

Report on a **PHASE 2 GEOENVIRONMENTAL GROUND INVESTIGATION**

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**Seacon Terminals
Lower Road
Northfleet
Kent
DA1 9BD**

Prepared for:
Heath Projects Limited



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1.0 EXECUTIVE SUMMARY

<i>Site Location</i>	Seacon Terminals, Lower Road, Northfleet, Kent DA1 9BD
<i>Proposed Development</i>	Demolition of the existing warehouse and construction of a new manufacturing facility, plus ancillary structures.
<i>Environmental Setting</i>	Superficial Geology: Alluvium, Taplow Gravel Member (Secondary Undifferentiated Aquifer) Bedrock Geology: Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Principal Aquifer) River Thames and Pond Within 250m. Landfill Sites and Waste Management Facilities Within 250m. No Sensitive Land Uses Within 250m.

GEOTECHNICAL INVESTIGATION

<i>Ground Conditions Encountered</i>	The investigation revealed ground conditions that were generally consistent with the geological records and comprised Made Ground up to 4.00m in thickness underlain by Alluvium, the Taplow Gravel Member and Chalk at depth.
<i>Groundwater</i>	Groundwater was encountered in the boreholes during the investigation. Groundwater levels were monitored in three standpipes over a period of four to six week post installation. The groundwater level was a consistent 1.42m – 1.44m and 1.54m – 1.55m below ground level in two boreholes. Within a third groundwater rose from 2.00m below ground level to 1.18m over the monitoring period.
<i>Engineering Observations & Recommendations</i>	Based on the ground and groundwater conditions encountered in the boreholes and trial pits, it will not be possible to support the proposed new development on conventional strip or isolated pad foundations. A piled foundation solution is recommended. The use of conventional spread foundations will be impracticable or uneconomical due to the size and depth of foundation required and a piled foundation should then be considered. In these ground conditions, it is considered that some form of bored and in-situ cast concrete piled foundation with reinforced concrete ground beams should prove satisfactory. A driven pile solution may also be possible due to the industrial nature of the surrounding land where the noise and vibration associated with driven piles may not be an issue, although due to the Alluvium vibrations may travel longer distances. Due to the thickness of Made Ground encountered and the underlying very soft Alluvial deposits, it is recommended that ground slabs should be fully suspended. Shallow excavations for foundations and services are likely to require nominal side support in the short term and groundwater is unlikely to be encountered in significant quantities once any accumulated surface water has been removed. Deeper and longer excavations below approximately 1.20m below existing ground level will require close side support and some seepages of groundwater could be encountered. Below approximately 1.50m groundwater may for significant inflows. Once groundwater has been encountered the made ground and alluvial deposits may rapidly become unstable. Alluvial deposits may flow resulting in undermining of the ground surrounding the excavation unless suitable side wall support is installed. Normal safety precautions should be taken if shallow excavations are to be entered. Deeper excavations will require enhanced measures to reduce the risk to workers to acceptable levels.

ENVIRONMENTAL INVESTIGATION

Soil Contamination

The findings of the Phase 2 site investigation have demonstrated that in the context of a proposed commercial use of the site, the contaminant of concern was asbestos encountered in BH2, BH5 and BH6.

A potential risk to other receptors including potable water supply pipe may exist due to elevated concentrations of TPH.

Recommendations

In respect to soil contamination, it is anticipated that the protection of the end-user may be achieved by the following:

- Areas of proposed hardstanding (e.g. building footprint, roadways etc.)
- Barrier pipe should be used on-site.
- Ground gas protection measures should be used on-site.

Contaminant Linkages

Potential Contaminants / Source	Pathway	Receptor	Site specific settings	Risk Classification: Based on Phase II Investigation	Action Required
ASBESTOS	Inhalation, ingestion and dermal contact.	Human Health Site Users	Commercial Use	Low/Medium	Further action required – Soil Remediation recommended within BH2, BH5 and BH6 locations on-site
ASBESTOS	Inhalation, ingestion and dermal contact	Human Health Construction Workers	Construction should follow regulation on health and safety during development (HSE, 1991).	Low/Medium	Further action required – Soil Remediation recommended within BH2, BH5 and BH6 locations on-site
TPH	Permeation through pipes	Human Health Site Users	Commercial Use – supply for break rooms	Low/Medium	Further action required – Barrier pipes recommended.
ZINC	Uptake (root and stomata), ingestion, inhalation and dermal absorption by animal)	Ecological features (i.e. Flora and Fauna)	There are no areas of proposed soft landscaping on-site.	None	No further action
<u>Ground Gases</u> METHANE	Permeation through fissures, voids and shafts, and by Inhalation by humans	Human Health Inhalation of Gases	Elevated ground gases encountered	High	Further action required – ground gas protections measures recommended on-site.

2.0 INTRODUCTION

2.1 Outline and Limitations of Report

At the request of Heath Projects Limited, a ground investigation was carried out in connection with a proposed development at the above site.

The information was required for the design and construction of foundations and infrastructure for the proposed development, which includes the demolition of the existing warehouse and construction of a new manufacturing facility plus ancillary structures. Information was also required in order to assess whether any remediation was required for the protection of the end-user from the presence of potential contamination within the soils encountered.

The recommendations and comments given in this report are based on the ground conditions encountered in the exploratory holes made during the investigation and the results of the tests made in the field and the laboratory. It must be noted that there may be special conditions prevailing at the site remote from the exploratory hole locations which have not been disclosed by the investigation and which have not been taken into account in the report. No liability can be accepted for any such conditions.

2.2 Report Objectives

This report comprises a Phase 2 - Intrusive Investigation Report to determine the geotechnical parameters of the ground and to assess potential contamination within the soils and waters encountered and assess potential risks to the end-user of the site from the presence of such contamination.

Planning permission granted by councils for development of Brownfield land often have conditions attached which require the following site investigation to be undertaken and submitted to the local authority for approval:

1. Phase 1 - Preliminary Risk Assessment
2. Phase 2 - Intrusive Investigation
3. Phase 3 - Remediation Strategy
4. Phase 4 - Validation Report

A Phase 1 - Preliminary Risk Assessment has previously been undertaken at the site.

3.0 SITE DETAILS

3.1 Site Location

The site is located on the eastern side of an unnamed access road off Lower Road – 0.2 miles to the north-east of the A226 Stonebridge Road. The site is located in Northfleet, Gravesend, Kent, at approximate postcode DA11 9BD. The application site forms the north-west part of the wider Seacon Terminals and is thus immediately surrounded by warehouses associated with a corrugated packaging company (W.E. Roberts) to the east and an open storage yard to the south. Additional warehouses associated with a building materials supplier (Discount Builders Merchants) and a ventilating equipment manufacturer (Lindlab) are immediately bounded to the west and bounded to the south are open yards associated with a ready-mix concrete supplier (CPI Mortars). The site is situated approximately 115m to the east of the River Thames.

The site is roughly square in shape and covers an approximate area of 2.47 Hectares with the general area being under the authority of the Gravesham Borough Council.

The site is at National Grid Reference: TQ 614 752.

The site location map is presented below in Figure 1:

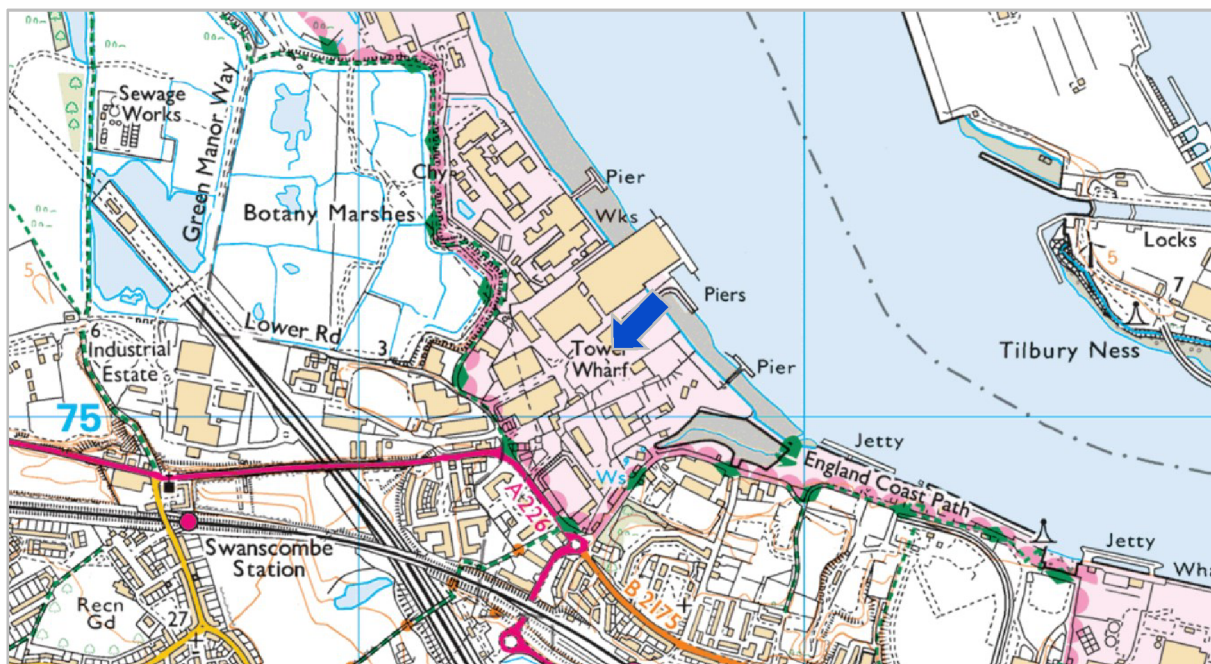


Figure 1 - Site Location Map

3.2 Current Use of the Site and Surrounding Land Uses

The site is currently in use as an industrial property. In the central region, a main rectangular building (metal-cladded warehouse, approximately 0.86ha) used for paper and metal sheeting storage is situated alongside an adjoining square building (0.17ha) which is located adjacent to the south. A relatively smaller rectangular warehouse (0.21ha) is located in the north-west corner. Hard landscaped yard areas/loading bays are located across the remainder of the site, particularly in the south.

The site surrounding areas are predominantly industrial in all directions within 250m. The site is located approximately 39m to the west of the River Thames and 45m to the south-east of a large nature reserve (Botany Marshes).

An existing site plan is presented below in Figure 2:



Figure 2 - Existing Site Plan

3.3 Published Geology

The Geological Survey of Great Britain (England and Wales) covering the area indicates the site to be underlain by Alluvium, then the Taplow Gravel Member with the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated) at depth.

3.4 Previous Investigations

A report on a Phase 1 Preliminary Risk Assessment was undertaken at the site by Site Analytical Services Limited (SAS Report Ref: 22/35405, dated June 2022).

3.5 Proposed Development

At the time of reporting, it is proposed to demolish the existing warehouse building and construction a new manufacturing building to the west and north of the existing 'S-Shed' warehouse plus ancillary structures. The new manufacturing building will house large and heavy production lines.

A proposed site plan is presented below in Figure 3:

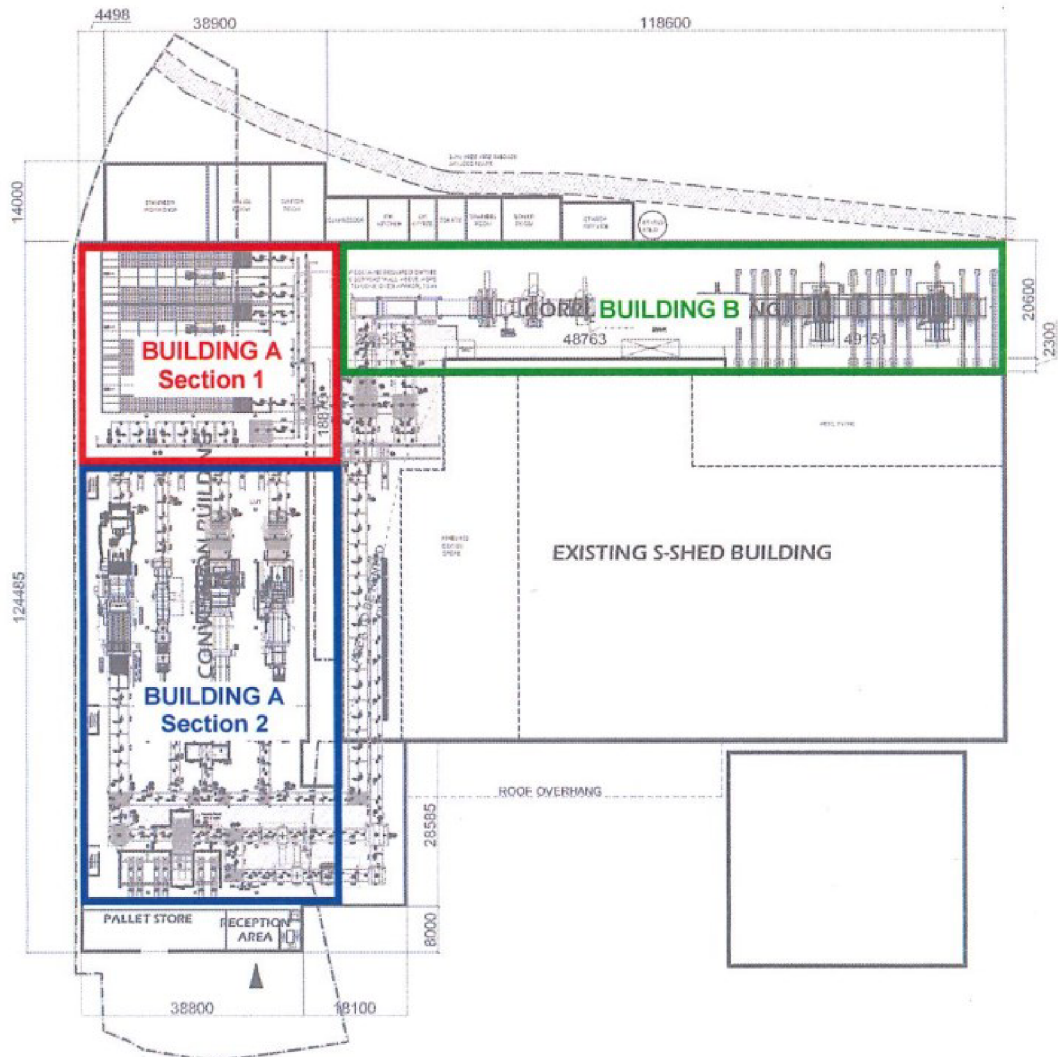


Figure 3 - Proposed Site Plan

3.6 References of Planning Applications

Although there is a recent planning application for the wider area of the Seacon Terminals site registered on the Gravesham Borough Council planning portal this does not relate to the proposed development on the site

4.0 SCOPE OF WORK

4.1 Site Works

The exploratory investigation included for an inspection of the site and near surface soils in order to: -

- Determine the presence, extent and significance of potential contaminants in the sub-surface strata associated with current and former activities at the site.
- Assess the significance of potential impacts on sensitive receptors at or adjacent to the site.
- Assess the potential environmental liabilities and consequences associated with the site.
- Identify requirements for further works, including the design of any additional investigative/monitoring works and remedial measures if deemed necessary.

The proposed scope of works was agreed by the client prior to the commencement of the investigations. To achieve this, the following works were undertaken: -

- The drilling of seven rotary percussive boreholes to a maximum depth of 30.00m below ground level (Boreholes BH1-BH8 inclusive, excluding BH3).
- The installation of a combined gas/groundwater monitoring standpipe to a maximum depth of 10.00m in Boreholes BH1, BH5 and BH7, together with four return monitoring visits.
- The excavation of 3 trial pits, to 1.50m maximum depth to investigate existing foundations (Trial Pits 1, 2 and 3).
- Sampling and in-situ testing as appropriate to the ground conditions encountered in the boreholes and trial pits.
- Laboratory testing to determine the engineering properties of the soils encountered in the exploratory holes.
- Interpretative reporting on foundation options for the proposed building and infrastructure.
- A study into the possibility of the presence of toxic substances in the soil, together with limited comment on any remediation required.

4.2 Ground Conditions

The locations of the exploratory holes are shown on the site sketch plan, Figure 4 below.

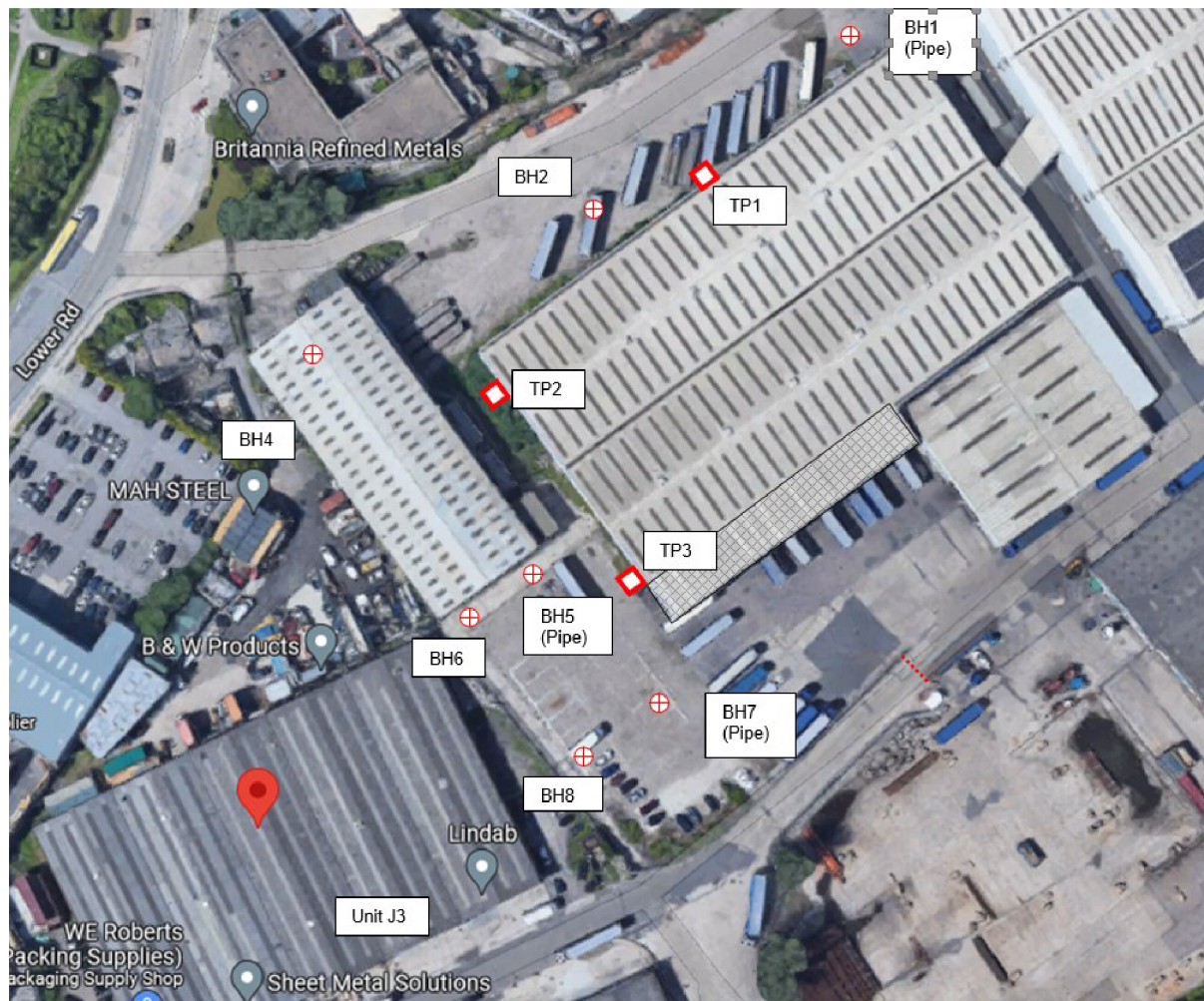


Figure 4 – Site Investigation Plan

The boreholes and trial pits revealed ground conditions that were generally consistent with the geological records and known history of the area and comprised Made Ground of up to 4.00m in thickness underlain by Alluvium, then the Taplow Gravel Member with the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated) at depth.

For detailed information on the ground conditions encountered in the boreholes and trial pits, reference should be made to the exploratory hole records presented in Appendix A.

Strata	Depth to top of strata (mbgl)	Depth to base of strata (mbgl)	Description
Made Ground	0.00	1.30 to 4.00	Concrete (reinforced) / Crushed concrete over clayey sandy silt containing concrete, brick, chalk, metal fragments. Occasionally pungent
Alluvium	1.30 to 4.00	11.70 to 13.70	Very loose clayey SILT Soft clayey silty sandy amorphous PEAT
Taplow Gravel Member	11.70 to 13.70	23.70 to 25.30	Dense to very dense sandy GRAVEL Dense to very dense SAND and GRAVEL Dense to very dense clayey sandy GRAVEL
Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation	23.70 to 25.30	30.00 (maximum depth of drilling)	Structureless CHALK composed of lumps of intact chalk becoming white fresh rubbly to blocky CHALK

Table 1: Summary of Ground Conditions in Exploratory Holes

4.3 Groundwater

Groundwater was encountered in all of the boreholes during site works. None of the trial pits encountered groundwater and the material remained essentially dry throughout. A summary of the groundwater encountered during drilling is detailed in the table below.

Exploratory Hole	Depth (m)	Notes	Stratum
BH1	Not Recorded	Wet from 2.00m	Made Ground / Alluvium
BH2	1.40	Water strike	Made Ground
BH4	2.20	Water seepage	Alluvium
BH5	Not Recorded	Wet from 2.00m	Alluvium
BH6	3.20	Water strike	Made Ground
BH7	1.80	Water seepage	Made Ground
BH8	1.70	Water strike	Made Ground

Table 2: Groundwater Strike Summary

It must be noted that the speed of excavation is such that there may well be insufficient time for further light seepages of groundwater to enter the boreholes and trial pits and hence be detected, particularly within more cohesive soils.

Groundwater levels were monitored in the standpipes installed in Boreholes 1, 5 and 7. Monitoring over a period of four to six weeks post installation recorded a consistent groundwater level of 1.42m – 1.44m below ground level in Borehole 5 and 1.54m – 1.55m below ground level in Borehole 7. Within Borehole 1 groundwater was observed initially at 2.00m below ground level rising over the monitoring period to 1.18m below ground level.

Isolated pockets of groundwater may also be present perched within any less permeable material found at shallower depth on other parts of the site especially within any Made Ground.

It should be noted that the comments on groundwater conditions are based on observations made at the time of the investigation (June and July 2022) and that changes in the groundwater level could occur due to seasonal effects and also changes in drainage conditions.

4.4 Existing Foundations

Sketches of the foundations exposed in Trial Pits 1, 2 and 3 are presented on the appropriate exploratory hole records presented in Appendix A.

A summary of each foundation pit is provided below:

In Trial Pit TP1, concrete extended straight down to 0.55m below ground level with the underside at 0.55m below ground level.

Trial Pit TP2, had a concrete wall down to 0.70m below ground level where an irregularly shaped protuberance of concrete extended outwards by 0.27m. The underside of the concrete was identified at 0.88m below ground level.

Trial Pit TP3, had a concrete wall down to 1.13m below ground level where the concrete extended outwards by 0.40m. The underside of the concrete was identified at 1.63m below ground level.

5.0 IN-SITU AND LABORATORY TESTS

5.1 Standard Penetration Tests

The results of the Standard Penetration Tests carried out in the natural soils are shown on the exploratory hole records in Appendix A. SPT 'N' values range between 0 and 165.

The results of the tests are shown on the appropriate borehole records and summary sheets presented in Appendix A.

5.2 Classification Tests

Atterberg Limit tests were conducted on seventeen selected samples taken from the cohesive portion of the natural soils in the boreholes showed the samples tested to fall into Classes CI, CH, CV, CE, CH/MH, CV/MV, CE/ME, MV and ME according to the British Soil Classification System.

These are fine grained sandy silty clay and clayey silt soils of intermediate, high, very high or extremely high plasticity and as such generally have a low permeability and a moderate to high susceptibility to shrinkage and swelling movements with changes in moisture content, as defined by the NHBC Standards, Chapter 4.2. The results indicated modified Plasticity Index values of between 23% and 72%, with eleven samples being assessed as having a high-volume change potential

In addition, due to the peaty nature of some of the ground, seven samples we tested to determine the natural moisture content. Combined with the results from the Atterberg Limits, the natural moisture content varied from 36% to 127%.

The results of the tests are contained in Appendix B.

Particle size distribution tests were conducted on sixteen samples taken from the natural essentially granular soils present in the boreholes using wet sieving methods.

The test results are given in both tabular and graphical formats in Appendix B.

5.3 Chemical Attack on Buried Concrete

Using the results contained in Appendix B, the following table provides the highest values encountered for the BRE SD1 Suite D specification and the equivalent DS and ACEC classes, based on a mobile groundwater:

Strata	pH	2:1 Water Soluble SO ₄ (g/l)	2:1 Water Soluble Chloride (mg/l)	2:1 Water Soluble Nitrate (mg/l)	Total Sulphate (%)	Magnesium (mg/l)	DS Class	ACEC Class
Made Ground	8.0 – 11.1	1.9	-	-	1.6	-	DS-3	AC-3
Alluvium	6.3 – 8.6	4	9800	2.6	1.05	1500	DS-4m	AC-4m
Taplow Gravel Member	8.1 – 8.8	0.36	1100	<2	0.096	90	DS-1	AC-1
Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation	8.8 – 9.0	0.096	150	<2.0	0.053	15	DS-1	AC-1

Table 3: DS and ACEC classes based on the BRE SD1 Suite D and contamination analysis

6.0 CONTAMINATION TESTING

6.1 Intended Future Uses of the Site

At the time of reporting (August 2022), it is proposed to demolish the existing warehouse and construction of a new manufacturing facility plus ancillary structures.

For the purposes of the assessment within this section of the report the site has been considered as 'Commercial' due to the proposed uses of the site and the new development.

6.2 Conceptual Site Model

In accordance with current UK guidance on contaminated land risk assessment (CLR7, Land contamination risk management framework - LCRM and BS10175), the following Conceptual Site Model has been generated to summarise the primary sources, receptors and migration and exposure pathways present on the site and to aid in the decision-making process.

For an environmental risk to exist there has to be a source of contamination, and a receptor or receptors at risk from the contamination and one or more pathway which links the two. Such source – pathway – receptor relationships are termed contaminant linkages.

The subject site has been assessed within the source – pathway – receptor methodology as described above in the framework of a conceptual site model. A conceptual site model can be defined as a testable representation of environmental processes on a site and its vicinity. Its purpose is to identify potential contaminants, pathways and receptors with a view to, initially identifying potential and eventually, quantifying significant contaminant linkages. It should highlight any limitation and uncertainties present in the risk assessment and be able to communicate the results of the risk assessment to all stakeholders.

A Phase I Desk Study has been undertaken at the site by Site Analytical Services Limited and the conceptual site model from that report is presented below.

Feature	Source	Pathway	Receptor	Site Specific Settings	Risk	Action Required
On Site: Tanks, Warehouses (inc. paper storage), Electrical Substation	Organic and inorganic contaminants potentially present in soils and/or Made Ground.	Dust and soil Inhalation, ingestion and dermal contact.	Human Health Residential use	Commercial Use – including new office/mess, car park, open storage area	M	Further investigation required – Soils
Off Site: Cement Works & Wharfs, Timber Yard, Lead Works, Electrical Substation, Road Haulage Services, Ventilators & Ventilation Systems (Manufacturers), Metal Products – Fabricated, Multiple Tanks, Industrial Services (Steel Processors), Joinery Manufacturers, Sand, Gravel & Other Aggregates, Tile Manufacturers, Sheet Metal Work, Packaging Materials Manufacturers & Suppliers, Metal Products – Fabricated, Recorded Historical Landfill Site	Potential asbestos containing materials in soils.	Inhalation, ingestion and dermal contact	Human Health Workers	Follow health and safety during development (HSE, 1991).	L	No further investigation required.
Licenced Waste Management Facility (Landfill Boundary), Builders' Merchants, Licenced Waste Management Facility (Location), Ruin, Concrete & Mortar Ready Mixed, Asphalt & Macadam Suppliers, Cement Manufacturers & Distributors, Pallets, Crates & Packing Cases, Sand & Gravel Works, Old Clay Pits, Tyre Dealers, Plastic Products, Manufacturers, Furniture - Repairing & Restoring, Gas Works, Electronic Engineers, Commercial Vehicle Servicing, Repairs, Parts & Accessories, Diamond Tool Manufacturers, Commercial Vehicle Bodybuilders & Repairers, Precision Engineers, Garage Services, Scrap Metal Merchants, Concrete Reinforcements, Car Body Repairs, Blast Cleaning, Registered Landfill Site, Door Manufacturers – Domestic, Freight Forwarders	Elevated levels of VOCs, SVOCs	Inhalation of vapours	Human Health	Potential for volatile contamination within soils or groundwater due to multiple tanks located within 250m.	M	Further investigation required – Vapours
	Aggressive ground (e.g. sulphate, pH)	Chemical attack on water supply pipe	Human Health	Potential for Made Ground.	L	Further investigation required – Soils
	Organic and inorganic contaminants potentially present in soils and/or Made Ground.	Leaching (direct precipitation, overland flow and through flow)	Shallow groundwater Surface Water contamination via groundwater flow	Secondary Undifferentiated Aquifer underlying the site.	M	Further investigation required – Groundwater
	-	Leaching (direct precipitation, overland flow and through flow)	Deep groundwater	Principal Aquifer underlying the site.	M	Further investigation required – Groundwater
	Organic and inorganic contaminants potentially present in soils and/or Made Ground.	Uptake (root and stomata), ingestion, inhalation and dermal absorption by animal)	Environmentally Sensitive Land use	There are no significant sensitive land uses located within 250m of the site.	-	No further investigation required.
	Elevated levels of ground gases, such as methane and carbon dioxide.	Through high permeability strata, fissures and shafts, and by Inhalation by humans	Human Health Inhalation of Gases Gas accumulation in buildings	There are sources of ground gas (Made Ground, Alluvial soils, potential peat) found within 250m	M	Further investigation required – Ground Gas

Table 4: Phase 1 Conceptual Site Model

6.3 Made Ground Encountered

The investigation revealed the presence of Made Ground across the site to depths of up to 4.00m bgl.

The Made Ground typically consisted of a surface layer of hardcore and type one material, concrete or gravel over medium to dark brown clayey sandy silt or gravelly silty fine to coarse grained sand containing brick, glass and metal fragments over dark brown silty sandy clay containing chalk nodules and brick fragments.

The following observations were made:

- The Made Ground within BH1 exhibited **grey staining** and **pungent odours** between 1.40m and 2.30m in depth.
- The Made Ground within BH4 exhibited clayey **peaty** sandy silt between 0.55m and 1.90m in depth.

Trial Hole	Depth
BH1	2.30m
BH2	2.20m
BH3	Not drilled due to obstructions
BH4	1.90m
BH5	1.30m
BH6	4.00m
BH7	2.10m
BH8	2.20m
TP1	0.85m – Full Depth
TP2	1.18m – Full Depth
TP3	1.63m

Table 5: Depth of Made Ground

6.4 Sampling Strategy

The strategy for selecting the locations of the exploratory positions was based on the conceptual source, pathway and receptor model and potentially contaminating activities identified by the Conceptual Site Model.

