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Neath Port Talbot Harbourside Interpretive Geo-Environmental Ground Investigation Report

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Interpretive Geo-Environmental Ground Investigation Report

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Neath Port Talbot Harbourside

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EXECUTIVE SUMMARY

Location:	*The site is located adjacent to the Old Dock Road and Harbour Way (A4241) on the southern boundary and Cramic Way to Port Talbot Parkway Railway Station on the Northern boundary. The site comprises a roughly rectangular parcel of land which is approximately 2.8 ha in area. The site is centred on approximate Ordnance Survey Grid Reference 276566E 189503N. The main access to the site is off Oakwood Road.*
Proposed Development:	*It is understood that the proposals for the site development comprises a number of commercial units with associated car parking and access roadways.*
History:	*The history of the site showed it predominantly comprised marshland and agricultural land from 1876.* *From 1917, the western portion of the site became largely developed with buildings and tanks and the railway to the south and north.* *From 1921, the site was shown to form Port Talbot Steel Works and from 1939 onwards, further development in the form of buildings and railways was noted. Reconfiguration of the buildings occurred until around 1964, when they were then mostly replaced by roadways and the eastern portion of the site was developed as a chemical works.* *By 1993, the chemical works was noted to be disused and the site shown to form part of the surrounding industrial estate. Little change in land use of the site or the general area was recorded until the buildings in the vicinity were demolished and generally levelled at an undetermined date between 1997 and 2007*
Site Features:	*The site is located on a section of land which, in general, is relatively flat with the exception of a raised area, approximately 2.0m in height, in the western section of the site, belonging to the Welsh Government at the time of writing. The site boundary is indicated by large boulders and fencing along its eastern and southern boundaries and soil bunds along the western boundary.* *All buildings previously occupying the site associated with the Steel and Chemical Works have been demolished but areas of concrete slab, tarmac and hardstanding associated with these buildings still remain amongst vegetation.* *The southern area of the site was mainly covered by overgrown vegetation and areas of tarmacadam. A pipe noted on historic maps from 1993 entering the site in the south east corner was noted as still existing on site during the site walkover. An open and heavily rusted disused pipe (approximately 500mm diameter) and chamber was found on site.* *The western area of the site was raised by approximately 2.0m when compared with the rest of the site.*

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Geology, Hydrogeology and Hydrology:	*The site lies just within the southern outcrop of the South Wales Coalfield. Solid strata of the Llynfi Beds comprising sandstones with interbedded coal seams and minor siltstone and mudstone layers of the Lower Pennant Measures of Carboniferous age underlie Estuarine Alluvium in all of the immediate area. Alluvial Fan deposits and Glacial Sand and Gravel are also indicated in close proximity to the site.* *A conjectural fault (Morfa Fault) runs in a general north-west to south-east orientation, which down throws strata towards the north-east. This fault is seen to pass down through the central reaches of the site.* *The site is underlain by a minor aquifer of high permeability. The site bedrock aquifer designation is a Secondary A aquifer associated with the Hughes Member of the Upper Pennant Sandstone (or Upper Coal Measures). The superficial aquifer designation is shown to be Secondary Undifferentiated.* *The majority of the site has a potential for groundwater flooding to occur at the surface. The nearest surface water features to the site are the Port Talbot Docks which lie approximately 60m to the south of the site and the River Afan some 370m to the north-west of the site. A small pond lies some 80m south-east of the site.* *The site is recorded as an area at risk from flooding from Rivers or Sea without defences (Zone 3). The northern area of the site also shows high risk of flooding (30yr return period) with the central area showing as medium risk (100 yr return period) and the southern area low risk (1000 yr return).*
Potential Contamination Sources:	*Contamination associated with steel works - Petroleum Range Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH), Inorganic Heavy Metals, Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs), Acids, Asbestos and Polychlorinated Biphenyl's (PCBs);* *Contamination associated with chemical works - Petroleum Range Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH), Inorganic Heavy Metals, Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs) and asbestos;* *Contamination associated with railway activities - Petroleum Range Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH), Inorganic Heavy Metals and Asbestos.* *Ground gases generated by biodegradable organic material within the Made Ground. Potential ground gases include methane (flammable and asphyxiant) and carbon dioxide (asphyxiant).*
Ground Conditions:	*The strata encountered in the most recent ground investigation works detailed in this report comprised Made Ground, observed to be variable in its composition. The Made Ground was generally coarse and granular in nature, comprising a mixture of ash, slag, brick, concrete and stone with various inclusions of deleterious material including metal, glass and wood. The thickness of the Made Ground ranged from 1.0m bgl to over 3.4m bgl.*

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	The exploratory works have shown the Made Ground overlies a sequence of cohesive estuarine deposits or lies directly on the coarse Alluvial Sand and Gravel. At one location, BHH04, a layer of Sandstone and Mudstone was encountered beneath the Gravel layer from 6.5m bgl to over 8.0m depth.
Soil and Groundwater Contamination Summary:	- *Elevated concentrations of Benzene have been identified (predominantly) in the shallow Made Ground across the site, at levels above the Opus Tier I Soil Screening Values.* - *Asbestos fibres have been identified in the Made Ground spatially distributed across the site in a non-specific manner, thus it is to be assumed that the majority of the Made Ground is impacted by asbestos.* - *Concentrations of inorganic compounds (Chromium (VI), Copper and Zinc) have been identified within the shallow groundwater at levels above the relevant water quality standards.*
Soakaway Testing:	*Soakaway infiltration testing has not been undertaken at the site during the recent investigation, as it is likely that the ground will be raised and a culvert constructed beneath the site (refer to flood risk assessment report). However, based on the findings of the investigation and previous ground investigations, a preliminary assessment can be made if required.* *Soakaways with infiltration zones located in the made ground soils could increase the leaching of contaminants into the underlying gravels and potentially into the aquifer's that underlie the site. Soakaway drainage could also increase the flow of ground water away from the site and hence increase the rate of flow of dissolved contaminants into the groundwater.* *This should be considered in further assessments of the risks to controlled waters. In addition, regulatory approval will likely be required to permit their use within the Made Ground. Once the above has been confirmed, further guidance can be given upon request.*
Ground Gas:	*Given the ground gas results to date, the site may be classified as a Characersitic Situation CS2, Low Hazard potential, in accordance with Table 2 of BS8485:2015 and can be considered a Type C Building in accordance with BS8485:2015. Therefore, a minimum gas protection score of 2.5 is thought suitable for the site.* *This should be confirmed following the completion of the final two monitoring visits to the site.*
Radon:	*According to the Public Health England UK Radon Affected Area maps, the site lies within an area of less than 1% radon potential zone. The Envirocheck Report received from the Landmark Information Group confirms the site is not within a radon affected area.* *Therefore, no Radon protection measures are necessary for the site area.*

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Foundation Design:	*Foundation types for the proposed commercial units are likely to comprise either:* - *Shallow Pad or Trench Fill Foundation (Recommended for the majority of the site);* - *Piles (Recommended for raised western area of site);* - *Ground Improvement;* - *Reinforced Raft Foundation.*
Road and Pavement Design:	*A design CBR value of 5% may be assumed generally for road and pavement design at existing ground level, but it may be possible to reduce construction thicknesses in many areas when details of the layout and formation level are fully known.*
General Recommendations for Earthworks:	*A Materials Management Plan should be prepared to optimise the use of the earthworks materials present on the site. Vigilance should be observed during the groundworks and demolition phases for any potentially contaminated or other unsuitable material not identified during the ground investigation, which should be excluded from the earthworks operations.* *All remaining foundations beneath proposed building footprints should be removed. Remaining foundations under any car parking or roadway areas may remain upon inspection from a suitably qualified geotechnical engineer.*

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1 INTRODUCTION

Opus International Consultants (UK) Ltd (hereafter referred to as Opus) have been commissioned by Neath Port Talbot County Borough Council (NPTCBC) to provide a combined Interpretive Geo-Environmental and Geotechnical Ground Investigation Report for the investigations undertaken for the proposed commercial development of the site. Instructions to procure, part-time supervise and report on the ground investigation works were received from NPTCBC on 8th June 2017.

The objectives of the combined Interpretive Geo-Environmental and Geotechnical Ground Investigation Report are to obtain information relating to the ground conditions at the site, including the presence of historic buildings and any associated contamination, and to determine suitable methods of design and construction for the proposed commercial buildings. The scope of this ground investigations and reporting was to compliment the historic ground investigations carried out on the site in 2007 as part of a wider ground investigation.

Opus have had access to a number of historic reports relating to the site and its surrounding area which have been used in compiling this report. The details of these reports are as follows:

i. Structural Soils, Factual Report on Ground Investigations at Land Reclamation Sites, Port Talbot, Ref: 61667, Dated May 207.

ii. Opus International Consultants (UK) Ltd, Land Reclamation Sites, Port Talbot – Ground Investigation Report, Ref: CC7179.16/GI-1.1, Dated December 2007.

iii. Opus International Consultants (UK) Ltd, Port Talbot Central, Port Talbot, South Wales – Site Investigation for HMCS, Ref: CC7179.38-GIR-1.0, Dated March 2009.

iv. Terra Firma (Wales) Ltd, Geotechnical & Geoenvironmental Report - Proposed Commercial Development - Tata Harbour Side, Port Talbot, Ref: 11614, Dated January 2012.

This report was prepared subsequently to the Phase 1 Desk Study Report issued for the site (Ref: V-C8602.01_OIC_00_XX_RP_01) by Opus in July 2017 which contains a review of the previous ground investigations completed on the site.

This report has been prepared by Opus with all reasonable skill and care within the terms of contract with the client, and taking account of information made available by the client, as well as manpower and resources devoted to it by agreement with the client. Opus disclaims any responsibility to the Client and others in respect of any matters outside the scope of the above Contract.

This report has been produced on behalf of the Client, NPTCBC. This report should not be relied upon or transferred to any other parties without the express written authorisation of Opus. If any unauthorised Third Party comes into possession of this report, they rely on it at their own risk and the authors accept no liability towards them.

The comments on groundwater are based on observations made at the time of the investigation. It should be noted, however, that groundwater levels may vary from those reported due to seasonal or other effects, such as tidal.

The plans enclosed in this report should not be used for scaling purposes

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2 THE SITE

2.1 Location and Access

The site is located adjacent to the Old Dock Road and Harbour Way (A4241) on the southern boundary and Cramic Way to Port Talbot Parkway Railway Station on the Northern boundary. The site comprises a roughly rectangular parcel of land which is approximately 2.8 ha in area. The western portion of the site is bounded with earth bunds whilst the northern and eastern boundaries are open. The southern boundary is fenced.

The site is centred on approximate Ordnance Survey Grid Reference 276566E 189503N.

A site location plan and boundary is provided within the Drawings section of this report presented as Drawing No. C2014B/PS004.

The main access to the site is off Oakwood Road.

2.2 Proposed Development

It is understood that the proposals for the site development comprises a number of commercial units with associated car parking and access roadways as shown on the enclosed drawing (reference number C2014B/PS004). This report refers to the proposed development land outlined on Drawing C2014B/PS004.

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3 DESK STUDY INFORMATION

3.1 Source of Information

Information on the geology underlying the site was obtained from the following sources:

i. British Geological Survey map, Sheet 247, Scale 1:63,360;

ii. British Geological Survey map, Sheet SS78 NE, Scale 1:10,560;

iii. British Geological Survey Website - www.bgs.ac.uk;

iv. NERC & Institute of Geological Sciences (1970) British Regional Geology – South Wales. 3rd Edition, HMSO; and,

v. British Geological Survey, Geology of the Swansea district – a brief explanation of the geological map Sheet 247 Swansea. W J Barclay. 2011.

Reports from the following ground investigations known to have been carried on or adjacent to the site and records were examined during this desk study as noted in the introduction of this report:

i. Structural Soils, Factual Report on Ground Investigations at Land Reclamation Sites, Port Talbot, Ref: 61667, Dated May 2007.

ii. Opus International Consultants (UK) Ltd, Land Reclamation Sites, Port Talbot – Ground Investigation Report, Ref: CC7179.16/GI-1.1, Dated December 2007.

iii. Opus International Consultants (UK) Ltd, Port Talbot Central, Port Talbot, South Wales – Site Investigation for HMCS, Ref: CC7179.38-GIR-1.0, Dated March 2009.

iv. Terra Firma (Wales) Ltd, Geotechnical & Geoenvironmental Report - Proposed Commercial Development - Tata Harbour Side, Port Talbot, Ref: 11614, Dated January 2012.

3.2 Site History

The history of the site showed it predominantly comprised marshland and agricultural land from 1876, with a building considered to have been associated with a farm located within the northern boundary of the site.

From 1917, the western portion of the site became largely developed with buildings and tanks and the railway to the south and north.

From 1921, the site was shown to form Port Talbot Steel Works and from 1939 onwards, further development in the form of buildings and railways was noted. Reconfiguration of the buildings occurred until around 1964, when they were then mostly replaced by roadways and the eastern portion of the site was developed as a chemical works.

By 1993, the chemical works was noted to be disused and the site shown to form part of the surrounding industrial estate. Little change in land use of the site or the general area was recorded until the buildings in the vicinity were demolished and generally levelled at an undetermined date between 1997 and 2007.

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A full account of the site history is provided in the Opus Phase I Desk Study Report (Ref: V-C8602.01-OIC-00-XX-RP-01), dated July 2017.

3.3 Site Description

The site is located on a section of land which, in general, is relatively flat with the exception of a raised area, approximately 2.0m in height, in the western section of the site. The site boundary is indicated by large boulders and fencing along its eastern and southern boundaries and soil bunds along the western boundary.

All buildings previously occupying the site associated with the Steel and Chemical Works have been demolished but areas of concrete slab, tarmac and hardstanding associated with these buildings still remain amongst vegetation.

The northern boundary of the site comprises a public walkway beyond which is the NPTCBC station Car park and Port Talbot Parkway Railway Station. There is no fencing or barriers on this boundary to prevent public access.

The east of the site, is currently being used as a parking area for users of the Magistrates Court Buildings immediately east of the site.

The southern area of the site was mainly covered by overgrown vegetation and areas of tarmacadam. During the site walkover, an open and heavily rusted disused pipe (approximately 500mm diameter) and chamber was found on site as detailed in the Opus Phase I Desk Study Report (Ref: V-C8602.01-OIC-00-XX-RP-01), dated July 2017. This is thought to be that noted on historic maps from 1993, entering the site in the south east corner.

The western area of the site has been fenced off recently with a gate to provide access. At the time of the site visit, NPTCBC were not aware of this fenced area and so access was not made to this area of the site. However, the most western section of this area was raised by approximately 1.0m when compared with the rest of the site. The western boundary of the site comprised an earth bund of approximately 2m high on the western side and heavily vegetated in the North West boundary of the site.

3.4 Geology, Hydrogeology and Hydrology

3.4.1 Geology

The geology of the area in its regional context is shown on British Geological Survey 1:63,360 scale plan Sheet 247 and in more detail on 1:10,560 scale sheet SS 78 NE. The site lies just within the southern outcrop of the South Wales Coalfield.

Solid strata of the Llynfi Beds comprising sandstones with interbedded coal seams and minor siltstone and mudstone layers of the Lower Pennant Measures of Carboniferous age underlie Estuarine Alluvium in all of the immediate area. Alluvial Fan deposits and Glacial Sand and Gravel are also indicated in close proximity to the site.

A conjectural fault (Morfa Fault) runs in a general north-west to south-east orientation, which down throws strata towards the north-east. This fault is seen to pass down through the central reaches of the site.

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3.4.2 Hydrogeology and Hydrology

The groundwater vulnerability map provided by Envirocheck included in the Phase 1 Desk Study Report (Ref: V-C8602.01_OIC_00_XX_RP_01) for the site indicates it is underlain by a minor aquifer of high permeability. The site bedrock aquifer designation is a Secondary A aquifer associated with the Hughes Member of the Upper Pennant Sandstone (or Upper Coal Measures). The superficial aquifer designation is shown to be Secondary Undifferentiated.

Groundwater Vulnerability Flood maps produced by Envirocheck indicate the majority of the site has a potential for groundwater flooding to occur at the surface. In the North West corner of the site, flooding to only property situated below ground level is indicated as a potential.

The nearest surface water features to the site are the Port Talbot Docks which lie approximately 60m to the south of the site and the River Afan some 370m to the north-west of the site. A small pond lies some 80m south-east of the site.

The River Afan flows in a general north-east to south-west direction and is classified by the Environment Agency as River Quality Objective Grade 1 with a Chemistry General Quality Assessment Grade A, i.e. of very good quality that is suitable for salmonid fishery.

The site is recorded as an area at risk from flooding from Rivers or Sea without defences (Zone 3). The northern area of the site also shows high risk of flooding (30yr return period) with the central area showing as medium risk (100 yr return period) and the southern area low risk (1000 yr return).

3.5 Radon

According to the Public Health England UK Radon Affected Area maps, the site lies within an area of less than 1% radon potential zone. The Envirocheck Report received from the Landmark Information Group confirms the site is not within a radon affected area.

Therefore, no Radon protection measures are necessary for the site area.

3.6 Environmental Database Review

A comprehensive review of the Landmark Envirocheck information was carried out by Opus as part of the Phase 1 Desk Study Report (Ref: V-C8602.01_OIC_00_XX_RP_01). The pertinent details relating to the site has been summarised below.

There is one recorded area of potentially infilled land (Water) within the site boundary at National Grid Reference 276596 189509.

There are three Registered Waste Transfer Sites within 500m of the study site, the closest being 325m north west of the site, and one Registered Waste Treatment or Disposal site 232m north west of the site.

There three recorded licenced waste management facilities located within 500m of the study site, with the closest being 417m west of the site.

There are six recorded discharge consents located within 250m of the site. The nearest discharge consent is situated approximately 28m south west of the site at Port Talbot Docks and was classified

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as “undefined or other”. Two of the other discharge consents are located 123m south of the site and three are located 223m south of the site, all located in Port Talbot Docks.

There are seven minor pollution incidents to controlled waters recorded within 250m of the site, six of which are Category 3 (Minor Incidents) and one Category 2 (Significant Incident). The nearest Category 3 incident occurred 20m east of the site in 1997 and the Category 2 incident was 123m south of the site in 1994.

There is one fuel station entry within 500m of the site recorded as Port Talbot Service Station 139m east of the site and status is “open”.

There are no records of any Sites of Special Scientific Interest (SSSI), Local or National Nature Reserves (LNR or NNR), Special Areas of Conservation (SAC), Special Protected Areas (SPA) or Areas of Outstanding Natural Beauty (AONB) within 500m of the site.

3.7 Unexploded Ordnance (UXO)

The UXO risk level on site has been deemed as medium (ALARP) according to the EOD Contracts UXO Desk Study and Risk Assessment which was included in the Phase 1 Desk Study Report (Ref: V-C8602.01_OIC_00_XX_RP_01). For this reason, UXO risk mitigation was recommended during any further site investigations or construction including UXO safety awareness training, UXO safety testing prior to intrusive works and UXO safety monitoring of all “at risk” excavations.

A UXO Engineer from RPS Energy was appointed by Opus on behalf of NPTCBC to supervise the excavation works due to the risk of unexploded ordnance highlighted. The daily work journal of the UXO Engineer has been included in Appendix B of this report.

No evidence of UXO was encountered in any of the exploratory hole locations.

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4 PRELIMINARY CONCEPTUAL SITE MODEL

4.1 Potential Sources of Contamination

The site was once occupied by steel works, and later the eastern margins were occupied by a chemical works, both of which were associated with above and (assumed) underground storage tanks.

Based on the review of desk study information there are some potential for contamination sources to be present on the site as detailed below:

- Contamination associated with steel works:
    - Petroleum Range Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH), Inorganic Heavy Metals, Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs), Acids, Asbestos and Polychlorinated Biphenyl's (PCBs);
- Contamination associated with chemical works:
    - Petroleum Range Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH), Inorganic Heavy Metals, Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs) and asbestos;
- Contamination associated with railway activities:
    - Petroleum Range Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH), Inorganic Heavy Metals and Asbestos.
- Ground gases generated by biodegradable organic material within the Made Ground. Potential ground gases include methane (flammable and asphyxiant) and carbon dioxide (asphyxiant).

The following potential off site sources of ground contamination have been identified:

- Contamination associated with railway lines and activities:
    - Petroleum Range Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH), Inorganic Heavy Metals and Asbestos.
- Contamination associated with Tin works:
    - Inorganic Heavy Metals, Radiological Compounds (NORM – Naturally Occurring Radioactive Material), Petroleum Range Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH), Inorganic Heavy Metals, Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs), Acids, Asbestos and Polychlorinated Biphenyl's (PCBs).

Steel works and chemical works are also located in the surrounding area, however the potential contaminates associated with these industrial land uses has already been detailed for on-site sources.

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4.2 Receptors of Contamination and Migration Pathways

Receptors are defined as human beings, ecological systems, property or controlled waters that have the potential to experience adverse effects from direct or indirect exposure to contaminated material.

Migration pathways are defined as the courses chemicals take from a source to an exposed organism or receptor. The exposure pathway can be direct (i.e. stays within the same exposure media) or indirect transport from one medium to another takes place.

The following potential human health, property and environmental receptors have been identified assuming the proposed future redevelopment as commercial use:

- Future site users;
- Site construction and maintenance workers (acute exposure only) ;
- Groundwater associated with the underlying Secondary A Aquifer;
- Building materials (concrete and water supply pipes); and
- Marine life within the Bristol Channel.

The following potential migration pathways have been identified assuming the proposed commercial end use of the site.

Inhalation

Human health can potentially be at risk from breathing dust, fibres and vapours from contaminated soil in the outdoor air and also the inhalation of fugitive dust inside buildings. Vapours from contaminated soil and groundwater can also migrate into buildings and be inhaled by the occupants.

Ingestion

Human health can potentially be at risk from eating and swallowing of contaminated soil. Ingestion can also occur by deliberately eating contaminated soil or indirectly by eating or smoking with dirty hands etc., or by ingestion of fugitive dust.

Dermal Contact

Human health can be potentially at risk from direct skin contact with contaminated soil and groundwater causing skin conditions such as dermatitis etc. and also dermal contact with fugitive dust inside buildings. Certain contaminants can be absorbed into the body through the skin or enter directly through open cuts and abrasions.

Leaching

Infiltration of water through soil can leach out soluble contaminants resulting in groundwater pollution.

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Migration of Contaminated Water

Depending on the permeability of ground conditions, believed to be highly permeable, and any other man-made voids or preferential pathways, contaminated groundwater can potentially migrate laterally or vertically impacting adjacent surface and groundwater.

Migration of Ground Gas

Ground gases or volatile hydrocarbon vapours may migrate laterally or vertically through permeable or voided ground and accumulate within unprotected buildings.

Aggressive Attack

Some buildings and materials can be damaged by direct contact with aggressive ground conditions, for example sulphate attack on concrete and hydrocarbon attack on plastics.

4.3 Possible Contaminant Linkages

The following potential pollutant linkages have been identified for the site, assuming the proposed future end use of the site remains as commercial properties and are in Table 4.1 below.

Table 4:1 Potential pollutant linkages

Source	Pathway	Receptor
TPH; PAH; Heavy Metals; VOCs; SVOCs; and, PCBs	Dermal contact; Soil Ingestion; and, Inhalation (indoor air).	Future occupants.
Asbestos.	Inhalation (outdoor air) Inhalation (indoor air)	Future occupants Construction workers Maintenance workers Site neighbours
TPH; PAH; VOCs; SVOCs; and, Acidic Ground	Aggressive attack	Building materials Plastic water mains
Ground gases - Methane, Carbon Dioxide	Inhalation (indoor air)	Future occupants
TPH; PAH; VOCs; and, SVOCs.	Leaching, laterals and vertical migration off site	Secondary A Aquifer; Bristol Channel

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The term potential pollutant linkage as used above is defined as one that has the potential to represent unacceptable risks to human health or the environment but has not been identified through risk assessment. Where a potential pollutant linkage has been identified above, further investigation and risk assessment may be required to establish whether a relevant pollutant linkage exists.

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5 INVESTIGATION METHODOLOGY

5.1 Ground Investigation

The ground investigation was undertaken by Quantum Geotechnical Ltd and comprised the advancement of a combination boreholes advanced using a Cable Percussive Rig (1 No.), Cable Percussion Rig with Open Hole Rotary Rig follow on (2 No.) and boreholes advanced solely using a Rotary Rig (4 No.). The ground investigation also comprised ten trial pits advanced using a JCB 3CX excavator also undertaken by Quantum. Opus provided part time supervision during the ground investigation works.

Prior to commencing the site works, plans showing the locations of services were obtained by Opus and provided to Quantum.

The exploratory holes were positioned away from known services and the positions scanned with a Cable Avoidance Tool (CAT) and Signal Generator (Genny) by Quantum in order to clear the location for buried services.

Four boreholes were installed with single installations with ground gas monitoring wells and fitted with a cover at surface level to allow for monitoring after the investigation in BHH01, BHH03 and BHH04. Two boreholes were installed with double installations (shallow and deep) with ground gas monitoring wells and fitted with a cover at surface level to allow for monitoring after the investigation in BHH02 and BHH007. The ten trial pits were backfilled with arisings upon completion.

Based on the desk study, the rationale for the positioning of the exploratory holes was to obtain general site coverage of the proposed building locations, confirm the presence of any clay layers and depth of dense sands and gravels across the site, further investigate contamination previously recorded on the site and to compliment previous ground investigation on the site.

The locations of the exploratory holes are shown on Drawing No. V-C8602.01-100-R2 in the Drawings section of this report.

5.2 Gas and Groundwater Level Monitoring

Six gas monitoring and groundwater level monitoring visits have been scheduled for this site. At the time of writing this report, four rounds of gas monitoring have been completed on 14/08/2017, 23/08/17, 31/08/2017 and 11/09/2017. A further two visits are planned for the site and will be reported in a separate addendum letter report following completion.

Measurements of concentrations of methane, carbon dioxide, oxygen, carbon monoxide and hydrogen sulphide were taken using a Gas Data GA2000 MCERTS accredited gas analyser. Atmospheric pressure and gas flow rates were also recorded on each occasion.

Measurement of the groundwater levels was undertaken at each standpipe using an electronic dip meter, and was undertaken by Quantum.

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5.3 Groundwater Sampling

Groundwater sampling was carried out using low flow sampling equipment by Quantum on 14th August 2017 in order to determine if there any groundwater contamination on the site in the location of the installed monitoring wells.

Samples were collected from BHH02 (Shallow), BHH03 and BHH07 (Shallow) for chemical laboratory testing as detailed in Section 5.4 of this report.

