Annually
Marine Nature Reserves Natural England	January 2018	Bi-Annually
National Nature Reserves Natural England	August 2018	Bi-Annually
National Parks Natural England	April 2017	Bi-Annually
Nitrate Vulnerable Zones Environment Agency - Head Office Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	December 2017 October 2015	Bi-Annually
Ramsar Sites Natural England	August 2018	Bi-Annually
Sites of Special Scientific Interest Natural England	October 2018	Bi-Annually
Special Areas of Conservation Natural England	August 2018	Bi-Annually
Special Protection Areas Natural England	August 2018	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Copeland Borough Council - Environmental Health Department** P O Box 19, Council Offices, Catherine Street, Whitehaven, Cumbria, CA28 7NY	Telephone: 01946 852585 Fax: 01946 590123 Email: dev.env@copelandbc.gov.uk Website: www.copelandbc.gov.uk
3	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
4	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
5	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
6	**Cumbria County Council - Economy And Environment Department** Citadel Chambers, Citadel Row, Carlisle, Cumbria, CA3 8SG	Telephone: 01228 606718 Website: www.cumbria.gov.uk
7	**Health and Safety Executive** 5S.2 Redgrave Court, Merton Road, Bootle, L20 7HS	Website: www.hse.gov.uk
8	**Copeland Borough Council - Planning** Council Offices, Catherine Street, Whitehaven, Cumbria, CA28 7NY	Telephone: 01946 852585 Fax: 01946 852791 Website: www.copelandbc.gov.uk
9	**The Coal Authority - Property Searches** 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0345 762 6848 Fax: 01623 637 338 Email: groundstability@coal.gov.uk Website: www2.groundstability.com
10	**Peter Brett Associates** Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN	Telephone: 0118 950 0761 Fax: 0118 959 7498 Email: reading@pba.co.uk Website: www.pba.co.uk
11	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

APPENDIX 4

COAL AUTHORITY REPORT

The Coal Authority

CON29M
coal mining report

WATER'S EDGE, WHITEHAVEN, CUMBRIA

Known or potential coal mining risks

Past underground coal mining	Page 3
Future underground coal mining	Page 3

Further action

No further reports from the Coal Authority are required. Further information on any next steps can be found in our Professional opinion.

For more information on our reports please visit www2.groundstability.com

Professional opinion

According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. It is unlikely that these features will impact on the stability of the enquiry boundary.

Your reference: 2019/2547
Our reference: 51002103840001
Date: 12 April 2019

Client name: Isabella Marshall

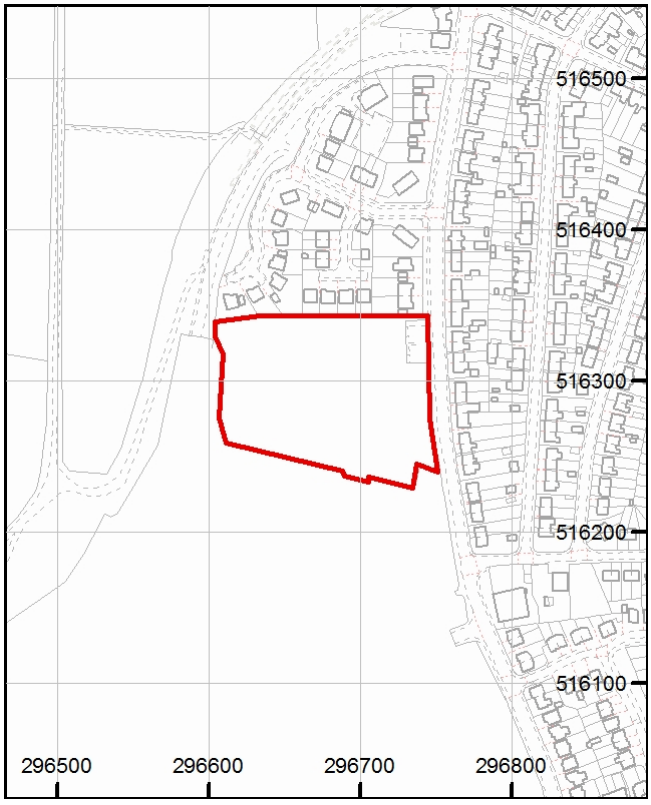
If you require any further assistance please contact our experts on:
0345 762 6848
groundstability@coal.gov.uk

The Law Society

Enquiry boundary

Key

Approximate position of enquiry boundary shown



We can confirm that the location is **on the coalfield**

Map data

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This report is prepared in accordance with the latest Law Society's Guidance Notes 2018, the User Guide 2018 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.

Accessibility

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.

Detailed findings

Information provided by the Coal Authority in this report is compiled in response to the Law Society's CON29M Coal Mining enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL.

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1 Past underground coal mining

The property is in a surface area that could be affected by underground mining in 2 seams of coal at 140m to 170m depth, and last worked in 1940.

Any movement in the ground due to coal mining activity associated with these workings should have stopped by now.

2 Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3 Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

4 Mine entries

There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.

5 Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6 Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7 Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8 Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9 Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

10 Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11 Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Coal Authority, under its Emergency Surface Hazard Call Out procedures.

12 Withdrawal of support

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

13 Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14 Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Statutory cover

Coal mining subsidence

In the unlikely event of any coal mining related subsidence damage, the Coal Authority or the mine operator has a duty to take remedial action in respect of subsidence caused by the withdrawal of support from land or property in connection with lawful coal mining operations.

When the works are the responsibility of the Coal Authority, our dedicated public safety and subsidence team will manage the claim. The house or land owner ("the owner") is covered for these works under the terms of the Coal Mining Subsidence Act 1991 (as amended by the Coal Industry Act 1994). Please note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

The owner therefore shouldn't incur cost or liability from repairs caused by the withdrawal of support from land and/or property in connection with lawful coal mining operations. Usually these actions will not need to involve your insurance company or mortgage lender.

Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call 01623 646 333. Further information can be found on our website: www.gov.uk/coalauthority.

Glossary

Key terms

adit - horizontal or sloped entrance to a mine

coal mining subsidence - ground movement caused by the removal of coal by underground mining

Coal Mining Subsidence Act 1991 - the Act setting out the duties of the Coal Authority to repair damage caused by coal mining subsidence

coal mining subsidence damage - damage to land, buildings or structures caused by the removal of coal by underground mining

coal seams - bed of coal of varying thickness

future opencast coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal from the surface

future underground coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal underground. Although it is unlikely, remaining coal reserves could create a possibility for future mining, which would be licensed by the Coal Authority

mine entries - collective name for shafts and adits

payments to owners of former copyhold land - historically, copyhold land gave rights to coal to the copyholder. Legislation was set up to allow others to work this coal, but they had to issue a notice and pay compensation if a copyholder came forward

shaft - vertical entry into a mine

site investigation - investigations of coal mining risks carried out with the Coal Authority's permission

stop notice - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

subsidence claim - a formal notice of subsidence damage to the Coal Authority since it was established on 31 October 1994

withdrawal of support - a historic notice informing landowners that the coal beneath their property was going to be worked

working facilities orders - a court order which gave permission, restricted or prevented coal mine workings

APPENDIX 5

SITE WALKOVER RECORD

Photograph 1: Stockpile 1 in the northern area of the Site with old fencing

Photograph 2: Access of the main road to the east of the site with locked herras fence panels.

Photograph 3: Central and southern area of the site surfaced with gravel and concrete slabs.

NOTES / KEY

Refer to Drawing 8190OD01, Appendix 1.1 for location and orientation of photographs

DRAWING TITLE

PHOTOGRAPHIC RECORD

PROJECT TITLE

WATER'S EDGE, WHITEHAVEN

CLIENT

GLEESON HOMES

STATUS	PROJECT NUMBER
FINAL	8190
DRAWN BY	DATE
NT	Sept 2019
SCALE	DRG. No.
NOT TO SCALE	8190 PLATE 1

FWS Geotechnical & Environmental Consultants

1 Redwood Crescent
Office 1.8, Peel Park
East Kilbride
South Lanarkshire
G74 5PA

Tel: 01355 207778
admin@fwsconsultants.com www.fwsconsultants.com

APPENDIX 6

ADDITIONAL ENQUIRIES

Nicholas Thomson

From: CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Sent: Wednesday, September 25, 2019 2:47 PM
To: Nicholas Thomson
Subject: CL138226HR
Attachments: CL138226HR

Dear Nick

Please find attached our response sent on 13 August 2019.

Thanks

Becca

Rebecca Lettice
Customers and Engagement Officer, Cumbria and Lancashire
Environment Agency | Ghyll Mount, Gillan Way, Penrith 40 Business Park, Penrith, Cumbria, CA11 9BP

inforequests.cmblnc@environment-agency.gov.uk

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Nicholas Thomson

From: Nicholas Thomson
Sent: Thursday, August 8, 2019 3:04 PM
To: thomas.greer@copeland.gov.uk
Cc: Isabella Marshall
Subject: Site Investigation on former Chemical Works at Water's Edge, Whitehaven
Attachments: ID01 site location plan - Waters Edge Whitehaven.pdf

Hi Thomas,

I have a site investigation coming up on the 22nd of August on a former chemical works at Water's Edge, Whitehaven in Cumbria (Nation Grid Reference 296680E, 516290N) as shown in the site Location plan above. Our desk study research indicates the chemical works was developed in the 1940s and was later demolished by 2012.

Do you happen to have any record of the plant processes, demolition details or presence of underground tanks or service ducts within the site boundaries and surrounding area.

Any information would be helpful for the design of our investigation.

Kind Regards

Nick

Nicholas Thomson BSc (Hons) FGS
Geoenvironmental Engineer

FWS Geological & Geo-Environmental Consultants

T: 01355 207778
M: 07712677340

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LONDON OFFICE | FWS Consultants Ltd | 3rd Floor | 86 - 90 Paul Street | LONDON | EC2A 4NE | Tel: +44 (0)203 8236069

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Nicholas Thomson

From: CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Sent: Tuesday, August 13, 2019 9:38 AM
To: Nicholas Thomson
Subject: CL138226HR

Dear Nick

Enquiry regarding the site investigation on former chemical works at Water's Edge, Whitehaven.

Thank you for your enquiry received on

We respond under the Freedom of Information Act 2000 and Environment Regulations 2004.

The site is the former Marchon Chemical works which was a large industrial complex manufacturing chemicals, acids and surfactants. The site apart from the former offices and laboratories (previously owned by Tamar properties and then Story Homes) was investigated under Environmental Protection Act 1990 Part2A and determined as a contaminated land site by Copeland Borough Council. Regulatory control was transferred to the Environment Agency as a “Special Site” and the company Rhodia agreed to voluntarily remediate the site under a Remediation Statement. The assessment actions were completed to remove the pollutant linkage to identified Controlled Water receptors.

All that remains on site now are the remnants and foundations of roads, plant and buildings. The EA have no detail regarding demolition of the site. All services were cut off to the site and drainage channels were removed or allowed to block allowing surface water to drain naturally.

Leachate from the Hutbank quarry landfill is still collected and transferred to the treatment facility on the Southern perimeter of the site.

If you wish to discuss proposals for re-use of the site or ground investigation proposals, our Sustainable Places Team can organise a pre-planning meeting. We could also arrange to make available the Public Register documentation of the Remediation Statement, which you can view at our office or at Copeland Borough Council’s Environmental Health office. There are too many volumes to copy directly so it would be better for you to visit the office and review what you need.

Rhodia will have information on the former drainage infrastructure, demolition and works on site.

Please refer to the Open Government Licence which explains ther permitted use for this information.

Please get in touch if you have any further queries or contact us within 2 months if you would like us to review the information we have sent.

Kind regards.

Helen Reynolds
Customers and Engagement Officer, Cumbria and Lancashire
Environment Agency | Ghyll Mount, Gillan Way, Penrith 40 Business Park, Penrith, Cumbria, CA11 9BP

Friend of the LGBT+ network Environment Agency

Environment Agency

I'm a friend of the Environment Agency LGBT+ network because I want to encourage a friendly open workplace where everyone can be themselves.

Mental Health Network

Got a question or want to talk to someone about mental health?

Drop us an email or join the conversation on our 'Mental Health Support' Yammer Group Our Wellbeing Supporters can provide a listening ear from someone with a shared experience. To find out more e-mail the Mental Health Network.

HELP employee assistance – https://hereto.helpeap.com

From: CMBLNC Info Requests
Sent: 12 August 2019 10:27
To: nthomson@fwsconsultants.com
Subject: CL138226HR

Dear Nick

Thank you for contacting the Environment Agency regarding Site Investigation on Former Chemical Works at Water's Edge, Whitehaven.

As your request for information falls under either the Freedom of Information Act or Environmental Information Regulations we must respond to you within 20 working days.

I have sent your request to the relevant team to answer and will be in touch with you in due course.

In the meantime you may wish to look at www.data.gov.uk to see if the data you have requested is available for you online.

For further information on what you can expect from us and our full service commitment to you, please click this link; https://www.gov.uk/government/publications/environment-agency-customer-service-commitment

The Environment Agency follows all applicable UK and EU data protection laws in how we treat your personal information (also called personal data). More details on your rights and how we will process your personal information can be found in our Personal Information Charter: https://www.gov.uk/government/organisations/environment-agency/about/personal-information-charter

If you need to contact me in the meantime, please do not hesitate to do so using the details below and quoting reference number CL138226HR.

Kind regards

Helen Reynolds
Customers and Engagement Officer, Cumbria and Lancashire
Environment Agency | Ghyll Mount, Gillan Way, Penrith 40 Business Park, Penrith, Cumbria, CA11 9BP

Creating a better place for people and wildlife

Friend of the LGBT+ network
Environment Agency

Environment Agency

I'm a friend of the Environment Agency LGBT+ network because I want to encourage a friendly open workplace where everyone can be themselves.

Mental Health Network

Got a question or want to talk to someone about mental health?

Drop us an email or join the conversation on our 'Mental Health Support' Yammer Group Our Wellbeing Supporters can provide a listening ear from someone with a shared experience. To find out more e-mail the Mental Health Network.

HELP employee assistance – https://hereto.helpeap.com

From: Enquiries, Unit
Sent: 09 August 2019 13:40
To: 'Nicholas Thomson' <nthomson@fwsconsultants.com>
Subject: 190809/GS31 RE: Site Investigation on Former Chemical Works at Water's Edge, Whitehaven

Dear Nick,

I have passed your e-mail to the local customer team who will deal with your request.

The Freedom of Information Act and Environmental Information Regulations state that a public authority must respond to requests for information within 20 working days, but we aim to respond to all enquiries as quickly as we can.

You can find more information about our service commitment by clicking on the link below:

https://www.gov.uk/government/publications/environment-agency-customer-service-commitment

You can contact our customer team directly on the contact details below, or call the National Customer Contact Centre on 03708 506506 who will transfer you to the area team.

Please quote your enquiry reference 190809/GS31 in any correspondence with us regarding this matter.

Customers and Engagement
Environment Agency
Cumbria and Lancashire Area
Ghyll Mount
Gillan Way
Penrith 40 Business Park
PENRITH
CA11 9BP

Kind regards,

Graham Shoebridge
Customer Service Adviser
National Customer Contact Centre
Environment Agency
☎ Tel: 03708 506 506
💻 Web Site: www.gov.uk/environment-agency

Click an icon to keep in touch with us:-

From: Nicholas Thomson [mailto:nthomson@fwsconsultants.com]
Sent: 08 August 2019 14:53
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: Site Investigation on Former Chemical Works at Water's Edge, Whitehaven

Good Afternoon,

I have a site investigation coming up on the 22nd of August on a former chemical works at Water's Edge, Whitehaven in Cumbria (Nation Grid Reference 296680E, 516290N) as shown in the site Location plan above. Our desk study research indicates the chemical works was developed in the 1940s and was later demolished by 2012.

Do you happen to have any record of the plant processes, demolition records or presence of underground tanks or service ducts.

Any information would be helpful for the design of our investigation.

Kind Regards

Nick

Nicholas Thomson BSc (Hons) FGS
Geoenvironmental Engineer

FWS Geological & Geo-Environmental Consultants

T: 01355 207778
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LONDON OFFICE | FWS Consultants Ltd | 3rd Floor | 86 - 90 Paul Street | LONDON | EC2A 4NE | Tel: +44 (0)203 8236069

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APPENDIX 7

EXPLORATORY HOLE LOGS

FWS Environmental & Geological Consultants

BOREHOLE LOG

Project				BOREHOLE No
Water's Edge, Whitehaven				**WS1**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	23-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	Description		
0.20	E					(0.60) 0.60	MADE GROUND: Soft brown sandy gravelly CLAY with rootlets. Gravel is fine to coarse subangular to subrounded of sandstone mudstone limestone brick and concrete.		
1.20-1.65	SPT	N12				(3.85)	Firm brown occasionally mottled grey sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone mudstone and coal. 1.20 - 3.00 becomes stiff		
2.00-2.45	SPT	N21							
3.00-3.45	SPT	N27					3.00 - 4.45 becomes very stiff		
4.00-4.45	SPT	N40				4.45			
							END OF BOREHOLE (Refusal - Barrel Bouncing on Very Stiff Clay)		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	Hand dug pit to 1.2 m bgl. No visual or olfactory signs of contamination. No groundwater encountered during drilling.

All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used DART	Logged By NT

AGS3 UK BH NEW 8190 BH LOGS 1ST DRAFT.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

BOREHOLE LOG

Project				BOREHOLE No
Water's Edge, Whitehaven				WS2
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	23-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	Description		
0.10	E		▼1			(1.20) 1.20	MADE GROUND: Greyish brown slightly clayey sandy fine to coarse angular to subrounded GRAVEL of sandstone mudstone brick and concrete.		
1.20-1.65	SPT	N13				(0.80) 2.00	Stiff reddish brown mottled grey sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone and coal.		
2.00-2.00	SPT	N50/ 0					END OF BORHOLE (Obstruction - Presumed Sandstone Cobble)		

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Hand dug pit to 1.2 m bgl. No visual or olfactory signs of contamination. Fast groundwater seepage at 0.4 m bgl.

All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used DART	Logged By NT

AGS3 UK BH NEW 8190 BH LOGS 1ST DRAFT.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

BOREHOLE LOG

Project				BOREHOLE No
Water's Edge, Whitehaven				WS3
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	23-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	Description		
0.60	E					(1.30) 1.30	MADE GROUND: Soft greyish brown sandy very gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone brick concrete and slag.		
1.20-1.65	SPT	N14				(0.70) 2.00	Stiff reddish brown mottled grey sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone mudstone and coal.		
2.00-2.45	SPT	N28				(0.95) 2.95	Very stiff brown occasionally mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone mudstone and coal.		
2.50-2.95	SPT	N50					END OF BOREHOLE (Refusal - Barrel Bouncing on Very Stiff Clay)		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	Hand dug pit to 1.2 m bgl. No visual or olfactory signs of contamination. No groundwater encountered during drilling.

All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used DART	Logged By NT

AGS3 UK BH NEW 8190 BH LOGS 1ST DRAFT.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

BOREHOLE LOG

Project				BOREHOLE No
Water's Edge, Whitehaven				**WS4**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	23-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	Description		
0.20	E					(0.45) 0.45	MADE GROUND: Dark grey sandy fine to coarse angular to subrounded GRAVEL of sandstone mudstone brick slag and concrete. 0.30 Subrounded cobble of concrete 0.40 Subangular cobble of slag		
1.20-1.65	SPT	N17				(1.90)	Destructured sandstone bedrock recovered as - Medium dense reddish brown slightly clayey gravelly fine to coarse SAND. Gravel is fine to coarse angular to subangular of sandstone.		
2.00-2.35	SPT	N50				2.35			
							END OF BOREHOLE (Obstruction - Presumed Competent Sandstone Bedrock)		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Hand dug pit to 1.2 m bgl. No visual or olfactory signs of contamination. Slow seepage at 0.3 m bgl.

All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used DART	Logged By NT

AGS3 UK BH NEW 8190 BH LOGS 1ST DRAFT.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

BOREHOLE LOG

Project				BOREHOLE No
Water's Edge, Whitehaven				WS5
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	23-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	Description		
						0.30	MADE GROUND: Brown clayey sandy TOPSOIL with roots and rootlets.		
0.40	E					(0.70) 1.00	MADE GROUND: Black sandy fine to coarse angular GRAVEL of coal ash and occasional mudstone.		
1.20-1.65	SPT	N8				(3.45)	Firm brown mottled grey sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone and coal. 1.50 - 2.00 becomes stiff		
2.00-2.45	SPT	N27					2.00 - 4.45 becomes very stiff		
3.00-3.45	SPT	N29							
4.00-4.45	SPT	N32				4.45			
							END OF BOREHOLE (Refusal - Barrel Bouncing on Very Stiff Clay)		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Hand dug pit to 1.2 m bgl. Hydrocarbon odour from 0.3 to 1 m bgl. Slow seepage at 0.3 m bgl.

All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used DART	Logged By NT

AGS3 UK BH NEW 8190 BH LOGS 1ST DRAFT.GPJ AGS3_ALL.GDT 12/9/19

FWS

8190 - TABLE 1: Water's Edge, Whitehaven - Soil Descriptions for Stockpile.

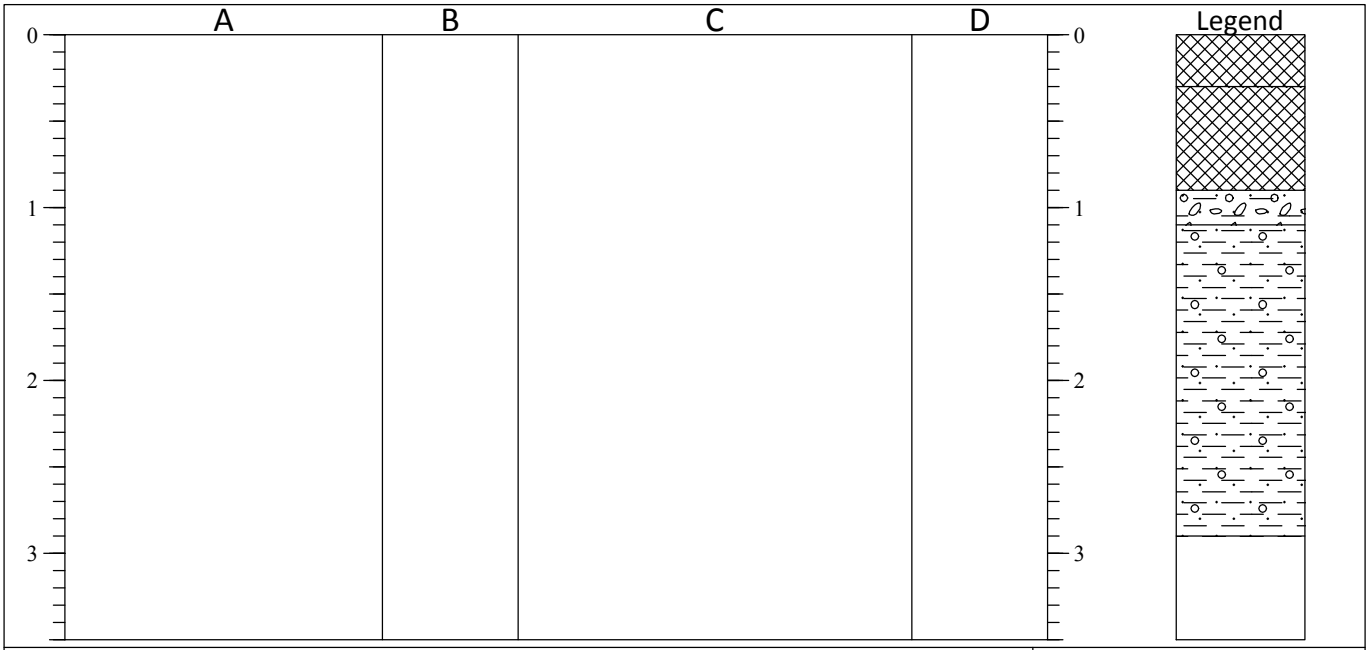
Water's Edge, Whitehaven	8190	6 September 2019

SAMPLE	DESCRIPTION
S1	MADE GROUND: Soft brown very gravelly sandy CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone coal limestone concrete slag and plastic.
S2	MADE GROUND: Brown slightly clayey very sandy fine to coarse subangular to subrounded GRAVEL of sandstone mudstone limestone concrete and brick.
S3	MADE GROUND: Firm reddish brown very gravelly sandy CLAY with roots and rootlets. Gravel is fine to coarse subangular to subrounded of sandstone mudstone concrete and brick.
S4	MADE GROUND: Soft brown sandy gravelly CLAY with rootlets. Gravel is fine to coarse subangular to rounded of sandstone mudstone coal limestone brick concrete and plastic.
S5	MADE GROUND: Soft brown sandy gravelly CLAY with rootlets. Gravel is fine to coarse subangular to rounded of sandstone mudstone coal limestone brick concrete and plastic.
S6	MADE GROUND: Soft reddish brown sandy gravelly CLAY with rootlets. Gravel is fine to coarse subangular to rounded of sandstone mudstone coal concrete and wood.
S7	MADE GROUND: Soft brown sandy gravelly CLAY with roots and rootlets. Gravel is fine to coarse subangular to rounded of sandstone mudstone coal brick concrete and plastic.

FWS Environmental & Geological Consultants

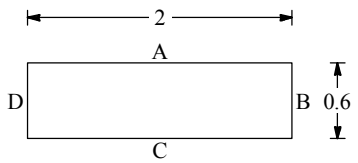
TRIAL PIT LOG

Project				TRIAL PIT No
Water's Edge, Whitehaven				**TP1**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		MADE GROUND: Grey sandy fine to coarse angular to subrounded GRAVEL of limestone.	0.10	E1	
0.30-0.90		MADE GROUND: Firm brown mottled grey sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone coal limestone and slag. 0.40 - 0.50 hydrocarbon odour	0.50 0.60-0.80	E2 B3	
0.90-1.10		Greyish brown slightly clayey sandy fine to coarse angular to subangular GRAVEL of sandstone and mudstone.	1.00	E4	
1.10-2.90		0.90 Slow seepage Stiff greyish brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is fine to coarse subangular to subrounded of sandstone mudstone and occasional coal. Cobbles are subrounded of sandstone.	1.50-1.70	B5	
			2.50-2.70	B6	
2.90		END OF PIT (Difficult Progress - Very Stiff Clay)			

Shoring/Support:
Stability: Stable



GENERAL REMARKS

Slow seepage at 0.9 m bgl. Hydrocarbon odour noted from 0.4-0.5 m bgl.

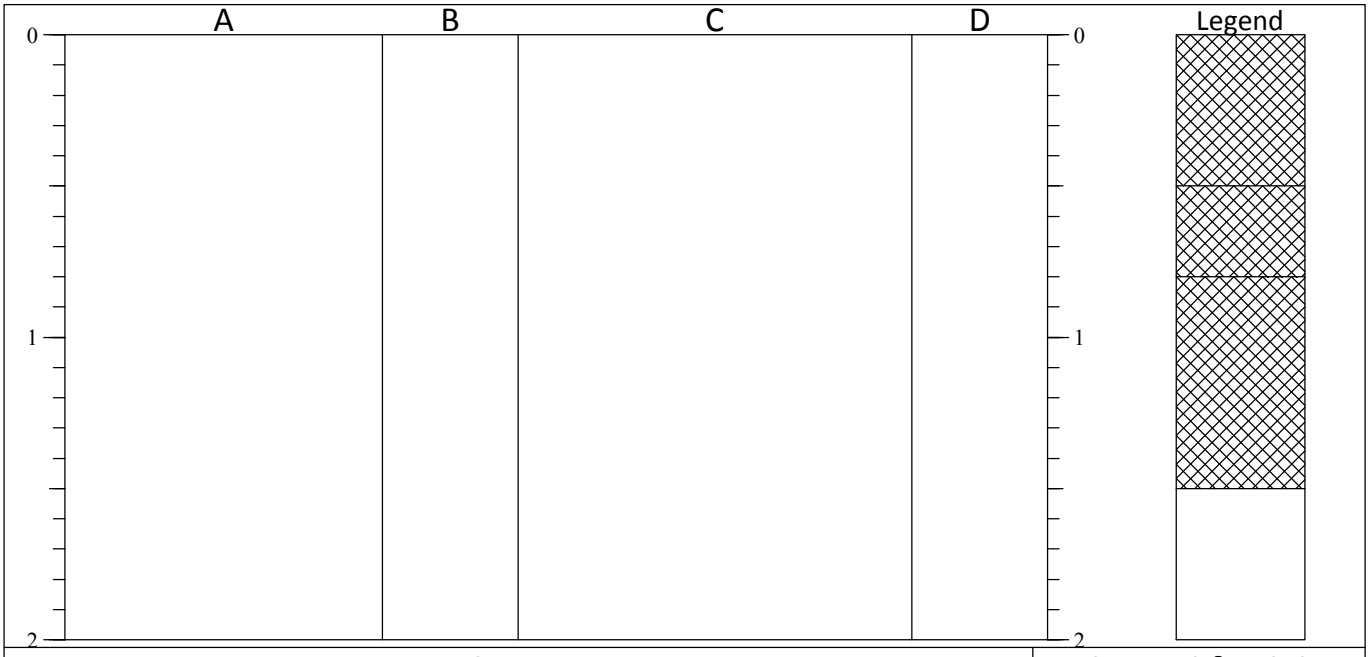
All dimensions in metres Scale 1:43.75	Client Gleeson Homes Cumbria	Method/ Plant Used JCB 3CX	Logged By NT

AGS3 UK TP NEW 8190 TP LOGS.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

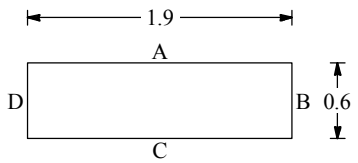
TRIAL PIT LOG

Project				TRIAL PIT No
Water's Edge, Whitehaven				**TP2**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.50		MADE GROUND: Greyish brown sandy fine to coarse angular to subrounded GRAVEL of sandstone mudstone limestone coal slag concrete ash brick and metal with roots and rootlets.	0.20	E1	
0.50-0.80		MADE GROUND: Firm blackish brown sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone coal slag and ash. 0.70 Fast groundwater seepage	0.50	E2	
0.80-1.50		MADE GROUND: Grey sandy fine to coarse angular to subrounded GRAVEL of sandstone mudstone limestone coal slag concrete ash brick and plastic with low cobble content. Cobbles are subangular to subrounded of brick and concrete.	1.00	E3	
1.50		END OF PIT (Groundwater Inundation)			

Shoring/Support:
Stability: Unstable from 0.8-1.5 m bgl



GENERAL REMARKS

No olfactory signs of conamination. Fast groundwater seepage a 0.7 m bgl.

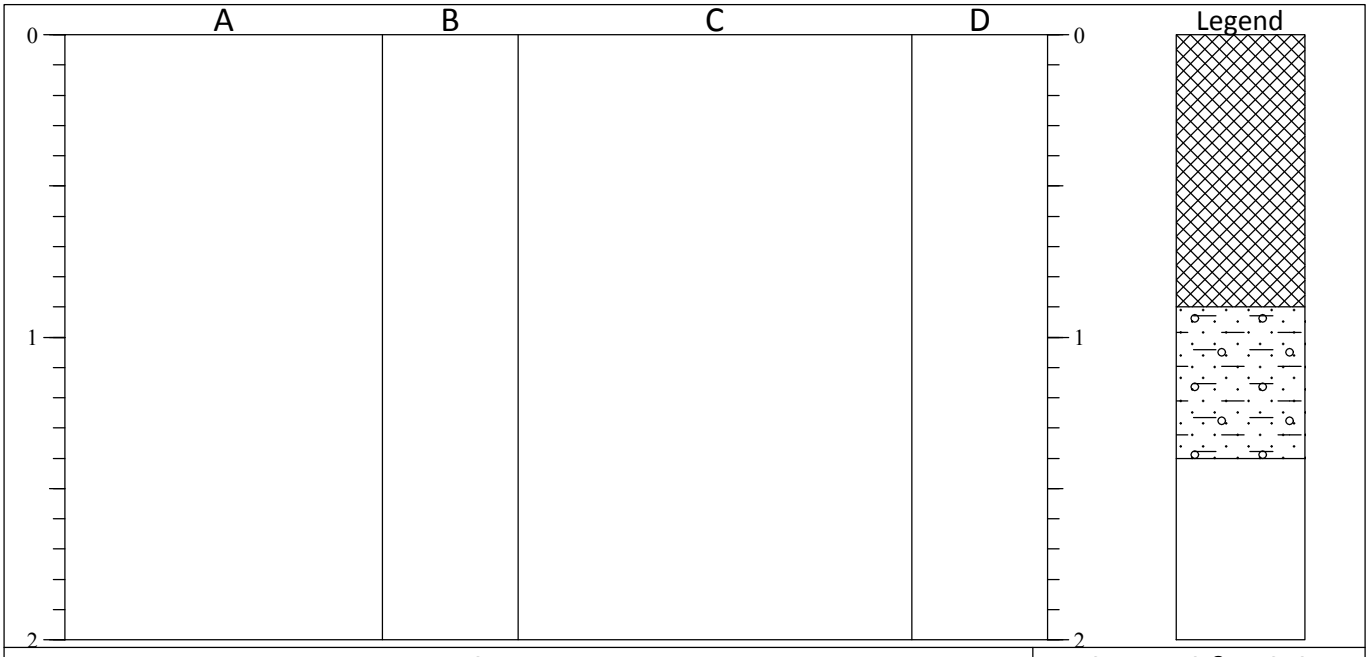
All dimensions in metres Scale 1:25	Client Gleeson Homes Cumbria	Method/ Plant Used JCB 3CX	Logged By NT

AGS3 UK TP NEW 8190 TP LOGS.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

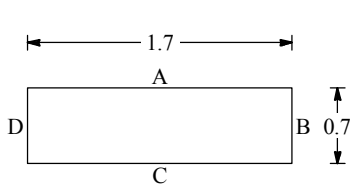
TRIAL PIT LOG

Project				TRIAL PIT No
Water's Edge, Whitehaven				**TP3**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.90		MADE GROUND: Grey sandy fine to coarse angular to subrounded GRAVEL of sandstone mudstone limestone coal slag concrete ash brick and plastic with low cobble content. Cobbles are subrounded of concrete and slag.	0.60	E1	
0.90-1.40		Destructured sandstone bedrock recovered as - Reddish brown slightly clayey very gravelly fine to coarse SAND with low cobble content. Gravel is fine to coarse angular to subangular of sandstone. Cobbles are angular to subangular of sandstone. 0.90 slow groundwater seepage 1.10 - 1.40 high cobble content	1.00	E2	
1.40		END OF PIT (Obstruction - Competent Sandstone Bedrock)			

Shoring/Support:
Stability: Stable



GENERAL REMARKS

No olfactory signs of conamination. Slow groundwater seepage at 0.9 m bgl.

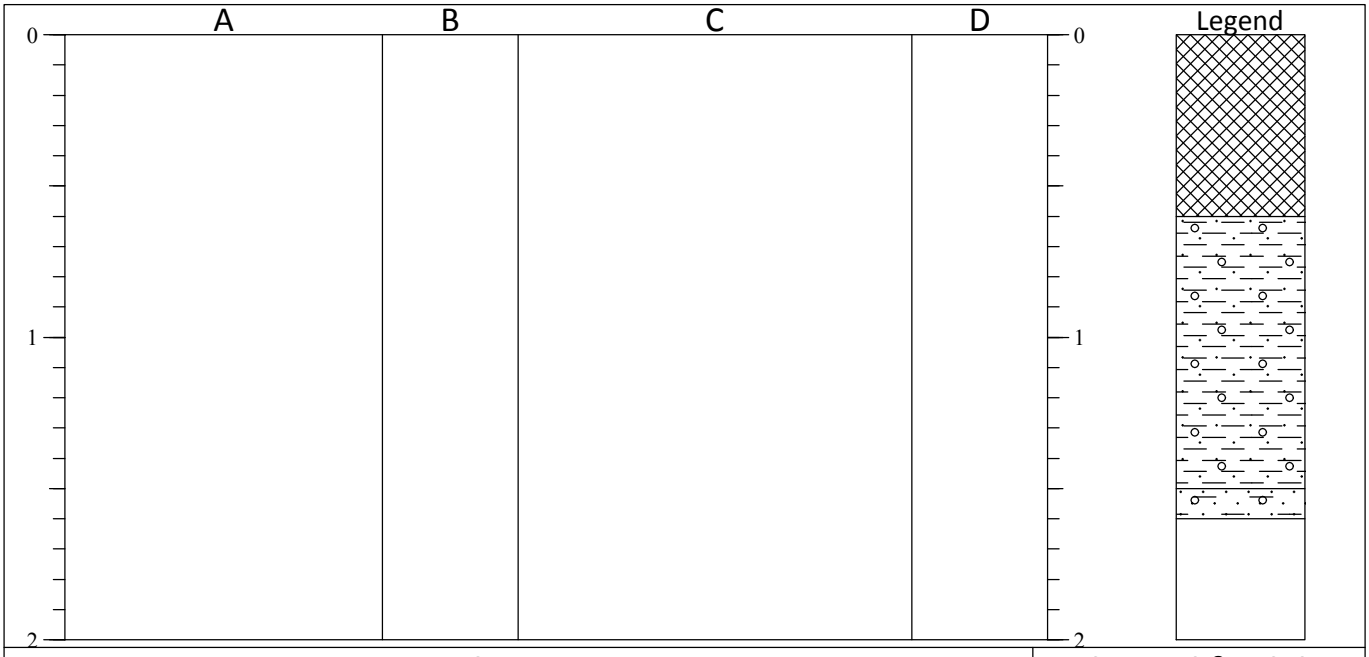
All dimensions in metres Scale 1:25	Client Gleeson Homes Cumbria	Method/ Plant Used JCB 3CX	Logged By NT

AGS3 UK TP NEW 8190 TP LOGS.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

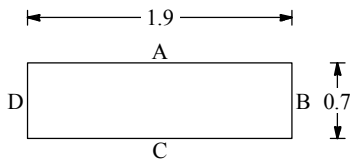
TRIAL PIT LOG

Project				TRIAL PIT No
Water's Edge, Whitehaven				**TP4**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.60		MADE GROUND: Dark grey very gravelly fine to coarse SAND with low cobble content. Gravel is fine to coarse angular to subrounded of sandstone mudstone limestone concrete and brick. Cobbles are subangular to subrounded of concrete and brick.	0.40	E1	
0.60-1.50		Soft dark brown slightly gravelly sandy CLAY with pockets of peat. Gravel is fine to coarse subangular to subrounded of sandstone.	0.80	E2	
			1.20-1.30	B3	
1.50-1.60		Destructured sandstone bedrock recovered as - Reddish brown slightly clayey very gravelly fine to coarse SAND with medium cobble content. Gravel is fine to coarse angular to subangular of sandstone. Cobbles are angular to subangular of sandstone.			
1.60		END OF PIT (Obstruction - Competent Sandstone Bedrock)			

Shoring/Support:
Stability: Stable



GENERAL REMARKS

No visual or olfactory signs of contamination. No groundwater encountered during excavation.