A non-targeted sampling strategy is appropriate when there is:

- No adequate information available regarding the likely locations of contamination;
- No sensitive areas where there is a need for a high degree of confidence.

A targeted sampling strategy is appropriate when there is:

- Adequate information available regarding the likely locations of contamination;
- Sensitive areas where there is a need for a high degree of confidence.

No adequate information was available regarding likely locations, so a non-targeted sampling pattern was adopted at the site, designed to provide coverage across the site as a whole. Non-targeted sampling depths were chosen to reflect the receptors of concern including future users of the site, visitors to the site, construction workers on-site, service and maintenance workers, site neighbours and wider public, construction materials, groundwater and surface water and typically comprised a near surface samples within the Made Ground. Samples were analysed from this depth range below ground level as it is felt that these soils will be representative of those of highest end-user exposure through the dermal contact, dust inhalation and soil ingestion pathways.

A total of 12 sampling locations have been excavated at the site providing a density ranging 25m grid.

Site Area/Activity	Exploratory Hole Location(s)	Surface
General site coverage where Made Ground of unknown origin is expected.	BH1 – BH8 inclusive TP1 – TP4 inclusive	Made Ground

Table 6: Sampling Strategy Description

6.5 Determination of Contaminants of Concern

Samples for a full contamination analysis were obtained from the following depths:

Trial Hole	Depth(s) of Sample for Contamination Analysis
BH1	0.75m, 1.50m
BH2	0.25m, 0.75m
BH4	Not sampled
BH5	0.50m
BH6	0.50m, 2.00m
BH7	0.25m, 1.00m
BH8	0.50m, 1.00m

Table 7: Sampling Depths

These were all made at the locations indicated on the Site Investigation Plan below (Figure 4).

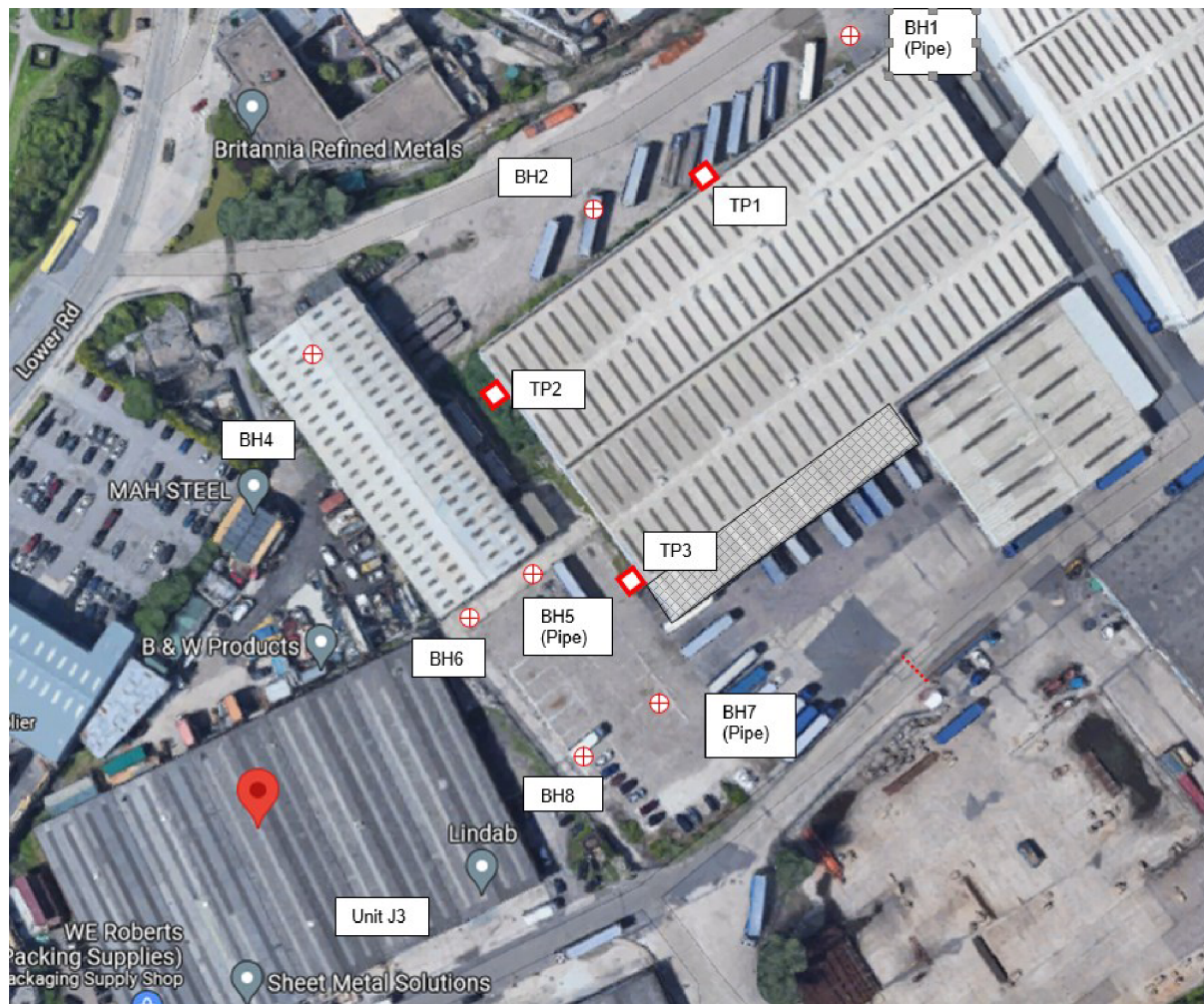


Figure 4 – Site Investigation Plan

The samples which have been further selected for discussion (in Section 6.8) are those which have the shallowest depths within the top 1.00m of Made Ground:

Trial Hole	Depth of Sample Selected for Discussion
BH1	0.75m
BH2	0.25m
BH5	0.50m
BH6	0.50m
BH7	0.25m
BH8	0.50m

Table 8: Samples for Discussion

The samples were submitted for a broad screen of potential contaminants of concern on-site and included pH, Sulphate, Sulphide, Cyanide, Phenols, Metals & Semi-Metals: Cadmium, Chromium, Lead, Mercury, Nickel, Selenium, Copper, Zinc, Vanadium, Boron, Arsenic, Asbestos Screening and Quantification, Organics: USEPA 16 speciated Polycyclic Aromatic Hydrocarbons, Aromatic/Aliphatic Carbon Banded Petroleum Hydrocarbons, BTEX and MTBE Compounds and Soil Organic Matter (SOM).

The samples selected for contamination assessment were sub-contracted to i2 Limited (a UKAS and MCERTS accredited laboratory) and their report is contained in Appendix B.

6.6 Qualitative Risk Assessment

The significance of harm caused by the presence of a substance or element depends on the proposed end use of the site.

It is understood that the site is to be developed for commercial use. As such the S4UL screening levels for commercial use and Category 4 Screening Level for commercial use have been used in the following soil assessment.

Site data has been assessed against current generic assessment criteria (GAC) / guideline values in accordance with current industry practice and statutory guidance. However, it must be remembered that GAC are not binding standards but can be useful in forming judgements regarding the level of risk i.e. unacceptable or acceptable. Exceedance of GAC does not automatically result in the requirement for remedial / risk management work but would warrant further assessment.

6.7 Suitable 4 Use Levels, Category 4 Screening Levels, Soil Guideline Values, CLR Documents & Chartered Institute of Environmental Health Values

Under Part 2A of the Environmental Protection Act 1990, land is determined as contaminated if it is deemed to be causing significant harm, or where there is a Significant Possibility of Significant Harm to human health.

From January 2009 revised Soil Guidance Values for certain contaminants were issued in the Contaminated Land Reports (CLR) by the Environment Agency in conjunction with Department of the Environment, Food, Agriculture and Rural Affairs. These values and the CLEA methodology used to derive them have superseded CLEA and TOX reports for soil contaminants.

The CLR Documents are a series of contaminated land guidance documents developed by various past and present government agencies involved with protection of the environment.

These documents aim to provide a set of generic Soil Guideline Values and a site specific modelling programme based upon tolerable predicted uptakes from experimental data for a variety of common industrial toxic contaminants. In instances of carcinogenic and mutagenic substances the guideline values are set on the basis of "As Low As Reasonably Practicable" (ALARP), as theoretically mutation can occur on exposure to a single particle of the contaminant.

Revised Statutory Guidance to support Part 2A of the Environmental Protection Act 1990 was published in April 2012, which introduced a new four-category system for classifying land under Part 2A for cases of a Significant Possibility of Significant Harm to human health, where Category 1 includes land where the level of risk is clearly unacceptable and Category 4 includes land where the level of risk posed is acceptably low.

'Category 4 Screening Levels' (C4SLs) have been introduced in March 2014 to provide a simple test for deciding when land is suitable for use and definitely not contaminated land. The Category 4 Screening Levels consist of estimates of contaminant concentrations in soil that are considered to present an 'acceptable' level of risk, within the context of Part 2A.

In response, in November 2014, The Chartered Institute of Environmental Health Generic Assessment Criteria for Human Health Risk Assessment adopt the Environment Agency's CLEA UK (Beta) Model and Category 4 Screening Levels and as such have derived guideline values that are compatible with current English legislation, policy and technical guidance in the form of LQM/CIEH S4ULS's (Suitable 4 Use Levels).

The methodology for deriving both the previous Soil Guideline Values and the new Suitable 4 Use Levels is based on the Environment Agency's Contaminated Land Exposure Assessment (CLEA) methodology.

At the time of writing this report Suitable 4 Use Levels are in place for some heavy metals, BTEX Substances, Petroleum Hydrocarbons and Polycyclic Aromatic Hydrocarbons as well as a number of selected organic compounds.

Generic Assessment Criteria for Human Health Risk Assessment (S4UL's) have been produced by LQM / Chartered Institute of Environmental Health for a commercial use.

Contaminant	S4UL
Arsenic	640mg/kg
Beryllium	12mg/kg
Boron	240000mg/kg
Cadmium	190mg/kg
Trivalent Chromium (Chromium III)	8600mg/kg
Hexavalent Chromium (Chromium VI)	33mg/kg
Copper	68000mg/kg
Mercury (Elemental)	58mg/kg
Mercury (Inorganic)	320mg/kg
Methylmercury	320mg/kg
Nickel	980mg/kg
Selenium	12000mg/kg
Vanadium	9000mg/kg
Zinc	730000mg/kg
Benzene (2.5% SOM)	47mg/kg
Toluene (2.5% SOM)	110000mg/kg
Ethylbenzene (2.5% SOM)	13000mg/kg
Xylenes (2.5% SOM)	from 14000mg/kg
Phenols (2.5% SOM)	690mg/kg.
Benzo(a)anthracene	170mg/kg,
Benzo(a)pyrene	35mg/kg
Dibenzo(a,h)anthracene	3.6mg/kg
Naphthalene	460mg/kg

Table 9: Generic Assessment Criteria for Human Health Risk Assessment (S4UL's)

As no generic UK derived guidance is currently available for acceptable concentrations of Total Lead, the Category 4 Screening Level for commercial of 2330mg/kg has been used to identify where potential risks may exist.

The Environment Agency has released the CLEA software and its handbook to help assessors estimate risks. The Chartered Institute of Environmental Health Generic Assessment Criteria for Human Health Risk Assessment (S4UL's) adopt the Environment Agency's CLEA UK (Beta) Model and as such have derived guideline values that are compatible with current English legislation, policy and technical guidance.

Assessment criteria (S4UL's) for selected individual Polycyclic Aromatic Hydrocarbons have been produced by Chartered Institute of Environmental Health; however, no values have been attached to Total Polycyclic Aromatic Hydrocarbons.

The concentrations of Total Petroleum Hydrocarbons have been assessed against assessment criteria (S4UL's) for individual Aromatic and Aliphatic carbon band ranges produced by Chartered Institute of Environmental Health for a commercial use.

As no generic UK derived guidance is currently available for acceptable concentrations of Total Cyanide a screening value of 20mg/kg (Thiocyanate) has been used as a preliminary screening tool to identify where potential risks may exist.

As described in Using Soil Guideline Values – Environment Agency 2009, chemical data from the analysis of samples generated during the intrusive investigation have been used to create a data set for the site. The entire data set, as opposed to individual results has been analysed on the assumption that the samples from the site investigation are to some degree representative of the contaminant concentration throughout the area or volume of soil investigated. The most appropriate method for assessing a given dataset is dependent upon a range of specific factors together with the quantity and quality of the data generated.

In accordance with the recommendations provided within Guidance on comparing soil contamination data with a critical concentration – CIEH/CL:AIRE, 2008, we have selected the one sample t-test at a 95% confidence level as the most appropriate statistical tool for generating site representative soil concentration values and have assumed that the data is normally distributed. We have assumed that this statistical test is required to draw conclusions about the condition of the land under scrutiny as part of a planning scenario as opposed to the Part 2A scenario. Under a planning scenario, comparison is made between a value larger than the sample mean, in this case the Upper Confidence Limit and the critical concentration.

In instances where the Upper Confidence Limit exceeded the given critical value, then the Grubbs Test has been used to identify upper outliers to assess whether the highest value belongs to the general population of the dataset or is representative of an outlier.

6.8 Discussion

6.8.1 Human Health Risk Assessment (On-Site Users, Workforce and Neighbouring Residents)

Concentrations of the zootoxic heavy metals Total Arsenic, Total Boron, Total Cadmium, Hexavalent Chromium, Trivalent Chromium, Total Mercury, Total Selenium, Total Copper, Total Nickel and Total Zinc in the samples analysed did not exceed the S4UL Generic Guideline Values for commercial scenario. The concentrations of Total Lead did not exceed the Category 4 Screening Level of 2330mg/kg for a commercial use. As such there is not considered to be any potentially significant level of end-user risk associated with the concentrations of these contaminants encountered.

The concentrations of Total Cyanide were below the screening values of 20mg/kg and the concentrations of Total Phenol were below the S4UL Generic Guideline Values for a commercial scenario and as such there are not considered to be any significant risks to end-users of the site from these contaminants.

The concentrations of individual Polycyclic Aromatic Hydrocarbons encountered did not exceed the S4UL Generic Guideline Values for a commercial scenario. As such there is not considered to be any potentially significant level of end-user risk associated with the concentrations of these contaminants encountered.

The concentrations of Petroleum Hydrocarbons encountered within individual Aromatic and Aliphatic carbon band ranges in the samples analysed did not exceed the S4UL Generic Guideline Values for a commercial scenario. As such there is not considered to be any potentially significant level of end-user risk associated with the concentrations of these contaminants encountered.

The concentrations of PCBs encountered did not exceed the Generic Guideline Values for a commercial scenario. As such there is not considered to be any potentially significant level of end-user risk associated with the concentrations of these contaminants encountered.

The concentrations of Benzene Toluene, Ethylbenzene and Xylenes encountered did not exceed the S4UL Screening Levels for a commercial scenario. As such there is not considered to be any potentially significant level of end-user risk associated with the concentrations of these contaminants encountered.

6.8.2 Asbestos Containing Materials

The Made Ground at each exploratory location was screened for the presence of asbestos containing material. In more than half of samples analysed, asbestos containing material was not observed during the investigation or identified during the laboratory analysis.

However, asbestos was detected in the following samples:

Material Type	Sample Location	Concentration	Comments
Loose fibres of Chrysotile Asbestos	BH2 (0.25m & 0.75m)	<0.001%	The risks associated with the asbestos containing material would be deemed high should they remain in-situ. Any activities that would result in the asbestos containing material being disturbed would be considered as a potential risk and should be taken into consideration should any future development be proposed for the site.
Loose fibres of Chrysotile Asbestos	BH5 (0.50m)	0.004%	
Loose fibres of Chrysotile Asbestos	BH6 (0.50m)	<0.001%	
Loose fibrous debris of Amosite Asbestos	BH6 (2.00m)	<0.001%	

Table 10: Asbestos in Soils

6.8.3 Assessment of Gas Hazard

Boreholes BH1, BH5 and BH7 were installed with standpipes equipped with ground gas monitoring apparatus to a depth of approximately 10.0m below ground level.

The monitoring installation consisted of a 50mm diameter standpipe, which is in accordance with that prescribed to enable correlation with Gas Screening Values (GSVs) derived by CIRIA and the NHBC.

The installation consisted of 1m of plain pipe with a bentonite seal at the surface in order to prevent surface water ingress that could flood the response zone and to prevent atmospheric leakage/ingress. The standpipe was sealed with a bung and valve with a flush fitting stopcock cover.

Based on a low sensitivity development the monitoring which was undertaken during a range of climatic conditions, four monitoring visits at the site were considered appropriate.

Ground gas on-site was measured using a Gas Data GFM Series infra-red analyser, with internal flow pod. The results are presented in the gas tables, contained in Appendix B.

Atmospheric conditions and the results of the ground gas monitoring (maximum values) from all visits are presented below.

Date	Weather Conditions	Temperature (°C)	Pressure (mb)	Pressure Trend
07/07/22	Cloudy with gentle breeze	21.0	1028	Rising
14/07/22	Dry	21.0	1020	Rising
21/07/22	Overcast	20.0	1022	Rising
28/07/22	Dry, breezy, high cloud	17.0	1018	Falling

Table 11: Atmospheric Weather Conditions

BH	Flow (l/h)	CH ₄ (%)	CO ₂ (%)	VOC (ppm)	H ₂ S (ppm)	CO (ppm)
BH1	<0.1	1.4	1.3	1.00	<0.1	<0.1
BH5	<0.1	<0.1	1.1	2.60	<0.1	<0.1
BH7	<0.1	33.4	9.3	0.154	<0.1	<0.1

Table 12: Gas Monitoring Results

Gas flow through soil occurs either by convection or by diffusion. Convection occurs when total gas pressure is not uniform throughout the system (i.e. when a total pressure gradient exists). Convective flow is in the direction in which total pressure decreases, because gases tend to move from regions of high pressure to regions of low pressure.

Diffusive flow of a gas is in the direction in which its concentration (partial pressure) decreases. The relative pressures recorded in the borehole were very low to negligible and therefore the potential for convective flow is considered to be low. Therefore, any gas flow would have to be via diffusion. This is corroborated by the trend of very low steady state flow rates (maximum of <0.1 l/hr), in many cases being below detection limits. In general, high concentrations of carbon dioxide and methane were returned during the monitoring.

Hydrocarbon Vapours

The underlying made and natural ground across the site was found to be free from visual and olfactory indicators of volatile organic (e.g. hydrocarbon) contamination, which was corroborated by hydrocarbon analysis undertaken on each sample analysed.

As such, the probability for generation of VOC vapours from the underlying Made Ground and natural ground is considered to be low, which was verified by low VOC concentrations detected during gas monitoring.

CO and H₂S

There are currently no GSV for CO or H₂S. Thresholds are only available for occupational exposure limits (OEL). For H₂S, the OELST is 10ppm and OELLT is 5ppm. It should be noted that the OELLT is based upon an 8 hour exposure limit converted to an annual mean and the OELST is based upon 15 minute exposures converted to an annual mean. The concentrations of H₂S measured were below threshold values.

National Ambient Air Quality Standards (NAAQS) were developed by the US EPA under the Clean Air Act from 1990. The Clean Air Act primary standards to provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. The EPA air quality standard is 9ppm CO average over 8 hours, not to be exceeded more than once a year. The concentrations of CO encountered did not exceed the EPA air quality standard.

CH₄ and CO₂ GSV

CIRIA (2007b) and NHBC (2007) provide assessments for CO₂ and CH₄ based upon GSV utilising flow rates and concentrations measured in appropriate standpipes. The GSVs within CIRIA (2007b) are based upon all buildings other than standard residential houses. The NHBC (2007) GSV are based upon standard residential houses with precast concrete floors (block and beam). As such, based upon the assumed end use of the site the GSV within the CIRIA guidance should be adopted. The thresholds for GSV based upon NHBC and CIRIA guidance are summarised below.

CIRIA		NHBC		
Classification	GSV (CH ₄ & CO ₂)	Classification	GSV (CH ₄)	GSV (CO ₂)
CS1	<0.07	Green	<0.13	<0.78
CS2	<0.70	Amber 1	<0.63	<1.60
CS3	<3.5	Amber 2	<1.60	<3.10
CS4	<15	Red	>1.60	>3.10
CS5	<70			
CS6	>70			

Table 13: Thresholds for GSV

A summary of the monitoring results is provided below, which utilises the highest steady state concentration and highest flow rate at each location in order to adopt a worst-case scenario for the risk assessment.

BH	Flow (l/h)	CH ₄ (%)	CO ₂ (%)	VOC (ppm)	CH ₄ GSV (l/hr)	CO ₂ GSV (l/hr)	Characteristic Situation	NHBC Classification
BH1	<0.1	1.4	1.3	1.00	<0.01	<0.01	CS1	Green
BH5	<0.1	<0.1	1.1	2.60	<0.01	<0.01	CS1	Green
BH7	<0.1	33.4	9.3	0.154	0.03	0.01	CS2	Amber 2

Table 14: Summary of Monitoring Results

On-site monitoring has shown emissions of methane in air of 33.4% and carbon dioxide in air of up to 9.3% recorded during the monitoring visits. The maximum borehole flow rate was <0.1 l/h. As such the maximum Gas Screening Value for methane is 0.03 l/h and the maximum Gas Screening Value for carbon dioxide at site is <0.01 l/h.

Due to elevated carbon dioxide and methane concentrations and employing the NHBC 'traffic light' characterisation system, the site would be classified as a Characteristic Situation 2 with an NHBC Classification of Amber 2 in accordance with CIRIA Report C665. Table 8.7 using the maximum gas concentration for methane and carbon dioxide. An intermediate to high gas regime has been identified, which requires high-level gas protection measures, comprising:

- a gas membrane. Membranes should always be fitted by a specialist contractor
- ventilated sub-floor void to create a permeability contrast to limit the ingress of gas into buildings. Ventilation of the sub-floor void should facilitate a minimum of one complete volume change per 24 hours. Certification that these passive protection measures have been installed correctly should be provided.

For any new structures further information on design and construction details, discussions should be sought with a specialist contractor. Guidance may also be obtained and CIRIA Report C665 (2007). It may also be prudent to contact the local Environmental Health Officer in order to comply with the Local Authority requirements.

6.8.4 Landscape Planting/Ecological Features

The concentrations of the phytotoxic substances Total Copper and Total Nickel encountered in the samples obtained were generally below the landscape planting generic assessment levels and therefore are not considered to be a significant risk to plant growth on-site.

However, the concentration of the phytotoxic substance Total Zinc encountered in one of the samples exceeded the landscape planting generic assessment levels:

Substance	Sample Location	Concentration	Guideline Value	Comments
Total Zinc	BH6 (0.50m)	350mg/kg	300mg/kg	Although the Made Ground would be considered as a potential risk to landscape planting the proposed development does not include any landscaped areas.

Table 15: Landscape Criteria Assessment

6.8.5 Buildings and Construction Materials

Concrete Cast In-Situ

The concentrations of water soluble sulphate encountered in the Made Ground samples would classify the samples submitted as up to Class DS-3 after BRE Special Digest 1: 2005, Tables C1 and C2. This should be taken into account should any concrete structures be installed within the soils represented by these samples.

Potable Water Supply Pipes

If at any point in the future, it be intended to install new water supply pipes within the Made Ground then consideration to the pipe materials used and/or the trench construction in accordance with UKWIR (2010) and the WATER UK HBF guide. The concentrations of TPH encountered exceeded the guideline values. Therefore, the use of standard PE pipe materials at the site may be unsuitable.

6.8.6 Shallow and Deep Groundwater/Surface Water Risk

Controlled waters have been identified as a potential receptor at the site due to the designation of the underlying Taplow Gravel Member as Secondary A Aquifer. We have therefore assumed that any leachate generated from the Made Ground at the site would be high risk due to the high sensitivity of the receptors.

Groundwater samples were obtained from BH1, BH5 and BH7 on-site on the 7th July 2022 in amber glass jars and vials, stored at 4°C ± 2°C during transit and returned to the laboratory for analysis under those parameters listed in the results. The groundwater well was developed and purged of three well volumes prior to sampling with disposal bailers.

The hazard caused by the presence of a substance or element is not absolute but depends on the water course in question.

This assessment is based on water assumed to be a threat to nearby ecosystems and the environment and has not been assessed with reference to potable water supplies.

The water has been assessed against current generic assessment criteria (GAC) / guideline values in accordance with current industry practice. Where available UK GAC has been used followed by European and American guidance. The Environmental Quality Standards (EQS) for Freshwaters (derived from the EC Dangerous Substances Directive), were selected as the most appropriate generic assessment criteria against which water quality can be compared with.

The EQS's have been generated for both List 1 and List 2 dangerous substances in controlled waters in England and Wales by the Environment Agency and are therefore considered to represent authoritative, relative and scientific guideline values. The concentrations stated by the EQS represent concentrations below which no detrimental effects to aquatic life should occur. It should be noted that the EQS's relate to the receiving water and not the discharge, therefore this method of assessment represents a very conservative approach.

Where no EQS's are available or no appropriate alternative conservative EQS for a similar chemical, the Dutch Intervention Values for groundwater have been used as preliminary screening tools.

Substance	Providence	Generic Guideline Value µg/l
Arsenic	EQS	50
Boron	EQS	2000
Cadmium	EQS	5
Chromium	EQS	5-250
Copper	EQS	1-28
Cyanide	DIV	1500
Lead	EQS	4-250
Mercury	EQS	1
Nickel	EQS	50-200
Phenol	EQS	30
Selenium	EQS	10
Sulphate	Not considered applicable	-
Sulphide	Not considered applicable	-
Zinc	EQS	8-500
Mineral Oils (C10-C40)	DIV	600
PRO/VPH	EQS (Benzene)	30
Naphthalene	EQS	10
Acenaphthylene	EQS (Naphthalene)	10
Acenaphthene	EQS (Naphthalene)	10
Fluorene	DIV (Anthracene)	5
Phenanthrene	DIV (Anthracene)	5
Anthracene	DIV	5
Fluoranthene	DIV	10
Benzo(a) anthracene	DIV	0.5
Chrysene	DIV	0.2

Substance	Providence	Generic Guideline Value µg/l
Benzo(b)fluoranthene	DIV Benzo(k)fluoranthene	0.05
Benzo(k)fluoranthene	DIV	0.05
Benzo(a)pyrene	DIV	0.05
Indeno(1,2,3-cd)pyrene	DIV	0.05
Benzo(ghi)perylene	DIV (Benzo(a)pyrene)	0.05

Table 16: Groundwater Generic Guidance Values

Concentrations of a range of organic and inorganic contaminants were determined in the samples obtained. The full results of the chemical analyses have been presented in Appendix B and were undertaken at a UKAS and MCERTS accredited laboratory (i2 Analytical Limited).

The sample analysis suite generally comprised an assessment of zootoxic and phytotoxic heavy metals, Carbon banded Aromatic and Aliphatic Petroleum Hydrocarbon concentrations and speciated Polycyclic Aromatic Hydrocarbons.

The concentrations of zootoxic and phytotoxic heavy metals encountered did not exceed the EQS's, with the exception of an elevated concentration of Arsenic encountered at 121µg/l, compared to the EQS of 50µg/l. It is considered that the EQS for selenium which is based on a UK drinking water quality standard is extremely conservative when considering the potential risk to nearby ecosystems and the environment and that the concentrations encountered would not be considered likely to be a significant risk to sensitive water courses in the area.

The concentrations of Carbon banded Aromatic and Aliphatic Petroleum Hydrocarbon encountered did not exceed the EQS for Mineral Oils.

The concentrations of Polycyclic Aromatic Hydrocarbons encountered did not exceed the individual EQS's.

The concentrations of VOCs and SVOCs encountered did not exceed the individual EQS's.

As such, there remains a very low risk for contamination to pose a significant risk to sensitive water courses in the area. It is unlikely that the proposed development would impact the quality of the water environment.

6.8.7 Soil Disposal

The samples were analysed using the 'Catwastesoil' assessment tool, which concluded that all of the samples did not hazardous contain any hazardous properties, with the exception of BH2 at 0.75m in depth:

Sample	Sample Depth	Strata	Hazardous Property
BH1	0.75m	Made Ground	-
BH1	1.50m	Made Ground	-
BH2	0.25m	Made Ground	-
BH2	0.75m	Made Ground	HP14 - Ecotoxic
BH5	0.50m	Made Ground	-
BH6	0.50m	Made Ground	-
BH6	2.00m	Made Ground	-
BH7	0.50m	Made Ground	-
BH7	0.25m	Made Ground	-
BH8	0.50m	Made Ground	-
BH8	1.00m	Made Ground	-

Table 17: Catwastesoil Assessment

Samples were taken from BH1 (1.50m), BH2 (0.75m), BH6 (2.00m), BH7 (1.00m) and BH8 (1.00m) for Waste Acceptance Criteria (WAC) analysis. For the purpose of waste disposal, it is likely that the soil samples submitted would be acceptable at the following landfill sites:

Sample	Sample Depth	Strata	Landfill Acceptance Assessment	Comments
BH1	1.50m	Made Ground	Non-Hazardous Waste Landfill	The sample exceeded the Upper Acceptance Limit for Inert Waste Landfill for Arsenic, Chloride, Fluoride, TDS and DOC.
BH2	0.75m	Made Ground	Non-Hazardous Waste Landfill	The sample exceeded the Upper Acceptance Limit for Inert Waste Landfill for Antimony, Sulphate and TDS.
BH6	2.00m	Made Ground	Non-Hazardous Waste Landfill	The sample exceeded the Upper Acceptance Limit for Inert Waste Landfill for Lead.
BH7	1.00m	Made Ground	Non-Hazardous Waste Landfill	The sample exceeded the Upper Acceptance Limit for Inert Waste Landfill for Arsenic and Fluoride.
BH8	1.00m	Made Ground	Non-Hazardous Waste Landfill	The sample exceeded the Upper Acceptance Limit for Inert Waste Landfill for Total PAH, Antimony and Fluoride.

Table 18: WAC Assessment

6.9 Revised Site Conceptual Model and Conclusions

The findings of the Phase 2 site investigation have demonstrated that in the context of a proposed commercial use of the site, the contaminants of concern were 'hot-spots' of Asbestos encountered in the BH2, BH5 and BH6 locations on-site.

A potential risk to other receptors including potable water supply pipe may exist due to elevated concentrations of TPH.

A Phase 2 Site Investigation has identified the following Source/Pathway/receptor linkages present on-site or potentially present.

Potential Contaminants / Source	Pathway	Receptor	Site specific settings	Risk Classification: Based on Phase II Investigation	Action Required
ASBESTOS	Inhalation, ingestion and dermal contact.	Human Health Site Users	Commercial Use	Low/Medium	Further action required – Soil Remediation recommended within BH2, BH5 and BH6 locations on-site
ASBESTOS	Inhalation, ingestion and dermal contact	Human Health Construction Workers	Construction should follow regulation on health and safety during development (HSE, 1991).	Low/Medium	Further action required – Soil Remediation recommended within BH2, BH5 and BH6 locations on-site
TPH	Permeation through pipes	Human Health Site Users	Commercial Use – supply for break rooms	Low/Medium	Further action required – Barrier pipes recommended.
ZINC	Uptake (root and stomata), ingestion, inhalation and dermal absorption by animal)	Ecological features (i.e. Flora and Fauna)	There are no areas of proposed soft landscaping on-site.	None	No further action
<u>Ground Gases</u> METHANE	Permeation through fissures, voids and shafts, and by Inhalation by humans	Human Health Inhalation of Gases	Elevated ground gases encountered	High	Further action required – ground gas protections measures recommended on-site.