5.4 Chemical Laboratory Testing

As part of the assessment for potential contamination at the site, soil samples were subjected to appropriate chemical analysis based on the findings of the desk study and site works. This analysis was carried out at the MCERTS/UKAS accredited laboratory of i2 Analytical Services.

Table 5:1 below outlines the analyses carried out on recovered soil samples to compliment previous ground investigation and testing carried out on the site. Asbestos tests were undertaken on samples of the made ground. The remaining tests were undertaken on a selection of samples from all strata types and to provide general coverage of the site.

Table 5:1 Summary of Contamination Testing Schedule on Soil Samples

Contamination Tests	No. Samples Tested
Full WAC Solid Suite	6
Total Petroleum Hydrocarbons (TPH) with BTEX by the Criteria Working Group (CWG) method	39
Volatile Organic Compounds (VOC's)	34
sVOC's	14
Asbestos ID	23
Speciated Poly Aromatic Hydrocarbons (PAH)	25
Heavy Metals Screening Suite (including Chromium VI)	21
Heavy Metals Leachate	22
Soil Organic Matter (SOM)	37
Sulphur (total)	23
Sulphate (total) acid soluble	23
Sulphate (water soluble)	33
Phenols (total)	37
Cyanide (total)	21
pH	35
Asbestos ID	23

Analyses has been carried out on recovered groundwater samples are shown in Table 5.2 below.

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Table 5:2 Summary of Chemical Testing Schedules on Groundwater

Contamination Tests	No. Samples Tested
Inorganic heavy metals including Cr6 and Cyanide (free):	3
Hardness	3
Speciated TPH with CWG	3
Volatile Organic Compounds (VOC)	3
SVOC	3
Phenols	3
Sulphate (as SO4)	3

It should be noted that a sample of groundwater was also taken in TPH05 at 1.7m and tested for Speciated TPH with CWG, VOC's and SVOC's.

5.5 Geotechnical Laboratory Testing

Representative disturbed samples were obtained for all soil types encountered. Selected samples were scheduled for geotechnical testing at the accredited laboratory of GSTL in accordance with accepted engineering guidelines related to foundation design and construction as shown Table 5.3.

Table 5:3 Summary of geotechnical testing schedule on Soil Samples

Contamination Tests	No. Samples Tested
Moisture Content	22
Atterberg Limit Test	3
PSD Sieve Analysis (wet)	21
BRE Brownfield Pyritic	21
Mass Loss on Ignition	13

5.6 Percolation Testing

Percolation testing was intended in the rotary boreholes on site in order to determine the likely movement of any contamination through the soils.

However, given the presence of standing water in the exploratory holes at depths where visual and/or olfactory evidence of contamination was encountered it was not suitable conditions to carry out this testing.

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6 RESULTS OF THE INVESTIGATION

6.1 Strata Encountered

The ground conditions encountered across the site based on the most recent ground investigation carried out in July and August 2017 and previous ground investigation in February and March 2007, shows that the ground conditions are comparatively consistent across the site.

The near surface strata encountered during the previous investigation comprised Made Ground which was seen to be variable in character. The Made Ground was generally granular and coarse in nature, comprising a mixture of ash, slag, clinker, brick, concrete and stone with variable inclusions of deleterious materials including wood, metal, glass and plastics. In addition, coal fragments were recorded at one location. The Made Ground thickness was highly variable ranging from 0.75m to 4.60m bgl. Exploratory works have shown that the Made Ground either overlies a sequence of cohesive estuarine deposits or lies directly on the coarse granular Alluvial Sand and Gravel.

Cohesive estuarine deposits encountered during the 2007 ground investigation have been summarised on Drawing V-C8602.01/102/R1 along with the cohesive estuarine deposits noted in the 2017 ground investigation.

The strata encountered in the most recent ground investigation works detailed in this report comprised Made Ground, observed to be variable in its composition comprising a black silty sandy Gravel, with a mixture of ash, slag, brick, concrete and stone with various inclusions of deleterious material including metal, glass and wood. The thickness of the Made Ground ranged from approximately 1.0m to 3.4m. The exploratory works have shown the Made Ground overlies a sequence of cohesive estuarine deposits or lies directly on the coarse Alluvial Sand and Gravel. A layer of Sandstone and Mudstone was encountered beneath the Gravel layer from 6.5m bgl to over 8.0m depth in BHH04.

The ground conditions encountered during the investigation were fairly consistent across the whole of the site area and are summarised in Table 6.1 below. The Quantum Investigation Factual Report, which is referenced here under Appendix A, contains more detailed information on the ground conditions encountered at each exploratory hole location along with geotechnical and environmental laboratory test results and exploratory hole location plan.

Table 6:1 Summary of Ground Conditions

Material	Depth to base of Stratum (m)	Base level of Stratum (mAOD)	Thickness (m)
Made Ground comprising black silty sandy Gravel. Gravel is a mixture of ash, slag, brick, concrete and stone with various inclusions of deleterious material including metal, glass and wood.	1.0 - 3.4 (Av 2.1)	6.9 - 3.4 (Av 5.2)	1.0 - 3.4 (Av 2.1)
Upper Alluvium comprising greenish grey mottled black silty slightly gravelly SAND and black silty sandy gravelly CLAY.	1.8 - 4.2 (Av 2.6)	3.7 - 1.2 (Av 2.7)	0.2 – 1.5 (Av 0.7)
Lower Alluvium comprising medium dense and dense brown sandy GRAVEL.	2.2 - 10.0 (Av 6.0)	3.3 – (-4.4) (Av - 0.8)	0.3 – 7.0 (Av 3.7)

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Material	Depth to base of Stratum (m)	Base level of Stratum (mAOD)	Thickness (m)
Bedrock comprising thinly interbedded strong, fine grained, highly weathered Sandstone and grey, weak, highly weathered Mudstone. (Encountered in BHH04 only)	>8.0	-1.1	1.5*

*Full thickness not proven

It should be noted that the drillers description has been stated on occasions due to a number of boreholes being completed by rotary open hole methods, and conventional soils samples were not obtained.

6.1.1 Made Ground

The Made Ground encountered across the site was predominately granular and coarse in nature, comprising black silty sandy Gravel. The gravel is mixture of ash, slag, brick, concrete and stone with various inclusions of deleterious material including metal, glass and wood. The thickness of the Made Ground ranged from 1.0m bgl to 3.4m bgl, with an average thickness of 2.1m.
The SPT N values recorded within the Made Ground material ranged between 41 and >50 (i.e. refusal), indicating a dense and very dense granular strata.

6.1.2 Alluvial Sands

Alluvial Sand deposits were encountered in TPH02 to TPH07 (inclusive) between 1.9m bgl and 4.2m bgl with a maximum strata thickness of 1.0m and generally comprised greenish grey mottled black silty slightly gravelly SAND. The gravel was described as fine to coarse, well rounded to sub-rounded Sandstone. In TPH04 and TPH07, high and low cobble content were noted respectively.

6.1.3 Alluvial Clay

Alluvial Clay was present inBHH07, TPH08 and TPH10 was encountered directly underlying the Made Ground at these locations.

The Alluvial Clays encountered in BHH02 and BHH07 were described as black silty sandy gravelly CLAY. The drillers description of this strata whilst using rotary open hole technique in BHH02 was black Sand and Gravel, whereas in BHH07 it was described as soft black silty CLAY.

The SPT N values in these boreholes correspond with the description with refusal in BHH02. However, a single SPT N value of 45 was recorded in BHH07, suggesting the presence of hard CLAY as opposed to the soft CLAY noted in the drillers logs.

6.1.4 Alluvial Gravels

The Made Ground, Alluvial Clay and Alluvial Sand deposits were underlain by Alluvial Gravels and were proved to depths >10.0m bgl. The drillers description of this strata was brown sandy GRAVEL.

SPT N values obtained within the Alluvial Gravels revealed 'N' values in the range of 31 to >50 (i.e. refusal) indicating a dense to very dense granular strata.

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6.1.5 Sandstone and Mudstone

A layer of thinly interbedded strong, fine grained, highly weathered Sandstone and grey, weak, highly weathered Mudstone was encountered in BHH04 from 6.5m bgl to greater than 8.0mbgl, where the borehole was terminated.

SPT testing within the Sandstone and Mudstone strata recorded SPT N values of greater than 50, i.e. refusal.

The total core recovery (TCR) was 85%, however the rock quality designation (RQD) value was 0%, due to the core being non-intact.

6.1.6 Historical Obstructions

Historical obstructions comprising concrete foundations, concrete slab and brick walls were encountered in a number of exploratory holes across the site area.

These obstructions from previous ground investigations as well as the 2017 ground investigations on the site have been summarised on Drawing V-C8602.01-102-R1 included in the Drawings section of this report.

6.2 Visual or Olfactory Evidence of Contamination

The visual or olfactory evidence of contamination detected during the site investigations has been summarised below.

Coal slag was noted in the Made Ground across the site.

Made Ground including ash, brick, concrete and metal was noted in BHH04, BHH05, BHH07, TPH01, TPH02, TP03, TPH06, TPH07, TPH08, TPH09 and TPH10.

Quartz was noted in the Sand and Gravel Strata in TPH07 and the Gravel in TPH09 and TPH10.

Hydrocarbons

- Very strong hydrocarbon odour was noted in TPH05 at 1.7m bgl and 2.00m bgl.
- Strong hydrocarbon odour was noted at 2.00m bgl in BHH02 and TPH04 at 2.20m bgl. A slight hydrocarbon odour was noted in BHH07 at 2.00m bgl.
- A slight hydrocarbon sheen was noted on material surface in TPH02 at 2.60m bgl, TPH03 at 3.50m bgl, TPH04 at 1.55m bgl.
- A rare hydrocarbon sheen was noted on material in TPH05 at 1.50m bgl, 1.70m bgl and 2.00m bgl.

6.3 Chemical Testing of Soil Samples

The results of the contamination testing have been provided within Appendix A. These have been reviewed in accordance with the relevant legislative framework and the criteria has been set out in Appendix C. The chemical testing was undertaken on the following general strata types.

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Table 6:2 Summary of Chemical Testing on Main Strata

Contamination Tests	No. Samples tested
Made Ground	22
Natural Materials	16

Of the thirty eight soil samples submitted for testing, Soil Organic Matter (SOM) concentrations were found to range between 0.30% and 19%, with an average of 3.5%. Therefore, to be conservative, the results were compared to Opus Tier I Screening Values for a 1% SOM where applicable.

It is understood that the site is proposed to be developed through the construction of commercial buildings and parking facilities. In view of this, the assessment of the soil contamination results have been conducted assuming a commercial end use.

The results are summarised in Table 6.3:

Table 6:3 Chemical Exceedances

Location	Depth (m)	Asbestos	Benzene
TPH01	1.50	✔	
TPH03	3.40	✔	
TPH04	0.40		✔
TPH05	0.50		✔
TPH05	1.30	✔	
TPH05	1.90		✔
TPH06	2.60		✔
TPH07	0.60	✔	
TPH08	1.00	✔	
BH02	2.00		✔
BH04	0.50	✔	
BHH02	0.50	✔	

Five exceedances of the human health generic assessment criteria were detected within the samples tested from both the Made Ground and natural soils.

Asbestos was detected as loose fibres and ACM fragments of chrysotile (white) asbestos in eight of the twenty two Made Ground soil samples tested. These were detected at depths ranging from 0.50m bgl to 3.4m bgl.

6.3.1 Made Ground

Nineteen of the twenty two samples tested in the Made Ground did not contain concentrations of inorganic or organic compounds (TPH, PAH, VOC or SVOC) compounds exceeding the Tier I values.

Three samples (TPH04 at 0.40m bgl, TPH05 at 0.50m bgl and BH02 at 2.00m bgl) were found to have concentrations of Benzene which exceeded the Tier I values when considering both 1% SOM and 2.5% SOM (the nearest SOM to the average).

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6.3.2 Natural Sand

Four of the six sample tested in the Sand did not contain concentrations of inorganic compounds (such as metals), TPH or PAH compounds exceeding the SSV.

Two samples (TPH05 at 1.90m bgl and TPH06 at 2.60m bgl) did contain concentrations of Benzene at levels above the Tier I values.

6.3.3 Natural Clay

The sample tested in the Clay did not contain concentrations of inorganic compounds (such as metals), TPH or PAH compounds exceeding the SSV.

None of the chemical testing carried out on samples of the Clay for Volatile Organic Compounds (VOCs) measured concentrations above the laboratory method detection limit (MDL). This indicates a general the absence of VOCs within the Clay strata.

None of the samples tested for BTEX in the Clay strata indicated exceedances when compared to the SSV values.

6.3.4 Natural Gravel

The sample tested in the Clay did not contain concentrations of inorganic compounds (such as metals), TPH or PAH compounds exceeding the SSV.

With the exception of one sample, none of the chemical testing carried out on samples of the Gravel for Volatile Organic Compounds (VOCs) measured concentrations above the laboratory method detection limit (MDL). This indicates a general the absence of VOCs within the Gravel on the site however some compounds of VOC's above detection level was noted in TPH04 at 2.0m, but are not considered to be actionable given the low concentrations.

None of the samples tested for BTEX in the Gravel strata indicated exceedances when compared to the SSV values.

6.3.5 Asbestos in the Soils

Seven of the samples taken in the Made Ground and one of the samples taken in the Sand strata tested for asbestos soil screen and identification, identified asbestos in the soil. A summary of the samples containing asbestos has been provided below.

Table 6:4 Summary of Asbestos in the Soil

Borehole	Depth (m bgl)	Asbestos Detected
TPH01	1.50	Chrysotile-loose Fibrous Debris
TPH03 (Sand)	3.40	Chrysotile-loose Fibres
TPH05	0.50	Chrysotile-loose Fibres
TPH05	1.30	Chrysotile-loose Fibres
TPH07	0.60	Chrysotile-loose Fibrous Debris

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TPH08	1.00	Chrysotile-loose Fibrous Debris
BHH04	0.5-1.0	Chrysotile-loose Fibres
BHH02	0.50-1.00	Chrysotile hard/cement type material

6.4 Chemical Testing of Groundwater Samples

Groundwater samples were collected from BH02 and BH07 using a 'Slow Flow' low disturbance method to collect the best quality sample. The concentrations were compared against the Saltwater Environmental Quality Standards (EQS) 2015 (given that the closet receptor is the Port Talbot Docks at circa 60m from the site) or where no EQS values are available, the UK Drinking Water Standards (UK DWS) 2016 or World Health Organisation Standards 2008.

Three exceedances (Chromium (VI), Copper and Zinc) were identified in the sample from BH02 and one exceedance of Zinc was identified in the sample from BH02.

All other organic compound results (TPH, PAH, VOC and SVOC) were all less than the laboratory detection limit for both samples.

6.5 Aggressive Soil Testing

BRE Brownfield (Pyritic) testing has been undertaken on 21 No. samples representing various deposits encountered.

The aqueous extract sulphate content ranged from <0.01 g/l to a maximum of 0.02 g/l and the acid soluble sulphate contents ranged from <0.02% to 0.21%.

The total sulphur content ranged from 0.01% to 0.08%.

The results of the pH testing undertaken on 21 No. samples as part of the BRE Brownfield (Pyritic) recorded values ranging between 7.23 and 8.23.

The results of the testing for aggressive ground conditions is included in Appendix A

6.6 Waste Acceptance Criteria (WAC) Testing

Full WAC analysis was carried out on six soil samples taken from Made Ground across the site.

The results of the WAC analysis indicate that the concentrations of contaminants in the samples mainly fall within the classification of "inert waste" with the exception Molybdenum in TPH08 at 0.3m bgl.

A copy of the WAC analysis results are included in Appendix A.

6.7 Geotechnical Testing

The results of the Geotechnical testing are presented in Appendix A. The geotechnical testing carried out was to compliment the information provided from previous ground investigations.

Atterberg Limit Tests were undertaken on the Alluvial Clay strata as follows;

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- TPH05 at 1.9m bgl exhibited a plasticity index of 38% (High Plasticity)
- TPH08 at 2.0m bgl exhibited a plasticity index of 58% (Extremely High Plasticity)

Moisture content determinations (undertaken on 22 no. samples predominantly within the Made Ground strata) recorded results ranging between 5% and 20% with the exception of TPH05 at 1.9mbgl, TPH08 at 2.0mbgl and TPH10 at 0.5mbgl which had 47%, 94% and 37% moisture content respectively. Possible reasons for this are:

- In TPH05 the Clay was noted as "fiberous" between 1.8m bgl and 2.0m bgl.
- In TPH08 the Clay was noted as slightly fiberous between 1.9m bgl and 2.1m bgl.
- In TPH10 there is no obvious cause of the higher moisture content.

The particle size distribution testing carried out on 21 no. samples generally confirmed the visual description of the encountered strata in terms of their soils classification.

6.8 Gas and Groundwater Monitoring

Four scheduled rounds of gas monitoring have been undertaken at the site at the time of writing this report with a further two visits planned for the site.

Gas concentrations and groundwater levels have been monitored in the 50mm standpipe installations in exploratory holes BHH01, BHH02(S), BHH02(D), BHH03, BHH04, BHH07(S) and BHH07(D).

During the first monitoring visit, in all BH installation the concentrations of CH_4, CO_2, CO and H_2S were below detection limits and no flow was recorded. O_2 levels were recorded between 20.6% and 20.9% v/v.

During the second monitoring visit, all installations measure 0.1% CH_4 and below detection limits CO. The levels of CO_2 recorded generally ranged between 0.2% and 0.8% with the exception of BHH01 where 3.6% was recorded. H_2S levels ranged between 1.0ppm and 4.0ppm. O_2 levels were recorded between 20.0% and 20.7% v/v. No flow was recorded with the exception of 5.7l/hr in BHH03.

During the third monitoring visit, all installations measured 0ppm CO. CH_4 levels recorded ranged between 0.0% and 0.1% and CO_2 ranged between 0.0% and 0.2% with the exception of BHH01 where 2.1% was recorded. H_2S levels ranged between 0.0ppm and 2.0ppm. O_2 levels were recorded between 20.2% and 21.3% v/v. No flow was recorded with the exception of 3.0/hr in BHH03.

During the fourth monitoring visit, all installations measured 0-0.1% CH_4 and a maximum of 1.0ppm CO. The levels of CO_2 recorded ranged between 0.2% and 1.2%. The levels of H_2S recorded were below detection limits in all installations with the exception of BHH03 which recorded 2.0ppm.

During these four monitoring visits, the groundwater levels across all monitoring visits varied between 3.9mbgl at the position of BHH01 (raised ground) and 0.5mbgl at BHH02.

These readings were compared with the high and low tide times in Port Talbot dock to asses if there was any relationship or pattern. However, there did not seem to be any obvious correlation between high and low tides and the groundwater readings recorded.

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The results of the gas monitoring to date are included in Appendix A.

A further two gas monitoring visits are intended for the site, the results of which will be summaries in a short addendum letter report on completion.

6.9 UXO Monitoring

The site was classified as UXO risk level medium (ALARP) according to the EOD Contracts and therefore, UXO risk mitigation was recommended during any further site investigations or construction including UXO safety awareness training, UXO safety testing prior to intrusive works and UXO safety monitoring of all "at risk" excavations.

A UXO Engineer from RPS Energy was appointed by Opus on behalf of NPTCBC to supervise the excavation works due to the risk of unexploded ordnance highlighted. The daily work journal of the UXO Engineer has been included in Appendix B of this report.

No unexploded ordnance were encountered during the ground investigation works detailed in this report, however, it is recommended that a UXO Specialist should be consulted during any further site investigations or construction

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7 ENVIRONMENTAL ASSESSMENT

7.1 Soil Contamination

This assessment has been prepared on the understanding that the proposed development of the site will be commercial with associated areas of hardstanding and soft landscaping. Should the proposed site usage change significantly from the above, the contents of this report will require review and amendment as appropriate.

Opus has undertaken a Tier 1 Qualitative Risk Assessment (QRA) to determine if any potential contaminants within the underlying soils and groundwater pose an unacceptable level of risk to the identified receptors.

The Tier I Human Health Screening Values (HHSV) methodology is included in Appendix C.

As detailed in Section 6.3, only five exceedances of the Opus Tier I HHSV were identified and were all from the compound Benzene. These exceedances varied with depth but were predominantly found with the shallow Made Ground and were observed to be broadly distributed with no identifiable single source or 'hotspot' area.

At these shallow depths, the risk posed to the end user are via dermal contact and soil ingestion and also through the inhalation of vapours (in indoor air).

7.2 Groundwater Contamination

Given the exceedances identified in Section 6.4, Opus recommend that a Detailed Quantitative Risk Assessment (DQRA) be undertaken, to model the movement of contaminants within the groundwater and assess if they pose an unacceptable level of risk to the docks at Port Talbot.

As the soluble contaminants identified at elevated concentrations in the overlying soil have not been detected in the dissolved phase of the groundwater, it is clear that the soil contamination is not leaching at sufficient levels to have a detrimental effect of the groundwater.

7.3 Ground Gas

Given the ground gas results to date, the site may be classified as a Charactersitic Situation CS2, Low Hazard potential, in accordance with Table 2 of BS8485:2015 and can be considered a Type C Building in accordance with BS8485:2015. Therefore, a minimum gas protection score of 2.5 is thought suitable for the site.

The assessment of the ground gas characterisation has been included in Appendix E.

This should be confirmed following the completion of the final two monitoring visits to the site.

7.4 Recommendations for Remedial Measures

The proposed layout will see multiple buildings, hardstanding car parking areas and access roads constructed. It is recommended that any new buildings incorporate hydrocarbon vapour resistant membranes in the foundation detail and also should any areas of soft landscaping be designed, that

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a minimum of 600mm of an inert 'topsoil / subsoil' capping layer be specified to mitigate the dermal contact and inhalation pathways of the benzene and asbestos fibres respectively.

7.5 Waste Disposal and Environmental Permitting Issues

Any soils removed from the site must be disposed of at an appropriately permitted landfill or exempt facility. As producer of the waste, the landowner or employer has a Duty of Care to ensure that their waste is disposed of appropriately.

Based on the laboratory results to date and current waste legislation, it is recommended that the classification of the waste is confirmed by discussion with the receiving waste management facility prior to disposal. Further WAC testing may be required depending on the volume and location of any materials to be disposed of as landfill.

Should it be proposed to re-use site derived excavated soils (including natural materials) at the site or import naturally occurring unpolluted soils directly from another site, such activities may potentially fall under the Environmental Permitting (England and Wales) Regulations 2010. In March 2011, Contaminated Land: Applications in Real Environments (CL:AIRE) published Version 2 of the Definition of Waste: Development Industry Code of Practice. The Code of Practice is supported by an Environment Agency Position Statement, which indicates:

"If materials are dealt with in accordance with the Code of Practice we consider that those materials are unlikely to be waste at the point when they are to be used for the purpose of land development."

Under the Code of Practice, such soils should not be a waste if they are retained on the site provided the re-use is "certain", the soils "are suitable for use without any treatment" and "only the quantity necessary for the specified works" as noted at the planning stage of the project is re-used. Rather than apply for a formal environmental permit or waste exemption, such works can now be undertaken under self-regulation so long as the protocols in the Code of Practice are followed. The Code of Practice requires the preparation of a Materials Management Plan, which needs to be signed off by a Qualified Person and the subsequent preparation of a Verification Plan and Verification Report. Opus is able to assist in the preparation of the above documents and provide an appropriate Qualified Person to sign off the Materials Management Plan.

Should it be proposed to import waste materials (as defined by the EU Waste Framework Directive) to site from an off-site source for use in construction, then either a waste exemption will need to be registered with the Environment Agency or a Standard Rules Permit obtained, depending on the quantities of waste to be imported. Such wastes may include clean topsoil and subsoil generated from other constructions sites, although by adopting the Code of Practice for the importation of these materials, this should omit the requirement for a waste exemption or Standard Rules Permit.

Should it be proposed to import recycled aggregate to site, then so long as this has been processed in accordance with the WRAP protocols this is unlikely to be considered to be a waste and no waste exemption or Standard Rules Permit is required. If the recycled aggregate has not been processed in accordance with the WRAP protocols then this may be considered a waste and an exemption or Standard Rules Permit will be required.

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7.6 Revised Conceptual Site Model

Contaminant	Source	Pathway	Receptor	Receptor
Human Health				
Asbestos	Made Ground	Inhalation	• Future site users, • Site neighbours; • Members of the public; and, • Construction workers	**Low risk.** With the incorporation of a minimum 600mm cover system underlain by either a granular no-dig layer or geotextile membrane in any soft landscaped areas the inhalation pathway will be mitigated. With the use of good dust control measures and suitable PPE for workers, it is considered that works disturbing the Made Ground during the construction phase would not generate sufficient airborne free fibres.
Benzene	Made Ground	• Dermal Contact; • Soil Ingestion; and, • Inhalation (indoor).	Future site users.	**Low Risk** With the incorporation of a hydrocarbon vapour resistant membrane below all proposed new buildings, the indoor inhalation pathway will be mitigated again. Furthermore, a 600mm cover system as detailed above to mitigate the asbestos contaminant would also mitigate the direct exposure pathways (dermal contact and ingestion) associated with Benzene.
Hazardous Ground Gas	Onsite Made Ground and offsite in-filled ground	Inhalation	Future site users.	**Low Risk** With the incorporation of suitable protection measures (to be designed upon completion of the gas monitoring period) below each plot, the inhalation route would be mitigated.
Controlled Waters				
• Chromium (VI); • Copper; and, • Zinc	Shallow groundwater	Lateral migration off-site	Port Talbot docks	**Medium Risk** Given the close proximity of the docks, it is recommended that a DQRA be undertaken to accurately assess the risk posed to the receptors by the identified contaminants.

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8 GEOTECHNICAL ASSESSMENT

8.1 General

At the time of writing of this report, the proposed commercial development on the site is as shown on Drawing C2014-PS004 comprising six commercial units and parking facilities, an extension to the existing NPTCBC Railway Station Parking to the north and the new Harbourside access road running east to west across the centre of the site.

Details of proposed levels and earthworks have not been provided at the time of writing.

The whole site will be discussed in the following Geotechnical Assessment including the Welsh Government Land at the west of the site.

The raised area of ground within the Welsh Government Land has been discussed separately in terms of foundation assessment.