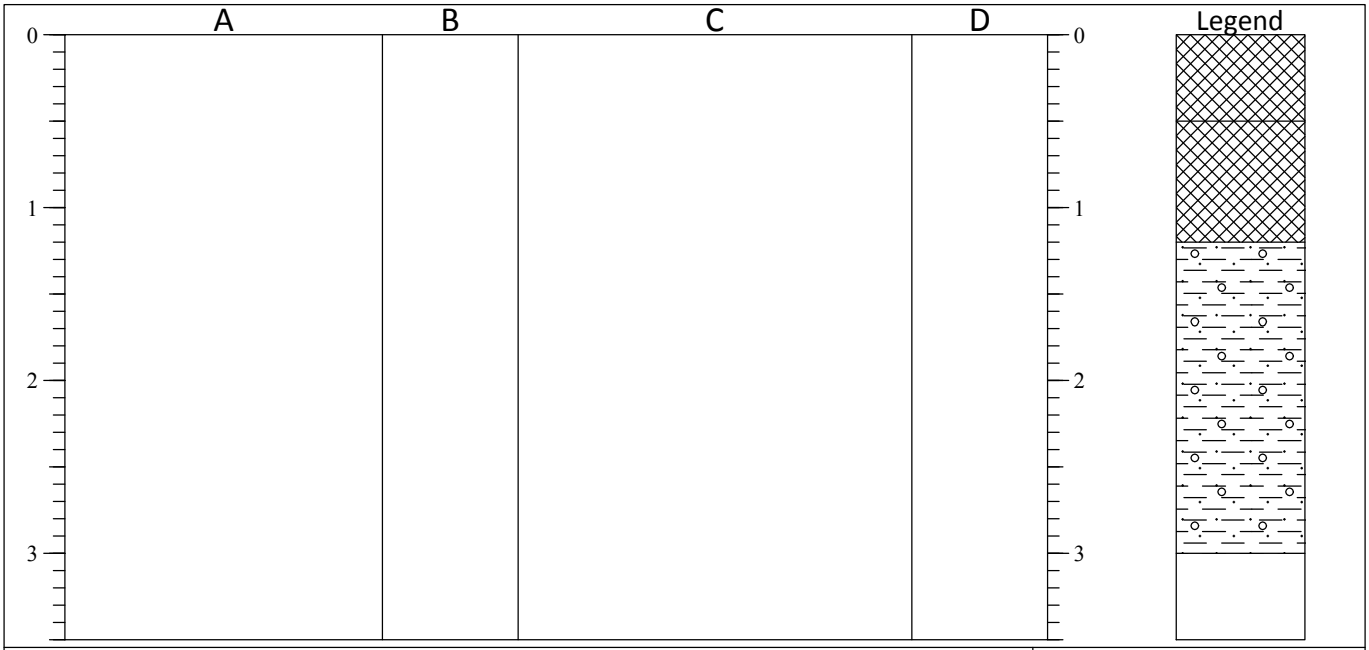
All dimensions in metres Scale 1:25	Client Gleeson Homes Cumbria	Method/ Plant Used JCB 3CX	Logged By NT

AGS3 UK TP NEW 8190 TP LOGS.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

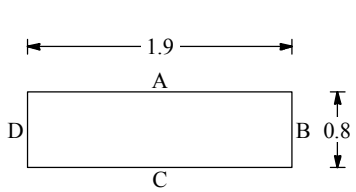
TRIAL PIT LOG

Project				TRIAL PIT No
Water's Edge, Whitehaven				TP5
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.50		MADE GROUND: Grey very gravelly fine to coarse SAND with medium cobble content. Gravel is fine to coarse angular to subrounded of sandstone mudstone limestone concrete slag wood and brick. Cobbles are to subrounded of concrete and slag.	0.10	E1	
0.50-1.20		MADE GROUND: Grey clayey sandy fine to coarse angular to subrounded GRAVEL of sandstone mudstone limestone coal slag concrete and brick. 0.50 - 1.20 fast groundwater seepage			
1.20-3.00		Soft reddish brown sandy very gravelly CLAY with pockets of peat and low cobble content. Gravel is fine to coarse angular to subrounded of sandstone mudstone and coal. Cobbles are subrounded of sandstone and mudstone. 2.00 becomes firm	1.20	E2	
			2.40-2.50	B3	
3.00		END OF PIT (Groundwater Inundation)			

Shoring/Support:
Stability: Stable



GENERAL REMARKS

No olfactory signs of conamination. Fast groundwater seepage at 0.5 to 1.2 m bgl.

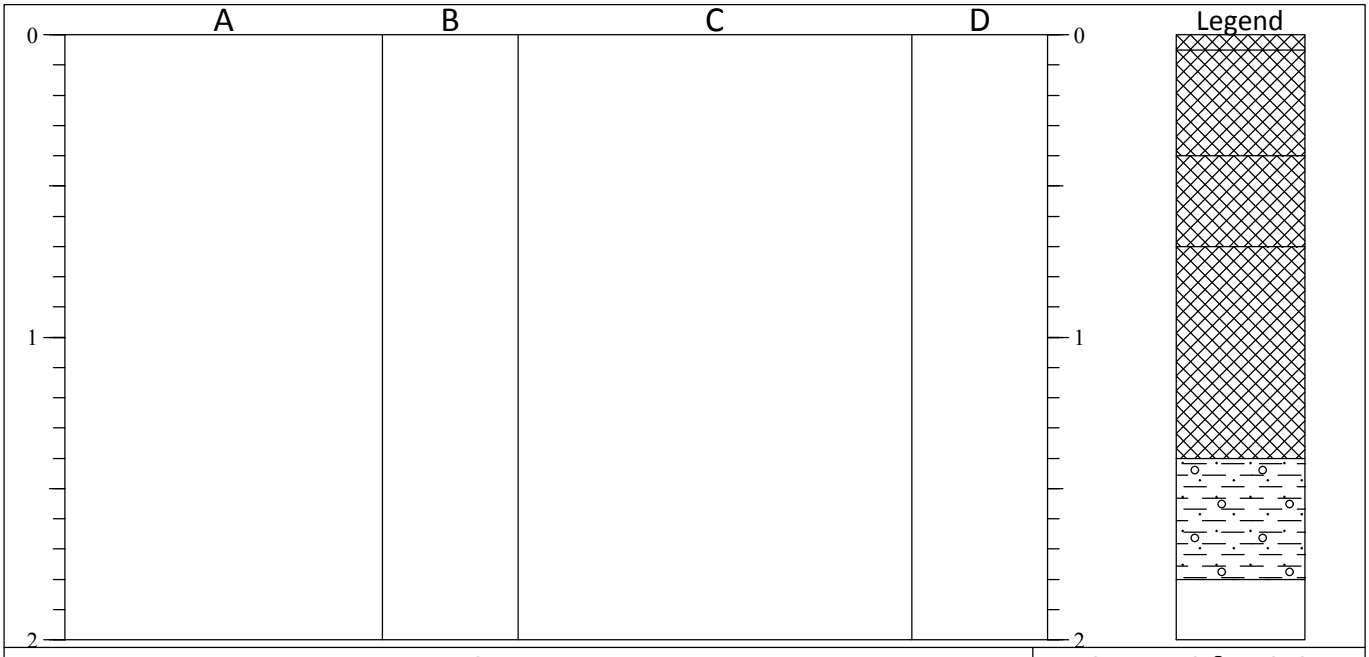
All dimensions in metres Scale 1:43.75	Client Gleeson Homes Cumbria	Method/ Plant Used JCB 3CX	Logged By NT

AGS3 UK TP NEW 8190 TP LOGS.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

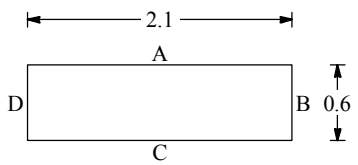
TRIAL PIT LOG

Project				TRIAL PIT No
Water's Edge, Whitehaven				TP6
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.05 0.05-0.40		MADE GROUND: Dark brown slightly clayey slightly gravelly sandy TOPSOIL with roots and rootlets. Gravel is fine to coarse subangular to subrounded of sandstone mudstone coal and brick.			
		MADE GROUND: Black gravelly fine to coarse SAND. Gravel is fine to coarse angular to subangular of coal burnt mudstone slag and ash.	0.30	E1	
0.40-0.70		MADE GROUND: Firm reddish brown sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone coal brick and slag.			
			0.60	E2	
0.70-1.40		MADE GROUND: Firm dark brown sandy CLAY with roots rootlets pockets of peat and occasional glass.			
			0.90-1.00	B3	
		1.00 fast groundwater seepage			
1.40-1.80		Stiff reddish brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone and coal. 1.50 Unmarked fireclay pipe encountered	1.40 1.50-1.60	E4 B5	
1.80		END OF PIT (Unmarked Fireclay Pipe Encountered)			

Shoring/Support:
Stability: Stable



GENERAL REMARKS

Strong solvent odour from unmarked fireclay pipe. Fast seepage at 1 m bgl.

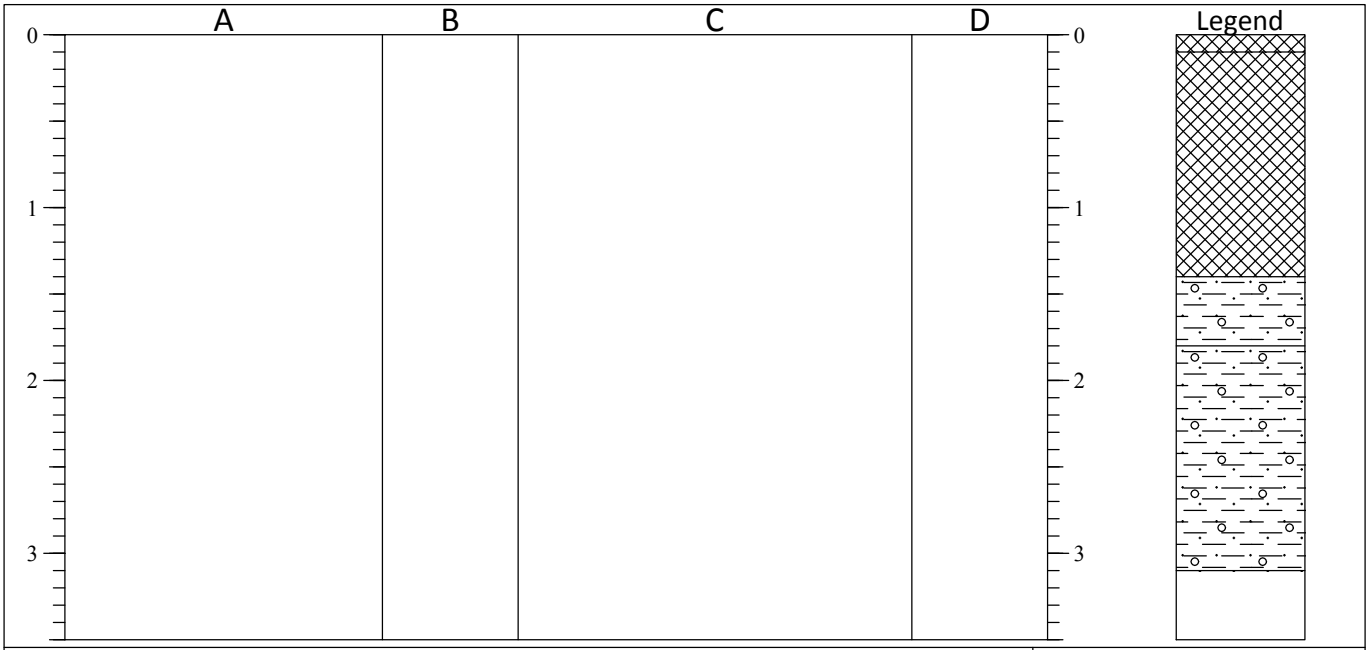
All dimensions in metres Scale 1:25	Client Gleeson Homes Cumbria	Method/ Plant Used JCB 3CX	Logged By NT

AGS3 UK TP NEW 8190 TP LOGS.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

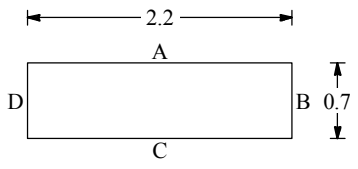
TRIAL PIT LOG

Project				TRIAL PIT No
Water's Edge, Whitehaven				TP7
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.10 0.10-1.40		MADE GROUND: Dark brown slightly clayey slightly gravelly sandy TOPSOIL with roots and rootlets. Gravel is fine to coarse subangular to subrounded of sandstone mudstone coal and brick. MADE GROUND: Black sandy fine to coarse angular GRAVEL of coal burnt mudstone and ash. 0.30 medium groundwater seepage	0.40	E1	
1.40-1.80		Firm reddish brown mottled grey sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone and coal.	1.50	E2	
1.80-3.10		Stiff reddish brown occasionally mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone and coal.	1.80-1.90	B3	
3.10		END OF PIT			

Shoring/Support:
Stability: Unstable from 0.4 - 1.4 m bgl.



GENERAL REMARKS

No olfactory signs of conamination. Medium groundwater seepage at 0.3 m bgl.

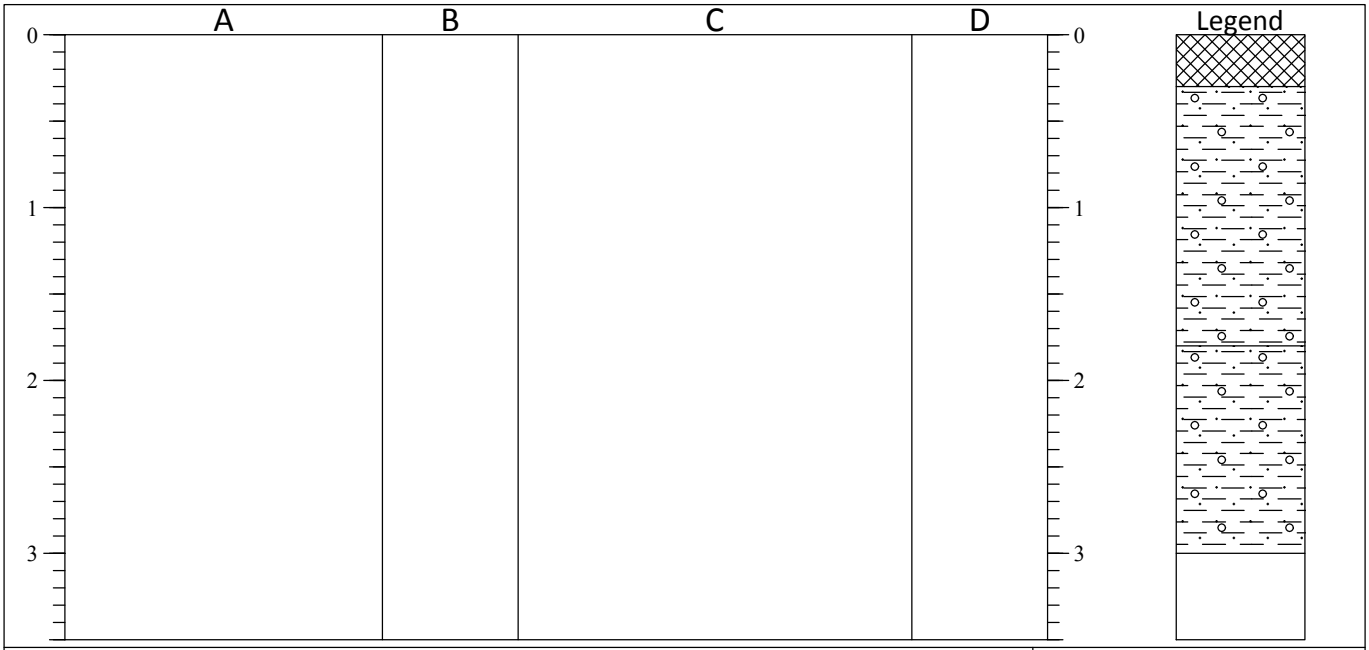
All dimensions in metres Scale 1:43.75	Client Gleeson Homes Cumbria	Method/ Plant Used JCB 3CX	Logged By NT

AGS3 UK TP NEW 8190 TP LOGS.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

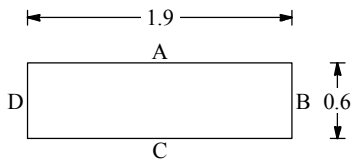
TRIAL PIT LOG

Project				TRIAL PIT No
Water's Edge, Whitehaven				**TP8**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		MADE GROUND: Dark brown slightly clayey slightly gravelly sandy TOPSOIL with roots and rootlets. Gravel is fine to coarse subangular to subrounded of sandstone mudstone coal and brick.	0.10	E1	
0.30-1.80		Firm brown sandy gravelly CLAY with pockets of peat and rootlets. Gravel is fine to coarse angular to subrounded of sandstone mudstone and coal.	0.50-0.70	B2	
1.80-3.00		Firm reddish brown mottled grey sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone and coal. 2.40 - 3.00 becomes stiff	2.40-2.50	B3	
3.00		END OF PIT			

Shoring/Support:
Stability: Stable



GENERAL REMARKS

No visual or olfactory signs of contamination. No groundwaer encountered during excavation.

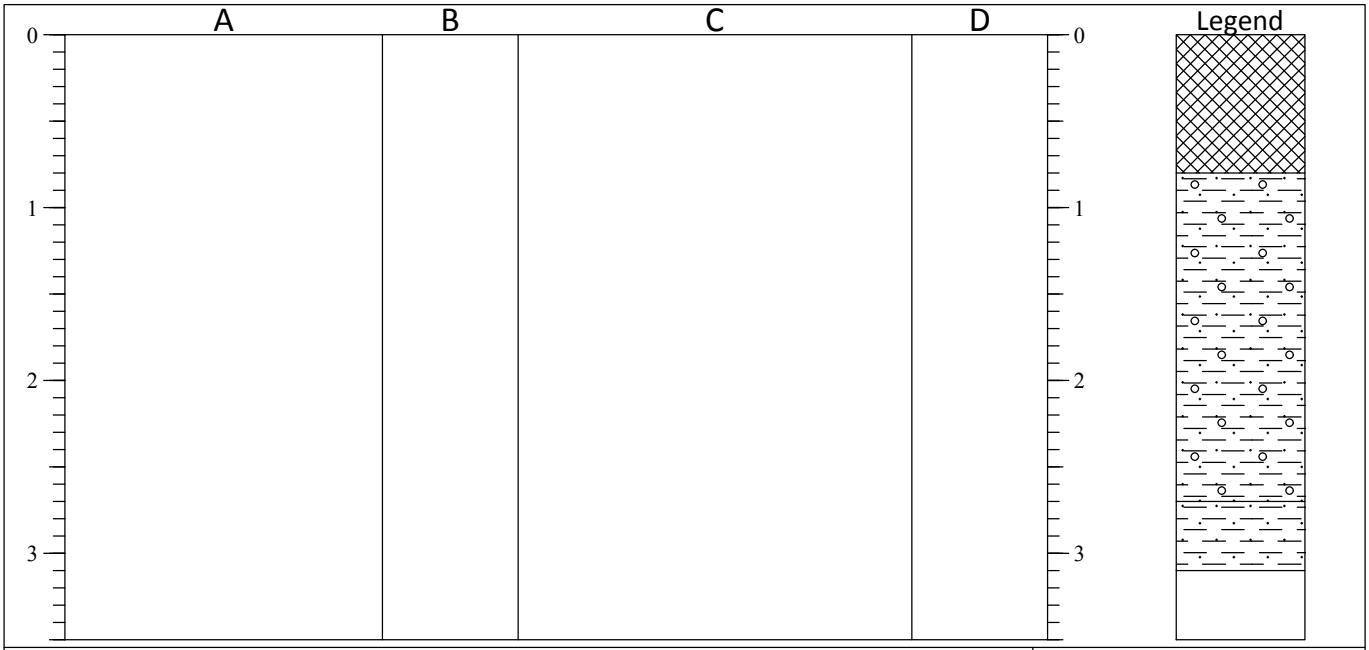
All dimensions in metres Scale 1:43.75	Client Gleeson Homes Cumbria	Method/ Plant Used JCB 3CX	Logged By NT

AGS3 UK TP NEW 8190 TP LOGS.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

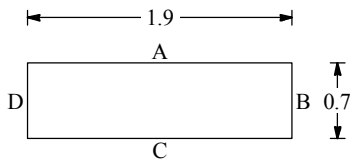
TRIAL PIT LOG

Project				TRIAL PIT No
Water's Edge, Whitehaven				**TP9**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.80		MADE GROUND: Greyish brown sandy fine to coarse angular to subrounded GRAVEL of sandstone mudstone coal slag concrete ash brick and metal with roots and rootlets.			
		0.50 slow groundwater seepage	0.50	E1	
0.80-2.70		Firm reddish brown mottled grey sandy gravelly CLAY with pockets of peat. Gravel is fine to coarse angular to subrounded of sandstone mudstone and coal.	0.80	E2	
		1.40 peat no longer present	1.50-1.60	B3	
		1.80 - 2.70 becomes stiff			
2.70-3.10		Very stiff brown slightly sandy CLAY.			
3.10		END OF PIT			

Shoring/Support:
Stability: Stable



GENERAL REMARKS

Faint hydrocarbon odour from 0.4 o 0.6 m bgl. Slow groundwater seepage at 0.5 m bgl.

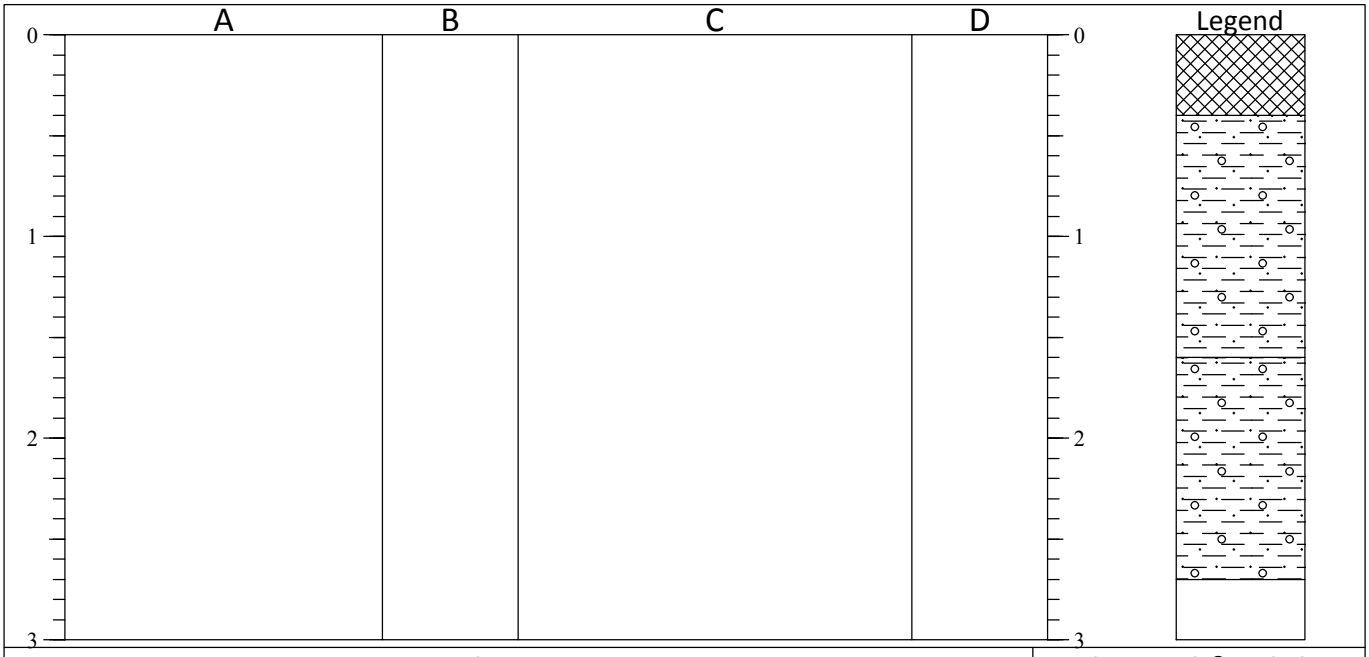
All dimensions in metres Scale 1:43.75	Client Gleeson Homes Cumbria	Method/ Plant Used JCB 3CX	Logged By NT

AGS3 UK TP NEW 8190 TP LOGS.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

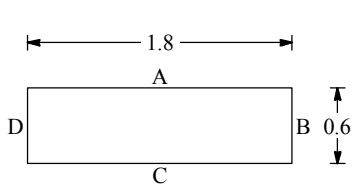
TRIAL PIT LOG

Project				TRIAL PIT No
Water's Edge, Whitehaven				**TP10**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-08-19			
Contractor				Sheet
Dunelm Geotechnical & Environmental Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.40		MADE GROUND: Firm brown mottled grey and orange sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone coal and occasional concrete.	0.20	E1	
0.40-1.60		Firm brown mottled grey and orange sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone and coal.			
		1.00 - 1.60 becomes stiff	1.00-1.10	B2	
1.60-2.70		Stiff dark brown occasionally mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of sandstone mudstone and occasional coal.			
		2.00 - 2.70 becomes very stiff	2.00-2.10	B3	
2.70		END OF PIT (Difficult Progress - Very Stiff Clay)			

Shoring/Support:
Stability: Stable



GENERAL REMARKS

No visual or olfactory signs of contamination. No groundwater encountered during excavation.

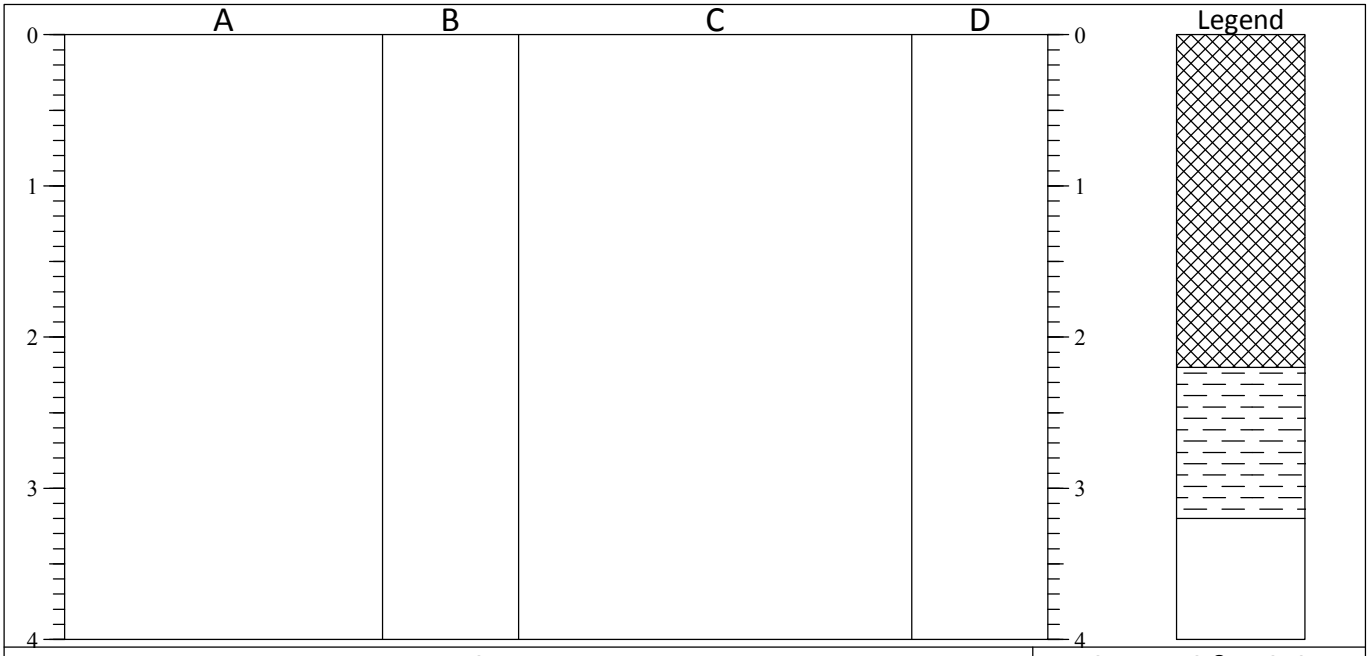
All dimensions in metres Scale 1:37.5	Client Gleeson Homes Cumbria	Method/ Plant Used JCB 3CX	Logged By NT

AGS3 UK TP NEW 8190 TP LOGS.GPJ AGS3_ALL.GDT 12/9/19

FWS Environmental & Geological Consultants

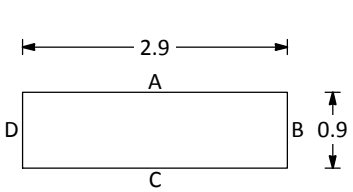
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP101**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	20-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-2.20		MADE GROUND: Firm blackish brown slightly sandy slightly gravelly CLAY with low cobble and boulder content. Gravel is fine to coarse angular to rounded of sandstone mudstone coal brick plastic concrete metal and ceramic. Boulders are angular to subangular of concrete.	0.40	E1	
			1.00-1.10	D2	
2.20-3.20		Firm grey brown mottled black and orange slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal. 2.60 Becomes stiff.	2.30	E3	
			2.50-2.60	D4	
3.20		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

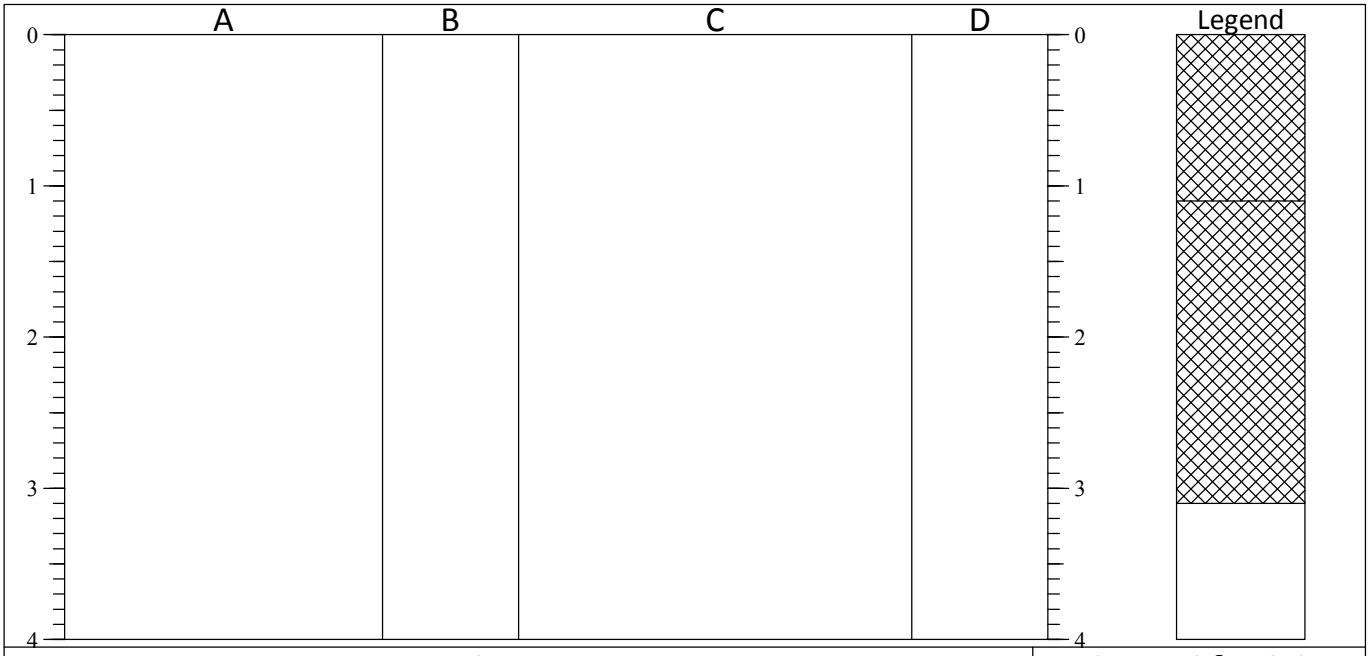
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

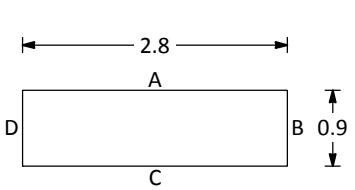
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP102**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	20-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-1.10		MADE GROUND: Blackish brown slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to rounded of sandstone mudstone coal brick concrete and glass.	0.30 0.50-0.60	E1 B2	
1.10-3.10		MADE GROUND: Firm blackish brown slightly sandy slightly gravelly CLAY with low cobble and boulder content. Gravel is fine to coarse angular to rounded of sandstone mudstone coal brick plastic concrete metal and ceramic. Boulders are angular to subangular of concrete.	1.20 1.50-1.60	E3 D4	
3.10		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

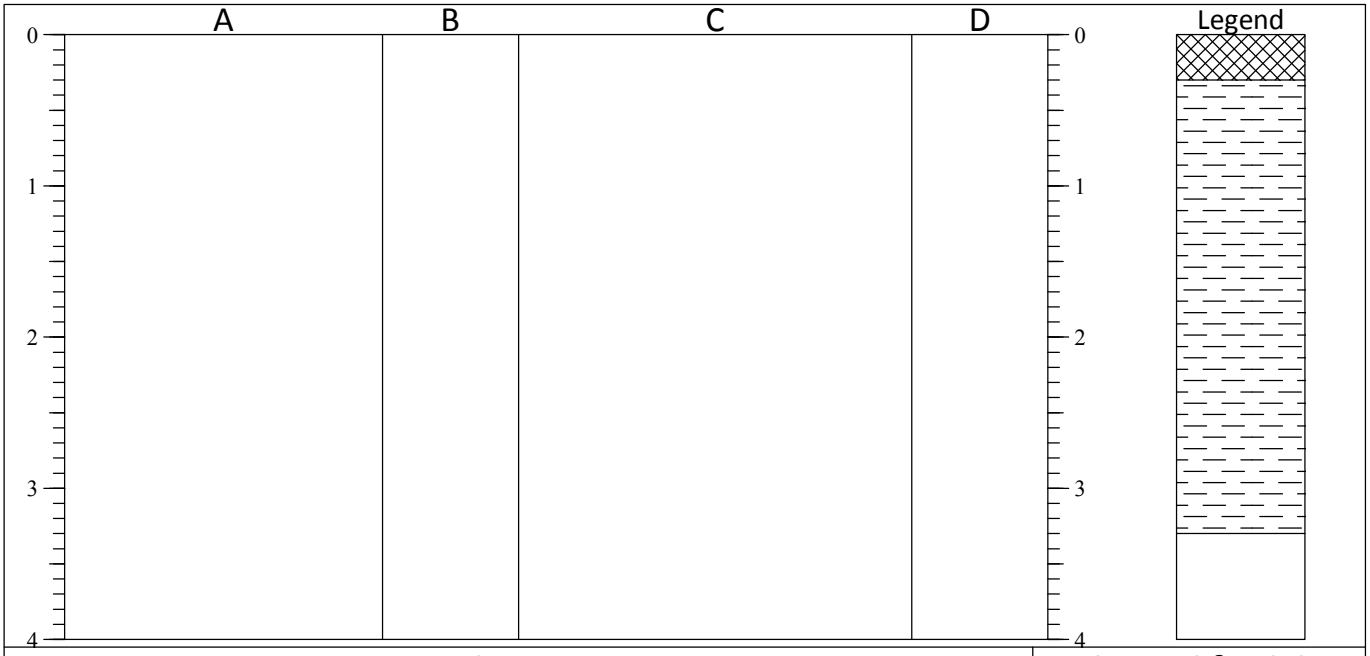
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

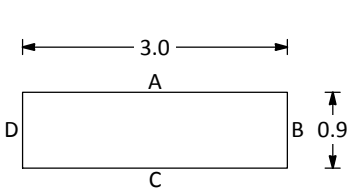
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP103**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	20-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		MADE GROUND: Firm brownish grey mottled white slightly gravelly sandy CLAY. Gravel is fine to coarse angular to subrounded of sandstone brick concrete and slag.	0.10	E1	
0.30-3.30		Firm grey brown mottled black and orange slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	0.20-0.30	D2	
			0.50	E3	
		1.40 Becomes stiff.			
			1.90-2.00	D4	
		2.50 Becomes very stiff.			
3.30		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

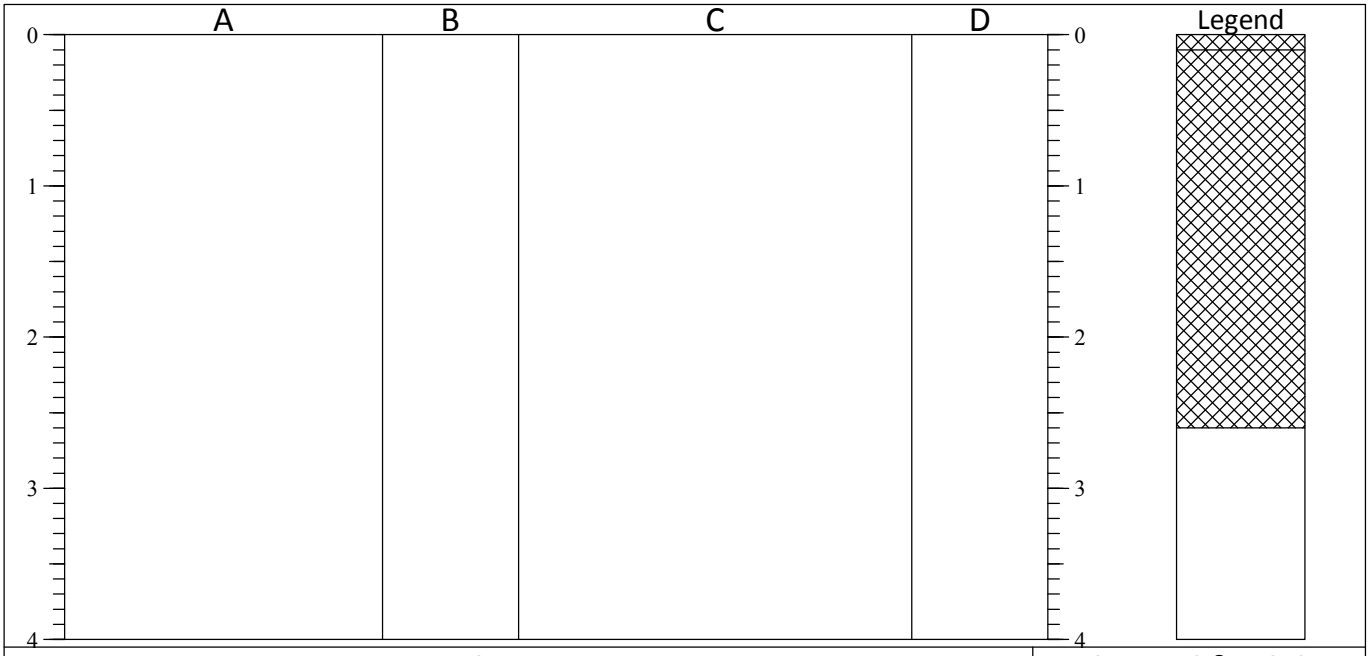
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

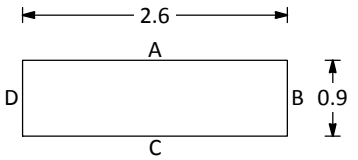
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP104**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	20-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.10 0.10-2.60		MADE GROUND: Brown slightly clayey slightly gravelly sandy TOPSOIL with rootlets. Gravel is fine to medium angular to subrounded of sandstone mudstone coal brick and glass.	0.10	E1	
		MADE GROUND: Firm brownish grey mottled white slightly gravelly sandy CLAY. Gravel is fine to coarse angular to subrounded of sandstone brick concrete and slag.	0.60	E2	
		1.40 Becomes stiff.			
			2.00-2.10	D3	
2.60		END OF PIT CONCRETE SLAB	2.60	D4	

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

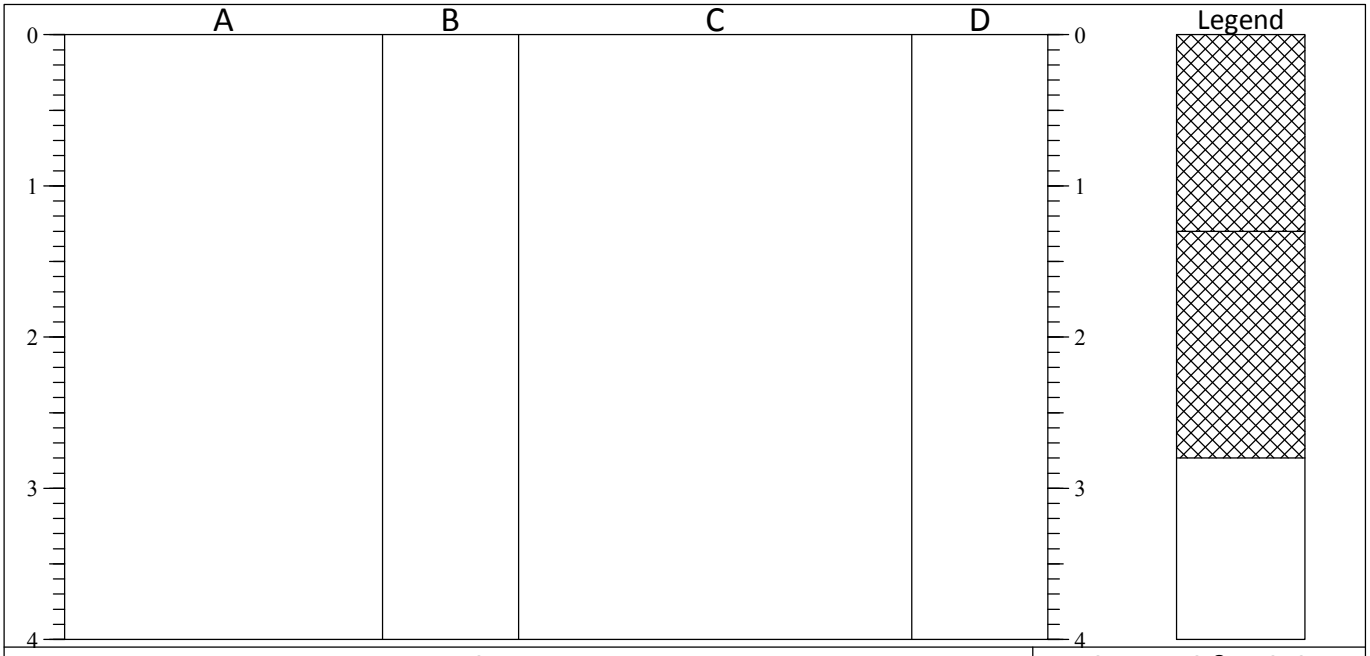
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