Table 19: Phase 2 Conceptual Site Model

6.10 Viable Risks Requiring Action

- There is a risk to end-users of the site from Asbestos encountered in the BH2, BH5 and BH6 locations on-site. Remediation should be undertaken on-site to negate these risks.
- There is a risk to the construction workforce on-site from Asbestos encountered in the BH2, BH5 and BH6 locations on-site. Normal PPE and following health and safety regulations would negate this risk.
- There is a risk to end-users of the site from the concentrations of Ground gases encountered at the site. Gas protection measures should be undertaken on-site to negate this risk.
- There is a risk to water pipe on-site from the concentrations of TPH encountered. WATER UK HBF guide recommendations barrier pipe which would negate this risk.

6.11 Remedial Options Proposed

A number of potential remedial options are presented to sever the contaminant linkages with respect to soil contamination present and include:

Option 1: Further Chemical Testing and Human Health Risk Assessment

Impacted soils were identified across the site. It is considered unlikely that the extent of remediation required on the site could be minimised if further investigation of the site was undertaken.

Option 2: Adoption of Cover System in Soft Landscaped Areas

The BRE “Cover Systems For Land Regeneration, Thickness Design of Cover Systems for Contaminated Land, BRE, March 2004”, allows for the design of cover systems to impacted soils where the concentration of determinants within the ground does not exceed any of the respective SSV, SGV's or GAC's by more than six times. In such a situation a maximum cover thickness of 600mm is given. However, the concentration of determinants within the certified clean soil/topsoil, which comprises the cover system, determines the overall thickness of the system and can reduce the required thickness markedly below 600mm. Where the concentration of determinants within the ground does exceed any of the respective SSV, SGV's or GAC's by more than six then an engineered capping system is recommended.

The concentrations of elevated determinants outlined in Section 6.8 did not identify concentrations that were more than six times their guideline value. However, due to 'hot-spots' of asbestos encountered on-site, a simple cover system would not be suitable. Consideration should also be given to other, or combinations of remedial options such as source removal, provision of greater thickness of cover, or provision of an engineered cover system (Option 6).

Option 3: Excavation of Impacted Soil

It could be proposed to excavate and stockpile the impacted material on the site in preparation for classification and subsequent disposal off-site to a suitable licenced facility. The initial excavations should be centred on the trial-holes with impacted soil and then extended in all directions, so that the impacted soils can be 'chased' out. Once excavation has been completed validation would be required to prove all impacted soil has been removed. Validation would involve taking a representative number of samples from the sides and base of any excavation and then sent off for appropriate chemical analysis. The stockpiled soils must be placed on an impermeable liner with raised edges. During periods of rainfall, the stockpile must be covered over to minimise leaching and run-off into the underlying soils. Covering of the stockpile may be required to prevent fumes impacting receptors off-site. The remedial works must be inspected and independently validated by a suitable person. On completion of the development, a Validation and Closure Report must be supplied to both the Local Authority and the NHBC detailing the remediation works undertaken on the site. Any voids resulting from the removal of impacted soil must be backfilled with a suitable certified clean granular soil. The developer/groundworker must be made aware of the potential for sources not identified in the Phase 2 site investigation to be found within the site both during demolition and the excavation of trenches for services and foundations.

Option 4: Excavation of All Made Ground and Topsoil

Made Ground was encountered across the site a maximum depth of 4.00m bgl. This could be excavated for disposal at an appropriate waste management facility after further categorisation as explained for Option 3.

Option 5: Hard Landscape Entire Site

Hard landscaping the entire site could eliminate exposure to contaminated soils through:

- I. Direct soil and dust ingestion
- II. Consumption of home-grown produce
- III. Dermal contact
- IV. Inhalation of dust (indoor and outdoor)

Option 6: Engineering Capping System

If an engineering capping system was required, it should comprise geotextile and/or mesh underlying a 200mm thick layer of gap graded crushed concrete (5-75mm) or the like with geotextile underlying 400mm thickness of clean certified Topsoil.

6.12 Recommended Option

In respect to soil contamination, it is anticipated that the protection of the end-user may be achieved by the following:

- **Areas of proposed hardstanding (e.g. building footprint, roadways etc.)**

In areas of permanent hardstanding such as the building footprint and roadways etc., the development itself would adequately break exposure pathways to human health and therefore further remedial measures may not be required in these areas.

- **Barrier pipe should be used on-site.**

The concentrations of TPH encountered would indicate that barrier pipe which would negate this risk.

- **Ground gas protection measures should be used on-site.**

The concentrations of Ground gases encountered at the site would indicate that gas protection measures should be undertaken on-site to negate this risk.

6.13 Discovery Strategy

A discovery strategy sets out the actions that must be taken if previously unidentified contamination is encountered during the course of the development, either from visual or olfactory evidence, or as a result of deterioration of workers wellbeing.

A discovery strategy should be prepared as part of the contractors pre-construction plans and tool box talks provided.

7.0 FOUNDATION DESIGN

7.1 General

It is proposed to demolish the existing warehouse and construction of a new manufacturing facility plus ancillary structures. Details of the structures, layouts etc. have been provided although details of the loadings were not available at the time of preparation of this report.

7.2 Site Preparation Works

The main contractor should be informed of the site conditions and risk assessments should be undertaken to comply with the Construction Design Management (CDM) regulations. Site personnel are to be made aware of the site conditions. It is recommended that extensive searches of existing man-made services are undertaken over the site prior to final design works.

7.3 Conventional Spread Foundations

A result of the inherent variability of uncontrolled fill, (Made Ground) is that it is usually unpredictable in terms of bearing capacity and settlement characteristics. Foundations should, therefore, be taken through any Made Ground and either into, or onto a suitable underlying natural stratum of adequate bearing characteristics.

Based on the ground and groundwater conditions encountered in the boreholes and trial pits, it will not be possible to support the proposed new development on conventional strip or isolated pad foundations. A piled foundation solution is recommended.

7.4 Piled Foundations

The use of conventional spread foundations will be impracticable or uneconomical due to the size and depth of foundation required, and a piled foundation should then be considered. In these ground conditions, it is considered that some form of bored and in-situ cast concrete piled foundation with reinforced concrete ground beams should prove satisfactory. A driven pile solution may also be possible due to the industrial nature of the surrounding land where the noise and vibration associated with driven piles may not be an issue, although due to the alluvium vibrations may travel longer distances.

The construction of a piled foundation is a specialist activity and the advice of a reputable contractor, familiar with the type of soil and groundwater conditions encountered at this site should be sought prior to finalising the foundation design. The actual pile working load will depend on the particular type of pile chosen and method of installation adopted.

To achieve the full bearing value a pile should penetrate the bearing stratum by at least five times the pile diameter.

Where piles are to be constructed in groups the bearing value of each individual pile should be reduced by a factor of about 0.8 and a calculation made to check the factor of safety against block failure.

Driven piles could also be used and would develop much higher working loads approximately 2.5 to 3 times higher than bored piles of a similar diameter at the same depth. However, the close proximity of adjacent buildings will in all probability preclude their use due to noise and vibration.

The table below provides some indicative capacities for a single pile for the diameter and depths shown:

		Pile diameter (m)		
		0.35	0.45	0.6
Pile length (m)	15m	360kN	470kN	630kN
	18m	510kN	660kN	890kN
	25m	750kN [#] 965kN ^{##}	780kN [#] 1010kN ^{##}	825kN [#] 1080kN ^{##}
	30m	3250kN [#] 4090kN ^{##}	3280kN [#] 4135kN ^{##}	3325kN [#] 4200kN ^{##}

[#]Bored Pile

^{##}Driven Pile

Table 20: Indicative Pile Capacities

7.5 Floor Slabs

Due to the thickness of Made Ground encountered and the underlying very soft Alluvial deposits, it is recommended that ground slabs should be fully suspended.

7.6 Excavations

Shallow excavations for foundations and services are likely to require nominal side support in the short term and groundwater is unlikely to be encountered in significant quantities once any accumulated surface water has been removed. Deeper and longer excavations below approximately 1.20m below existing ground level will require close side support and some seepages of groundwater could be encountered. Below approximately 1.50m groundwater may for significant inflows.

Once groundwater has been encountered the Made Ground and Alluvial deposits may rapidly become unstable. Alluvial deposits may flow resulting in undermining of the ground surrounding the excavation unless suitable side wall support is installed.

Normal safety precautions should be taken if shallow excavations are to be entered. Deeper excavations will require enhanced measures to reduce the risk to workers to acceptable levels.

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APPENDIX A

Borehole / Trial Pit Logs

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD	Borehole Number BH1	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751		Dates 30/06/2022		Engineer		Sheet 1/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.25	D1					(0.70)	MADE GROUND: Hardcore and type one material		
0.50	D2					0.70			
0.75	D3					(0.70)	MADE GROUND: Dark brown clayey sandy silt containing brick, glass and metal fragments		
1.00	D4					1.40			
1.50	D5					(0.90)	MADE GROUND: Stained grey pungent very silty clay containing occasional brick fragments		
2.00-2.45 2.00	SPT(C) N=3 D6		WET	1,1/1,1,1,0		2.30	Very loose, medium grey clayey SILT		
2.50	D7								
3.00-3.45 3.00	SPT(C) N=2 D8		WET	0,1/1,0,1,0					
3.50	D9								
4.00-4.45 4.00	SPT(C) N=1 D10		WET	0,0/0,1,0,0		(3.50)			
4.50	D11								
5.00-5.45 5.00	SPT(C) N=1 D12		WET	0,1/0,0,1,0					
						5.80	Soft, dark brown black clayey silty amorphous PEAT		
6.00-6.45 6.00	SPT(C) N=1 D13		WET	0,0/1,0,0,0					
7.00	D14					(2.70)			
7.50-7.95 7.50	SPT(C) N=1 D15		WET	0,0/0,0,0,1					
8.00	D16								
						8.50	Soft, dark brown black clayey silty sandy amorphous PEAT		
9.00-9.45 9.00	SPT(C) N=1 D17		WET	0,1/0,1,0,0					
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample Excavating from 0.00m to 1.00m for 1 hour.								Scale (approx)	Logged By
								1:50	EW
								Figure No. 2235405.BH1	

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH1	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m		Ground Level (mOD)		Client HEATH PROJECTS LIMITED			Job Number 2235405	
		Location TQ615751		Dates 30/06/2022		Engineer			Sheet 2/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
10.50-10.95 10.50	SPT(C) N=0 D18		WET	0,1/0,0,0,0		(4.00)				
12.00-12.45 12.00	SPT(C) N=17 D19		WET	2,2/3,4,4,6		12.50	Soft, dark brown black clayey silty sandy gravelly amorphous PEAT			
						(1.20)				
13.50-13.95 13.50	SPT(C) N=59 D20		WET	7,7/19,27,13		13.70	Very dense SAND and GRAVEL			
14.00-14.45	SPT(C) N=65		WET	19,20/17,16,18,14						
14.45-14.75	SPT(C) 0*/0 N=69		WET	/17,18,17,17						
14.75-15.05	SPT(C) 0*/0 N=76		WET	/21,20,23,12						
15.05-15.35	SPT(C) 0*/0 N=103		WET	/34,21,27,21						
15.35-15.65	SPT(C) 0*/0 N=89		WET	/23,22,23,21						
15.65-15.95	SPT(C) 0*/0 N=96		WET	/23,24,27,22						
15.95-16.25	SPT(C) 0*/0 N=75		WET	/18,18,17,22						
16.25-16.55	SPT(C) 0*/0 N=111		WET	/23,22,23,43						
16.55-16.85	SPT(C) 0*/0 N=90		WET	/23,22,22,23						
16.85-17.15	SPT(C) 0*/0 N=68		WET	/20,12,18,18						
17.15-17.45	SPT(C) 0*/0 N=75		WET	/19,14,22,20						
17.45-17.75	SPT(C) 0*/0 N=78		WET	/20,20,23,15						
17.75-18.05	SPT(C) 0*/0 N=66		WET	/15,15,17,19						
18.05-18.35	SPT(C) 0*/0 N=67		WET	/16,18,15,18						
18.35-18.65	SPT(C) 0*/0 N=64		WET	/15,17,15,17						
18.65-18.95	SPT(C) 0*/0 N=61		WET	/14,20,13,14						
18.95-19.25	SPT(C) 0*/0 N=49		WET	/14,12,12,11		(10.65)				
19.25-19.55	SPT(C) 0*/0 N=46		WET	/13,11,12,10						
19.55-19.85	SPT(C) 0*/0 N=54		WET	/12,13,14,15						
19.85-20.15	SPT(C) 0*/0		WET	/15,13,11,11						
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample								Scale (approx)	Logged By	
								1:50	EW	
								Figure No. 2235405.BH1		

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH1	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m			Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751			Dates 30/06/2022		Engineer		Sheet 3/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
20.15-20.45	SPT(C) 0*/0 N=59		WET	/13,15,15,16						
20.45-20.75	SPT(C) 0*/0 N=53		WET	/13,15,12,13						
20.75-21.05	SPT(C) 0*/0 N=56		WET	/12,14,14,16						
21.05-21.35	SPT(C) 0*/0 N=69		WET	/17,17,18,17						
21.35-21.65	SPT(C) 0*/0 N=56		WET	/15,15,13,13						
21.65-21.95	SPT(C) 0*/0 N=60		WET	/15,12,14,19						
21.95-22.25	SPT(C) 0*/0 N=80		WET	/20,21,21,18						
22.25-22.55	SPT(C) 0*/0 N=69		WET	/17,18,17,17						
22.55-22.85	SPT(C) 0*/0 N=62		WET	/15,15,17,15						
22.85-23.15	SPT(C) 0*/0 N=88		WET	/21,20,25,22						
23.15-23.45	SPT(C) 0*/0 N=94		WET	/24,22,22,26						
23.45-23.75	SPT(C) 0*/0 N=77		WET	/23,15,23,16						
23.75-24.05	SPT(C) 0*/0 N=70		WET	/18,14,17,21						
24.05-24.35	SPT(C) 0*/0 N=77		WET	/27,17,16,17						
24.35-24.65	SPT(C) 0*/0 N=65		WET	/17,17,17,14		24.35	CHALK			
24.65-24.95	SPT(C) 0*/0 N=68		WET	/17,16,18,17						
24.95-25.25	SPT(C) 0*/0 N=72		WET	/17,19,18,18						
25.25-25.55	SPT(C) 0*/0 N=72		WET	/17,19,17,19						
25.55-25.85	SPT(C) 0*/0 N=70		WET	/16,15,18,21						
25.85-26.15	SPT(C) 0*/0 N=76		WET	/18,18,21,19						
26.15-26.45	SPT(C) 0*/0 N=70		WET	/19,16,18,17						
26.45-26.75	SPT(C) 0*/0 N=70		WET	/20,16,17,17						
26.75-27.05	SPT(C) 0*/0 N=71		WET	/15,15,18,23		(4.65)				
27.05-27.35	SPT(C) 0*/0 N=94		WET	/21,26,25,22						
27.35-27.65	SPT(C) 0*/0 N=86		WET	/21,19,21,25						
27.65-27.95	SPT(C) 0*/0 N=117		WET	/25,26,30,36						
27.95-28.25	SPT(C) 0*/0 N=139		WET	/29,40,35,35						
28.25-28.55	SPT(C) 0*/0 N=147		WET	/36,37,38,36						
28.55-28.85	SPT(C) 0*/0 N=157		WET	/37,41,40,39						
28.85-29.00	SPT(C) 0*/0 89/150		WET	/42,47		29.00	Complete at 29.00m			
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample							Scale (approx)		Logged By	
							1:50		EW	
							Figure No. 2235405.BH1			

Site Analytical Services Ltd.

Site

SEACON TERMINALS, TOWER WHARF, LOWER ROAD,
NORTHFLEET, KENT. DA11 9BD

Borehole

BH1

Installation Type
Standpipe

Dimensions

Internal Diameter of Tube [A] = 50 mm

Client

HEATH PROJECTS LIMITED

Job

Number
2235405

Location

TQ615751

Ground Level (mOD)

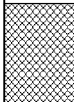
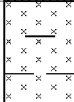
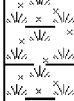
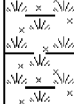
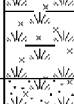
Engineer

Sheet

1/1

[illegible]

Remarks

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH2		
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m			Ground Level (mOD)		Client HEATH PROJECTS LIMITED			Job Number 2235405	
		Location TQ615751			Dates 28/06/2022		Engineer			Sheet 1/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water		
0.25	D1					(0.70)	MADE GROUND: Hardcore and type one material		▽1		
0.50	D2					0.70	MADE GROUND: Medium to dark brown gravelly silty fine to coarse grained sand containing concrete fragments				
0.75	D3					(0.70)					
1.00	D4					1.40	MADE GROUND: Soft, orange white silty clay containing chalk nodules and brick fragments				
1.50	D5			Water Strike (1) at 1.40m.		(0.80)					
2.00-2.45	SPT(C) N=3		WET	0,0/1,0,1,1		2.20	Very loose, medium grey clayey SILT				
2.00	D6										
2.50	D7										
3.00-3.45	SPT(C) N=1		WET	0,1/0,0,1,0							
3.00	D8										
3.50	D9										
4.00-4.45	SPT(C) N=1		WET	0,0/0,1,0,0		(3.50)					
4.00	D10										
4.50	D11										
5.00-5.45	SPT(C) N=1		WET	0,1/0,0,0,1							
5.00	D12						Soft, dark brown black clayey silty amorphous PEAT				
6.00-6.45	SPT(C) N=2		WET	0,1/0,0,1,1		5.70					
6.00	D13										
7.00-7.45	SPT(C) N=2		WET	0,1/1,0,1,0		(2.80)					
7.00	D14										
7.50	D15										
8.00	D16					8.50					
9.00-9.45	SPT(C) N=0		WET	0,1/0,0,0,0			Soft, dark brown black clayey silty sandy amorphous PEAT				
9.00	D17										
Remarks D= Disturbed Sample C= Dynamic Penetration Test - Cone Excavating from 0.00m to 1.00m for 1 hour.								Scale (approx) 1:50	Logged By EW		
								Figure No. 2235405.BH2			

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH2	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m			Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751			Dates 28/06/2022		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
10.00	D18		WET	0,1/0,1,0,1		(4.20)				
10.50-10.95 10.50	SPT(C) N=2 D19									
11.00	D20									
12.00-12.45 12.00	SPT(C) N=5 D21		WET	0,1/1,1,1,2		12.70 (0.50)	Soft, dark brown black clayey silty sandy gravelly amorphous PEAT			
13.00	D22									
13.50-13.95 13.50	SPT(C) N=29 D23									
15.00-15.45 15.00	SPT(C) N=44 D24		WET	4,5/7,6,6,10		(4.80)	Medium dense becoming dense, grey silty clayey sandy fine to coarse grained sub-angular to sub-rounded flint GRAVEL			
16.50-16.95 16.50	SPT(C) N=43 D25									
						18.00	Complete at 18.00m			
Remarks D= Disturbed Sample C= Dynamic Penetration Test - Cone								Scale (approx)		Logged By
								1:50		EW
								Figure No. 2235405.BH2		

Site Analytical Services Ltd.							Site	Borehole Number BH4	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751		Dates 01/07/2022		Engineer		Sheet 1/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.75	D1					(0.26) 0.26	MADE GROUND: Concrete with 6-8mm steel reinforcing bars		
1.00	D2					(0.29) 0.55	MADE GROUND: Type one material		
1.50	D3					(0.65)	MADE GROUND: Dark brown clayey peaty sandy silt containing man-made fragments		
2.00	D4					1.20	MADE GROUND: Brown very silty clay containing chalk nodules and brick fragments		
2.50	D5			Water Seepage (1) at 2.20m.		(0.70)			
3.00	D6					1.90			
3.50	D7					(0.30)	Brown sandy fine to coarse grained sub-angular to sub-rounded flint GRAVEL		
4.00	D8					2.20	Black grey mottled brown clayey SILT		
4.50	D9								
5.00	D10								
6.00	D11								
7.00	D12								
8.00	D13					(5.10)			
9.00	D14								
10.00-10.45	SPT(C) N=6					7.30	Soft, dark brown clayey silty amorphous PEAT		
						(4.70)			
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample Unable to complete borehole Excavating from 0.00m to 1.00m for 1 hour.							Scale (approx) 1:50	Logged By EW	
							Figure No. 2235405.BH4		

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH4	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405		
		Location TQ615751		Dates 01/07/2022		Engineer		Sheet 2/2		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
10.00	D15									
10.45-10.75	SPT(C) 0*/0 N=6		WET	/1,2,1,2						
10.75-11.05	SPT(C) 0*/0 N=7		WET	/1,1,2,3						
11.05-11.35	SPT(C) 0*/0 N=10		WET	/2,2,3,3						
11.35-11.65	SPT(C) 0*/0 N=10		WET	/2,3,3,2						
11.65-11.95	SPT(C) 0*/0 N=12		WET	/3,2,3,4						
11.95-12.25	SPT(C) 0*/0 N=19		WET	/5,5,5,4		12.00	Dense, sandy fine to coarse grained sub-angular to sub-rounded flint GRAVEL			
12.25-12.55	SPT(C) 0*/0 N=19		WET	/5,4,4,6		(1.00)				
12.55-12.85	SPT(C) 0*/0 N=23		WET	/5,6,6,6						
12.85-13.15	SPT(C) 0*/0 N=46		WET	/7,12,10,17		13.00	Very dense, brown sub-angular to sub-rounded flint GRAVEL			
13.15-13.45	SPT(C) 0*/0 N=77		WET	/15,17,20,25						
13.45-13.75	SPT(C) 0*/0 N=86		WET	/22,23,20,21						
13.75-14.05	SPT(C) 0*/0 N=80		WET	/17,20,19,24						
14.05-14.35	SPT(C) 0*/0 N=99		WET	/25,23,27,24						
14.35-14.65	SPT(C) 0*/0 N=110		WET	/28,30,27,25						
14.65-14.95	SPT(C) 0*/0 N=126		WET	/29,34,32,31						
14.95-15.25	SPT(C) 0*/0 N=145		WET	/35,37,38,35						
15.25-15.55	SPT(C) 0*/0 N=146		WET	/34,36,36,40		(5.00)				
15.55-15.85	SPT(C) 0*/0 N=153		WET	/38,41,38,36						
15.85-16.15	SPT(C) 0*/0 N=140		WET	/37,34,38,31						
16.15-16.45	SPT(C) 0*/0 N=133		WET	/35,33,33,32						
16.45-16.75	SPT(C) 0*/0 N=124		WET	/34,30,29,31						
16.75-17.05	SPT(C) 0*/0 N=133		WET	/32,36,34,31						
17.05-17.35	SPT(C) 0*/0 N=114		WET	/28,27,28,31						
17.35-17.65	SPT(C) 0*/0 N=147		WET	/35,36,36,40						
17.65-17.95	SPT(C) 0*/0 N=164		WET	/40,45,41,38						
17.95-18.25	SPT(C) 0*/0 N=165		WET	/42,44,39,40		18.00	Complete at 18.25m			
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample Unable to complete borehole								Scale (approx) 1:50	Logged By EW	
								Figure No. 2235405.BH4		

Site Analytical Services Ltd.							Site	Borehole Number				
							SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD	BH5				
Boring Method		Casing Diameter			Ground Level (mOD)		Client		Job Number			
ROTARY PERCUSSIVE		128mm cased to 0.00m					HEATH PROJECTS LIMITED		2235405			
		Location			Dates		Engineer		Sheet			
		TQ615751			20/06/2022				1/3			
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water			
0.25	D1					(0.24)	MADE GROUND: Concrete with 6mm steel reinforcing bars					
						(0.24)	MADE GROUND: Type one material					
						(0.40)						
0.50	D2					(0.50)	MADE GROUND: Dark brown silty clayey fine to coarse grained sand containing brick and concrete fragments					
0.75	D3					0.90						
1.00	D4					(0.40)	MADE GROUND: Dark brown silty sandy clay containing chalk nodules and brick fragments					
1.50	D5					1.30	Very loose, brown sandy fine to coarse grained sub-angular to sub-rounded flint GRAVEL					
						(0.70)						
2.00-2.45	SPT(C) N=4		WET	1,1/1,1,1,1		2.00	Very loose, light grey clayey SILT					
2.00	D6											
2.50	D7											
3.00-3.45	SPT(C) N=2		WET	0,1/1,0,1,0								
3.00	D8											
3.50	D9											
4.00-4.45	SPT(C) N=0		WET	0,1/0,0,0,0		(3.40)						
										4.00	D10	
										4.50	D11	
5.00-5.45	SPT(C) N=1		WET	0,1/0,0,1,0								
5.00	D12											
6.00-6.45	SPT(C) N=2									WET	0,1/0,1,0,1	
			6.00	D13								
			7.00	D14								
7.50-7.95	SPT(C) N=2		WET	0,1/0,1,0,1								
7.50	D15											
8.00	D16											
9.00-9.45	SPT(C) N=3		WET	0,1/0,1,1,1		(5.50)						
										9.00	D17	
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample Excavating from 0.00m to 1.00m for 1 hour.								Scale (approx)	Logged By			
								1:50	EW			
								Figure No. 2235405.BH5				

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH5
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751		Dates 20/06/2022		Engineer		Sheet 2/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.00	D18								
10.50-10.95 10.50	SPT(C) N=4 D19		WET	0,1/1,1,1,1		10.90	Soft, dark brown clayey silty gravelly amorphous PEAT		
11.00	D20					(1.70)			
12.00-12.45 12.00	SPT(C) N=16 D21		WET	3,3/3,4,4,5		12.60			
13.00	D22						Medium dense, sandy fine to coarse grained sub-angular to sub-rounded flint GRAVEL		
13.50-13.95 13.50	SPT(C) N=25 D23		WET	4,5/5,6,6,8		(1.90)			
14.00	D24								
14.50-14.95 14.50	SPT(C) N=57 D25		WET	13,14/15,15,15,12		14.50	Very dense, brown sub-angular to sub-rounded flint GRAVEL		
15.00	D26								
16.00	D27								
16.50-16.95 16.50	SPT(C) N=60 D28		DRY	10,10/14,15,15,16			Obstruction		
17.00	D29								
18.00-18.45 18.00	SPT(C) N=59 D30		DRY	12,13/14,14,15,16					
19.00	D31					(9.30)			
19.50-19.95 19.50	SPT(C) N=65 D32		DRY	13,14/15,16,16,18					
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample							Scale (approx) 1:50	Logged By EW	
							Figure No. 2235405.BH5		

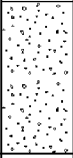
Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH5	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m			Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751			Dates 20/06/2022		Engineer		Sheet 3/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
20.00	D33									
21.00-21.45 21.00	SPT(C) N=73 D34		DRY	20,20/15,17,20,21						
22.00	D35									
23.00	D36									
24.00	D37					23.80	White orange structureless CHALK composed of lumps of intact chalk			
25.00	D38									
26.00	D39									
27.00	D40					(6.20)				
28.00	D41									
29.00	D42									
30.00	D43					30.00				
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample								Scale (approx)	Logged By	
								1:50	EW	
								Figure No. 2235405.BH5		

Site Analytical Services Ltd.			Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD	Borehole Number BH5
Installation Type Standpipe	Dimensions Internal Diameter of Tube [A] = 50 mm		Client HEATH PROJECTS LIMITED	Job Number 2235405
	Location TQ615751	Ground Level (mOD)	Engineer	Sheet 1/1

Remarks

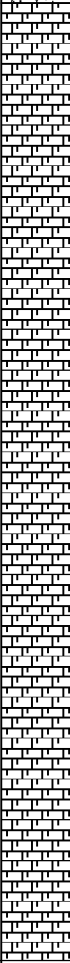
Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH6
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751		Dates 21/06/2022		Engineer		Sheet 1/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.25	D1					(0.28)	MADE GROUND: Concrete with 6mm steel reinforcing bars		
0.50	D2					0.28 0.40	MADE GROUND: Ballast and hardcore		
0.75	D3					(0.40)	MADE GROUND: Dark brown silty fine to coarse grained sand containing brick fragments		
1.00	D4					0.80	MADE GROUND: Dark brown sandy clay containing chalk nodules, brick and concrete fragments		
1.50	D5					(0.60)	MADE GROUND: Soft, medium grey silty sandy gravelly clay containing brick fragments		
2.00-2.45 2.00	SPT(C) N=1 D6		WET	0,1/0,0,1,0		1.40			
2.50	D7					(1.80)			
3.00-3.45 3.00	SPT(C) N=2 D8		WET	0,1/0,1,0,1 Water (1) at 3.20m.		3.20	MADE GROUND: Soft medium grey very silty sandy clay containing occasional brick fragments		▽1
3.50	D9					(0.80)			
4.00-4.45 4.00	SPT(C) N=0 D10		WET	0,0/0,0,0,0		4.00	Very loose, light grey clayey sandy SILT		
4.50	D11								
5.00-5.45 5.00	SPT(C) N=1 D12		WET	0,1/0,0,1,0					
6.00-6.45 6.00	SPT(C) N=1 D13		WET	0,1/0,0,0,1		(3.80)			
7.00	D14								
7.50-7.95 7.50	SPT(C) N=2 D15		WET	0,1/0,1,0,1		7.80	Soft, dark brown black clayey silty amorphous PEAT		
8.00	D16								
9.00-9.45 9.00	SPT(C) N=3 D17		WET	0,1/0,1,1,1		(3.90)			
Remarks Unable to complete borehole due to large flints D= Disturbed Sample C= Dynamic Penetration Test - Cone Excavating from 0.00m to 1.00m for 1 hour.								Scale (approx) 1:50	Logged By EW
								Figure No. 2235405.BH6	

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH6
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751		Dates 21/06/2022		Engineer		Sheet 2/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.00	D18								
10.50-10.95 10.50	SPT(C) N=3 D19		WET	0,1/0,1,1,1					
11.00	D20								
12.00-12.45 12.00	SPT(C) N=17 D21		WET	3,3/5,4,3,5		11.70	Medium dense becoming dense becoming very dense, sandy fine to coarse grained sub-angular to sub-rounded flint GRAVEL		
13.00	D22					(2.90)			
13.50-13.95 13.50	SPT(C) N=24 D23		WET	5,5/6,5,6,7					
14.00	D24								
14.50-14.95 14.50	SPT(C) N=53 D25		WET	18,19/14,15,12,12		14.60	Very dense, orange sandy sub-angular to sub-rounded flint GRAVEL		
15.00	D26						Obstruction		
16.00	D27								
16.50-16.95 16.50	SPT(C) N=45 D28		WET	5,6/9,10,12,14					
17.00	D29								
18.00-18.45 18.00	SPT(C) N=48 D30		WET	6,7/10,11,12,15		(6.40)			
19.00	D31								
19.50-19.95 19.50	SPT(C) N=57 D32		WET	15,15/13,12,15,17					
Remarks Unable to complete borehole due to large flints D= Disturbed Sample C= Dynamic Penetration Test - Cone							Scale (approx)	Logged By	
							1:50	EW	
							Figure No. 2235405.BH6		

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH6	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405		
		Location TQ615751		Dates 21/06/2022		Engineer		Sheet 3/3		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
20.00	D33									
21.00	D34					21.00	Complete at 21.00m			
Remarks Unable to complete borehole due to large flints D= Disturbed Sample C= Dynamic Penetration Test - Cone							Scale (approx) 1:50	Logged By EW		
							Figure No. 2235405.BH6			

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD	Borehole Number BH7	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m		Ground Level (mOD)		Client HEATH PROJECTS LIMITED	Job Number 2235405		
		Location TQ615751		Dates 22/06/2022		Engineer	Sheet 1/3		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.25	D1		WET	2,2/2,3,2,1		(0.60)	MADE GROUND: Medium grey silty gravelly fine to coarse grained sand containing type one material and concrete fragments		▽1
0.50	D2					0.60	MADE GROUND: Soft, dark brown silty sandy clay		
0.75	D3					(0.80)			
1.00-1.45 1.00	SPT(C) N=8 D4					1.40	MADE GROUND: Soft, medium brown sandy clay containing chalk nodules		
1.50	D5		WET	Water Seepage (1) at 1.80m. 0,1/0,1,0,1		(0.70)			
2.00-2.45 2.00	SPT(C) N=2 D6					2.10	Very loose, light grey clayey SILT		
2.50	D7								
3.00-3.45 3.00	SPT(C) N=1 D8								
3.50	D9		WET	0,1/0,1,0,0					
4.00-4.45 4.00	SPT(C) N=1 D10								
4.50	D11								
5.00-5.45 5.00	SPT(C) N=1 D12					(5.90)			
6.00-6.45 6.00	SPT(C) N=0 D13		DRY	0,0/0,0,0,0					
7.00	D14								
7.50-7.95 7.50	SPT(C) N=1 D15								
8.00	D16					8.00	Soft, dark brown black clayey silty amorphous PEAT		
9.00-9.45 9.00	SPT(C) N=2 D17		DRY	0,1/1,0,1,0		(2.20)			
Remarks D= Disturbed Sample C= Dynamic Penetration Test - Cone Excavating from 0.00m to 1.00m for 1 hour.							Scale (approx)	Logged By	
							1:50	EW	
							Figure No. 2235405.BH7		

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH7		
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m			Ground Level (mOD)		Client HEATH PROJECTS LIMITED			Job Number 2235405	
		Location TQ615751			Dates 22/06/2022		Engineer			Sheet 2/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description			Legend	Water
10.00	D18					10.20	Soft, dark brown black clayey silty gravelly amorphous PEAT				
10.50-10.95 10.50	SPT(C) N=3 D19		DRY	0,1/1,0,1,1		(0.80)					
11.00	D20					11.00	Very stiff, light grey silty sandy gravelly CLAY				
12.00-12.45 12.00	SPT(C) N=42 D21		DRY	3,3/8,10,10,14		(2.10)					
13.00	D22					13.10					
13.50-13.95 13.50	SPT(C) N=43 D23		DRY	5,5/9,11,10,13							
14.00	D24						Dense, orange sandy sub-angular to sub-rounded flint GRAVEL				
15.00-15.45 15.00	SPT(C) N=46 D25		DRY	7,7/9,10,12,15							
16.00	D26										
16.50-16.95 16.50	SPT(C) N=35 D27		DRY	6,6/7,8,10,10							
17.00	D28										
18.00-18.45 18.00	SPT(C) N=35 D29		DRY	7,8/9,8,8,10		(10.60)					
19.00	D30										
19.50-19.95 19.50	SPT(C) N=32 D31		DRY	7,7/8,9,7,8							
Remarks D= Disturbed Sample C= Dynamic Penetration Test - Cone								Scale (approx)		Logged By	
								1:50		EW	
								Figure No. 2235405.BH7			

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH7		
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m			Ground Level (mOD)		Client HEATH PROJECTS LIMITED			Job Number 2235405	
		Location TQ615751			Dates 22/06/2022		Engineer			Sheet 3/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description			Legend	Water
20.00	D32										
21.00-21.45 21.00	SPT(C) N=30 D33		DRY	6,7/7,8,7,8							
22.00	D34										
22.50-22.95 22.50	SPT(C) N=32 D35		DRY	8,8/8,8,7,9							
23.00	D36						White orange structureless CHALK composed of lumps of intact chalk				
24.00-24.45 24.00	SPT(C) N=32 D37		DRY	6,6/8,7,9,8							
25.00	D38										
26.00	D39										
27.00	D40					(6.30)					
28.00	D41										
29.00	D42										
30.00	D43					30.00					
Remarks D= Disturbed Sample C= Dynamic Penetration Test - Cone								Scale (approx)		Logged By	
								1:50		EW	
								Figure No. 2235405.BH7			

Site Analytical Services Ltd.