8.2 General Earthworks

It is understood that the Client is considering proposed changes in elevation across the site. In particular it is considered that there will be cut required in the raised Welsh Government Land along the western boundary, with a view of utilising the as-dug material to construct the building platform across the remainder of the site. Both performance and conformance testing (comprising moisture content, grading, compaction and MCV testing) is recommended to ensure the suitability of any intended fill material in relation to its acceptability for use and placement requirements. However it is likely that the chemical composition of the soils in the raised area will dictate its reuse and incorporation into the permanent works.

Based on the visual descriptions of the soils samples recovered from the ground investigation, and we propose the following preliminary recommendations:

i. The natural superficial alluvial deposits and made ground materials appear to be similar, and where soils contain less than 15% fines, the materials won from excavations should be suitable for reuse as a Class 1A Well Graded Granular Material. These materials would be suitable for reuse as construction fill beneath areas of hard landscaping and general areas of construction make up. The material is also suitable for reuse beneath adoptable highway pavements such as Capping (6F1), but not suitable for backfilling of service trenches.

ii. From a review of the Moisture Content test results, the material won from excavations could to be suitable for reuse as a structural fill. During the construction earthworks, appropriate earthworks validation testing should be undertaken to assess the suitability of the material for re-use and incorporation into the permanent works.

iii. All materials won from the site strip and excavation works should be maintained in their “as-dug” condition and protected from excessive wetting or trafficking, which could increase their moisture content and thus reduce their strength. Poor treatment of the site won materials may, as a result, render them only suitable for use as Class 4 landscape fill. All anticipated site won materials to be subsequently used within the

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permanent works should be temporarily stockpiled in suitably compacted layers and covered to prevent water ingress.

8.3 Excavations

Excavation will be possible by normal hydraulic plant within the Made Ground, cohesive, and non-cohesive Drift Deposits, however it should be noted that a number of trial pits were terminated on dense gravels and compacted slag etc.

A review of the investigation undertaken in 2007 revealed a number of exploratory holes were terminated on obstructions, and is presented on Drawing V-C8602.01/102/R1. Consequently, localised obstructions will be encountered, mainly due to the presence of old foundations, building walls and work previously carried out on the site, and these will require breaking out and removal under the footprint of proposed buildings and where they coincide along drainage and service runs, however, it is likely that obstructions could remain beneath access roads and car park areas, and should assessed on site with regard to site levels and hard spots etc.

Where existing foundations/ obstructions are removed, the resulting voids should be backfilled carefully in order to cause minimal ground disturbance and avoid creating any loose pockets. Any suitable concrete foundations that are excavated may be crushed and screened and the material re-used as general fill.

Foundation excavations should be maintained dry at all times in order to prevent the softening of any cohesive materials. All excavations should be assumed to be unstable in the long term and require positive support or battering back. No material is to be stockpiled adjacent to an excavation and only blinding will be required on the base of the excavation.

Unsupported temporary cut slopes or excavations during construction works within the predominately gravel soils combined with a high groundwater table are expected to cause collapse of any trench excavations and this was evident in the trial pits. Temporary pump and sump dewatering are thought to be required on occasion to remove perched groundwater from the short term excavations.

With regard to general advice then it is recommended that buildings are set back from the edge of any manmade batter by at least the same distance as the height of the batter i.e. a 45 degree angle from the toe of the slope, but this will need to be assessed on site by a suitably qualified geotechnical engineer upon commencement of the proposed excavation works.

8.4 Foundation Design

At the time of writing, Opus is not aware as to the precise details or form of construction that may be utilised for the proposed development and thus the precise loadings that may need to be carried by the foundations.

Subject to review, as and when these details become available, a range of foundation options may therefore be appropriate for different areas of the site. The following discussion of foundation options should therefore be regarded as preliminary and subject to review as and when the detail of the intended development and the associated foundation loadings are known.

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Final designs for the foundations should be carried out by a suitable qualified engineer based on the findings of this investigation and previous investigations and with reference to the anticipated loadings and serviceable requirements for the structure.

The presence of historic foundations and structures within the near ground surface means any new foundations need to be considered carefully. At the location of parking areas, providing sufficient depth is available for pavement construction, any historic structures may be left in place. However routes for the proposed drainage and service trenches will need to be broken out, where invert levels are located within the footprint of existing surface obstructions.

Localised historic structures remaining within the ground should be removed prior to the construction of any new foundations. Large concrete slabs or foundations should be further investigated to determine the thickness and strength.

Although the Made Ground at the surface is thick enough to support substantial temporary loadings, the non-uniform composition of the Made Ground means it would likely suffer from differential settlement. In addition, long term settlement due to consolidation within the underlying Cohesive Alluvial Deposits would need to be taken into account.

Foundation types for the proposed commercial units are likely to comprise either:

- Shallow Pad or Trench Fill Foundation (Recommended for majority of the site);
- Piles (Recommended for raised western area of site);
- Ground Improvement;
- Reinforced Raft Foundation.

8.4.1 Shallow Pad, Strip or Trench Fill Foundations

Shallow pad and trench fill foundations may be appropriate for the lower lying area of the site with an allowable ground bearing resistance of 200kN/m^2 where foundations are seated on the Gravel stratum at a depth of approximately 1.0m to 3.0m below ground level. If column loads exceed this pressure, foundations may be increased in size to accommodate the loading or an alternative foundation solution may be more suitable.

It should be noted that there may be localised areas of deeper made ground or soft cohesive deposits., Once the foundation layout has been determined further probing along the line of the foundations may be required to determine the viability of using a solution such as trench fill in combination with traditional foundations.

Reinforcement in strip foundations can be used to minimise any potential for differential settlement due to variation in the underlying conditions and the presence of and hard spots buried in the ground.

The design parameters to be used in the assessment of the bearing capacity of the Alluvial Gravels is included in Appendix D.

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8.4.2 Piles

Given the current state of the site and considering the material encountered during the previous investigation and most recent investigation, it is considered that piling is a viable foundation option for the site, particularly on the raised area of Welsh Government Land along the western boundary, providing all underground obstructions can be first be removed.

A piled foundation solution would transfer the building loads down to the underlying dense Alluvial Gravels. However, the ultimate pile design would be dependent upon the loading of the buildings and the remedial actions adopted.

8.4.3 Ground Improvement

Initial ground improvement using Vibro Stone Columns could be used to transfer the load directly to the underlying dense Alluvial Sands and Gravels at a depth in the order of 2-3m. This method would allow conventional shallow foundations to be used. Although vibro-improvement can be difficult with underground obstructions present, the insertion points can be relocated and sometimes raked under obstructions to overcome these difficulties

Discussions with a Ground Improvement Contractor indicated that stone columns could support a total ground bearing pressure of 200kN/m^2. Maximum settlement would be limited to 25mm with an angular distortion of 1:500.

8.4.4 Raft Foundation

A reinforced raft foundation could be used to mitigate the effects of potential differential settlement which may occur as a result of the possible variable nature or likely thicker isolated layers of the Made Ground material and also to evenly spread the load across the raft to reduce ground bearing pressures to allowable/ tolerable limits.

The Made Ground should be excavated to a depth of 200mm beneath the formation level of the raft foundation. The base of the excavation shall then be adequately proof rolled and replaced with suitably compacted granular material in order to construct a load transfer platform at the underside of the raft foundation.

A review of the investigation undertaken in 2007 revealed a number of exploratory holes encountered relatively thin layers of soft alluvial clay at depths of between 1.4m and 3.9m. However the majority of these soft clay layers were not present under the footprint of the proposed buildings (based on current layout plans). It may be prudent to undertake probing of the near surface soil deposits across the footprint of the proposed building in order to assess the in-situ density/ strength of these soils for bearing capacity and settlement characteristics, prior to finalising a foundation solution, once final loading conditions have been derived by the principal designer.

8.5 Floor Slab Design

In all areas it will necessary to improve or remove any weak, wet soil beneath floor slabs and provide land drainage deep enough to keep the groundwater table permanently lowered where necessary.

Where ground improvement is undertaken a ground bearing floor slab may be used to be seated directly upon the Made Ground.

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Alternatively where a piled solution is used, a suspended slab is recommended to reduce the possible effect of any minor differential settlement between the otherwise suspended piled frame and ground bearing slab.

A ground bearing floor slab should be appropriate where shallow pad, strip or trench fill foundations are used.

Final designs for the floor slabs should be carried out by a suitably qualified Engineer based on the findings of this investigation and with reference to the anticipated loadings and serviceability requirements for the structure.

8.6 Buried Concrete

The results of the pH and water soluble sulphate analysis have been assessed for potential aggression to buried concrete in accordance with the Building Research Establishment: Special Digest 1: 2005 – Concrete in Aggressive Ground. With reference to the desk study review findings, we consider that the site can be classified as a 'Brownfield Site.

In accordance with Part C of BRE Special Digest 1:2005, based on the testing carried out to date, we consider that the materials underlying the site are assigned a Design Sulphate Class DS-1 and an ACEC (Aggressive Chemical Environment for Concrete) Class AC 1s.

The specific concrete mixes for the Design Concrete (DC) Class to be used on site will be determined by the site specific concrete requirements in terms of the required durability and structural performance. These are assessed in terms of the Structural Performance Level (SPL) and any need for Additional Protective Measures (APM) as detailed in Part D with further guidance in Parts E and F of BRE Special Digest 1.

8.7 Access Road Design

A design CBR value of 5% may be assumed generally for road and pavement design at existing ground level, but it may be possible to reduce construction thicknesses in many areas when details of the layout and formation level are fully known.

8.8 Soakaways/ Drainage

Soakaway infiltration testing has not been undertaken at the site during the recent investigation, as it is likely that the ground will be raised and a culvert constructed beneath the site (refer to flood risk assessment report). However, based on the findings of the investigation and previous ground investigations, a preliminary assessment can be made if required.

Soakaways with infiltration zones located in the made ground soils could increase the leaching of contaminants into the underlying gravels and potentially into the aquifer's that underlie the site. Soakaway drainage could also increase the flow of ground water away from the site and hence increase the rate of flow of dissolved contaminants into the groundwater.

This should be considered in further assessments of the risks to controlled waters. In addition, regulatory approval will likely be required to permit their use within the Made Ground. Once the above has been confirmed, further guidance can be given upon request.

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9 SUMMARY AND CONCLUSIONS

From the findings and interpretation of the previous and Opus site investigations and the resulting assessment of geotechnical studies and soil contamination, the following conclusions and recommendations are made:

9.1 Geotechnical

- The varying nature of the made ground has been confirmed, and are predominately granular in nature, with frequent obstructions/ historical foundations and structures present within the near surface deposits. The made ground is of significant thickness across the development site, often exceeding just over 4metres bgl, with a typical thickness in the order of 2.12m.
- Alluvial deposits were encountered directly underlying the Made Ground. These deposits consisted of predominately dense granular material, however, a number of soft think clay layers were encountered within the 2007 investigation.
- There are a number of possible ground solutions that may be appropriate for the end use of the development site as discussed in Section 8.4 of this report. Shallow and deep foundation solutions and ground improvement considerations should be followed-up with suitable specialist ground works contractors, who may also be able to propose similar or alternative ground systems suitable for the development site end use. Alternatively a reinforced slab could be utilised, but will need to validated upon receipt of final loading conditions, with a view of undertaking a probing exercise across the proposed footprint of the buildings to assess the extent and nature of these soft deposits.
- The specialist designer/ contractor for the ground improvement/ foundation solution will need to review the findings of all intrusive site investigations to ensure that sufficient and satisfactory data is available, and that it is appropriate to the particular solution(s) utilised.
- The adequacy of the design will need to be demonstrated with appropriate formation and foundation testing on site, and the design and performance of the particular solution(s) utilised should be fully warranted by the specialist designer/ contractor for the intended end use.
- The designer/ contractor must be made fully aware of the settlement criteria that his chosen ground solution must be able satisfy; this is particularly important in relation to the tolerance for movement (differential settlement) across the proposed development.
- Pavement design for surrounding access roads and car park areas should be based on a design CBR of 5%. Where localised soft/loose zones are present in the near surface material the zones should be improved, or removed and replaced with suitable fill material, to provide an equilibrium CBR >5%.

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9.2 Environmental

- Elevated concentrations of Benzene have been identified (predominantly) in the shallow Made Ground across the site, at levels above the Opus Tier I Soil Screening Values.
- Asbestos fibres have been identified in the Made Ground spatially distributed across the site in a non-specific manner, thus it is to be assumed that the majority of the Made Ground is impacted by asbestos.
- Concentrations of inorganic compounds (Chromium (VI), Copper and Zinc) have been identified within the shallow groundwater at levels above the relevant water quality standards.

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10 RECOMMENDED FURTHER WORKS

The 2017 ground investigation and previous ground investigation on the site has generally provided sufficient coverage of the site in distribution and depth to allow foundations for the new building and other associated works (car parking, access roads, drainage and service runs etc.) to be designed.

No further extensive ground investigation works are recommended in relation to soil strata generally but it may be appropriate to prepare a Material Management Plan to make the best use of earthworks materials during the construction phase and ensure that sufficient clean material is available to regrade and cover demolition areas after removal of the redundant buildings.

It may be advisable to undertake probing of the near surface soil deposits across the footprint of the proposed building in order to assess the in-situ density/ strength of these soils to confirm bearing capacity and settlement characteristics, prior to finalising a foundation solution, once final loading conditions and foundation layouts have been derived by the principal designer.

It is recommended that a Remediation Strategy be devised to address the inhalation and direct exposure pathways associated with the asbestos and benzene occurrences across the site. This report will also detail the chemical standards that any imported material are to adhere to and also the testing frequency of such material. It will also give recommendations as an appropriate type of hydrocarbon vapour resistant membranes which are to be incorporated in the building foundation designs.

The Remediation Strategy would outline all contaminants and their exposure pathways and the remedial technology and methodologies required in order to remove the source or break the pathways. Remedial targets will be adopted from the results of the DQRA, with watching briefs and validation testing undertaken on the remediation works where required.

Based on the Tier 1 Assessment of the Groundwater completed, Opus would recommend a Tier 2 Detailed Quantitative Risk Assessment (DQRA) should be undertaken to model in a site specific way the risks to the Port Talbot docks water quality.

If after the DQRA, unacceptable levels of risk still exist, then the aforementioned Remediation Strategy should be updated to include remedial methodologies to address the elevated contaminants within the groundwater.

Vigilance should be observed during the groundworks and future demolition phases for any potentially contaminated or other unsuitable material not identified during the ground investigation, which should be excluded from the earthworks operations. Further Waste Acceptance Criteria testing should be carried out on any unsuitable material to be removed from site.

There is a possibility that that the Made Ground on the site may include large objects such as wire ropes, buried services etc. which would not be evident in a borehole and trial pit investigation. Although, such objects individually should cause no problem if left buried in the ground, they may impede excavation and other activities if encountered during groundworks.

It is known that a large number of historic foundations and structures are still present on site. The presence of historic foundations and structures within the ground means any new foundations need to be considered carefully. At the location of parking areas, providing sufficient depth is available for

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pavement construction, any historic structures may be left in place as differential settlement is unlikely to affect serviceability.

Localised historic structures/ obstructions remaining within the ground should be completely removed prior to the construction of any new foundations. Large concrete slabs, walls or foundations should be further investigated to determine the thickness and strength for potential incorporation into the permanent works (such as hard standing, car parking and access roads) once the site has been devegetated.

Any temporary slope cuttings required for the construction of the proposed commercial buildings, access route or any other additional development to the site will require a detailed design.

The site was classified as UXO risk level medium (ALARP) according to the EOD Contracts and therefore, UXO risk mitigation was recommended during any further site investigations or construction including UXO safety awareness training, UXO safety testing prior to intrusive works and UXO safety monitoring of all “at risk” excavations. Although no unexploded ordnance were encountered during the ground investigation works detailed in this report, it is recommended that a UXO Specialist should be consulted during any further site investigations or construction.

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DRAWINGS

HARBOURSIDE STRATEGIC EMPLOYMENT SITE

PS004 - SITE COMPOUND

THIS IS A C.A.D. PRODUCED DRAWING AND SHOULD NOT BE AMENDED BY HAND.

CRAMIC WAY TO BE UPGRADED TO ADOPTABLE STANDARDS

HEILBRON WAY

LBS BUILDERS MERCHANT

POSSIBLE FUTURE CONNECTION TO HARBOUR WAY ROUNDABOUT

PDR1C ROUNDABOUT

Port Talbot Integrated Transport Hub: Construction 2016 / 2017

Newly Constructed Port Talbot Parkway Station

PROPOSED LOCATION OF SITE COMPOIUND

Extension to existing car park

HARBOUR WALK - CONSTRUCTED 2015

New Harbourside access road constructed to adoptable standards 240m length

PDR1C - Constructed 2005

LOCATION OF ONE POSSIBLE WATER SOURCE

PDR2 - Harbour Way Constructed 2013

DOCK ROAD

A4241 HARBOUR WAY

OAKWOOD ROUNDABOUT

FORMER MAGISTRATES COURT

EXISTING ACCESS TO BE MAINTAINED

NEW VEHICULAR DROPPED CROSSINGS

NEW GATE TO BE INSTALLED

EXISTING FENCE TO BE ALTERED

REDUNDANT TURNING HEAD TO BE FILLED IN AS SHOWN

Parkway Station

GRAND HOTEL

Police Station

Sorting Office

Cinema

Car Park

Bank

Tata

TWI

BASTLEY ENGINEERING (SOUTH WALES) LTD

NOTES

A1

1. All dimensions are in millimetres unless otherwise stated.

LEGEND

- Single arm lighting columns (symbols vary)
- Proposed footway construction
- New Carriageway construction
- Highway Verges
- Highway Embankments
- Phase 1 Development Buildings.
- Future Development Buildings by others.
- Proposed Vehicular Drop Crossing.
- Area of development land remediated :3.0 ha.
- Area of development land with improved access: 2.5 ha.
- Area of additional car park created: 0.2 ha.

Key:

A = Justice Centre
B = Tata Steel (R+D Facility)
C = Llewellyn House (Offices)
D = TWI (Existing Offices/Labs/High Bay)
F = Proposed Building (20,000 sqft)
G = New building (20,000 sqft)
H = New building (20,000 sqft)
I = New building (20,000 sqft)
J = Former Magistrates Court
K = New building (15,000 sqft)
L = New building (50,000 sqft)
M = New building (15,000 sqft)
N = New building (15,000 sqft)
O = New building (15,000 sqft)
P = New building (1600 sqft units)
Q = New building (6,500 sqft)
S = Starter units (total 15,000 sqft)
T = Starter units (total 15,000 sqft)
U = Starter units (total 15,000 sqft)

Rev	Details	Dr	Ch	Ap	Date

Client

Neath Port Talbot Castell-nedd Port Talbot
County Borough Council Cyngor Bwrdeistref Sirol

ENGINEERING AND TRANSPORT

GARETH NUTT
DIRECTOR OF ENVIRONMENT
THE QUAYS, BRUNEL WAY
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Job Title

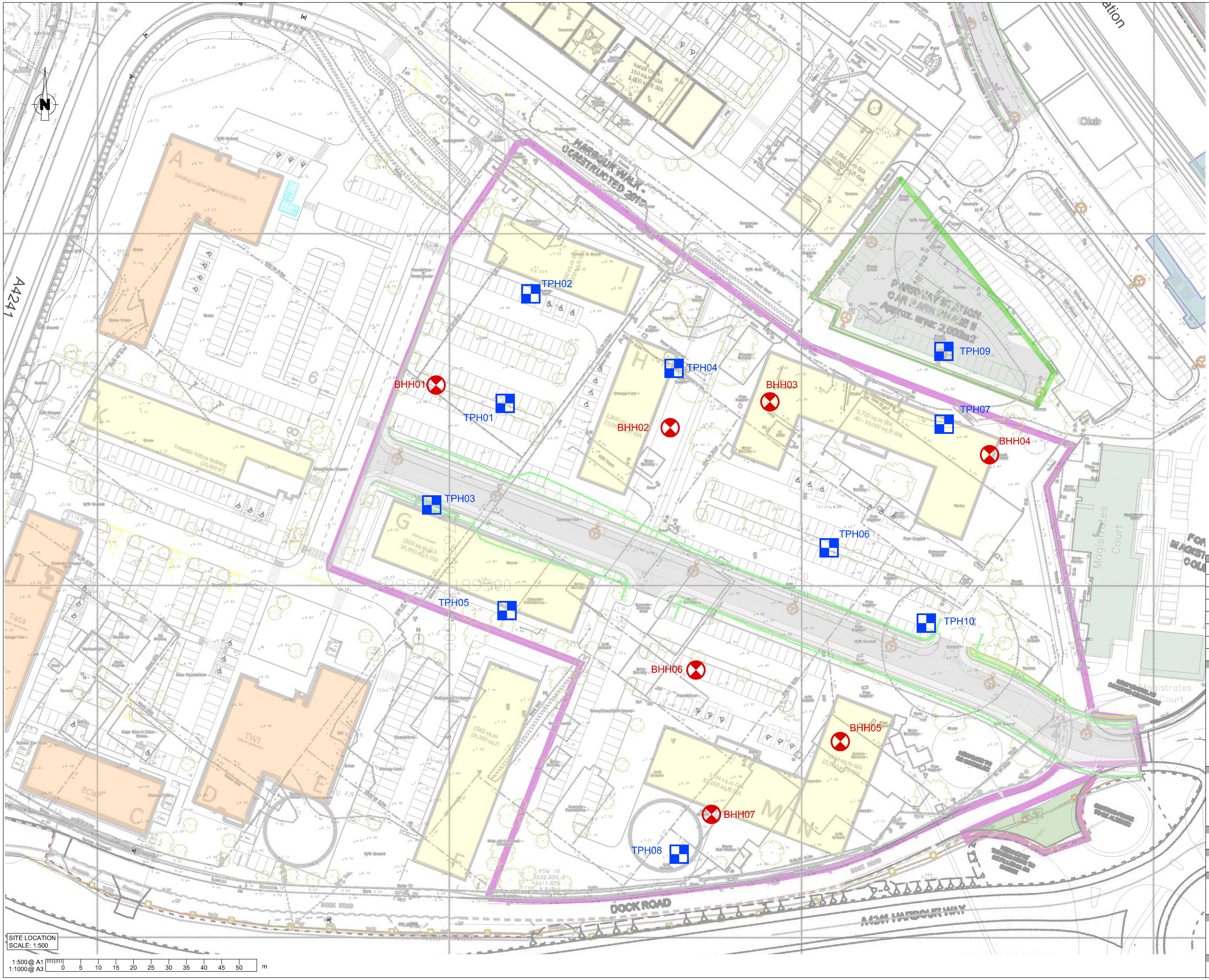
HARBOURSIDE STRATEGIC EMPLOYMENT SITE

PROPOSED SITE COMPOUND

File No.		Financial Code No.			
Drawn	MMac	Checked	MCB	Approved	HIH
Date	JUN '17	Date	JUN '17	Date	JUN '17
Scales	1:1000				
Drawing No.	C2014B / PS004				

Drg. No.

Job Title



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6. ALL STATUTORY SERVICES INFORMATION SHOWN HAS BEEN PROVIDED BY THE RELEVANT STATUTORY AUTHORITIES. THE CONTRACTOR IS TO SATISFY HIMSELF AS TO THE ACCURACY OF THE LOCATIONS, SIZE AND MATERIAL AND OWNERSHIP OF THE SERVICES PRIOR TO ANY WORKS BEING CARRIED OUT.