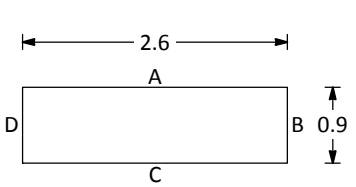
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP105**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	20-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-1.30		MADE GROUND: blackish brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to rounded of mudstone sandstone coal brick concrete and slag.	0.70	E1	
			1.00-1.10	B2	
1.30-2.80		MADE GROUND: Firm brownish grey mottled white slightly gravelly sandy CLAY. Gravel is fine to coarse angular to subrounded of sandstone brick concrete and slag.	1.40	E3	
			2.50-2.60	D4	
2.80		END OF PIT: CONCRETE SLAB			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

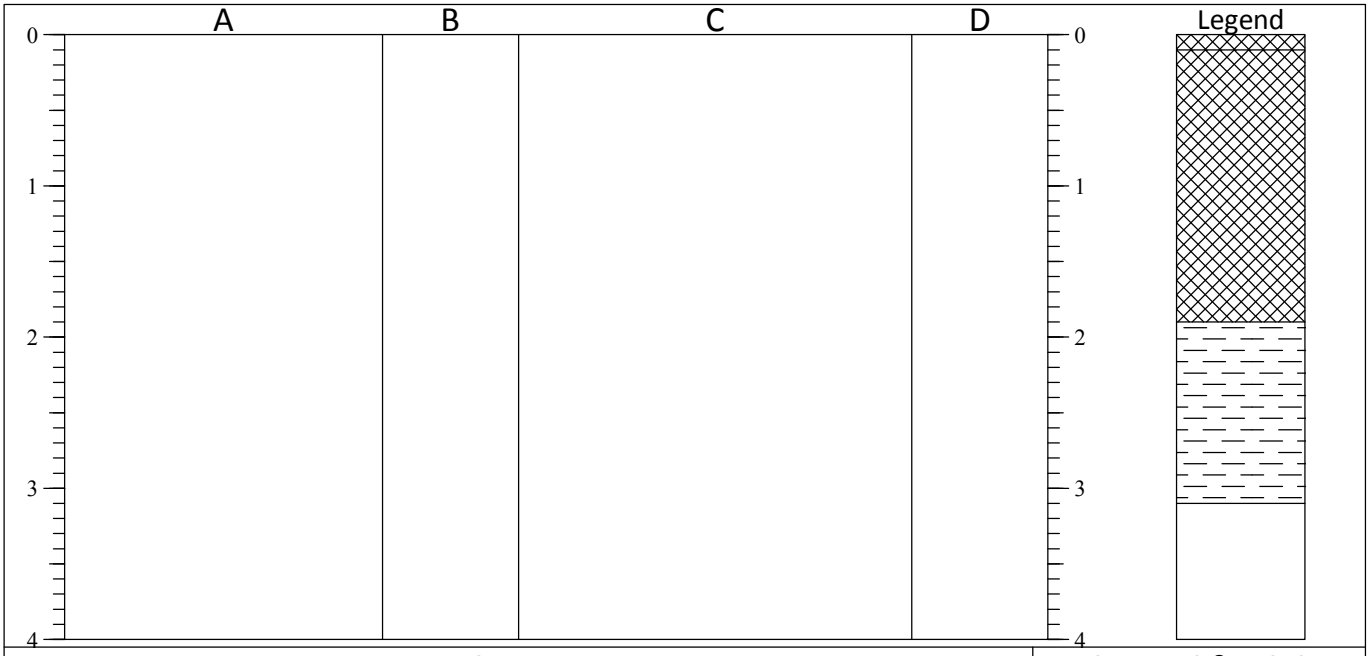
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

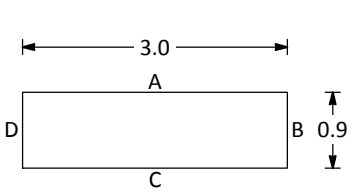
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP106**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	20-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.10 0.10-1.90		MADE GROUND: Brown slightly clayey slightly gravelly sandy TOPSOIL with rootlets. Gravel is fine to medium angular to subrounded of sandstone mudstone coal brick and glass.			
		MADE GROUND: Firm grey brown slightly gravelly sandy CLAY with low cobble content. Gravel is fine to coarse angular to rounded of sandstone brick and concrete. Cobbles are angular to subangular of brick and concrete. 0.30 - 0.60 Stained black with strong solvent odour.	0.40	E1	
			1.50	D2	
1.90-3.10		Firm grey brown mottled orange slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal. 2.30 Becomes stiff.	2.00	E3	
			2.90	B4	
3.10		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

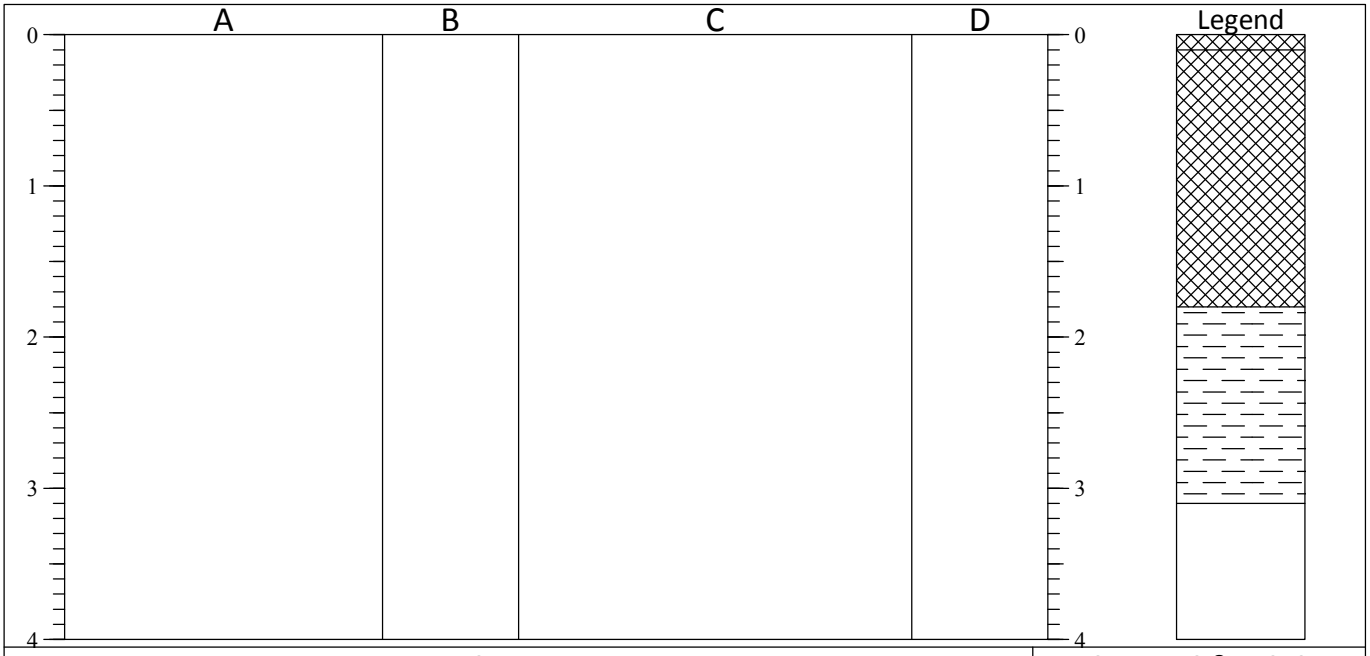
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

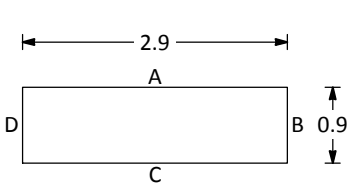
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP107**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	21-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.10 0.10-1.80		MADE GROUND: Blackish brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to rounded of sandstone mudstone coal brick and concrete. Cobbles are angular to subrounded of sandstone brick and concrete. MADE GROUND: Blackish grey sandy fine to coarse GRAVEL of sandstone mudstone slag brick and coal.	0.20	E1	
			0.90-1.00	B2	
1.80-3.10		Firm grey brown mottled orange slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal. 2.10 Becomes stiff.	2.00-2.10	D3	
3.10		END OF PIT.	3.00-3.10	D4	

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

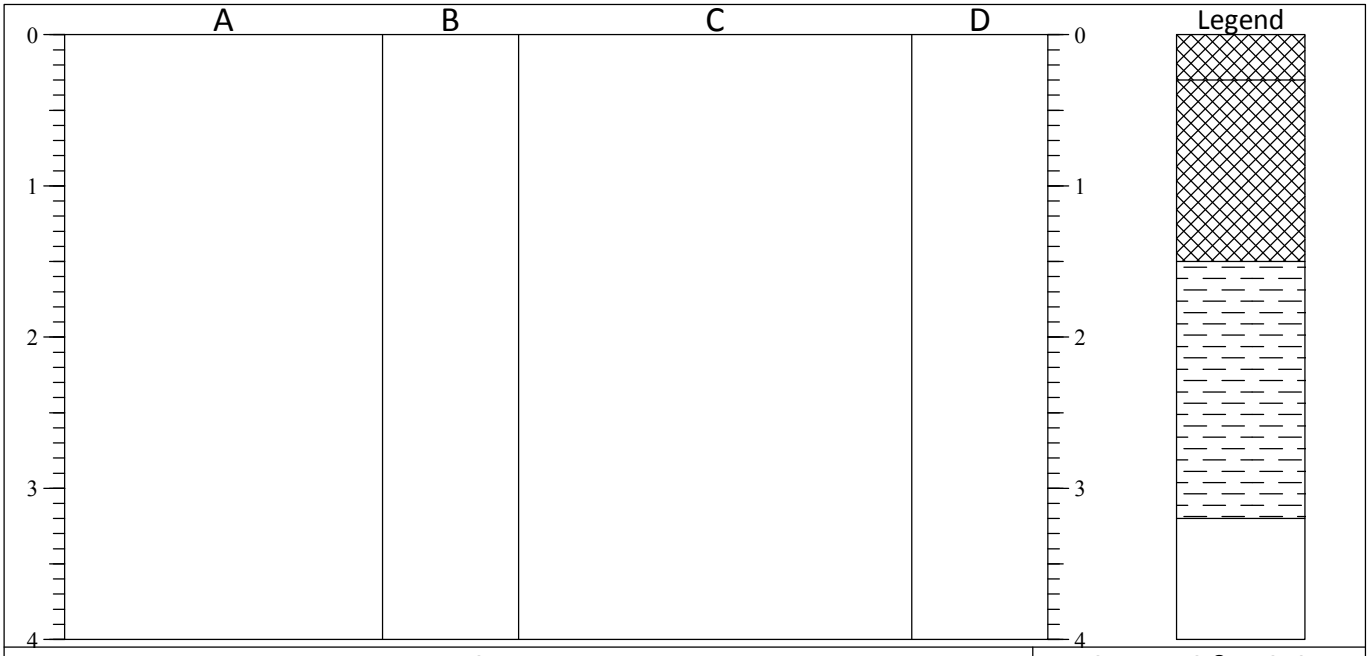
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

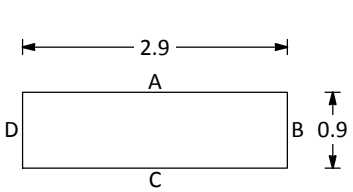
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP108**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	21-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		MADE GROUND: Grey brown gravelly very sandy CLAY. Gravel is fine to coarse of sandstone mudstone brick concrete and glass.	0.20	E1	
0.30-1.50		MADE GROUND: Brownish black slightly sandy slightly gravelly CLAY with organic matter. Gravel is fine to coarse angular to subrounded of sandstone coal and occasional metal and brick.	0.60 0.70-0.80	E2 D3	
1.50-3.20		Firm grey brown mottled orange and black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal. 1.90 Becomes stiff 2.70 Becomes very stiff	1.60 2.00-2.10	E4 D5	
3.20		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

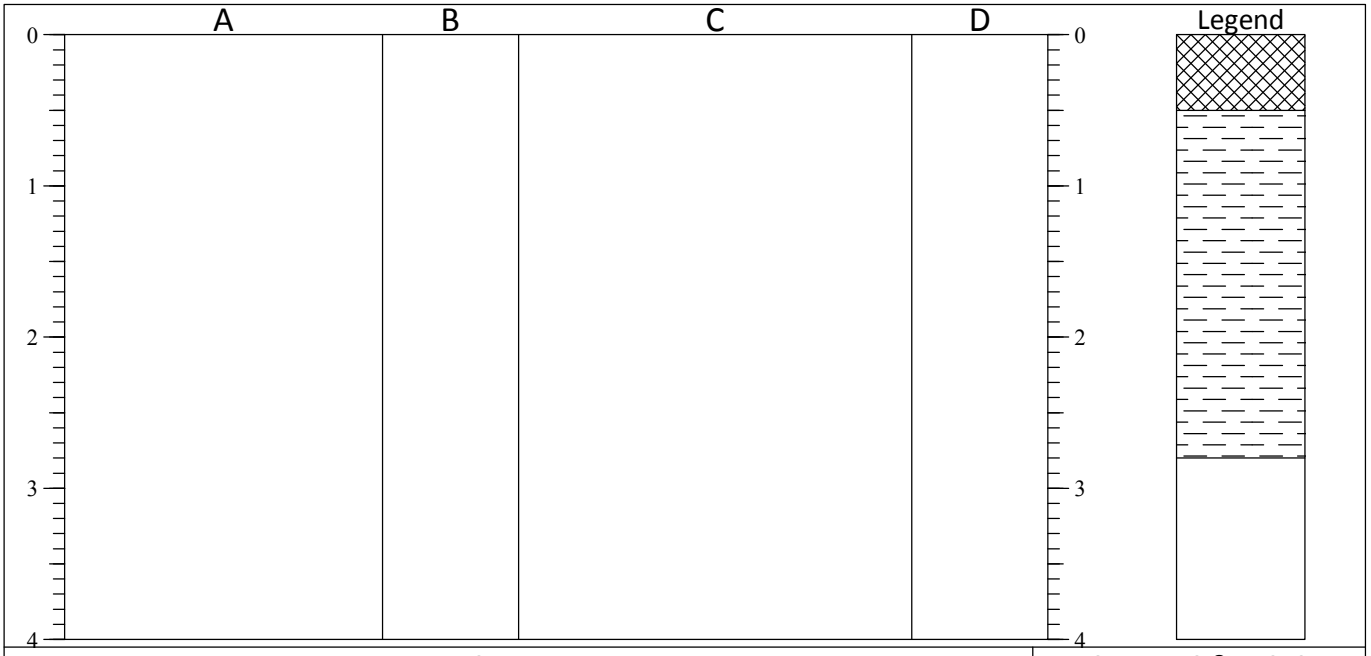
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

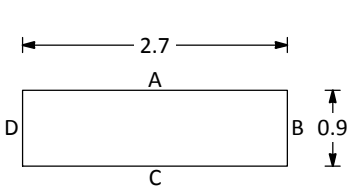
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP109**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	21-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.50		MADE GROUND: Firm black mottled orange slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone brick concrete ceramic plastic and glass.	0.20 0.30-0.40	E1 D2	
0.50-2.80		Firm grey brown mottled orange and black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	0.90-1.00	D3	
		1.60 Becomes stiff	1.90-2.00	D4	
2.80		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

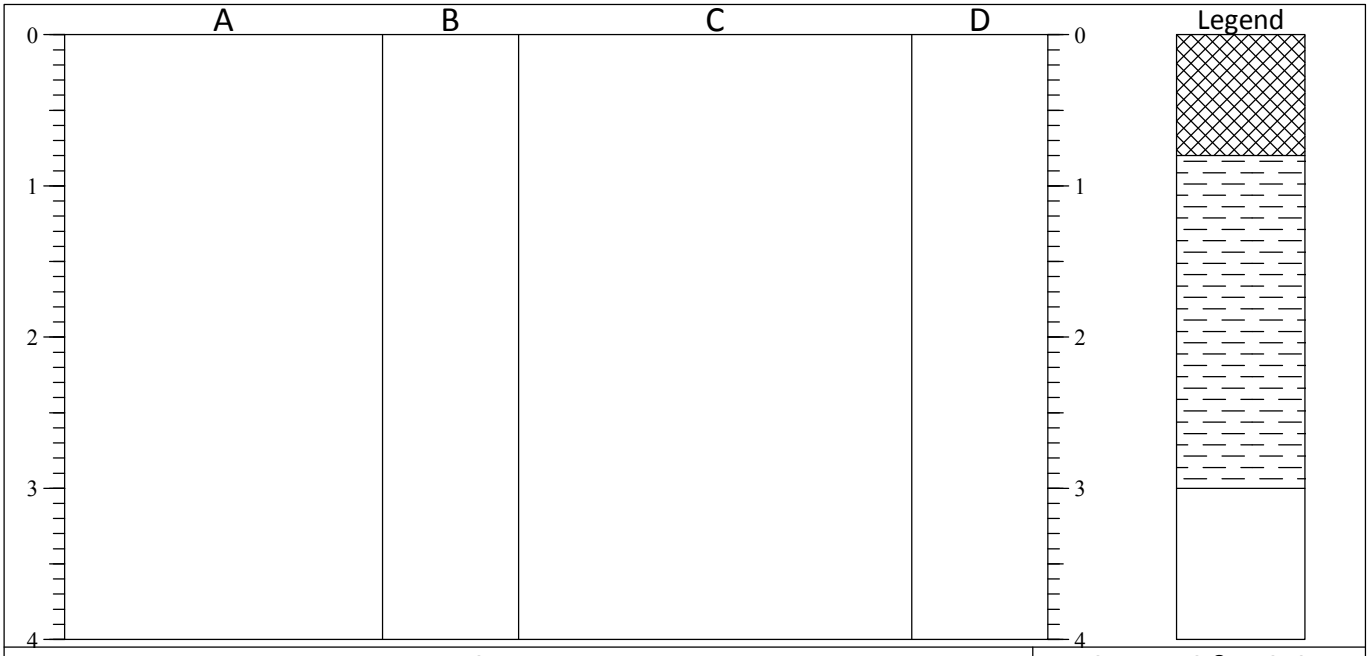
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

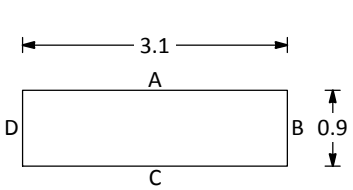
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP110**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	21-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.80		MADE GROUND: Grey brown very sandy very gravelly CLAY with low cobble content. Gravel is fine to coarse angular to rounded of sandstone mudstone coal brick concrete metal and ceramic. Cobbles are angular to subangular of brick and concrete.	0.50	E1	
0.80-3.00		Firm grey brown mottled orange and black slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	0.90-1.00	D2	
		1.40 Becomes stiff.	1.90-2.00	D3	
		2.60 Becomes very stiff.			
3.00		END OF PIT	2.90-3.00	D4	

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

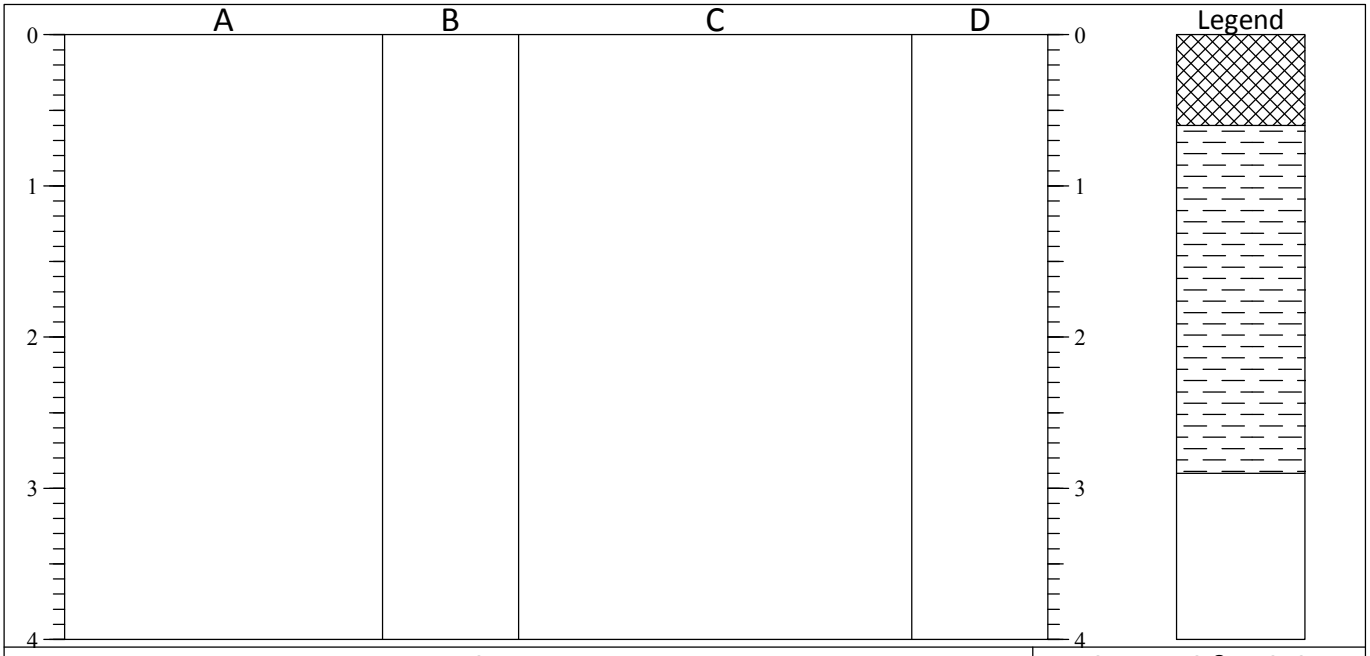
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

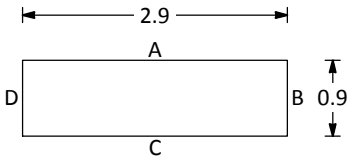
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP111**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	21-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.60		MADE GROUND: Blackish brown mottled white and grey slightly gravelly sandy CLAY. Gravel is fine to coarse angular to subrounded of sandstone brick slag and concrete.	0.30	E1	
0.60-2.90		Firm grey brown mottled orange and black slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	0.70	E2	
			1.00-1.10	D3	
		1.50 Becomes stiff.			
			2.00-2.10	D4	
2.90		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

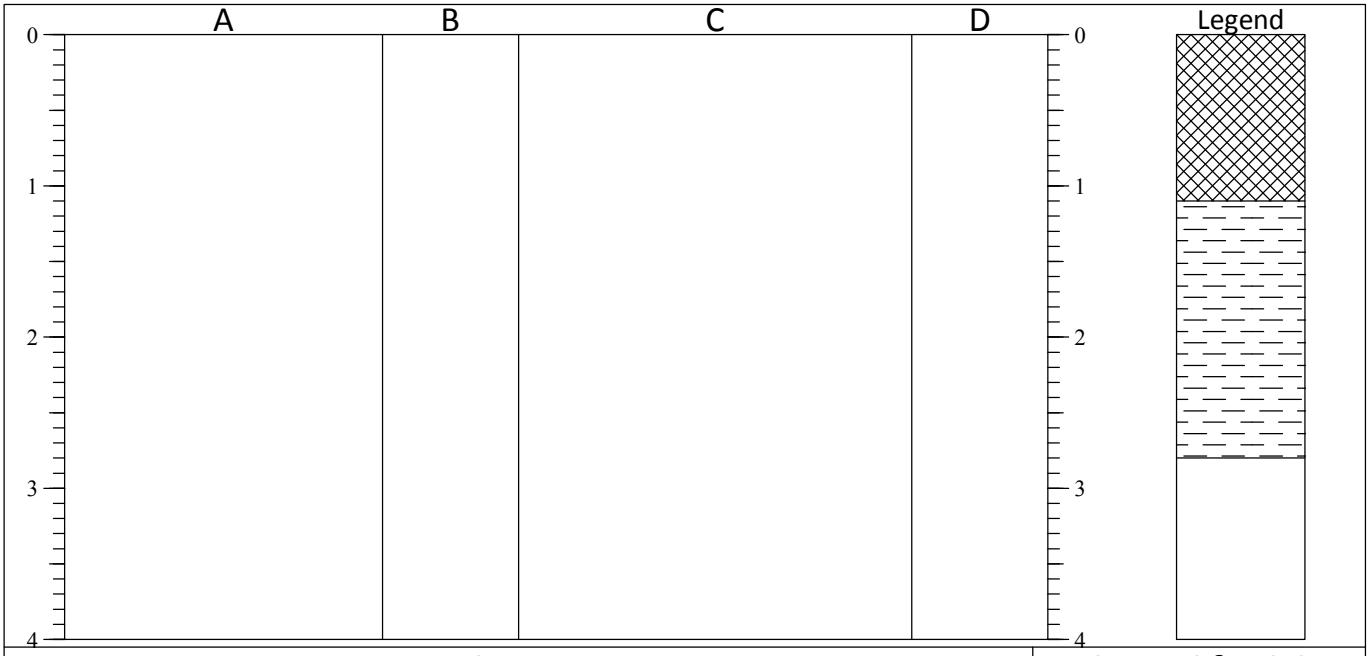
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

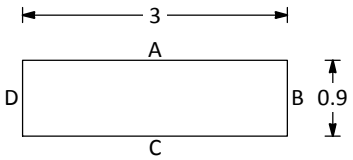
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP112**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	21-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-1.10		MADE GROUND: Blackish grey slightly clayey gravelly fine to coarse SAND. Gravel is angular to rounded of sandstone mudstone brick concrete and metal.	0.30 0.40-0.50	E1 B2	
1.10-2.80		Firm grey brown mottled orange and black slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal. 1.80 Becomes stiff.	1.50-1.60 2.50-2.60	D3 D4	
2.80		END OF PIT.			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

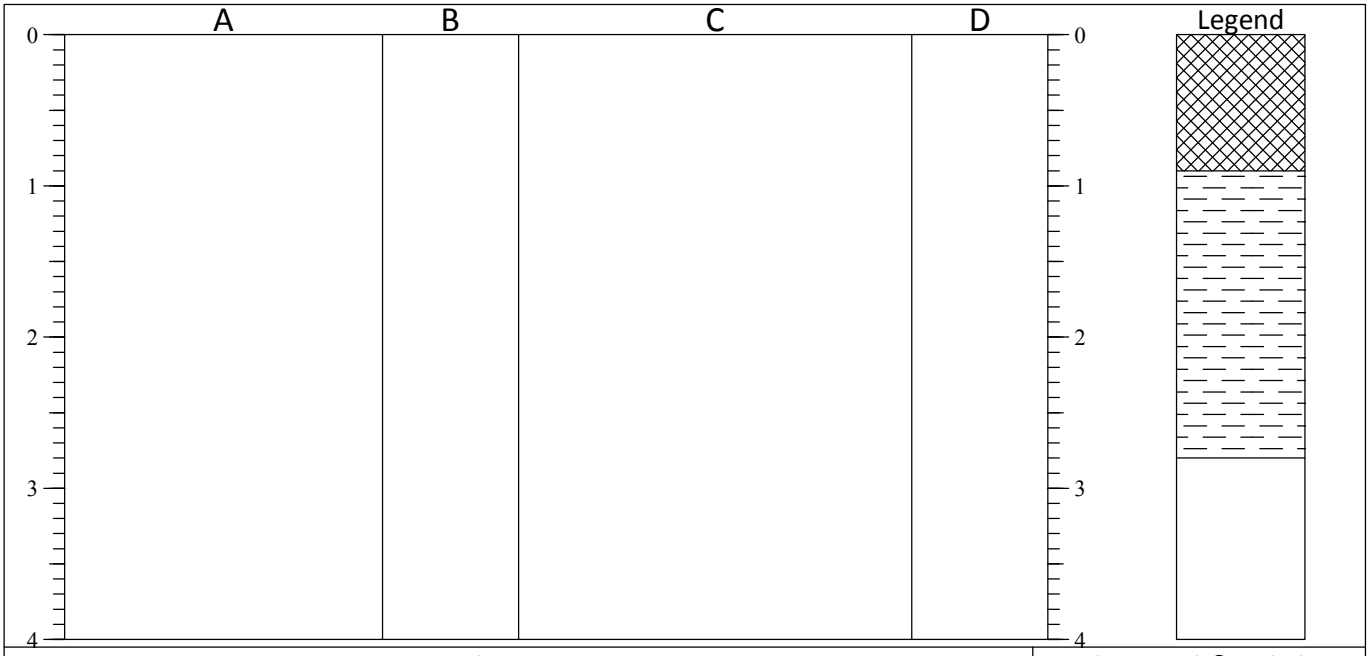
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

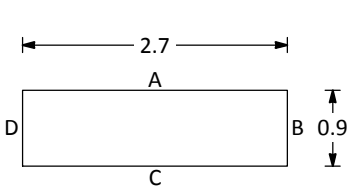
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP113**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	21-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.90		MADE GROUND: Firm blackish brown slightly gravelly sandy CLAY with low cobble content. Gravel is fine to coarse angular to rounded of sandstone mudstone coal brick concrete and ceramic. Cobbles are angular to subangular of brick and concrete.	0.30	E1	
0.90-2.80		Firm grey brown mottled orange and black slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	1.00 1.10	E2 D3	
		1.70 Becomes stiff.	2.00	D4	
		2.40 Becomes very stiff.			
2.80		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

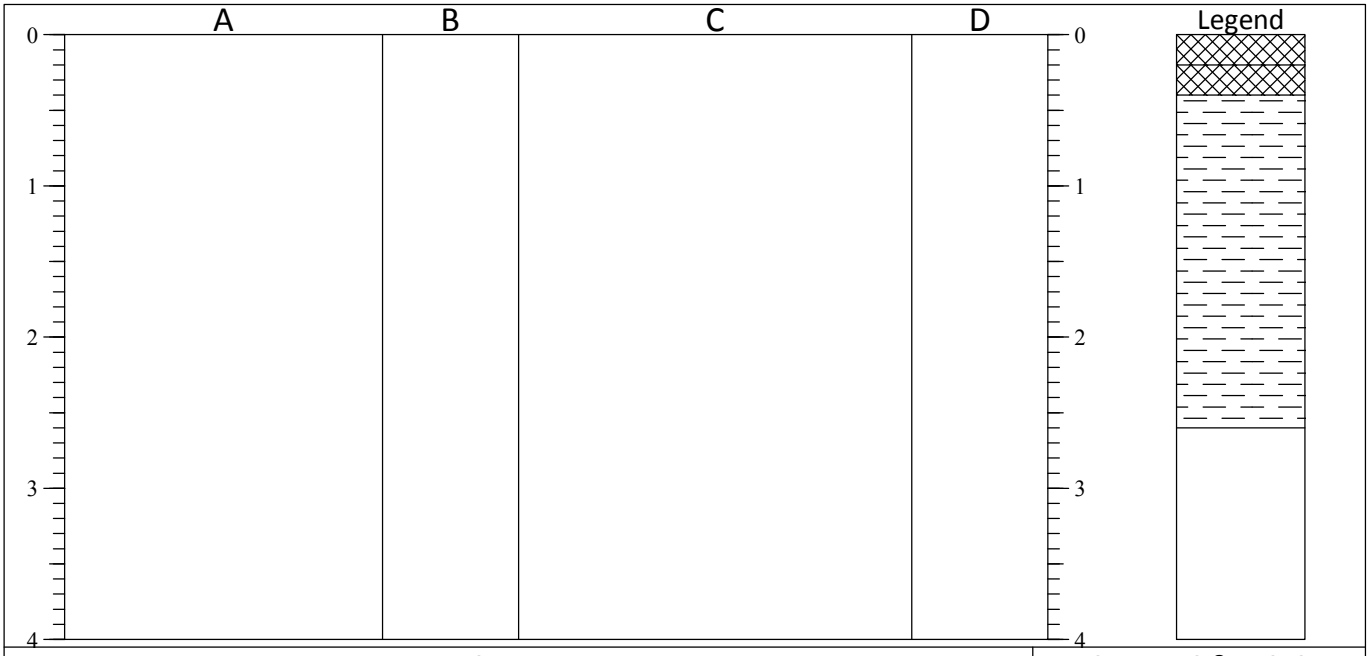
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

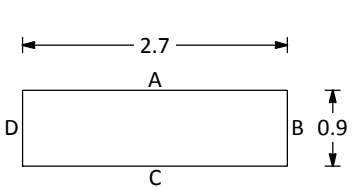
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				TP114
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	21-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.20		MADE GROUND: Grey brown slightly clayey slightly gravelly sandy TOPSOIL with rootlets. Gravel is fine to medium angular to subrounded of sandstone mudstone coal brick and glass.	0.10	E1	
0.20-0.40					
0.40-2.60		MADE GROUND: Firm brownish grey mottled black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone limestone coal brick plastic concrete and glass.			
		Firm grey brown mottled orange and black slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal. 1.20 Becomes stiff.	1.00-1.10	D2	
			2.00-2.10	D3	
2.60		2.50 Becomes very stiff. END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

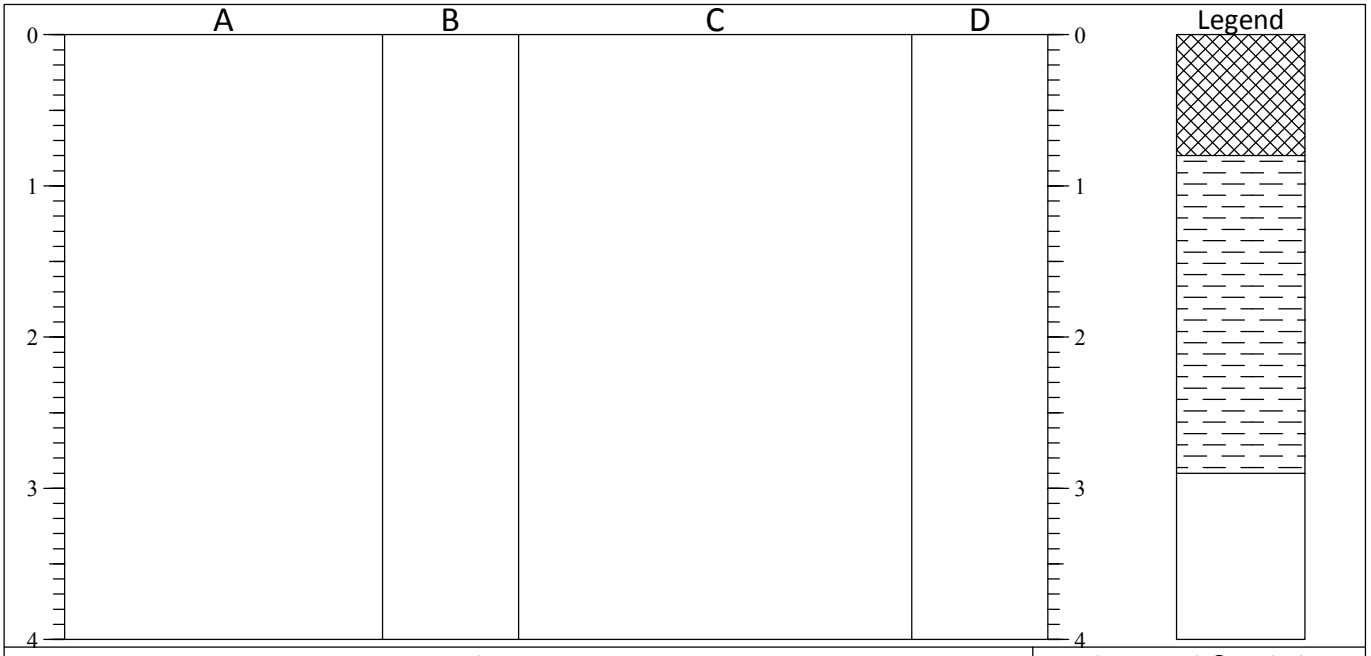
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

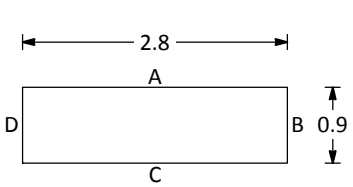
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP115**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	21-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.80		MADE GROUND: Grey brown sandy fine to coarse angular to subangular GRAVEL of sandstone basalt mudstone brick concrete and metal.	0.40	E1	
0.80-2.90		Firm grey brown mottled orange and black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	0.90-1.00	D2	
		1.40 Becomes stiff.	1.90-2.00	D3	
		2.30 Becomes very stiff.			
2.90		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

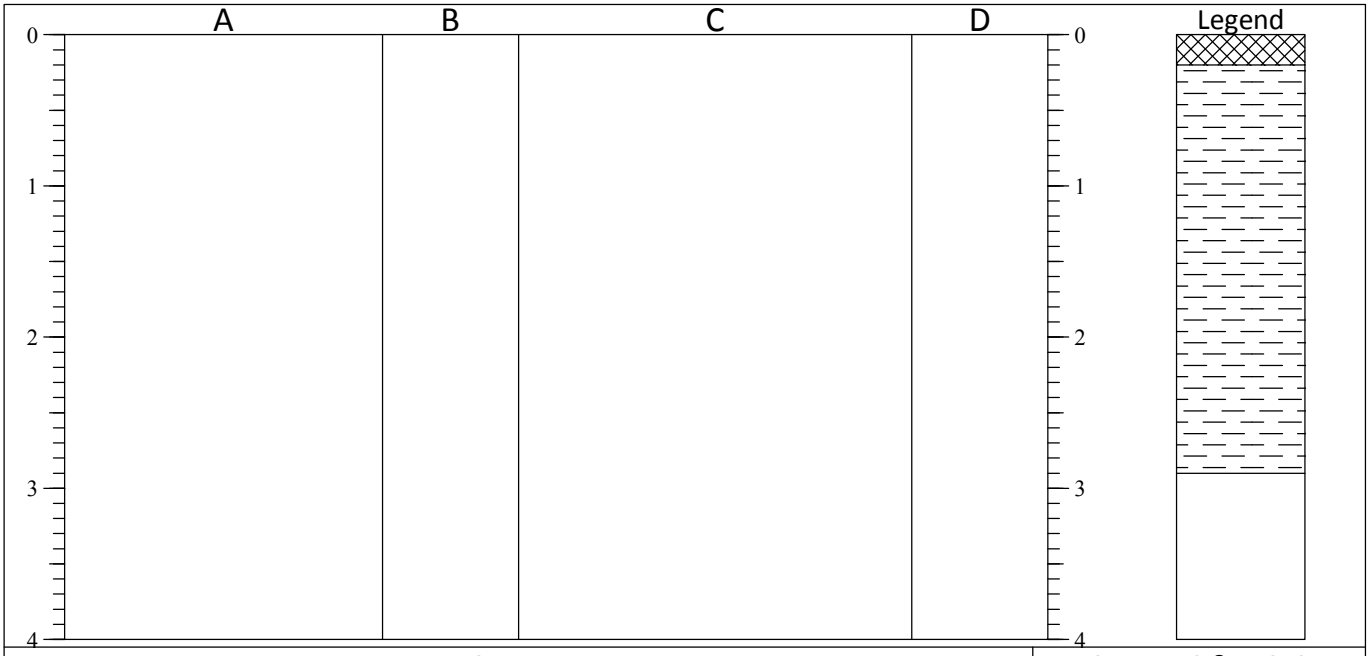
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