Site

SEACON TERMINALS, TOWER WHARF, LOWER ROAD,
NORTHFLEET, KENT. DA11 9BD

Borehole

BH7

Installation Type
Standpipe

Dimensions

Internal Diameter of Tube [A] = 50 mm

Client

HEATH PROJECTS LIMITED

Job	Rate	Time	Cost
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Number
2235405

Location

TQ615751

Ground Level (mOD)

Engineer

Sheet

1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling												
 ▽1				1.00	Cement/Bentonite Grout	Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)			
						5 min	10 min	15 min	20 min									
						22/06/22		1.80	0.00	Water Seepage								
						Groundwater Observations During Drilling												
						Date	Start of Shift					End of Shift						
							Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)		
						Instrument Groundwater Observations												
						Inst. [A] Type :												
						Date	Instrument [A]			Remarks								
Time	Depth (m)	Level (mOD)																

Remarks

Site Analytical Services Ltd.							Site	Borehole Number BH8	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751		Dates 27/06/2022		Engineer		Sheet 1/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.25	D1					(0.80)	MADE GROUND: Hardcore over brown gravelly silty fine to coarse grained sand containing concrete fragments		
0.50	D2								
0.75	D3					0.80			
1.00	D4					(0.90)	MADE GROUND: Dark brown silty sandy clay containing brick fragments and chalk nodules		
1.50	D5					1.70			
2.00-2.45	SPT(C) N=1					(0.50)	MADE GROUND: Soft, light brown silty sandy gravelly clay containing chalk nodules and flint fragments		
2.00	D6		WET	Water Strike (1) at 1.70m. 0,1/0,1,0,0		2.20	Very loose, dark brown black clayey SILT containing chalk nodules		
2.50	D7								
3.00-3.45	SPT(C) N=2					(1.40)			
3.00	D8		WET	0,1/0,1,0,1					
3.50	D9					3.60	Very loose, medium grey clayey SILT		
4.00-4.45	SPT(C) N=1								
4.00	D10		WET	0,1/0,0,0,1					
4.50	D11								
5.00-5.45	SPT(C) N=1								
5.00	D12		WET	0,0/0,1,0,0					
						(4.40)			
6.00-6.45	SPT(C) N=2								
6.00	D13		DRY	0,1/0,1,0,1					
7.00	D14								
7.50-7.95	SPT(C) N=2								
7.50	D15		DRY	0,1/0,1,0,1					
8.00	D16					8.00	Soft, dark brown clayey silty amorphous PEAT		
9.00-9.45	SPT(C) N=1								
9.00	D17		DRY	0,1/0,0,1,0		(3.70)			
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample Excavating from 0.00m to 1.00m for 1 hour.							Scale (approx) 1:50	Logged By EW	Figure No. 2235405.BH8

Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH8	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m			Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751			Dates 27/06/2022		Engineer		Sheet 2/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
10.00	D18		DRY	0,1/0,1,1,1						
10.50-10.95 10.50	SPT(C) N=3 D19									
11.00	D20									
12.00-12.45 12.00	SPT(C) N=31 D21		DRY	3,4/5,6,10,10		11.70 (0.80) 12.50	Soft, dark brown black clayey silty slightly gravelly amorphous PEAT			
13.00	D22									
13.50-13.95 13.50	SPT(C) N=51 D23									
14.00	D24		DRY	3,4/12,14,12,13						
15.00-15.45 15.00	SPT(C) N=49 D25									
16.00	D26									
16.50-16.95 16.50	SPT(C) N=46 D27		DRY	7,7/9,10,15,12						
17.00	D28									
18.00-18.45 18.00	SPT(C) N=40 D29									
19.00	D30		DRY	5,5/6,7,6,8		(12.80)				
19.50-19.95 19.50	SPT(C) N=27 D31									
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample								Scale (approx)	Logged By	
								1:50	EW	
								Figure No. 2235405.BH8		

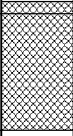
Site Analytical Services Ltd.							Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Borehole Number BH8	
Boring Method ROTARY PERCUSSIVE		Casing Diameter 128mm cased to 0.00m			Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405	
		Location TQ615751			Dates 27/06/2022		Engineer		Sheet 3/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
20.00	D32									
21.00-21.45 21.00	SPT(C) N=26 D33		DRY	5,5/6,6,7,7						
22.00	D34									
22.50-22.95 22.50	SPT(C) N=29 D35		DRY	5,6/7,6,7,9						
23.00	D36									
24.00	D37									
25.00	D38			Water Seepage (2) at 25.30m.		25.30	White orange structureless CHALK composed of lumps of intact chalk			▽2
26.00	D39									
27.00	D40									
28.00	D41					(4.70)				
29.00	D42									
30.00	D43					30.00				
Remarks C= Dynamic Penetration Test - Cone D= Disturbed Sample								Scale (approx) 1:50	Logged By EW	
								Figure No. 2235405.BH8		

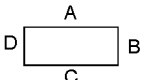
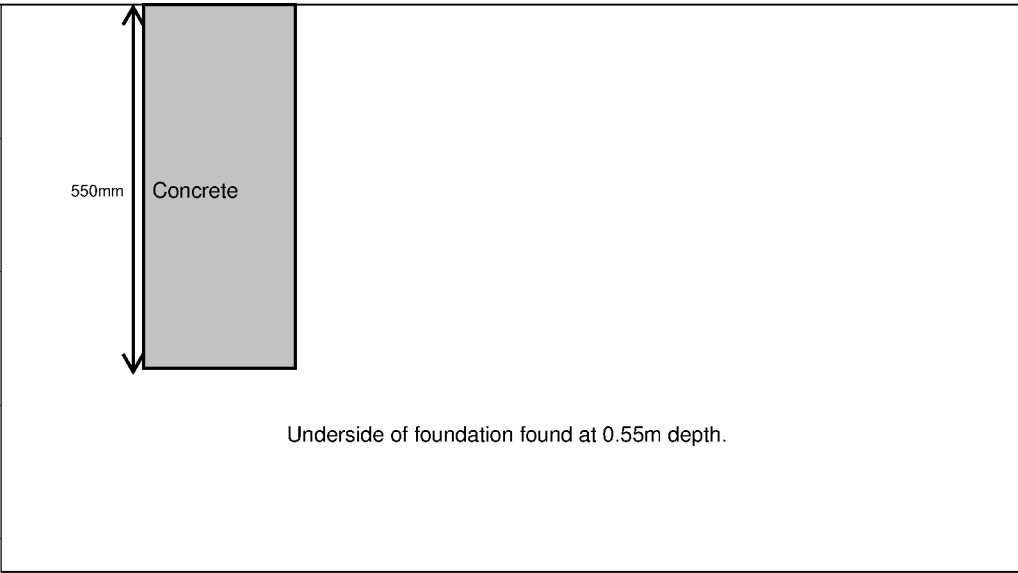
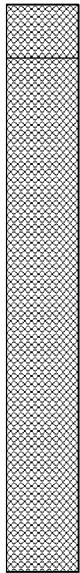
Site Analytical Services Ltd.							Standard Penetration Test Results					
Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD											Job Number	
Client : HEATH PROJECTS LIMITED											2235405	
Engineer :											Sheet	
											1 / 4	
Borehole Number	Base of Borehole (m)	End of Seating Drive (m)	End of Test Drive (m)	Test Type	Seating Blows per 75mm		Blows for each 75mm penetration				Result	Comments
					1	2	1	2	3	4		
BH1	2.00	2.15	2.45	CPT	1	1	1	1	1	0	N=3	
BH1	3.00	3.15	3.45	CPT	0	1	1	0	1	0	N=2	
BH1	4.00	4.15	4.45	CPT	0	0	0	1	0	0	N=1	
BH1	5.00	5.15	5.45	CPT	0	1	0	0	1	0	N=1	
BH1	6.00	6.15	6.45	CPT	0	0	1	0	0	0	N=1	
BH1	7.50	7.65	7.95	CPT	0	0	0	0	0	1	N=1	
BH1	9.00	9.15	9.45	CPT	0	1	0	1	0	0	N=1	
BH1	10.50	10.65	10.95	CPT	0	1	0	0	0	0	N=0	
BH1	12.00	12.15	12.45	CPT	2	2	3	4	4	6	N=17	
BH1	13.50	13.65	13.95	CPT	7	7	19	27	13		N=59	
BH1	14.00	14.15	14.45	CPT	19	20	17	16	18	14	N=65	
BH1	14.45	14.45	14.75	CPT			17	18	17	17	0*/0mm	
BH1	14.75	14.75	15.05	CPT			21	20	23	12	N=69	
BH1	15.05	15.05	15.35	CPT			34	21	27	21	0*/0mm	
BH1	15.35	15.35	15.65	CPT			23	22	23	21	N=103	
BH1	15.65	15.65	15.95	CPT			23	24	27	22	0*/0mm	
BH1	15.95	15.95	16.25	CPT			18	18	17	22	N=89	
BH1	16.25	16.25	16.55	CPT			23	22	23	43	0*/0mm	
BH1	16.55	16.55	16.85	CPT			23	22	22	23	N=111	
BH1	16.85	16.85	17.15	CPT			20	12	18	18	0*/0mm	
BH1	17.15	17.15	17.45	CPT			19	14	22	20	N=90	
BH1	17.45	17.45	17.75	CPT			20	20	23	15	0*/0mm	
BH1	17.75	17.75	18.05	CPT			15	15	17	19	N=78	
BH1	18.05	18.05	18.35	CPT			16	18	15	18	0*/0mm	
BH1	18.35	18.35	18.65	CPT			15	17	15	17	N=67	
BH1	18.65	18.65	18.95	CPT			14	20	13	14	0*/0mm	
BH1	18.95	18.95	19.25	CPT			14	12	12	11	N=64	
BH1	19.25	19.25	19.55	CPT			13	11	12	10	0*/0mm	
BH1	19.55	19.55	19.85	CPT			12	13	14	15	N=49	
BH1	19.85	19.85	20.15	CPT			15	13	11	11	0*/0mm	
BH1	20.15	20.15	20.45	CPT			13	15	15	16	N=50	
BH1	20.45	20.45	20.75	CPT			13	15	12	13	0*/0mm	
BH1	20.75	20.75	21.05	CPT			12	14	14	16	N=53	
BH1	21.05	21.05	21.35	CPT			17	17	18	17	0*/0mm	
BH1	21.35	21.35	21.65	CPT			15	15	13	13	N=56	
BH1	21.65	21.65	21.95	CPT			15	12	14	19	0*/0mm	
BH1	21.95	21.95	22.25	CPT			20	21	21	18	N=60	
BH1	22.25	22.25	22.55	CPT			17	18	17	17	0*/0mm	
BH1	22.55	22.55	22.85	CPT			15	15	17	15	N=69	
BH1	22.85	22.85	23.15	CPT			21	20	25	22	0*/0mm	
BH1	23.15	23.15	23.45	CPT			24	22	22	26	N=88	
BH1	23.45	23.45	23.75	CPT			23	15	23	16	0*/0mm	
BH1	23.75	23.75	24.05	CPT			18	14	17	21	N=94	
BH1	24.05	24.05	24.35	CPT			27	17	16	17	0*/0mm	
											N=77	

Site Analytical Services Ltd.							Standard Penetration Test Results					
Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD												Job Number
Client : HEATH PROJECTS LIMITED												2235405
Engineer :												Sheet
												2 / 4
Borehole Number	Base of Borehole (m)	End of Seating Drive (m)	End of Test Drive (m)	Test Type	Seating Blows per 75mm		Blows for each 75mm penetration				Result	Comments
					1	2	1	2	3	4		
BH1	24.35	24.35	24.65	CPT			17	17	17	14	0*/0mm N=65	
BH1	24.65	24.65	24.95	CPT			17	16	18	17	0*/0mm N=68	
BH1	24.95	24.95	25.25	CPT			17	19	18	18	0*/0mm N=72	
BH1	25.25	25.25	25.55	CPT			17	19	17	19	0*/0mm N=72	
BH1	25.55	25.55	25.85	CPT			16	15	18	21	0*/0mm N=70	
BH1	25.85	25.85	26.15	CPT			18	18	21	19	0*/0mm N=76	
BH1	26.15	26.15	26.45	CPT			19	16	18	17	0*/0mm N=70	
BH1	26.45	26.45	26.75	CPT			20	16	17	17	0*/0mm N=70	
BH1	26.75	26.75	27.05	CPT			15	15	18	23	0*/0mm N=71	
BH1	27.05	27.05	27.35	CPT			21	26	25	22	0*/0mm N=94	
BH1	27.35	27.35	27.65	CPT			21	19	21	25	0*/0mm N=86	
BH1	27.65	27.65	27.95	CPT			25	26	30	36	0*/0mm N=117	
BH1	27.95	27.95	28.25	CPT			29	40	35	35	0*/0mm N=139	
BH1	28.25	28.25	28.55	CPT			36	37	38	36	0*/0mm N=147	
BH1	28.55	28.55	28.85	CPT			37	41	40	39	0*/0mm N=157	
BH1	28.85	28.85	29.00	CPT			42	47			0*/0mm 89/150mm	
BH2	2.00	2.15	2.45	CPT	0	0	1	0	1	1	N=3	
BH2	3.00	3.15	3.45	CPT	0	1	0	0	1	0	N=1	
BH2	4.00	4.15	4.45	CPT	0	0	0	1	0	0	N=1	
BH2	5.00	5.15	5.45	CPT	0	1	0	0	0	1	N=1	
BH2	6.00	6.15	6.45	CPT	0	1	0	0	1	1	N=2	
BH2	7.00	7.15	7.45	CPT	0	1	1	0	1	0	N=2	
BH2	9.00	9.15	9.45	CPT	0	1	0	0	0	0	N=0	
BH2	10.50	10.65	10.95	CPT	0	1	0	1	0	1	N=2	
BH2	12.00	12.15	12.45	CPT	0	1	1	1	1	2	N=5	
BH2	13.50	13.65	13.95	CPT	4	5	7	6	6	10	N=29	
BH2	15.00	15.15	15.45	CPT	5	5	8	12	11	13	N=44	
BH2	16.50	16.65	16.95	CPT	4	5	8	10	13	12	N=43	
BH4	10.00	10.15	10.45	CPT	2	1	2	1	2	1	N=6	
BH4	10.45	10.45	10.75	CPT			1	2	1	2	0*/0mm N=6	
BH4	10.75	10.75	11.05	CPT			1	1	2	3	0*/0mm N=7	
BH4	11.05	11.05	11.35	CPT			2	2	3	3	0*/0mm N=10	
BH4	11.35	11.35	11.65	CPT			2	3	3	2	0*/0mm N=10	
BH4	11.65	11.65	11.95	CPT			3	2	3	4	0*/0mm N=12	
BH4	11.95	11.95	12.25	CPT			5	5	5	4	0*/0mm N=19	
BH4	12.25	12.25	12.55	CPT			5	4	4	6	0*/0mm N=19	
BH4	12.55	12.55	12.85	CPT			5	6	6	6	0*/0mm N=23	
BH4	12.85	12.85	13.15	CPT			7	12	10	17	0*/0mm N=46	
BH4	13.15	13.15	13.45	CPT			15	17	20	25	0*/0mm N=77	
BH4	13.45	13.45	13.75	CPT			22	23	20	21	0*/0mm N=86	
BH4	13.75	13.75	14.05	CPT			17	20	19	24	0*/0mm N=80	
BH4	14.05	14.05	14.35	CPT			25	23	27	24	0*/0mm N=99	
BH4	14.35	14.35	14.65	CPT			28	30	27	25	0*/0mm N=110	

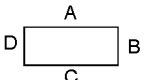
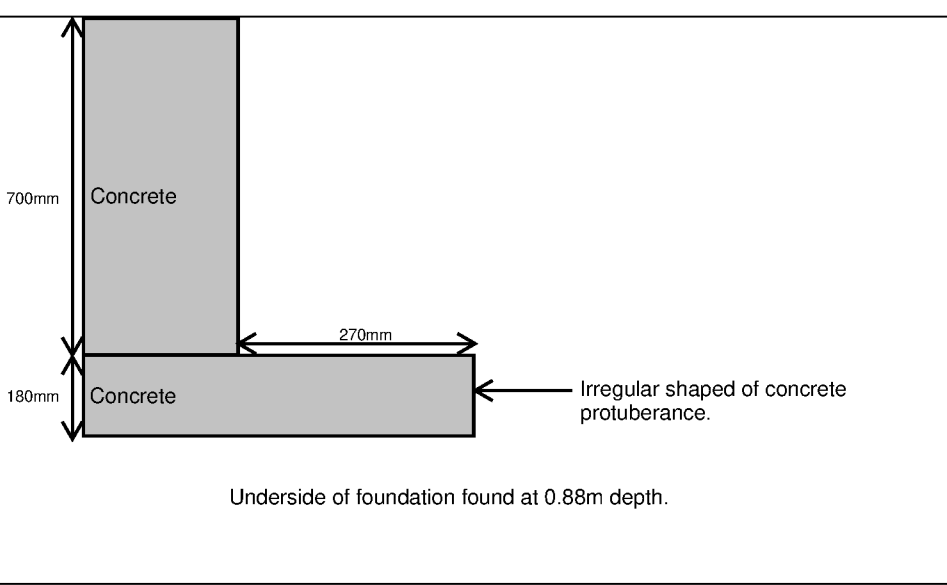
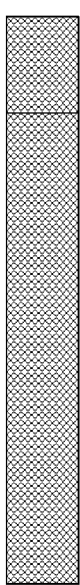
Site Analytical Services Ltd.							Standard Penetration Test Results					
Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD												Job Number
Client : HEATH PROJECTS LIMITED												2235405
Engineer :												Sheet
												3 / 4
Borehole Number	Base of Borehole (m)	End of Seating Drive (m)	End of Test Drive (m)	Test Type	Seating Blows per 75mm		Blows for each 75mm penetration				Result	Comments
					1	2	1	2	3	4		
BH4	14.65	14.65	14.95	CPT			29	34	32	31	0*/0mm N=126	
BH4	14.95	14.95	15.25	CPT			35	37	38	35	0*/0mm N=145	
BH4	15.25	15.25	15.55	CPT			34	36	36	40	0*/0mm N=146	
BH4	15.55	15.55	15.85	CPT			38	41	38	36	0*/0mm N=153	
BH4	15.85	15.85	16.15	CPT			37	34	38	31	0*/0mm N=140	
BH4	16.15	16.15	16.45	CPT			35	33	33	32	0*/0mm N=133	
BH4	16.45	16.45	16.75	CPT			34	30	29	31	0*/0mm N=124	
BH4	16.75	16.75	17.05	CPT			32	36	34	31	0*/0mm N=133	
BH4	17.05	17.05	17.35	CPT			28	27	28	31	0*/0mm N=114	
BH4	17.35	17.35	17.65	CPT			35	36	36	40	0*/0mm N=147	
BH4	17.65	17.65	17.95	CPT			40	45	41	38	0*/0mm N=164	
BH4	17.95	17.95	18.25	CPT			42	44	39	40	0*/0mm N=165	
BH5	2.00	2.15	2.45	CPT	1	1	1	1	1	1	N=4	
BH5	3.00	3.15	3.45	CPT	0	1	1	0	1	0	N=2	
BH5	4.00	4.15	4.45	CPT	0	1	0	0	0	0	N=0	
BH5	5.00	5.15	5.45	CPT	0	1	0	0	1	0	N=1	
BH5	6.00	6.15	6.45	CPT	0	1	0	1	0	1	N=2	
BH5	7.50	7.65	7.95	CPT	0	1	0	1	0	1	N=2	
BH5	9.00	9.15	9.45	CPT	0	1	0	1	1	1	N=3	
BH5	10.50	10.65	10.95	CPT	0	1	1	1	1	1	N=4	
BH5	12.00	12.15	12.45	CPT	3	3	3	4	4	5	N=16	
BH5	13.50	13.65	13.95	CPT	4	5	5	6	6	8	N=25	
BH5	14.50	14.65	14.95	CPT	13	14	15	15	15	12	N=57	
BH5	16.50	16.65	16.95	CPT	10	10	14	15	15	16	N=60	
BH5	18.00	18.15	18.45	CPT	12	13	14	14	15	16	N=59	
BH5	19.50	19.65	19.95	CPT	13	14	15	16	16	18	N=65	
BH5	21.00	21.15	21.45	CPT	20	20	15	17	20	21	N=73	
BH6	2.00	2.15	2.45	CPT	0	1	0	0	1	0	N=1	
BH6	3.00	3.15	3.45	CPT	0	1	0	1	0	1	N=2	
BH6	4.00	4.15	4.45	CPT	0	0	0	0	0	0	N=0	
BH6	5.00	5.15	5.45	CPT	0	1	0	0	1	0	N=1	
BH6	6.00	6.15	6.45	CPT	0	1	0	0	0	1	N=1	
BH6	7.50	7.65	7.95	CPT	0	1	0	1	0	1	N=2	
BH6	9.00	9.15	9.45	CPT	0	1	0	1	1	1	N=3	
BH6	10.50	10.65	10.95	CPT	0	1	0	1	1	1	N=3	
BH6	12.00	12.15	12.45	CPT	3	3	5	4	3	5	N=17	
BH6	13.50	13.65	13.95	CPT	5	5	6	5	6	7	N=24	
BH6	14.50	14.65	14.95	CPT	18	19	14	15	12	12	N=53	
BH6	16.50	16.65	16.95	CPT	5	6	9	10	12	14	N=45	
BH6	18.00	18.15	18.45	CPT	6	7	10	11	12	15	N=48	
BH6	19.50	19.65	19.95	CPT	15	15	13	12	15	17	N=57	
BH7	1.00	1.15	1.45	CPT	2	2	2	3	2	1	N=8	
BH7	2.00	2.15	2.45	CPT	0	1	0	1	0	1	N=2	

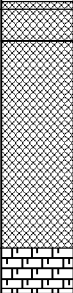
Site Analytical Services Ltd.							Standard Penetration Test Results					
Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD											Job Number	
Client : HEATH PROJECTS LIMITED											2235405	
Engineer :											Sheet	
											4 / 4	
Borehole Number	Base of Borehole (m)	End of Seating Drive (m)	End of Test Drive (m)	Test Type	Seating Blows per 75mm		Blows for each 75mm penetration				Result	Comments
					1	2	1	2	3	4		
BH7	3.00	3.15	3.45	CPT	0	1	0	1	0	0	N=1	
BH7	4.00	4.15	4.45	CPT	0	0	0	1	0	0	N=1	
BH7	5.00	5.15	5.45	CPT	0	0	1	0	0	0	N=1	
BH7	6.00	6.15	6.45	CPT	0	0	0	0	0	0	N=0	
BH7	7.50	7.65	7.95	CPT	0	1	0	0	0	1	N=1	
BH7	9.00	9.15	9.45	CPT	0	1	1	0	1	0	N=2	
BH7	10.50	10.65	10.95	CPT	0	1	1	0	1	1	N=3	
BH7	12.00	12.15	12.45	CPT	3	3	8	10	10	14	N=42	
BH7	13.50	13.65	13.95	CPT	5	5	9	11	10	13	N=43	
BH7	15.00	15.15	15.45	CPT	7	7	9	10	12	15	N=46	
BH7	16.50	16.65	16.95	CPT	6	6	7	8	10	10	N=35	
BH7	18.00	18.15	18.45	CPT	7	8	9	8	8	10	N=35	
BH7	19.50	19.65	19.95	CPT	7	7	8	9	7	8	N=32	
BH7	21.00	21.15	21.45	CPT	6	7	7	8	7	8	N=30	
BH7	22.50	22.65	22.95	CPT	8	8	8	8	7	9	N=32	
BH7	24.00	24.15	24.45	CPT	6	6	8	7	9	8	N=32	
BH8	2.00	2.15	2.45	CPT	0	1	0	1	0	0	N=1	
BH8	3.00	3.15	3.45	CPT	0	1	0	1	0	1	N=2	
BH8	4.00	4.15	4.45	CPT	0	1	0	0	0	1	N=1	
BH8	5.00	5.15	5.45	CPT	0	0	0	1	0	0	N=1	
BH8	6.00	6.15	6.45	CPT	0	1	0	1	0	1	N=2	
BH8	7.50	7.65	7.95	CPT	0	1	0	1	0	1	N=2	
BH8	9.00	9.15	9.45	CPT	0	1	0	0	1	0	N=1	
BH8	10.50	10.65	10.95	CPT	0	1	0	1	1	1	N=3	
BH8	12.00	12.15	12.45	CPT	3	4	5	6	10	10	N=31	
BH8	13.50	13.65	13.95	CPT	3	4	12	14	12	13	N=51	
BH8	15.00	15.15	15.45	CPT	5	5	14	10	12	13	N=49	
BH8	16.50	16.65	16.95	CPT	7	7	9	10	15	12	N=46	
BH8	18.00	18.15	18.45	CPT	6	6	10	11	10	9	N=40	
BH8	19.50	19.65	19.95	CPT	5	5	6	7	6	8	N=27	
BH8	21.00	21.15	21.45	CPT	5	5	6	6	7	7	N=26	
BH8	22.50	22.65	22.95	CPT	5	6	7	6	7	9	N=29	

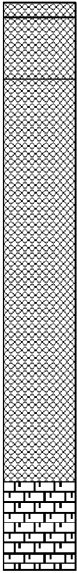
Site Analytical Services Ltd.						Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Trial Pit Number TP1		
Excavation Method ROTARY PERCUSSIVE		Dimensions 0.30m(W) x 0.30m(L) x 0.85m(D)		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405		
		Location TQ615751		Dates 27/06/2022		Engineer		Sheet 1/1		
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water	
0.55 0.55-0.85	D1 M2 54/300				0.08 (0.77) 0.85	MADE GROUND: Gravel MADE GROUND: Soft, medium to dark brown silty clay containing brick,concrete and other man-made fragments Complete at 0.85m				
Plan					Remarks					
					Groundwater was not encountered during boring/excavation M= Makintosh Probe-Blows/Penetration (mm) D= Disturbed Sample					
					Scale (approx)		Logged By		Figure No.	
					1:50		EW		2235405.TP1	

Site Analytical Services Ltd.			Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Trial Pit Number TP1
Method Trial Pit		Dimensions 0.30m(W) x 0.30m(L) x 0.85m(D)	Ground Level (mOD)		Client HEATH PROJECTS LIMITED
Orientation 		Location TQ615751	Dates 27/06/2022		Engineer
Depth 0.00 0.85  					
Strata			Samples and Tests		
Depth (m)	No.	Description	Depth (m)	Type	Field Records
0.00-0.08	1	MADE GROUND: Gravel	0.55 0.55-0.85	D1 M2 54/300	
0.08-0.85	2	MADE GROUND: Soft, medium to dark brown silty clay containing brick, concrete and other man-made fragments			
			Excavation Method: ROTARY PERCUSSIVE Shoring / Support: Stability: Backfill:		
Remarks Groundwater was not encountered during boring/excavation M= Makintosh Probe-Blows/Penetration (mm) D= Disturbed Sample					
					Logged By : EW Checked By : Figure No. : 2235405.TP1