KEY:

- BHH05 — BOREHOLE
- TPH08 — TRIAL PIT
- SITE BOUNDARY
- PARKWAY STATION CAR PARK EXTENSION
- PROPOSED BUILDING LOCATIONS

Revision	Amendment	Approved	Revision Date
R1	FOR INFORMATION		01/09/17
R2	EXPLORATORY HOLE LOCATION PLAN AMENDED		20/09/17

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Drawn	Designed	Approved	Revision Date
KW	GS	AW	20/09/17

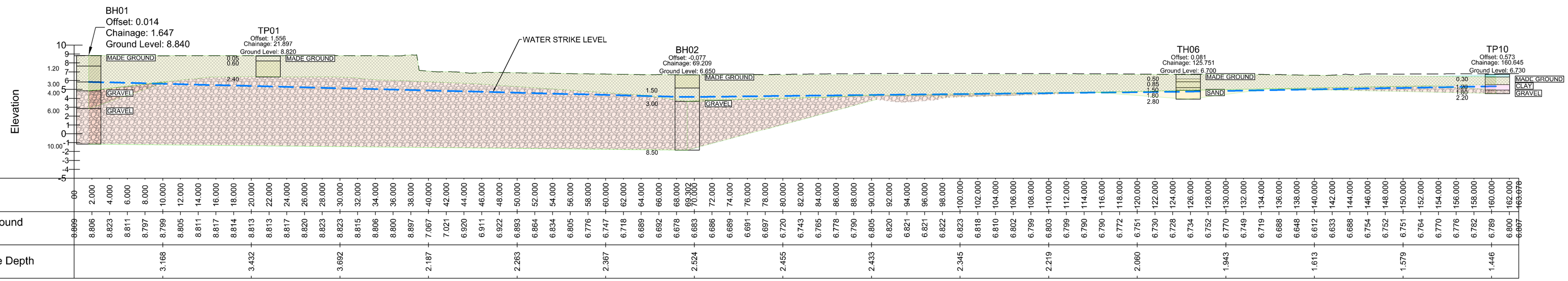
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Scale: AS SHOWN @A1

Project: HARBOURSIDE GI
PORT TALBOT
SA13 1RZ

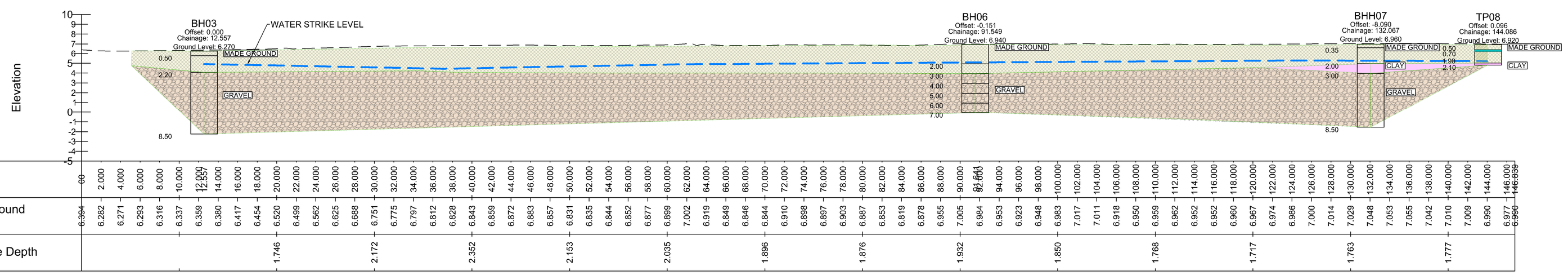
Sheet: EXPLORATORY HOLE LOCATION PLAN

Drawing No.	Sheet. No.	Revision
V-C8602.01/100	100	R2

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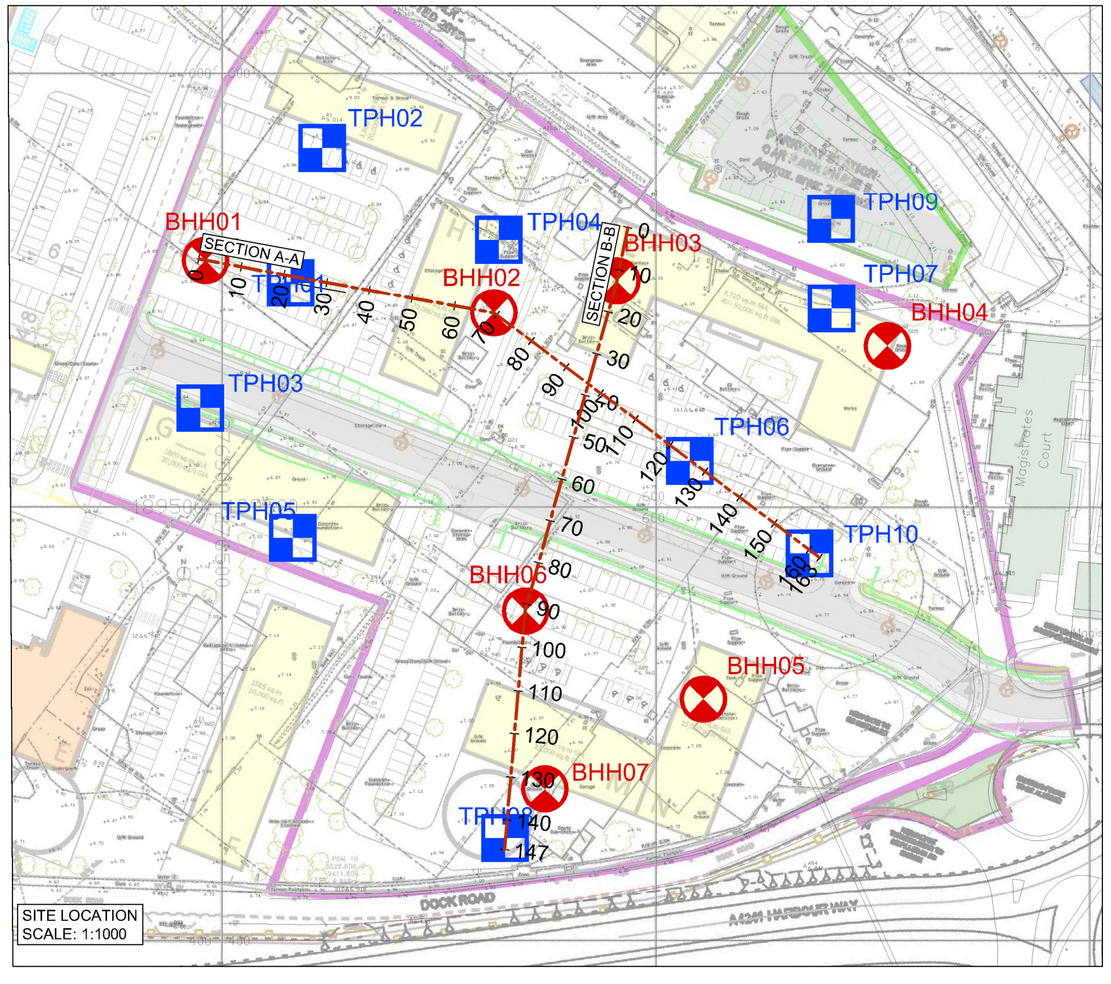
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SECTION B-B
SCALE: H 1:250,V 1:250. DATUM: -5.000

KEY:

- MADE GROUND
- GRAVEL
- CLAY
- SAND
- WATER STRIKE LEVEL



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1:500 @ A3
0 4 8 12 16 20 24 m

Revision	Amendment	Approved	Revision Date
R1	FOR INFORMATION		20/09/17

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Drawn	Designed	Approved	Revision Date
KW	GS	AW	20/09/17

Project No.: C8602.01
Scale: AS SHOWN @A1

Project:
HARBOURSIDE GI
PORT TALBOT
SA13 1RZ

Sheet:
EXPLORATORY HOLE SECTIONS

Drawing No.	Sheet. No.	Revision
V-C8602.01/101	101	R1

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TPC1 CONC. SLAB 1.3m
TPC2
TPC3 SOFT CLAY 1.3 - 2.3m
TPC4
TPC5
TPC6
TPC7 CONC. SLAB 0.5 - 1m
TPC8
BHC1
TPC9 CONC. 1.8m
TPC10
TPC11
TPC12
TPC13
TPC14
TPC15 CONC. SLAB 0.5 -1.5m
TPC16 CONC. SLAB 0.5 - 1.5m
TPH02 CONC. FOUNDATION 0.7 -2.8m
BHC2 CONC. SLAB 0.7 - 1.4m
TPC17 CONC. SLAB 0.8 - 1.1m
TPC18
TPC19
TPC20 SOFT CLAY 3.0 - 4.1m
CONC. SLAB 2.4m
TPC21 SOFT CLAY 2.45 - 3.8m
TPC22
TPC23
TPC24
TPC25
TPC26
TPC27
TPC28
TPC29 CONC. @ 0.55m
TPH09
TPC30
TPC31
TPC32 CONC. SLAB 1.2 - 1.7m
TPC33 CONC. SLAB 1.2m
TPC34
BHH01 CONC. + BRICKWORK 1.2 - 2.3m
TPC35 CONC. + BRICKWORK 1.5 - 2.5m
TPH01 CONC. STRUCTURE @ 0.6m
TPC36 SOFT CLAY 3.0 - 3.9m
TPC37
TPH04
TPC38
BHH03
TPC39
TPC40
TPC41
TPC42
TPC43
TPH07 CONC. @ 0.4 - 0.6m 0.9 - 1.1m
BHH04
BHH02 SOFT CLAY 1.5 - 3.0m
TPC44 CONC. SLAB 0.75m
TPC45 CONC. SLAB 1.0 - 1.5m
TPC46 CONC. SLAB 2.0m
TPC47
TPC48
TPH03
BHC3 CONC.1.4m
TPC49
TPC50 SLAB @ GROUND LEVEL
SOFT CLAY 2.5m
TPC51
TPC52 SOFT CLAY 1.7 - 2.2m
TPC53
TPC54
TPH06
BHC4
TPC55
TPC56
TPC57 CONC. SLAB 0.3 - 1.3m
TPC58 SOFT CLAY 3.2 - 4.8m
TPC59
TPC60
TPC61
TPC62
TPC63 SOFT CLAY 1.4 - 2.5m
TPC64 SOFT CLAY 1.4 - 1.6m
TPC65
TPC66
TPC67
TPH05 SAND + FIBROUS CLAY 1.8 - 2.0m
BHC5
BHC6
CONC. WITH REBAR 0.0 - 0.3m
TPH10 SOFT CLAY 1.2 - 1.8m
TPC80
TPC69
TPC70
TPC71 SOFT CLAY 3.6 - 4.2m
TPC72 SOFT CLAY 3.6 - 3.8m
TPC73
TPC74
TPC75 SOFT CLAY 2.1 - 2.4m
TPC76
BHH06
TPC77
TPC78
TPC79
CONC. 0 - 0.8m
TPC81 VERY SOFT CLAY 1.5 - 2.5m
BHH05
TPC82
TPC83 SOFT CLAY 3.0 - 3.4m
TPC84
TPC85 BRICKWORK @ 2.5m
TPC86
TPC87
TPC88
TPC89 SOFT CLAY 2.0 - 2.1m
TPC90 ELECTRIC CABLES 1.6m
TPC91 CONC. @ 1.4m
TPC92 SOFT CLAY 2.6 - 3.4m
TPC93
BHC7 TANK @ 2.5m
CONC. 0.0 - 0.35m
BHH07 SOFT CLAY 2.0 - 3.0m
TPC102 SOFT FIRM CLAY 2.8 - 3.8m
TPC94
TPC95 VERY SOFT CLAY 2.4 - 3.2m
TPC96
TPC97
TPC98 SOFT CLAY 2.0 - 3.3m
TPC99
CONC. 0.5 - 0.7m
TPH08 SOFT CLAY 1.9 - 2.1m
ELECTRIC CABLES 1.3m
TPC100
TPC101

A4244
A4244M HARBOURSIDE WAY
DOCK ROAD
HARBOURSIDE WALK - CONSTRUCTED 2015
Magistrates Court

SITE LOCATION
SCALE: 1:500

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

GENERAL NOTES

1. DO NOT SCALE THIS DRAWING, ONLY USE FIGURED DIMENSIONS IF IN DOUBT ASK.
2. UNLESS NOTED OTHERWISE ALL DIMENSION ARE IN MILLIMETRES & AND ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM.
3. ALL LONGITUDINAL AND TRANSVERSE DIMENSIONS ARE MEASURED IN PLAN UNLESS OTHERWISE NOTED.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL SCHEME DRAWINGS AND DESIGNERS RISK ASSESSMENT
5. THE CONTRACTOR IS TO CHECK ALL DIMENSIONS PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES MUST BE REPORTED TO OPUS INTERNATIONAL BEFORE PROCEEDING.
6. ALL STATUTORY SERVICES INFORMATION SHOWN HAS BEEN PROVIDED BY THE RELEVANT STATUTORY AUTHORITIES. THE CONTRACTOR IS TO SATISFY HIMSELF AS TO THE ACCURACY OF THE LOCATIONS, SIZE AND MATERIAL AND OWNERSHIP OF THE SERVICES PRIOR TO ANY WORKS BEING CARRIED OUT.

2017 GI KEY:

BHH05 BOREHOLE

TPH08 TRIAL PIT

2007 GI KEY:

TPC8 TRIAL PIT LOCATION

BHC2 CABLE PERCUSSIVE BOREHOLE LOCATION

SITE KEY

SITE BOUNDARY

PARKWAY STATION CAR PARK EXTENSION

PROPOSED BUILDING LOCATIONS

OBSTRUCTIONS ENCOUNTERED DURING GI

SOFT CLAY DEPOSITS ENCOUNTERED DURING GI

Revision	Amendment	Approved	Revision Date
R1	FOR INFORMATION		20/09/17

OPUS
Cardiff Office
+44 29 2077 7373
Unit 2 Fountain Court
Fountain Lane, St Mellons
Cardiff CF3 0FB

Drawn	Designed	Approved	Revision Date
KW	GS	AW	20/09/17

Project No.: C8602.01
Scale: AS SHOWN @A1

Project:
HARBOURSIDE GI
PORT TALBOT
SA13 1RZ

Sheet:
EXPLORATORY HOLE LOCATION PLAN
(Showing obstructions and clay strata encountered during ground investigation)

Drawing No.	Sheet. No.	Revision
V-C8602.01/102	102	R1

Original Sheet Size A1 [841x594] Plot Date 20 Sep 2017 @ 4:05 PM Path \\cdsv01\GroupLib\live\C\C8602.01 - Neath Port Talbot - Harbourside GI\05 - Documents\02 - Drawings\02 - Civils\01-C3D Models\C8602.01_BH LOCATION_R3.dwg A1-LOCATION (OBSTRUCTIONS)

Appendix A

Quantum Geotechnical
Factual Ground Investigation Report

PROPOSED DEVELOPMENT AT

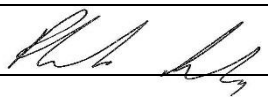
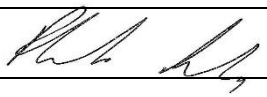
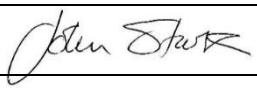
HARBOURSIDE, PORT TALBOT

Ground Investigation Factual Report

Report No. G40066 September 2017

DOCUMENT CONTROL

Contract Name:	**Harbourside, Port Talbot**
Contract Reference:	**G40066**
Report Type:	**Ground Investigation Factual Report**
Report Reference:	**G40066/FR**
Date of Report Production:	**September 2017**
Client:	**Opus International Consultants Ltd**

Version:	Date:	Prepared by:	Checked by:	Approved by:
Final Issue	20/9/17	Steffan Picton	Phil Darby	J. Stark
		pp 		
		Engineer *B.Sc. (Hons).,HNC*	Senior Engineering Geologist B.Sc. (Hons), M.Sc., C.Geol., FGS	Technical Director *B.Sc.(Hons)., C.Geol., FGS*

Disclaimer: Quantum Geotechnical Limited has prepared this report in accordance with the instructions of the above named Client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

Quantum Geotechnical Ltd, Ty Berwig, Bynea, Llanelli, SA14 9ST T: 01554 744880 E: enquiries@quantum-geotech.co.uk

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FOREWORD

The following Conditions and Notes on Site Investigation Procedures should be read in conjunction with this report.

0.1 General

Recommendations made and opinions expressed in the report are based on the strata observed in the excavations, together with the results of site and laboratory tests. No responsibility can be held for conditions which have not been revealed by the Exploratory Holes or which occur between Exploratory Holes. Whilst the report may suggest the likely configuration of strata, both between Exploratory Holes and below the maximum depth of investigation, this is only indicative and liability cannot be accepted for its accuracy.

Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction below or close to the site.

0.2 Investigation Procedures

Cable Percussive Boreholes, Rotary Boreholes and Machine Excavated Trial Pits for ground investigation have been employed within the project. All Exploratory Hole operations, sampling and logging of soils, rocks and in-situ testing complies with the recommendations of the British Code of Practice BS 5930: 2015 'Site Investigations', British Code of Practice BS 10175: 2011 +A1:2013 'Investigation of Potentially Contaminated Sites' and BS 1377: 1990, 'Methods of Test for Soils for Engineering Purposes'.

0.3 Routine Sampling

Representative bulk, disturbed and environmental samples of the different strata are taken following completion of logging. These samples are sealed and labelled in clear plastic bags and 2kg plastic tubs. Soil samples obtained for environmental testing are sampled and sealed in borosilicate amber jars or in specialist vessels where required. All samples are returned from site to QGL's laboratory for controlled storage within 24 hours of sampling to await test scheduling/requirements.

0.4 In-Situ Testing, Surveying & Instrumentation

In-situ testing comprised:

- Standard Penetration Testing within Boreholes (SPT)

0.5 Groundwater

Where possible, the depth of entry of any influx of groundwater is recorded during the course of excavation or boring operations. The rate of inflow into the excavation or borehole is monitored during the course of the excavation or during boring procedures. Upon encountering any water strikes, work is temporarily halted and the water levels monitored for a standard twenty minute period recording the change in water level at the end of the twenty minutes.

Groundwater conditions observed in the excavations are those appertaining to the period of investigation. It should be noted, however, that groundwater levels are subject to diurnal, seasonal and climatic variations and can also be affected by drainage conditions or other causes.

0.6 Retention of Samples

After satisfactory completion of all the scheduled laboratory tests on any sample, the remaining material is discarded. Further to notifying the Engineer/ Client with one week's notice all soil and/or rock samples not tested will be discarded 28 days after submission of the approved final report.

1.0. INTRODUCTION

1.1 General

Upon the instruction of Opus International Consultants (UK) Ltd, on behalf of the client Neath Port Talbot County Borough Council (NPTCBC) (hereafter referred to as the client), Quantum Geotechnical Ltd (QGL), has been commissioned to undertake a ground investigation for the proposed development of a rough parcel of land located behind the old Magistrates Court, Harbourside, Port Talbot

In this factual report, a factual account of the fieldwork, the strata encountered including contamination and groundwater observations are detailed.

1.2 Purpose of Ground Investigation

In order to allow a site-specific geotechnical and environmental assessment of existing ground conditions, to aid with determining pavement thickness and stiffness of the subgrade material in order to determine the integrity of the existing road and identify any other potential geotechnical issues that may be present within the shallow ground on site foundation design and identify any potential geotechnical and environmental issues.

1.3 Scope of Work

The general scope of work undertaken in the preparation of this assessment was as follows:

- Conduct an intrusive ground investigation with the aim to identify the underlying ground conditions targeting the issues that could potentially impact the proposed development.
- Carry out laboratory testing to gain further environmental and geotechnical data.
- Provide a factual report presenting an analysis of the available information.

General notes on the techniques employed by Quantum Geotechnical are described in the Foreword together with the limitations inherent in carrying out ground investigation work.

2.0 SITE DETAIL

2.1 Site Description

The area under investigation is located directly behind the old Magistrates Court, Port Talbot, approximately 500m from Port Talbot Parkway Railway Station.

The proposed site is currently mostly flat and level but largely overgrown with a new fence line seperating a quarter of the site into land owned by the Welsh Assembly. This section of the site is split into two flat levels with an approximate 2m sloping ramp connecting the upper and lower levels.

The approximate National Grid Reference of the site is E276583, N189551 with the nearest postcode being SA13 1DE.

A site location plan is provided as figure I within Appendix I.

2.2 Published Geology

The published geological map for the area of the site (1:10,560 scale, SS78NE) indicates the site to be underlain by Estuarine Alluvium overlying bedrock of the Llynfi Beds of the Upper Coal Measures.

Extracts of British Geological Survey sheets 247, solid and drift editions, at 1:50,000 scale are presented respectively as Figures 2 and 2A in Appendix I.

The most detailed published geology of the site and surrounding area is shown on the British Geological Survey (BGS) Sheet 247 Swansea' (Solid and Drift) – 1:63 360 Scale 1997. The solid geology of the area is of the South Wales Middle Coal Measures Formation, consisting of Mudstone, Siltstone and Sandstone. The superficial geology of the area comprises Tidal Flat Deposits consisting over Clay, Silt and Sand.

There is no evidence on the geological map of any mine entries affecting the site.

2.3 Topography

The site is at an elevation of between 6 and 9m AOD generally flat with a 2.00m height ramp/slope separating the top and bottom levels of the Welsh Assembly Land.

2.4 Statutory Service Information

Services were provided by the Client prior to starting the site works. QGL undertook full Cable Avoidance Tool (CAT) scans of each exploratory hole location before breaking the ground. Safe digging practices in accordance with HS(G)47 were employed when breaking and excavating grounds with all traceable services demarcated prior to works commencing.

2.5 Unexploded Ordnance ('UXO') Survey

Due to past historical events in the area, each exploratory hole location was subjected to a UXO survey undertaken on site by a trained and fully qualified Ordnance Specialist. Each exploratory hole, through the overlying superficial deposits, was probed ahead of the drilling or excavations using a Magnetometer Instrument to detect for the possible presence of UXO within the shallow ground.

No UXO signals were recorded/ identified throughout the siteworks.

3.0 FIELDWORK

3.1 General

The fieldwork comprising trial pitting and cable percussive drilling was carried out between 10th and 18th July 2017. Due to dense ground conditions encountered in which progress with the cable percussive rig proved extremely difficult/slow progress, QGL was instructed by the client to progress the boreholes using rotary open hole methods. Rotary drilling was undertaken between 31st July and 4th August. No incidents or near misses were recorded during the fieldworks, with the works being incident free. No deviations from the Standards and Procedures adopted for the works were recorded.
Site supervision and attendance by an Engineering Geologist from Quantum was undertaken on all aspects of the site works and subsequent reinstatement works of all exploratory hole locations. All service plans were held onsite, with all Site Personnel inducted by QGL and briefed of the pertinent Risk Assessments and Method Statements relating to the tasks to be undertaken.

All exploratory hole locations were subject to the hand excavation of a 1.2m deep service/ utility inspection pit prior to any drilling. Also each area of investigation was fully CAT ('Cable Avoidance Tool') scanned prior to breaking ground.

A summary of the fieldworks is outlined below:

- 3 No. Cable percussive boreholes
- 2 No. Rotary Follow On Cored Boreholes
- 4 No. Rotary Open Holed (through superficial deposits) and Rotary Cored (through bedrock) Boreholes
- 10 No. Trial Pits

3.2 Exploratory Hole Locations

The exploratory hole locations were set out by a QGL Engineering Geologist at positions previously agreed with the Client. Upon completion each exploratory hole was surveyed in by QGL to National Grid Co-Ordinates and Ordnance Datum using a Leica dual frequency GPS Model 1250, accurate to 0.005m horizontal and 0.01m vertical.

The exploratory hole coordinates and elevations (m AOD) are presented on the log for each location, and in Table 1 over page:

Table 1: Exploratory Hole Locations to National Grid

Exploratory Hole ID	Exploratory Hole Type	Eastings	Northings	Elevation (mAOD)
BHH01	Rotary	276496.18	189556.93	8.84
BHH02	Rotary	276562.65	189544.83	6.65
BHH03	Cable Percussive/Rotary follow on	276590.97	189552.17	6.27
BHH04	Rotary	276653.34	189537.17	7.92
BHH05	Cable Percussive/Rotary follow on	276610.95	189455.69	6.82
BHH06	Cable Percussive	276569.97	189476.02	6.94
BHH07	Rotary	276574.38	189435.31	6.96
TP01	Trial Pit	276515.82	189551.76	8.82
TP02	Trial Pit	276523.09	189582.84	8.87
TP03	Trial Pit	276494.96	189522.90	8.57
TP04	Trial Pit	276563.75	189561.71	6.36
TP05	Trial Pit	276516.32	189492.91	6.89
TP06	Trial Pit	276607.79	189510.74	6.70
TP07	Trial Pit	276640.48	189545.88	7.04
TP08	Trial Pit	276565.19	189423.73	6.92
TP09	Trial Pit	276640.38	189566.52	7.66
TP10	Trial Pit	276635.38	189489.37	6.73

An Exploratory Hole Location Plan is presented as Figure 2 in Appendix I, utilising the topographic survey drawing as the base layer, as supplied by the Client.

3.3 Cable Percussive Boreholes

Cable tool percussive techniques were used to sink three boreholes through the overlying superficial deposits. Three primary boreholes were undertaken (BHH03, BHH05 and BHH06) with all boreholes refusing on dense strata/cobbles at shallow depths with rotary follow on undertaken to establish the ground conditions to the required depth throughout the superficial deposits. Casing used was 200mm with continual water added until water strike. Representative bulk and disturbed samples were recorded from each borehole throughout the boring works for geotechnical characterisation of the underlying ground conditions.

Table 2 overpage details the termination depths of the cable percussive boreholes and the strata at the termination depth.

Table 2: Cable Percussive boreholes termination depth

Exploratory Hole ID	Termination Depth (mbgl)	Terminating Strata	Notes/Reason for Termination
BHH03	4.00	Alluvial/Tidal Flat Deposits - Very dense gravel, cobble and Boulder	Refusal
BHH05	3.40	Alluvial/Tidal Flat Deposits - Very dense gravel, cobble and Boulder	Refusal
BHH06	7.00	Alluvial/Tidal Flat Deposits - Very dense gravel, cobble and Boulder	Refusal

A complete set of Engineering Geologist's logs for the Cable Percussive Boreholes are presented in Appendix II.

3.4 Rotary Boreholes

Four Rotary Boreholes (BHH01, BHH02 BHH04 and BHH07) and two Rotary Follow-on Boreholes (BHH03 and BHH05) were drilled across the development site to depths of 8.50mbgl. Each rotary hole was CAT scanned before breaking of ground and was then progressed using rotary open hole methods with SPT/CPT tests to depth or until rockhead. A Commachio MC305 rig was used along with 412 coring, 115 ODEX casing and mist flush.

The recovered rock sample liners were split and logged in accordance with BS5930: 2015 +A2: 2010; BS EN ISO 14688-1:2002; BS EN ISO 14688-2:2004 and BS EN ISO 14689-1:2003, including fracture spacing, by a QGL Engineering Geologist. All retrieved core is stored in wooden lockable boxes and was logged and photographed on site prior to being transported back to QGL premises for storage.

Selected rock cores were sub-sampled for laboratory testing by QGL onsite prior to core boxes being transported. All sub-sampled rock core specimens were labelled, sealed and wrapped in bubble pack ready for shipment to the dedicated laboratory testing houses.

Details of the rotary boreholes, including final depths in metres below ground level (mbgl) are provided overpage in Table 3:

Table 3: **Rotary Borehole boreholes termination depth**

Exploratory Hole ID	Termination Depth (mbgl)	Terminating Strata	Notes/Reason for Termination
BHH01	8.50	Very dense gravel, cobble and Boulder	Specified depth
BHH02	8.50	Very dense gravel, cobble and Boulder	Specified depth
BHH03	8.50	Very dense gravel, cobble and Boulder	Specified depth
BHH04	8.00	SANDSTONE	Specified depth
BHH05	8.50	Very dense gravel, cobble and Boulder	Specified depth
BHH07	8.50	Very dense gravel, cobble and Boulder	Specified depth

A complete set of Engineering Geologist's logs for the Rotary Boreholes are presented in Appendix III.

3.5 Machine Excavated Trial Pits

10 No. Trial Pits were excavated using a JCB 3CX wheeled excavator at the positions shown on the exploratory hole location plan in Appendix I. The purpose of these pits was to assess the shallow ground conditions, permit sampling and also identify if any services were present.

This method of investigation allows direct sampling of the near surface deposits for identification purposes, as well as assessment of any salient features and Made Ground or disturbed ground. The trial pits were logged in accordance with BS5930:2015; BS EN ISO 14688-1:2002 and BS EN ISO 14688-2:2004, and supervised at all times by an Engineering Geologist from QGL.

All of the trial pits were backfilled with compacted layers of arisings upon completion with suitable surface reinstatement where required.

Geotechnical and Environmental samples were taken within the superficial deposits for laboratory testing purposes.

Details of the Trial Pits, including final depths in metres below ground level (mbgl) are provided in Table 4:

Table 4: **Trial Pit boreholes termination depth**

Exploratory Hole ID	Terminated Depth (mbgl)	Reason for Termination
TP01	2.40	TP sides becoming unstable and collapsing
TP02	2.80	TP sides becoming unstable and collapsing
TP03	4.20	Specified Depth achieved
TP04	2.20	TP sides becoming unstable and collapsing
TP05	2.00	TP sides becoming unstable and collapsing
TP06	2.80	TP sides becoming unstable and collapsing
TP07	2.50	TP sides becoming unstable and collapsing
TP08	2.10	TP sides becoming unstable and collapsing
TP09	2.90	TP sides becoming unstable and collapsing
TP10	2.20	TP sides becoming unstable and collapsing

A complete set of Engineering Geologist's Machine Excavated Trial Pit logs are presented within Appendix IV.