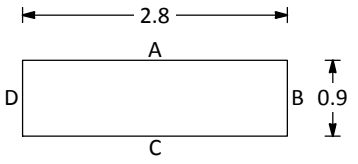
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				TP116
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	21-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.20		MADE GROUND: Grey brown slightly clayey slightly gravelly sandy TOPSOIL with rootlets. Gravel is fine to medium angular to subrounded of sandstone mudstone coal brick and glass.			
0.20-2.90		Firm grey brown mottled orange and black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	0.40 0.50-0.60	E1 D2	
		1.60 Becomes stiff	1.50-1.60	D3	
		2.70 Becomes very stiff	2.50-2.60	D4	
2.90		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

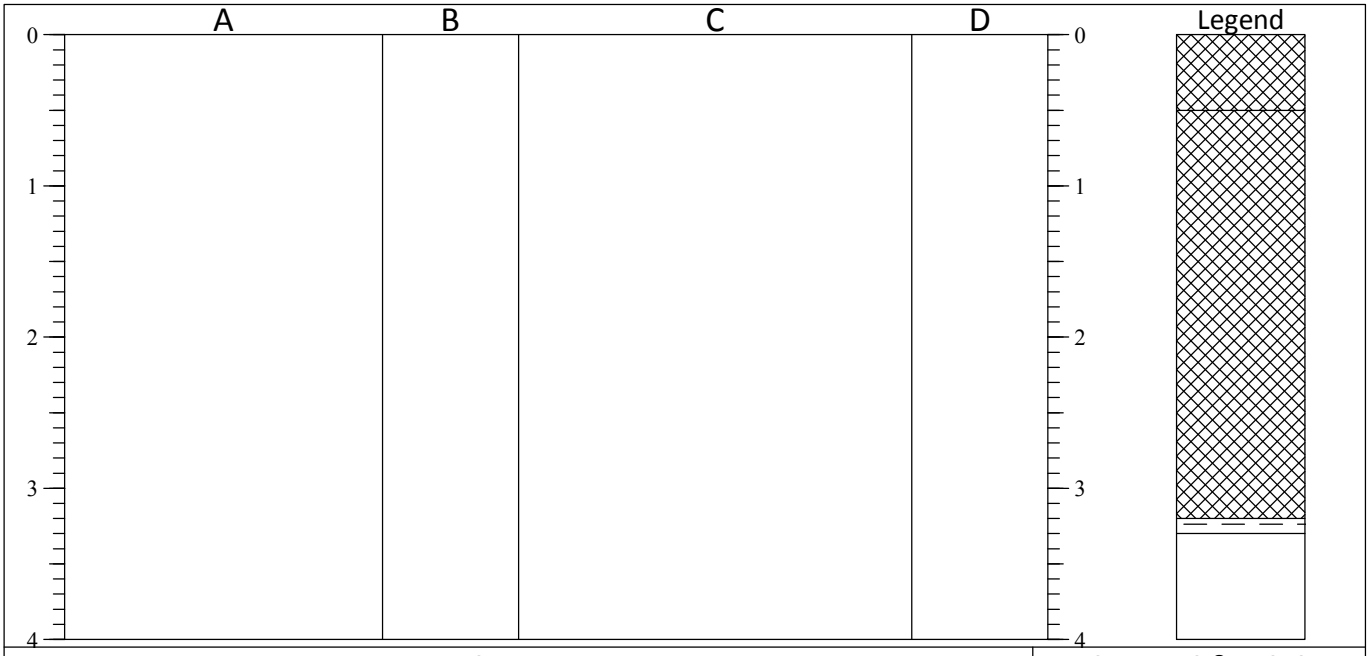
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

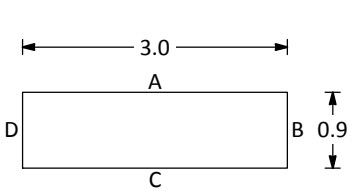
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP117**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.50		MADE GROUND: Blackish grey sandy fine to coarse angular to rounded GRAVEL of sandstone mudstone brick and ceramic with medium cobble content. Cobbles are angular to subangular of brick.	0.30	E1	
0.50-3.20		MADE GROUND: Firm blackish brown slightly gravelly sandy CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone metal brick concrete plastic and rubber.	0.60	E2	
			1.00-1.10	D3	
3.20-3.30		Firm grey brown mottled orange and black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	3.20-3.30	D4	
3.30		END OF PIT.			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

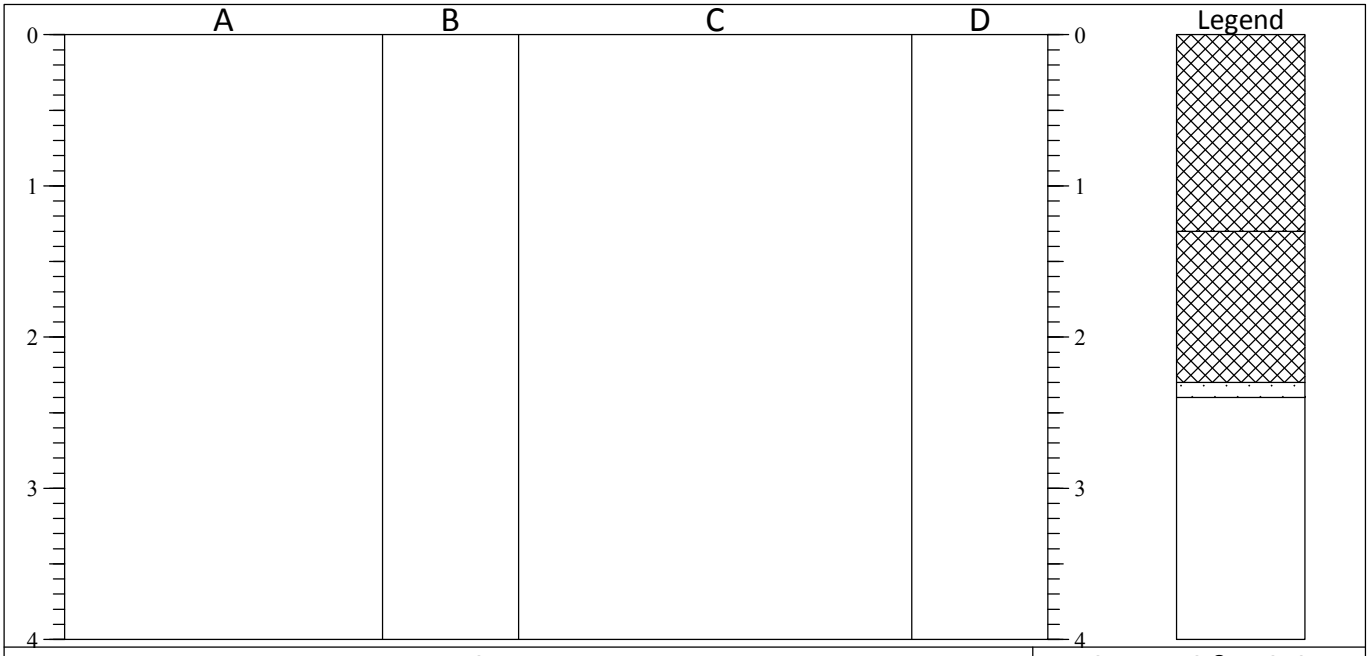
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

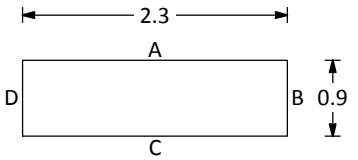
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP118**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-1.30		MADE GROUND: Grey mottled white very sandy fine to coarse angular to subrounded GRAVEL of coal brick and concrete with ash.	0.30	E1	
			1.00-1.10	B2	
1.30-2.30		MADE GROUND: Grey brown gravelly fine to coarse SAND. Gravel is fine to coarse angular to subrounded of sandstone mudstone brick concrete and ceramic.	1.50	E3	
2.30-2.40		Destructured medium strong reddish brown fine to coarse SANDSTONE recovered as slightly clayey very gravelly fine to coarse sand with medium cobble content. Gravel is fine to coarse angular to subangular of sandstone. Cobbles are angular to subangular of sandstone.			
2.40		END OF PIT: Competent sandstone bedrock.			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

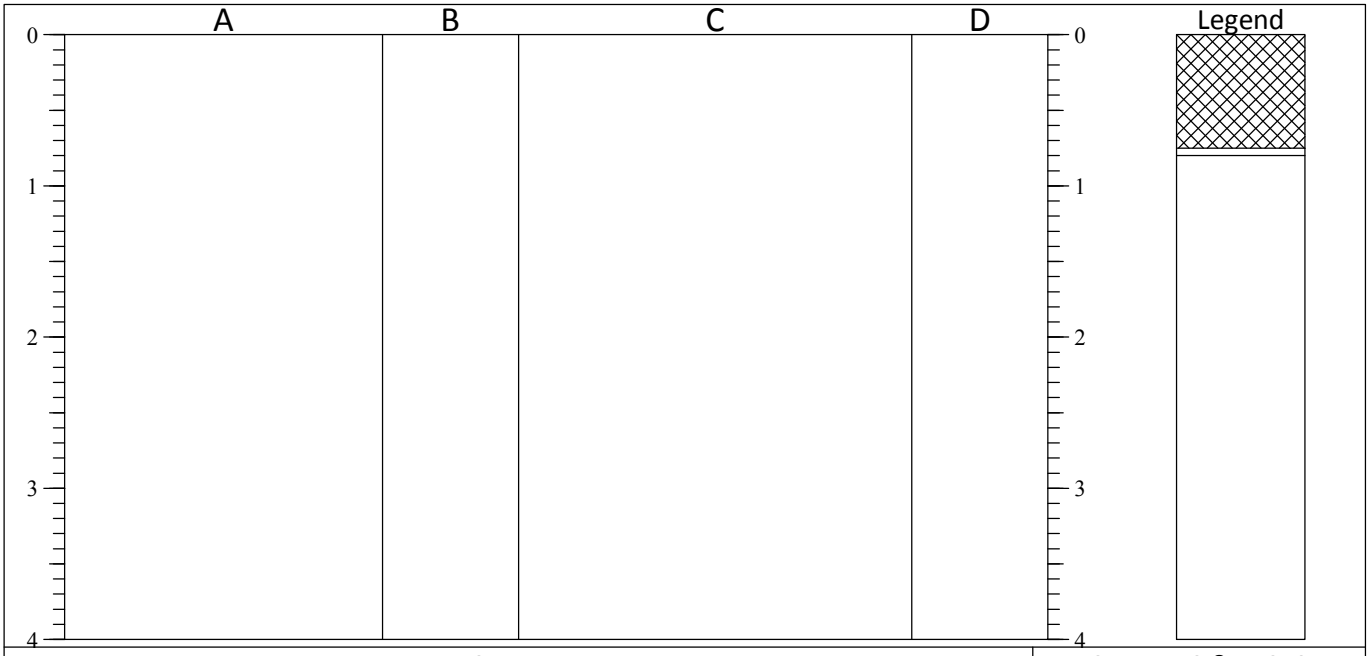
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

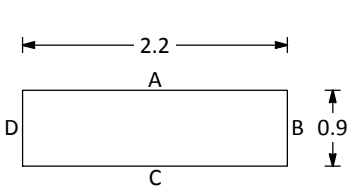
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP119**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.75		MADE GROUND: Grey brown gravelly fine to coarse SAND. Gravel is fine to coarse angular to rounded of sandstone mudstone brick and metal fragments.	0.50 0.60-0.70	E1 B2	
0.75-0.80 0.80		Destructured medium strong reddish brown fine to coarse SANDSTONE recovered as slightly clayey very gravelly fine to coarse sand with medium cobble content. Gravel is fine to coarse angular to subangular of sandstone. Cobbles are angular to subangular of sandstone. END OF PIT: Competent sandstone bedrock.			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

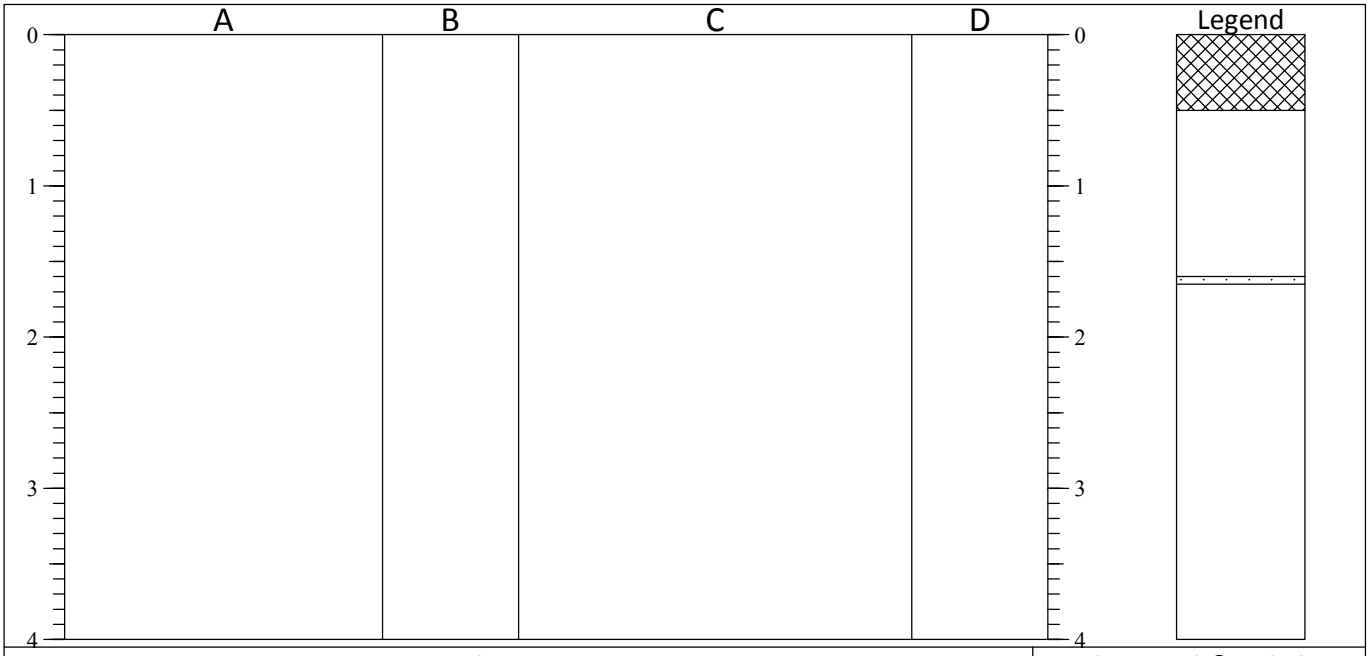
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

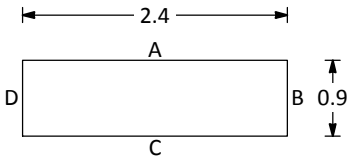
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP120**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.50		MADE GROUND: Grey gravelly fine to coarse SAND with ash. Gravel is fine to coarse angular to rounded of sandstone mudstone brick concrete and ceramic.	0.30	E1	
0.50-1.60		Brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is fine to coarse subangular to rounded of sandstone and mudstone.	0.60	E2	
1.60-1.65		Destructured medium strong reddish brown fine to coarse SANDSTONE recovered as slightly clayey very gravelly fine to coarse sand with medium cobble content. Gravel is fine to coarse angular to subangular of sandstone. Cobbles are angular to subangular of sandstone.	1.60-1.65	B3	
1.65		END OF PIT: Competent sandstone bedrock.			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

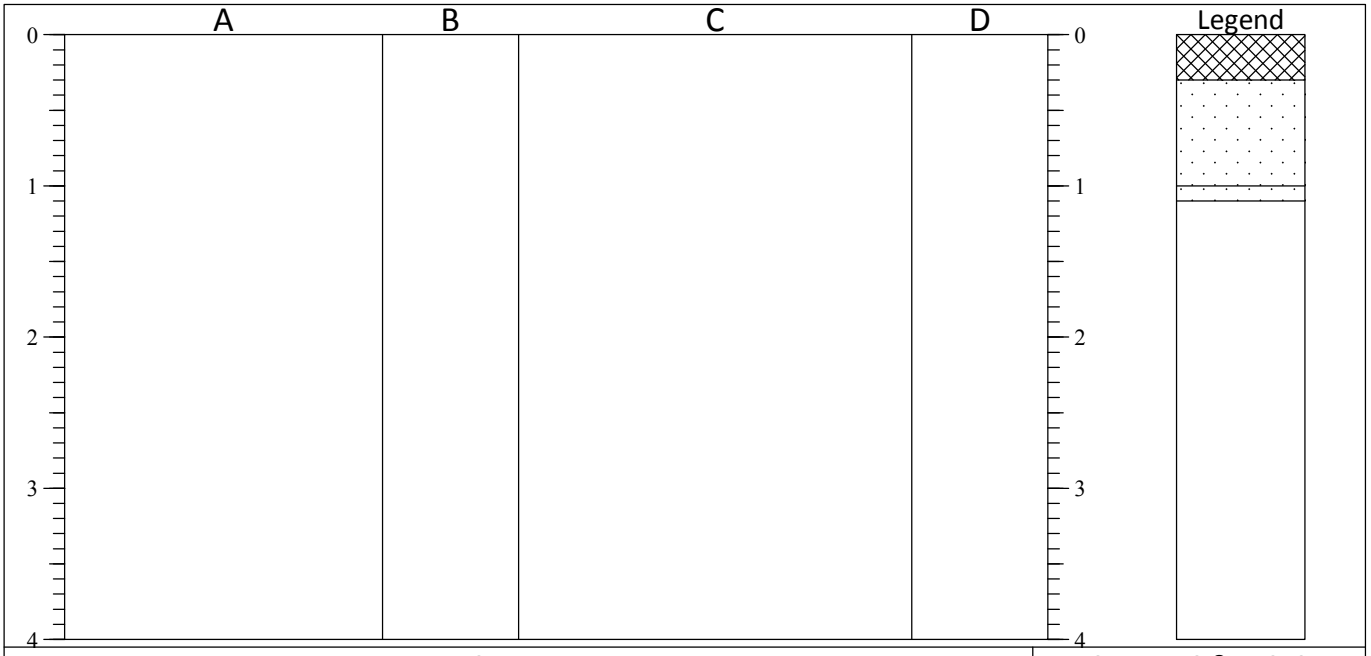
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

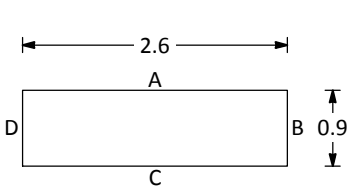
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				TP121
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		MADE GROUND: Grey very gravelly fine to coarse SAND. Gravel is fine to coarse subangular to rounded of sandstone mudstone coal brick and ceramic.			
0.30-1.00		Brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is fine to coarse subangular to rounded of sandstone and mudstone.	0.20	E1	
			0.50	E2	
1.00-1.10		Destructured medium strong reddish brown fine to coarse SANDSTONE recovered as slightly clayey very gravelly fine to coarse sand with medium cobble content. Gravel is fine to coarse angular to subangular of sandstone. Cobbles are angular to subangular of sandstone.	1.00-1.10	B3	
1.10		END OF PIT: Competent sandstone bedrock			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

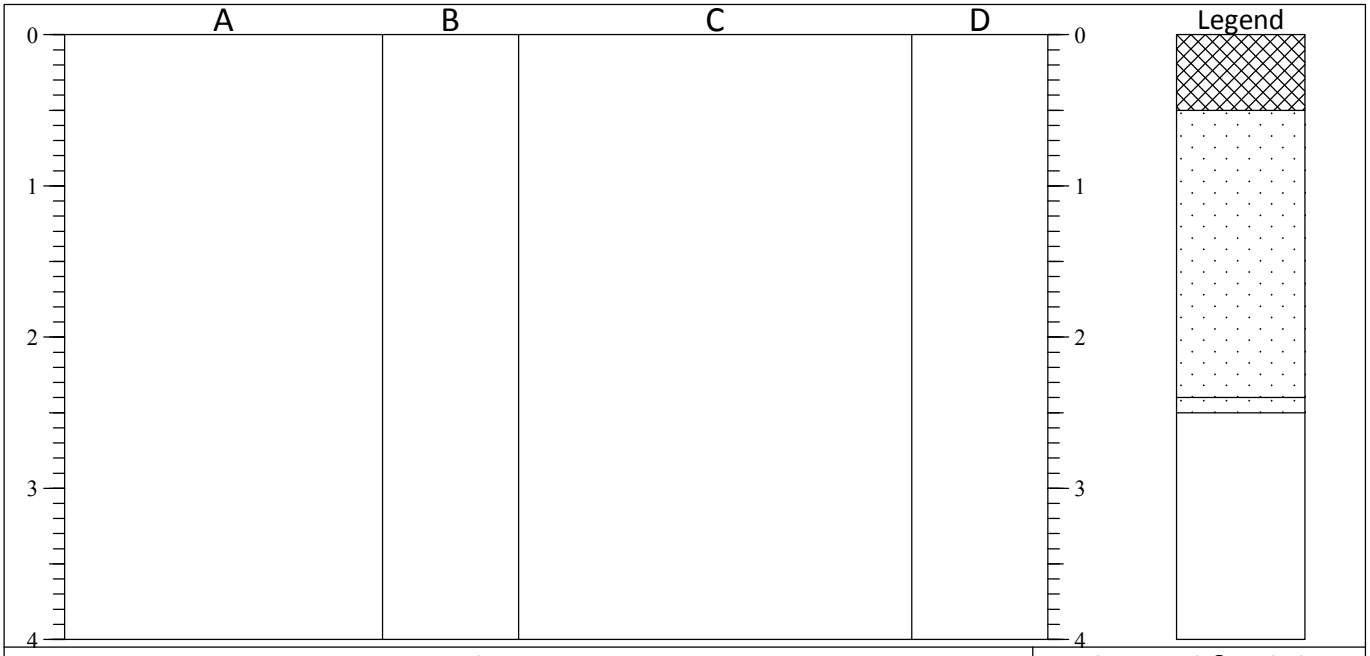
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

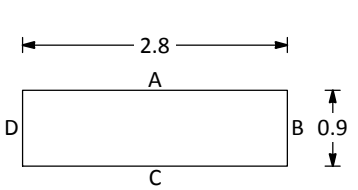
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP122**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.50		MADE GROUND: Grey gravelly fine to coarse SAND. Gravel is fine to coarse angular to rounded of sandstone mudstone coal brick concrete metal plastic and ceramic.	0.30	E1	
0.50-2.40		Brown slightly clayey slightly gravelly fine to coarse SAND with clay lenses. Gravel is fine to coarse subangular to rounded of sandstone and mudstone.	0.60	E2	
			1.90-2.00	B3	
2.40-2.50		Destructured medium strong reddish brown fine to coarse SANDSTONE recovered as slightly clayey very gravelly fine to coarse sand with medium cobble content. Gravel is fine to coarse angular to subangular of sandstone. Cobbles are angular to subangular of sandstone.			
2.50		END OF PIT: Competent sandstone bedrock.			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

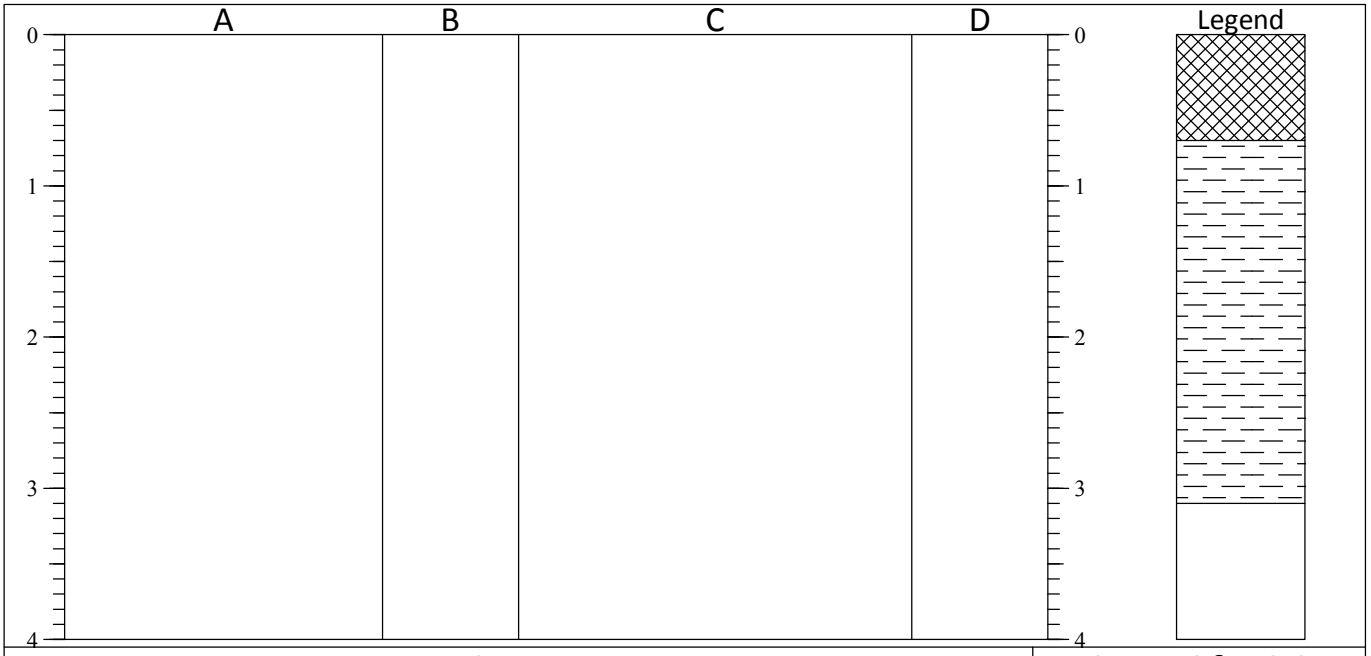
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

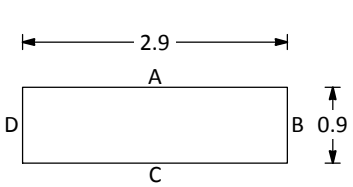
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP123**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.70		MADE GROUND: Grey gravelly fine to coarse SAND. Gravel is fine to coarse angular to rounded of sandstone mudstone coal brick concrete metal plastic and ceramic.	0.00	E1	
0.70-3.10		Firm grey brown mottled orange and black slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	1.00-1.10	D2	
		1.30 Becomes stiff.	2.00-2.10	D3	
		2.50 Becomes very stiff.			
3.10		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

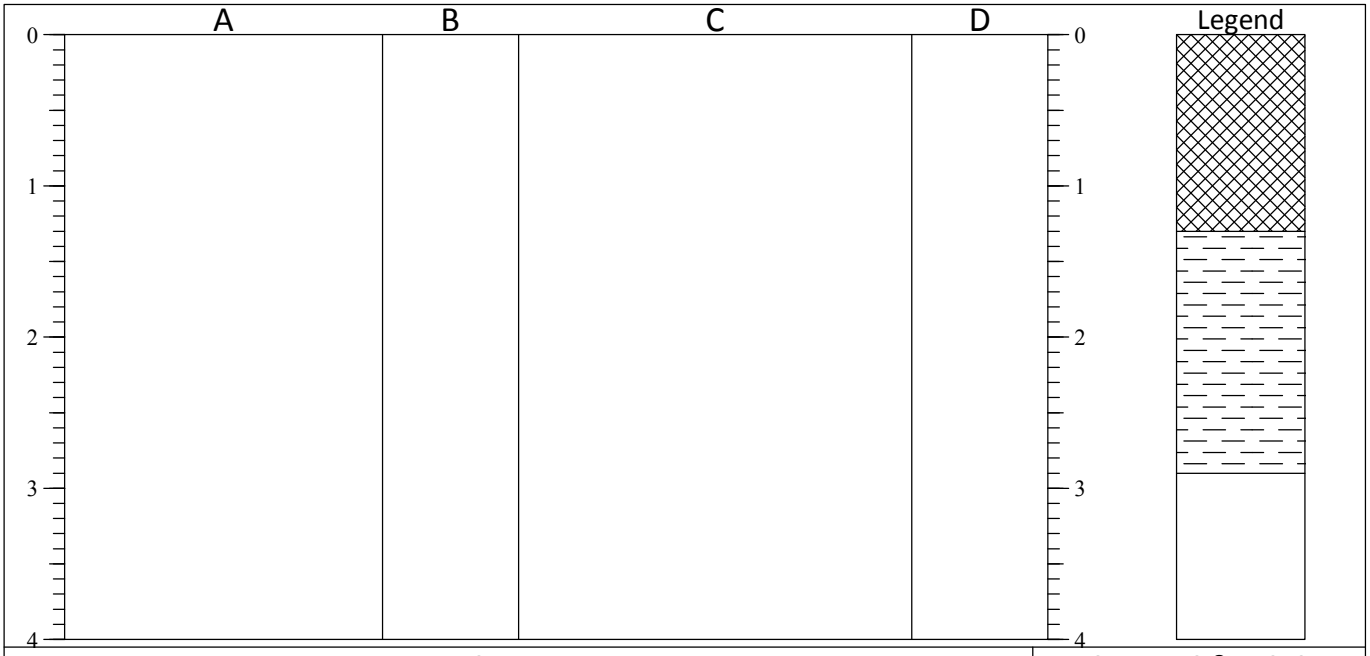
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

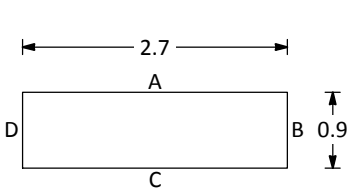
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP124**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-1.30		MADE GROUND: Firm brown mottled grey and black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone brick concrete and plastic.	0.30	E1	
1.30-2.90		Firm grey brown mottled orange and black slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal. 1.90 Becomes stiff.	1.40 1.50-1.60 2.50-2.60	E2 D3 D4	
2.90		END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

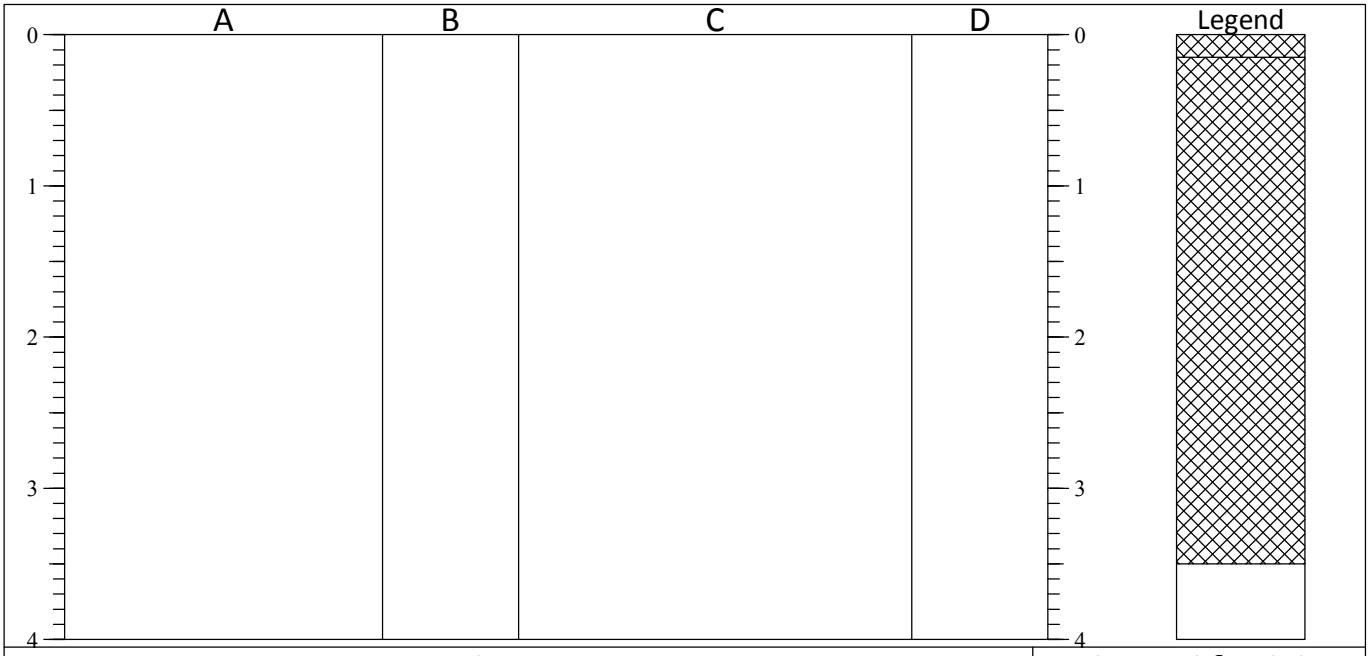
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

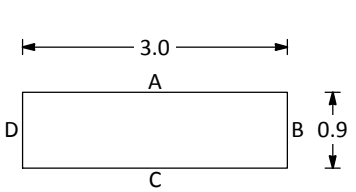
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP125**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	22-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.15 0.15-3.50		MADE GROUND: Grey gravelly fine to coarse SAND with ash. Gravel is fine to coarse angular to rounded of sandstone mudstone brick concrete and ceramic. MADE GROUND: Firm blackish brown slightly gravelly sandy CLAY. Gravel is fine to coarse angular to subrounded of sandstone mudstone coal brick concrete ceramic plastic glass and rubber.	0.30 0.80 1.00-1.10	E1 E2 D3	
			2.00-2.10	D4	
3.50		END OF PIT.			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

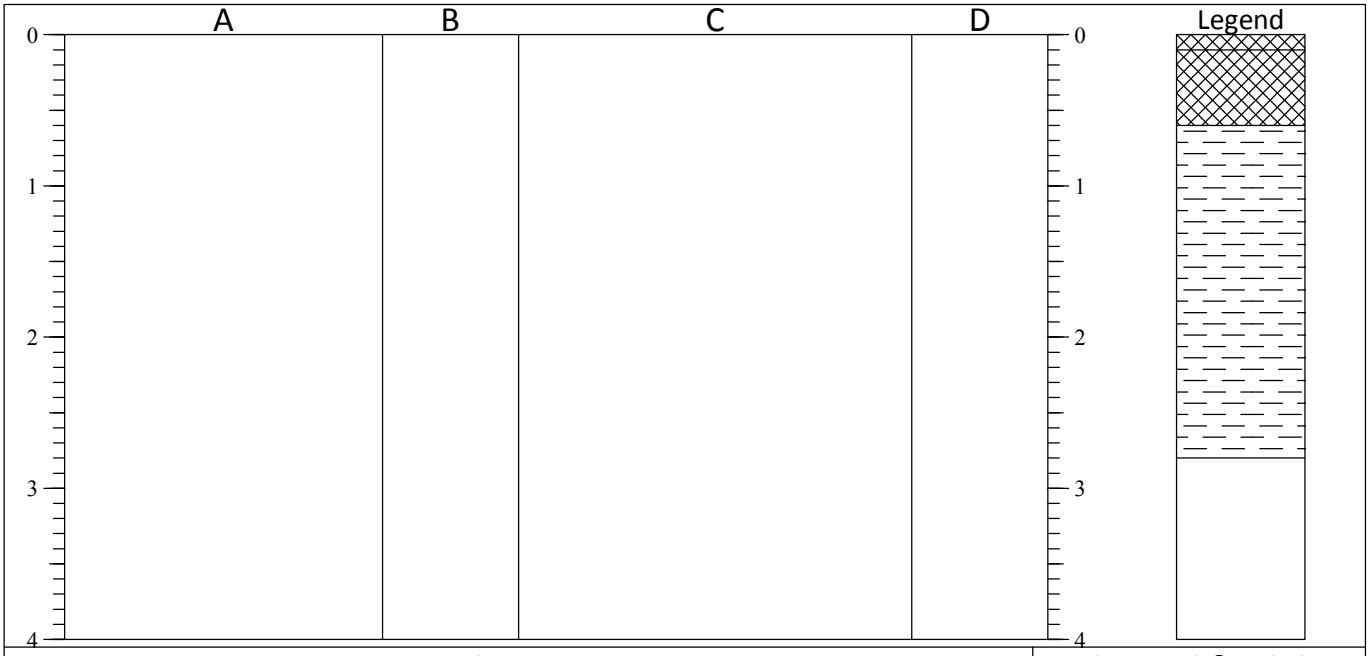
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

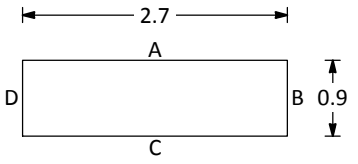
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				TP126
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	23-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.10 0.10-0.60		MADE GROUND: Grey brown slightly clayey slightly gravelly sandy TOPSOIL with rootlets. Gravel is fine to medium angular to subrounded of sandstone mudstone coal brick and glass.			
0.60-2.80		MADE GROUND: Brown gravelly fine to coarse SAND. Gravel is fine to coarse angular to subrounded of sandstone mudstone rare basalt concrete brick ceramic and plastic.	0.70	E1	
		Firm grey brown mottled orange and black slightly gravelly sandy CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	1.00	E2	
		1.50 Becomes stiff			
			2.00-2.10	D3	
2.80		2.70 Becomes very stiff END OF PIT			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

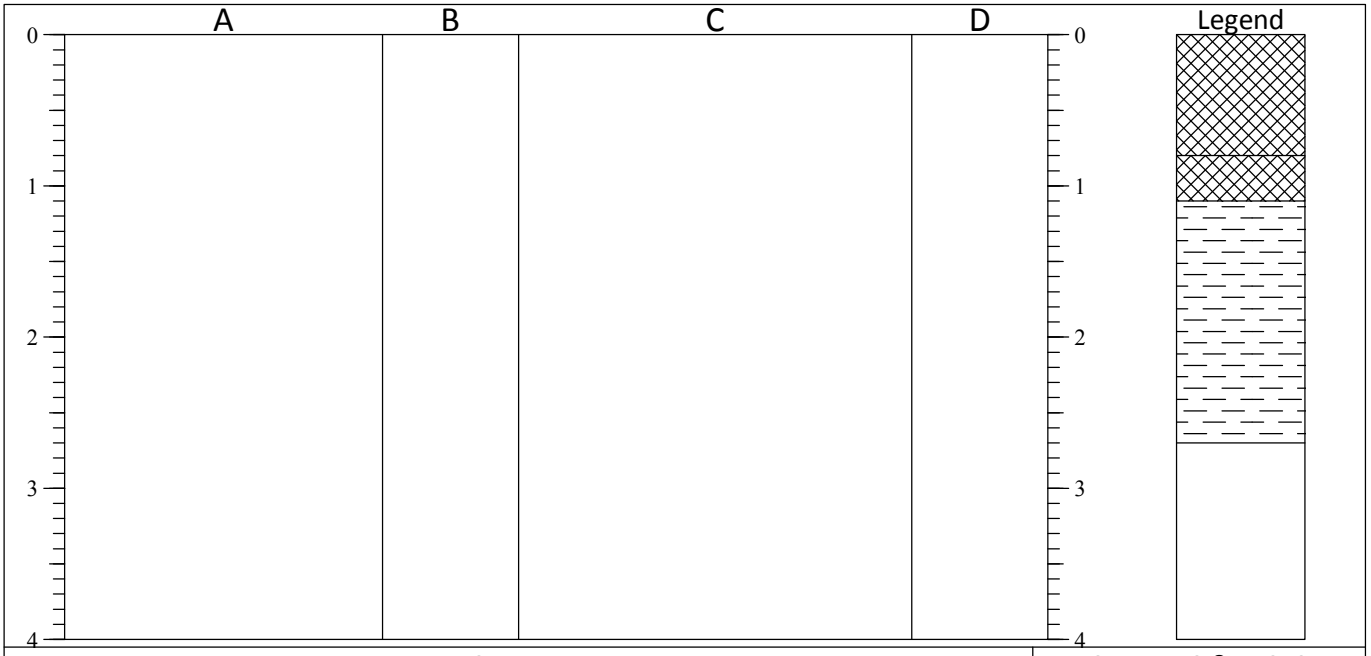
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

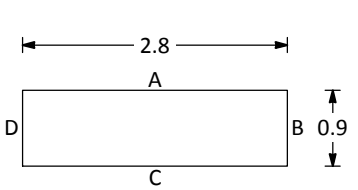
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP127**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	23-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.80		MADE GROUND: Grey brown slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to rounded of sandstone mudstone coal brick concrete metal plastic and ceramic.	0.50	E1	
0.80-1.10		MADE GROUND: Grey black very sandy fine to coarse angular to subrounded gravel of sandstone mudstone brick and concrete.(Strong solvent odour)			
1.10-2.70		Firm grey brown mottled orange and black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal.	1.50-1.60	D2	
		2.10 Becomes stiff.	2.50-2.60	D3	
2.70		END OF PIT.			