Site Analytical Services Ltd.						Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Trial Pit Number TP2		
Excavation Method ROTARY PERCUSSIVE		Dimensions 0.30m(W) x 0.30m(L) x 1.18m(D)		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405		
		Location TQ615751		Dates 27/06/2022		Engineer		Sheet 1/1		
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water	
0.88 0.88-1.18	D1 M2 64/300				(0.20)	MADE GROUND: Gravel				
					0.20	MADE GROUND: Loose, medium to dark brown sandy silt containing brick, concrete and other man-made fragments				
					(0.98)					
					1.18	Complete at 1.18m				
Plan					Remarks					
.					Groundwater was not encountered during boring/excavation					
.					M= Makintosh Probe-Blows/Penetration (mm)					
.					D= Disturbed Sample					
.										
.										
.										
.										
					Scale (approx)		Logged By		Figure No.	
					1:50		EW		2235405.TP2	

Site Analytical Services Ltd.			Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Trial Pit Number TP2
Method Trial Pit		Dimensions 0.30m(W) x 0.30m(L) x 1.18m(D)	Client HEATH PROJECTS LIMITED		Job Number 2235405
Orientation 		Location TQ615751	Dates 27/06/2022	Engineer 	
Depth 0.00  1.18 Level 0.00  1.18					
Strata			Samples and Tests		
Depth (m)	No.	Description	Depth (m)	Type	Field Records
0.00-0.20	1	MADE GROUND: Gravel			
0.20-1.18	2	MADE GROUND: Loose, medium to dark brown sandy silt containing brick, concrete and other man-made fragments	0.88 0.88-1.18	D1 M2 64/300	
			Excavation Method: ROTARY PERCUSSIVE Shoring / Support: Stability: Backfill:		
Remarks Groundwater was not encountered during boring/excavation M= Makintosh Probe-Blows/Penetration (mm) D= Disturbed Sample					
					Logged By : EW Checked By : Figure No. : 2235405.TP2

Site Analytical Services Ltd.						Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Trial Pit Number TP3		
Excavation Method ROTARY PERCUSSIVE		Dimensions 0.30m(W) x 0.30m(L) x 1.93m(D)		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405		
		Location TQ615751		Dates 27/06/2022		Engineer		Sheet 1/1		
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water	
1.63 1.63-1.93	D1 M2 69/300				0.05 (0.21) 0.26 (1.37) 1.63 (0.30) 1.93	MADE GROUND: Concrete MADE GROUND: Tarmac MADE GROUND: Soft, medium to dark brown silty clay containing brick,concrete and other man-made fragments Medium brown orange white clayey silty CHALK Complete at 1.93m				
Plan					Remarks					
					Groundwater was not encountered during boring/excavation M= Makintosh Probe-Blows/Penetration (mm) D= Disturbed Sample					
					Scale (approx)		Logged By		Figure No.	
					1:50		EW		2235405.TP3	

Site Analytical Services Ltd.			Site SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD		Trial Pit Number TP3						
Method Trial Pit		Dimensions 0.30m(W) x 0.30m(L) x 1.93m(D)		Ground Level (mOD)		Client HEATH PROJECTS LIMITED		Job Number 2235405			
Orientation A D B C		Location TQ615751		Dates 27/06/2022		Engineer		Sheet 1/1			
Depth 0.00 1.00 1.93 1130mm Concrete 400mm 500mm Concrete Underside of foundation found at 1.63m depth. Level 0.00 1.00 1.93 											
Strata						Samples and Tests					
Depth (m)		No.		Description		Depth (m)		Type		Field Records	
0.00-0.05		1		MADE GROUND: Concrete		1.63 1.63-1.93		D1 M2 69/300			
0.05-0.26		2		MADE GROUND: Tarmac							
0.26-1.63		3		MADE GROUND: Soft, medium to dark brown silty clay containing brick, concrete and other man-made fragments							
1.63-1.93		4		Medium brown orange white clayey silty CHALK							
						Excavation Method: ROTARY PERCUSSIVE					
						Shoring / Support:					
						Stability:					
						Backfill:					
Remarks Groundwater was not encountered during boring/excavation M= Makintosh Probe-Blows/Penetration (mm) D= Disturbed Sample Logged By : EW Checked By : Figure No. : 2235405.TP3											



APPENDIX B

Laboratory Test & Gas Monitoring Data

PLASTICITY INDEX & MOISTURE CONTENT DETERMINATIONS

BH/TP No.	Depth (m)	Natural Moisture (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 µm (%)	Modified Plasticity Index (%)	Class
BH1	2.50	36	65	29	36	100	36	CH
	4.00	52	79	30	49	100	49	CV
	6.00	95						
	9.00	57						
BH2	2.50	39	48	25	23	100	23	CI
	4.50	93	113	46	67	100	67	CE/ME
	6.00	40						
	10.00	39						
BH4	2.50	43	66	33	33	100	33	CH/MH
	3.50	63	107	39	68	95	65	CE
	9.00	74						
BH5	2.50	63	84	38	46	100	46	CV/MV
	4.50	68	103	31	72	100	72	CE
	9.00	127						
BH6	4.00	67	76	45	31	100	31	MV
	4.50	77	111	33	78	90	70	CE
	8.00	77						
	11.00	79	123	56	67	95	64	ME
BH7	2.00	43	69	34	35	100	35	CH/MH
	3.50	69	91	38	53	100	53	CE
	4.50	64	84	37	47	100	47	CV
BH8	2.50	37	61	20	41	80	33	CH
	3.50	79	114	43	71	100	71	CE
	4.00	74	87	39	48	100	48	CV/MV

Table 1



GAS MONITORING (1/4)

DATE: 07/07/22

Weather Conditions:

Cloudy with a gentle breeze

Ground Conditions:

Dry

Temperature (°C):

21.0

Barometric Pressure (mbar):

1028

Barometric Pressure Trend (24hr):

Rising

Ambient O2:

21.2%

Monitoring Point Location	Flow	Atmospheric Pressure (mbar)	Methane %	Carbon Dioxide %	Oxygen %	VOC (ppm)	Hydrogen Sulphide (ppm)	Carbon Monoxide (ppm)	Depth to water (bgl)	Depth to Base of well (bgl)
BH1	<0.1	1029	<0.1	1.2	16.8	0.026	<0.1	<0.1	2.00	9.79
BH5	<0.1	1028	<0.1	1.1	19.7	0.577	<0.1	<0.1	1.42	9.87
BH7	<0.1	1028	30.9	4.0	0.90	0.154	<0.1	<0.1	1.55	10.73

Table 2

GAS MONITORING (2/4)

DATE: 14/07/22

Weather Conditions:			Ground Conditions:				Temperature (°C):			
Dry			Dry				21.0			
Barometric Pressure (mbar):			Barometric Pressure Trend (24hr):				Ambient O2:			
1020			Rising				17.0%			
Monitoring Point Location	Flow	Atmospheric Pressure (mbar)	Methane %	Carbon Dioxide %	Oxygen %	VOC (ppm)	Hydrogen Sulphide (ppm)	Carbon Monoxide (ppm)	Depth to water (bgl)	Depth to Base of well (bgl)
BH1	<0.1	1020	<0.1	0.8	18.2	1.0	<0.1	<0.1	1.70	9.79
BH5	<0.1	1020	<0.1	0.8	20.3	2.6	<0.1	<0.1	1.42	9.87
BH7	<0.1	1020	25.9	5.4	0.60	<0.1	<0.1	<0.1	1.54	10.73

Table 2a



GAS MONITORING (3/4)

DATE: 21/07/22

Weather Conditions:			Ground Conditions:				Temperature (°C):			
Overcast			Dry				20.0			
Barometric Pressure (mbar):			Barometric Pressure Trend (24hr):				Ambient O2:			
1022			Rising				21.8%			
Monitoring Point Location	Flow	Atmospheric Pressure (mbar)	Methane %	Carbon Dioxide %	Oxygen %	VOC (ppm)	Hydrogen Sulphide (ppm)	Carbon Monoxide (ppm)	Depth to water (bgl)	Depth to Base of well (bgl)
BH1	<0.1	1022	1.4	1.3	17.6	0.1	<0.1	<0.1	1.34	9.79
BH5	<0.1	1022	<0.1	0.6	20.4	1.8	<0.1	<0.1	1.44	9.87
BH7	<0.1	1022	33.4	7.5	3.2	<0.1	<0.1	<0.1	1.55	10.73

Table 2b

GAS MONITORING (4/4)

DATE: 28/07/22

Weather Conditions:			Ground Conditions:				Temperature (°C):			
Dry, breezy, high cloud			Dry				17.0			
Barometric Pressure (mbar):			Barometric Pressure Trend (24hr):				Ambient O2:			
1018			Falling				21.3%			
Monitoring Point Location	Flow	Atmospheric Pressure (mbar)	Methane %	Carbon Dioxide %	Oxygen %	VOC (ppm)	Hydrogen Sulphide (ppm)	Carbon Monoxide (ppm)	Depth to water (bgl)	Depth to Base of well (bgl)
BH1	<0.1	1018	<0.1	0.7	19.7	0.2	<0.1	<0.1	1.18	9.79
BH5	<0.1	1018	<0.1	0.8	20.0	1.8	<0.1	<0.1	1.42	9.87
BH7	<0.1	1018	25.9	9.3	2.1	<0.1	<0.1	<0.1	1.54	10.73

Table 2c

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

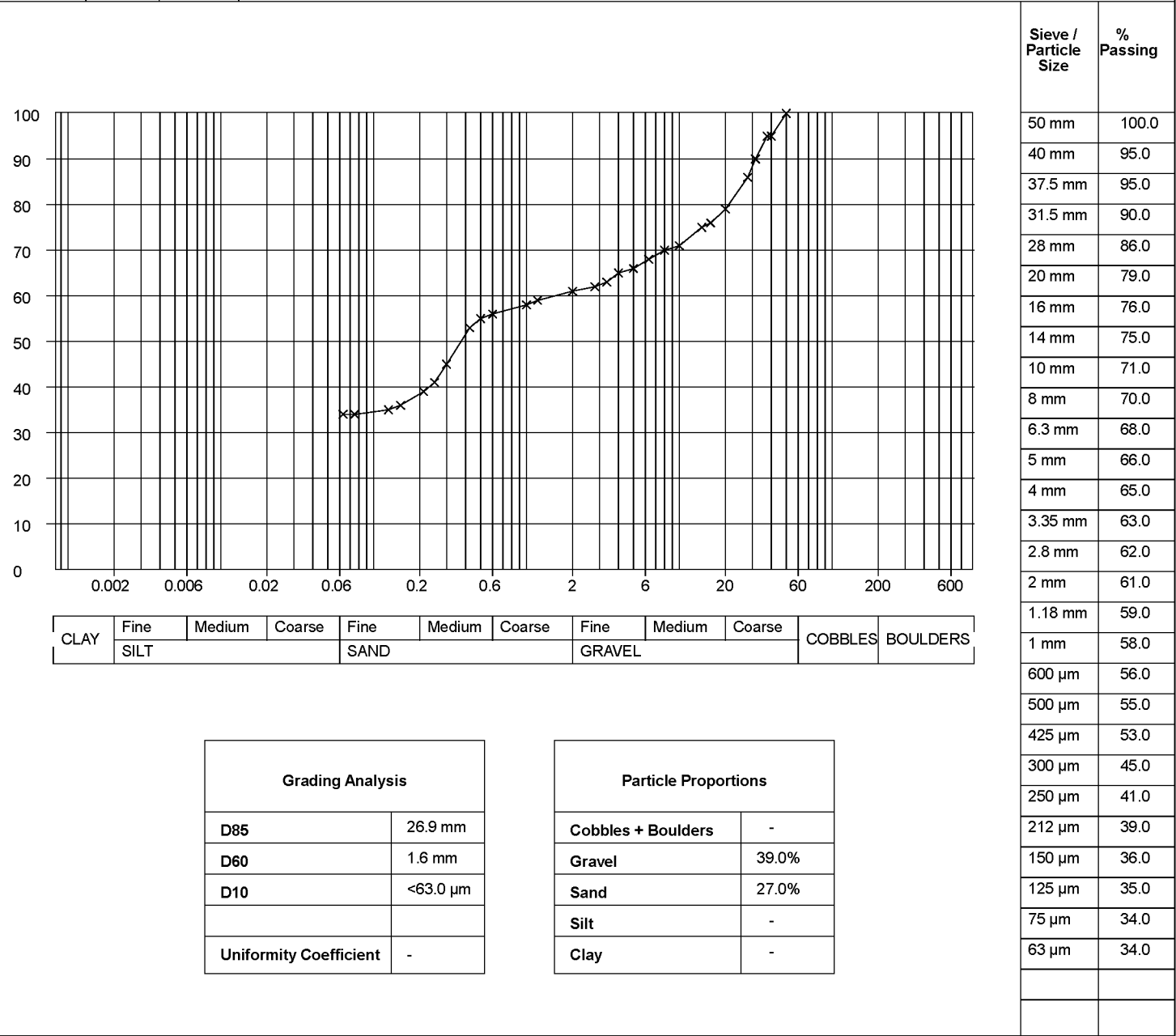
Engineer :

Job Number
2235405

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH2	14.00	D24	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

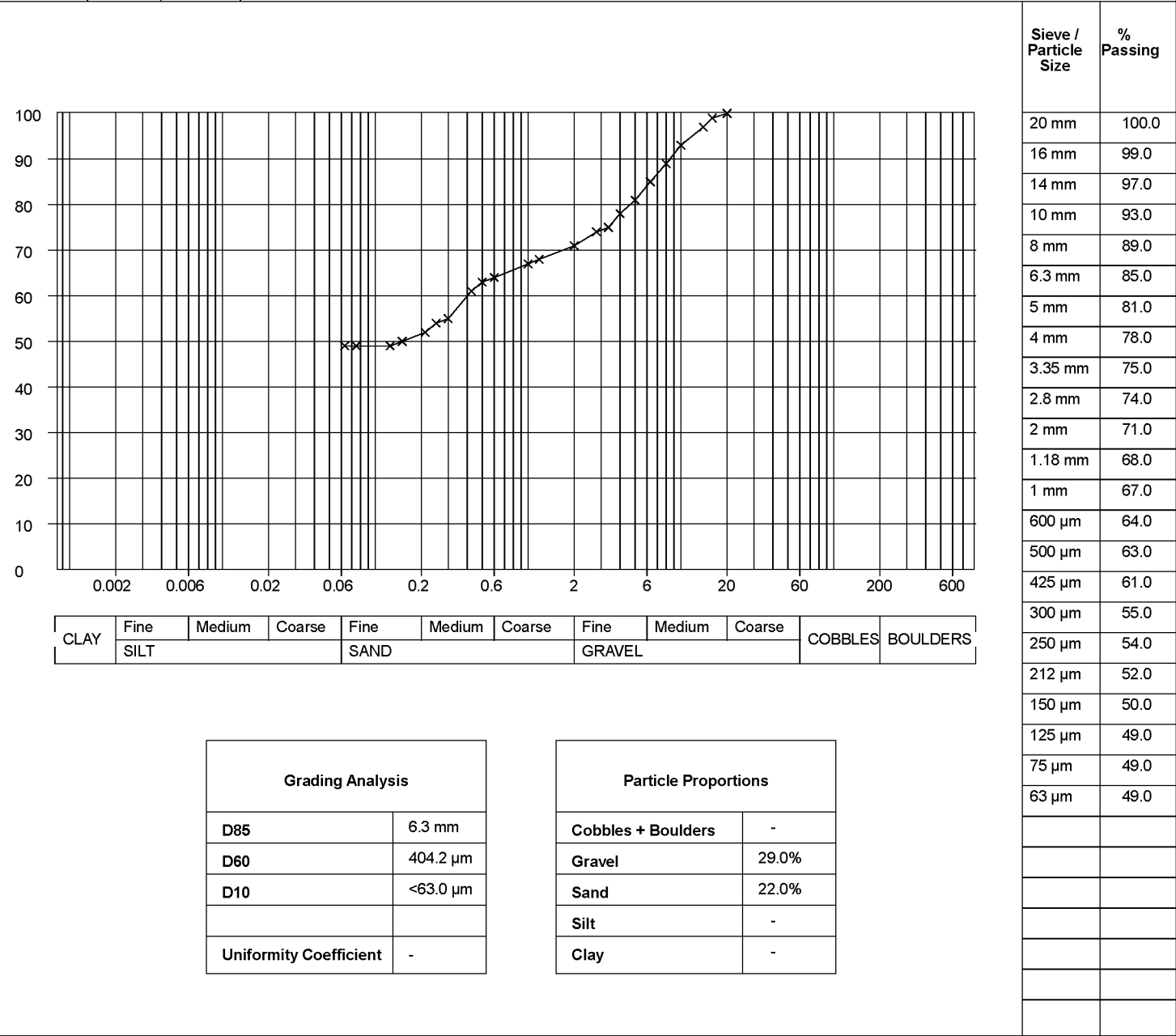
Engineer :

Job Number
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH4	2.00	D4	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

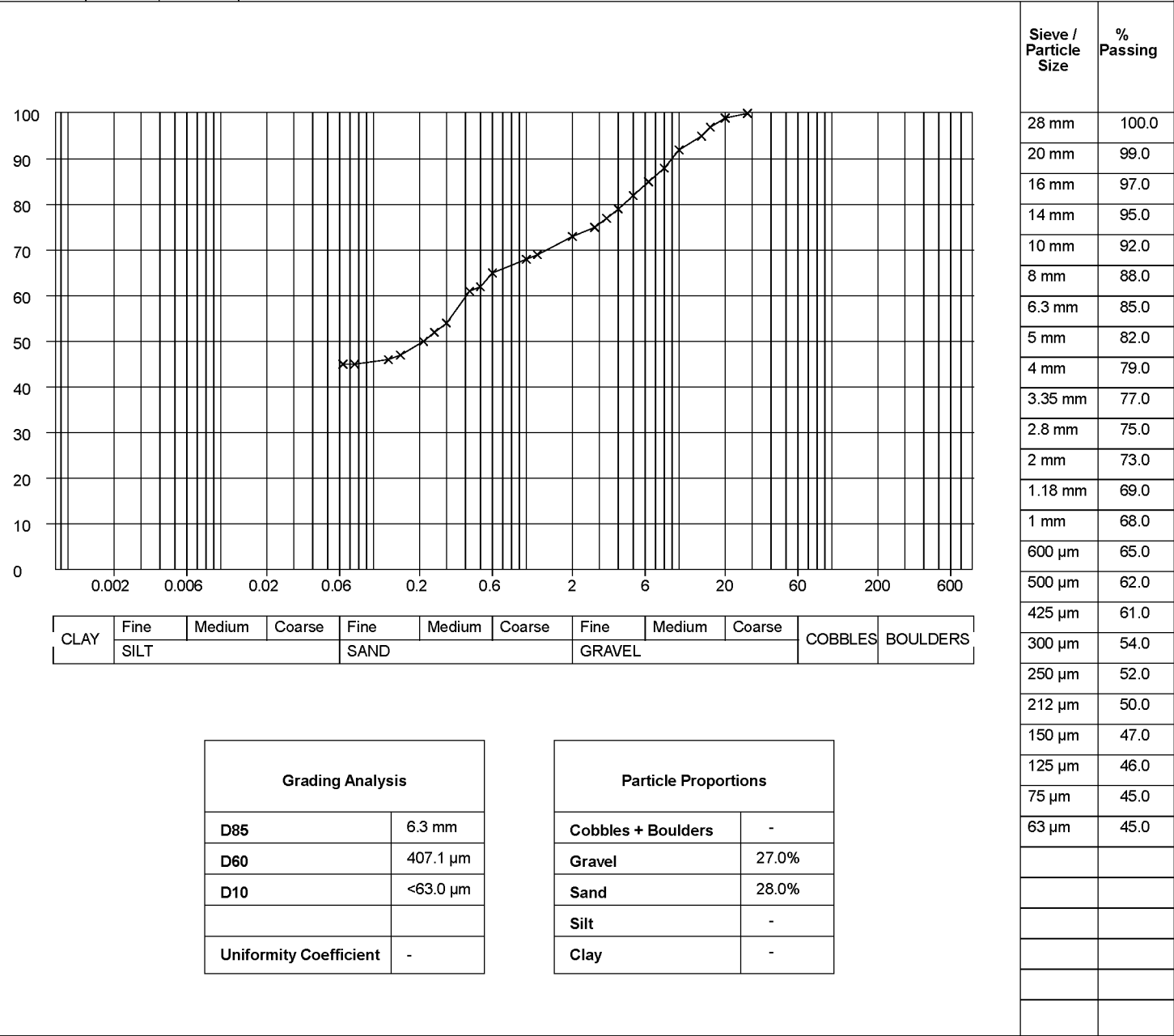
Engineer :

Job Number
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH5	1.50	D5	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

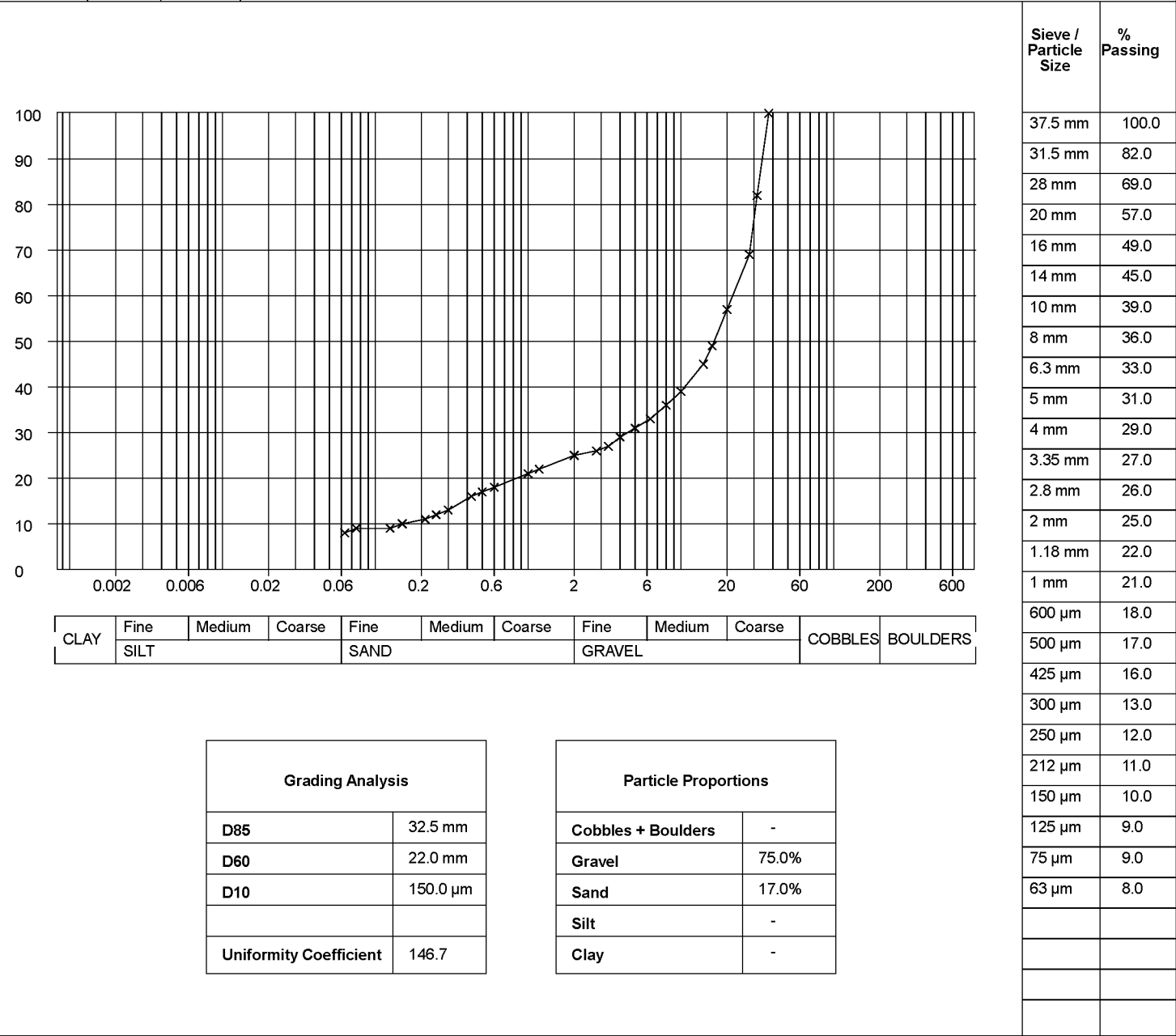
Engineer :

Job Number
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH5	14.00	D24	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

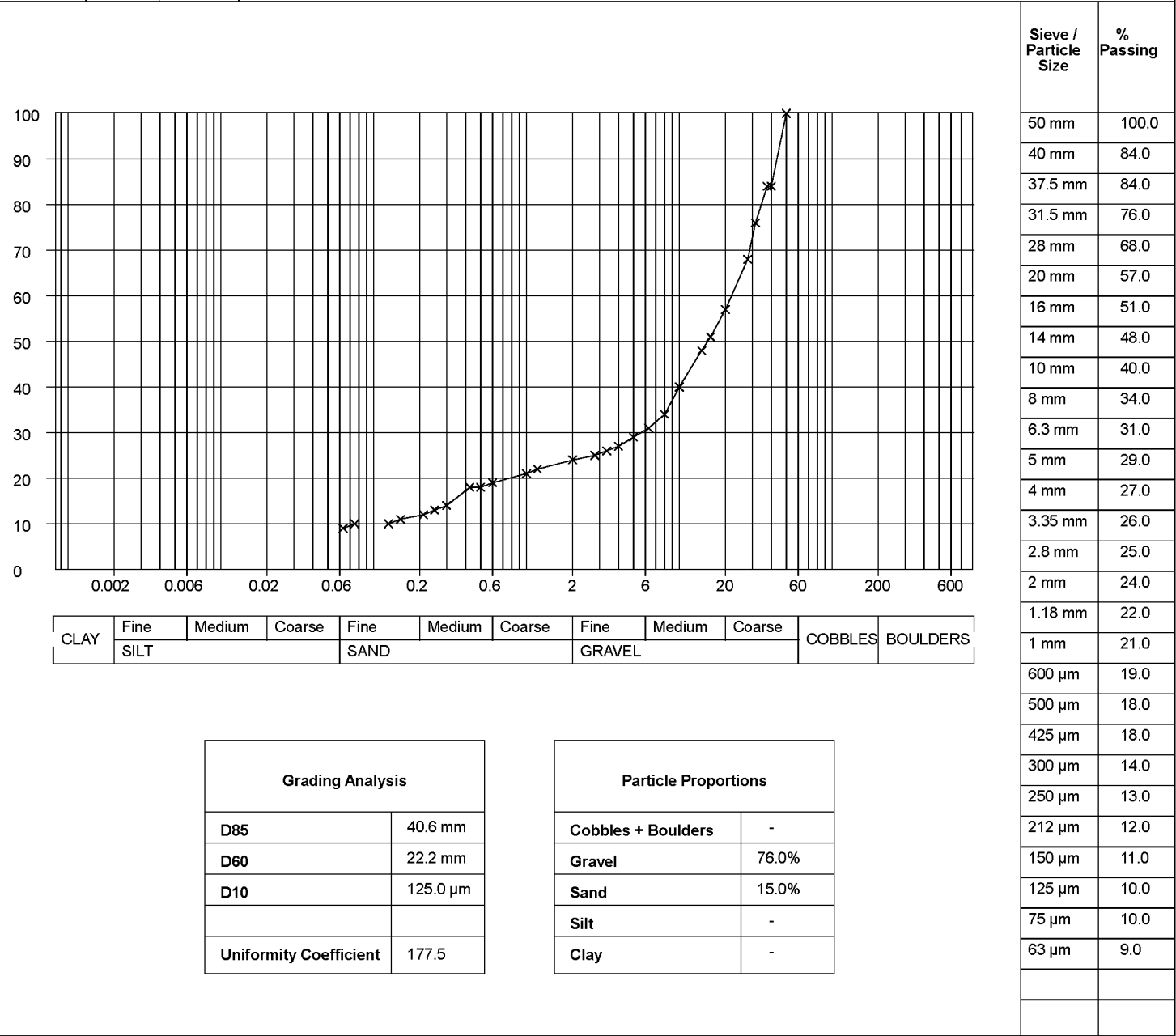
Engineer :

Job Number
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH5	16.00	D27	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

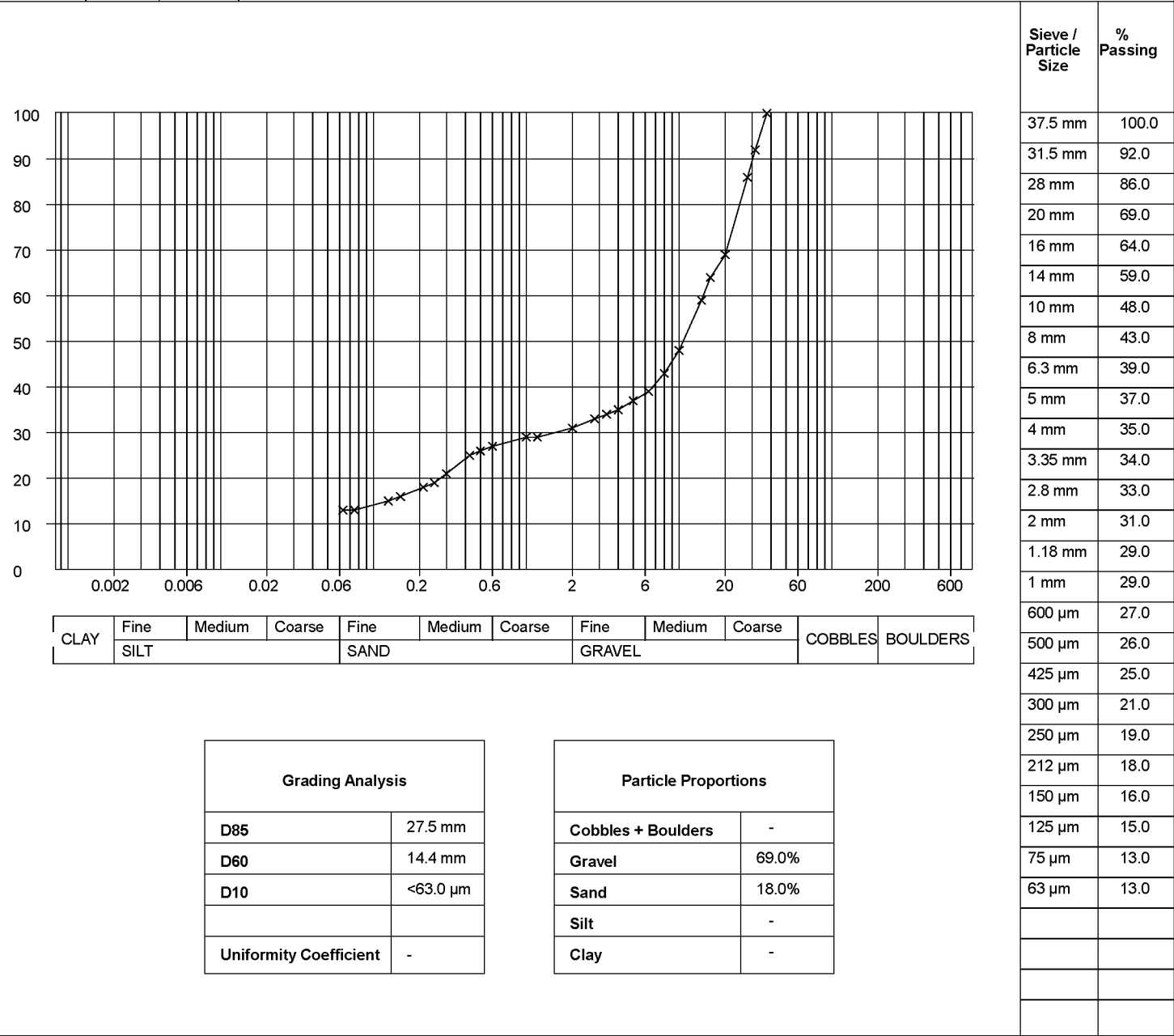
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Job Number
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH5	20.00	D33	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