3.6 In-Situ Testing

3.6.1 Standard Penetration Testing

Standard penetration tests (SPTs) were undertaken throughout the superficial deposits in the boreholes at intervals of every 1m till 5m and every 1.5m thereon.

This is a dynamic test as described in BS1377 (Part 9) and as superseded by BS EN ISO 22476-3:2005 +A1:2011, and is a measure of the density of the soil or rock. Within fine grained or cohesive soils, the test incorporates a small diameter tube (650mm length, 50mm external diameter and 35mm internal diameter) with a cutting shoe known as the 'split barrel sampler'. The sampler is forced into the soil dynamically using blows from a 63.5kg hammer dropped through 760mm. The sampler is initially advanced 150mm into the soil with seating blows, then the number of blows required to advance the sampler each 75mm increment up to a depth of 300mm is recorded. This cumulative total number of blows over the 300mm test is referred to as the "N" value. For coarse gravels and bedrock the split barrel is replaced by a 60° cone [SPT(c)].

SPT and SPT(c) results are detailed within the relevant Borehole Logs in Appendices II & III.

3.7 Sampling - General

Geotechnical bulk and disturbed samples were taken where required within the superficial deposits for strata identification and laboratory testing purposes. In addition, environmental samples were taken for laboratory testing.

All environmental samples were sent to the laboratory within 24-36 hours of having been obtained, whilst geotechnical samples were returned from site to QGL's laboratory for controlled storage to await test scheduling/requirements. For specific details of laboratory testing see Section 4.0. Sample type and sample depth are recorded on the Engineering Geologist's Exploratory Hole Logs found within Appendices II-IV

3.8 Ground Water Conditions

Groundwater was encountered in each of the Boreholes drilled across the site with the exception of BHH06 and BHH07. Table 5 summarises groundwater conditions recorded during the borehole and trial pitting works.

Table 5: Groundwater strikes encountered during investigation works

Exploratory Hole ID	Final Drilled/ Excavated Depth (mbgl)	Depth of Groundwater Strike (mbgl)	Groundwater Behaviour
BHH01	8.50	3.50	Medium water seepage
BHH02	8.50	7.20	Medium water seepage
BHH03	8.50	2.20	Medium water seepage
BHH04	8.50	2.00	Medium water seepage
BHH05	8.50	1.30	Medium water seepage
BHH06	7.00	-	No Groundwater Encountered
BHH07	8.50	2.00	No Groundwater Encountered
TP01	2.40	-	No Groundwater Encountered
TP02	2.80	-	No Groundwater Encountered
TP03	4.20	3.20	Medium water seepage
TP04	2.20	1.80	Medium water seepage
TP05	2.00	1.70	Medium water seepage
TP06	2.80	1.50 + 2.40	Medium water seepage
TP07	2.50	1.50	Medium water seepage
TP08	2.10	1.70	Medium water seepage
TP09	2.90	-	Medium water seepage
TP10	2.20	1.40	Medium water seepage

Please Note: The groundwater conditions observed in these exploratory holes are those appertaining to the period of the investigation and monitoring. However, it should be noted that groundwater levels are subject to diurnal, seasonal and climatic conditions or may vary due to other causes.

3.9 Landgas and Groundwater Monitoring

Three boreholes were installed with 50mm Ø HDPE combined landgas and groundwater monitoring standpipes to permit post-fieldwork monitoring visits. Table 6 details the installations undertaken.

Table 6: **Borehole Installation Detail**

Exploratory Hole ID	Installation Depth (mbgl)	Installation Response Zone (mbgl)
BHH01	3.00m	1.00m-3.00m
BHH02	Shallow -3.00m Deep – 8.50m	0.50m-3.00m 5.00m-8.50m
BHH03	2.50m	0.50m-2.50m
BHH04	1.00m	0.50m-1.00m
BHH05	2.00m	0.50m-2.00m
BHH07	Shallow -3.00m Deep – 8.50m	1.00m-3.00m 5.00m-8.50m

Each post-fieldwork monitoring visit included the measurement of the following parameters:

- O_2 (% v/v)
- CH_4 (% v/v)
- H_2S (ppm)
- CO (% v/v)
- Flow Rate (l/hr)
- Atmospheric Pressure (mb)
- Groundwater Level (mbgl/ mAOD)

At time of writing 2 No. post-fieldwork monitoring visits had been undertaken on 14/08/2017 and 23/08/17. The results of these visits are presented in Appendix V.

4.0 LABORATORY TESTING

4.1 General

The laboratory testing was scheduled by Quantum and comprised a number of geotechnical and environmental tests on selected soil and soil leachate samples obtained during the investigation.

4.2 Geotechnical Laboratory Testing

All the geotechnical soil testing work was carried out in accordance with the procedures stipulated in the various sections of BS 1377:1990 Parts 1 - 9 Methods of test for soils for civil engineering purposes. Table 7 details the tests undertaken.

Table 7: **Geotechnical Tests Undertaken**

Type of Test
Moisture Content
Liquid limit, plastic limit and plasticity index
PSD Wet Sieve
BRE Suite
Loss On Ignition

A full set of geotechnical laboratory test certificates are provided within Appendix VI

4.3 Geoenvironmental Laboratory Testing

Geoenvironmental testing was carried out on selected soil, soil leachate and groundwater samples gained from the ground investigation. The purpose of the testing is to gain a holistic view of any raised levels of contaminants that may exist onsite. Table 8 details Geoenvironmental tests undertaken on selected soil and soil leachate samples.

Table 8: **Geo-environmental tests undertaken on soil samples**

Type of Test	Determinands
Soils	Heavy Metals – (Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Chromium VI, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Vanadium, Zinc), Cyanide – Total, Cyanide – Free, pH value, Total Organic Matter, Asbestos (screen), Phenol, Speciated TPHCWG incl BTEX, Speciated PAH (USEPA16), VOC's, Sulphate – Water Soluble, ;
Soil Leachates and Ground Water	Leachate Metals - Antimony, Arsenic, Beryllium, Boron – water soluble, Cadmium, Chromium - total, Chromium hexavalent, Copper - Total, Lead - Total, Mercury - Total, Molybdenum, Nickel - Total, Selenium - Total, Zinc - Total, Cyanide – Total, Cyanide – Free, pH value, Water Hardness, Sulphate, Sulphide, Phenol, Speciated TPHCWG, VOC, Speciated VOC, Sulphate as SO4

A full set of Geo-Environmental laboratory test certificates are provided within Appendix VII.

5.0 REFERENCES

- British Geological Survey: British Geological Survey (BGS) Sheet 247 Swansea' (Solid and Drift) – 1:63 360 Scale.
- BGS Geology of Britain Viewer (www.bgs.ac.uk)

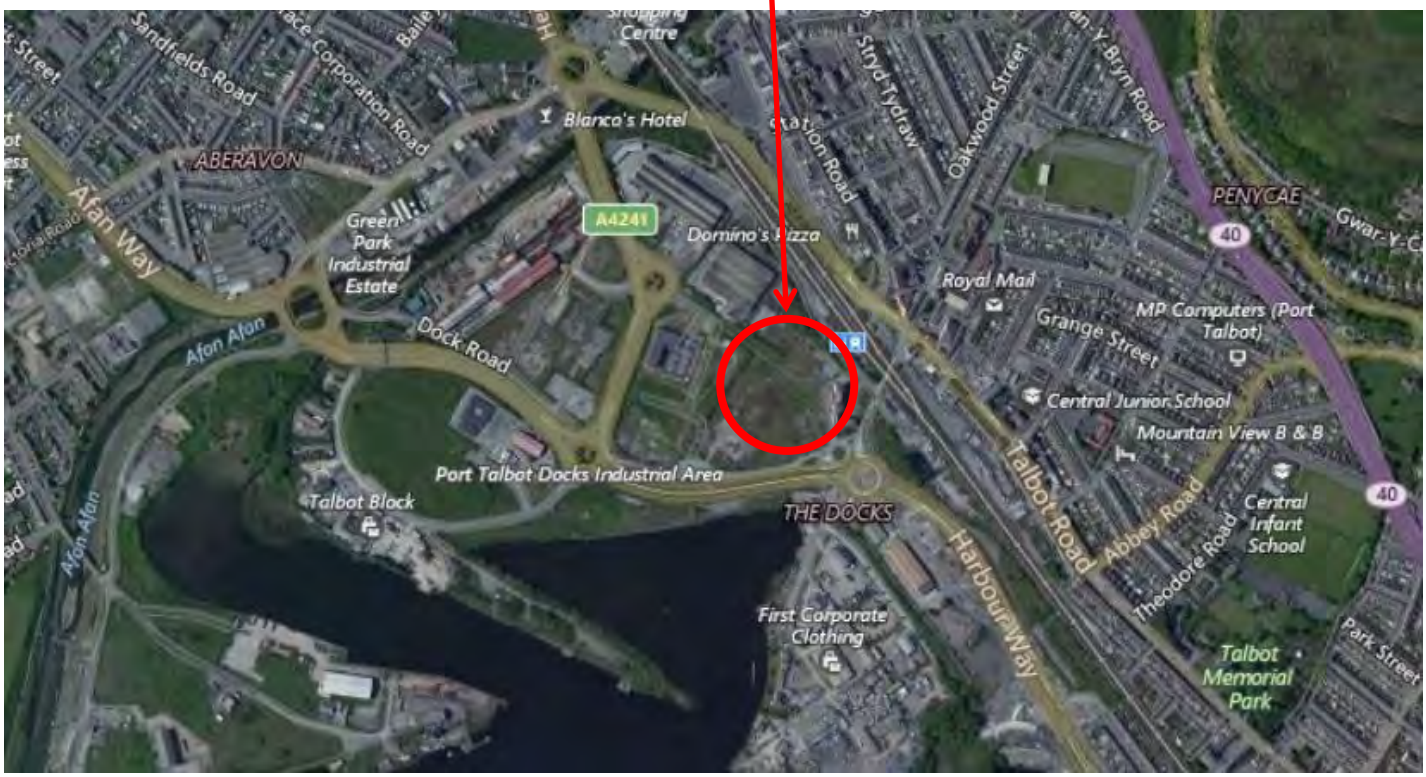
Specialist Publications:-

- British Code of Practice BS 5930:2015 *'Code of Practice for Site Investigations'*
- British Code of Practice BS 1377:1990 *'Methods of test for soils for civil engineering purposes'.*
- British Code of Practice BS 10175:2011 *'Code of Practice for Investigation of Potentially Contaminated Sites'*
- British Code of Practice BS EN ISO 14688-1:2002+A2:2013 Geotechnical investigation and testing. Identification and classification of soil. Identification and description
- British Code of Practice BS EN ISO 14688-2:2004+A2:2013 Geotechnical investigation and testing. Identification and classification of soil. Principles for a classification.
- British Code of Practice BS EN ISO 14689-1:2003 Ground Investigation and Testing – Identification and classification of rock

APPENDIX I – SITE PLANS AND FIGURES



The Site



Based upon the Ordnacen Survey map with the permission of The Controller of Her Majesty's Stationary Office, © Crown Copyright AL 55195A0001

QUANTUM
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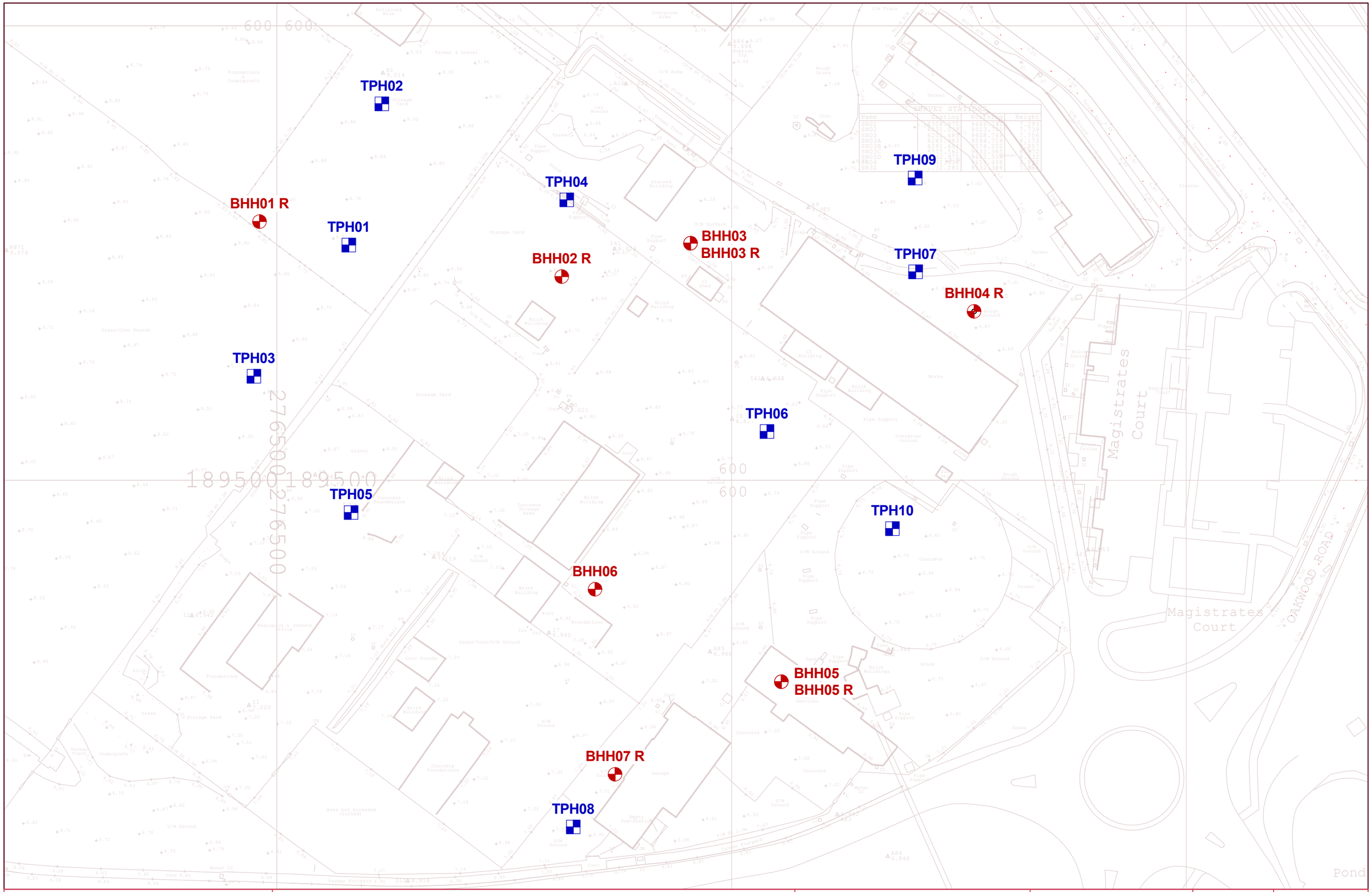
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FIGURE 1

Project: Proposed Development at Harbourside, Port Talbot

Job No: G40066

Drawing Title: Site Location Plan



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KEY
Borehole
Trial Pit
Monitoring / Test Point
Window Sample
Dynamic Probe
Historical Hole
Sampling Point

PROJECT
HARBOURSIDE, PORT TALBOT

DRAWING TITLE:
EXPLORATORY HOLE LOCATION PLAN

JOB NO.	FIGURE NO.
G40066	2
DATE	SCALE
11/09/17	1:750

APPENDIX II – CABLE PERCUSSIVE BOREHOLE LOGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Borehole No. BHH03

Dates : 10/7/17 - 11/7/17

Location :

Job Number : G40066

Engineer : OPUS

Ground Level : 6.27 m A.O.D. *Level to Local Datum*

Coordinates: 276590.97 E 189552.17 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No. Blows	Insitu Test Results Depth	Insitu Test Results Test Results	Strata Depth (Thick-ness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	Water
0					(0.50)	MADE GROUND: Dark grey to black silty sandy GRAVEL. Gravel is fine to coarse, sub-angular to angular, sandstone and slag. [MADE GROUND]		(0.50)	
	0.50	ES1 B2			0.50	MADE GROUND: Soft black sandy gravelly organic SILT. Gravel is fine to coarse, angular sandstone and slag. [MADE GROUND]		5.77	
1			1.20	SPT (C) 41 (7-9-**9**-**10**-**10**-**12**)	(1.50)			(1.50)	
	1.50	ES3 B4							▽ 1
2			2.00	SPT (C) 54 (8-11-**12**-**12**-**14**-**16**)	2.00	Grey and brown sandy GRAVEL with high cobble content. Gravel is fine to coarse, well-rounded to sub-rounded sandstone and quartz. Cobbles of rounded to sub-rounded sandstone.		4.27	
3	3.00	ES5 B6	3.00	SPT (C) 50 (16-9/25mm-**20**-**30**--)	(2.00)			(2.00)	▼
4			4.00	SPT (C) 24/60mm (25/70mm-26-**24/60mm**----)	4.00	Borehole terminated at 4.0mbgl due to refusal		2.27	
5									
6									
7									
8									
9									
10									

Hole Progress / Water Obs

Date / Time	H. Depth	C. Depth	Water
10/07/2017 17:00	3.00	3.00	2.20
11/07/2017 08:00	3.00	3.00	1.65

Casing

Depth	Cas. Dia.
3.00	165.00

Groundwater

Struck	Rose To	Behaviour	Sealed
3.00	1.65	Medium water seepage at 3.00mbgl	

Chiselling

From	To	Hours
1.00	3.00	4:15
3.00	4.00	6:30

Remarks:

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Operator: | Logged By. | Sheet No. 1 Of 1 | m Per Page 10.1 | All measurements in metres unless otherwise stated | AGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Borehole No. BHH05

Dates : 17/7/17 - 18/7/17

Location :

Job Number : G40066

Engineer : OPUS

Ground Level : 6.82 m A.O.D. *Level to Local Datum*

Coordinates: 276610.95 E 189455.69 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No. Blows	Insitu Test Results Depth	Insitu Test Results Test Results	Strata Depth (Thick-ness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	Water
0					(2.00)	DRILLERS DESCRIPTION - Slag cobble & Boulder - Fill very compact. [MADE GROUND]		(2.00)	
1			1.00	SPT (C) 50/55mm (25/20mm-50/35mm----)					
2			2.00	SPT (C) 50/85mm (20-5/5mm-**41-9/10mm**--)	2.00	DRILLERS DESCRIPTION - Very compact slag gravel & cobble fill. [MADE GROUND]		4.82	
3			3.00	SPT (C) 13/20mm (25/20mm-37-**13/20mm**---)	(1.40)			(1.40)	
4					3.40	Borehole terminated at 3.40mbgl due to refusal		3.42	
5									
6									
7									
8									
9									
10									

Hole Progress / Water Obs

Date / Time	H. Depth	C. Depth	Water
17/07/2017 17:00	2.00	1.50	
18/07/2017 08:00	2.00	1.50	

Casing

Depth	Cas. Dia.
3.00	165.00

Groundwater

Struck	Rose To	Behaviour	Sealed
		No ground water encountered.	

Chiselling

From	To	Hours
1.00	2.00	5:00
2.00	3.40	4:30

Remarks:

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Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Borehole No. BHH06

Dates : 12/7/17 - 14/7/17

Location :

Job Number : G40066

Engineer : OPUS

Ground Level : 6.94 m A.O.D. *Level to Local Datum*

Coordinates: 276569.97 E 189476.02 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No. Blows	Insitu Test Results Depth	Insitu Test Results Test Results	Strata Depth (Thickness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	Water
0						DRILLERS DESCRIPTION - Very Compact Slag [MADE GROUND]			
1			1.20	SPT (C) 50/55mm (25/30mm-50/25mm----)	(2.00)			(2.00)	
2			2.00	SPT (C) 50/100mm (19-6/20mm-**31-19/25mm**--)	2.00	DRILLERS DESCRIPTION - Slag Gravels & Cobbles [MADE GROUND]		4.94	
					(1.00)			(1.00)	
3	3.00 - 4.00	B4	3.00	SPT (C) 50/165mm (15-10/10mm-**17-21-12/15mm**-)	3.00	Grey dense sandy fine to coarse, angular to rounded sandstone GRAVEL with low cobble content. Cobbles are angular to sub-angular of sandstone. Sands are medium to coarse, angular.		3.94	
					(1.00)			(1.00)	
4	4.00 - 5.00	B6	4.00	SPT (C) 14/20mm (25/30mm-36-**14/20mm**---)	4.00	Dark grey dense sandy fine to coarse, sub-angular to rounded sandstone GRAVEL with medium cobble content. Cobbles are angular to rounded sandstone of. Sands are fine to coarse, angular.		2.94	
					(1.00)			(1.00)	
5	5.00 - 6.00	B8	5.00	SPT (C) 52 (9-15-**16-18-18**-)	5.00	Dark grey dense very sandy fine to coarse, sub-angular to rounded sandstone GRAVEL with low cobble content. Cobbles are sub-rounded to angular of sandstone. Sands are fine to coarse angular.		1.94	
					(1.00)			(1.00)	
6	6.00 - 7.00	B10	6.00	SPT (C) 64 (8-13-**14-16-16-18**)	6.00	Dark brown-grey dense very sandy fine to coarse, angular to rounded sandstone GRAVEL with high cobble content. Cobbles are angular to sub-rounded of sandstone.		0.94	
					(1.00)			(1.00)	
7			7.00	SPT (C) 43 (9-9-**10-15-18**-)	7.00	Borehole terminated at 7.0mbgl due to refusal		-0.06	
8									
9									
10									

Hole Progress / Water Obs

Date / Time	H. Depth	C. Depth	Water
12/07/2017 17:00	2.00	2.00	
13/07/2017 08:00	2.00	2.00	
13/07/2017 17:00	5.00	4.50	
14/07/2017 08:00	5.00	4.50	

Casing

Depth	Cas. Dia.
6.00	165.00

Groundwater

Struck	Rose To	Behaviour	Sealed
		No ground water encountered.	

Chiselling

From	To	Hours
1.00	2.00	3:00
2.00	5.00	4:30
5.00	7.00	3:30

Remarks:

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APPENDIX III – ROTARY BOREHOLE LOGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Borehole No. BHH01 R

Dates : 31/7/17 - 1/8/17

Location : Within Welsh Assembly land

Job Number : G40066

Engineer : OPUS

Ground Level : 8.84 m A.O.D. *Level to Local Datum*

Coordinates: 276496.18 E 189556.93 N *Co-ordinates to National Grid*

m B.G.L.	Run Details: Core Run	TCR %	SCR %	RQD %	Fractures: Min Avg Max	FI	Insitu Tests: Depth	Test Results	Samples: Depth	Type No. Blows	Strata: Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.	Water	Install/ Backfill
0									0.50 - 1.00	ES1	(1.20)	MADE GROUND - Grass/vegetation over black silty sandy Gravel. Gravel is fine to coarse angular to sub-angular of slag and brick with frequent traces of ash, slag, brick and metal.				
1							1	SPT (C) 50/22mm (12-10-**50/22mm**---)			1.20	MADE GROUND - Black concrete brick fill. (Diller's Description)		7.64		
2									2.00	ES2	(1.80)					
3							2.5	SPT (C) 60 (10-10-**10-12-14-24**)			3.00	Black silty sandy clayey Gravel. (Driller's Description)		5.84		
4							4	SPT (C) 50/34mm (17-7-**50/34mm**---)	4.00	ES3	(1.00)	Arisings were black silty sandy clayey Gravel. Gravel is fine to coarse angular to sub-angular of siltstone and sandstone with rare traces of slag.				
5							5.5	SPT (C) 50/245mm (5-8-**10-14-13-13/20mm**)	5.50	ES4	4.00	Brown grey Sand and Gravel. (Driller's Description)		4.84		
6											(2.00)	Arisings were grey brown silty sandy GRAVEL. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and siltstone.				
7							7	SPT (C) 50 (4-7-**6-12-12-20**)	7.00	ES5	6.00	Black sandy Gravel and Cobbles. (Driller's Description)		2.84		
8							8.5	SPT (C) 50/60mm (3-15-**50/60mm**---)			(4.00)	Arisings were black sandy GRAVEL. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and siltstone.				
9									9.00 - 10.00	ES6						
10							10	SPT (C) 50/97mm (6-17-**17-33/22mm**--)			10.00	BH terminated at 10.00mbgl specified depth.		-1.16		
11																

Hole Progress / Water Obs

Date / Time	H. Depth	C. Depth	Water
31/07/2017 17:00	7.00	7.00	3.50
01/08/2017 07:00	7.00	7.00	4.00

Casing

Depth	Diam.
10.00	115.00

Groundwater

Struck	Rose To	Behaviour	Sealed
3.50	3.45	Medium to high water seepage at 3.50mbgl.	

Flush

Depth	Type	Returns

Remarks: Commachio MC305 drill rig BH position marked out by Opus in liason with QGL, BH position CAT scanned and hand excavated pit undertaken to 1.20mbgl.

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Rob Morgan	S Picton	1 Of 1	12	All measurements in metres unless otherwise stated

AGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Borehole No.
BHH02 R

Dates : 1/8/17 - 2/8/17

Location : Within Welsh Assembly land

Job Number : G40066

Engineer : OPUS

Ground Level : 6.65 m A.O.D. *Level to Local Datum*

Coordinates: 276562.65 E
189544.83 N
Co-ordinates to National Grid

m B.G.L.	Run Details: Core Run	TCR %	SCR %	RQD %	Fractures: Min Avg Max	FI	Insitu Tests: Depth	Test Results	Samples: Depth	Type No. Blows	Strata: Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.	Water	Install/ Backfill
0									0.50 - 1.00	ES1	(1.50)	MADE GROUND - Grass/vegetation over black silty sandy Gravel. Gravel is fine to coarse angular to sub-angular of slag and brick with frequent traces of ash, slag, concrete, brick and metal.				
1							1	SPT (C) 50/42mm (10-27-**50/42mm**---)			1.50	Black Sand and Gravel. (Driller's Description)		5.15		
2									2.00	ES2	(1.50)	Arisings were black grey silty sandy gravelly Clay. Gravel is fine to coarse angular to sub-angular of siltstone and sandstone with rare traces of slag.			1	
3							2.5	SPT (C) 50/107mm (20-50/32mm----)	3.00 - 4.00	ES3	3.00	...At 2.00mbgl strong hydrocarbon smell		3.65		
4							4	SPT (C) 50/47mm (25-29-**50/47mm**---)				Brown sandy Gravel and Cobbles. (Driller's Description) Arisings were grey brown sandy GRAVEL with medium cobble content. Sand is fine. Gravel is fine to coarse sub-angular to sub-rounded of sandstone and siltstone.				
5									5.00 - 6.00	ES4						
6							5.5	SPT (C) 50/116mm (6-27-**29-21/41mm**--)	6.00 - 7.00	ES5	(5.50)					
7							7	SPT (C) 50/61mm (6-27-**50/61mm**---)								
8									8.00	ES6						
9							8.5	SPT (C) 50/120mm (9-13-**21-29/45mm**--)			8.50	BH terminated at 8.00mbgl specified depth.		-1.85		

Hole Progress / Water Obs

Date / Time	H. Depth	C. Depth	Water
01/08/2017 17:00	7.00	7.00	2.50
02/08/2017 07:00	7.00	7.00	2.00

Casing

Depth	Diam.
8.50	115.00

Groundwater

Struck	Rose To	Behaviour	Sealed
2.50	2.30	Medium to high water seepage at 2.50mbgl.	