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

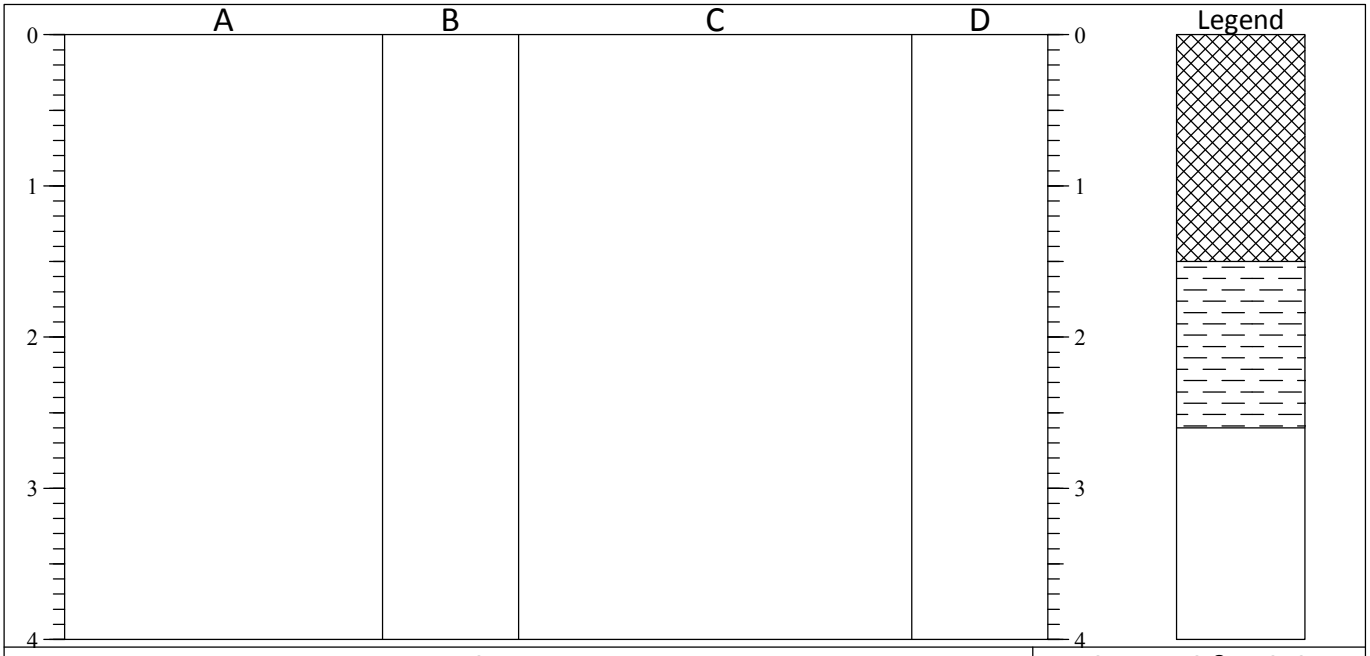
All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

FWS Environmental & Geological Consultants

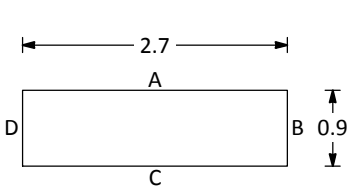
TRIAL PIT LOG

Project				TRIAL PIT No
Waters Edge				**TP128**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
8190	23-01-20			
Contractor				Sheet
G & AM Lawson Plant Hire Ltd				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-1.50		MADE GROUND: Grey slightly clayey gravelly fine to coarse SAND. Gravel is fine to coarse angular to subrounded of sandstone mudstone brick and plastic.	0.60	E1	
1.50-2.60		Firm grey brown mottled orange and black slightly sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded of sandstone mudstone and coal. 2.20 Becomes stiff.	1.50-1.60	D2	
2.60		END OF PIT	2.50-2.60	D3	

Shoring/Support: None
Stability: Stable



GENERAL REMARKS

No Visual or olfactory signs of contamination.

All dimensions in metres Scale 1:50	Client Gleeson Homes Cumbria	Method/ Plant Used 8 ton tracked excavator.	Logged By FL

AGS3 UK TP NEW 8190.3 TP LOGS.GPJ AGS3_ALL.GDT 3/3/20

APPENDIX 8

GAS AND GROUNDWATER MONITORING CERTIFICATES

GAS AND GROUNDWATER MONITORING – WATER'S EDGE, WHITEHAVEN

BH	Date	Time	Tested By	Atmospheric Pressure	Flow Rate	Methane		Carbon Dioxide		Oxygen		Ground Water Level	Depth of well	Response Zone Interval	Monitored Material
				mbar	Average l/hr	Peak % V/V	Steady % V/V	Peak % V/V	Steady % V/V	Peak % V/V	Steady % V/V	m bgl	m bgl	m bgl	
WS2	06/09/2019	13:20	FL	1006	0.2	<0.1	<0.1	0.2	0.1	20.3	20.3	0.5	1.12	0.5-1.2	MADE GROUND
	12/09/2019	13:25	FL	1012	<0.1	<0.1	<0.1	<0.1	<0.1	20.7	20.7	0.42	1.05		
	25/09/2019	15:05	FL	990	0.1, <0.1	<0.1	<0.1	<0.1	<0.1	20.5	20.5	0.46	1.04		
	08/10/2019	11:56	AF	993	<0.1	<0.1	<0.1	0.1	0.1	20.4	20.4	0.23	1.04		
	24/10/2019	13:38	AF	991	<0.1	<0.1	<0.1	0.1	0.1	19.8	19.8	0.25	1.04		
	25/11/2019	14:50	PH	988	<0.1	<0.1	<0.1	0.1	0.1	20.2	20.2	0.60	1.00		
	19/12/2019	12:35	PH	982	<0.1	<0.1	<0.1	0.1	0.1	14.2	20.8	0.31	1.00		
	23/01/2020	12:10	FL	1016	<0.1	<0.1	<0.1	0.1	0.1	20.1	20.1	0.46	1.00		
	20/02/2020	10:30	FL	1006	0.1	<0.1	<0.1	0.2	0.1	20.3	20.3	0.5	1.12		
WS3	06/09/2019	13:00	FL	1006	0.6	<0.1	<0.1	3.2	3.0	15.7	15.7	0.77	1.17	0.5-1.30	MADE GROUND
	12/09/2019	13:05	FL	1012	0.3, 0.2	<0.1	<0.1	0.3	0.3	20.0	20.0	0.64	1.08		
	25/09/2019	14:45	FL	991	0.3	<0.1	<0.1	0.8	0.8	16.9	16.9	0.65	1.18		
	08/10/2019	12:07	AF	993	<0.1	<0.1	<0.1	0.1	0.1	20.4	20.4	0.58	1.18		
	24/10/2019	13:33	AF	991	<0.1	<0.1	<0.1	<0.1	<0.1	15.7	15.7	0.61	1.18		
	25/11/2019	14:55	PH	988	0.1	<0.1	<0.1	0.1	0.1	17.1	17.1	0.9	1.20		
	19/12/2019	12:25	PH	982	<0.1	<0.1	<0.1	0.1	0.1	13.5	13.5	0.59	1.20		
	23/01/2020	12:20	FL	1017	<0.1	<0.1	<0.1	0.1	0.1	14.6	14.6	0.61	1.20		
	20/02/2020	10:40	FL	1006	0.5	<0.1	<0.1	0.7	0.5	17.9	17.9	0.6	1.20		
WS5	06/09/2019	13:10	FL	1006	0.4, 0.3	<0.1	<0.1	1.8	1.8	18.0	18.0	0.51	0.97	0.5-1.00	MADE GROUND
	12/09/2019	13:15	FL	1011	0.2	<0.1	<0.1	0.2	0.2	20.4	20.4	0.49	0.94		
	25/09/2019	14:55	FL	990	0.1, 0.1	<0.1	<0.1	0.3	0.2	20.3	20.4	0.50	0.96		
	08/10/2019	12:03	AF	993	<0.1	<0.1	<0.1	0.1	0.1	20.4	20.4	0.39	0.90		
	24/10/2019	13:22	AF	991	<0.1	0.2	0.2	2.9	2.9	17.8	17.8	0.34	0.90		
	25/11/2019	15:00	PH	988	0.1	1.3	1.3	11.2	11.2	0.6	0.6	0.60	0.90		
	19/12/2019	12:48	PH	982	1.1	<0.1	<0.1	0.6	0.6	20.6	20.9	0.41	0.90		
	23/01/2020	12:30	FL	1017	<0.1	<0.1	<0.1	1.2	1.2	19.8	19.8	0.48	0.90		
	20/02/2020	10:50	FL	1008	0.3	<0.1	<0.1	0.4	0.4	18.2	18.2	0.52	0.89		

WEATHER CONDITIONS

Date	Cloud	Wind	Temperature °C	Atmospheric Pressure
06/09/2019	8/8	37 km/h WNW	13	1007 Rising
12/09/2019	8/8	23 km/h SW	15	1012 Rising
25/09/2019	8/8	19 km/h SSW	14	990 Falling
08/10/2019	6/8	28 km/h W	15	993 Falling
24/10/2019	2/8	20 km/h W	13	991 Steady
25/11/2019	8/8/	15 km/h W	10	996 Falling
19/12/2019	8/8	18 km/h SE	10	982 Falling
23/01/2020	7/8	14 km/h WSW	8	1018 Rising
20/02/2020	7/8	25 km/h W	5	1007 Rising

COMMENTS

Date	Borehole	Comments

Notes

1. Geotechnical Instruments Infra-Red Gas Analyser (GFM 436) with internal flow
2. Gas sample type – accumulated
3. Average gas flow taken of 60 Seconds
4. Weather data obtained from – https://www.metoffice.gov.uk/weather/observations/gcvn1rjbp
5. Detection limits – 0.1% CH_4, CO_2, and O_2, 0.1 l/hr flow rate

APPENDIX 9

CHEMICAL ANALYSIS RESULTS

Certificate of Analysis

Certificate Number	19-16626	09-Sep-19
Client	FWS Consultants 1 Redwood Crescent Office 1.8, Peel Park East Kilbride South Lanarkshire G74 5PA	
Our Reference	19-16626	
Client Reference	8190	
Order No	(not supplied)	
Contract Title	Waters Edge, Whitehaven	
Description	20 Soil samples, 8 Leachate samples.	
Date Received	28-Aug-19	
Date Started	28-Aug-19	
Date Completed	09-Sep-19	
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		

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven

			Lab No	1553776	1553777	1553778	1553779	1553780	1553781
			Sample ID	WS1	WS3	S2	S3	S5	S7
			Depth	0.20	0.60				
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	23/08/19	23/08/19	23/08/19	23/08/19	23/08/19	23/08/19
			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	4.9	9.6	8.3	14	9.9	13
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.0	1.5	1.0	0.7	0.9	0.7
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1	0.1	0.5
Chromium	DETSC 2301#	0.15	mg/kg	7.4	8.7	9.6	15	11	27
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	11	18	17	26	22	74
Lead	DETSC 2301#	0.3	mg/kg	12	28	14	28	23	63
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.07	0.05	0.07
Nickel	DETSC 2301#	1	mg/kg	7.6	9.9	10	17	16	25
Zinc	DETSC 2301#	1	mg/kg	25	36	33	49	40	93
Inorganics									
pH	DETSC 2008#		pH	10.9	10.6	9.6	9.0	9.3	8.7
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	0.2	< 0.1	0.1	< 0.1	0.6
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	0.2	< 0.1	0.1	< 0.1	0.2
Organic matter	DETSC 2002#	0.1	%	1.2	2.5	1.4	4.0	1.7	5.3
Chloride Aqueous Extract	DETSC 2055	1	mg/l	12	11	8.6	15	5.2	9.7
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	190	380	110	110	76	78
Sulphate as SO4, Total	DETSC 2321#	0.01	%	1.1	1.2	0.39	0.17	0.39	0.16
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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Summary of Chemical Analysis
Soil Samples

Our Ref 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven

			Lab No	1553776	1553777	1553778	1553779	1553780	1553781
			Sample ID	WS1	WS3	S2	S3	S5	S7
			Depth	0.20	0.60				
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	23/08/19	23/08/19	23/08/19	23/08/19	23/08/19	23/08/19
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1	0.2	< 0.1	0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1	0.2	< 0.1	0.3
Pyrene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1	0.3	< 0.1	0.4
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	0.8	< 0.1	< 0.1	0.6	< 0.1	0.9
Chrysene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1	0.2	< 0.1	0.3
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2	< 0.1	0.2
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2	< 0.1	0.2
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3
PAH Total	DETSC 3301	1.6	mg/kg	1.7	< 1.6	< 1.6	2.3	< 1.6	3.7
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

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Summary of Chemical Analysis
Soil Samples

Our Ref 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven

			Lab No	1553782	1553783	1553784	1553785	1553786	1553787
			Sample ID	TP1	TP3	TP4	TP6	TP7	TP8
			Depth	0.50	0.60	0.40	0.30	0.40	0.10
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	23/08/19	23/08/19	23/08/19	23/08/19	23/08/19	23/08/19
			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	11	4.5	9.4	26	18	18
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.3	0.5	1.2	0.4	1.3	0.6
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.1	< 0.1	< 0.1	0.2	0.2
Chromium	DETSC 2301#	0.15	mg/kg	19	3.3	7.4	18	17	24
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	41	11	21	84	39	30
Lead	DETSC 2301#	0.3	mg/kg	19	6.7	30	25	42	50
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	0.09	0.08
Nickel	DETSC 2301#	1	mg/kg	57	6.4	9.5	35	22	22
Zinc	DETSC 2301#	1	mg/kg	36	15	32	160	69	110
Inorganics									
pH	DETSC 2008#		pH	7.9	10.7	10.9	8.0	9.0	8.4
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1	0.4	0.3
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1	0.1	0.2
Organic matter	DETSC 2002#	0.1	%	2.3	0.4	1.6	13	5.5	4.7
Chloride Aqueous Extract	DETSC 2055	1	mg/l	7.8	7.2	4.4	9.6	17	8.8
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	67	84	170	100	450	140
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.10	0.32	1.3	0.59	0.44	0.19
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	85	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	1100	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	1200	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	25	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	3.3	< 0.6	< 0.6	1900	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	8.3	< 1.4	< 1.4	5000	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	12	< 10	< 10	6900	< 10	< 10
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	12	< 10	< 10	8100	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven

			Lab No	1553782	1553783	1553784	1553785	1553786	1553787
			Sample ID	TP1	TP3	TP4	TP6	TP7	TP8
			Depth	0.50	0.60	0.40	0.30	0.40	0.10
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	23/08/19	23/08/19	23/08/19	23/08/19	23/08/19	23/08/19
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	8.5	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1	12	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1	9.4	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	0.4	< 0.1	< 0.1	12	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1	2.8	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	1.2	< 0.1	< 0.1	51	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	1.4	< 0.1	< 0.1	3.5	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	1.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	0.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	0.9	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	1.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	0.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	1.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	10	< 1.6	< 1.6	99	< 1.6	< 1.6
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	1.7	< 0.3

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 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven

			Lab No	1553788	1556001	1556002	1557177
			Sample ID	TP9	TP2	TP5	TP6
			Depth	0.50	0.20	0.10	1.40
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	23/08/19	22/08/19	23/08/19	23/08/19
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	11	11	10	15
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.9	1.2	1.5	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	8.6	9.1	10	19
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	17	21	26	29
Lead	DETSC 2301#	0.3	mg/kg	18	21	37	18
Mercury	DETSC 2325#	0.05	mg/kg	0.07	< 0.05	0.20	< 0.05
Nickel	DETSC 2301#	1	mg/kg	9.0	12	9.8	18
Zinc	DETSC 2301#	1	mg/kg	40	37	38	46
Inorganics							
pH	DETSC 2008#		pH	9.8	10.7	9.8	7.9
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.1	0.2	0.2	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	1.6	2.7	2.6	2.0
Chloride Aqueous Extract	DETSC 2055	1	mg/l	8.9	12	9.0	11
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	630	470	430	120
Sulphate as SO4, Total	DETSC 2321#	0.01	%	1.6	1.1	0.90	0.08
Petroleum Hydrocarbons							
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	8.6
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	31
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	15
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	55
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	55
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

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Summary of Chemical Analysis
Soil Samples

Our Ref 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven

			Lab No	1553788	1556001	1556002	1557177
			Sample ID	TP9	TP2	TP5	TP6
			Depth	0.50	0.20	0.10	1.40
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	23/08/19	22/08/19	23/08/19	23/08/19
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
PAHs							
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.4	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.4	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	3.3	< 1.6
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3

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

WASTE ACCEPTANCE CRITERIA TESTING
ANALYTICAL REPORT

Our Ref 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven
Sample Id S2

Sample Numbers 1555997 1556003 1556004
Date Analysed 09/09/2019

Test Results On Waste

Determinand and Method Reference	Units	Result	WAC Limit Values: Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.4	3	5	6
DETSC 2003# Loss On Ignition	%	3.3	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# TPH (C10 - C40)	mg/kg	39	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	10.8	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	6.5	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1	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	5.5	2.5	0.011	0.029	0.5	2	25
DETSC 2306 Barium as Ba	9.6	2.9	< 0.02	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.03	< 0.03	< 0.004	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	1.3	0.38	< 0.02	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	3.9	1.9	0.008	0.021	2	50	100
DETSC 2306 Mercury as Hg	0.01	< 0.01	< 0.0004	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	4	< 1.1	< 0.02	< 0.1	0.5	10	30
DETSC 2306 Nickel as Ni	0.7	< 0.5	< 0.02	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	1.3	0.47	< 0.01	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	1.1	0.25	< 0.01	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	2.9	1.2	< 0.006	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	3.6	2.8	0.007	0.029	4	50	200
DETSC 2055 Chloride as Cl	2300	1100	< 20	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	250	< 100	0.5	0.3	10	150	500
DETSC 2055 Sulphate as SO4	11000	3900	22	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	64000	42000	128	446.5	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
* Dissolved Organic Carbon	4900	2000	< 10	< 50	500	800	1000

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

Additional Information

DETSC 2008 pH	7.2	7.6
DETSC 2009 Conductivity uS/cm	91.5	60.2
* Temperature*	18	18

Mass of Sample Kg*	0.130
Mass of dry Sample Kg*	0.116

Stage 1

Volume of Leachant L2*	0.219
Volume of Eluate VE1*	0.14

Stage 2

Volume of Leachant L8*	0.929
Volume of Eluate VE2*	0.91

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.*
** 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 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven
Sample Id S3

Sample Numbers 1555998 1556005 1556006
Date Analysed 09/09/2019

Test Results On Waste

Determinand and Method Reference	Units	Result	WAC Limit Values: Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	3.0	3	5	6
DETSC 2003# Loss On Ignition	%	3.5	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# TPH (C10 - C40)	mg/kg	27	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	8.6	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	4.6	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1	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	1.8	1.1	0.004	0.012	0.5	2	25
DETSC 2306 Barium as Ba	3.5	1.9	< 0.02	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.03	< 0.03	< 0.004	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	0.5	< 0.25	< 0.02	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	1.5	0.8	< 0.004	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.01	< 0.01	< 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	< 0.5	< 0.5	< 0.02	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.48	0.47	< 0.01	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	0.3	< 0.17	< 0.01	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	0.86	0.35	< 0.006	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	2.5	2.5	0.005	0.025	4	50	200
DETSC 2055 Chloride as Cl	2400	1500	< 20	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	140	< 100	0.28	0.18	10	150	500
DETSC 2055 Sulphate as SO4	7300	3200	< 20	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	36000	25000	72	264.4	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
* Dissolved Organic Carbon	3300	< 2000	< 10	< 50	500	800	1000

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

Additional Information

DETSC 2008 pH	7.1	7.4
DETSC 2009 Conductivity uS/cm	51.3	35.7
* Temperature*	16	18

Mass of Sample Kg*	0.140
Mass of dry Sample Kg*	0.122

Stage 1

Volume of Leachant L2*	0.227
Volume of Eluate VE1*	0.16

Stage 2

Volume of Leachant L8*	0.979
Volume of Eluate VE2*	0.91

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WASTE ACCEPTANCE CRITERIA TESTING
ANALYTICAL REPORT

Our Ref 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven
Sample Id S5

Sample Numbers 1555999 1556007 1556008
Date Analysed 09/09/2019

Test Results On Waste

Determinand and Method Reference	Units	Result	WAC Limit Values: Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.5	3	5	6
DETSC 2003# Loss On Ignition	%	4.5	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# TPH (C10 - C40)	mg/kg	26	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	3.0	100	n/a	n/a
DETSC 2008# pH	pH Units	10.7	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	5.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1	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	1.8	1.4	0.004	0.014	0.5	2	25
DETSC 2306 Barium as Ba	7.1	5.7	< 0.02	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.03	< 0.03	< 0.004	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	0.59	< 0.25	< 0.02	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	2	1.2	0.004	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.01	< 0.01	< 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	< 0.5	< 0.5	< 0.02	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.32	0.36	< 0.01	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	0.57	< 0.17	< 0.01	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	0.91	0.77	< 0.006	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	2.6	2.2	0.005	0.022	4	50	200
DETSC 2055 Chloride as Cl	1900	1100	< 20	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	320	140	0.64	1.62	10	150	500
DETSC 2055 Sulphate as SO4	9500	4100	< 20	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	55000	40000	110	418.7	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
* Dissolved Organic Carbon	3400	< 2000	< 10	< 50	500	800	1000

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

Additional Information

DETSC 2008 pH	7.1	8.3
DETSC 2009 Conductivity uS/cm	79	57.5
* Temperature*	17	18

Mass of Sample Kg*	0.140
Mass of dry Sample Kg*	0.121

Stage 1

Volume of Leachant L2*	0.222
Volume of Eluate VE1*	0.15

Stage 2

Volume of Leachant L8*	0.965
Volume of Eluate VE2*	0.92

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.*
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WASTE ACCEPTANCE CRITERIA TESTING
ANALYTICAL REPORT

Our Ref 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven
Sample Id S7

Sample Numbers 1556000 1556009 1556010
Date Analysed 09/09/2019

Test Results On Waste

Determinand and Method Reference	Units	Result	WAC Limit Values: Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	7.6	3	5	6
DETSC 2003# Loss On Ignition	%	9.0	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# TPH (C10 - C40)	mg/kg	22	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	8.3	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	2.2	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1	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	3.5	2.3	0.007	0.024	0.5	2	25
DETSC 2306 Barium as Ba	4.2	1.5	< 0.02	< 0.1	20	100	300
DETSC 2306 Cadmium as Cd	< 0.03	< 0.03	< 0.004	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	1.4	0.5	< 0.02	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	7.6	2.6	0.015	0.032	2	50	100
DETSC 2306 Mercury as Hg	< 0.01	< 0.01	< 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	0.6	< 0.5	< 0.02	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	1.3	0.66	< 0.01	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	0.94	< 0.17	< 0.01	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	< 0.25	< 0.25	< 0.006	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	3.2	2.7	0.006	0.028	4	50	200
DETSC 2055 Chloride as Cl	3400	1300	< 20	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	560	180	1.12	2.25	10	150	500
DETSC 2055 Sulphate as SO4	4900	1700	< 20	< 100	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	54000	27000	108	302.1	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
* Dissolved Organic Carbon	4500	< 2000	< 10	< 50	500	800	1000

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

Additional Information

DETSC 2008 pH	7.2	7.8
DETSC 2009 Conductivity uS/cm	77.3	37.8
* Temperature*	16	18

Mass of Sample Kg*	0.140
Mass of dry Sample Kg*	0.108

Stage 1

Volume of Leachant L2*	0.183
Volume of Eluate VE1*	0.128

Stage 2

Volume of Leachant L8*	0.861
Volume of Eluate VE2*	0.79

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.*
** 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 19-16626
Client Ref 8190
Contract Title Waters Edge, Whitehaven

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1553776	WS1 0.20	SOIL	NAD	none	Luke Donaghy
1553777	WS3 0.60	SOIL	NAD	none	Luke Donaghy
1553778	S2	SOIL	NAD	none	Luke Donaghy
1553779	S3	SOIL	NAD	none	Luke Donaghy
1553780	S5	SOIL	NAD	none	Luke Donaghy
1553781	S7	SOIL	NAD	none	Luke Donaghy
1553782	TP1 0.50	SOIL	NAD	none	Luke Donaghy
1553783	TP3 0.60	SOIL	NAD	none	Luke Donaghy
1553784	TP4 0.40	SOIL	NAD	none	Luke Donaghy
1553785	TP6 0.30	SOIL	NAD	none	Luke Donaghy
1553786	TP7 0.40	SOIL	NAD	none	Luke Donaghy
1553787	TP8 0.10	SOIL	NAD	none	Luke Donaghy
1553788	TP9 0.50	SOIL	NAD	none	Luke Donaghy
1556001	TP2 0.20	SOIL	NAD	none	Luke Donaghy
1556002	TP5 0.10	SOIL	NAD	none	Luke Donaghy
1557177	TP6 1.40	SOIL	NAD	none	Luke Donaghy

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 19-16626
Client Ref 8190
Contract Waters Edge, Whitehaven

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1553776	WS1 0.20 SOIL	23/08/19	GJ 250ml x2, PT 1L		
1553777	WS3 0.60 SOIL	23/08/19	GJ 250ml, PT 1L		
1553778	S2 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1553779	S3 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1553780	S5 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1553781	S7 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1553782	TP1 0.50 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1553783	TP3 0.60 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1553784	TP4 0.40 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1553785	TP6 0.30 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1553786	TP7 0.40 SOIL	23/08/19	GJ 250ml x2, PT 1L		
1553787	TP8 0.10 SOIL	23/08/19	GJ 250ml x2, PT 1L		
1553788	TP9 0.50 SOIL	23/08/19	GJ 250ml x2, PT 1L		
1555997	S2 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1555998	S3 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1555999	S5 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556000	S7 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556001	TP2 0.20 SOIL	22/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556002	TP5 0.10 SOIL	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556003	S2 LEACHATE	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556004	S2 LEACHATE	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556005	S3 LEACHATE	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556006	S3 LEACHATE	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556007	S5 LEACHATE	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556008	S5 LEACHATE	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556009	S7 LEACHATE	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1556010	S7 LEACHATE	23/08/19	GJ 250ml, GJ 60ml, PT 1L		
1557177	TP6 1.40 SOIL	23/08/19	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

Certificate of Analysis

Certificate Number	20-01932
	05-Feb-20
Client	FWS Consultants 1 Redwood Crescent Office 1.8, Peel Park East Kilbride South Lanarkshire G74 5PA
Our Reference	20-01932
Client Reference	8190.3
Order No	202/3190
Contract Title	Water's Edge, Whitehaven
Description	24 Soil samples, 8 Leachate samples.
Date Received	30-Jan-20
Date Started	30-Jan-20
Date Completed	05-Feb-20
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

Adam Fenwick
Contracts Manager

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven

			Lab No	1631114	1631115	1631116	1631117	1631118	1631119
			Sample ID	TP101	TP102	TP103	TP104	TP105	TP106
			Depth	0.40	0.30	0.10	0.60		0.40
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	20/01/2020	20/01/2020	20/01/2020	20/01/2020	20/01/2020	20/01/2020
			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	9.2	7.6	11	15	16	17
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.1	1.2	1.1	1.2	1.2	1.1
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.2	0.2	0.1	0.1	0.2
Chromium	DETSC 2301#	0.15	mg/kg	12	8.2	12	17	18	21
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	29	19	25	28	29	33
Lead	DETSC 2301#	0.3	mg/kg	24	17	22	26	29	36
Mercury	DETSC 2325#	0.05	mg/kg	0.13	< 0.05	< 0.05	< 0.05	< 0.05	0.08
Nickel	DETSC 2301#	1	mg/kg	12	9.5	13	18	20	22
Zinc	DETSC 2301#	1	mg/kg	51	37	52	40	42	57
Inorganics									
pH	DETSC 2008#		pH	8.2	8.5	8.3	7.6	7.6	7.7
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	0.2	0.2	0.6	0.7	0.6
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	2.3	0.9	2.0	1.8	2.1	2.2
Chloride Aqueous Extract	DETSC 2055	1	mg/l	5.5	5.2	5.3	9.2	9.9	11
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	1500	1500	1500	1200	1200	1500
Sulphate as SO4, Total	DETSC 2321#	0.01	%	11	12	10	0.47	0.55	1.0
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	0.04	0.03	0.02	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	0.04	0.04	0.08	< 0.01	0.11	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	6.7	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	4.4	< 1.2	< 1.2	< 1.2	< 1.2	10
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	2.0	< 1.5	< 1.5	< 1.5	< 1.5	26
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	93
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	13	< 10	< 10	< 10	< 10	130
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	0.35	0.04	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	3.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	30	< 0.5	< 0.5	< 0.5	16	1600
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	64	5.3	< 0.6	< 0.6	7.0	760
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	18	17	< 1.4	< 1.4	< 1.4	220
Aromatic C5-C35	DETSC 3072*	10	mg/kg	110	22	< 10	< 10	23	2600
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	130	22	< 10	< 10	23	2700
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven

			Lab No	1631114	1631115	1631116	1631117	1631118	1631119
			Sample ID	TP101	TP102	TP103	TP104	TP105	TP106
			Depth	0.40	0.30	0.10	0.60		0.40
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	20/01/2020	20/01/2020	20/01/2020	20/01/2020	20/01/2020	20/01/2020
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	0.3	0.2	< 0.1	< 0.1	< 0.1	1.2
Acenaphthylene	DETSC 3301	0.1	mg/kg	11	0.2	0.3	< 0.1	0.1	53
Acenaphthene	DETSC 3301	0.1	mg/kg	2.3	0.2	0.1	< 0.1	< 0.1	14
Fluorene	DETSC 3301	0.1	mg/kg	5.5	0.4	0.6	< 0.1	< 0.1	6.9
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	1.1	3.5	0.3	0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	0.6	1.3	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	0.2	6.6	10	0.5	0.2	4.2
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	7.2	8.6	0.4	< 0.1	0.8
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	3.6	4.2	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	4.2	4.2	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	4.8	3.5	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	2.5	1.9	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	5.6	3.9	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	3.4	1.9	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	0.4	0.3	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	3.8	2.2	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	19	45	47	< 1.6	< 1.6	81
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	5.6	5.9	5.6

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Summary of Chemical Analysis
Soil Samples

Our Ref 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven

			Lab No	1631120	1631121	1631122	1631123	1631124	1631125
			Sample ID	TP106	TP109	TP112	TP117	TP118	TP120
			Depth	2.00	0.20	0.30	0.30	0.30	0.30
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	20/01/2020	21/01/2020	21/01/2020	22/01/2020	22/01/2020	22/01/2020
			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	14	11	11	5.6	9.9	13
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.7	0.7	0.7	1.9	1.9	1.9
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.1	0.1	0.3	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	20	16	16	14	6.3	6.5
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	31	24	28	34	13	14
Lead	DETSC 2301#	0.3	mg/kg	23	15	18	62	24	21
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	22	18	21	12	7.2	7.5
Zinc	DETSC 2301#	1	mg/kg	57	31	39	130	17	19
Inorganics									
pH	DETSC 2008#		pH	10.3	10.1	9.9	11.0	11.0	10.9
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.9	0.6	0.5
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	0.7	1.5	1.7	1.6	2.0	1.5
Chloride Aqueous Extract	DETSC 2055	1	mg/l	16	17	16	9.9	14	14
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	450	420	450	400	400	390
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.39	0.61	0.88	1.2	1.1	1.2
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	0.12	0.04	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	0.29	0.52	< 0.01	< 0.01	0.09
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	0.02	0.04	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	0.04	0.07	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	0.03	0.43	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	9.0	< 0.5	6.4	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	4.5	< 0.6	2.4	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	14	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	14	< 10	< 10	< 10	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	0.02	0.04	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven

			Lab No	1631120	1631121	1631122	1631123	1631124	1631125
			Sample ID	TP106	TP109	TP112	TP117	TP118	TP120
			Depth	2.00	0.20	0.30	0.30	0.30	0.30
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	20/01/2020	21/01/2020	21/01/2020	22/01/2020	22/01/2020	22/01/2020
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	0.04	0.07	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	0.03	0.25	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	0.1	0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	5.2	0.4	0.3	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	2.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	0.2	0.2	0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	0.2	0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	0.2	0.3	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	8.3	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

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Summary of Chemical Analysis
Soil Samples

Our Ref 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven

			Lab No	1631126	1631127	1631128	1631684	1631685	1631686
			Sample ID	TP124	TP125	TP126	TP101 WAC1 Stockpile	TP103 WAC1 Stockpile	TP106 WAC1 Stockpile
			Depth	0.30	0.30	0.70			
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	22/01/2020	22/01/2020	22/01/2020	20/01/2020	20/01/2020	20/01/2020
			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	13	17	13	8.7	11	11
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.8	1.8	1.8	1.3	0.5	0.9
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.5	0.1	< 0.1	0.2	0.1
Chromium	DETSC 2301#	0.15	mg/kg	6.5	24	11	12	21	18
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	11	360	22	19	28	27
Lead	DETSC 2301#	0.3	mg/kg	21	200	37	15	19	17
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.16	< 0.05	< 0.05	0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	7.4	34	13	17	31	23
Zinc	DETSC 2301#	1	mg/kg	20	270	34	37	56	47
Inorganics									
pH	DETSC 2008#		pH	8.9	8.9	8.7	9.9	7.7	8.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	0.1	0.1	0.1	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	2.7	2.5	2.5	1.9	3.9	1.5
Chloride Aqueous Extract	DETSC 2055	1	mg/l	13	11	12	8.9	8.1	6.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	570	590	610	730	410	1500
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.37	0.37	0.47	0.57	0.15	0.53
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	0.04	0.05	0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	0.19	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	15
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	21
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	36
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	36
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	0.08	< 0.01	< 0.01	< 0.01

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Summary of Chemical Analysis
Soil Samples

Our Ref 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven

			Lab No	1631126	1631127	1631128	1631684	1631685	1631686
			Sample ID	TP124	TP125	TP126	TP101 WAC1 Stockpile	TP103 WAC1 Stockpile	TP106 WAC1 Stockpile
			Depth	0.30	0.30	0.70			
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	22/01/2020	22/01/2020	22/01/2020	20/01/2020	20/01/2020	20/01/2020
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	0.09	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1	0.1	0.2
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1	< 0.1	0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	0.3	0.5	< 0.3	< 0.3	< 0.3

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Summary of Chemical Analysis
Soil Samples

Our Ref 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven

	Lab No	1631687	1631688	1631689	1631690	1631718	1631785
	Sample ID	TP107 WAC1 Stockpile	TP109 WAC1 Stockpile	TP112 WAC1 Stockpile	TP113 WAC1 Stockpile	TP104 WAC1	TP115 WAC1
	Depth						
	Other ID						
	Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampling Date	21/01/2020	21/01/2020	21/01/2020	21/01/2020	20/01/2020	21/01/2020
	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	9.7	7.4	11	14	14	13
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.4	1.0	1.2	1.4	1.6	1.1
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.1	0.1	0.2	0.1	0.2
Chromium	DETSC 2301#	0.15	mg/kg	13	9.1	13	15	18	17
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	22	23	25	26	30	33
Lead	DETSC 2301#	0.3	mg/kg	18	12	20	19	24	110
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.06	0.06	0.05
Nickel	DETSC 2301#	1	mg/kg	15	12	16	16	29	21
Zinc	DETSC 2301#	1	mg/kg	42	25	45	39	58	90
Inorganics									
pH	DETSC 2008#		pH	10.3	10.2	9.8	9.8	9.7	9.5
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	0.1	0.1	0.1	0.1	1.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	2.1	2.3	1.7	1.9	2.2	3.9
Chloride Aqueous Extract	DETSC 2055	1	mg/l	15	15	9.5	14	7.5	8.9
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	310	320	310	340	700	120
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.49	0.24	0.43	0.32	0.72	0.38
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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Summary of Chemical Analysis
Soil Samples

Our Ref 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven

			Lab No	1631687	1631688	1631689	1631690	1631718	1631785
			Sample ID	TP107 WAC1 Stockpile	TP109 WAC1 Stockpile	TP112 WAC1 Stockpile	TP113 WAC1 Stockpile	TP104 WAC1	TP115 WAC1
			Depth						
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	21/01/2020	21/01/2020	21/01/2020	21/01/2020	20/01/2020	21/01/2020
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.3	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1	0.5	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	0.2	0.1	0.1	0.5	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	0.4	0.2	0.4	0.5	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	0.4	0.3	0.4	0.5	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

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WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven
Sample Id TP106 WAC1 Stockpile

Sample Numbers 1631686 1631691 1631692
Date Analysed 05/02/2020

Test Results On Waste

Determinand and Method Reference	Units	Result	WAC Limit Values: Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	1.6	3	5	6
DETSC 2003# Loss On Ignition	%	4.4	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# TPH (C10 - C40)	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	8.3	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1	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	0.81	0.35	< 0.002	< 0.01	0.5	2	25
DETSC 2306 Barium as Ba	28	11	0.06	0.14	20	100	300
DETSC 2306 Cadmium as Cd	0.15	0.042	< 0.004	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	0.32	< 0.25	< 0.02	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	3.9	1.2	0.008	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.01	< 0.01	< 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	6.3	1.2	< 0.02	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.17	< 0.09	< 0.01	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	0.3	< 0.17	< 0.01	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	2.9	2.8	< 0.006	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	13	2.5	0.026	0.042	4	50	200
DETSC 2055 Chloride as Cl	4500	1300	< 20	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	520	140	1.04	2	10	150	500
DETSC 2055 Sulphate as SO4	910000	120000	1820	2451.2	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	1000000	200000	2000	3267	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	4300	< 2000	< 10	< 50	500	800	1000

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

Additional Information

DETSC 2008 pH	8.4	8.4
DETSC 2009 Conductivity uS/cm	1490.0	283.0
* Temperature*	15.0	15.0

Mass of Sample Kg*	0.140
Mass of dry Sample Kg*	0.115

Stage 1

Volume of Leachant L2*	0.205
Volume of Eluate VE1*	0.182

Stage 2

Volume of Leachant L8*	0.919
Volume of Eluate VE2*	0.901

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 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven
Sample Id TP107 WAC1 Stockpile

Sample Numbers 1631687 1631693 1631694
Date Analysed 05/02/2020

Test Results On Waste

Determinand and Method Reference	Units	Result
DETSC 2084# Total Organic Carbon	%	2.5
DETSC 2003# Loss On Ignition	%	5.4
DETSC 3321# BTEX	mg/kg	< 0.04
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01
DETSC 3311# TPH (C10 - C40)	mg/kg	< 10
DETSC 3301 PAHs	mg/kg	< 1.6
DETSC 2008# pH	pH Units	10.3
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1

WAC Limit Values		
Inert Waste	SNRHW	Hazardous Waste
3	5	6
n/a	n/a	10
6	n/a	n/a
1	n/a	n/a
500	n/a	n/a
100	n/a	n/a
n/a	>6	n/a
n/a	TBE	TBE
n/a	TBE	TBE