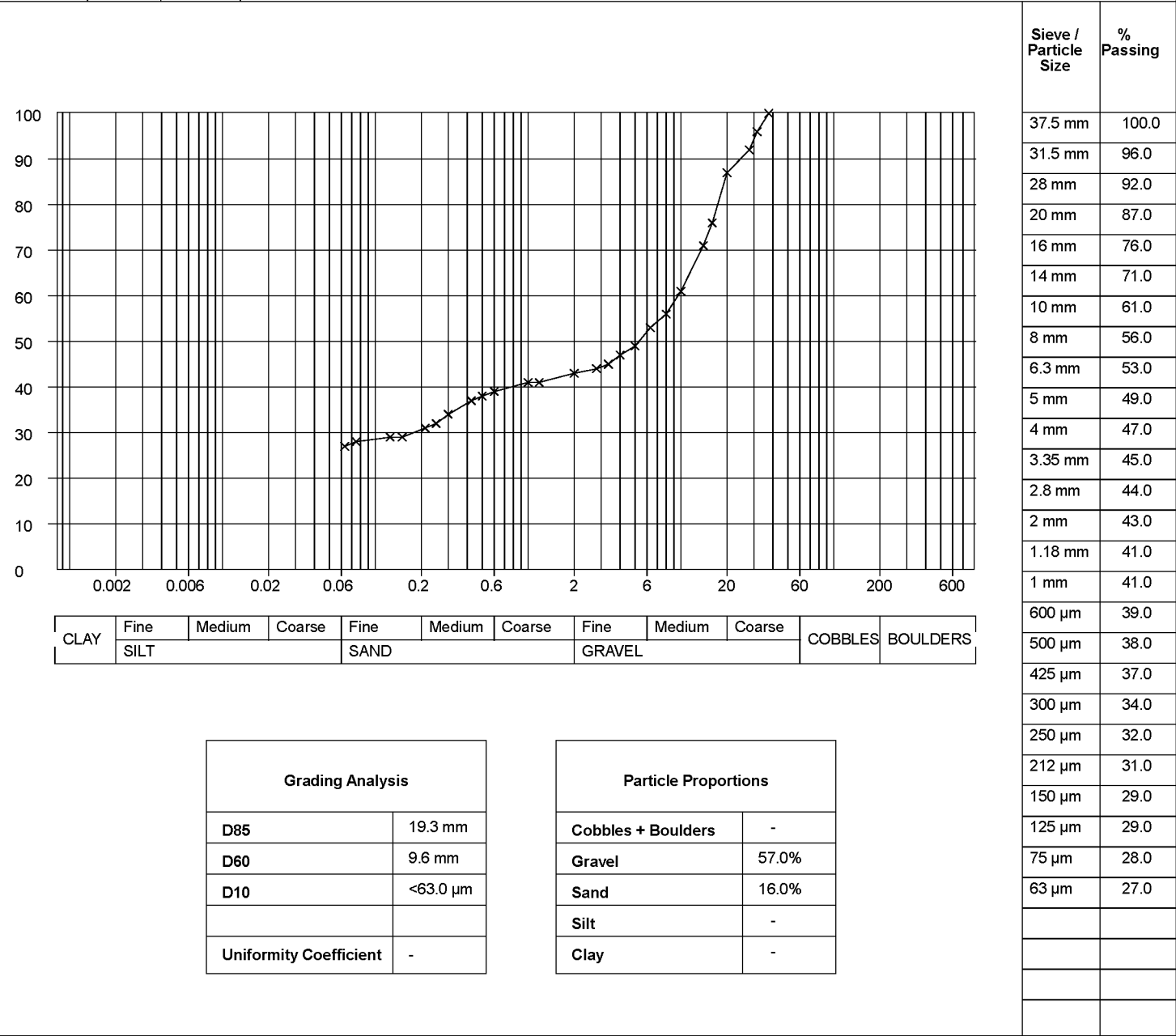
Engineer :

Job Number
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH6	14.00	D24	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

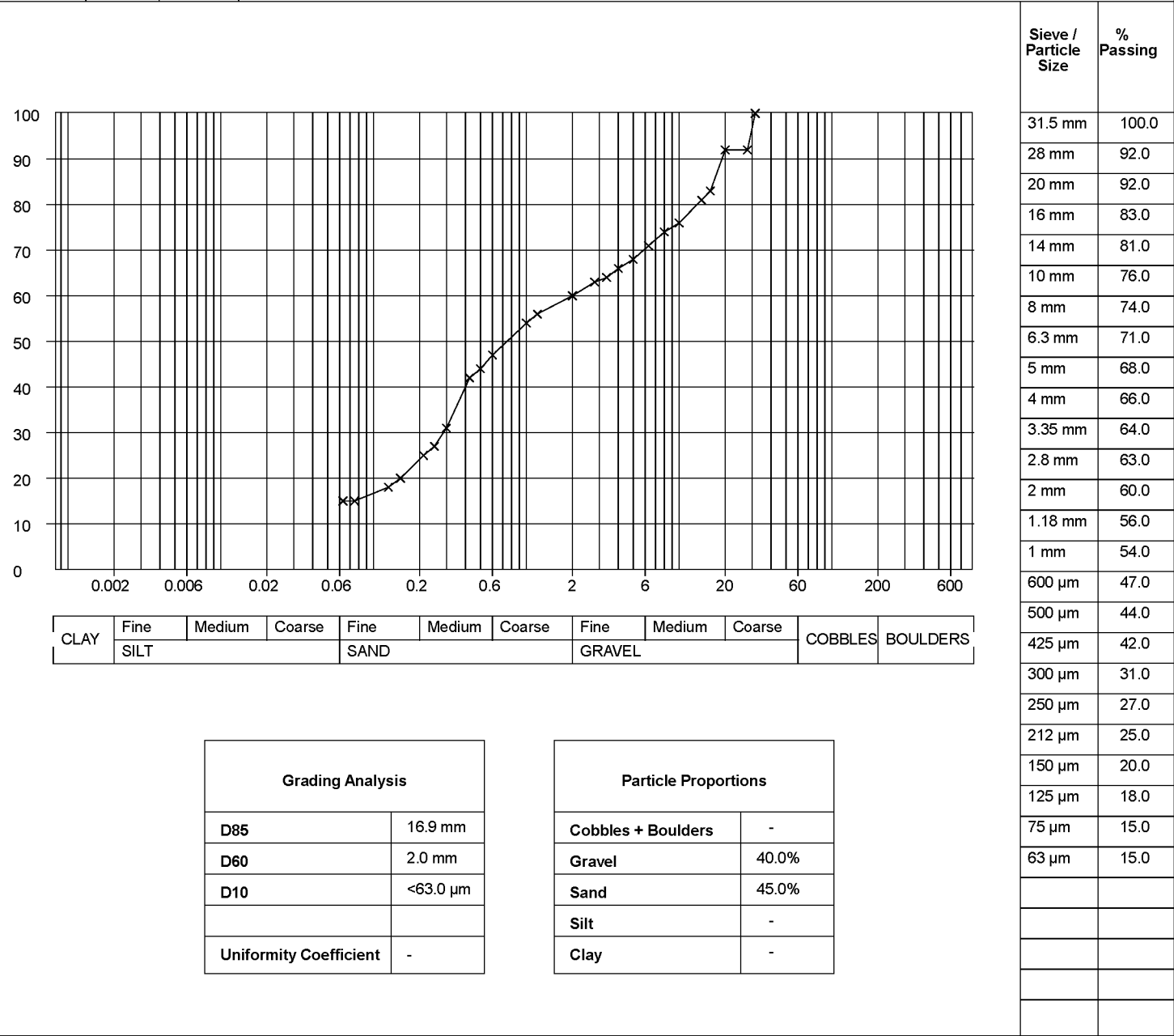
Engineer :

Job Number
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH6	16.00	D27	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

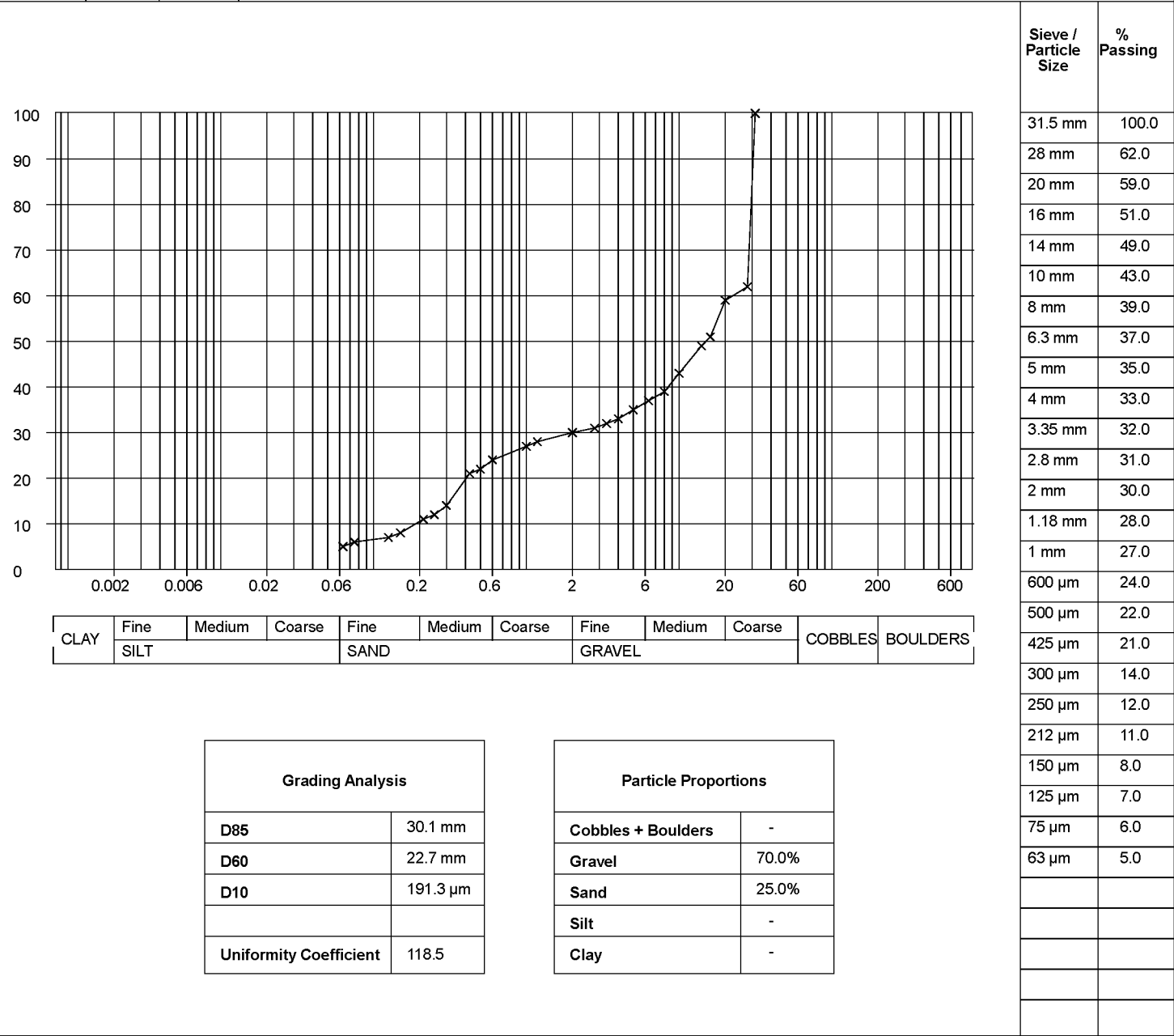
Engineer :

Job Number
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH6	19.00	D31	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

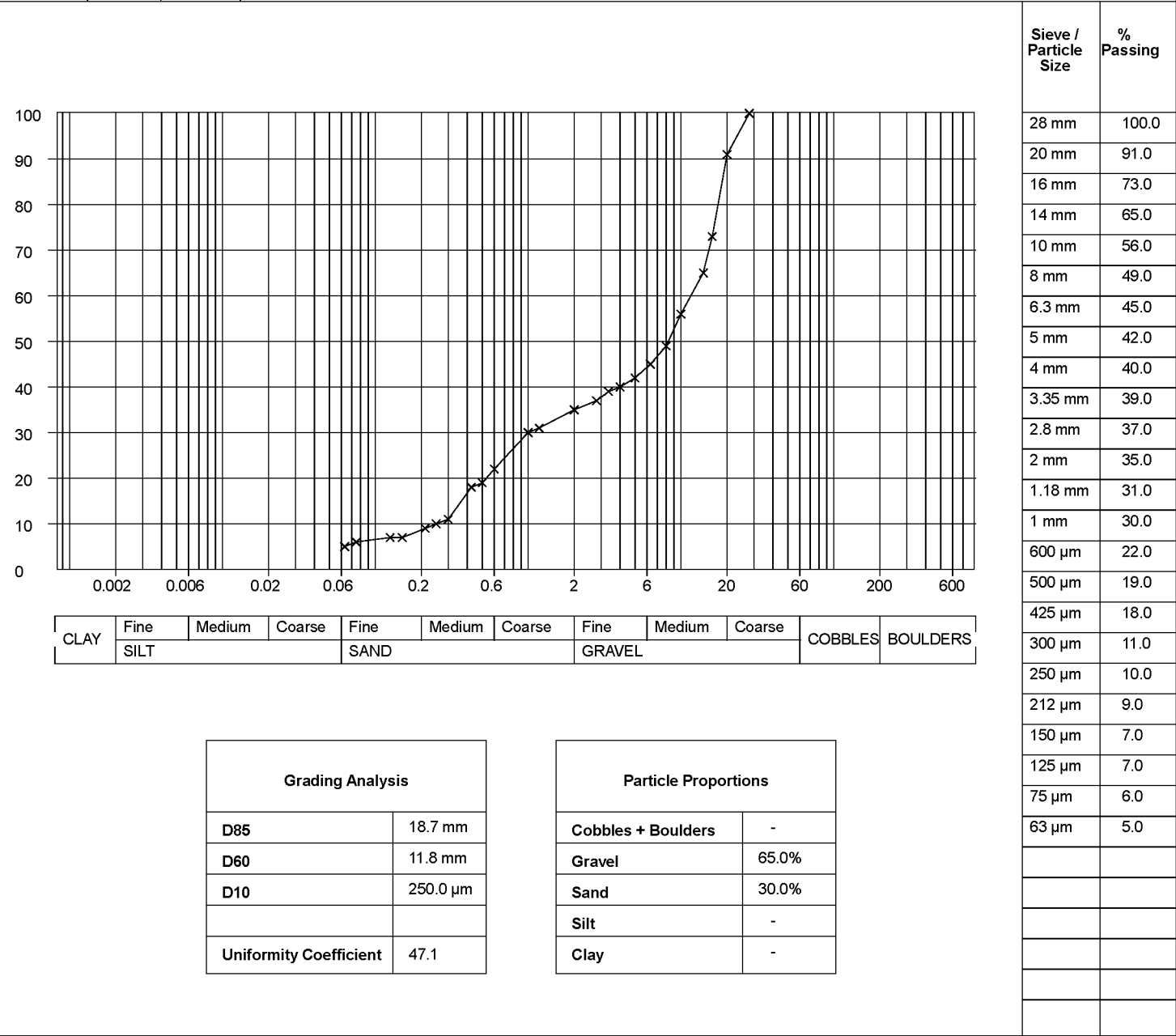
Engineer :

Job Number
2235405

Sheet
10/16

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH7	15.00	D25	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

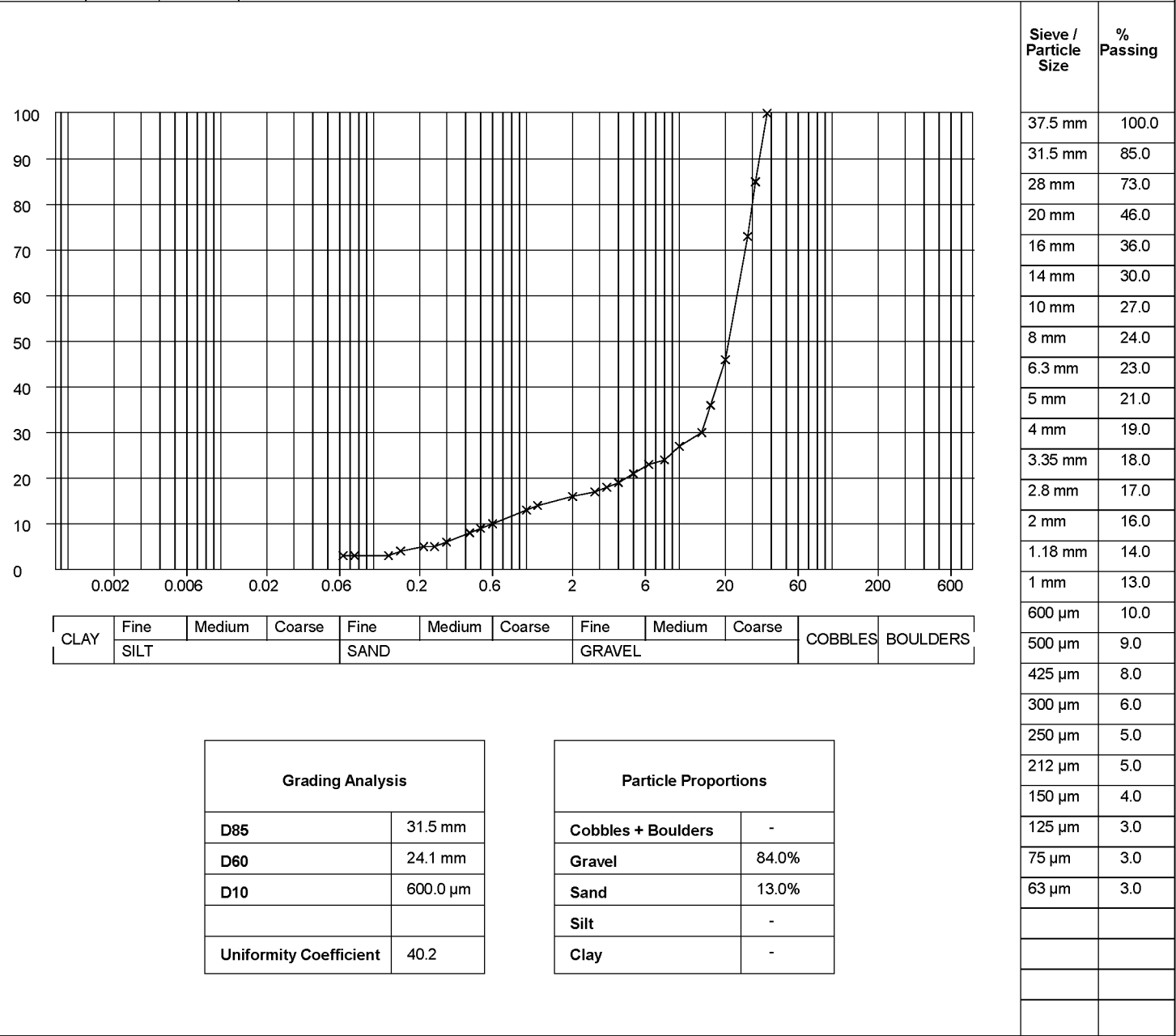
Engineer :

Job Number
2235405

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH7	19.00	D30	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

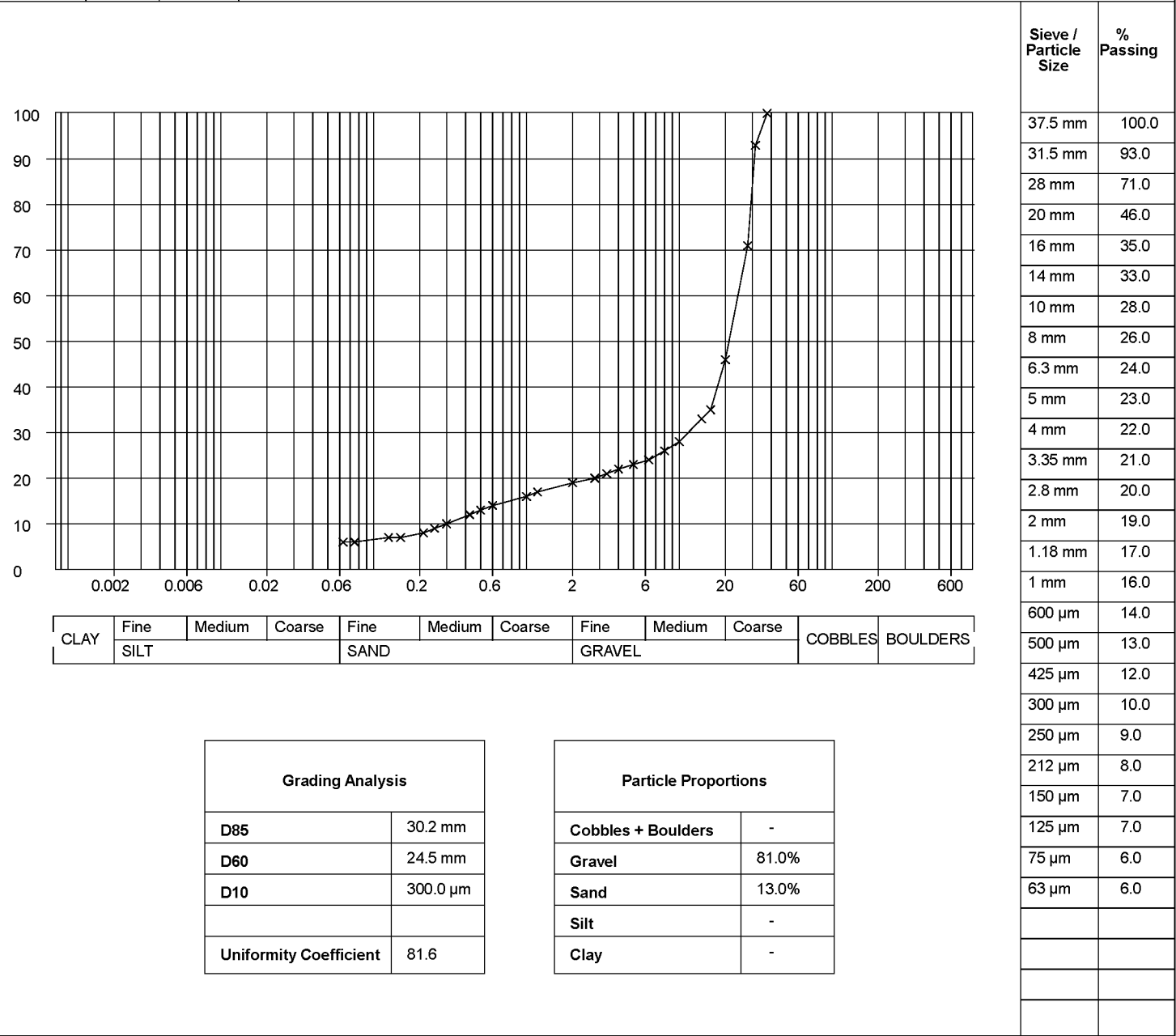
Engineer :

Job Number
2235405

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH7	22.00	D34	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

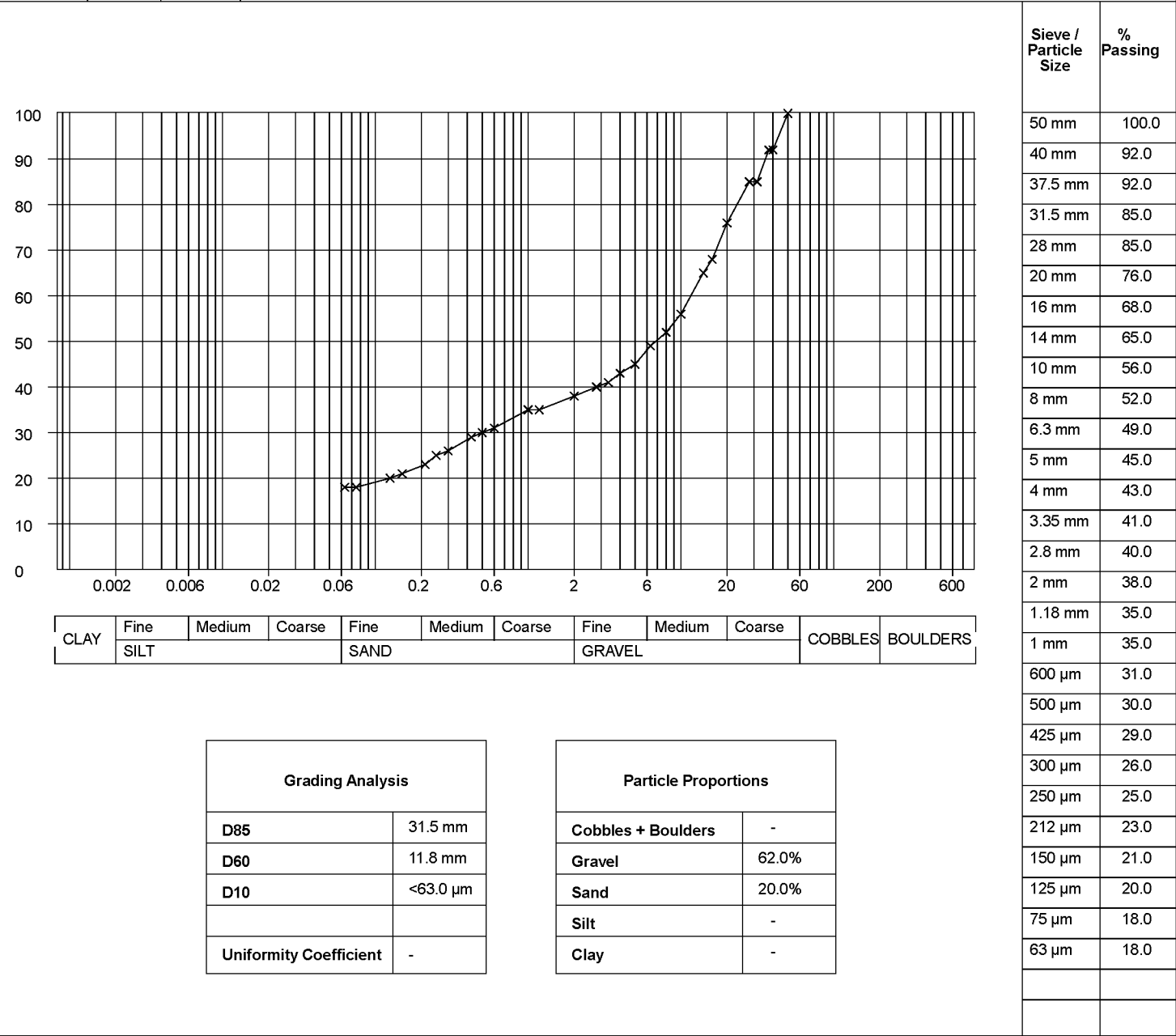
Engineer :

Job Number
2235405

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH8	13.00	D22	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

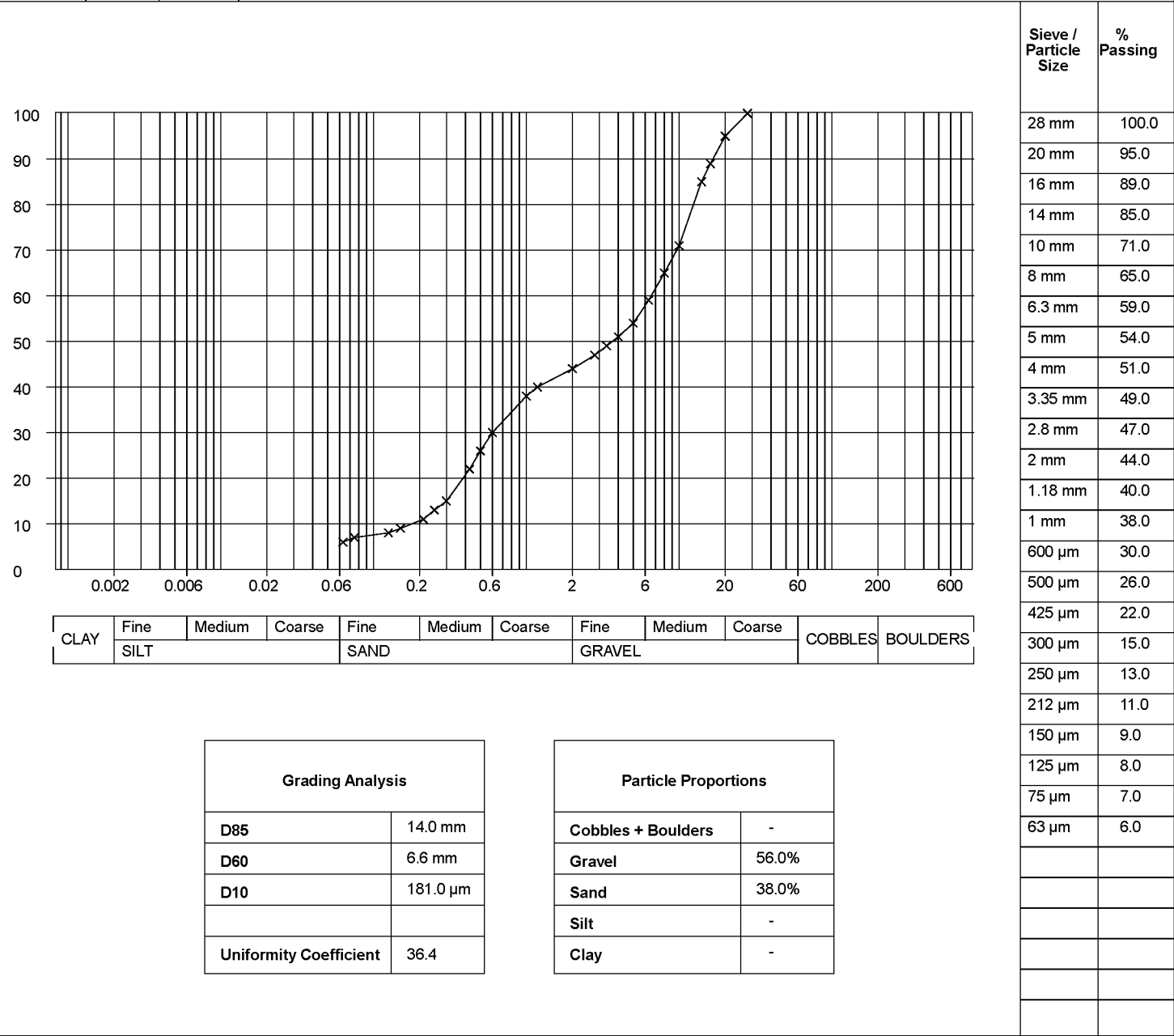
Engineer :