Flush

Depth	Type	Returns

Remarks: Commachio MC305 drill rig BH position marked out by Opus in liason with QGL, BH position CAT scanned and hand excavated pit undertaken to 1.20mbgl.

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Rob Morgan	S Picton	1 Of 1	10	All measurements in metres unless otherwise stated

AGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Borehole No. BHH03 R

Dates : 2/8/17 - 2/8/17

Location : Within rough ground

Job Number : G40066

Engineer : OPUS

Ground Level : 6.27 m A.O.D. *Level to Local Datum*

Coordinates: 276590.97 E, 189552.17 N *Co-ordinates to National Grid*

m B.G.L.	Run Details: Core Run	TCR %	SCR %	RQD %	Fractures: Min Avg Max	FI	Insitu Tests: Depth	Test Results	Samples: Depth	Type No. Blows	Strata: Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.	Water	Install/ Backfill
0											(0.50)	MADE GROUND: Dark grey to black silty sandy GRAVEL. Gravel is fine to coarse, sub-angular to angular, sandstone and slag.				
											0.50	MADE GROUND: Soft black sandy gravelly organic SILT. Gravel is fine to coarse, angular sandstone and slag.		5.77		
1											(1.70)				1	
2											2.20	Brown sandy Gravel and Cobbles. (Driller's Description)		4.07		
3							3	SPT (C) 50/150mm (16-9/25mm-**20-30**--)				Arisings were sandy Gravel of fine to coarse sub-angular to sub-rounded of sandstone and siltstone.				
4							4	SPT (C) 24/60mm (25/70mm-26-**24/60mm**---)	4.00 - 5.00	ES1A						
5											(6.30)					
							5.5	SPT (C) 50/29mm (12-30-**50/29mm**---)								
6									6.00 - 7.00	ES2A						
7							7	SPT (C) 50/94mm (7-12-**23-27/19mm**--)								
8									8.00	ES3A						
							8.5	SPT (C) 50/20mm (27-15-**50/20mm**---)			8.50	BH terminated at 8.50mbgl specified depth.		-2.23		
9																

Hole Progress / Water Obs

Date / Time	H. Depth	C. Depth	Water

Casing

Depth	Diam.
8.50	115.00

Groundwater

Struck	Rose To	Behaviour	Sealed
2.20	1.70	Medium water seepage at 2.20mbgl.	

Flush

Depth	Type	Returns

Remarks: Commachio MC305 drill rig BH position marked out by Opus in liason with QGL, BH position CAT scanned and hand excavated pit undertaken to 1.20mbgl.

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Operator:	Logged By.	Sheet No.	m Per Page	
Rob Morgan	S Picton	1 Of 1	10	All measurements in metres unless otherwise stated

AGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Borehole No.
BHH04 R

Dates : 3/8/17 - 3/8/17

Location : Within rough ground

Job Number : G40066

Engineer : OPUS

Ground Level : 7.92 m A.O.D.
Level to Local Datum

Coordinates: 276653.34 E
189537.17 N
Co-ordinates to National Grid

m B.G.L.	Run Details: Core Run	TCR %	SCR %	RQD %	Fractures: Min Avg Max	FI	Insitu Tests: Depth	Test Results	Samples: Depth	Type No. Blows	Strata: Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.	Water	Install/ Backfill
0											(0.50)	MADE GROUND - Vegetation over grey sandy Gravel. Gravel is fine to coarse angular to sub-angular of limestone.				
									0.50 - 1.00	ES1	0.50			7.42		
1							1	SPT (C) 60/212mm (4-7-**10-22-28/62mm**-)			(0.50)					
											1.00	MADE GROUND - Black silty sandy Gravel. Gravel is fine to coarse angular to sub-angular of slag and brick with frequent traces of ash, slag, brick and metal.		6.92		
2									2.00	ES2		Brown sandy Gravel and Cobbles. (Driller's Description)			1	
							2.5	SPT (C) 50/19mm (9-16-**50/19mm**---)								
3									3.00 - 4.00	ES3	(4.00)	Arisings were sandy GRAVEL of fine to coarse sub-angular to sub-rounded of sandstone and siltstone.				
4							4	SPT (C) 59/159mm (5-5-**9-9-41/9mm**-)	4.00 - 5.00	ES4						
5									5.00 - 6.00	ES5	5.00	Brown sandy clayey Gravel. (Driller's Description)		2.92		
							5.5	SPT (C) 31 (5-5-**6-6-7-12**)			(1.50)	Arisings were sandy GRAVEL of fine to coarse sub-angular to sub-rounded of sandstone and siltstone.				
6											6.50	Thinly interbedded strong grey fine grained highly weathered SANDSTONE and grey weak highly weathered MUDSTONE. (Non intact).		1.42		
7	7.00	85	15	0			7	SPT (C) 50/130mm (10-50/55mm----)			(1.50)					
						1										
8	8										8.00	BH terminated at 8.00mbgl specified depth.		-0.08		
9																

Hole Progress / Water Obs

Date / Time	H. Depth	C. Depth	Water

Casing

Depth	Diam.
7.00	115.00

Groundwater

Struck	Rose To	Behaviour	Sealed
2.00	1.90	Medium water seepage at 2.00mbgl.	5.00

Flush

Depth	Type	Returns

Remarks: Commachio MC305 drill rig BH position marked out by Opus in liason with QGL, BH position CAT scanned and hand excavated pit undertaken to 1.20mbgl.

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Rob Morgan	S Picton	1 Of 1	10	All measurements in metres unless otherwise stated

AGS

Contract : Harbourside

Client : Neath Port Talbot County Council

Borehole No.
BHH04

Dates : 3/8/17 - 3/8/17

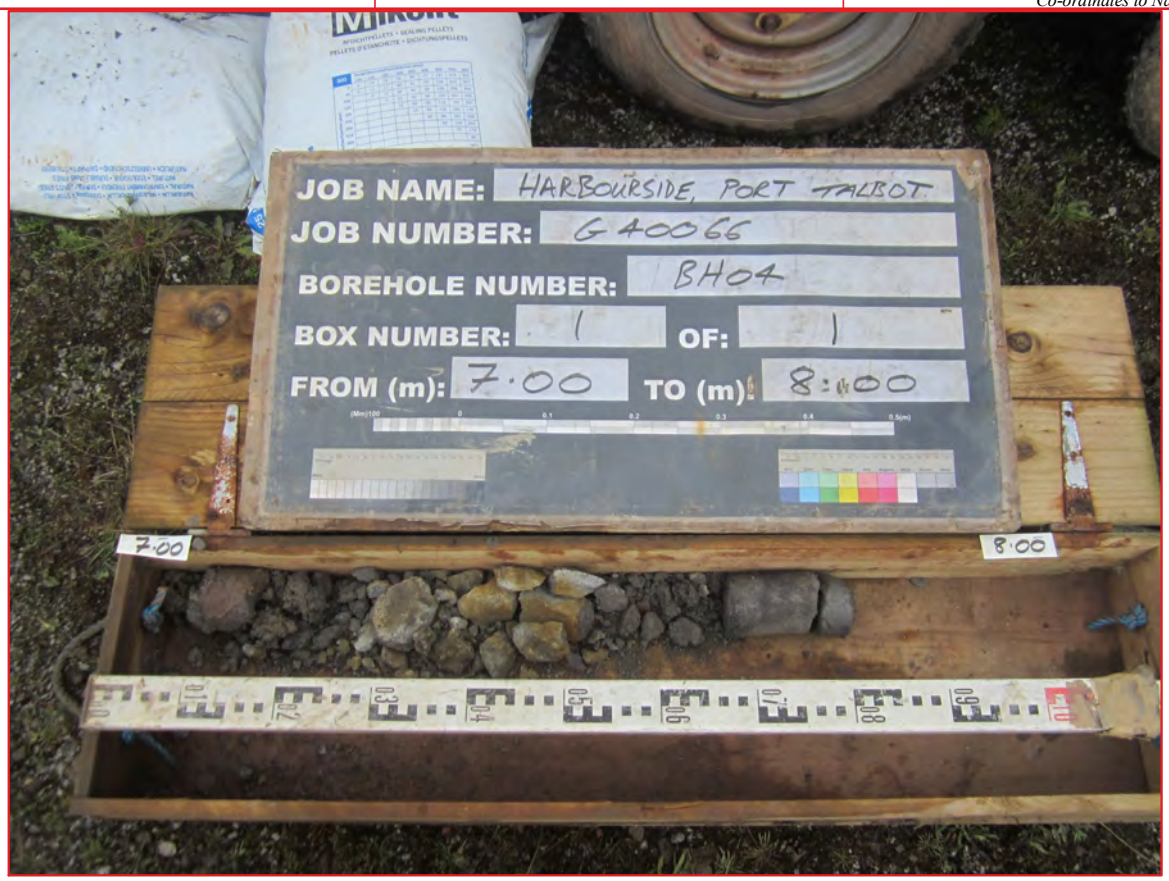
Location : Within rough ground

Job Number : G40066

Engineer : Opus International Consultants (Uk) Limited

Ground Level : 7.92 m A.O.D.
Level to Local Datum

Coordinates: 276653.34 E
189537.17 N
Co-ordinates to National Grid



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Operator:	Logged By.	Sheet No.	m Per Page	
Rob Morgan	S Picton	1 Of 1	2	All measurements in metres unless otherwise stated

AGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Borehole No. BHH05 R

Dates : 2/8/17 - 2/8/17

Location : Within rough ground

Job Number : G40066

Engineer : OPUS

Ground Level : 6.82 m A.O.D. *Level to Local Datum*

Coordinates: 276610.95 E, 189455.69 N *Co-ordinates to National Grid*

m B.G.L.	Run Details: Core Run	TCR %	SCR %	RQD %	Fractures: Min Avg Max	FI	Insitu Tests: Depth	Test Results	Samples: Depth	Type No. Blows	Strata: Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.	Water	Install/ Backfill
0																
											(2.00)	MADE GROUND - Grass/vegetation over black silty sandy Gravel. Gravel is fine to coarse angular to sub-angular of slag and brick with frequent traces of ash, slag, concrete, brick and metal.				
1																
2											2.00					
											(2.00)	Brown sandy Gravel and Cobbles. (Driller's Description) Arisings were sandy GRAVEL of fine to coarse sub-angular to sub-rounded of sandstone and siltstone.		4.82		
3																
4									4.00 - 5.00	ES1A	4.00			2.82		
							4.5	SPT (C) 50/117mm (20-25/42mm----)								
5									5.00 - 6.00	ES2A						
6							6	SPT (C) 50/22mm (6-27-**50/22mm**---)	6.00 - 7.00	ES3A	(4.50)	Brown sandy Gravel and Cobbles. (Driller's Description) Arisings were sandy GRAVEL of fine to coarse sub-angular to sub-rounded of sandstone and siltstone.				
7																
							7.5	SPT (C) 50/137mm (4-20-**31-19/62mm**--)								
8							8	SPT (C) 50/94mm (31-50/19mm----)	8.00	ES4A						
											8.50	BH terminated at 8.50mbgl specified depth.		-1.68		
9																

Hole Progress / Water Obs

Date / Time	H. Depth	C. Depth	Water

Casing

Depth	Diam.
8.50	115.00

Groundwater

Struck	Rose To	Behaviour	Sealed
1.30	1.30	Medium water seepage at 1.30mbgl.	

Flush

Depth	Type	Returns

Remarks: Commachio MC305 drill rig BH position marked out by Opus in liason with QGL, BH position CAT scanned and hand excavated pit undertaken to 1.20mbgl.

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Rob Morgan	S Picton	1 Of 1	10	All measurements in metres unless otherwise stated

AGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Borehole No. BHH07 R

Dates : 3/8/17 - 4/8/17

Location : Within rough ground

Job Number : G40066

Engineer : OPUS

Ground Level : 6.96 m A.O.D. *Level to Local Datum*

Coordinates: 276574.38 E 189435.31 N *Co-ordinates to National Grid*

m B.G.L.	Run Details: Core Run	TCR %	SCR %	RQD %	Fractures: Min Avg Max	FI	Insitu Tests: Depth	Test Results	Samples: Depth	Type No. Blows	Strata: Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.	Water	Install/ Backfill
0									0.30 - 0.50	ES1	(0.35)	MADE GROUND - Vegetation over weak weathered Concrete.				
											0.35			6.61		
1							1	SPT (C) 50/47mm (16-9-**50/47mm**---)	1.00	ES2	(1.65)	MADE GROUND - Black silty sandy Gravel. Gravel is fine to coarse angular to sub-angular of slag and brick with frequent traces of ash, slag, concrete, brick and metal.				
2									2.00	ES3	2.00	Black soft silty Clay. (Driller's Description)		4.96	1	
							2.5	SPT (C) 45 (1-1-**1-2-13-29**)			(1.00)	Arisings were black silty sandy gravelly Clay. Gravel is fine to coarse angular to sub-angular of sandstone and siltstone.				
3									3.00 - 4.00	ES4	3.00	At 2.00mbgl slight hydrocarbon smell		3.96		
4							4	SPT (C) 113/117mm (7-9-**21-92/42mm**--)	4.00 - 5.00	ES5		Brown sandy Gravel and Cobbles. (Driller's Description)				
5									5.00 - 6.00	ES6		Arisings were sandy Gravel of fine to coarse sub-angular to sub-rounded of sandstone and siltstone.				
							5.5	SPT (C) 50/20mm (5-20-**50/20mm**---)			(5.50)					
6																
7							7	SPT (C) 50/89mm (12-13-**27-23/14mm**--)	7.00 - 8.00	ES7						
8																
							8.5	SPT (C) 50/65mm (14-29-**50/65mm**---)			8.50	BH terminated at 8.50mbgl specified depth.		-1.54		
9																

Hole Progress / Water Obs

Date / Time	H. Depth	C. Depth	Water
03/08/2017 17:00	4.00	4.00	2.00
04/08/2017 07:00	4.00	4.00	2.00

Casing

Depth	Diam.
8.50	115.00

Groundwater

Struck	Rose To	Behaviour	Sealed
2.00	1.90	Medium water seepage at 2.00mbgl.	

Flush

Depth	Type	Returns

Remarks: Commachio MC305 drill rig BH position marked out by Opus in liason with QGL, BH position CAT scanned and hand excavated pit undertaken to 1.20mbgl.

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APPENDIX IV – TRIAL PIT LOGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Trial Pit No. TPH01

Dates : 13/7/17 - 13/7/17

Location :

Job Number : G40066

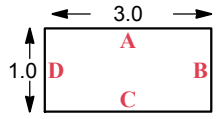
Engineer : OPUS

Ground Level : 8.82 m A.O.D. *Level to Local Datum*

Coordinates: 276515.82 E 189551.76 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No.	Tests Depth	Tests Test Results	Strata Depth (Thick-ness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	WATER
					0.05	MADE GROUND: Grey sandy GRAVEL. Gravel is fine to coarse, sub-rounded to angular, slag.		8.77	
					0.05	MADE GROUND: Black and brown gravelly SAND with high cobble content. Gravel is fine to coarse, sub-rounded to angular, sandstone, brick and slag. Cobbles of sub-angular, slag and brick.			
	0.40 -	ES1 D2 B3			0.55				
					0.60	Western edge of trial pit large stone wall		8.22	
1						MADE GROUND: Red, brown and yellow sandy, gravelly COBBLES. Gravel is fine to coarse, sub-rounded to angular, brick. Cobbles of sub-angular bricks. Stone wall continues			
	1.50 -	ES4 D5			1.80				
2									
					2.40	Trial Pit Terminated at 2.4mbgl due to collapsing sides		6.42	

PLAN



Groundwater: No Groundwater Encountered

Stability: Unstable, from 0.6mbgl

Shoring: N/A

Remarks : TP position marked out by Opus in liason with QGL and CAT scanned. Trial pit extended south 11m to expose wall. At 11m flattens out to shallow concrete flat structure to the east. Could not find base of of structure due to the collapsing sides

Equipment Used: JCB 3CX

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	J Phillips	1 Of 2	5		

Contract : Harbourside, Port Talbot Client : Neath Port Talbot Council		Trial Pit No. TPH01
Dates : 13/7/17 - 13/7/17 Location :	Job Number : G40066 Engineer : OPUS	Ground Level : 8.82 m A.O.D. *Level to Local Datum* Coordinates: 276515.82 E 189551.76 N *Co-ordinates to National Grid*





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Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Trial Pit No. TPH02

Dates : 13/7/17 - 13/7/17

Location :

Job Number : G40066

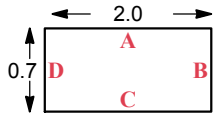
Engineer : OPUS

Ground Level : 8.87 m A.O.D. *Level to Local Datum*

Coordinates: 276523.09 E 189582.84 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No.	Tests Depth	Tests Test Results	Strata Depth (Thick-ness)	Strata Description	Legend	Red. Level A.O.D.	WATER
					0.20	MADE GROUND: Grey sandy GRAVEL. Gravel is fine to coarse, sub-rounded to angular slag			
					0.20	MADE GROUND: Black ashy gravelly SAND with low cobble content. Gravel is fine to coarse, sub-rounded to angular, sandstone, slag and brick. Cobbles are sub-angular, slag and brick.		8.67	
	0.40 -	ES1 D2			0.50	North end of TP concrete foundation to depth of trial pit			
					0.70	MADE GROUND: Brown gravelly SAND with medium cobble and low boulder content. Gravel is fine to coarse, rounded to sub-angular, brick, sandstone and slag. Cobbles of sub-rounded to sub-angular sandstone and slag. (Mixed zone of re-worked natural and made ground fill)		8.17	
1	0.90 -	ES3 D4 B5				@1.9mbgl mixed greenish grey silty SAND			
					1.90				
2	2.00 -	ES6 D7 B8							
					2.60	Greenish grey slightly clayey silty slightly gravelly SAND.		6.27	
	2.70 -	ES9 D10 B11			0.20	Gravel is fine to coarse, rounded to sub-rounded sandstone.			
					2.80	Slight hydrocarbon sheen on material surface Trial pit terminated at 2.8mbgl due to collapsing sides		6.07	

PLAN



Groundwater: No Groundwater encountered

Stability: Unstable, collapsing from 0.7

Shoring: N/A

Remarks : TP position marked out by Opus in liason with QGL and CAT scanned.

Equipment Used: JCB 3CX

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Contract : Harbourside, Port Talbot Client : Neath Port Talbot Council		Trial Pit No. TPH02
Dates : 13/7/17 - 13/7/17 Location :	Job Number : G40066 Engineer : OPUS	Ground Level : 8.87 m A.O.D. *Level to Local Datum* Coordinates: 276523.09 E 189582.84 N *Co-ordinates to National Grid*





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Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Trial Pit No. TPH03

Dates : 13/7/17 - 13/7/17

Location :

Job Number : G40066

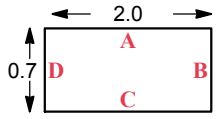
Engineer : OPUS

Ground Level : 8.57 m A.O.D. *Level to Local Datum*

Coordinates: 276494.96 E 189522.90 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No.	Tests Depth	Tests Test Results	Strata Depth (Thickness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	WATER
					0.05	TOPSOIL: Brown sandy slightly gravelly CLAY frequent rootlets		8.52	
					0.05				
					0.15	MADE GROUND: Black ashy gravelly SAND with low cobble content. Gravel is fine to coarse, sub-rounded to angular, sandstone, slag and brick. Cobbles of sub-angular, slag and brick.		8.37	
					0.20	MADE GROUND: Brown gravelly SAND with high cobble and low boulder content. Gravel is fine to coarse, rounded to sub-angular, brick, sandstone and slag. Cobbles and boulders are sub-rounded to sub-angular sandstone and slag. (Mixed zone of re-worked natural and made ground fill)			
	0.40 -	ES1 D2 B3							
1						@2.0mbgl mixed greenish grey SAND			
	1.40 -	ES4 D5 B6							
					3.00				
2									
	2.40 -	ES7 D8 B9							
3									
					3.20	Greenish grey mottled black silty slightly gravelly SAND. Gravel is fine to coarse, well rounded to sub-rounded sandstone.		5.37	
	3.40 -	ES10 D11 B12			0.60	Slight hydrocarbon sheen on material			
					3.80	Greenish grey mottled black silty slightly gravelly SAND. Gravel is fine to coarse, well rounded to sub-rounded sandstone.		4.77	
4	4.00 -	ES13 B14			0.40	No visual signs of hydrocarbons			
					4.20	Trial pit terminated at 4.2mbgl due to maximum reach		4.37	

PLAN



Groundwater: Groundwater seepage at 3.2mbgl

Stability: Stable

Shoring: N/A

Remarks : TP position marked out by Opus in liason with QGL and CAT scanned.

Equipment Used: JCB 3CX

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	J Phillips	1 Of 2	5	

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Contract : Harbourside, Port Talbot Client : Neath Port Talbot Council		Trial Pit No. TPH03
Dates : 13/7/17 - 13/7/17 Location :	Job Number : G40066 Engineer : OPUS	Ground Level : 8.57 m A.O.D. *Level to Local Datum* Coordinates: 276494.96 E 189522.90 N *Co-ordinates to National Grid*





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	J Phillips	2 Of 2		All measurements in metres unless otherwise stated

AGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Trial Pit No. TPH04

Dates : 13/7/17 - 13/7/17

Location :

Job Number : G40066

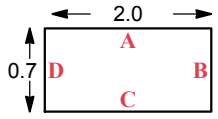
Engineer : OPUS

Ground Level : 6.36 m A.O.D. *Level to Local Datum*

Coordinates: 276563.75 E 189561.71 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No.	Tests Depth	Tests Test Results	Strata Depth (Thick-ness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	WATER
					0.05	TOPSOIL: Brown sandy slightly gravelly CLAY frequent rootlets		6.31	
					0.05	MADE GROUND: Black gravelly SAND with high cobble content. Gravel is fine to coarse, sub-rounded to angular, sandstone, brick, slag, concrete. Cobbles of sub-angular, sandstone and slag.			
	0.40 -	ES1 D2 B3			0.75				
					0.80	MADE GROUND: Black mottled red, slightly sandy GRAVEL and COBBLES. Gravel is fine to coarse, sub-rounded to angular, slag. Cobbles of sub-angular, slag. (Highly compacted, difficult digging/slow progress)		5.56	
1	1.00 -	ES4 B5			0.40				
					1.20	Greenish grey slightly silty gravelly SAND with high cobble content. Gravel is fine to coarse, rounded to sub-rounded sandstone. Cobbles of rounded to sub-rounded sandstone.		5.16	1
	1.30 -	ES6 D7 B8			0.70	Slight hydrocarbon odour and sheen on material.			
					1.90	Brown and grey sandy GRAVEL with high cobble content. Gravel is fine to coarse, well-rounded to sub-rounded sandstone. Cobbles of rounded sandstone.		4.46	
2	2.00 -	ES9 B10			0.30				
					2.20	Strong hydrocarbon odour and sheen on spoil material Trial pit terminated at 2.2mbgl due to collapsing sides		4.16	

PLAN



Groundwater: groundwater encountered at 1.8mbgl

Stability: Unstable, collapsing from 1.2mbgl

Shoring: N/A

Remarks : TP position marked out by Opus in liason with QGL and CAT scanned.

Equipment Used: JCB 3CX

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	J Phillips	1 Of 2	5	

AGS

Contract : Harbourside, Port Talbot Client : Neath Port Talbot Council			Trial Pit No. TPH04
Dates : 13/7/17 - 13/7/17 Location :	Job Number : G40066 Engineer : OPUS	Ground Level : 6.36 m A.O.D. *Level to Local Datum* Coordinates: 276563.75 E 189561.71 N *Co-ordinates to National Grid*	





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Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Trial Pit No. TPH05

Dates : 13/7/17 - 13/7/17

Location :

Job Number : G40066

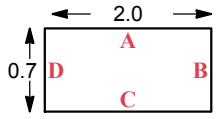
Engineer : OPUS

Ground Level : 6.89 m A.O.D. *Level to Local Datum*

Coordinates: 276516.32 E 189492.91 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No.	Tests Depth	Tests Test Results	Strata Depth (Thick-ness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	WATER
					0.05	MADE GROUND: Grey sandy GRAVEL. Gravel fine to coarse, sub-rounded to angular, slag.		6.84	
					0.05	MADE GROUND: Black and brown Gravelly SAND with low cobble and low boulder content. Gravel is fine to coarse, sub-rounded to angular, sandstone, metal , slag and brick. Cobbles of sub-angular brick, slag and sandstone. Boulders of slag and sandstone.			
	0.50 -	ES1 D2 B3			1.15				
1					1.20	MADE GROUND: Brown mottled red and yellow, slightly sandy GRAVEL with high cobble content. Gravel is fine to coarse, sub-rounded to angular, slag and metal. Cobbles of sub-angular slag.		5.69	
	1.30 -	ES4 D5			0.60	@1.5mbgl rare hydrocarbon sheen on material.			
	1.70 -	W6			1.80	@1.7mbgl very strong hydrocarbon odour and sheen on material		5.09	
	1.90 -	ES7 D8 B9			0.20	Black mottled greenish grey slightly gravelley SAND mixed with fiberous CLAY. Gravel is fine to coarse, rounded to sub-rounded sandstone.			
2					2.00	Very strong hydrocarbon odour and sheen on material Trial pit terminated at 2.0mbgl due to collapsing sides		4.89	

PLAN



Groundwater: Groundwater encountered at 1.7mbgl

Stability: Unstable, from 1.6mbgl

Shoring: N/A

Remarks : TP position marked out by Opus in liason with QGL and CAT scanned.