Test Results On Leachate

Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached* mg/kg	
	2:1	8:1	LS2	LS10
DETSC 2306 Arsenic as As	0.51	0.51	< 0.002	< 0.01
DETSC 2306 Barium as Ba	14	7.2	0.03	< 0.1
DETSC 2306 Cadmium as Cd	< 0.03	< 0.03	< 0.004	< 0.02
DETSC 2306 Chromium as Cr	0.46	< 0.25	< 0.02	< 0.1
DETSC 2306 Copper as Cu	1.8	0.74	< 0.004	< 0.02
DETSC 2306 Mercury as Hg	< 0.01	< 0.01	< 0.0004	< 0.002
DETSC 2306 Molybdenum as Mo	< 1.1	< 1.1	< 0.02	< 0.1
DETSC 2306 Nickel as Ni	4.9	0.9	< 0.02	< 0.1
DETSC 2306 Lead as Pb	< 0.09	< 0.09	< 0.01	< 0.05
DETSC 2306 Antimony as Sb	0.34	< 0.17	< 0.01	< 0.05
DETSC 2306 Selenium as Se	0.66	7	< 0.006	0.06
DETSC 2306 Zinc as Zn	< 1.3	< 1.3	< 0.002	< 0.01
DETSC 2055 Chloride as Cl	6700	1700	< 20	< 100
DETSC 2055* Fluoride as F	310	100	0.62	1.32
DETSC 2055 Sulphate as SO4	88000	14000	176	253.9
DETSC 2009* Total Dissolved Solids	200000	68000	400	883.2
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1
DETSC 2085 Dissolved Organic Carbon	5200	< 2000	10.4	< 50

WAC Limit Values Limit values for LS10 Leachate		
Inert Waste	SNRHW	Hazardous Waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15,000	25,000
10	150	500
1000	20,000	50,000
4000	60,000	100,000
1	n/a	n/a
500	800	1000

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

Additional Information

DETSC 2008 pH	8.2	8.5
DETSC 2009 Conductivity uS/cm	282.0	96.4
* Temperature*	15.0	17.0

Mass of Sample Kg*	0.140
Mass of dry Sample Kg*	0.117

Stage 1

Volume of Leachant L2*	0.211
Volume of Eluate VE1*	0.18

Stage 2

Volume of Leachant L8*	0.936
Volume of Eluate VE2*	0.905

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WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven
Sample Id TP109 WAC1 Stockpile

Sample Numbers 1631688 1631695 1631696
Date Analysed 05/02/2020

Test Results On Waste

Determinand and Method Reference	Units	Result
DETSC 2084# Total Organic Carbon	%	3.3
DETSC 2003# Loss On Ignition	%	5.0
DETSC 3321# BTEX	mg/kg	< 0.04
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01
DETSC 3311# TPH (C10 - C40)	mg/kg	< 10
DETSC 3301 PAHs	mg/kg	< 1.6
DETSC 2008# pH	pH Units	10.2
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1

WAC Limit Values		
Inert Waste	SNRHW	Hazardous Waste
3	5	6
n/a	n/a	10
6	n/a	n/a
1	n/a	n/a
500	n/a	n/a
100	n/a	n/a
n/a	>6	n/a
n/a	TBE	TBE
n/a	TBE	TBE

Test Results On Leachate

Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached* mg/kg	
	2:1	8:1	LS2	LS10
DETSC 2306 Arsenic as As	2.8	1.5	0.006	0.017
DETSC 2306 Barium as Ba	20	13	0.04	0.14
DETSC 2306 Cadmium as Cd	< 0.03	< 0.03	< 0.004	< 0.02
DETSC 2306 Chromium as Cr	0.87	< 0.25	< 0.02	< 0.1
DETSC 2306 Copper as Cu	5.3	1.7	0.011	0.022
DETSC 2306 Mercury as Hg	< 0.01	< 0.01	< 0.0004	< 0.002
DETSC 2306 Molybdenum as Mo	< 1.1	< 1.1	< 0.02	< 0.1
DETSC 2306 Nickel as Ni	1.2	< 0.5	< 0.02	< 0.1
DETSC 2306 Lead as Pb	1.4	0.2	< 0.01	< 0.05
DETSC 2306 Antimony as Sb	0.89	1.4	< 0.01	< 0.05
DETSC 2306 Selenium as Se	1.7	1.4	< 0.006	< 0.03
DETSC 2306 Zinc as Zn	1.5	< 1.3	0.003	< 0.01
DETSC 2055 Chloride as Cl	4400	1100	< 20	< 100
DETSC 2055* Fluoride as F	340	120	0.68	1.53
DETSC 2055 Sulphate as SO4	28000	32000	56	314.1
DETSC 2009* Total Dissolved Solids	100000	91000	200	923.3
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1
DETSC 2085 Dissolved Organic Carbon	6000	2300	12	< 50

WAC Limit Values Limit values for LS10 Leachate		
Inert Waste	SNRHW	Hazardous Waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15,000	25,000
10	150	500
1000	20,000	50,000
4000	60,000	100,000
1	n/a	n/a
500	800	1000

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

Additional Information

DETSC 2008 pH	6.9	6.6
DETSC 2009 Conductivity uS/cm	146.0	131.0
* Temperature*	14.0	17.0

Mass of Sample Kg*	0.140
Mass of dry Sample Kg*	0.115

Stage 1

Volume of Leachant L2*	0.205
Volume of Eluate VE1*	0.17

Stage 2

Volume of Leachant L8*	0.92
Volume of Eluate VE2*	0.88

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WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven
Sample Id TP115 WAC1

Sample Numbers 1631785 1631697 1631698
Date Analysed 05/02/2020

Test Results On Waste

Determinand and Method Reference	Units	Result	WAC Limit Values: Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	5.2	3	5	6
DETSC 2003# Loss On Ignition	%	4.7	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# TPH (C10 - C40)	mg/kg	< 10	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	< 1.6	100	n/a	n/a
DETSC 2008# pH	pH Units	9.5	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1	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	2.6	1.5	0.005	0.017	0.5	2	25
DETSC 2306 Barium as Ba	21	10	0.04	0.12	20	100	300
DETSC 2306 Cadmium as Cd	< 0.03	< 0.03	< 0.004	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	0.81	0.36	< 0.02	< 0.1	0.5	10	70
DETSC 2306 Copper as Cu	4.8	1.4	0.01	< 0.02	2	50	100
DETSC 2306 Mercury as Hg	< 0.01	< 0.01	< 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	1.7	< 0.5	< 0.02	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	0.9	0.27	< 0.01	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	1.2	0.41	< 0.01	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	0.94	0.6	< 0.006	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	< 1.3	< 1.3	< 0.002	< 0.01	4	50	200
DETSC 2055 Chloride as Cl	4800	1900	< 20	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	420	< 100	0.84	0.67	10	150	500
DETSC 2055 Sulphate as SO4	27000	20000	54	211.2	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	100000	73000	200	773.1	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	6300	< 2000	12.6	< 50	500	800	1000

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

Additional Information

DETSC 2008 pH	7.0	8.3
DETSC 2009 Conductivity uS/cm	144.0	104.0
* Temperature*	14.0	17.0

Mass of Sample Kg*	0.140
Mass of dry Sample Kg*	0.117

Stage 1

Volume of Leachant L2*	0.21
Volume of Eluate VE1*	0.186

Stage 2

Volume of Leachant L8*	0.933
Volume of Eluate VE2*	0.9

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Summary of Asbestos Analysis
Soil Samples

Our Ref 20-01932
Client Ref 8190.3
Contract Title Water's Edge, Whitehaven

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1631114	TP101 0.40	SOIL	Chrysotile	Bundles of Chrysotile present	Jordan Eadington
1631115	TP102 0.30	SOIL	NAD	none	Jordan Eadington
1631116	TP103 0.10	SOIL	NAD	none	Jordan Eadington
1631117	TP104 0.60	SOIL	Amosite	Small bundle of Amosite fibres present	Jordan Eadington
1631118	TP105	SOIL	NAD	none	Jordan Eadington
1631119	TP106 0.40	SOIL	NAD	none	Jordan Eadington
1631121	TP109 0.20	SOIL	NAD	none	Jordan Eadington
1631122	TP112 0.30	SOIL	NAD	none	Jordan Eadington
1631123	TP117 0.30	SOIL	NAD	none	Jordan Eadington
1631124	TP118 0.30	SOIL	NAD	none	Jordan Eadington
1631125	TP120 0.30	SOIL	NAD	none	Jordan Eadington
1631126	TP124 0.30	SOIL	NAD	none	Jordan Eadington
1631127	TP125 0.30	SOIL	NAD	none	Jordan Eadington
1631128	TP126 0.70	SOIL	NAD	none	Jordan Eadington
1631684	TP101 WAC1 Stockpile	SOIL	NAD	none	D Wilkinson
1631685	TP103 WAC1 Stockpile	SOIL	NAD	none	D Wilkinson
1631686	TP106 WAC1 Stockpile	SOIL	NAD	none	D Wilkinson
1631687	TP107 WAC1 Stockpile	SOIL	NAD	none	D Wilkinson
1631688	TP109 WAC1 Stockpile	SOIL	NAD	none	D Wilkinson
1631689	TP112 WAC1 Stockpile	SOIL	NAD	none	D Wilkinson
1631690	TP113 WAC1 Stockpile	SOIL	NAD	none	D Wilkinson
1631718	TP104 WAC1	SOIL	NAD	none	D Wilkinson
1631785	TP115 WAC1	SOIL	NAD	none	D Wilkinson

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 20-01932
Client Ref 8190.3
Contract Water's Edge, Whitehaven

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1631114	TP101 0.40 SOIL	20/01/20	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1631115	TP102 0.30 SOIL	20/01/20	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1631116	TP103 0.10 SOIL	20/01/20	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1631117	TP104 0.60 SOIL	20/01/20	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1631118	TP105 SOIL	20/01/20	GJ 250ml x2, PT 1L x2	pH + Conductivity (7 days)	
1631119	TP106 0.40 SOIL	20/01/20	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1631120	TP106 2.00 SOIL	20/01/20	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1631121	TP109 0.20 SOIL	21/01/20	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1631122	TP112 0.30 SOIL	21/01/20	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1631123	TP117 0.30 SOIL	22/01/20	GJ 250ml x2, P(other)	pH + Conductivity (7 days)	
1631124	TP118 0.30 SOIL	22/01/20	GJ 250ml x2, P(other)	pH + Conductivity (7 days)	
1631125	TP120 0.30 SOIL	22/01/20	GJ 250ml x2, P(other)	pH + Conductivity (7 days)	
1631126	TP124 0.30 SOIL	22/01/20	GJ 250ml x2, PT 1L	pH + Conductivity (7 days)	
1631127	TP125 0.30 SOIL	22/01/20	GJ 250ml x2, PT 1L	pH + Conductivity (7 days)	
1631128	TP126 0.70 SOIL	22/01/20	P(other) x2	pH + Conductivity (7 days)	Aliphatics/Aromatics, BTEX, Naphthalene, PAH FID
1631684	TP101 WAC1 Stockpile SOIL	20/01/20	GJ 250ml x2, PT 1L x2	pH + Conductivity (7 days)	
1631685	TP103 WAC1 Stockpile SOIL	20/01/20	GJ 250ml x2, PT 1L x2	pH + Conductivity (7 days)	
1631686	TP106 WAC1 Stockpile SOIL	20/01/20	GJ 250ml x2, PT 1L x2	pH + Conductivity (7 days)	
1631687	TP107 WAC1 Stockpile SOIL	21/01/20	GJ 250ml x2, PT 1L x2	pH + Conductivity (7 days)	
1631688	TP109 WAC1 Stockpile SOIL	21/01/20	GJ 250ml x2, PT 1L x2	pH + Conductivity (7 days)	
1631689	TP112 WAC1 Stockpile SOIL	21/01/20	GJ 250ml x2, PT 1L x2	pH + Conductivity (7 days)	
1631690	TP113 WAC1 Stockpile SOIL	21/01/20	GJ 250ml x2, PT 1L x2	pH + Conductivity (7 days)	
1631691	TP106 WAC1 Stockpile LEACHATE	21/01/20	GJ 250ml x2, PT 1L x2		
1631692	TP106 WAC1 Stockpile LEACHATE	20/01/20	GJ 250ml x2, PT 1L x2		
1631693	TP107 WAC1 Stockpile LEACHATE	21/01/20	GJ 250ml x2, PT 1L x2		
1631694	TP107 WAC1 Stockpile LEACHATE	21/01/20	GJ 250ml x2, PT 1L x2		
1631695	TP109 WAC1 Stockpile LEACHATE	21/01/20	GJ 250ml x2, PT 1L x2		
1631696	TP109 WAC1 Stockpile LEACHATE	21/01/20	GJ 250ml x2, PT 1L x2		
1631697	TP115 WAC1 Stockpile LEACHATE	21/01/20	GJ 250ml x2, PT 1L x2		
1631698	TP115 WAC1 Stockpile LEACHATE	21/01/20	GJ 250ml x2, PT 1L x2		
1631718	TP104 WAC1 SOIL	20/01/20	GJ 250ml x2, PT 1L x2	pH + Conductivity (7 days)	
1631785	TP115 WAC1 SOIL	21/01/20	GJ 250ml x2, PT 1L x2	pH + Conductivity (7 days)	

Information in Support of the Analytical Results

Our Ref 20-01932
Client Ref 8190.3
Contract Water's Edge, Whitehaven

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

Waste Classification Report

DUA53-ZG5AG-EYYXX

Job name

Waters Edge, Whitehaven

Description/Comments

Project

8190

Site

Related Documents

#	Name	Description
None		

Waste Stream Template

Example waste stream template for contaminated soils

Classified by

Name:
Sarah Grieves
Date:
13 Sep 2019 15:41 GMT
Telephone:
0191 3783151

Company:
Dunelm Geotechnical & Environmental
Foundation House, St John's Rd
Meadowfield
Durham
DH7 8TZ

Report

Created by: Sarah Grieves
Created date: 13 Sep 2019 15:41 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	S2		Non Hazardous		2
2	S3		Non Hazardous		4
3	S5		Non Hazardous		6
4	S7		Non Hazardous		8

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	10
Appendix B: Rationale for selection of metal species	11
Appendix C: Version	12

Classification of sample: S2

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

Sample details

Sample Name:
S2

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	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		8.3	mg/kg	1.32	10.959	mg/kg	0.0011 %		
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		<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<LOD
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		9.6	mg/kg	1.462	14.031	mg/kg	0.0014 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		17	mg/kg	1.126	19.14	mg/kg	0.00191 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	14	mg/kg	1.56	21.837	mg/kg	0.0014 %		
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		10	mg/kg	2.976	29.763	mg/kg	0.00298 %		
10	zinc { zinc chromate }	024-007-00-3				33	mg/kg	2.774	91.547	mg/kg	0.00915 %		
11	TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
13	toluene	601-021-00-3	203-625-9	108-88-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
14	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
15	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]									
16		pH				9.6	pH		9.6	pH	9.6 pH		
				PH									
17		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
18		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
19		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
20		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
21		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-581-5	85-01-8									
22		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
23		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-912-4	206-44-0									
24		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-927-3	129-00-0									
25		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
26		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
27		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
28		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
29		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
30		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
31		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
32		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
33		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0197 %		

Key

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

Classification of sample: S3

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

Sample details

Sample Name:
S3

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	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		14 mg/kg	1.32	18.485 mg/kg	0.00185 %		
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		0.1 mg/kg	1.142	0.114 mg/kg	0.0000114 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<**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	28 mg/kg	1.56	43.675 mg/kg	0.0028 %		
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		17 mg/kg	2.976	50.597 mg/kg	0.00506 %		
10	zinc { zinc chromate }	024-007-00-3				49 mg/kg	2.774	135.933 mg/kg	0.0136 %		
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
13	toluene	601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
14	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
15	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]									
16		pH				9	pH		9	pH	9pH		
				PH									
17		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
18		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
19		acenaphthene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			201-469-6	83-32-9									
20		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
21		phenanthrene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			201-581-5	85-01-8									
22		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
23		fluoranthene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			205-912-4	206-44-0									
24		pyrene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
			204-927-3	129-00-0									
25		benzo[a]anthracene				0.6	mg/kg		0.6	mg/kg	0.00006 %		
		601-033-00-9	200-280-6	56-55-3									
26		chrysene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		601-048-00-0	205-923-4	218-01-9									
27		benzo[b]fluoranthene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		601-034-00-4	205-911-9	205-99-2									
28		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
29		benzo[a]pyrene; benzo[def]chrysene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		601-032-00-3	200-028-5	50-32-8									
30		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
31		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
32		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
33		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0302 %		

Key

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

Classification of sample: S5

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

Sample details

Sample Name:
S5

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	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		9.9 mg/kg	1.32	13.071 mg/kg	0.00131 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.9 mg/kg	3.22	2.898 mg/kg	0.00029 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.1 mg/kg	1.142	0.114 mg/kg	0.0000114 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		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) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		22 mg/kg	1.126	24.77 mg/kg	0.00248 %		
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 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		16 mg/kg	2.976	47.62 mg/kg	0.00476 %		
10	zinc { zinc chromate }	024-007-00-3				40 mg/kg	2.774	110.966 mg/kg	0.0111 %		
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
13	toluene	601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
14	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
15	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]									
16		pH				9.3	pH		9.3	pH	9.3 pH		
				PH									
17		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
18		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
19		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
20		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
21		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-581-5	85-01-8									
22		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
23		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-912-4	206-44-0									
24		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-927-3	129-00-0									
25		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
26		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
27		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
28		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
29		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
30		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
31		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
32		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
33		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0252 %		

Key

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

Classification of sample: S7

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

Sample details

Sample Name:
S7

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	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		0.7 mg/kg	3.22	2.254 mg/kg	0.000225 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.571 mg/kg	0.0000571 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		27 mg/kg	1.462	39.462 mg/kg	0.00395 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		74 mg/kg	1.126	83.316 mg/kg	0.00833 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	63 mg/kg	1.56	98.268 mg/kg	0.0063 %		
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		25 mg/kg	2.976	74.407 mg/kg	0.00744 %		
10	zinc { zinc chromate }	024-007-00-3				93 mg/kg	2.774	257.996 mg/kg	0.0258 %		
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
12	benzene	601-020-00-8	200-753-7	71-43-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
13	toluene	601-021-00-3	203-625-9	108-88-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
14	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
15	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]									
16		pH				8.7	pH		8.7	pH	8.7 pH		
				PH									
17		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
18		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
19		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
20		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
21		phenanthrene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			201-581-5	85-01-8									
22		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
23		fluoranthene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
			205-912-4	206-44-0									
24		pyrene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
			204-927-3	129-00-0									
25		benzo[a]anthracene				0.9	mg/kg		0.9	mg/kg	0.00009 %		
		601-033-00-9	200-280-6	56-55-3									
26		chrysene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
		601-048-00-0	205-923-4	218-01-9									
27		benzo[b]fluoranthene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		601-034-00-4	205-911-9	205-99-2									
28		benzo[k]fluoranthene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		601-036-00-5	205-916-6	207-08-9									
29		benzo[a]pyrene; benzo[def]chrysene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		601-032-00-3	200-028-5	50-32-8									
30		indeno[123-cd]pyrene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
			205-893-2	193-39-5									
31		dibenz[a,h]anthracene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		601-041-00-2	200-181-8	53-70-3									
32		benzo[ghi]perylene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
			205-883-8	191-24-2									
33		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0554 %		

Key

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

Appendix A: Classifier defined and non CLP determinands

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

Conversion factor: 1.462
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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

- **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: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

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

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s)/Risk Phrase(s):
03 Jun 2015 - 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: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

- **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: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **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 Chronic 1 H410 , Aquatic Acute 1 H400

- **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: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

- **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

- **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

- **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 Chronic 1 H410 , Aquatic Acute 1 H400

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}

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) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments (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)

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 v1.1, May 2018
HazWasteOnline Classification Engine Version: 2019.254.4001.8069 (11 Sep 2019)
HazWasteOnline Database: 2019.254.4001.8069 (11 Sep 2019)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
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 Wastes 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
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

Waste Classification Report

UE3LC-XANXM-6LLJF

Job name

Water's Edge, Whitehaven

Description/Comments

Derwentside Environmental Testing Services certificate number 20-01932

Project

8190.3

Site

Water's Edge, Whitehaven

Related Documents

#	Name	Description
None		

Waste Stream Template

Example waste stream template for contaminated soils

Classified by

Name:
Becki Burndred
Date:
18 Feb 2020 15:00 GMT
Telephone:
01477 668142

Company:
Dunelm Geotechnical & Environmental
1 The Old Shippon, Sandlow Green Farm
Holmes Chapel Road
Holmes Chapel
CW4 8AS

HazWasteOnline™ Training Record:

Course	Date
Hazardous Waste Classification	-
Advanced Hazardous Waste Classification	-

Report

Created by: Becki Burndred
Created date: 18 Feb 2020 15:00 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	TP1 WAC1 Stockpile		Non Hazardous		3
2	TP3 WAC1 Stockpile		Non Hazardous		5
3	TP6 WAC1 Stockpile		Non Hazardous		7
4	TP7 WAC1 Stockpile		Non Hazardous		10
5	TP9 WAC1 Stockpile		Non Hazardous		12
6	TP12 WAC1 Stockpile		Non Hazardous		14
7	TP13 WAC1 Stockpile		Non Hazardous		16
8	TP4 WAC1		Non Hazardous		18
9	TP15 WAC1		Non Hazardous		20

Appendices	Page
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Appendix B: Rationale for selection of metal species	23
Appendix C: Version	24

Classification of sample: TP1 WAC1 Stockpile

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

Sample details

Sample Name:
TP1 WAC1 Stockpile

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	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		8.7 mg/kg	1.32	11.487 mg/kg	0.00115 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.3 mg/kg	3.22	4.186 mg/kg	0.000419 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
4	chromium in chromium(III) compounds { chromium(III) oxide }		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) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		19 mg/kg	1.126	21.392 mg/kg	0.00214 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	15 mg/kg	1.56	23.397 mg/kg	0.0015 %		
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		17 mg/kg	2.976	50.597 mg/kg	0.00506 %		
10	zinc { zinc chromate }	024-007-00-3				37 mg/kg	2.774	102.643 mg/kg	0.0103 %		
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
12	confirm TPH has NOT arisen from diesel or petrol					☑					
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

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		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]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.1	mg/kg	1.884	0.188	mg/kg	0.0000188 %		
		006-007-00-5											
19		pH				9.9	pH		9.9	pH	9.9 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0237 %		

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

Classification of sample: TP3 WAC1 Stockpile

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

Sample details

Sample Name:
TP3 WAC1 Stockpile

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	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		0.5	mg/kg	3.22	1.61	mg/kg	0.000161 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2	mg/kg	1.142	0.228	mg/kg	0.0000228 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		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) oxide }	024-001-00-0	215-607-8	1333-82-0		<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		28	mg/kg	1.126	31.525	mg/kg	0.00315 %		
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 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		31	mg/kg	2.976	92.264	mg/kg	0.00923 %		
10	zinc { zinc chromate }	024-007-00-3				56	mg/kg	2.774	155.352	mg/kg	0.0155 %		
11	TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
12	confirm TPH has NOT arisen from diesel or petrol					☑							
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

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		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]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
		006-007-00-5											
19		pH				7.7	pH		7.7	pH	7.7 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			205-912-4	206-44-0									
27		pyrene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0359 %		

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

Classification of sample: TP6 WAC1 Stockpile

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

Sample details

Sample Name:
TP6 WAC1 Stockpile

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	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		0.9 mg/kg	3.22	2.898 mg/kg	0.00029 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.1 mg/kg	1.142	0.114 mg/kg	0.0000114 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		18 mg/kg	1.462	26.308 mg/kg	0.00263 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<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	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		23 mg/kg	2.976	68.454 mg/kg	0.00685 %		
10	zinc { zinc chromate }	024-007-00-3				47 mg/kg	2.774	130.385 mg/kg	0.013 %		
11	TPH (C6 to C40) petroleum group			TPH		36 mg/kg		36 mg/kg	0.0036 %		
12	confirm TPH has NOT arisen from diesel or petrol					☑					
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

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		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]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
		006-007-00-5											
19		pH				8.3	pH		8.3	pH	8.3 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.033 %		

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentration not considered high enough to be flammable. Waste is not a liquid.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0036%)

Classification of sample: TP7 WAC1 Stockpile

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

Sample details

Sample Name:
TP7 WAC1 Stockpile

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	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		9.7 mg/kg	1.32	12.807 mg/kg	0.00128 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.4 mg/kg	3.22	4.508 mg/kg	0.000451 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		13 mg/kg	1.462	19 mg/kg	0.0019 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		22 mg/kg	1.126	24.77 mg/kg	0.00248 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	18 mg/kg	1.56	28.077 mg/kg	0.0018 %		
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		15 mg/kg	2.976	44.644 mg/kg	0.00446 %		
10	zinc { zinc chromate }	024-007-00-3				42 mg/kg	2.774	116.514 mg/kg	0.0117 %		
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
12	confirm TPH has NOT arisen from diesel or petrol					☑					
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

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		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]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.2	mg/kg	1.884	0.377	mg/kg	0.0000377 %		
		006-007-00-5											
19		pH				10.3	pH		10.3	pH	10.3 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
			205-912-4	206-44-0									
27		pyrene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0255 %		

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

Classification of sample: TP9 WAC1 Stockpile

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

Sample details

Sample Name:
TP9 WAC1 Stockpile

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	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		7.4 mg/kg	1.32	9.77 mg/kg	0.000977 %		
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	boron { diboron trioxide; boric oxide }		1 mg/kg	3.22	3.22 mg/kg	0.000322 %		
	005-008-00-8 / 215-125-8 / 1303-86-2							
3	cadmium { cadmium oxide }		0.1 mg/kg	1.142	0.114 mg/kg	0.0000114 %		
	048-002-00-0 / 215-146-2 / 1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide }		9.1 mg/kg	1.462	13.3 mg/kg	0.00133 %		
	/ 215-160-9 / 1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<**LOD**
	024-001-00-0 / 215-607-8 / 1333-82-0							
6	copper { dicopper oxide; copper (I) oxide }		23 mg/kg	1.126	25.895 mg/kg	0.00259 %		
	029-002-00-X / 215-270-7 / 1317-39-1							
7	lead { lead chromate }	1	12 mg/kg	1.56	18.718 mg/kg	0.0012 %		
	082-004-00-2 / 231-846-0 / 7758-97-6							
8	mercury { mercury dichloride }		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<**LOD**
	080-010-00-X / 231-299-8 / 7487-94-7							
9	nickel { nickel chromate }		12 mg/kg	2.976	35.715 mg/kg	0.00357 %		
	028-035-00-7 / 238-766-5 / 14721-18-7							
10	zinc { zinc chromate }		25 mg/kg	2.774	69.354 mg/kg	0.00694 %		
	024-007-00-3 / /							
11	TPH (C6 to C40) petroleum group		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
	/ / TPH							
12	confirm TPH has NOT arisen from diesel or petrol		☑					
	/ /							
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
	603-181-00-X / 216-653-1 / 1634-04-4							
14	benzene		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
	601-020-00-8 / 200-753-7 / 71-43-2							
15	toluene		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
	601-021-00-3 / 203-625-9 / 108-88-3							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		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]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.1	mg/kg	1.884	0.188	mg/kg	0.0000188 %		
		006-007-00-5											
19		pH				10.2	pH		10.2	pH	10.2 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
			205-912-4	206-44-0									
27		pyrene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0184 %		

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

Classification of sample: TP12 WAC1 Stockpile

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

Sample details

Sample Name:
TP12 WAC1 Stockpile

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	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		1.2	mg/kg	3.22	3.864	mg/kg	0.000386 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.1	mg/kg	1.142	0.114	mg/kg	0.0000114 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		13	mg/kg	1.462	19	mg/kg	0.0019 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		25	mg/kg	1.126	28.147	mg/kg	0.00281 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	20	mg/kg	1.56	31.196	mg/kg	0.002 %		
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		16	mg/kg	2.976	47.62	mg/kg	0.00476 %		
10	zinc { zinc chromate }	024-007-00-3				45	mg/kg	2.774	124.837	mg/kg	0.0125 %		
11	TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
12	confirm TPH has NOT arisen from diesel or petrol					☑							
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

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		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]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.1	mg/kg	1.884	0.188	mg/kg	0.0000188 %		
		006-007-00-5											
19		pH				9.8	pH		9.8	pH	9.8 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<			<		<		ND
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
			205-912-4	206-44-0									
27		pyrene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0273 %		

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

Classification of sample: TP13 WAC1 Stockpile

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

Sample details

Sample Name:
TP13 WAC1 Stockpile

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	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		14 mg/kg	1.32	18.485 mg/kg	0.00185 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.4 mg/kg	3.22	4.508 mg/kg	0.000451 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<10 mg/kg	1.923	<19.231 mg/kg	<0.00192 %		<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	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		0.06 mg/kg	1.353	0.0812 mg/kg	0.00000812 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		16 mg/kg	2.976	47.62 mg/kg	0.00476 %		
10	zinc { zinc chromate }	024-007-00-3				39 mg/kg	2.774	108.192 mg/kg	0.0108 %		
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
12	confirm TPH has NOT arisen from diesel or petrol					☑					
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

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		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]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.1	mg/kg	1.884	0.188	mg/kg	0.0000188 %		
		006-007-00-5											
19		pH				9.8	pH		9.8	pH	9.8 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		fluorene				0.5	mg/kg		0.5	mg/kg	0.00005 %		
			201-695-5	86-73-7									
23		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
24		anthracene				0.5	mg/kg		0.5	mg/kg	0.00005 %		
			204-371-1	120-12-7									
25		fluoranthene				0.5	mg/kg		0.5	mg/kg	0.00005 %		
			205-912-4	206-44-0									
26		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
35		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0282 %		

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

Classification of sample: TP4 WAC1

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

Sample details

Sample Name:
TP4 WAC1

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	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		14 mg/kg	1.32	18.485 mg/kg	0.00185 %		
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	boron { diboron trioxide; boric oxide }		1.6 mg/kg	3.22	5.152 mg/kg	0.000515 %		
	005-008-00-8 / 215-125-8 / 1303-86-2							
3	cadmium { cadmium oxide }		0.1 mg/kg	1.142	0.114 mg/kg	0.0000114 %		
	048-002-00-0 / 215-146-2 / 1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide }		18 mg/kg	1.462	26.308 mg/kg	0.00263 %		
	/ 215-160-9 / 1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<**LOD**
	024-001-00-0 / 215-607-8 / 1333-82-0							
6	copper { dicopper oxide; copper (I) oxide }		30 mg/kg	1.126	33.777 mg/kg	0.00338 %		
	029-002-00-X / 215-270-7 / 1317-39-1							
7	lead { lead chromate }	1	24 mg/kg	1.56	37.436 mg/kg	0.0024 %		
	082-004-00-2 / 231-846-0 / 7758-97-6							
8	mercury { mercury dichloride }		0.06 mg/kg	1.353	0.0812 mg/kg	0.00000812 %		
	080-010-00-X / 231-299-8 / 7487-94-7							
9	nickel { nickel chromate }		29 mg/kg	2.976	86.312 mg/kg	0.00863 %		
	028-035-00-7 / 238-766-5 / 14721-18-7							
10	zinc { zinc chromate }		58 mg/kg	2.774	160.9 mg/kg	0.0161 %		
	024-007-00-3 / /							
11	TPH (C6 to C40) petroleum group		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
	/ / TPH							
12	confirm TPH has NOT arisen from diesel or petrol		☑					
	/ /							
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
	603-181-00-X / 216-653-1 / 1634-04-4							
14	benzene		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
	601-020-00-8 / 200-753-7 / 71-43-2							
15	toluene		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
	601-021-00-3 / 203-625-9 / 108-88-3							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		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]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				0.1	mg/kg	1.884	0.188	mg/kg	0.0000188 %		
		006-007-00-5											
19		pH				9.7	pH		9.7	pH	9.7 pH		
				PH									
20		naphthalene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
			205-917-1	208-96-8									
22		acenaphthene				0.5	mg/kg		0.5	mg/kg	0.00005 %		
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
27		pyrene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.037 %		

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

Classification of sample: TP15 WAC1

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

Sample details

Sample Name:
TP15 WAC1

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	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		1.1 mg/kg	3.22	3.542 mg/kg	0.000354 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<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	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		0.05 mg/kg	1.353	0.0677 mg/kg	0.00000677 %		
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	zinc { zinc chromate }	024-007-00-3				90 mg/kg	2.774	249.673 mg/kg	0.025 %		
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
12	confirm TPH has NOT arisen from diesel or petrol					☑					
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

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		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]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				1.1	mg/kg	1.884	2.072	mg/kg	0.000207 %		
		006-007-00-5											
19		pH				9.5	pH		9.5	pH	9.5 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0521 %		

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

Appendix A: Classifier defined and non CLP determinands

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

Conversion factor: 1.462
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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

- **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: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

- **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)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

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

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

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

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

- **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: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **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 Chronic 1 H410 , Aquatic Acute 1 H400

- **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: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

- **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

- **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

- **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 Chronic 1 H410 , Aquatic Acute 1 H400

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}

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) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments (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)

zinc {zinc chromate}

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

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

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

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2020.44.4173.8310 (14 Feb 2020)
HazWasteOnline Database: 2020.44.4173.8310 (14 Feb 2020)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
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 Wastes 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
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

APPENDIX 10

CHEMICAL STATISTICAL ANALYSIS

Landuse	SOM%	MADE GROUND TOPSOIL						
Residential with Gardens	1							
Determinand	Units	**Assessment Value (AV)**	**No. Samples**	**Samples Exceeding AV**	**Max**	**Min**	**Mean**	**Upper 95%ile**
Organic matter	%		1	0	4.70	4.70	4.70	-
HUMAN HEALTH								
Inorganic Arsenic	mg/kg	37	1	0	18.00	18.00	18.00	-
Boron	mg/kg	290	1	0	0.60	0.60	0.60	-
Cadmium	mg/kg	11	1	0	0.20	0.20	0.20	-
Chromium III	mg/kg	910	1	0	24.00	24.00	24.00	-
Chromium VI	mg/kg	6	1	0	0.50	0.50	0.50	-
Copper	mg/kg	2400	1	0	30.00	30.00	30.00	-
Lead	mg/kg	200	1	0	50.00	50.00	50.00	-
Elemental Mercury	mg/kg	1.2	1	0	0.080	0.080	0.080	-
Nickel	mg/kg	180	1	0	22.00	22.00	22.00	-
Zinc	mg/kg	3700	1	0	110.00	110.00	110.00	-
Cyanide Total	mg/kg		1	0	0.300	0.300	0.300	-
Inorganic Cyanide	mg/kg	26.8	1	0	0.20	0.20	0.20	-
Aliphatic EC 5-6	mg/kg	42	1	0	0.01	0.01	0.01	-
Aliphatic EC >6-8	mg/kg	100	1	0	0.01	0.01	0.01	-
Aliphatic EC >8-10	mg/kg	27	1	0	0.01	0.01	0.01	-
Aliphatic EC >10-12	mg/kg	130	1	0	0.75	0.75	0.75	-
Aliphatic EC >12-16	mg/kg	1100	1	0	0.60	0.60	0.60	-
Aliphatic C16-C21	mg/kg		1	0	0.75	0.75	0.75	-
Aliphatic C21-C35	mg/kg		1	0	1.70	1.70	1.70	-
Aliphatic EC >16-35	mg/kg	65000	1	0	2.45	2.45	2.45	-
Aliphatic C5-C35	mg/kg		1	0	5.00	5.00	5.00	-
Aromatic EC 5-7 (benzene)	mg/kg	70	1	0	0.01	0.01	0.01	-
Aromatic EC >7-8 (toluene)	mg/kg	130	1	0	0.01	0.01	0.01	-
Aromatic EC >8-10	mg/kg	34	1	0	0.01	0.01	0.01	-
Aromatic EC >10-12	mg/kg	74	1	0	0.45	0.45	0.45	-
Aromatic EC >12-16	mg/kg	140	1	0	0.25	0.25	0.25	-
Aromatic EC >16-21	mg/kg	260	1	0	0.30	0.30	0.30	-
Aromatic EC >21-35	mg/kg	1100	1	0	0.70	0.70	0.70	-
Aromatic C5-C35	mg/kg		1	0	5.00	5.00	5.00	-
TPH Ali/Aro	mg/kg		1	0	5.00	5.00	5.00	-
Benzene	mg/kg	0.087	1	0	0.01	0.01	0.01	-
Ethylbenzene	mg/kg	47	1	0	0.01	0.01	0.01	-
Toluene	mg/kg	130	1	0	0.01	0.01	0.01	-
Xylenes	mg/kg	56	1	0	0.01	0.01	0.01	-
MTBE	mg/kg		1	0	0.01	0.01	0.01	-
PAHs								
Naphthalene	mg/kg	2.3	1	0	0.05	0.05	0.05	-
Acenaphthylene	mg/kg	170	1	0	0.05	0.05	0.05	-
Acenaphthene	mg/kg	210	1	0	0.05	0.05	0.05	-
Fluorene	mg/kg	170	1	0	0.05	0.05	0.05	-
Phenanthrene	mg/kg	95	1	0	0.05	0.05	0.05	-
Anthracene	mg/kg	2400	1	0	0.05	0.05	0.05	-
Fluoranthene	mg/kg	280	1	0	0.05	0.05	0.05	-
Pyrene	mg/kg	620	1	0	0.05	0.05	0.05	-
Benzo(a)anthracene	mg/kg	7.2	1	0	0.05	0.05	0.05	-
Chrysene	mg/kg	15	1	0	0.05	0.05	0.05	-
Benzo(b)fluoranthene	mg/kg	2.6	1	0	0.05	0.05	0.05	-
Benzo(k)fluoranthene	mg/kg	77	1	0	0.05	0.05	0.05	-
Benzo(a)pyrene	mg/kg	2.2	1	0	0.05	0.05	0.05	-
Indeno(1,2,3-c,d)pyrene	mg/kg	27	1	0	0.05	0.05	0.05	-
Dibenzo(a,h)anthracene	mg/kg	0.24	1	0	0.05	0.05	0.05	-
Benzo(g,h,i)perylene	mg/kg	320	1	0	0.05	0.05	0.05	-
PAH	mg/kg		1	0	0.80	0.80	0.80	-
Phenol	mg/kg	120	1	0	0.15	0.15	0.15	-

BUILDINGS AND SERVICES								
pH		5	1	0	8.40	8.40	8.40	-
Chloride Aqueous Extract	mg/l	100	1	0	8.80	8.80	8.80	-
Sulphate Aqueous Extract as SO4	mg/l	500	1	0	140.00	140.00	140.00	-
Total Sulphate as SO4	%		1	0	0.19	0.19	0.19	-
PLANTS								
Copper	mg/kg	600	1	0	30.00	30.00	30.00	-
Nickel	mg/kg	250	1	0	22.00	22.00	22.00	-
Zinc	mg/kg	3000	1	0	110.00	110.00	110.00	-
Boron	mg/kg	30	1	0	0.60	0.60	0.60	-
Cadmium	mg/kg	15	1	0	0.20	0.20	0.20	-
Chromium VI	mg/kg	600	1	0	1	1	1	-
Total Chromium	mg/kg	1000	1	0	24.00	24.00	24.00	-
Mercury	mg/kg	20	1	0	0.080	0.080	0.080	-
Lead	mg/kg	2000	1	0	50.00	50.00	50.00	-
Arsenic	mg/kg	80	1	0	18.00	18.00	18.00	-