Job Number
2235405

Sheet
14/16

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH8	17.00	D28	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

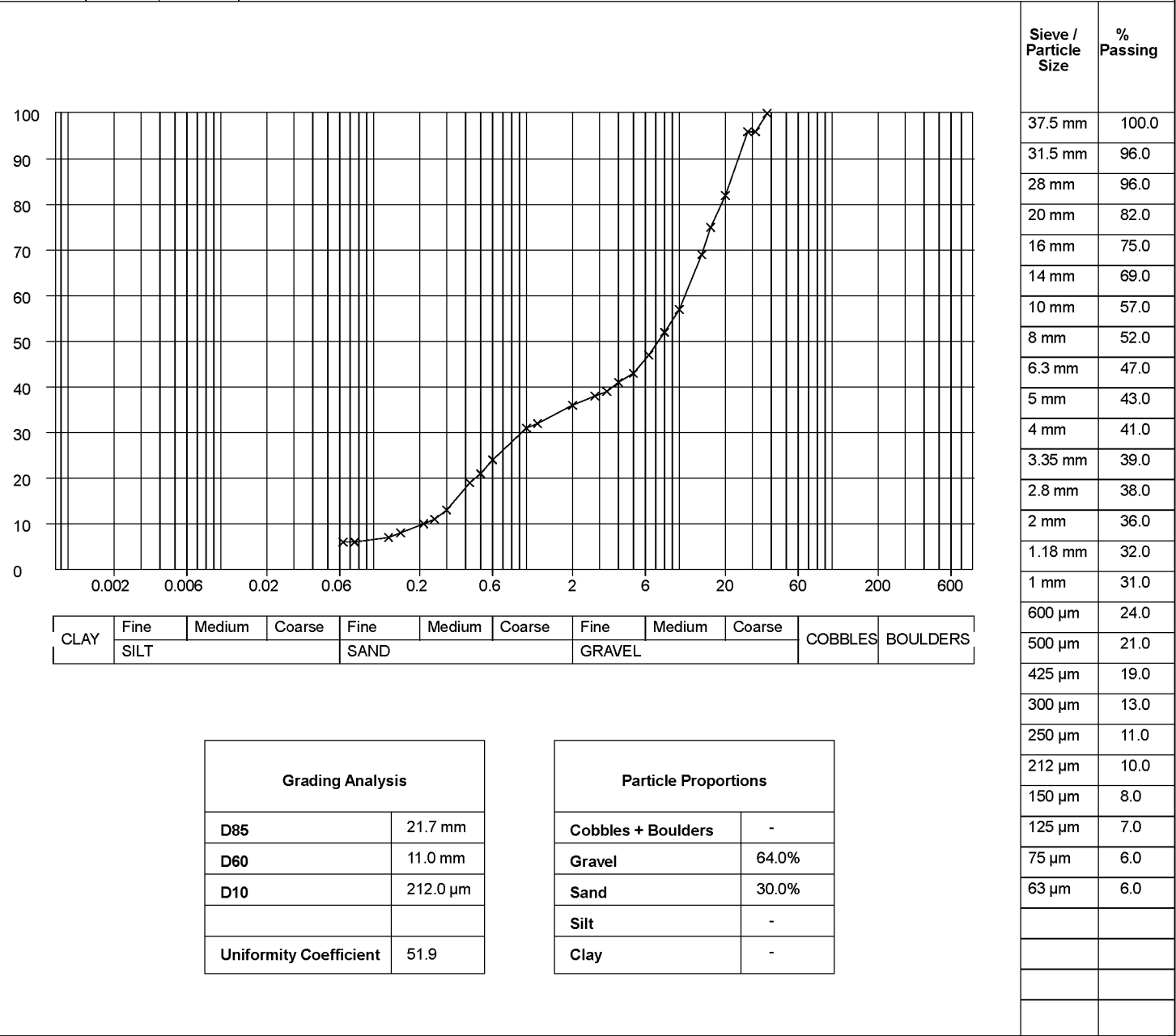
Engineer :

Job Number
2235405

Sheet
15/16

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH8	20.00	D32	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Site : SEACON TERMINALS, TOWER WHARF, LOWER ROAD, NORTHFLEET, KENT, DA11 9BD

Client : HEATH PROJECTS LIMITED

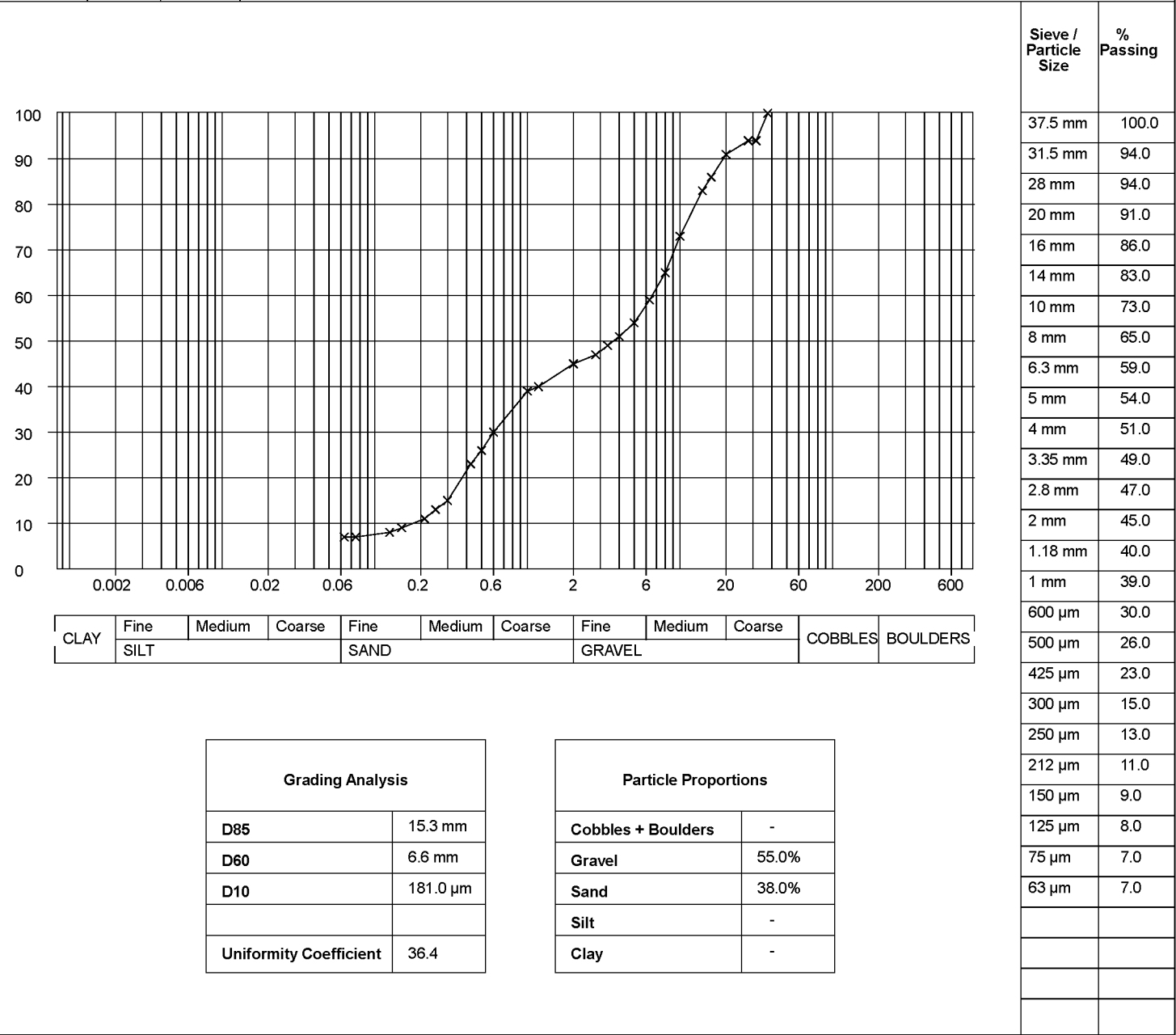
Engineer :

Job Number
2235405

Sheet
16/16

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH8	23.00	D36	



Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Elizabeth Warren
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Analytical Report Number : 22-71031

Project / Site name:	Seacon Terminals, Tower Wharf, DA11 9BD	Samples received on:	13/07/2022
Your job number:	22 35405	Samples instructed on/ Analysis started on:	13/07/2022
Your order number:	10593	Analysis completed by:	20/07/2022
Report Issue Number:	1	Report issued on:	20/07/2022
Samples Analysed:	30 soil samples		

Signed:



Adam Fenwick
 Technical Reviewer
For & on behalf of i2 Analytical Ltd.

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

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

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

soils - 4 weeks from reporting
 leachates - 2 weeks from reporting
 waters - 2 weeks from reporting
 asbestos - 6 months from reporting

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

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

Analytical Report Number: 22-71031

Project / Site name: Seacon Terminals, Tower Wharf, DA11 9BD

Your Order No: 10593

Lab Sample Number				2348141	2348142	2348143	2348144	2348145
Sample Reference				BH1	BH1	BH2	BH2	BH2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.50	7.00	7.00	11.00	13.00
Date Sampled				21/06/2022	21/06/2022	21/06/2022	21/06/2022	21/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	34	49	66	49	40
Total mass of sample received	kg	0.001	NONE	2	2	2	2	2

Whole Sample Crushed		N/A	NONE	Crushed	Crushed	Crushed	Crushed	Crushed
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4	7.2	7.5	7.7	8.3
Total Sulphate as SO ₄	%	0.005	MCERTS	0.128	0.954	0.757	0.397	0.17
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivale	g/l	0.00125	MCERTS	0.66	4	1.7	1.1	0.3
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2400	5600	9800	4300	1900
Total Sulphur	%	0.005	MCERTS	0.365	4.69	1.92	3.86	1.53
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	150	1000	680	380	86
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-71031

Project / Site name: Seacon Terminals, Tower Wharf, DA11 9BD

Your Order No: 10593

Lab Sample Number				2348146	2348147	2348148	2348149	2348150
Sample Reference				BH4	BH4	BH4	BH5	BH5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.00	6.00	8.00	2.00	4.00
Date Sampled				21/06/2022	21/06/2022	21/06/2022	21/06/2022	21/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	36	48	47	29	30
Total mass of sample received	kg	0.001	NONE	2	2	2	2	2

Whole Sample Crushed		N/A	NONE	Crushed	Crushed	Crushed	Crushed	Crushed
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.6	8.3	8.2	7.9	8.5
Total Sulphate as SO ₄	%	0.005	MCERTS	0.234	0.226	0.223	0.172	0.158
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivale	g/l	0.00125	MCERTS	1.3	1.3	1	0.94	0.56
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2000	4900	4600	1100	1500
Total Sulphur	%	0.005	MCERTS	0.902	1.83	3.83	0.328	0.177
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	170	570	420	140	110
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-71031

Project / Site name: Seacon Terminals, Tower Wharf, DA11 9BD

Your Order No: 10593

Lab Sample Number				2348151	2348152	2348153	2348154	2348155
Sample Reference				BH5	BH5	BH5	BH5	BH6
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				7.00	11.00	17.00	27.00	5.00
Date Sampled				21/06/2022	21/06/2022	21/06/2022	21/06/2022	21/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	58	43	12	13	33
Total mass of sample received	kg	0.001	NONE	2	2	2	2	2

Whole Sample Crushed		N/A	NONE	Crushed	Crushed	Crushed	Crushed	Crushed
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.5	7.5	8.5	8.8	8.5
Total Sulphate as SO ₄	%	0.005	MCERTS	0.808	0.245	0.07	0.049	0.153
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivale	g/l	0.00125	MCERTS	3.4	1.1	0.3	0.096	0.68
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	7400	2400	560	150	2200
Total Sulphur	%	0.005	MCERTS	3.77	1.96	0.81	0.087	3.43
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	1300	350	63	15	170
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-71031

Project / Site name: Seacon Terminals, Tower Wharf, DA11 9BD

Your Order No: 10593

Lab Sample Number				2348156	2348157	2348158	2348159	2348160
Sample Reference				BH6	BH6	BH7	BH7	BH7
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				9.00	13.00	3.00	5.00	9.00
Date Sampled				21/06/2022	21/06/2022	21/06/2022	21/06/2022	21/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	62	21	44	28	59
Total mass of sample received	kg	0.001	NONE	2	2	2	2	2

Whole Sample Crushed		N/A	NONE	Crushed	Crushed	Crushed	Crushed	Crushed
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.9	8.1	8.5	8.4	6.3
Total Sulphate as SO ₄	%	0.005	MCERTS	0.368	0.096	0.215	0.096	1.05
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivale	g/l	0.00125	MCERTS	1.4	0.36	0.94	0.48	3.9
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	7700	1100	2400	1900	7300
Total Sulphur	%	0.005	MCERTS	2.43	1.19	1.81	0.384	3.29
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	2.6	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	800	90	360	170	1500
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-71031

Project / Site name: Seacon Terminals, Tower Wharf, DA11 9BD

Your Order No: 10593

Lab Sample Number				2348161	2348162	2348163	2348164	2348165
Sample Reference				BH7	BH7	BH7	BH7	BH8
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				12.00	18.00	25.00	29.00	2.50
Date Sampled				21/06/2022	21/06/2022	21/06/2022	21/06/2022	21/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	24	10	9.6	17	28
Total mass of sample received	kg	0.001	NONE	2	2	2	2	2

Whole Sample Crushed		N/A	NONE	Crushed	Crushed	Crushed	Crushed	Crushed
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8	8.8	8.8	9.0	8.3
Total Sulphate as SO ₄	%	0.005	MCERTS	0.154	0.049	0.036	0.053	0.229
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivale	g/l	0.00125	MCERTS	0.62	0.19	0.083	0.081	1.2
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1500	320	94	90	370
Total Sulphur	%	0.005	MCERTS	1.75	0.227	0.056	0.039	0.864
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	160	32	10	12	120
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-71031

Project / Site name: Seacon Terminals, Tower Wharf, DA11 9BD

Your Order No: 10593

Lab Sample Number				2348166	2348167	2348168	2348169	2348170
Sample Reference				BH8	BH8	BH8	BH8	BH8
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	7.00	11.00	16.00	28.00
Date Sampled				21/06/2022	21/06/2022	21/06/2022	21/06/2022	21/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	46	33	24	7.3	16
Total mass of sample received	kg	0.001	NONE	2	2	2	2	2

Whole Sample Crushed		N/A	NONE	Crushed	Crushed	Crushed	Crushed	Crushed
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.0	8.1	8.0	8.8	9.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.408	0.094	0.106	0.023	0.045
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivale	g/l	0.00125	MCERTS	1.2	0.55	0.53	0.12	0.07
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	3400	2300	1100	86	55
Total Sulphur	%	0.005	MCERTS	4.54	0.789	2.19	0.06	0.038
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	620	230	140	14	8.5
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-71031
Project / Site name: Seacon Terminals, Tower Wharf, DA11 9BD

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2348141	BH1	None Supplied	3.5	Brown clay.
2348142	BH1	None Supplied	7	Brown clay.
2348143	BH2	None Supplied	7	Brown clay.
2348144	BH2	None Supplied	11	Brown clay with gravel.
2348145	BH2	None Supplied	13	Brown clay with gravel.
2348146	BH4	None Supplied	4	Brown clay with gravel.
2348147	BH4	None Supplied	6	Brown clay.
2348148	BH4	None Supplied	8	Brown clay with gravel.
2348149	BH5	None Supplied	2	Brown clay with gravel.
2348150	BH5	None Supplied	4	Brown clay with gravel.
2348151	BH5	None Supplied	7	Brown clay with gravel.
2348152	BH5	None Supplied	11	Brown clay with gravel.
2348153	BH5	None Supplied	17	Brown clay with gravel.
2348154	BH5	None Supplied	27	Brown clay.
2348155	BH6	None Supplied	5	Brown clay with gravel.
2348156	BH6	None Supplied	9	Brown clay.
2348157	BH6	None Supplied	13	Brown clay.
2348158	BH7	None Supplied	3	Brown clay.
2348159	BH7	None Supplied	5	Brown clay.
2348160	BH7	None Supplied	9	Brown clay.
2348161	BH7	None Supplied	12	Brown clay with gravel.
2348162	BH7	None Supplied	18	Brown clay with gravel.
2348163	BH7	None Supplied	25	Brown clay with gravel.
2348164	BH7	None Supplied	29	Brown clay.
2348165	BH8	None Supplied	2.5	Brown clay with gravel.
2348166	BH8	None Supplied	4.5	Brown clay with gravel.
2348167	BH8	None Supplied	7	Brown clay with gravel.
2348168	BH8	None Supplied	11	Brown clay with gravel.
2348169	BH8	None Supplied	16	Brown clay with gravel.
2348170	BH8	None Supplied	28	Brown clay.

Analytical Report Number : 22-71031

Project / Site name: Seacon Terminals, Tower Wharf, DA11 9BD

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Crush Whole Sample	Either: Client specific preparation instructions - sample(s) crushed whole prior to analysis; OR Sample unsuitable for standard preparation and therefore crushed whole prior to analysis.	In house method, applicable to dry samples only.	L019-PL	D	NONE
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

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Analytical Report Number : 22-67258

Project / Site name:	Seacon Terminals Tower Wharf DA11 9BD	Samples received on:	24/06/2022
Your job number:	22 35405	Samples instructed on/ Analysis started on:	24/06/2022
Your order number:	10529	Analysis completed by:	05/07/2022
Report Issue Number:	1	Report issued on:	05/07/2022
Samples Analysed:	4 wac multi samples - 9 soil samples		

Signed:

Anna Goc
 Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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

Analytical Report Number: 22-67258

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Your Order No: 10529

Lab Sample Number				2327108	2327109	2327111	2327112	2327114
Sample Reference				BH1	BH1	BH2	BH2	BH5
Sample Number				D3	D5	D1	D3	D2
Depth (m)				0.75	1.50	0.25	0.75	0.50
Date Sampled				21/06/2022	21/06/2022	21/06/2022	21/06/2022	22/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	37	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.2	20	6.1	12	12
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8	0.8

Whole Sample Crushed		N/A	NONE	Crushed	Crushed	Crushed	Crushed	Crushed
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Asbestos Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile	Chrysotile	Chrysotile
Asbestos in Soil Screen	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	< 0.001	< 0.001	0.004
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	< 0.001	< 0.001	0.004
Asbestos Analyst ID	N/A	N/A	N/A	JSW	JSW	JSW	JSW	JSW

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.1	8.4	9.9	8.5	9.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	3800	960	2500	2100	3400
Water Soluble SO4 16hr extraction (2:1 Leachate Equivale	g/l	0.00125	MCERTS	0.72	0.43	0.5	0.33	0.75
Sulphide	mg/kg	1	MCERTS	74	40	36	24	17
Organic Matter (automated)	%	0.1	MCERTS	3	2	4.3	3.2	1.4
Loss on Ignition @ 450oC	%	0.2	MCERTS	-	4	-	4.8	-

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.78	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.84	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	9.8	0.72	1.3	0.91	1.5
Anthracene	mg/kg	0.05	MCERTS	3	0.27	0.39	0.26	0.43
Fluoranthene	mg/kg	0.05	MCERTS	21	1.7	2.7	2	3.7
Pyrene	mg/kg	0.05	MCERTS	18	1.5	2.6	1.9	3.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	14	0.98	1.6	1.2	2.4
Chrysene	mg/kg	0.05	MCERTS	9.2	1.1	1.5	1.2	1.9
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	16	1.3	2.2	1.5	2.7
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	5.5	0.57	0.92	0.68	1.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	14	1.4	2.1	1.5	2.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	ISO 17025	6.5	0.52	1.2	0.72	1.4
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.6	< 0.05	0.28	< 0.05	0.37
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	6.4	0.66	1.4	0.9	1.8
Coronene	mg/kg	0.05	NONE	-	< 0.05	-	< 0.05	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	127	-	18.1	-	23.6
Total WAC-17 PAHs	mg/kg	0.85	NONE	-	10.7	-	12.7	-

Analytical Report Number: 22-67258
Project / Site name: Seacon Terminals Tower Wharf DA11 9BD
Your Order No: 10529

Lab Sample Number	2327108	2327109	2327111	2327112	2327114
Sample Reference	BH1	BH1	BH2	BH2	BH5
Sample Number	D3	D5	D1	D3	D2
Depth (m)	0.75	1.50	0.25	0.75	0.50
Date Sampled	21/06/2022	21/06/2022	21/06/2022	21/06/2022	22/06/2022
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	370	260	27	72	160
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	-	1	-	0.64
Boron (total)	mg/kg	1	MCERTS	30	42	15	18	17
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	45	52	33	25	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	130	56	83	1300	150
Lead (aqua regia extractable)	mg/kg	1	MCERTS	230	130	490	710	540
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.7	< 0.3	0.6	1.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	32	25	26	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	53	-	45	-	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	230	170	130	450	190

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

Mineral Oil (C10 - C40) _{EH, CU, ID, AL}	mg/kg	10	NONE	-	56	-	< 10	-
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TPH-CWG - Aliphatic >EC5 - EC6 _{HS, ID, AL}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 _{HS, ID, AL}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 _{HS, ID, AL}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 _{EH, CU, ID, AL}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 _{EH, CU, ID, AL}	mg/kg	2	MCERTS	2.5	-	< 2.0	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 _{EH, CU, ID, AL}	mg/kg	8	MCERTS	< 8.0	-	9.5	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 _{EH, CU, ID, AL}	mg/kg	8	MCERTS	210	-	150	-	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) _{EH, CU+HS, ID, AL}	mg/kg	10	MCERTS	220	-	160	-	< 10

TPH-CWG - Aromatic >EC5 - EC7 _{HS, ID, AR}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 _{HS, ID, AR}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 _{HS, ID, AR}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 _{EH, CU, ID, AR}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH, CU, ID, AR}	mg/kg	2	MCERTS	10	-	< 2.0	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 _{EH, CU, ID, AR}	mg/kg	10	MCERTS	81	-	29	-	< 10
TPH-CWG - Aromatic >EC21 - EC35 _{EH, CU, ID, AR}	mg/kg	10	MCERTS	250	-	220	-	41
TPH-CWG - Aromatic (EC5 - EC35) _{EH, CU+HS, ID, AR}	mg/kg	10	MCERTS	340	-	250	-	49

TPH Total C5 - C35 _{EH, CU+HS, ID, TOTAL}	mg/kg	10	NONE	560	-	410	-	49
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TPH-CWG - Aliphatic >C5 - C6 _{HS, ID, AL}	mg/kg	0.001	NONE	-	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >C6 - C8 _{HS, ID, AL}	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >C8 - C10 _{HS, ID, AL}	mg/kg	0.001	NONE	-	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >C10 - C12 _{EH, CU, ID, AL}	mg/kg	1	NONE	-	< 1.0	-	< 1.0	-
TPH-CWG - Aliphatic >C12 - C16 _{EH, CU, ID, AL}	mg/kg	2	NONE	-	< 2.0	-	< 2.0	-
TPH-CWG - Aliphatic >C16 - C21 _{EH, CU, ID, AL}	mg/kg	8	NONE	-	< 8.0	-	< 8.0	-
TPH-CWG - Aliphatic >C21 - C35 _{EH, CU, ID, AL}	mg/kg	8	NONE	-	38	-	< 8.0	-
TPH-CWG - Aliphatic (C5 - C35) _{EH, CU+HS, ID, AL}	mg/kg	10	NONE	-	38	-	< 10	-

Analytical Report Number: 22-67258

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Your Order No: 10529

Lab Sample Number				2327108	2327109	2327111	2327112	2327114
Sample Reference				BH1	BH1	BH2	BH2	BH5
Sample Number				D3	D5	D1	D3	D2
Depth (m)				0.75	1.50	0.25	0.75	0.50
Date Sampled				21/06/2022	21/06/2022	21/06/2022	21/06/2022	22/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.001	NONE	-	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >C8 - C10 HS_ID_AR	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >C10 - C12 EH_CU_ID_AR	mg/kg	1	NONE	-	< 1.0	-	< 1.0	-
TPH-CWG - Aromatic >C12 - C16 EH_CU_ID_AR	mg/kg	2	NONE	-	< 2.0	-	< 2.0	-
TPH-CWG - Aromatic >C16 - C21 EH_CU_ID_AR	mg/kg	10	NONE	-	< 10	-	< 10	-
TPH-CWG - Aromatic >C21 - C35 EH_CU_ID_AR	mg/kg	10	NONE	-	36	-	46	-
TPH-CWG - Aromatic (C5 - C35) EH_CU+HS_ID_AR	mg/kg	10	NONE	-	36	-	46	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	0.008	-	< 0.001	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	0.006	-	< 0.001	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	0.007	-	< 0.001	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	0.02	-	< 0.007	-
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-67258

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Your Order No: 10529

Lab Sample Number				2327115	2327116	2327118	2327119
Sample Reference				BH6	BH6	BH7	BH7
Sample Number				D2	D6	D1	D4
Depth (m)				0.50	2.00	0.25	1.00
Date Sampled				22/06/2022	22/06/2022	22/06/2022	22/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.8	17	5.6	16
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8

Whole Sample Crushed		N/A	NONE	Crushed	Crushed	Crushed	Crushed
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Asbestos Identification Name	Type	N/A	ISO 17025	Chrysotile	Amosite	-	-
Asbestos in Soil Screen	Type	N/A	ISO 17025	Detected	Detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	< 0.001	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	< 0.001	-	-
Asbestos Analyst ID	N/A	N/A	N/A	JSW	JSW	JSW	JSW

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.6	8.8	11.1	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	2800	800	3700	780
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivale	g/l	0.00125	MCERTS	0.61	0.28	0.22	0.22
Sulphide	mg/kg	1	MCERTS	80	6.5	36	14
Organic Matter (automated)	%	0.1	MCERTS	3.2	0.6	2.6	0.8
Loss on Ignition @ 450oC	%	0.2	MCERTS	-	1.3	-	1.5

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.32	< 0.05	0.45	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.83	0.22	< 0.05	0.24
Fluorene	mg/kg	0.05	MCERTS	0.71	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	9.6	2.3	< 0.05	3
Anthracene	mg/kg	0.05	MCERTS	2.3	0.63	< 0.05	0.65
Fluoranthene	mg/kg	0.05	MCERTS	16	2.9	5.3	6.5
Pyrene	mg/kg	0.05	MCERTS	14	2.6	5.1	5.9
Benzo(a)anthracene	mg/kg	0.05	MCERTS	9.5	1.5	2.9	3.7
Chrysene	mg/kg	0.05	MCERTS	6.8	1.4	2.5	3.1
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	11	1.4	3	4.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	3.6	0.85	2.4	1.7
Benzo(a)pyrene	mg/kg	0.05	MCERTS	9.4	1.5	3.2	4.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	ISO 17025	5	0.69	1.7	2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.4	0.2	< 0.05	0.49
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.4	0.92	2.3	2.5
Coronene	mg/kg	0.05	NONE	-	< 0.05	-	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	96.3	-	28.8	-
Total WAC-17 PAHs	mg/kg	0.85	NONE	-	17.2	-	38.1

Analytical Report Number: 22-67258
 Project / Site name: Seacon Terminals Tower Wharf DA11 9BD
 Your Order No: 10529

Lab Sample Number				2327115	2327116	2327118	2327119
Sample Reference				BH6	BH6	BH7	BH7
Sample Number				D2	D6	D1	D4
Depth (m)				0.50	2.00	0.25	1.00
Date Sampled				22/06/2022	22/06/2022	22/06/2022	22/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	120	32	530	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3	-	0.86	-
Boron (total)	mg/kg	1	MCERTS	27	8.4	19	7.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	13	29	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	190	29	190	49
Lead (aqua regia extractable)	mg/kg	1	MCERTS	750	78	250	45
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	17	24	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	46	-	36	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	350	51	160	52

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

Mineral Oil (C10 - C40) _{EH, CU, ID, AL}	mg/kg	10	NONE	-	< 10	-	< 10
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TPH-CWG - Aliphatic >EC5 - EC6 _{HS, ID, AL}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8 _{HS, ID, AL}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10 _{HS, ID, AL}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12 _{EH, CU, ID, AL}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16 _{EH, CU, ID, AL}	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21 _{EH, CU, ID, AL}	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35 _{EH, CU, ID, AL}	mg/kg	8	MCERTS	< 8.0	-	77	-
TPH-CWG - Aliphatic (EC5 - EC35) _{EH, CU+HS, ID, AL}	mg/kg	10	MCERTS	< 10	-	83	-

TPH-CWG - Aromatic >EC5 - EC7 _{HS, ID, AR}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8 _{HS, ID, AR}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10 _{HS, ID, AR}	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12 _{EH, CU, ID, AR}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16 _{EH, CU, ID, AR}	mg/kg	2	MCERTS	11	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21 _{EH, CU, ID, AR}	mg/kg	10	MCERTS	53	-	16	-
TPH-CWG - Aromatic >EC21 - EC35 _{EH, CU, ID, AR}	mg/kg	10	MCERTS	130	-	83	-
TPH-CWG - Aromatic (EC5 - EC35) _{EH, CU+HS, ID, AR}	mg/kg	10	MCERTS	190	-	100	-

TPH Total C5 - C35 _{EH, CU+HS, ID, TOTAL}	mg/kg	10	NONE	190	-	180	-
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TPH-CWG - Aliphatic >C5 - C6 _{HS, ID, AL}	mg/kg	0.001	NONE	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >C6 - C8 _{HS, ID, AL}	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >C8 - C10 _{HS, ID, AL}	mg/kg	0.001	NONE	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >C10 - C12 _{EH, CU, ID, AL}	mg/kg	1	NONE	-	< 1.0	-	< 1.0
TPH-CWG - Aliphatic >C12 - C16 _{EH, CU, ID, AL}	mg/kg	2	NONE	-	< 2.0	-	< 2.0
TPH-CWG - Aliphatic >C16 - C21 _{EH, CU, ID, AL}	mg/kg	8	NONE	-	< 8.0	-	< 8.0
TPH-CWG - Aliphatic >C21 - C35 _{EH, CU, ID, AL}	mg/kg	8	NONE	-	< 8.0	-	< 8.0
TPH-CWG - Aliphatic (C5 - C35) _{EH, CU+HS, ID, AL}	mg/kg	10	NONE	-	< 10	-	< 10

Analytical Report Number: 22-67258

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Your Order No: 10529

Lab Sample Number				2327115	2327116	2327118	2327119
Sample Reference				BH6	BH6	BH7	BH7
Sample Number				D2	D6	D1	D4
Depth (m)				0.50	2.00	0.25	1.00
Date Sampled				22/06/2022	22/06/2022	22/06/2022	22/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.001	NONE	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >C8 - C10 HS_ID_AR	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >C10 - C12 EH_CU_ID_AR	mg/kg	1	NONE	-	< 1.0	-	< 1.0
TPH-CWG - Aromatic >C12 - C16 EH_CU_ID_AR	mg/kg	2	NONE	-	< 2.0	-	< 2.0
TPH-CWG - Aromatic >C16 - C21 EH_CU_ID_AR	mg/kg	10	NONE	-	12	-	17
TPH-CWG - Aromatic >C21 - C35 EH_CU_ID_AR	mg/kg	10	NONE	-	19	-	32
TPH-CWG - Aromatic (C5 - C35) EH_CU+HS_ID_AR	mg/kg	10	NONE	-	32	-	49

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	-	< 0.001	-	< 0.001

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	< 0.007	-	< 0.007
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-67258
Project / Site name: Seacon Terminals Tower Wharf DA11 9BD
Your Order No: 10529

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

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

Quantitative Analysis

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

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

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

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2327111	BH2	0.25	211	Loose Fibres	Chrysotile	< 0.001	< 0.001
2327112	BH2	0.75	187	Loose Fibres	Chrysotile	< 0.001	< 0.001
2327114	BH5	0.50	172	Loose Fibres	Chrysotile	0.004	0.004
2327115	BH6	0.50	163	Loose Fibres	Chrysotile	< 0.001	< 0.001
2327116	BH6	2.00	163	Loose Fibrous Debris	Amosite	< 0.001	< 0.001

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

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Waste Acceptance Criteria Analytical Results								
Report No:		22-67258						
					Client: SAS			
Location		Seacon Terminals Tower Wharf DA11 9BD						
Lab Reference (Sample Number)		2327110			Landfill Waste Acceptance Criteria			
Sampling Date		21/06/2022			Limits			
Sample ID		BH1 D5			Inert Waste Land fill	Stable Non-reactive HAZARDOUS waste in non-hazardous Land fill	Hazardous Waste Land fill	
Depth (m)		1.50						
Solid Waste Analysis								
TOC (%)**		1.1			3%	5%	6%	
Loss on Ignition (%) **		3.9			--	--	10%	
BTEX (µg/kg) **		< 10			6000	--	--	
Sum of PCBs (mg/kg) **		< 0.30			1	--	--	
Mineral Oil (mg/kg) EH, IO, CU, AL #		56			500	--	--	
Total PAH (WAC-17) (mg/kg)		10.7			100	--	--	
pH (units)**		8.4			--	>6	--	
Acid Neutralisation Capacity (mmol / kg)		15			--	To be evaluated	To be evaluated	
Eluate Analysis		2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)		mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *		0.060	0.075		0.73	0.5	2	25
Barium *		0.034	0.0092		0.13	20	100	300
Cadmium *		< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *		< 0.0010	0.0010		0.0097	0.5	10	70
Copper *		0.046	0.026		0.28	2	50	100
Mercury *		< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *		0.098	0.023		0.33	0.5	10	30
Nickel *		0.0075	0.0049		0.053	0.4	10	40
Lead *		< 0.0050	< 0.0050		< 0.020	0.5	10	50
Antimony *		< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *		< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *		0.012	0.0036		0.048	4	50	200
Chloride *		640	110		1800	800	15000	25000
Fluoride		3.5	1.9		21	10	150	500
Sulphate *		340	65		1000	1000	20000	50000
TDS*		1600	340		5200	4000	60000	100000
Phenol Index (Monohydric Phenols) *		< 0.13	< 0.13		< 0.50	1	-	-
DOC		41	61		580	500	800	1000
Leach Test Information								
Stone Content (%)		< 0.1						
Sample Mass (kg)		0.80						
Dry Matter (%)		80						
Moisture (%)		20						
Stage 1								
Volume Eluate L2 (litres)		0.30						
Filtered Eluate VE1 (litres)		0.24						
Results are expressed on a dry weight basis, after correction for moisture content where applicable. **= UKAS accredited (liquid eluate analysis only)								
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited			
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.								
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.								