Equipment Used: JCB 3CX

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Contract : Harbourside, Port Talbot Client : Neath Port Talbot Council		Trial Pit No. TPH05
Dates : 13/7/17 - 13/7/17 Location :	Job Number : G40066 Engineer : OPUS	Ground Level : 6.89 m A.O.D. *Level to Local Datum* Coordinates: 276516.32 E 189492.91 N *Co-ordinates to National Grid*





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Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Trial Pit No. TPH06

Dates : 12/7/17 - 12/7/17

Location :

Job Number : G40066

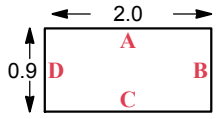
Engineer : OPUS

Ground Level : 6.70 m A.O.D. *Level to Local Datum*

Coordinates: 276607.79 E 189510.74 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No.	Tests Depth	Tests Test Results	Strata Depth (Thick-ness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	WATER
	0.10 -	D1			0.50	MADE GROUND: Black mottled red, slightly sandy GRAVEL and COBBLES. Gravel is fine to coarse, sub-rounded to angular, slag. Cobbles of sub-angular, slag. (Highly compacted, hard/difficult digging/slow progress)			
	0.60 -	ES2 D3 B4			0.50 0.35	MADE GROUND: Black mottled red and yellow, sandy GRAVEL with low cobble content. Gravel is fine to coarse, sub-rounded to angular, slag and brick. Cobbles of sub-angular, slag and brick.		6.20	
1	1.00 -	ES5 B6			0.85 0.65	MADE GROUND: Black slightly ashy sandy GRAVEL with high cobble content. Gravel is fine to coarse, sub-rounded to angular, sandstone, brick, slag, concrete and metal. Cobbles of sub-rounded to sub-angular, sandstone, brick and slag.		5.85	1
	1.60 -	ES7			1.50 0.30	MADE GROUND: Black ashy slightly gravelly SAND. Gravel is fine to coarse, sub-rounded to angular, sandstone, brick and slag.		5.20	
2	1.90 -	ES8 B9			1.80 1.00	Greenish grey silty slightly gravelly SAND. Gravel is fine to coarse, rounded to sub-rounded, sandstone. Gradually becomes sandy GRAVEL with low cobble content. Gravel is fine to coarse, well-rounded to sub-rounded sandstone. Cobbles sub-rounded sandstone.		4.90	2
	2.60 -	ES10 B11			2.80	Trial Pit terminted at 2.8mbgl due to collapsing sides		3.90	

PLAN



Groundwater: Groundwater seepage at 1.5mbgl, Groundwater encountered at 2.4mbgl

Stability: Unstable, from 1.8mbgl

Shoring: N/A

Remarks : TP position marked out by Opus in liason with QGL and CAT scanned.

Equipment Used: JCB 3CX

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	J Phillips	1 Of 2	5		

Contract : Harbourside, Port Talbot Client : Neath Port Talbot Council		Trial Pit No. TPH06
Dates : 12/7/17 - 12/7/17 Location :	Job Number : G40066 Engineer : OPUS	Ground Level : 6.70 m A.O.D. *Level to Local Datum* Coordinates: 276607.79 E 189510.74 N *Co-ordinates to National Grid*





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Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Trial Pit No. TPH07

Dates : 12/7/17 - 12/7/17

Location :

Job Number : G40066

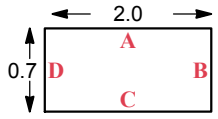
Engineer : OPUS

Ground Level : 7.04 m A.O.D. *Level to Local Datum*

Coordinates: 276640.48 E 189545.88 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No.	Tests Depth	Tests Test Results	Strata Depth (Thick-ness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	WATER
					0.40	MADE GROUND: Brown and grey sandy GRAVEL and COBBLES. Gravel fine to coarse, sub-rounded to anguar, sandstone, brick and slag, Cobbles of sub-angular to angular, sandstone.			
					0.40 0.20	MADE GROUND: CONCRETE with occasional brick content.		6.64	
	0.60 -	ES1 D2 B3			0.60 0.30	MADE GROUND: Brown and grey gravelly SAND with low cobble content. Gravel is fine to coarse, rounded to angular, sandstone, slag and brick.		6.44	
1					0.90 0.20	MADE GROUND: CONCRETE		6.14	
					1.10 0.40	MADE GROUND: Black mixed slightly blue and red highly compacted sandy GRAVEL and COBBLES. Gravel fine to coarse sub-angular to angular, slag. Cobbles of sub-angular slag.		5.94	
	1.60 -	ES4 D5 B6			1.50 0.50	Brown gravelly SAND with low cobble content. Gravel is fine to coarse, well-rounded to sub-rounded, sandstone and quartz. Cobbles of sub-rounded to rounded sandstone.		5.54	
2					2.00 0.50	Brown sandy GRAVEL with high cobble content. Gravel is fine to coarse, well-rounded to sub-rounded, sandstone and quartz. Cobbles of rounded to sub-rounded sandstone.		5.04	
	2.20 -	ES7 D8 B9			2.50	Trial Pit terminated@2.5mbgl due to collapsing sides		4.54	

PLAN



Groundwater: Groundwater encountered at 2.0mbgl

Stability: Unstable, collapsing from 1.5

Shoring: N/A

Remarks : TP position marked out by Opus in liason with QGL and CAT scanned.

Equipment Used: JCB 3CX

Quantum Geotechnical
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SA14 9ST
Tel: 01554 744880
Fax: 01554 776150
email:

Operator:	Logged By.	Sheet No.	m Per Page	All measurements in metres unless otherwise stated
	J Phillips	1 Of 2	5	

AGS

Contract : Harbourside, Port Talbot Client : Neath Port Talbot Council			Trial Pit No. TPH07
Dates : 12/7/17 - 12/7/17 Location :	Job Number : G40066 Engineer : OPUS	Ground Level : 7.04 m A.O.D. *Level to Local Datum* Coordinates: 276640.48 E 189545.88 N *Co-ordinates to National Grid*	





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	J Phillips	2 Of 2		All measurements in metres unless otherwise stated

AGS

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Trial Pit No. TPH08

Dates : 12/7/17 - 12/7/17

Location :

Job Number : G40066

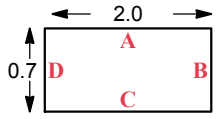
Engineer : OPUS

Ground Level : 6.92 m A.O.D. *Level to Local Datum*

Coordinates: 276565.19 E 189423.73 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No.	Tests Depth	Tests Test Results	Strata Depth (Thick-ness)	Strata Description	Legend	Red. Level A.O.D.	WATER
	0.30 -	ES1 D2 B3			0.50	MADE GROUND: Black mottled red, slightly sandy GRAVEL and COBBLES. Gravel is fine to coarse, sub-rounded to angular, slag. Cobbles of sub-angular, slag. (Highly compacted and hard/difficult digging, slow progress)			
					0.50 0.20	MADE GROUND: CONCRETE with occasional brick content.		6.42	
1	1.00 -	ES4 D5 B6			0.70 1.20	MADE GROUND: Black slightly ashy sandy GRAVEL with high cobble content and occasional rootlets. Gravel is fine to coarse, sub-rounded to angular, sandstone, brick, slag, concrete and metal. Cobbles of sub-rounded to sub-angular, sandstone, brick and slag. Metal structure found at south side of trial pit at 0.9mbgl		6.22	1
2	2.00 -	ES7 D8 B9			1.90 0.20 2.10	Black mottled yellowish brown slightly silty slightly gravelly CLAY slightly fiberous. Gravel is fine to coarse, well-rounded to sub-rounded sandstone. Trial pit terminated at 2.1mbgl due to collapsing sides		5.02 4.82	

PLAN



Groundwater: Groundwater encountered at 1.7mbgl

Stability: Unstable, collapsing from 1.9mbgl

Shoring: N/A

Remarks : TP position marked out by Opus in liason with QGL and CAT scanned.

Equipment Used: JCB 3CX

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Operator:	Logged By.	Sheet No.	m Per Page	
	J Phillips	1 Of 2	5	All measurements in metres unless otherwise stated

AGS

Contract : Harbourside, Port Talbot Client : Neath Port Talbot Council		Trial Pit No. TPH08
Dates : 12/7/17 - 12/7/17 Location :	Job Number : G40066 Engineer : OPUS	Ground Level : 6.92 m A.O.D. *Level to Local Datum* Coordinates: 276565.19 E 189423.73 N *Co-ordinates to National Grid*





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	J Phillips	2 Of 2			

Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Trial Pit No. TPH09

Dates : 12/7/17 - 12/7/17

Location :

Job Number : G40066

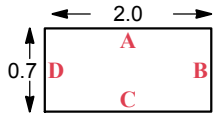
Engineer : OPUS

Ground Level : 7.66 m A.O.D. *Level to Local Datum*

Coordinates: 276640.38 E 189566.52 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No.	Tests Depth	Tests Test Results	Strata Depth (Thick-ness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	WATER
					0.10	TOPSOIL: Brown sandy gravelly CLAY with frequent rootlets. Gravel is fine to coarse, sub-rounded to angular, sandstone, slag.			
					0.10			7.56	
	0.30 -	ES1 D2 B3			0.55	MADE GROUND: Grey and black slightly silty gravelly SAND with low cobble content. Gravel is fine to coarse, sub-rounded to angular, sandstone, concrete, slag, metal, wood and brick. Terram at 0.65mbgl			
					0.65	MADE GROUND: Grey mottled black sandy GRAVEL with high cobble and low boulder content. Gravel is fine to coarse, sub-rounded to to angular, brick, concrete, sandstone and slag. Cobbles of sub-rounded to angular, sandstone, brick and slag. Boulders of sub-angular, slag. Re-bar at 1.1mbgl		7.01	
1	0.90 -	ES4 D5 B6			1.25				
	1.40 -	ES7							
					1.90	MADE GROUND: Black sandy GRAVEL with occasional cobbles mixed with more wet very soft organic sandy slightly gravelly CLAY. Gravel is fine to coarse, sub-rounded to angular, slag, brick and sandstone. Cobbles of sub-angular, brick and sandstone.		5.76	
2	2.10 -	ES8 D9 B10			0.60				
					2.50	Brownish grey slightly sandy GRAVEL with frequent cobbles. Gravel is fine to coarse, rounded to sub-angular, sandtone, quartz and siltstone.		5.16	
	2.60 -	ES11 D12 B13			0.40				
					2.90	Trial Pit Terminated at 2.9mbgl due collapsing sides		4.76	

PLAN



Groundwater:

Stability:

Shoring:

Remarks : TP position marked out by Opus in liason with QGL and CAT scanned.

Equipment Used:

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email:

Operator:	Logged By.	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	AGS
		1 Of 2	5		

Contract : Harbourside, Port Talbot **Client : Neath Port Talbot Council**	**Trial Pit No.** **TPH09**

Dates : 12/7/17 - 12/7/17 Location :	Job Number : G40066 Engineer : OPUS	Ground Level : 7.66 m A.O.D. *Level to Local Datum* Coordinates: 276640.38 E 189566.52 N *Co-ordinates to National Grid*





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Contract : Harbourside, Port Talbot

Client : Neath Port Talbot Council

Trial Pit No. TPH10

Dates : 12/7/17 - 12/7/17

Location :

Job Number : G40066

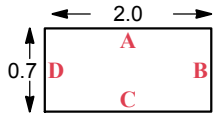
Engineer : OPUS

Ground Level : 6.73 m A.O.D. *Level to Local Datum*

Coordinates: 276635.38 E 189489.37 N *Co-ordinates to National Grid*

m B.G.L.	Samples Depth	Samples Type No.	Tests Depth	Tests Test Results	Strata Depth (Thick-ness)	Strata Description	Strata Legend	Strata Red. Level A.O.D.	WATER
					0.30	MADE GROUND: CONCRETE with rebar			
	0.50 -	ES1 D2 B3			0.30 – 0.90	MADE GROUND: Black mottled brown gravelly SAND with low cobble content, mixed with brown gravelly SAND with occasional cobble content (re worked natural). Gravel is fine to coarse, rounded to angular, slag, brick, concrete, metal, glass and sandstone. Cobbles of rounded to sub-angular, sandstone, brick and slag.		6.43	
1									
	1.30 -	ES4 D5 B6			1.20 – 0.60	Soft black and brown slightly silty sandy gravelly CLAY with low cobble content. Gravel is fine to coarse, rounded to sub-angular, sandstone. Cobbles of rounded to sub-angular, sandstone.		5.53	
					1.80 – 0.40	Brown sandy GRAVEL with high cobble content. Gravel is fine to coarse, well-rounded to sub-rounded, sandstone and quartz. Cobbles of rounded to sub-rounded sandstone.		4.93	
2	2.00 -	ES7 D8 B9			2.20	Trial pit terminated at 2.2mbgl due to collapsing sides		4.53	

PLAN



Groundwater: Groundwater encountered at 1.4mbgl

Stability: Unstable collapsing from 1.2

Shoring: N/A

Remarks : TP position marked out by Opus in liason with QGL and CAT scanned.

Equipment Used: JCB 3CX

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email:

Operator:	Logged By.	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	AGS
	J Phillips	1 Of 2	5		

Contract : Harbourside, Port Talbot Client : Neath Port Talbot Council		Trial Pit No. TPH10
Dates : 12/7/17 - 12/7/17 Location :	Job Number : G40066 Engineer : OPUS	Ground Level : 6.73 m A.O.D. *Level to Local Datum* Coordinates: 276635.38 E 189489.37 N *Co-ordinates to National Grid*





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email:

Operator:	Logged By.	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	AGS
	J Phillips	2 Of 2			

APPENDIX V – GROUNDWATER & GROUNDGAS MONITORING RESULTS

LANDGAS & GROUNDWATER MONITORING RECORD SHEET

Project Name:	Harbourside, Port Talbot
Project No.:	G40066
BH/TP No.:	BH01
Instruments Used:	Water Dip Meter Probe, GA2000 Gas Anaylser

Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
8.84	A	50	3.00	2.00

Pipe	Date	Time (24hrs)	Atmos Pressure mBar	Differential Well Pressure mBar	Flow L/hr	CH_4 %	CO_2 %	O_2 %	H_2S ppm	CO ppm	Water Level		HoleDepth		Local Weather		Remarks
											mbgl	mAOD			Recent	Current	
A	14.08.17	11:00	1016		0.0	0.0	0.0	20.7	0	0	3.84	5.00			Sunny	Cloudy	
A	23.08.17	12:25	1014		0.0	0.1	3.6	20.7	4	0	3.45	5.39			Sunny	Sunny	
A	31.08.17	08:00	1018		0.0	0.1	2.1	20.5	2	0	3.41	5.43			Rain	Sunny	
A	11.09.17	12:30	997	0.39	-0.1	0.0	0.5	20.9	0	0	3.90	4.94	4.68		Showers	Showers	

LANDGAS & GROUNDWATER MONITORING RECORD SHEET

Project Name:	Harbourside, Port Talbot
Project No.:	G40066
BH/TP No.:	BH02
Instruments Used:	Water Dip Meter Probe, GA2000 Gas Anaylser

Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
6.65	A Deep	50	8.00	3.00
	B Shallow	50	3.00	2.5

Pipe	Date	Time (24hrs)	Atmos Pressure	Differential Well Pressure	Flow	CH_4	CO_2	O_2	H_2S	CO	Water Level		HoleDepth		Local Weather		Remarks
			mBar	mBar	L/hr	%	%	%	ppm	ppm	mbgl	mAOD			Recent	Current	
A	14.08.17	11:05	1016		0.0	0.0	0.0	20.6	0	0	1.65	5.00	8.00		Sunny	Cloudy	
B	14.08.17	11:10	1016		0.0	0.0	0.0	20.9	0	0	1.63	5.02	3.00		Sunny	Cloudy	
A	23.08.17	13:00	1016		0.0	0.1	0.5	20.3	1	0	0.54	6.11	8.00		Sunny	Sunny	
B	23.08.17	13:05	1016		0.0	0.1	0.6	20.2	0	0	0.50	6.15	3.00		Sunny	Sunny	
A	31.08.17	08:10	1018		0.0	0.0	0.2	20.1	0	0	1.60	5.05	3.00		Raining	Sunny	
B	31.08.17	08:15	1018		0.0	0.1	0.1	20.2	0	0	1.76	4.89	8.00		Raining	Sunny	
A	11.09.17	12:35	998	0.46	-0.1	0.0	0.7	20.6	1	0	1.64	5.01	8.58		Showers	Showers	
B	11.09.17	12:35	998	0.42	0.0	0.0	1.2	20.3	0	0	1.63	5.02	2.14		Showers	Showers	

LANDGAS & GROUNDWATER MONITORING RECORD SHEET

Project Name:	Harbourside, Port Talbot
Project No.:	G40066
BH/TP No.:	BH03
Instruments Used:	Water Dip Meter Probe, GA2000 Gas Anaylser

Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
6.27	A	50	3.00	2.00

Pipe	Date	Time (24hrs)	Atmos Pressure mBar	Differential Well Pressure mBar	Flow L/hr	CH_4 %	CO_2 %	O_2 %	H_2S ppm	CO ppm	Water Level		HoleDepth		Local Weather		Remarks
											mbgl	mAOD			Recent	Current	
A	14.08.17	11:20	1016		0.0	0.0	0.0	20.8	0	0	1.16	5.11	2.50		Sunny	Cloudy	
A	23.08.17	12:50	1014		5.7	0.1	0.3	20.0	3	0	0.95	5.32	2.50		Sunny	Sunny	
A	31.08.17	08:20	1018		3.0	0.1	0.2	21.2	1	0	1.14	5.13	2.50		Raining	Sunny	
A	11.09.17	12:40	998	0.34	6.4	0.1	0.2	20.3	2	0	1.06	5.21	2.45		Showers	Showers	

LANDGAS & GROUNDWATER MONITORING RECORD SHEET

Project Name:	Harbourside, Port Talbot
Project No.:	G40066
BH/TP No.:	BH04
Instruments Used:	Water Dip Meter Probe, GA2000 Gas Anaylser

Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
7.92	A	50	3.00	2.00

Pipe	Date	Time (24hrs)	Atmos Pressure mBar	Differential Well Pressure mBar	Flow L/hr	CH_4 %	CO_2 %	O_2 %	H_2S ppm	CO ppm	Water Level		HoleDepth		Local Weather		Remarks
											mbgl	mAOD			Recent	Current	
A	14.08.17	11:30	1016		0.0	0.0	0.0	20.7	0	0	1.09	6.83	1.00		Sunny	Cloudy	
A	23.08.17	12:35	1014		0.0	0.1	0.8	20.0	3	0	0.89	7.03	1.00		Sunny	Sunny	
A	31.08.17	08:30	1018		0.0	0.0	0.1	21.2	2	0	0.95	6.97	1.00		Raining	Sunny	
A	11.09.17	12:45	998	0.33	0.0	0.0	0.9	19.6	0	0	0.98	6.94	1.17		Showers	Showers	

LANDGAS & GROUNDWATER MONITORING RECORD SHEET

Project Name:	Harbourside, Port Talbot
Project No.:	G40066
BH/TP No.:	BH05
Instruments Used:	Water Dip Meter Probe, GA2000 Gas Anaylser

Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
6.82	A	50	3.00	2.00

Pipe	Date	Time (24hrs)	Atmos Pressure mBar	Differential Well Pressure mBar	Flow L/hr	CH_4 %	CO_2 %	O_2 %	H_2S ppm	CO ppm	Water Level		HoleDepth		Local Weather		Remarks
											mbgl	mAOD			Recent	Current	
A	14.08.17	11:40	1016		0.0	0.0	0.0	20.6	0	0	1.16	5.66	2.00		Sunny	Cloudy	
A	23.08.17	13:15	1014		0.0	0.1	0.2	20.7	2	0	1.40	5.42	2.00		Sunny	Sunny	
A	31.08.17	08:35	1018		0.0	0.1	0.1	21.1	1	0	1.52	5.30	2.00		Raining	Sunny	
A	11.09.17	12:50	998	0.39	-0.1	0.1	0.2	21.2	0	0	1.50	5.32	2.13		Showers	Showers	

LANDGAS & GROUNDWATER MONITORING RECORD SHEET

Project Name:	Harbourside, Port Talbot
Project No.:	G40066
BH/TP No.:	BH07
Instruments Used:	Water Dip Meter Probe, GA2000 Gas Anaylser

Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
6.96	A Deep	50	8.00	3.00
	B Shallow	50	3.00	2

Pipe	Date	Time (24hrs)	Atmos Pressure	Differential Well Pressure	Flow	CH_4	CO_2	O_2	H_2S	CO	Water Level		HoleDepth		Local Weather		Remarks
			mBar	mBar	L/hr	%	%	%	ppm	ppm	mbgl	mAOD			Recent	Current	
A	14.08.17	11:50	1016		0.0	0.0	0.0	20.7	0	0	1.73	5.23	8.00		Sunny	Cloudy	
B	14.08.17	11:55	1016		0.0	0.0	0.0	20.7	0	0	1.74	5.22	3.00		Sunny	Cloudy	
A	23.08.17	13:25	1014		0.0	0.1	0.3	20.2	2	0	1.70	5.26	8.00		Sunny	Sunny	
B	23.08.17	13:30	1014		0.0	0.1	0.2	20.6	1	0	2.05	4.91	3.00		Sunny	Sunny	
A	31.08.17	08:40	1018		0.0	0.0	0.1	21.1	1	0	1.96	5.00	8.00		Raining	Sunny	
B	31.08.17	08:45	1018		0.0	0.0	0.0	21.3	1	0	1.95	5.01	3.00		Raining	Sunny	
A	11.09.17	12:55	998	0.39	0.0	0.0	0.2	21.1	0	0	1.81	5.15	8.49		Showers	Showers	
B	11.09.17	12:55	997	0.38	0.0	0.0	0.2	17.9	0	0	1.75	5.21	3.17		Showers	Showers	

APPENDIX VI – GEOTECHNICAL LABORATORY TEST RESULTS

Laboratory Report

GEO Site & Testing Services Ltd

Contract Number: 36059

Client's Reference: **G40066**

Report Date: **07-08-2017**

Client **Dawnus Construction Limited C/O Quantum Geotechnic**
Ty Berwig
Bynea
Llanelli.
Carmarthenshire.
SA14 9ST

Contract Title: **Harbourside, Port Talbot**

For the attention of: **Gareth Morris**

Date Received: **25-07-2017**

Date Commenced: **25-07-2017**

Date Completed: **07-08-2017**

Test Description	Qty
Moisture Content 1377 : 1990 Part 2 : 3.2 - * UKAS	22
1 Point Liquid & Plastic Limit 1377 : 1990 Part 2 : 4.4 & 5.3 - * UKAS	1
4 Point Liquid & Plastic Limit (LL/PL) 1377 : 1990 Part 2 : 4.3 & 5.3 - * UKAS	2
PSD Wet Sieve method 1377 : 1990 Part 2 : 9.2 - * UKAS	21
BRE Suite B Greenfield Ph, SO4 2:1, Acid Sol, total Sulphur BS 1377 Parts 3, Methods 9,5.3,5.5 &TRL 447 - @ Non Accredited Test	21
Loss on Ignition 1377 : 1990 Part 3 : 4 - @ Non Accredited Test	13
Disposal of Samples on Project	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
- denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories:
Alex Wynn (Associate Director) - Ben Sharp (Contracts Manager) - Emma Sharp (Office Manager)
Paul Evans (Quality/Technical Manager) - Richard John (Advanced Testing Manager) - Sean Penn (Administrative/Quality Assistant)
Vaughan Edwards (Managing Director) - Wayne Honey (Administrative/Quality Assistant)

GEO Site & Testing Services Ltd
Unit 3-4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

GSTL	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377 : Part 2 : 1990 Method 5) DESCRIPTIONS	
Contract Number	36059	
Site Name	Harbourside, Port Talbot	

TP Trialpit	Sample Number	Sample Type	Depth (m)			Descriptions
TPH01	3	B	0.40	-		Grey slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH02	5	B	0.90	-		Brown slightly clayey slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH02	8	B	2.00	-		Grey silty fine to coarse sandy fine to coarse GRAVEL
TPH03	3	B	0.40	-		Brown silty clayey fine to coarse sandy fine to coarse GRAVEL
TPH03	6	B	1.40	-		Grey slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH03	9	B	2.40	-		Grey silty fine to coarse sandy fine to coarse GRAVEL
TPH04	3	B	0.40	-		Grey fine to coarse sandy silty clayey fine to coarse GRAVEL
TPH04	5	B	1.00	-		Dark grey slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH04	8	B	1.30	-		Grey slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH05	3	B	0.50	-		Brown silty fine to coarse sandy fine to coarse GRAVEL
TPH05	9	B	1.90	-		Grey slightly fine gravelly silty clayey fine to coarse SAND
TPH06	4	B	0.60	-		Grey silty fine to coarse sandy fine to coarse GRAVEL
TPH06	6	B	1.00	-		Grey slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH07	3	B	0.60	-		Grey slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH07	6	B	1.60	-		Grey slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH08	3	B	0.30	-		Grey/brown slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH08	6	B	1.00	-		Dark grey silty fine to coarse sandy fine to coarse GRAVEL
TPH08	9	B	2.00	-		Brown fine to medium gravelly clayey SILT
TPH09	3	B	0.30	-		Grey slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH09	6	B	0.90	-		Grey slightly silty fine to coarse sandy fine to coarse GRAVEL
TPH10	3	B	0.50	-		Grey/brown fine to coarse gravelly silty clayey fine to coarse SAND
TPH10	6	B	1.30	-		Grey slightly clayey slightly silty fine to coarse sandy fine to coarse GRAVEL
				-		
				-		