Landuse	SOM%	GRANULAR MADE GROUND						
Residential with Gardens	1							
Determinand	Units	**Assessment Value (AV)**	**No. Samples**	**Samples Exceeding AV**	**Max**	**Min**	**Mean**	**Upper 95%ile**
Organic matter	%		8	0	5.50	0.40	2.20	4.53
HUMAN HEALTH								
Inorganic Arsenic	mg/kg	37	8	0	18.00	4.50	10.99	13.50
Boron	mg/kg	290	8	0	1.90	0.50	1.28	1.61
Cadmium	mg/kg	11	8	0	0.20	0.05	0.09	0.12
Chromium III	mg/kg	910	8	0	17.00	3.30	9.74	12.85
Chromium VI	mg/kg	6	8	0	0.50	0.50	0.50	0.50
Copper	mg/kg	2400	8	0	39.00	11.00	22.13	28.08
Lead	mg/kg	200	8	0	42.00	6.70	21.44	29.11
Elemental Mercury	mg/kg	1.2	8	0	0.200	0.025	0.061	0.102
Nickel	mg/kg	180	8	0	22.00	6.40	12.15	16.17
Zinc	mg/kg	3700	8	0	69.00	15.00	36.13	47.06
Cyanide Total	mg/kg		8	0	0.500	0.050	0.200	0.312
Inorganic Cyanide	mg/kg	26.8	8	0	0.10	0.05	0.06	0.08
Aliphatic EC 5-6	mg/kg	42	8	0	0.01	0.01	0.01	0.01
Aliphatic EC >6-8	mg/kg	100	8	0	0.04	0.01	0.01	0.02
Aliphatic EC >8-10	mg/kg	27	8	0	0.52	0.01	0.08	0.20
Aliphatic EC >10-12	mg/kg	130	8	0	0.75	0.75	0.75	0.75
Aliphatic EC >12-16	mg/kg	1100	8	0	0.60	0.60	0.60	0.60
Aliphatic C16-C21	mg/kg		8	0	0.75	0.75	0.75	0.75
Aliphatic C21-C35	mg/kg		8	0	1.70	1.70	1.70	1.70
Aliphatic EC >16-35	mg/kg	65000	8	0	2.45	2.45	2.45	2.45
Aliphatic C5-C35	mg/kg		8	0	5.00	5.00	5.00	5.00
Aromatic EC 5-7 (benzene)	mg/kg	70	8	0	0.04	0.01	0.01	0.02
Aromatic EC >7-8 (toluene)	mg/kg	130	8	0	0.07	0.01	0.01	0.03
Aromatic EC >8-10	mg/kg	34	8	0	0.43	0.01	0.06	0.16
Aromatic EC >10-12	mg/kg	74	8	0	0.45	0.45	0.45	0.45
Aromatic EC >12-16	mg/kg	140	8	0	6.40	0.25	1.02	2.48
Aromatic EC >16-21	mg/kg	260	8	0	2.40	0.30	0.56	1.06
Aromatic EC >21-35	mg/kg	1100	8	0	0.70	0.70	0.70	0.70
Aromatic C5-C35	mg/kg		8	0	5.00	5.00	5.00	5.00
TPH Ali/Aro	mg/kg		8	0	5.00	5.00	5.00	5.00
Benzene	mg/kg	0.087	8	0	0.04	0.01	0.01	0.02
Ethylbenzene	mg/kg	47	8	0	0.01	0.01	0.01	0.01
Toluene	mg/kg	130	8	0	0.07	0.01	0.01	0.03
Xylenes	mg/kg	56	8	0	0.25	0.01	0.04	0.09
MTBE	mg/kg		8	0	0.01	0.01	0.01	0.01
PAHs								
Naphthalene	mg/kg	2.3	8	0	0.10	0.05	0.06	0.07
Acenaphthylene	mg/kg	170	8	0	0.30	0.05	0.09	0.15
Acenaphthene	mg/kg	210	8	0	0.05	0.05	0.05	0.05
Fluorene	mg/kg	170	8	0	0.10	0.05	0.06	0.07
Phenanthrene	mg/kg	95	8	0	0.20	0.05	0.08	0.11
Anthracene	mg/kg	2400	8	0	0.10	0.05	0.06	0.07
Fluoranthene	mg/kg	280	8	0	0.30	0.05	0.11	0.19
Pyrene	mg/kg	620	8	0	0.30	0.05	0.08	0.14
Benzo(a)anthracene	mg/kg	7.2	8	0	0.30	0.05	0.08	0.14
Chrysene	mg/kg	15	8	0	0.40	0.05	0.09	0.18
Benzo(b)fluoranthene	mg/kg	2.6	8	0	0.30	0.05	0.08	0.14
Benzo(k)fluoranthene	mg/kg	77	8	0	0.20	0.05	0.07	0.10
Benzo(a)pyrene	mg/kg	2.2	8	0	0.40	0.05	0.09	0.18
Indeno(1,2,3-c,d)pyrene	mg/kg	27	8	0	0.20	0.05	0.07	0.10
Dibenzo(a,h)anthracene	mg/kg	0.24	8	0	0.20	0.05	0.07	0.10
Benzo(g,h,i)perylene	mg/kg	320	8	0	0.20	0.05	0.07	0.10
PAH	mg/kg		8	0	3.30	0.80	1.11	2.48
Phenol	mg/kg	120	8	0	1.70	0.15	0.34	0.71

BUILDINGS AND SERVICES								
pH		5	8	0	10.90	9.00	10.21	10.67
Chloride Aqueous Extract	mg/l	100	8	0	17.00	4.40	11.06	14.03
Sulphate Aqueous Extract as SO4	mg/l	500	8	1	630.00	84.00	384.25	501.55
Total Sulphate as SO4	%		8	0	1.60	0.32	0.97	1.26
PLANTS								
Copper	mg/kg	600	8	0	39.00	11.00	22.13	28.08
Nickel	mg/kg	250	8	0	22.00	6.40	12.15	16.17
Zinc	mg/kg	3000	8	0	69.00	15.00	36.13	47.06
Boron	mg/kg	30	8	0	1.90	0.50	1.28	1.61
Cadmium	mg/kg	15	8	0	0.20	0.05	0.09	0.12
Chromium VI	mg/kg	600	8	0	1	1	1	1
Total Chromium	mg/kg	1000	8	0	17.00	3.30	9.74	12.85
Mercury	mg/kg	20	8	0	0.200	0.025	0.061	0.102
Lead	mg/kg	2000	8	0	42.00	6.70	21.44	29.11
Arsenic	mg/kg	80	8	0	18.00	4.50	10.99	13.50

Landuse	SOM%	COHESIVE MADE GROUND						
Residential with Gardens	1	8190 - Water's Edge, Whitehaven						
Determinand	Units	**Assessment Value (AV)**	**No. Samples**	**Samples Exceeding AV**	**Max**	**Min**	**Mean**	**Upper 95%ile**
Organic matter	%		5	0	2.70	1.20	2.04	3.32
HUMAN HEALTH								
Inorganic Arsenic	mg/kg	37	5	0	13.00	4.90	9.90	12.80
Boron	mg/kg	290	5	0	1.80	0.30	1.06	1.63
Cadmium	mg/kg	11	5	0	0.10	0.05	0.06	0.08
Chromium III	mg/kg	910	5	0	19.00	6.50	11.52	16.87
Chromium VI	mg/kg	6	5	0	0.50	0.50	0.50	0.50
Copper	mg/kg	2400	5	0	41.00	11.00	21.00	32.85
Lead	mg/kg	200	5	0	28.00	12.00	18.23	24.06
Elemental Mercury	mg/kg	1.2	5	0	0.025	0.025	0.025	0.025
Nickel	mg/kg	180	5	0	57.00	7.40	19.98	40.14
Zinc	mg/kg	3700	5	0	36.00	20.00	29.60	36.29
Cyanide Total	mg/kg		5	0	0.200	0.050	0.110	0.188
Inorganic Cyanide	mg/kg	26.8	5	0	0.20	0.05	0.08	0.14
Aliphatic EC 5-6	mg/kg	42	5	0	0.01	0.01	0.01	0.01
Aliphatic EC >6-8	mg/kg	100	5	0	0.12	0.01	0.03	0.08
Aliphatic EC >8-10	mg/kg	27	5	0	0.29	0.01	0.07	0.19
Aliphatic EC >10-12	mg/kg	130	5	0	0.75	0.75	0.75	0.75
Aliphatic EC >12-16	mg/kg	1100	5	0	0.60	0.60	0.60	0.60
Aliphatic C16-C21	mg/kg		5	0	0.75	0.75	0.75	0.75
Aliphatic C21-C35	mg/kg		5	0	1.70	1.70	1.70	1.70
Aliphatic EC >16-35	mg/kg	65000	5	0	2.45	2.45	2.45	2.45
Aliphatic C5-C35	mg/kg		5	0	5.00	5.00	5.00	5.00
Aromatic EC 5-7 (benzene)	mg/kg	70	5	0	0.02	0.01	0.01	0.01
Aromatic EC >7-8 (toluene)	mg/kg	130	5	0	0.04	0.01	0.01	0.03
Aromatic EC >8-10	mg/kg	34	5	0	0.03	0.01	0.01	0.02
Aromatic EC >10-12	mg/kg	74	5	0	0.45	0.45	0.45	0.45
Aromatic EC >12-16	mg/kg	140	5	0	0.25	0.25	0.25	0.25
Aromatic EC >16-21	mg/kg	260	5	0	3.30	0.30	0.90	2.18
Aromatic EC >21-35	mg/kg	1100	5	0	8.30	0.70	2.22	5.46
Aromatic C5-C35	mg/kg		5	0	12.00	5.00	6.40	9.38
TPH Ali/Aro	mg/kg		5	0	12.00	5.00	6.40	9.38
Benzene	mg/kg	0.087	5	0	0.02	0.01	0.01	0.01
Ethylbenzene	mg/kg	47	5	0	0.01	0.01	0.01	0.01
Toluene	mg/kg	130	5	0	0.04	0.01	0.01	0.03
Xylenes	mg/kg	56	5	0	0.03	0.01	0.01	0.02
MTBE	mg/kg		5	0	0.01	0.01	0.01	0.01
PAHs								
Naphthalene	mg/kg	2.3	5	0	0.10	0.05	0.06	0.08
Acenaphthylene	mg/kg	170	5	0	0.40	0.05	0.12	0.27
Acenaphthene	mg/kg	210	5	0	0.10	0.05	0.06	0.08
Fluorene	mg/kg	170	5	0	0.20	0.05	0.09	0.15
Phenanthrene	mg/kg	95	5	0	0.40	0.05	0.16	0.30
Anthracene	mg/kg	2400	5	0	0.10	0.05	0.06	0.08
Fluoranthene	mg/kg	280	5	0	1.20	0.05	0.37	0.82
Pyrene	mg/kg	620	5	0	1.40	0.05	0.41	0.95
Benzo(a)anthracene	mg/kg	7.2	5	0	1.30	0.05	0.45	1.00
Chrysene	mg/kg	15	5	0	0.80	0.05	0.21	0.53
Benzo(b)fluoranthene	mg/kg	2.6	5	0	0.90	0.05	0.22	0.58
Benzo(k)fluoranthene	mg/kg	77	5	0	0.50	0.05	0.14	0.33
Benzo(a)pyrene	mg/kg	2.2	5	0	1.10	0.05	0.26	0.71
Indeno(1,2,3-c,d)pyrene	mg/kg	27	5	0	0.80	0.05	0.20	0.52
Dibenzo(a,h)anthracene	mg/kg	0.24	5	0	0.20	0.05	0.08	0.14
Benzo(g,h,i)perylene	mg/kg	320	5	0	1.00	0.05	0.24	0.65
PAH	mg/kg		5	0	10.00	0.80	2.82	10.68
Phenol	mg/kg	120	5	0	0.15	0.15	0.15	0.15

BUILDINGS AND SERVICES								
pH		5	5	0	10.90	7.90	9.68	10.88
Chloride Aqueous Extract	mg/l	100	5	0	17.00	7.80	12.16	15.34
Sulphate Aqueous Extract as SO4	mg/l	500	5	1	570.00	67.00	325.40	514.21
Total Sulphate as SO4	%		5	0	1.20	0.10	0.68	1.12
PLANTS								
Copper	mg/kg	600	5	0	41.00	11.00	21.00	32.85
Nickel	mg/kg	250	5	0	57.00	7.40	19.98	40.14
Zinc	mg/kg	3000	5	0	36.00	20.00	29.60	36.29
Boron	mg/kg	30	5	0	1.80	0.30	1.06	1.63
Cadmium	mg/kg	15	5	0	0.10	0.05	0.06	0.08
Chromium VI	mg/kg	600	5	0	1	1	1	1
Total Chromium	mg/kg	1000	5	0	19.00	6.50	11.52	16.87
Mercury	mg/kg	20	5	0	0.025	0.025	0.025	0.025
Lead	mg/kg	2000	5	0	28.00	12.00	18.23	24.06
Arsenic	mg/kg	80	5	0	13.00	4.90	9.90	12.80

Landuse	SOM%	STOCKPILED GRANULAR MADE GROUND						
Residential with Gardens	1							
Determinand	Units	**Assessment Value (AV)**	**No. Samples**	**Samples Exceeding AV**	**Max**	**Min**	**Mean**	**Upper 95%ile**
Organic matter	%		1	0	1.40	1.40	1.40	-
HUMAN HEALTH								
Inorganic Arsenic	mg/kg	37	1	0	8.30	8.30	8.30	-
Boron	mg/kg	290	1	0	1.00	1.00	1.00	-
Cadmium	mg/kg	11	1	0	0.05	0.05	0.05	-
Chromium III	mg/kg	910	1	0	9.60	9.60	9.60	-
Chromium VI	mg/kg	6	1	0	0.50	0.50	0.50	-
Copper	mg/kg	2400	1	0	17.00	17.00	17.00	-
Lead	mg/kg	200	1	0	14.00	14.00	14.00	-
Elemental Mercury	mg/kg	1.2	1	0	0.025	0.025	0.025	-
Nickel	mg/kg	180	1	0	10.00	10.00	10.00	-
Zinc	mg/kg	3700	1	0	33.00	33.00	33.00	-
Cyanide Total	mg/kg		1	0	0.050	0.050	0.050	-
Inorganic Cyanide	mg/kg	26.8	1	0	0.05	0.05	0.05	-
Aliphatic EC 5-6	mg/kg	42	1	0	0.01	0.01	0.01	-
Aliphatic EC >6-8	mg/kg	100	1	0	0.01	0.01	0.01	-
Aliphatic EC >8-10	mg/kg	27	1	0	0.01	0.01	0.01	-
Aliphatic EC >10-12	mg/kg	130	1	0	0.75	0.75	0.75	-
Aliphatic EC >12-16	mg/kg	1100	1	0	0.60	0.60	0.60	-
Aliphatic C16-C21	mg/kg		1	0	0.75	0.75	0.75	-
Aliphatic C21-C35	mg/kg		1	0	1.70	1.70	1.70	-
Aliphatic EC >16-35	mg/kg	65000	1	0	2.45	2.45	2.45	-
Aliphatic C5-C35	mg/kg		1	0	5.00	5.00	5.00	-
Aromatic EC 5-7 (benzene)	mg/kg	70	1	0	0.01	0.01	0.01	-
Aromatic EC >7-8 (toluene)	mg/kg	130	1	0	0.01	0.01	0.01	-
Aromatic EC >8-10	mg/kg	34	1	0	0.01	0.01	0.01	-
Aromatic EC >10-12	mg/kg	74	1	0	0.45	0.45	0.45	-
Aromatic EC >12-16	mg/kg	140	1	0	0.25	0.25	0.25	-
Aromatic EC >16-21	mg/kg	260	1	0	0.30	0.30	0.30	-
Aromatic EC >21-35	mg/kg	1100	1	0	0.70	0.70	0.70	-
Aromatic C5-C35	mg/kg		1	0	5.00	5.00	5.00	-
TPH Ali/Aro	mg/kg		1	0	5.00	5.00	5.00	-
Benzene	mg/kg	0.087	1	0	0.01	0.01	0.01	-
Ethylbenzene	mg/kg	47	1	0	0.01	0.01	0.01	-
Toluene	mg/kg	130	1	0	0.01	0.01	0.01	-
Xylenes	mg/kg	56	1	0	0.01	0.01	0.01	-
MTBE	mg/kg		1	0	0.01	0.01	0.01	-
PAHs								
Naphthalene	mg/kg	2.3	1	0	0.05	0.05	0.05	-
Acenaphthylene	mg/kg	170	1	0	0.05	0.05	0.05	-
Acenaphthene	mg/kg	210	1	0	0.05	0.05	0.05	-
Fluorene	mg/kg	170	1	0	0.05	0.05	0.05	-
Phenanthrene	mg/kg	95	1	0	0.05	0.05	0.05	-
Anthracene	mg/kg	2400	1	0	0.05	0.05	0.05	-
Fluoranthene	mg/kg	280	1	0	0.05	0.05	0.05	-
Pyrene	mg/kg	620	1	0	0.05	0.05	0.05	-
Benzo(a)anthracene	mg/kg	7.2	1	0	0.05	0.05	0.05	-
Chrysene	mg/kg	15	1	0	0.05	0.05	0.05	-
Benzo(b)fluoranthene	mg/kg	2.6	1	0	0.05	0.05	0.05	-
Benzo(k)fluoranthene	mg/kg	77	1	0	0.05	0.05	0.05	-
Benzo(a)pyrene	mg/kg	2.2	1	0	0.05	0.05	0.05	-
Indeno(1,2,3-c,d)pyrene	mg/kg	27	1	0	0.05	0.05	0.05	-
Dibenzo(a,h)anthracene	mg/kg	0.24	1	0	0.05	0.05	0.05	-
Benzo(g,h,i)perylene	mg/kg	320	1	0	0.05	0.05	0.05	-
PAH	mg/kg		1	0	0.80	0.80	0.80	-
Phenol	mg/kg	120	1	0	0.15	0.15	0.15	-

BUILDINGS AND SERVICES								
pH		5	1	0	9.60	9.60	9.60	-
Chloride Aqueous Extract	mg/l	100	1	0	8.60	8.60	8.60	-
Sulphate Aqueous Extract as SO4	mg/l	500	1	0	110.00	110.00	110.00	-
Total Sulphate as SO4	%		1	0	0.39	0.39	0.39	-
PLANTS								
Copper	mg/kg	600	1	0	17.00	17.00	17.00	-
Nickel	mg/kg	250	1	0	10.00	10.00	10.00	-
Zinc	mg/kg	3000	1	0	33.00	33.00	33.00	-
Boron	mg/kg	30	1	0	1.00	1.00	1.00	-
Cadmium	mg/kg	15	1	0	0.05	0.05	0.05	-
Chromium VI	mg/kg	600	1	0	1	1	1	-
Total Chromium	mg/kg	1000	1	0	9.60	9.60	9.60	-
Mercury	mg/kg	20	1	0	0.025	0.025	0.025	-
Lead	mg/kg	2000	1	0	14.00	14.00	14.00	-
Arsenic	mg/kg	80	1	0	8.30	8.30	8.30	-

Landuse	SOM%	STOCKPILED COHESIVE MADE GROUND						
Residential with Gardens	1							
Determinand	Units	**Assessment Value (AV)**	**No. Samples**	**Samples Exceeding AV**	**Max**	**Min**	**Mean**	**Upper 95%ile**
Organic matter	%		12	0	5.30	1.50	2.70	4.26
HUMAN HEALTH								
Inorganic Arsenic	mg/kg	37	12	0	14.00	7.40	11.39	12.54
Boron	mg/kg	290	12	0	1.60	0.50	1.06	1.23
Cadmium	mg/kg	11	12	0	0.50	0.05	0.16	0.22
Chromium III	mg/kg	910	12	0	27.00	9.10	15.76	18.29
Chromium VI	mg/kg	6	12	0	0.50	0.50	0.50	0.50
Copper	mg/kg	2400	12	0	74.00	19.00	29.58	37.10
Lead	mg/kg	200	12	0	110.00	12.00	24.31	38.95
Elemental Mercury	mg/kg	1.2	12	0	0.070	0.025	0.045	0.054
Nickel	mg/kg	180	12	0	31.00	12.00	19.83	22.93
Zinc	mg/kg	3700	12	0	93.00	25.00	51.75	62.38
Cyanide Total	mg/kg		12	0	1.100	0.050	0.221	0.384
Inorganic Cyanide	mg/kg	26.8	12	0	0.20	0.05	0.07	0.09
Aliphatic EC 5-6	mg/kg	42	12	0	0.01	0.01	0.01	0.01
Aliphatic EC >6-8	mg/kg	100	12	0	0.01	0.01	0.01	0.01
Aliphatic EC >8-10	mg/kg	27	12	0	0.01	0.01	0.01	0.01
Aliphatic EC >10-12	mg/kg	130	12	0	0.75	0.75	0.75	0.75
Aliphatic EC >12-16	mg/kg	1100	12	0	0.60	0.60	0.60	0.60
Aliphatic C16-C21	mg/kg		12	0	0.75	0.75	0.75	0.75
Aliphatic C21-C35	mg/kg		12	0	1.70	1.70	1.70	1.70
Aliphatic EC >16-35	mg/kg	65000	12	0	2.45	2.45	2.45	2.45
Aliphatic C5-C35	mg/kg		12	0	5.00	5.00	5.00	5.00
Aromatic EC 5-7 (benzene)	mg/kg	70	12	0	0.01	0.01	0.01	0.01
Aromatic EC >7-8 (toluene)	mg/kg	130	12	0	0.01	0.01	0.01	0.01
Aromatic EC >8-10	mg/kg	34	12	0	0.01	0.01	0.01	0.01
Aromatic EC >10-12	mg/kg	74	12	0	0.45	0.45	0.45	0.45
Aromatic EC >12-16	mg/kg	140	12	0	15.00	0.25	1.48	3.69
Aromatic EC >16-21	mg/kg	260	12	0	21.00	0.30	2.03	5.12
Aromatic EC >21-35	mg/kg	1100	12	0	0.70	0.70	0.70	0.70
Aromatic C5-C35	mg/kg		12	0	36.00	5.00	7.58	12.22
TPH Ali/Aro	mg/kg		12	0	36.00	5.00	7.58	12.22
EPH (C10-C40)	mg/kg		0	0	0.00	0.00	-	-
Benzene	mg/kg	0.087	12	0	0.01	0.01	0.01	0.01
Ethylbenzene	mg/kg	47	12	0	0.01	0.01	0.01	0.01
Toluene	mg/kg	130	12	0	0.01	0.01	0.01	0.01
Xylenes	mg/kg	56	12	0	0.01	0.01	0.01	0.01
MTBE	mg/kg		12	0	0.01	0.01	0.01	0.01
PAHs								
Naphthalene	mg/kg	2.3	12	0	0.10	0.05	0.05	0.06
Acenaphthylene	mg/kg	170	12	0	0.30	0.05	0.07	0.11
Acenaphthene	mg/kg	210	12	0	0.50	0.05	0.12	0.18
Fluorene	mg/kg	170	12	0	0.05	0.05	0.05	0.05
Phenanthrene	mg/kg	95	12	0	0.50	0.05	0.13	0.19
Anthracene	mg/kg	2400	12	0	0.05	0.05	0.05	0.05
Fluoranthene	mg/kg	280	12	0	0.50	0.05	0.20	0.28
Pyrene	mg/kg	620	12	0	0.50	0.05	0.23	0.32
Benzo(a)anthracene	mg/kg	7.2	12	0	0.90	0.05	0.17	0.31
Chrysene	mg/kg	15	12	0	0.30	0.05	0.08	0.13
Benzo(b)fluoranthene	mg/kg	2.6	12	0	0.20	0.05	0.08	0.11
Benzo(k)fluoranthene	mg/kg	77	12	0	0.20	0.05	0.06	0.08
Benzo(a)pyrene	mg/kg	2.2	12	0	0.20	0.05	0.08	0.11
Indeno(1,2,3-c,d)pyrene	mg/kg	27	12	0	0.30	0.05	0.07	0.11
Dibenzo(a,h)anthracene	mg/kg	0.24	12	0	0.20	0.05	0.06	0.08
Benzo(g,h,i)perylene	mg/kg	320	12	0	0.30	0.05	0.07	0.11
PAH	mg/kg		12	0	3.70	0.80	1.17	2.31

Phenol	mg/kg	120	12	0	0.15	0.15	0.15	0.15
BUILDINGS AND SERVICES								
pH		5	12	0	10.30	7.70	9.35	9.76
Chloride Aqueous Extract	mg/l	100	12	0	15.00	5.20	10.28	12.11
Sulphate Aqueous Extract as SO4	mg/l	500	12	3	1500.00	76.00	417.00	626.90
Total Sulphate as SO4	%		12	0	0.72	0.15	0.38	0.47
PLANTS								
Copper	mg/kg	600	12	0	74.00	19.00	29.58	37.10
Nickel	mg/kg	250	12	0	31.00	12.00	19.83	22.93
Zinc	mg/kg	3000	12	0	93.00	25.00	51.75	62.38
Boron	mg/kg	30	12	0	1.60	0.50	1.06	1.23
Cadmium	mg/kg	15	12	0	0.50	0.05	0.16	0.22
Chromium VI	mg/kg	600	12	0	1	1	1	1
Total Chromium	mg/kg	1000	12	0	27.00	9.10	15.76	18.29
Mercury	mg/kg	20	12	0	0.070	0.025	0.045	0.054
Lead	mg/kg	2000	12	0	110.00	12.00	24.31	38.95
Arsenic	mg/kg	80	12	0	14.00	7.40	11.39	12.54

Landuse	SOM%	MADE GROUND AT TANKS / SILOS IN SOUTHEAST AND WEST						
Residential with Gardens	1							
Determinand	Units	**Assessment Value (AV)**	**No. Samples**	**Samples Exceeding AV**	**Max**	**Min**	**Mean**	**Upper 95%ile**
Organic matter	%		5	0	2.50	0.90	1.80	2.96
HUMAN HEALTH								
Inorganic Arsenic	mg/kg	37	5	0	17.00	5.60	10.22	14.35
Boron	mg/kg	290	5	0	1.90	1.10	1.58	1.96
Cadmium	mg/kg	11	5	0	0.50	0.05	0.25	0.41
Chromium III	mg/kg	910	5	0	24.00	6.30	12.90	19.49
Chromium VI	mg/kg	6	5	0	0.50	0.50	0.50	0.50
Copper	mg/kg	2400	5	0	360.00	13.00	90.20	234.19
Lead	mg/kg	200	5	0	200.00	17.00	40.67	114.63
Elemental Mercury	mg/kg	1.2	5	0	0.160	0.025	0.063	0.119
Nickel	mg/kg	180	5	0	34.00	7.20	15.14	25.42
Zinc	mg/kg	3700	5	0	270.00	17.00	101.20	200.00
Cyanide Total	mg/kg		5	0	0.900	0.100	0.400	0.723
Inorganic Cyanide	mg/kg	26.8	5	0	0.05	0.05	0.05	0.05
Aliphatic EC 5-6	mg/kg	42	5	0	0.03	0.01	0.01	0.02
Aliphatic EC >6-8	mg/kg	100	5	0	0.02	0.01	0.01	0.01
Aliphatic EC >8-10	mg/kg	27	5	0	0.08	0.01	0.04	0.07
Aliphatic EC >10-12	mg/kg	130	5	0	0.75	0.75	0.75	0.75
Aliphatic EC >12-16	mg/kg	1100	5	0	0.60	0.60	0.60	0.60
Aliphatic C16-C21	mg/kg		5	0	0.75	0.75	0.75	0.75
Aliphatic C21-C35	mg/kg		5	0	1.70	1.70	1.70	1.70
Aliphatic EC >16-35	mg/kg	65000	5	0	2.45	2.45	2.45	2.45
Aliphatic C5-C35	mg/kg		5	0	5.00	5.00	5.00	5.00
Aromatic EC 5-7 (benzene)	mg/kg	70	5	0	0.01	0.01	0.01	0.01
Aromatic EC >7-8 (toluene)	mg/kg	130	5	0	0.01	0.01	0.01	0.01
Aromatic EC >8-10	mg/kg	34	5	0	0.04	0.01	0.01	0.03
Aromatic EC >10-12	mg/kg	74	5	0	0.45	0.45	0.45	0.45
Aromatic EC >12-16	mg/kg	140	5	0	0.25	0.25	0.25	0.25
Aromatic EC >16-21	mg/kg	260	5	0	5.30	0.30	1.30	3.43
Aromatic EC >21-35	mg/kg	1100	5	0	17.00	0.70	3.96	10.91
Aromatic C5-C35	mg/kg		5	0	22.00	5.00	8.40	15.65
TPH Ali/Aro	mg/kg		5	0	22.00	5.00	8.40	15.65
Benzene	mg/kg	0.087	5	0	0.01	0.01	0.01	0.01
Ethylbenzene	mg/kg	47	5	0	0.01	0.01	0.01	0.01
Toluene	mg/kg	130	5	0	0.01	0.01	0.01	0.01
Xylenes	mg/kg	56	5	0	0.01	0.01	0.01	0.01
MTBE	mg/kg		5	0	0.01	0.01	0.01	0.01
PAHs								
Naphthalene	mg/kg	2.3	5	0	0.20	0.05	0.08	0.14
Acenaphthylene	mg/kg	170	5	0	0.30	0.05	0.13	0.24
Acenaphthene	mg/kg	210	5	0	0.20	0.05	0.09	0.15
Fluorene	mg/kg	170	5	0	0.60	0.05	0.23	0.47
Phenanthrene	mg/kg	95	5	0	3.50	0.05	0.95	2.38
Anthracene	mg/kg	2400	5	0	1.30	0.05	0.41	0.94
Fluoranthene	mg/kg	280	5	0	10.00	0.05	3.35	7.81
Pyrene	mg/kg	620	5	0	8.60	0.05	3.19	7.32
Benzo(a)anthracene	mg/kg	7.2	5	0	4.20	0.05	1.59	3.61
Chrysene	mg/kg	15	5	0	4.20	0.05	1.71	3.88
Benzo(b)fluoranthene	mg/kg	2.6	5	2	4.80	0.05	1.69	3.88
Benzo(k)fluoranthene	mg/kg	77	5	0	2.50	0.05	0.91	2.05
Benzo(a)pyrene	mg/kg	2.2	5	2	5.60	0.05	1.93	4.45
Indeno(1,2,3-c,d)pyrene	mg/kg	27	5	0	3.40	0.05	1.09	2.54
Dibenzo(a,h)anthracene	mg/kg	0.24	5	2	0.40	0.05	0.17	0.33
Benzo(g,h,i)perylene	mg/kg	320	5	0	3.80	0.05	1.23	2.86
PAH	mg/kg		5	0	47.00	0.80	18.88	67.17
Phenol	mg/kg	120	5	0	0.30	0.15	0.18	0.24

BUILDINGS AND SERVICES								
pH		5	5	0	11.00	8.30	9.54	10.83
Chloride Aqueous Extract	mg/l	100	5	0	14.00	5.20	9.08	12.71
Sulphate Aqueous Extract as SO4	mg/l	500	5	3	1500.00	400.00	878.00	1424.41
Total Sulphate as SO4	%		5	0	12.00	0.37	4.93	10.27
PLANTS								
Copper	mg/kg	600	5	0	360.00	13.00	90.20	234.19
Nickel	mg/kg	250	5	0	34.00	7.20	15.14	25.42
Zinc	mg/kg	3000	5	0	270.00	17.00	101.20	200.00
Boron	mg/kg	30	5	0	1.90	1.10	1.58	1.96
Cadmium	mg/kg	15	5	0	0.50	0.05	0.25	0.41
Chromium VI	mg/kg	600	5	0	1	1	1	1
Total Chromium	mg/kg	1000	5	0	24.00	6.30	12.90	19.49
Mercury	mg/kg	20	5	0	0.160	0.025	0.063	0.119
Lead	mg/kg	2000	5	0	200.00	17.00	40.67	114.63
Arsenic	mg/kg	80	5	0	17.00	5.60	10.22	14.35

Landuse	SOM%	COHESIVE MADE GROUND AT FORMER RAILWAY IN SOUTHWEST						
Residential with Gardens	1	8190 - Water's Edge, Whitehaven						
Determinand	Units	**Assessment Value (AV)**	**No. Samples**	**Samples Exceeding AV**	**Max**	**Min**	**Mean**	**Upper 95%ile**
Organic matter	%		2	0	2.30	1.80	2.05	-
HUMAN HEALTH								
Inorganic Arsenic	mg/kg	37	2	0	15.00	9.20	12.10	-
Boron	mg/kg	290	2	0	1.20	1.10	1.15	-
Cadmium	mg/kg	11	2	0	0.20	0.10	0.15	-
Chromium III	mg/kg	910	2	0	17.00	12.00	14.50	-
Chromium VI	mg/kg	6	2	0	0.50	0.50	0.50	-
Copper	mg/kg	2400	2	0	29.00	28.00	28.50	-
Lead	mg/kg	200	2	0	26.00	24.00	24.98	-
Elemental Mercury	mg/kg	1.2	2	0	0.130	0.025	0.078	-
Nickel	mg/kg	180	2	0	18.00	12.00	15.00	-
Zinc	mg/kg	3700	2	0	51.00	40.00	45.50	-
Cyanide Total	mg/kg		2	0	0.600	0.200	0.400	-
Inorganic Cyanide	mg/kg	26.8	2	0	0.05	0.05	0.05	-
Aliphatic EC 5-6	mg/kg	42	2	0	0.04	0.01	0.02	-
Aliphatic EC >6-8	mg/kg	100	2	0	0.01	0.01	0.01	-
Aliphatic EC >8-10	mg/kg	27	2	0	0.04	0.01	0.02	-
Aliphatic EC >10-12	mg/kg	130	2	0	6.70	0.75	3.73	-
Aliphatic EC >12-16	mg/kg	1100	2	0	4.40	0.60	2.50	-
Aliphatic C16-C21	mg/kg		2	0	2.00	0.75	1.38	-
Aliphatic C21-C35	mg/kg		2	0	1.70	1.70	1.70	-
Aliphatic EC >16-35	mg/kg	65000	2	0	3.70	2.45	3.08	-
Aliphatic C5-C35	mg/kg		2	0	13.00	5.00	9.00	-
Aromatic EC 5-7 (benzene)	mg/kg	70	2	0	0.01	0.01	0.01	-
Aromatic EC >7-8 (toluene)	mg/kg	130	2	0	0.01	0.01	0.01	-
Aromatic EC >8-10	mg/kg	34	2	0	0.35	0.01	0.18	-
Aromatic EC >10-12	mg/kg	74	2	0	0.45	0.45	0.45	-
Aromatic EC >12-16	mg/kg	140	2	0	30.00	0.25	15.13	-
Aromatic EC >16-21	mg/kg	260	2	0	64.00	0.30	32.15	-
Aromatic EC >21-35	mg/kg	1100	2	0	18.00	0.70	9.35	-
Aromatic C5-C35	mg/kg		2	0	110.00	5.00	57.50	-
TPH Ali/Aro	mg/kg		2	0	130.00	5.00	67.50	-
Benzene	mg/kg	0.087	2	0	0.01	0.01	0.01	-
Ethylbenzene	mg/kg	47	2	0	0.01	0.01	0.01	-
Toluene	mg/kg	130	2	0	0.01	0.01	0.01	-
Xylenes	mg/kg	56	2	0	0.01	0.01	0.01	-
MTBE	mg/kg		2	0	0.01	0.01	0.01	-
PAHs								
Naphthalene	mg/kg	2.3	2	0	0.30	0.05	0.18	-
Acenaphthylene	mg/kg	170	2	0	11.00	0.05	5.53	-
Acenaphthene	mg/kg	210	2	0	2.30	0.05	1.18	-
Fluorene	mg/kg	170	2	0	5.50	0.05	2.78	-
Phenanthrene	mg/kg	95	2	0	0.30	0.05	0.18	-
Anthracene	mg/kg	2400	2	0	0.05	0.05	0.05	-
Fluoranthene	mg/kg	280	2	0	0.50	0.20	0.35	-
Pyrene	mg/kg	620	2	0	0.40	0.05	0.23	-
Benzo(a)anthracene	mg/kg	7.2	2	0	0.05	0.05	0.05	-
Chrysene	mg/kg	15	2	0	0.05	0.05	0.05	-
Benzo(b)fluoranthene	mg/kg	2.6	2	0	0.05	0.05	0.05	-
Benzo(k)fluoranthene	mg/kg	77	2	0	0.05	0.05	0.05	-
Benzo(a)pyrene	mg/kg	2.2	2	0	0.05	0.05	0.05	-
Indeno(1,2,3-c,d)pyrene	mg/kg	27	2	0	0.05	0.05	0.05	-
Dibenzo(a,h)anthracene	mg/kg	0.24	2	0	0.05	0.05	0.05	-
Benzo(g,h,i)perylene	mg/kg	320	2	0	0.05	0.05	0.05	-
PAH	mg/kg		2	0	19.00	0.80	9.90	-
Phenol	mg/kg	120	2	0	5.60	0.15	2.88	-

BUILDINGS AND SERVICES								
pH		5	2	0	8.20	7.60	7.90	-
Chloride Aqueous Extract	mg/l	100	2	0	9.20	5.50	7.35	-
Sulphate Aqueous Extract as SO4	mg/l	500	2	2	1500.00	1200.00	1350.00	-
Total Sulphate as SO4	%		2	0	11.00	0.47	5.74	-
PLANTS								
Copper	mg/kg	600	2	0	29.00	28.00	28.50	-
Nickel	mg/kg	250	2	0	18.00	12.00	15.00	-
Zinc	mg/kg	3000	2	0	51.00	40.00	45.50	-
Boron	mg/kg	30	2	0	1.20	1.10	1.15	-
Cadmium	mg/kg	15	2	0	0.20	0.10	0.15	-
Chromium VI	mg/kg	600	2	0	1	1	1	-
Total Chromium	mg/kg	1000	2	0	17.00	12.00	14.50	-
Mercury	mg/kg	20	2	0	0.130	0.025	0.078	-
Lead	mg/kg	2000	2	0	26.00	24.00	24.98	-
Arsenic	mg/kg	80	2	0	15.00	9.20	12.10	-

Landuse	SOM%	Hydrocarbon Contamination in southwest - Made ground						
Residential with Gardens	1	8190 - Water's Edge, Whitehaven						
Determinand	Units	**Assessment Value (AV)**	**No. Samples**	**Samples Exceeding AV**	**Max**	**Min**	**Mean**	**Upper 95%ile**
Organic matter	%		3	0	13.00	2.10	5.77	-
HUMAN HEALTH								
Inorganic Arsenic	mg/kg	37	3	0	26.00	16.00	19.67	-
Boron	mg/kg	290	3	0	1.20	0.40	0.90	-
Cadmium	mg/kg	11	3	0	0.20	0.05	0.12	-
Chromium III	mg/kg	910	3	0	21.00	18.00	19.00	-
Chromium VI	mg/kg	6	3	0	0.50	0.50	0.50	-
Copper	mg/kg	2400	3	0	84.00	29.00	48.67	-
Lead	mg/kg	200	3	0	36.00	25.00	29.66	-
Elemental Mercury	mg/kg	1.2	3	0	0.080	0.025	0.043	-
Nickel	mg/kg	180	3	0	35.00	20.00	25.67	-
Zinc	mg/kg	3700	3	0	160.00	42.00	86.33	-
Cyanide Total	mg/kg		3	0	0.700	0.050	0.450	-
Inorganic Cyanide	mg/kg	26.8	3	0	0.05	0.05	0.05	-
Aliphatic EC 5-6	mg/kg	42	3	0	0.01	0.01	0.01	-
Aliphatic EC >6-8	mg/kg	100	3	0	0.01	0.01	0.01	-
Aliphatic EC >8-10	mg/kg	27	3	0	0.11	0.01	0.04	-
Aliphatic EC >10-12	mg/kg	130	3	0	0.75	0.75	0.75	-
Aliphatic EC >12-16	mg/kg	1100	3	0	10.00	0.60	3.73	-
Aliphatic C16-C21	mg/kg		3	0	85.00	0.75	37.25	-
Aliphatic C21-C35	mg/kg		3	0	1100.00	1.70	398.23	-
Aliphatic EC >16-35	mg/kg	65000	3	0	1185.00	2.45	435.48	-
Aliphatic C5-C35	mg/kg		3	0	1200.00	5.00	445.00	-
Aromatic EC 5-7 (benzene)	mg/kg	70	3	0	0.01	0.01	0.01	-
Aromatic EC >7-8 (toluene)	mg/kg	130	3	0	0.01	0.01	0.01	-
Aromatic EC >8-10	mg/kg	34	3	0	0.01	0.01	0.01	-
Aromatic EC >10-12	mg/kg	74	3	0	3.90	0.45	1.60	-
Aromatic EC >12-16	mg/kg	140	3	1	1600.00	16.00	547.00	-
Aromatic EC >16-21	mg/kg	260	3	2	1900.00	7.00	889.00	-
Aromatic EC >21-35	mg/kg	1100	3	1	5000.00	0.70	1740.23	-
Aromatic C5-C35	mg/kg		3	0	6900.00	23.00	3174.33	-
TPH Ali/Aro	mg/kg		3	0	8100.00	23.00	3607.67	-
Benzene	mg/kg	0.087	3	0	0.01	0.01	0.01	-
Ethylbenzene	mg/kg	47	3	0	0.01	0.01	0.01	-
Toluene	mg/kg	130	3	0	0.01	0.01	0.01	-
Xylenes	mg/kg	56	3	0	0.01	0.01	0.01	-
MTBE	mg/kg		3	0	0.01	0.01	0.01	-
PAHs								
Naphthalene	mg/kg	2.3	3	0	1.20	0.05	0.43	-
Acenaphthylene	mg/kg	170	3	0	53.00	0.10	20.53	-
Acenaphthene	mg/kg	210	3	0	14.00	0.05	8.68	-
Fluorene	mg/kg	170	3	0	9.40	0.05	5.45	-
Phenanthrene	mg/kg	95	3	0	12.00	0.05	4.05	-
Anthracene	mg/kg	2400	3	0	2.80	0.05	0.97	-
Fluoranthene	mg/kg	280	3	0	51.00	0.20	18.47	-
Pyrene	mg/kg	620	3	0	3.50	0.05	1.45	-
Benzo(a)anthracene	mg/kg	7.2	3	0	0.05	0.05	0.05	-
Chrysene	mg/kg	15	3	0	0.05	0.05	0.05	-
Benzo(b)fluoranthene	mg/kg	2.6	3	0	0.05	0.05	0.05	-
Benzo(k)fluoranthene	mg/kg	77	3	0	0.05	0.05	0.05	-
Benzo(a)pyrene	mg/kg	2.2	3	0	0.05	0.05	0.05	-
Indeno(1,2,3-c,d)pyrene	mg/kg	27	3	0	0.05	0.05	0.05	-
Dibenzo(a,h)anthracene	mg/kg	0.24	3	0	0.05	0.05	0.05	-
Benzo(g,h,i)perylene	mg/kg	320	3	0	0.05	0.05	0.05	-
PAH	mg/kg		3	0	99.00	0.80	60.27	-
Phenol	mg/kg	120	3	0	5.90	0.15	3.88	-