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Waste Acceptance Criteria Analytical Results								
Report No:		22-67258						
					Client: SAS			
Location		Seacon Terminals Tower Wharf DA11 9BD						
Lab Reference (Sample Number)		2327113			Landfill Waste Acceptance Criteria			
					Limits			
Sampling Date		21/06/2022			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID		BH2 D3						
Depth (m)		0.75						
Solid Waste Analysis								
TOC (%)**		1.5			3%	5%	6%	
Loss on Ignition (%) **		4.2			--	--	10%	
BTEX (µg/kg) **		< 10			6000	--	--	
Sum of PCBs (mg/kg) **		< 0.30			1	--	--	
Mineral Oil (mg/kg) ^{EH,10,CU,AL} #		< 10			500	--	--	
Total PAH (WAC-17) (mg/kg)		12.7			100	--	--	
pH (units)**		8.2			--	>6	--	
Acid Neutralisation Capacity (mmol / kg)		20			--	To be evaluated	To be evaluated	
Eluate Analysis		2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)		mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *		0.020	0.010		0.11	0.5	2	25
Barium *		0.090	0.046		0.51	20	100	300
Cadmium *		< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *		0.010	0.0034		0.042	0.5	10	70
Copper *		0.022	0.014		0.15	2	50	100
Mercury *		< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *		0.046	0.010		0.14	0.5	10	30
Nickel *		0.0068	0.0021		0.027	0.4	10	40
Lead *		0.0053	0.0064		0.063	0.5	10	50
Antimony *		0.085	0.044		0.48	0.06	0.7	5
Selenium *		< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *		0.053	0.0214		0.25	4	50	200
Chloride *		13	< 4.0		28	800	15000	25000
Fluoride		1.3	0.92		9.6	10	150	500
Sulphate *		1500	380		5100	1000	20000	50000
TDS*		1400	360		4800	4000	60000	100000
Phenol Index (Monohydric Phenols) *		< 0.13	< 0.13		< 0.50	1	-	-
DOC		7.2	4.5		48	500	800	1000
Leach Test Information								
Stone Content (%)		< 0.1						
Sample Mass (kg)		0.80						
Dry Matter (%)		88						
Moisture (%)		12						
Stage 1								
Volume Eluate L2 (litres)		0.31						
Filtered Eluate VE1 (litres)		0.20						
Results are expressed on a dry weight basis, after correction for moisture content where applicable. ** = UKAS accredited (liquid eluate analysis only)								
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This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.								

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Waste Acceptance Criteria Analytical Results								
Report No:	22-67258							
					Client: SAS			
Location	Seacon Terminals Tower Wharf DA11 9BD							
Lab Reference (Sample Number)	2327117				Landfill Waste Acceptance Criteria			
					Limits			
Sampling Date	22/06/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID	BH6 D6							
Depth (m)	2.00							
Solid Waste Analysis								
TOC (%)**	0.4				3%	5%	6%	
Loss on Ignition (%) **	1.4				--	--	10%	
BTEX (µg/kg) **	< 10				6000	--	--	
Sum of PCBs (mg/kg) **	< 0.30				1	--	--	
Mineral Oil (mg/kg) EH, IO, CU, AL #	< 10				500	--	--	
Total PAH (WAC-17) (mg/kg)	17.2				100	--	--	
pH (units)**	8.3				--	>6	--	
Acid Neutralisation Capacity (mmol / kg)	20				--	To be evaluated	To be evaluated	
Eluate Analysis								
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test			
					using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
	mg/l	mg/l		mg/kg				
Arsenic *	< 0.010	0.010		0.10	0.5	2	25	
Barium *	0.035	0.018		0.19	20	100	300	
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5	
Chromium *	< 0.0010	< 0.0010		0.0063	0.5	10	70	
Copper *	0.022	0.0080		0.095	2	50	100	
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2	
Molybdenum *	0.021	0.0035		0.055	0.5	10	30	
Nickel *	0.0083	0.0023		0.030	0.4	10	40	
Lead *	< 0.0050	< 0.0050		< 0.020	0.5	10	50	
Antimony *	0.061	0.028		0.31	0.06	0.7	5	
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7	
Zinc *	0.0090	0.0037		0.043	4	50	200	
Chloride *	290	22		530	800	15000	25000	
Fluoride	1.4	0.64		7.2	10	150	500	
Sulphate *	140	26		390	1000	20000	50000	
TDS*	870	130		2200	4000	60000	100000	
Phenol Index (Monohydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-	
DOC	9.9	8.4		86	500	800	1000	
Leach Test Information								
Stone Content (%)	< 0.1							
Sample Mass (kg)	0.80							
Dry Matter (%)	83							
Moisture (%)	17							
Stage 1								
Volume Eluate L2 (litres)	0.31							
Filtered Eluate VE1 (litres)	0.20							
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					** = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited			
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.								
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.								

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Waste Acceptance Criteria Analytical Results								
Report No:	22-67258							
					Client: SAS			
Location	Seacon Terminals Tower Wharf DA11 9BD							
Lab Reference (Sample Number)	2327120				Landfill Waste Acceptance Criteria			
					Limits			
Sampling Date	22/06/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID	BH7 D4							
Depth (m)	1.00							
Solid Waste Analysis								
TOC (%)**	0.5				3%	5%	6%	
Loss on Ignition (%) **	1.5				--	--	10%	
BTEX (µg/kg) **	< 10				6000	--	--	
Sum of PCBs (mg/kg) **	< 0.30				1	--	--	
Mineral Oil (mg/kg) EH, IO, CU, AL #	110				500	--	--	
Total PAH (WAC-17) (mg/kg)	38.1				100	--	--	
pH (units)**	8.8				--	>6	--	
Acid Neutralisation Capacity (mmol / kg)	36				--	To be evaluated	To be evaluated	
Eluate Analysis								
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test			
	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
Arsenic *	0.23	0.36		3.5	0.5	2	25	
Barium *	0.023	0.0096		0.11	20	100	300	
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5	
Chromium *	0.0030	0.0018		0.020	0.5	10	70	
Copper *	0.042	0.011		0.15	2	50	100	
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2	
Molybdenum *	0.054	0.0065		0.12	0.5	10	30	
Nickel *	0.0054	0.0022		0.026	0.4	10	40	
Lead *	< 0.0050	< 0.0050		< 0.020	0.5	10	50	
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5	
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7	
Zinc *	0.0089	0.0016		0.026	4	50	200	
Chloride *	54	5.0		110	800	15000	25000	
Fluoride	4.9	1.9		23	10	150	500	
Sulphate *	180	17		370	1000	20000	50000	
TDS*	320	68		1000	4000	60000	100000	
Phenol Index (Monohydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-	
DOC	13	14		140	500	800	1000	
Leach Test Information								
Stone Content (%)	< 0.1							
Sample Mass (kg)	0.80							
Dry Matter (%)	84							
Moisture (%)	16							
Stage 1								
Volume Eluate L2 (litres)	0.32							
Filtered Eluate VE1 (litres)	0.22							
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					** = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited			
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.								
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.								

Analytical Report Number : 22-67258

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2327108	BH1	D3	0.75	Brown clay and loam with stones.
2327109	BH1	D5	1.5	Brown clay with gravel.
2327110	BH1	D5	1.5	Brown clay with gravel.
2327111	BH2	D1	0.25	Brown clay and sand with gravel.
2327112	BH2	D3	0.75	Brown clay and sand with gravel.
2327113	BH2	D3	0.75	Brown clay and sand with gravel.
2327114	BH5	D2	0.5	Brown clay and sand with gravel.
2327115	BH6	D2	0.5	Brown clay and sand with gravel.
2327116	BH6	D6	2	Brown clay and sand with gravel.
2327117	BH6	D6	2	Brown clay and sand with gravel.
2327118	BH7	D1	0.25	Brown sandy clay with gravel.
2327119	BH7	D4	1	Brown clay and sand with gravel.
2327120	BH7	D4	1	Brown clay and sand with gravel.

Analytical Report Number : 22-67258

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Complex Cyanide in soil	Determination of complex cyanide by calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
TPH? (Soil)	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS, speciation by interpretation.	In-house method	L064-PL	D	MCERTS

Analytical Report Number : 22-67258

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Preparation WAC leachate		In-house method	L043-PL	W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	ISO 17025
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031-PL	W	NONE
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	ISO 17025
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
Mineral Oil in Soil C10 - C40	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L076-PL	D	NONE

Analytical Report Number : 22-67258

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TPH7 Ali Aro Sum	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS, speciation by interpretation.	In-house method	L064-PL	D	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Crush Whole Sample	Either: Client specific preparation instructions - sample(s) crushed whole prior to analysis; OR Sample unsuitable for standard preparation and therefore crushed whole prior to analysis.	In house method, applicable to dry samples only.	L019-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-68677

Project / Site name:	Seacon Terminals Tower Wharf DA11 9BD	Samples received on:	01/07/2022
Your job number:	22 35405	Samples instructed on / Analysis started on:	01/07/2022
Your order number:	10549	Analysis completed by:	11/07/2022
Report Issue Number:	1	Report issued on:	11/07/2022
Samples Analysed:	1 wac multi sample - 2 soil samples		

Signed:

Adam Fenwick
 Technical Reviewer
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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

Analytical Report Number: 22-68677

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Your Order No: 10549

Lab Sample Number	2335043			2335044
Sample Reference	BH8			BH8
Sample Number	None Supplied			None Supplied
Depth (m)	0.50			1.00
Date Sampled	28/06/2022			28/06/2022
Time Taken	None Supplied			None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	29
Moisture Content	%	0.01	NONE	4.5
Total mass of sample received	kg	0.001	NONE	1

Whole Sample Crushed		N/A	NONE	Crushed	Crushed
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Asbestos in Soil Screen	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.8	8.0
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	16000	6700
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivale	g/l	0.00125	MCERTS	1.9	1.8
Sulphide	mg/kg	1	MCERTS	130	< 1.0
Organic Matter (automated)	%	0.1	MCERTS	2.7	5.2
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	7.1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.61	0.25
Acenaphthylene	mg/kg	0.05	MCERTS	0.93	0.23
Acenaphthene	mg/kg	0.05	MCERTS	2.3	1
Fluorene	mg/kg	0.05	MCERTS	2.8	1
Phenanthrene	mg/kg	0.05	MCERTS	21	12
Anthracene	mg/kg	0.05	MCERTS	6.2	2.6
Fluoranthene	mg/kg	0.05	MCERTS	30	23
Pyrene	mg/kg	0.05	MCERTS	26	20
Benzo(a)anthracene	mg/kg	0.05	MCERTS	16	13
Chrysene	mg/kg	0.05	MCERTS	9.7	9.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	13	10
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	7.6	8.5
Benzo(a)pyrene	mg/kg	0.05	MCERTS	13	13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	6.2	7
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.4	2
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	7.4	8.4
Coronene	mg/kg	0.05	NONE	-	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	164	-
Total WAC-17 PAHs	mg/kg	0.85	NONE	-	133

Analytical Report Number: 22-68677

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Your Order No: 10549

Lab Sample Number				2335043	2335044
Sample Reference				BH8	BH8
Sample Number				None Supplied	None Supplied
Depth (m)				0.50	1.00
Date Sampled				28/06/2022	28/06/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection
				Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	310	190
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4	-
Boron (total)	mg/kg	1	MCERTS	80	40
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	38	51
Copper (aqua regia extractable)	mg/kg	1	MCERTS	630	300
Lead (aqua regia extractable)	mg/kg	1	MCERTS	780	1000
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	29
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	4.1
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	43	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	130	230

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0

Analytical Report Number: 22-68677
 Project / Site name: Seacon Terminals Tower Wharf DA11 9BD
 Your Order No: 10549

Lab Sample Number	2335043	2335044
Sample Reference	BH8	BH8
Sample Number	None Supplied	None Supplied
Depth (m)	0.50	1.00
Date Sampled	28/06/2022	28/06/2022
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection
		Accreditation Status

Petroleum Hydrocarbons

Mineral Oil (C10 - C40) EH_CU_ID_AL	mg/kg	10	NONE	-	55
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TPH-CWG - Aliphatic >EC5 - EC6 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	-
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_ID_AL	mg/kg	10	MCERTS	< 10	-

TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	3	-
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	9.9	-
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	51	-
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	110	-
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_ID_AR	mg/kg	10	MCERTS	180	-

TPH Total C5 - C35 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	180	-
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TPH-CWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.001	NONE	-	< 0.001
TPH-CWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.001	MCERTS	-	< 0.001
TPH-CWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.001	NONE	-	< 0.001
TPH-CWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	NONE	-	< 1.0
TPH-CWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	NONE	-	< 2.0
TPH-CWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	NONE	-	9.4
TPH-CWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	NONE	-	35
TPH-CWG - Aliphatic (C5 - C35) EH_CU+HS_ID_AL	mg/kg	10	NONE	-	45

TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.001	NONE	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.001	MCERTS	-	< 0.001
TPH-CWG - Aromatic >C8 - C10 HS_ID_AR	mg/kg	0.001	MCERTS	-	< 0.001
TPH-CWG - Aromatic >C10 - C12 EH_CU_ID_AR	mg/kg	1	NONE	-	< 1.0
TPH-CWG - Aromatic >C12 - C16 EH_CU_ID_AR	mg/kg	2	NONE	-	5.6
TPH-CWG - Aromatic >C16 - C21 EH_CU_ID_AR	mg/kg	10	NONE	-	49
TPH-CWG - Aromatic >C21 - C35 EH_CU_ID_AR	mg/kg	10	NONE	-	120
TPH-CWG - Aromatic (C5 - C35) EH_CU+HS_ID_AR	mg/kg	10	NONE	-	170

Analytical Report Number: 22-68677

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Your Order No: 10549

Lab Sample Number				2335043	2335044
Sample Reference				BH8	BH8
Sample Number				None Supplied	None Supplied
Depth (m)				0.50	1.00
Date Sampled				28/06/2022	28/06/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	-	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	-	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	-	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	-	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	-	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	-	< 0.001

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	< 0.007
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U/S = Unsuitable Sample I/S = Insufficient Sample

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Waste Acceptance Criteria Analytical Results								
Report No:		22-68677						
					Client: SAS			
Location		Seacon Terminals Tower Wharf DA11 9BD						
Lab Reference (Sample Number)		2335045			Landfill Waste Acceptance Criteria			
					Limits			
Sampling Date		28/06/2022			Inert Waste Landfill	Stable Non- reactive HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill	
Sample ID		BH8						
Depth (m)		1.00						
Solid Waste Analysis								
TOC (%)**		2.4			3%	5%	6%	
Loss on Ignition (%) **		6.1			--	--	10%	
BTEX (µg/kg) **		< 10			6000	--	--	
Sum of PCBs (mg/kg) **		< 0.30			1	--	--	
Mineral Oil (mg/kg) EH,10,CU,AL #		< 10			500	--	--	
Total PAH (WAC-17) (mg/kg)		103			100	--	--	
pH (units)**		8.0			--	>6	--	
Acid Neutralisation Capacity (mmol / kg)		24			--	To be evaluated	To be evaluated	
Eluate Analysis		2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)		mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *		0.022	0.016		0.17	0.5	2	25
Barium *		0.079	0.032		0.38	20	100	300
Cadmium *		< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *		0.0012	< 0.0010		0.0087	0.5	10	70
Copper *		0.030	0.012		0.14	2	50	100
Mercury *		< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *		0.071	0.013		0.20	0.5	10	30
Nickel *		0.012	0.0064		0.071	0.4	10	40
Lead *		0.014	< 0.0050		0.058	0.5	10	50
Antimony *		0.15	0.081		0.89	0.06	0.7	5
Selenium *		0.018	< 0.010		< 0.040	0.1	0.5	7
Zinc *		0.024	0.0082		0.10	4	50	200
Chloride *		40	< 4.0		74	800	15000	25000
Fluoride		1.4	1.1		11	10	150	500
Sulphate *		1500	160		3200	1000	20000	50000
TDS*		500	230		2600	4000	60000	100000
Phenol Index (Monohydric Phenols) *		< 0.13	< 0.13		< 0.50	1	-	-
DOC		21	9.2		110	500	800	1000
Leach Test Information								
Stone Content (%)		< 0.1						
Sample Mass (kg)		0.50						
Dry Matter (%)		80						
Moisture (%)		20						
Stage 1								
Volume Eluate L2 (litres)		0.31						
Filtered Eluate VE1 (litres)		0.22						
Results are expressed on a dry weight basis, after correction for moisture content where applicable. ** = UKAS accredited (liquid eluate analysis only)								
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited			
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.								
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.								

Analytical Report Number : 22-68677

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2335043	BH8	None Supplied	0.5	Brown loam and clay with stones and vegetation.
2335044	BH8	None Supplied	1	Brown clay and sand with gravel and vegetation.
2335045	BH8	None Supplied	1	Brown clay and sand with gravel.

Analytical Report Number : 22-68677

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Complex Cyanide in soil	Determination of complex cyanide by calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
TPH? (Soil)	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS, speciation by interpretation.	In-house method	L064-PL	D	MCERTS

Analytical Report Number : 22-68677

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Preparation WAC leachate		In-house method	L043-PL	W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	ISO 17025
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031-PL	W	NONE
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	ISO 17025
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8062	L027-PL	D	MCERTS
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
Mineral Oil in Soil C10 - C40	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L076-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS

Analytical Report Number : 22-68677

Project / Site name: Seacon Terminals Tower Wharf DA11 9BD

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TPH7 Ali Aro Sum	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS, speciation by interpretation.	In-house method	L064-PL	D	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Crush Whole Sample	Either: Client specific preparation instructions - sample(s) crushed whole prior to analysis; OR Sample unsuitable for standard preparation and therefore crushed whole prior to analysis.	In house method, applicable to dry samples only.	L019-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-69184

Project / Site name:	Seacon Terminals Tower Wharf DA11 9DB	Samples received on:	05/07/2022
Your job number:	22 35405	Samples instructed on/ Analysis started on:	05/07/2022
Your order number:	10562	Analysis completed by:	12/07/2022
Report Issue Number:	1	Report issued on:	12/07/2022
Samples Analysed:	1 soil sample		

Signed:

Martyna Langer
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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

Analytical Report Number: 22-69184
Project / Site name: Seacon Terminals Tower Wharf DA11 9DB
Your Order No: 10562

Lab Sample Number				2337435
Sample Reference				BH4
Sample Number				None Supplied
Depth (m)				1.00
Date Sampled				01/07/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	16
Total mass of sample received	kg	0.001	NONE	1.4

Whole Sample Crushed		N/A	NONE	Crushed
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Asbestos in Soil Screen	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MLO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.9
Total Cyanide	mg/kg	1	MCERTS	1.9
Complex Cyanide	mg/kg	1	MCERTS	1.9
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	12000
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivale	g/l	0.00125	MCERTS	1.4
Sulphide	mg/kg	1	MCERTS	5.4
Organic Matter (automated)	%	0.1	MCERTS	6

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.4
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	3.7
Pyrene	mg/kg	0.05	MCERTS	3.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.9
Chrysene	mg/kg	0.05	MCERTS	1.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.3
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.9
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.34
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	20.3
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Analytical Report Number: 22-69184

Project / Site name: Seacon Terminals Tower Wharf DA11 9DB

Your Order No: 10562

Lab Sample Number	2337435			
Sample Reference	BH4			
Sample Number	None Supplied			
Depth (m)	1.00			
Date Sampled	01/07/2022			
Time Taken	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	69
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	4.5
Boron (total)	mg/kg	1	MCERTS	51
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37
Copper (aqua regia extractable)	mg/kg	1	MCERTS	270
Lead (aqua regia extractable)	mg/kg	1	MCERTS	710
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	52
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	69
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	430

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_ID_AL	mg/kg	10	MCERTS	< 10

TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	3.3
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	11
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	21
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_ID_AR	mg/kg	10	MCERTS	36

TPH Total C5 - C35 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	36
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Analytical Report Number: 22-69184

Project / Site name: Seacon Terminals Tower Wharf DA11 9DB

Your Order No: 10562

Lab Sample Number	2337435			
Sample Reference	BH4			
Sample Number	None Supplied			
Depth (m)	1.00			
Date Sampled	01/07/2022			
Time Taken	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0
1,1-dichloroethene	µg/kg	1	NONE	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0
1,1-dichloroethane	µg/kg	1	MCERTS	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0
1,2-dichloroethane	µg/kg	1	MCERTS	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0
1,2-dichloropropane	µg/kg	1	MCERTS	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0
N-Propylbenzene	µg/kg	1	ISO 17025	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0
Tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0
Sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0
1,3-dichlorobenzene	µg/kg	1	ISO 17025	< 1.0
P-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0
1,2-dichlorobenzene	µg/kg	1	MCERTS	< 1.0
1,4-dichlorobenzene	µg/kg	1	MCERTS	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0

Analytical Report Number: 22-69184

Project / Site name: Seacon Terminals Tower Wharf DA11 9DB

Your Order No: 10562

Lab Sample Number					2337435
Sample Reference					BH4
Sample Number					None Supplied
Depth (m)					1.00
Date Sampled					01/07/2022
Time Taken					None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	1.4
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	3.7
Pyrene	mg/kg	0.05	MCERTS	3.5
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3

Analytical Report Number: 22-69184

Project / Site name: Seacon Terminals Tower Wharf DA11 9DB

Your Order No: 10562

Lab Sample Number				2337435
Sample Reference				BH4
Sample Number				None Supplied
Depth (m)				1.00
Date Sampled				01/07/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.9
Chrysene	mg/kg	0.05	MCERTS	1.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.3
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.9
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.34
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	< 0.007
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-69184

Project / Site name: Seacon Terminals Tower Wharf DA11 9DB

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2337435	BH4	None Supplied	1	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 22-69184

Project / Site name: Seacon Terminals Tower Wharf DA11 9DB

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Complex Cyanide in soil	Determination of complex cyanide by calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

Analytical Report Number : 22-69184

Project / Site name: Seacon Terminals Tower Wharf DA11 9DB

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
TPH7 Ali Aro Sum	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS, speciation by interpretation.	In-house method	L064-PL	D	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Crush Whole Sample	Either: Client specific preparation instructions - sample(s) crushed whole prior to analysis; OR Sample unsuitable for standard preparation and therefore crushed whole prior to analysis.	In house method, applicable to dry samples only.	L019-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

Analytical Report Number : 22-69184

Project / Site name: Seacon Terminals Tower Wharf DA11 9DB

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



4041



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Analytical Report Number : 22-70091

Project / Site name:	Seacon Terminals	Samples received on:	08/07/2022
Your job number:	22-35405	Samples instructed on/ Analysis started on:	08/07/2022
Your order number:	10578	Analysis completed by:	15/07/2022
Report Issue Number:	1	Report issued on:	15/07/2022
Samples Analysed:	3 water samples		

Signed:

Izabela Wójcik
 Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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

Analytical Report Number: 22-70091
Project / Site name: Seacon Terminals

Your Order No: 10578

Lab Sample Number				2342784	2342785	2342786
Sample Reference				BH1	BH5	BH7
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/07/2022	07/07/2022	07/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

General Inorganics

pH	pH Units	N/A	ISO 17025	7.5	7.3	7.5
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10
Complex Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	549000	227000	394000
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	20.4	14.7	27.1

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16
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Heavy Metals / Metalloids

Boron (dissolved)	µg/l	10	ISO 17025	1100	1200	430
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	29.1	6.89	121
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.07	0.04	0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.7	0.4	0.7
Copper (dissolved)	µg/l	0.5	ISO 17025	2.4	2.7	5.4
Lead (dissolved)	µg/l	0.2	ISO 17025	2.9	< 0.2	2.7
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.1	< 0.05	0.14
Nickel (dissolved)	µg/l	0.5	ISO 17025	6.1	4.1	14
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.3	0.7	2.7
Vanadium (dissolved)	µg/l	0.2	ISO 17025	3.6	1	6.6
Zinc (dissolved)	µg/l	0.5	ISO 17025	9.1	5.6	13

Analytical Report Number: 22-70091
Project / Site name: Seacon Terminals

Your Order No: 10578

Lab Sample Number				2342784	2342785	2342786
Sample Reference				BH1	BH5	BH7
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/07/2022	07/07/2022	07/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH7 - Aliphatic >C5 - C6 _{H5_ID_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH7 - Aliphatic >C6 - C8 _{H5_ID_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH7 - Aliphatic >C8 - C10 _{H5_ID_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH7 - Aliphatic >C10 - C12 _{EH_ID_AL_#1_#2_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH7 - Aliphatic >C12 - C16 _{EH_ID_AL_#1_#2_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH7 - Aliphatic >C16 - C21 _{EH_ID_AL_#1_#2_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH7 - Aliphatic >C21 - C35 _{EH_ID_AL_#1_#2_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) _{H5+EH_ID_AL_#1_#2_MS}	µg/l	10	NONE	< 10	< 10	< 10

TPH7 - Aromatic >C5 - C7 _{H5_ID_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH7 - Aromatic >C7 - C8 _{H5_ID_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH7 - Aromatic >C8 - C10 _{H5_ID_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH7 - Aromatic >C10 - C12 _{EH_ID_AR_#1_#2_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH7 - Aromatic >C12 - C16 _{EH_ID_AR_#1_#2_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH7 - Aromatic >C16 - C21 _{EH_ID_AR_#1_#2_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH7 - Aromatic >C21 - C35 _{EH_ID_AR_#1_#2_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH7 - Aromatic (C5 - C35) _{H5+EH_ID_AR_#1_#2_MS}	µg/l	10	NONE	< 10	< 10	< 10

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0



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Analytical Report Number: 22-70091
Project / Site name: Seacon Terminals

Your Order No: 10578

Lab Sample Number				2342784	2342785	2342786
Sample Reference				BH1	BH5	BH7
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/07/2022	07/07/2022	07/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01

Analytical Report Number: 22-70091
Project / Site name: Seacon Terminals

Your Order No: 10578

Lab Sample Number				2342784	2342785	2342786
Sample Reference				BH1	BH5	BH7
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/07/2022	07/07/2022	07/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01

PCBs by GC-MS

PCB Congener 28	µg/l	0.02	NONE	< 0.02	< 0.02	< 0.02
PCB Congener 52	µg/l	0.02	NONE	< 0.02	< 0.02	< 0.02
PCB Congener 101	µg/l	0.02	NONE	< 0.02	< 0.02	< 0.02
PCB Congener 118	µg/l	0.02	NONE	< 0.02	< 0.02	< 0.02
PCB Congener 138	µg/l	0.02	NONE	< 0.02	< 0.02	< 0.02
PCB Congener 153	µg/l	0.02	NONE	< 0.02	< 0.02	< 0.02
PCB Congener 180	µg/l	0.02	NONE	< 0.02	< 0.02	< 0.02

PCBs by GC-MS

Total PCBs	µg/l	0.14	NONE	< 0.14	< 0.14	< 0.14
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Analytical Report Number : 22-70091
Project / Site name: Seacon Terminals

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Complex cyanide in water	Determination of complex cyanide by calculation. Accredited matrices SW, PW, GW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Free cyanide in water	Determination of free cyanide by distillation followed by colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
PCB's By GC-MS in water	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L028-PL	W	NONE
Sulphide in water	Determination of sulphide in water by ion selective electrode.	In-house method	L029-PL	W	NONE
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total organic carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR analyser. Accredited matrices: SW PW GW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

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Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

Sample Deviation Report



Analytical Report Number : 22-70091
Project / Site name: Seacon Terminals

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH1	None Supplied	W	2342784	c	pH at 20oC in water (automated)	L099-PL	c
BH5	None Supplied	W	2342785	c	pH at 20oC in water (automated)	L099-PL	c
BH7	None Supplied	W	2342786	c	pH at 20oC in water (automated)	L099-PL	c