BUILDINGS AND SERVICES								
pH		5	3	0	8.00	7.60	7.77	-
Chloride Aqueous Extract	mg/l	100	3	0	11.00	9.60	10.17	-
Sulphate Aqueous Extract as SO4	mg/l	500	3	2	1500.00	100.00	933.33	-
Total Sulphate as SO4	%		3	0	1.00	0.55	0.71	-
PLANTS								
Copper	mg/kg	600	3	0	84.00	29.00	48.67	-
Nickel	mg/kg	250	3	0	35.00	20.00	25.67	-
Zinc	mg/kg	3000	3	0	160.00	42.00	86.33	-
Boron	mg/kg	30	3	0	1.20	0.40	0.90	-
Cadmium	mg/kg	15	3	0	0.20	0.05	0.12	-
Chromium VI	mg/kg	600	3	0	1	1	1	-
Total Chromium	mg/kg	1000	3	0	21.00	18.00	19.00	-
Mercury	mg/kg	20	3	0	0.080	0.025	0.043	-
Lead	mg/kg	2000	3	0	36.00	25.00	29.66	-
Arsenic	mg/kg	80	3	0	26.00	16.00	19.67	-

Landuse	SOM%	Hydrocarbon Contamination in southwest - Natural Clay						
Residential with Gardens	1	8190 - Water's Edge, Whitehaven						
Determinand	Units	**Assessment Value (AV)**	**No. Samples**	**Samples Exceeding AV**	**Max**	**Min**	**Mean**	**Upper 95%ile**
Organic matter	%		3	0	2.50	0.70	1.73	-
HUMAN HEALTH								
Inorganic Arsenic	mg/kg	37	3	0	15.00	13.00	14.00	-
Boron	mg/kg	290	3	0	1.80	0.10	0.87	-
Cadmium	mg/kg	11	3	0	0.20	0.05	0.12	-
Chromium III	mg/kg	910	3	0	20.00	11.00	16.67	-
Chromium VI	mg/kg	6	3	0	0.50	0.50	0.50	-
Copper	mg/kg	2400	3	0	31.00	22.00	27.33	-
Lead	mg/kg	200	3	0	37.00	18.00	24.84	-
Elemental Mercury	mg/kg	1.2	3	0	0.025	0.025	0.025	-
Nickel	mg/kg	180	3	0	22.00	13.00	17.67	-
Zinc	mg/kg	3700	3	0	57.00	34.00	45.67	-
Cyanide Total	mg/kg		3	0	0.100	0.050	0.067	-
Inorganic Cyanide	mg/kg	26.8	3	0	0.05	0.05	0.05	-
Aliphatic EC 5-6	mg/kg	42	3	0	0.01	0.01	0.01	-
Aliphatic EC >6-8	mg/kg	100	3	0	0.01	0.01	0.01	-
Aliphatic EC >8-10	mg/kg	27	3	0	0.01	0.01	0.01	-
Aliphatic EC >10-12	mg/kg	130	3	0	0.75	0.75	0.75	-
Aliphatic EC >12-16	mg/kg	1100	3	0	0.60	0.60	0.60	-
Aliphatic C16-C21	mg/kg		3	0	0.75	0.75	0.75	-
Aliphatic C21-C35	mg/kg		3	0	1.70	1.70	1.70	-
Aliphatic EC >16-35	mg/kg	65000	3	0	2.45	2.45	2.45	-
Aliphatic C5-C35	mg/kg		3	0	5.00	5.00	5.00	-
Aromatic EC 5-7 (benzene)	mg/kg	70	3	0	0.01	0.01	0.01	-
Aromatic EC >7-8 (toluene)	mg/kg	130	3	0	0.01	0.01	0.01	-
Aromatic EC >8-10	mg/kg	34	3	0	0.19	0.01	0.07	-
Aromatic EC >10-12	mg/kg	74	3	0	0.45	0.45	0.45	-
Aromatic EC >12-16	mg/kg	140	3	0	9.00	0.25	5.95	-
Aromatic EC >16-21	mg/kg	260	3	0	31.00	0.30	11.93	-
Aromatic EC >21-35	mg/kg	1100	3	0	15.00	0.70	5.47	-
Aromatic C5-C35	mg/kg		3	0	55.00	5.00	24.67	-
TPH Ali/Aro	mg/kg		3	0	55.00	5.00	24.67	-
Benzene	mg/kg	0.087	3	0	0.01	0.01	0.01	-
Ethylbenzene	mg/kg	47	3	0	0.08	0.01	0.03	-
Toluene	mg/kg	130	3	0	0.01	0.01	0.01	-
Xylenes	mg/kg	56	3	0	0.09	0.01	0.03	-
MTBE	mg/kg		3	0	0.01	0.01	0.01	-
PAHs								
Naphthalene	mg/kg	2.3	3	0	0.20	0.05	0.10	-
Acenaphthylene	mg/kg	170	3	0	5.20	0.05	1.77	-
Acenaphthene	mg/kg	210	3	0	2.80	0.05	0.97	-
Fluorene	mg/kg	170	3	0	0.20	0.05	0.10	-
Phenanthrene	mg/kg	95	3	0	0.05	0.05	0.05	-
Anthracene	mg/kg	2400	3	0	0.05	0.05	0.05	-
Fluoranthene	mg/kg	280	3	0	0.05	0.05	0.05	-
Pyrene	mg/kg	620	3	0	0.05	0.05	0.05	-
Benzo(a)anthracene	mg/kg	7.2	3	0	0.05	0.05	0.05	-
Chrysene	mg/kg	15	3	0	0.05	0.05	0.05	-
Benzo(b)fluoranthene	mg/kg	2.6	3	0	0.05	0.05	0.05	-
Benzo(k)fluoranthene	mg/kg	77	3	0	0.05	0.05	0.05	-
Benzo(a)pyrene	mg/kg	2.2	3	0	0.05	0.05	0.05	-
Indeno(1,2,3-c,d)pyrene	mg/kg	27	3	0	0.05	0.05	0.05	-
Dibenzo(a,h)anthracene	mg/kg	0.24	3	0	0.05	0.05	0.05	-
Benzo(g,h,i)perylene	mg/kg	320	3	0	0.05	0.05	0.05	-
PAH	mg/kg		3	0	8.30	0.80	3.30	-
Phenol	mg/kg	120	3	0	0.50	0.15	0.27	-

BUILDINGS AND SERVICES								
pH		5	3	0	10.30	7.90	8.97	-
Chloride Aqueous Extract	mg/l	100	3	0	16.00	11.00	13.00	-
Sulphate Aqueous Extract as SO4	mg/l	500	3	1	610.00	120.00	393.33	-
Total Sulphate as SO4	%		3	0	0.47	0.08	0.31	-
PLANTS								
Copper	mg/kg	600	3	0	31.00	22.00	27.33	-
Nickel	mg/kg	250	3	0	22.00	13.00	17.67	-
Zinc	mg/kg	3000	3	0	57.00	34.00	45.67	-
Boron	mg/kg	30	3	0	1.80	0.10	0.87	-
Cadmium	mg/kg	15	3	0	0.20	0.05	0.12	-
Chromium VI	mg/kg	600	3	0	1	1	1	-
Total Chromium	mg/kg	1000	3	0	20.00	11.00	16.67	-
Mercury	mg/kg	20	3	0	0.025	0.025	0.025	-
Lead	mg/kg	2000	3	0	37.00	18.00	24.84	-
Arsenic	mg/kg	80	3	0	15.00	13.00	14.00	-

APPENDIX 11

SITE SPECIFIC ASSESSMENT CRITERIA

FWS Geological & Geo-Environmental Consultants

GENERICA ASSESSMENT CRITERIA - SOILS

Site Name	Water's Edge, Whitehaven		
Project Number	8190		
Development Type	Residential with Gardens	**Soil Organic Matter %**	1
Human Health			
Determinand	**Assessment Level**	**Unit**	**Source**
Inorganic Arsenic	37	mg/kg	S4ULs (LQM)
Beryllium	1.7	mg/kg	S4ULs (LQM)
Boron	290	mg/kg	S4ULs (LQM)
Cadmium	11	mg/kg	S4ULs (LQM)
Chromium III	910	mg/kg	S4ULs (LQM)
Chromium VI	6	mg/kg	S4ULs (LQM)
Copper	2400	mg/kg	S4ULs (LQM)
Elemental Mercury	1.2	mg/kg	S4ULs (LQM)
Inorganic Mercury	#N/A	#N/A	S4ULs (LQM)
Methylmercury	11	mg/kg	S4ULs (LQM)
Nickel	180	mg/kg	S4ULs (LQM)
Selenium	250	mg/kg	S4ULs (LQM)
Vanadium	410	mg/kg	S4ULs (LQM)
Zinc	3700	mg/kg	S4ULs (LQM)
Lead	200	mg/kg	SGV
Inorganic Cyanide	26.8	mg/kg	CLEA 1.06
Benzene	0.087	mg/kg	S4ULs (LQM)
Toluene	130	mg/kg	S4ULs (LQM)
Ethylbenzene	47	mg/kg	S4ULs (LQM)
o-Xylenes	60	mg/kg	S4ULs (LQM)
m-Xylenes	59	mg/kg	S4ULs (LQM)
p-Xylenes	56	mg/kg	S4ULs (LQM)
Aliphatic EC 5-6	42	mg/kg	S4ULs (LQM)
Aliphatic EC >6-8	100	mg/kg	S4ULs (LQM)
Aliphatic EC >8-10	27	mg/kg	S4ULs (LQM)
Aliphatic EC >10-12	130vap(48)	mg/kg	S4ULs (LQM)
Aliphatic EC >12-16	1100sol(24)	mg/kg	S4ULs (LQM)
Aliphatic EC >16-35	65000sol(8.48)	mg/kg	S4ULs (LQM)
Aliphatic EC >35-44	65000sol(8.48)	mg/kg	S4ULs (LQM)
Aromatic EC 5-7 (benzene)	70	mg/kg	S4ULs (LQM)
Aromatic EC >7-8 (toluene)	130	mg/kg	S4ULs (LQM)
Aromatic EC >8-10	34	mg/kg	S4ULs (LQM)
Aromatic EC >10-12	74	mg/kg	S4ULs (LQM)
Aromatic EC >12-16	140	mg/kg	S4ULs (LQM)
Aromatic EC >16-21	260	mg/kg	S4ULs (LQM)
Aromatic EC >21-35	1100	mg/kg	S4ULs (LQM)
Aromatic EC >35-44	1100	mg/kg	S4ULs (LQM)
Aliphatic + Aromatic EC <44-70	1600	mg/kg	S4ULs (LQM)
Acenaphthene	210	mg/kg	S4ULs (LQM)
Acenaphthylene	170	mg/kg	S4ULs (LQM)
Anthracene	2400	mg/kg	S4ULs (LQM)
Benz(a)anthracene	7.2	mg/kg	S4ULs (LQM)
Benzo(a)pyrene	2.2	mg/kg	S4ULs (LQM)
Benzo(b)fluoranthene	2.6	mg/kg	S4ULs (LQM)
Benzo(ghi)perylene	320	mg/kg	S4ULs (LQM)
Benzo(k)fluoranthene	77	mg/kg	S4ULs (LQM)
Chrysene	15	mg/kg	S4ULs (LQM)
Dibenz(ah)anthracene	0.24	mg/kg	S4ULs (LQM)
Fluoranthene	280	mg/kg	S4ULs (LQM)
Fluorene	170	mg/kg	S4ULs (LQM)
Indeno(123-cd)pyrene	27	mg/kg	S4ULs (LQM)
Naphthalene	2.3	mg/kg	S4ULs (LQM)
Phenanthrene	95	mg/kg	S4ULs (LQM)
Pyrene	620	mg/kg	S4ULs (LQM)
Phenol	120	mg/kg	S4ULs (LQM)

Plants			
Determinand	**Assessment Level**	**Unit**	**Source**
Copper	600	mg/kg	Dickinson et al
Nickel	250	mg/kg	Dickinson et al
Zinc	3000	mg/kg	Dickinson et al
Boron	30	mg/kg	Dickinson et al
Cadmium	15	mg/kg	Dickinson et al
Chromium VI	600	mg/kg	Dickinson et al
Total Chromium	1000	mg/kg	Dickinson et al
Mercury	20	mg/kg	Dickinson et al
Lead	2000	mg/kg	Dickinson et al
Arsenic	80	mg/kg	Dickinson et al
Cobalt	240	mg/kg	Dickinson et al
Molybdenum	200	mg/kg	Dickinson et al
Selenium	50	mg/kg	Dickinson et al

Buildings and Services			
Determinand	**Assessment Level**	**Unit**	**Source**
pH	<5		BRE SD1:2005
Sulphate 2:1 water/soil leachate	500	mg/l	BRE SD1:2005
Chloride	100	mg/kg	WRc Environment 1987 PRD 1452M/1

APPENDIX 12

PRINCIPLES OF CONTAMINATION RISK ASSESSMENT

PRINCIPLES OF CONTAMINATION RISK ASSESSMENT

The Environmental Protection Act 1990, Part II A Contaminated Land (Section 57 of the Environment Act 1995) and the Contaminated Land Regulations 1999 provide a basis on which to determine the unacceptable risks and liabilities presented by a contaminated site. Contaminated Land is defined within Section 78A(2) and in all those Sections mentioned as:-

"Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land that-

a) **SIGNIFICANT HARM** is being caused, or there is significant possibility of such harm being caused; or

b) **SIGNIFICANT POLLUTION OF CONTROLLED WATERS** is being caused, or there is a significant possibility of such pollution being caused."

Section 57 of the Environment Act 1995 requires that any site identified as being "contaminated" by the Local Authority will be registered by them and remediation will be required to render the site fit for use.

The presence of contamination is not the sole factor for deciding whether a site is contaminated. Relevant parties should identify site-specific unacceptable risks and provide objective, cost-effective methods to manage the contamination in a manner which satisfies the proposed end-use.

The guidance defines "risk" as the combination of:-

PROBABILITY OF RISK: or frequency, of occurrence of a defined hazard; and

MAGNITUDE/POTENTIAL SEVERITY: (including the seriousness) of the consequences.

A risk-based approach, which takes both technical and non-technical aspects into consideration when making decisions on contamination resulting from past, present or future human activities, is advocated.

The assessment of unacceptable risks generally relies on the identification of three principal elements forming a 'contaminant linkage':-

CONTAMINANT: is a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause significant pollution to controlled waters

RECEPTOR: something that could be adversely affected by a contaminant eg. a person, an organism, and ecosystem, property or controlled waters

PATHWAY: a route through which the contaminant can migrate, and by which a receptor is, or might be, affected by a contaminant

In the absence of any one of these elements, on any given site, there is no risk. Where all three elements are present, a risk assessment is required to determine the significance of the harm or pollution that is being or may be caused. As outlined above, the terms of the Contaminated Land regime specify that remediation need only be implemented where a site is causing, or there is a significant possibility that it will cause, significant harm, or that pollution of controlled waters is being, or is likely to be caused.

Development of contaminated land is usually addressed through the application of planning and development legislation and guidance (i.e. Planning Guidance Note PPS23 Planning and Pollution Control in England). The suitable for use approach is seen as the most appropriate basis to deal with contaminated land, taking account of environmental, social and economic objectives. The assessment is made in the context of the proposed land use (e.g. residential, commercial, industrial and public open-space).

Definition of Severity of Consequence

The risk assessment has been undertaken by assessing the severity of the potential consequence, taking into account both the potential severity of the hazard and the sensitivity of the target, based on the categories given below.

Category	Definition
Severe	Acute risks to human health, catastrophic damage to buildings/property, major pollution of controlled waters
Medium	Chronic risk to human health, pollution of sensitive controlled waters, significant effects on sensitive ecosystems or species, significant damage to buildings or structures
Mild	Pollution of non-sensitive waters, minor damage to buildings or structures
Minor	Requirements for protective equipment during site works to mitigate health effects, damage to non-sensitive ecosystems or species

Definition of Probability of Occurrence

The likelihood of an event (probability) takes into account the linkage between a hazard and target and the integrity of this pathway, and has been assessed based on the categories given below.

Category	Definition
High Likelihood	Pollutant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor
Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term
Low Likelihood	Pollutant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so
Unlikely	Pollutant linkage may be present, but the circumstances under which harm would occur are improbable

Risk Matrix

The potential severity of the consequence and the probability of the occurrence have been combined in accordance with the following matrix in order to give a level of risk for each potential hazard.

		Severity of Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Probability of Occurrence	**High Likelihood**	Very high	High	Moderate	Low
	Likely	High	Moderate	Low	Very Low
	Low Likelihood	Moderate	Low	Very Low	Negligible
	Unlikely	Low	Very Low	Negligible	Negligible

APPENDIX 13

GEOTECHNICAL ANALYSIS RESULTS

LABORATORY TEST CERTIFICATE

MATtest Limited
materials testing & consultancy

10 Queenslie Point
Queenslie Industrial Estate
120 Stepps Road
Glasgow
G33 3NQ

Tel: 0141 774 4032

email: info@mattest.org
Website: www.mattest.org

Certificate No : **19/1264 - 01**

To : **Matthew Lakey**

Client : **FWS Consultants Limited**
Office 1.8
1 Redwood Crescent
Peel Park
East Kilbride
G74 5PA

Dear Sirs,

LABORATORY TESTING OF SOIL

Introduction

We refer to samples taken from Water's Edge, Whitehaven and delivered to our laboratory on 27th August 2019.

Material & Source

Sample Reference	:	See Report Plates
Sampled By	:	Client
Sampling Certificate	:	Not Supplied
Location	:	See Report Plates
Description	:	See Page 2 to Page 3 inclusive
Date Sampled	:	Not Supplied
Date Tested	:	27th August 2019 Onwards
Source	:	8190 - Water's Edge, Whitehaven

Test Results;

As Detailed On Page 2 to Page 7 inclusive

Comments;

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
All remaining samples for this project will be disposed of 28 days after issue of this test certificate

Remarks;

Approved for Issue

T McLelland (Director)

Date 02/09/2019

UKAS TESTING
2643

BOREHOLE	SAMPLE	DEPTH (m)	SAMPLE DESCRIPTION
WS2	SPT	1.20-1.65	Brown gravelly sandy silty CLAY with root fibres. Gravel is fine to medium.
WS3	SPT	2.00-2.45	Brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.

SUMMARY OF SAMPLE DESCRIPTIONS

TRIAL PIT	SAMPLE	DEPTH (m)	SAMPLE DESCRIPTION
TP1	B	1.50-1.70	Brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse.
TP5	B	2.40-2.50	Brown gravelly silty sandy CLAY. Gravel is fine to coarse.
TP6	B	1.50-1.60	Brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse.
TP8	B	0.50-0.70	Brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse.
TP10	B	2.00-2.10	Brown slightly gravelly slightly sandy CLAY. Gravel is fine to coarse.

SUMMARY OF SAMPLE DESCRIPTIONS

BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)
WS2	SPT	1.20-1.65	29
WS3	SPT	2.00-2.45	13

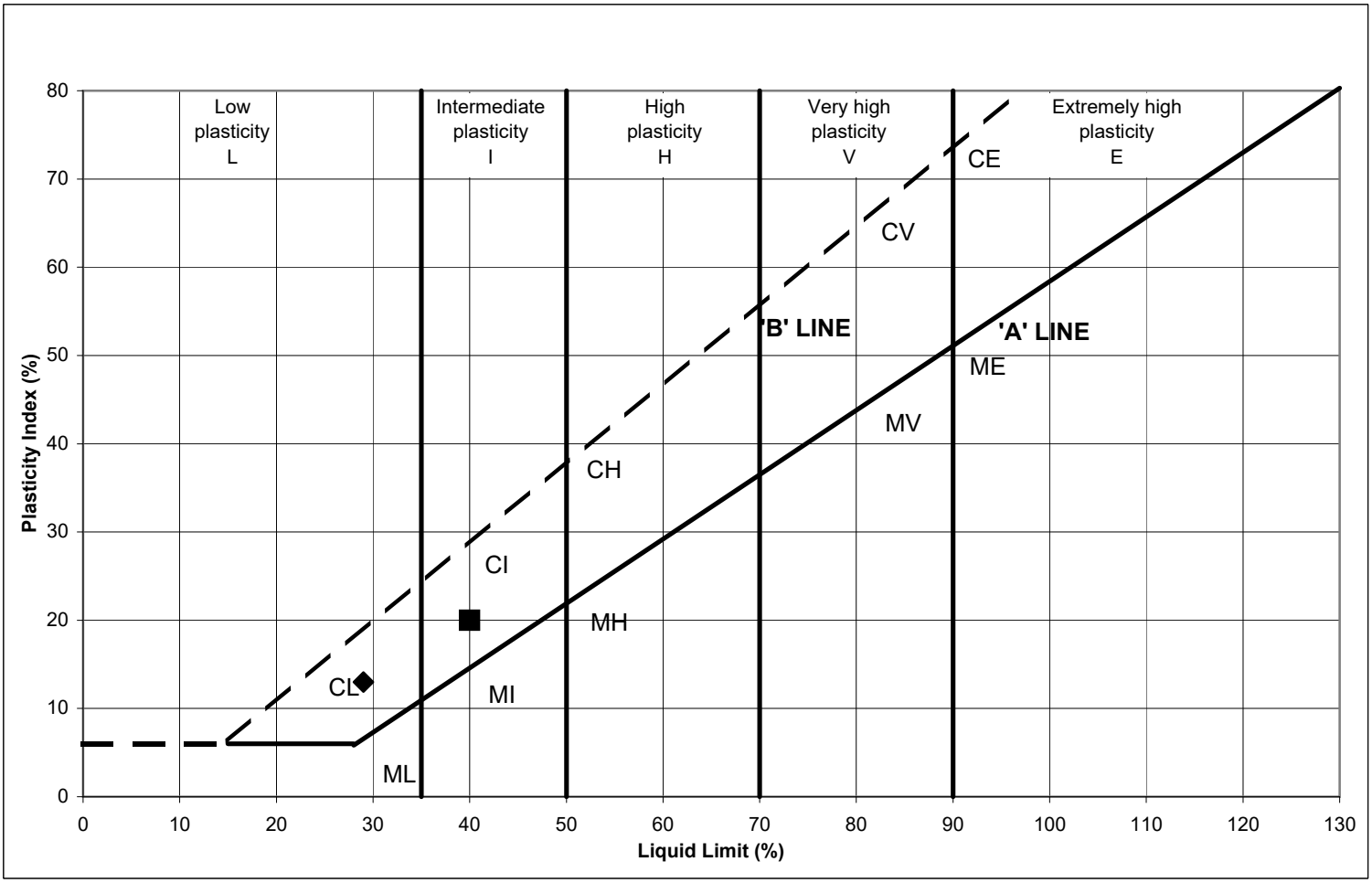
Tested in accordance with BS 1377: Part 2: 1990: Clause 3

SUMMARY OF MOISTURE CONTENT TEST RESULTS

TRIAL PIT	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)
TP1	B	1.50-1.70	15
TP5	B	2.40-2.50	24
TP6	B	1.50-1.60	23
TP8	B	0.50-0.70	25
TP10	B	2.00-2.10	17

Tested in accordance with BS 1377: Part 2: 1990: Clause 3

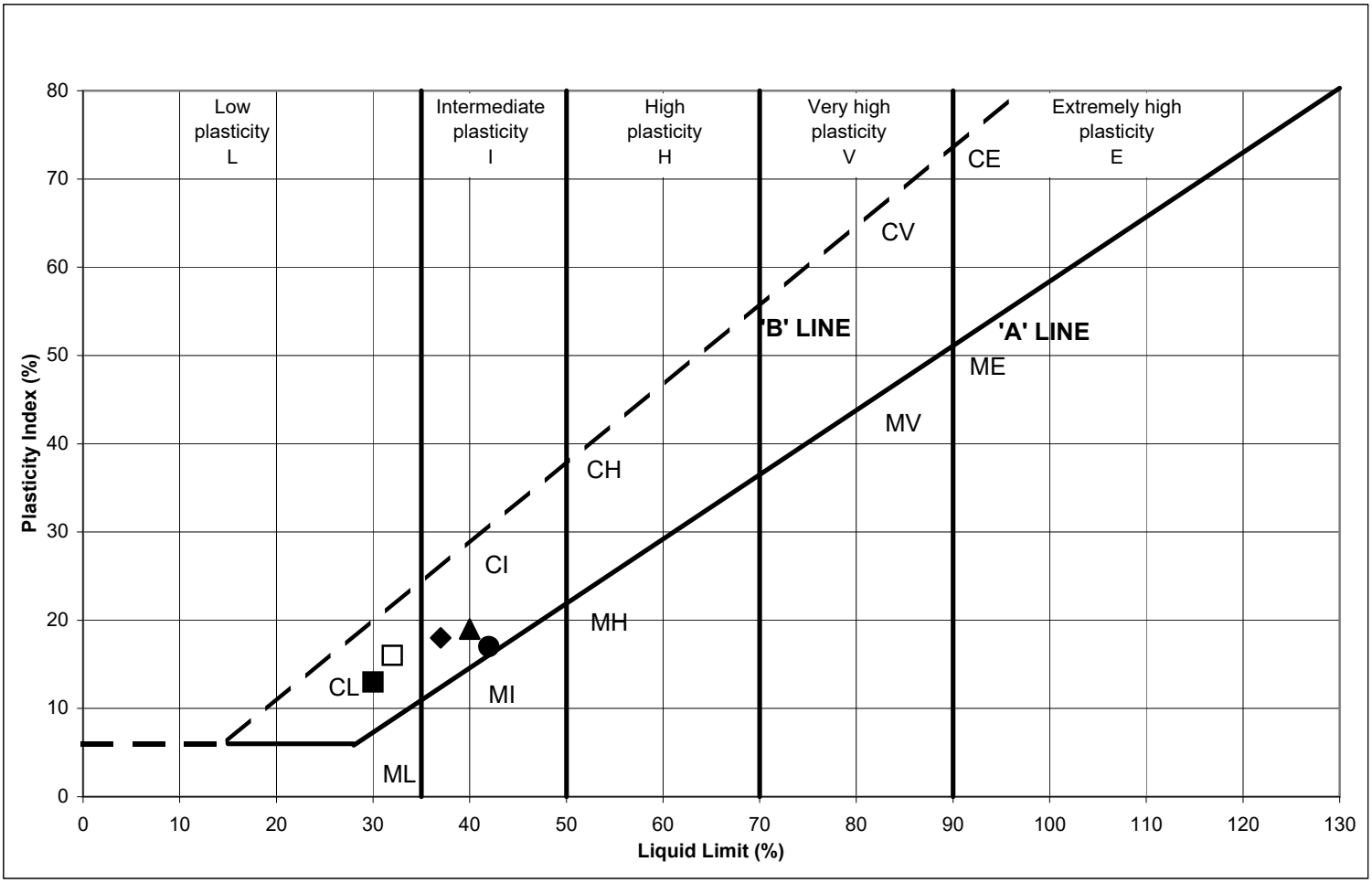
SUMMARY OF MOISTURE CONTENT TEST RESULTS



Symbol	Borehole	Sample	Depth	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	% Passing 0.425mm Sieve	Remarks
■	WS2	SPT	1.20-1.65	29	40	20	20	72	Clay with intermediate plasticity
◆	WS3	SPT	2.00-2.45	13	29	16	13	71	Clay with low plasticity
▲									
●									
□									
◇									
△									
○									
×									
✳									

All samples were tested in accordance with BS 1377 : Part 2 : 1990 Clause 4.3, 5.3 and 5.4.
All samples were washed on a 0.425mm test sieve prior to test.

SUMMARY OF ATTERBERG LIMITS TEST RESULTS



Symbol	Trial Pit	Sample	Depth	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	% Passing 0.425mm Sieve	Remarks
■	TP1	B	1.50-1.70	15	30	17	13	74	Clay with low plasticity
◆	TP5	B	2.40-2.50	24	37	19	18	73	Clay with intermediate plasticity
▲	TP6	B	1.50-1.60	23	40	21	19	83	Clay with intermediate plasticity
●	TP8	B	0.50-0.70	25	42	25	17	80	Clay with intermediate plasticity
□	TP10	B	2.00-2.10	17	32	16	16	75	Clay with low plasticity
◇									
△									
○									
×									
✳									

All samples were tested in accordance with BS 1377 : Part 2 : 1990 Clause 4.3, 5.3 and 5.4.
All samples were washed on a 0.425mm test sieve prior to test.

SUMMARY OF ATTERBERG LIMITS TEST RESULTS

LABORATORY TEST CERTIFICATE

MATtest Limited
materials testing & consultancy

10 Queenslie Point
Queenslie Industrial Estate
120 Stepps Road
Glasgow
G33 3NQ

Tel: 0141 774 4032

email: info@mattest.org
Website: www.mattest.org

Certificate No : **20/203 - 01**

To : **Nicholas Thomson**

Client : **FWS Consultants Limited**
Office 1.8
1 Redwood Crescent
Peel Park
East Kilbride
G74 5PA

Dear Sirs,

LABORATORY TESTING OF SOIL

Introduction

We refer to samples taken from Water's Edge, Whitehaven and delivered to our laboratory on 18th February 2020.

Material & Source

Sample Reference	:	See Report Plates
Sampled By	:	Client
Sampling Certificate	:	Not Supplied
Location	:	See Report Plates
Description	:	See Page 2
Date Sampled	:	Not Supplied
Date Tested	:	18th February 2020 Onwards
Source	:	8190.3 - Water's Edge, Whitehaven

Test Results;

As Detailed On Page 2 to Page 4 inclusive

Comments;

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
All remaining samples for this project will be disposed of 28 days after issue of this test certificate

Remarks;

Approved for Issue

T McLelland (Director)

Date 28/02/2020

UKAS TESTING
2643

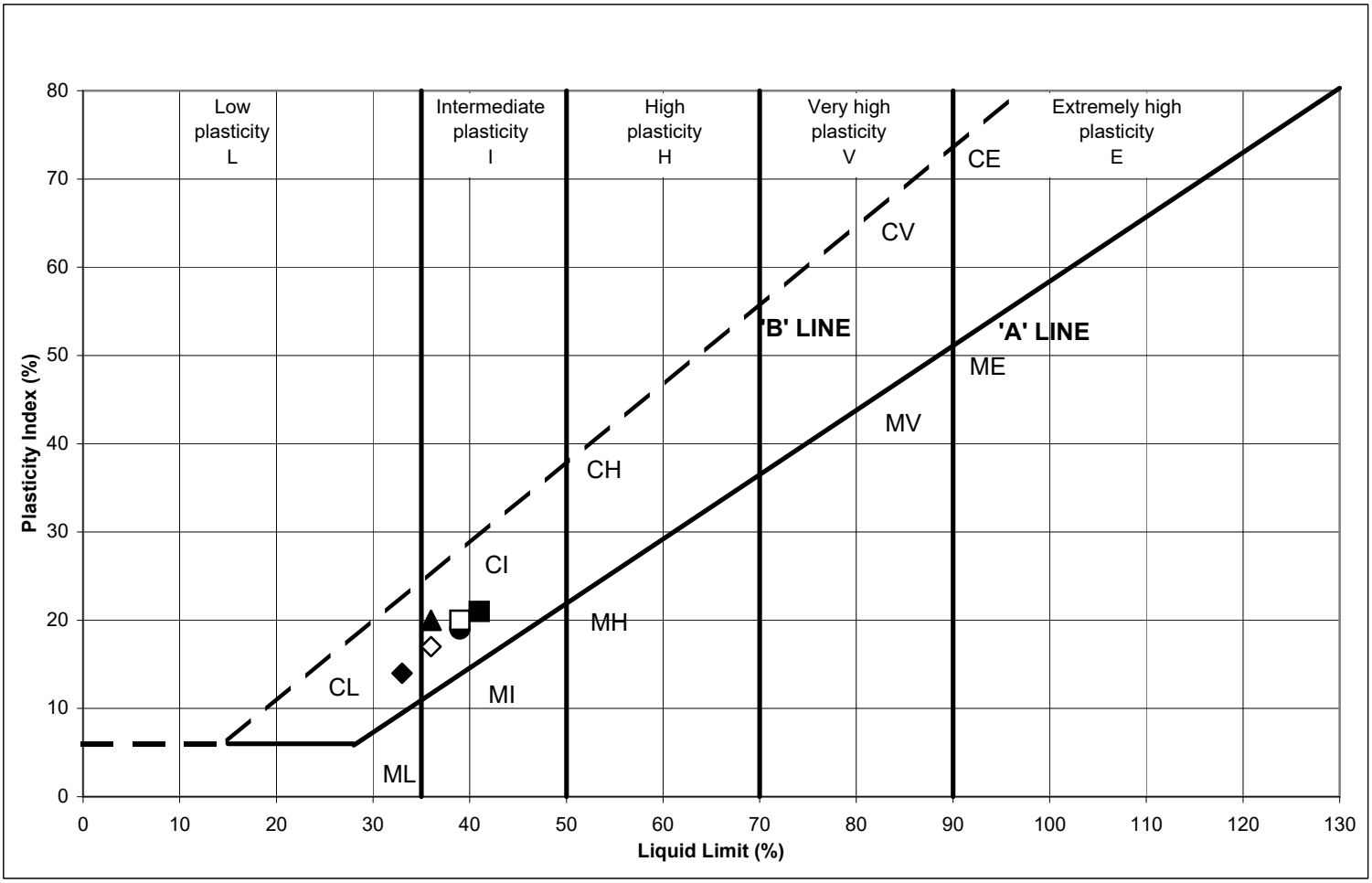
TRIAL PIT	SAMPLE	DEPTH (m)	SAMPLE DESCRIPTION
TP103	D4	1.90-2.00	Mottled brown sandy CLAY.
TP104	D3	2.00-2.10	Mottled brown slightly gravelly sandy CLAY. Gravel is fine to medium.
TP107	D3	2.00-2.10	Brown gravelly slightly sandy CLAY. Gravel is fine to medium.
TP109	D3	0.90-1.00	Brown slightly gravelly sandy CLAY. Gravel is fine to coarse.
TP112	D3	1.50-1.60	Mottled brown slightly gravelly sandy CLAY. Gravel is fine to medium.
TP115	D2	0.90-1.00	Mottled brown slightly gravelly sandy CLAY. Gravel is fine to coarse.

SUMMARY OF SAMPLE DESCRIPTIONS

TRIAL PIT	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)
TP103	D4	1.90-2.00	24
TP104	D3	2.00-2.10	28
TP107	D3	2.00-2.10	16
TP109	D3	0.90-1.00	23
TP112	D3	1.50-1.60	23
TP115	D2	0.90-1.00	19

Tested in accordance with BS 1377: Part 2: 1990: Clause 3

SUMMARY OF MOISTURE CONTENT TEST RESULTS



Symbol	Trial Pit	Sample	Depth	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	% Passing 0.425mm Sieve	Remarks
■	TP103	D4	1.90-2.00	24	41	20	21	77	Clay with intermediate plasticity
◆	TP104	D3	2.00-2.10	28	33	19	14	75	Clay with low plasticity
▲	TP107	D3	2.00-2.10	16	36	16	20	77	Clay with intermediate plasticity
●	TP109	D3	0.90-1.00	23	39	20	19	83	Clay with intermediate plasticity
□	TP112	D3	1.50-1.60	23	39	19	20	82	Clay with intermediate plasticity
◇	TP115	D2	0.90-1.00	19	36	19	17	77	Clay with intermediate plasticity
△									
○									
×									
✳									

All samples were tested in accordance with BS 1377 : Part 2 : 1990 Clause 4.3, 5.3 and 5.4.
All samples were washed on a 0.425mm test sieve prior to test.

SUMMARY OF ATTERBERG LIMITS TEST RESULTS

APPENDIX 14

NOTES ON LIMITATIONS

NOTES ON LIMITATIONS

1 FWS Consultants Ltd ("FWS") has prepared this report solely for the use of the client and/or his agent (the "Client") on the basis of exchange(s) of written proposals and instructions, and FWS accepts no responsibility or liability:-

a) for use of this report by any party other than the person for whom it was commissioned, or;

b) for the consequences of the report being used for any purpose other than that for which FWS was instructed to prepare it.

Should any third party wish to use or rely upon the contents of the report, written approval from FWS must be sought.

2 All information supplied by the Client, the Client's staff and professional advisers, local authorities, other statutory bodies, investigation agencies and publicly accessible databases, shall be provided to FWS in writing, and is accepted as being correct unless otherwise specified in writing by the discloser of the information.

3 The conclusions and recommendations in this report represent the professional opinions of FWS derived from currently accepted industry practices, and through the exercising of reasonable skill and care to be expected of a professional geosciences and environmental consultancy of similar size and experience. The assessments and judgments given in this report are directed by and limited to both the finite data on which they are based and the proposed works to which they are addressed.

4 Environmental and geotechnical desk studies comprise a study of available information obtained from various identified sources, authorities and parties. The information reviewed cannot be exhaustive and has been accepted in good faith as providing representative and true data pertaining to site conditions. For clarity, no independent verification of this data is carried out by FWS and it is accepted at face value. Any identified risks in desk study reports are perceived risks based on the information available at the time. Actual risks can only be assessed after carrying out a thorough physical investigation of the site that serves to validate such identified risks.

5 Data acquisition during site investigations is subject to the limitations of the methods of investigation used, site conditions and access constraints. Exploratory holes undertaken during fieldwork, particularly boreholes and/or trial pits, investigate a small volume of ground in relation to the size of the site and thus can only provide an indication of site conditions. The opinions provided and recommendations given in this report are based on the desk study information and ground conditions apparent at the site of each of the exploratory holes. There may be ground conditions elsewhere onsite that have not been disclosed by the investigation and which therefore have not been taken into account in this report. FWS will take all due care and make commentary on the adequacy of data collection and therefore the ability to highlight the presence or otherwise of exceptional conditions.

6 Owing to the natural variation of the systems that are being investigated, and the anthropological impact similarly changing through time, the findings and opinions in this report are relevant to the dates of the site works and should not be relied upon to represent conditions after a reasonable passing of time. Site conditions will change over time due to natural variations and human activities. The comments made on groundwater, surface water and soil gas conditions are based on observations made at the time that the site work was carried out. It should be noted that these conditions will vary owing to seasonal, tidal and meteorological effects. Variation in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, or subsequent developments or activities on the site or adjacent area.

7 The scope of the investigation, as agreed between FWS and the Client, was undertaken based on the specific development proposals of the Client and may be inappropriate to another form of development or scheme.

8 The opinions expressed in this report regarding contamination, geotechnical and/or waste assessments are based on simple statistical analysis and comparison with available guidance values. No liability can be accepted for the retrospective effects of any changes or amendments to these values.