Operators	Checked	06/08/2017	Sean Penn	
RO/MH	Approved	07/08/2017	Ben Sharp	

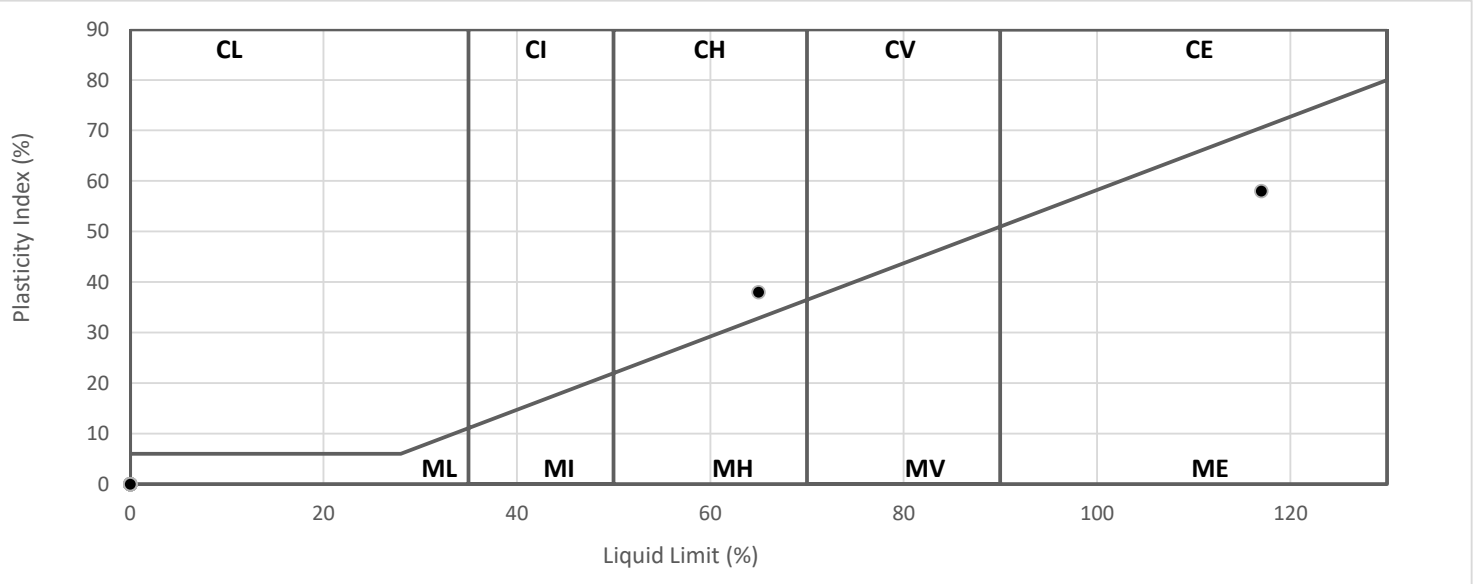
UKAS TESTING
2788

GSTL	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377 : Part 2 : 1990 Method 5)	
Contract Number	36059	
Site Name	Harbourside, Port Talbot	

TP Trialpit	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing .425mm %	Remarks
TPH01	3	B	0.40	-		12					
TPH02	5	B	0.90	-		8.3					
TPH02	8	B	2.00	-		13					
TPH03	3	B	0.40	-		11					
TPH03	6	B	1.40	-		9.4					
TPH03	9	B	2.40	-		14					
TPH04	3	B	0.40	-		7.6					
TPH04	5	B	1.00	-		9.3					
TPH04	8	B	1.30	-		20					
TPH05	3	B	0.50	-		8.3					
TPH05	9	B	1.90	-		47	65	27	38	87	CH High Plasticity
TPH06	4	B	0.60	-		7					
TPH06	6	B	1.00	-		11					
TPH07	3	B	0.60	-		7.7					
TPH07	6	B	1.60	-		12					
TPH08	3	B	0.30	-		12					
TPH08	6	B	1.00	-		19					
TPH08	9	B	2.00	-		94	117	59	58	83	ME Extremely High Plasticity
TPH09	3	B	0.30	-		4.5					
TPH09	6	B	0.90	-		5.1					
TPH10	3	B	0.50	-		37					
TPH10	6	B	1.30	-		14		NP		7	
				-							
				-							

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

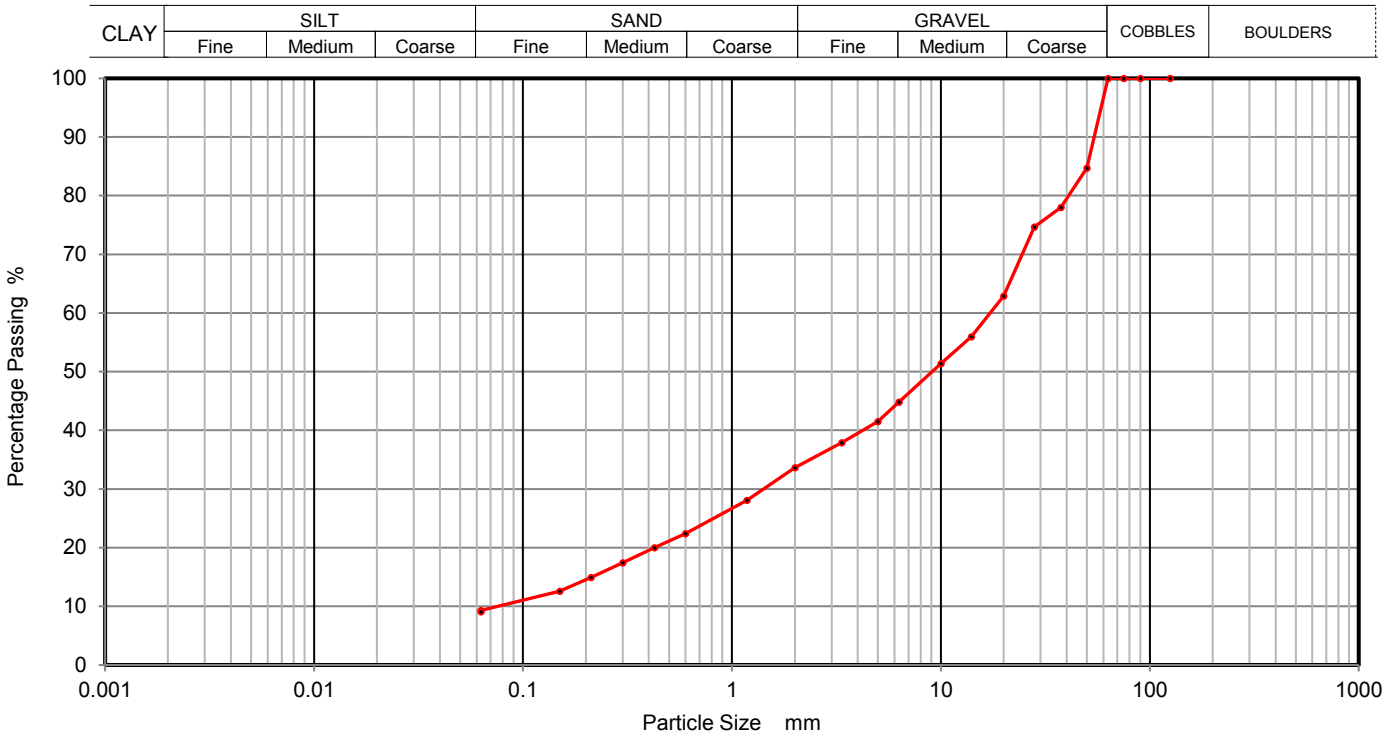
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators	Checked	06/08/2017	Sean Penn	
DB	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH01
Site Name	Harbourside, Port Talbot	Sample No.	3
Soil Description	Grey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	0.40
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	85		
37.5	78		
28	75		
20	63		
14	56		
10	51		
6.3	45		
5	42		
3.35	38		
2	34		
1.18	28		
0.6	22		
0.425	20		
0.3	17		
0.212	15		
0.15	13		
0.063	9		

Sample Proportions	% dry mass
Cobbles	0
Gravel	66
Sand	25
Silt and Clay	9

Grading Analysis	
Uniformity Coefficient	

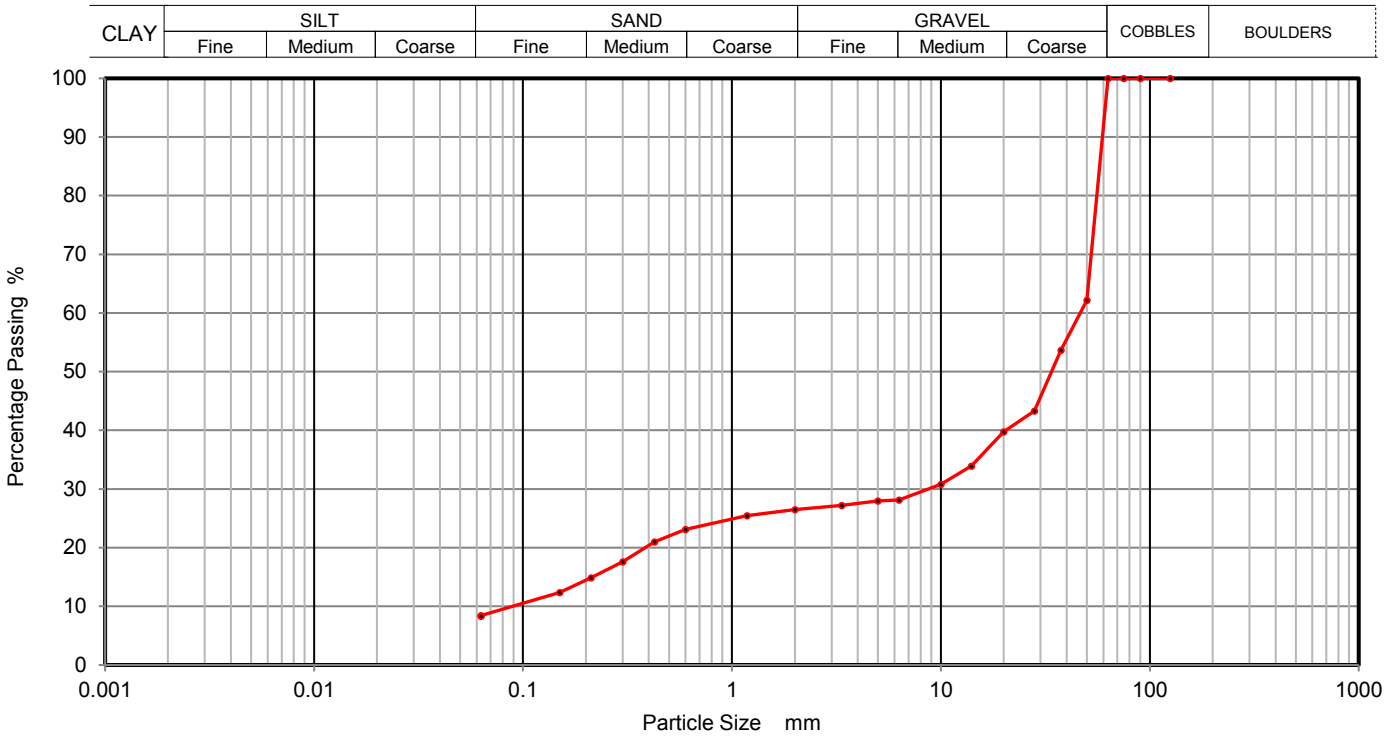
Remarks

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RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH02
Site Name	Harbourside, Port Talbot	Sample No.	5
Soil Description	Brown slightly clayey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	0.90
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	62		
37.5	54		
28	43		
20	40		
14	34		
10	31		
6.3	28		
5	28		
3.35	27		
2	27		
1.18	25		
0.6	23		
0.425	21		
0.3	18		
0.212	15		
0.15	12		
0.063	8		

Sample Proportions	% dry mass
Cobbles	0
Gravel	73
Sand	19
Silt and Clay	8

Grading Analysis	
Uniformity Coefficient	

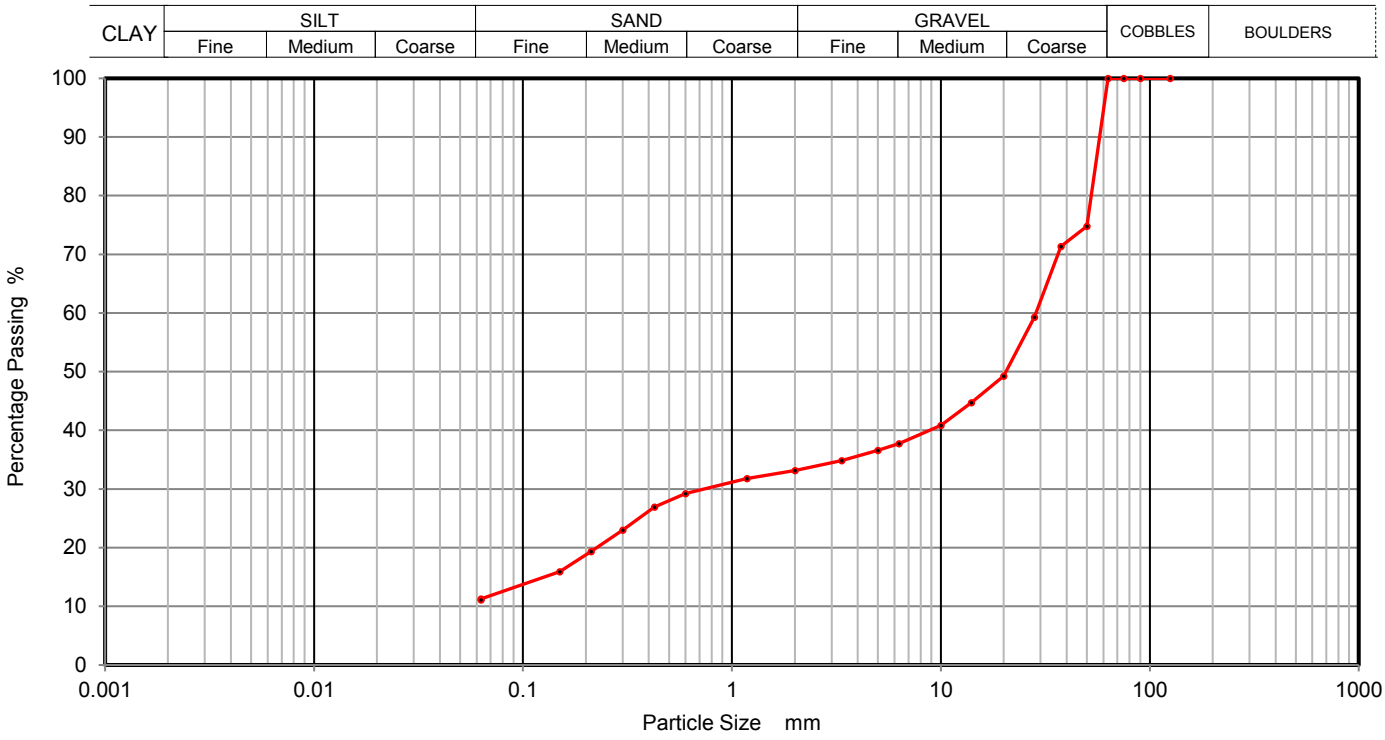
Remarks

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH02
Site Name	Harbourside, Port Talbot	Sample No.	8
Soil Description	Grey silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	2.00
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	75		
37.5	71		
28	59		
20	49		
14	45		
10	41		
6.3	38		
5	37		
3.35	35		
2	33		
1.18	32		
0.6	29		
0.425	27		
0.3	23		
0.212	19		
0.15	16		
0.063	11		

Sample Proportions	% dry mass
Cobbles	0
Gravel	67
Sand	22
Silt and Clay	11

Grading Analysis	
Uniformity Coefficient	

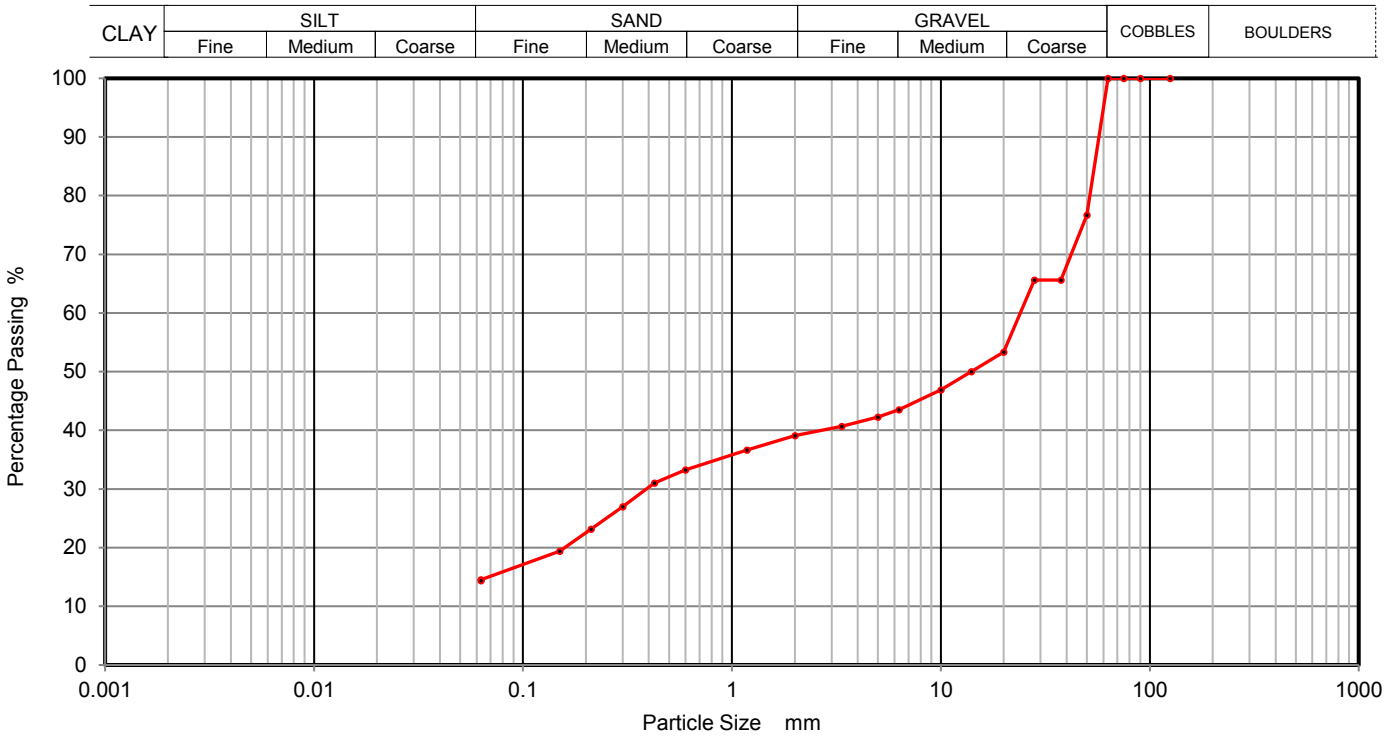
Remarks

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH03
Site Name	Harbourside, Port Talbot	Sample No.	3
Soil Description	Brown silty clayey fine to coarse sandy fine to coarse GRAVEL	Depth Top	0.40
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	77		
37.5	66		
28	66		
20	53		
14	50		
10	47		
6.3	43		
5	42		
3.35	41		
2	39		
1.18	37		
0.6	33		
0.425	31		
0.3	27		
0.212	23		
0.15	19		
0.063	15		

Sample Proportions	% dry mass
Cobbles	0
Gravel	61
Sand	24
Silt and Clay	15

Grading Analysis	
Uniformity Coefficient	

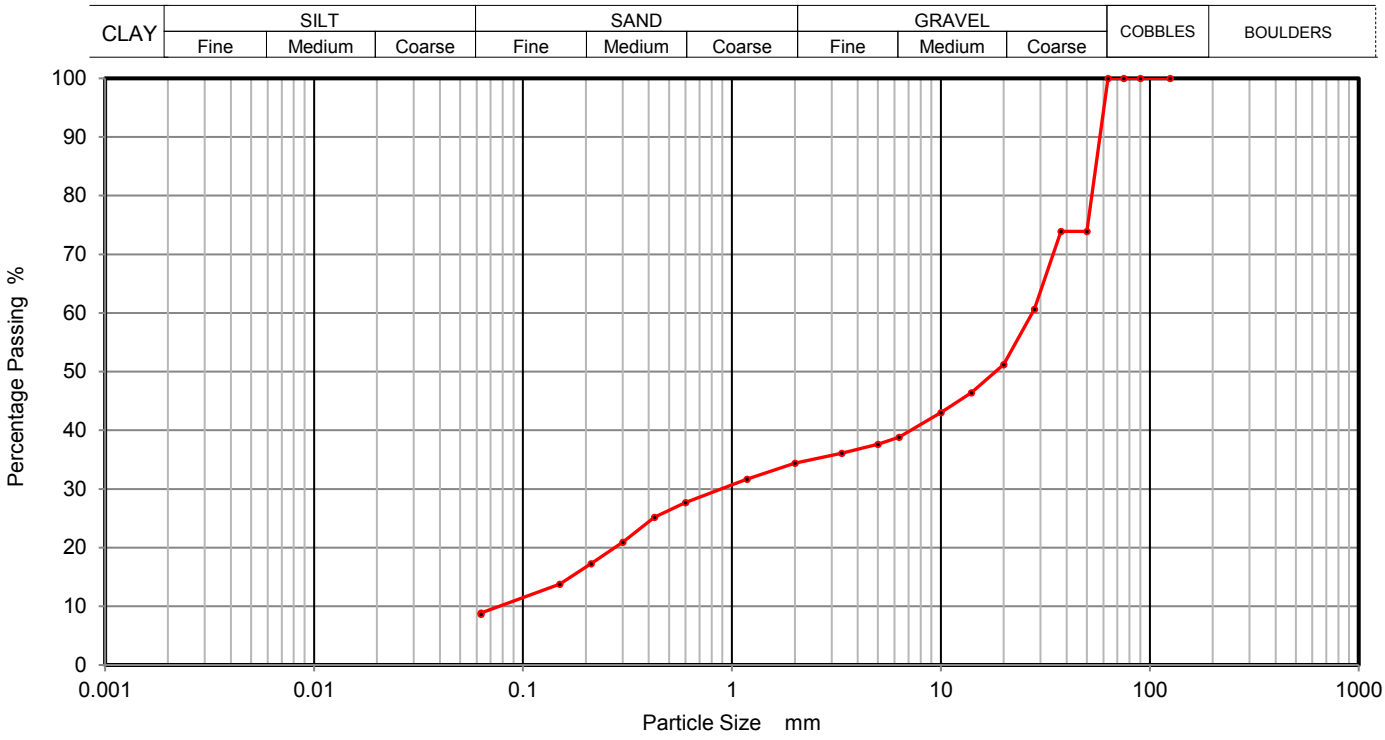
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RO/MH	Approved	07/08/2017	Ben Sharp	

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH03
Site Name	Harbourside, Port Talbot	Sample No.	6
Soil Description	Grey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.40
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	74		
37.5	74		
28	61		
20	51		
14	46		
10	43		
6.3	39		
5	38		
3.35	36		
2	34		
1.18	32		
0.6	28		
0.425	25		
0.3	21		
0.212	17		
0.15	14		
0.063	9		

Sample Proportions	% dry mass
Cobbles	0
Gravel	66
Sand	25
Silt and Clay	9

Grading Analysis	
Uniformity Coefficient	

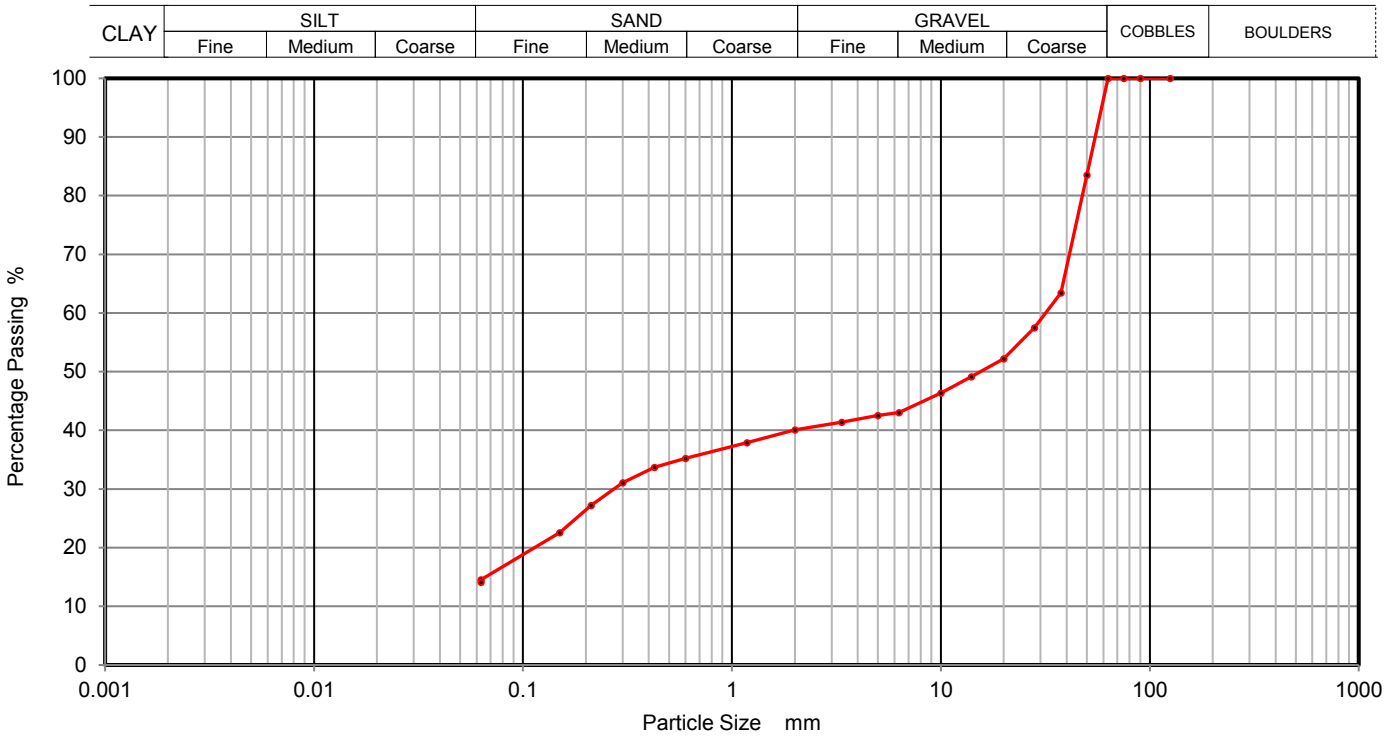
Remarks

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH03
Site Name	Harbourside, Port Talbot	Sample No.	9
Soil Description	Grey silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	2.40
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	84		
37.5	63		
28	57		
20	52		
14	49		
10	46		
6.3	43		
5	43		
3.35	41		
2	40		
1.18	38		
0.6	35		
0.425	34		
0.3	31		
0.212	27		
0.15	23		
0.063	15		

Sample Proportions	% dry mass
Cobbles	0
Gravel	60
Sand	25
Silt and Clay	15

Grading Analysis	
Uniformity Coefficient	

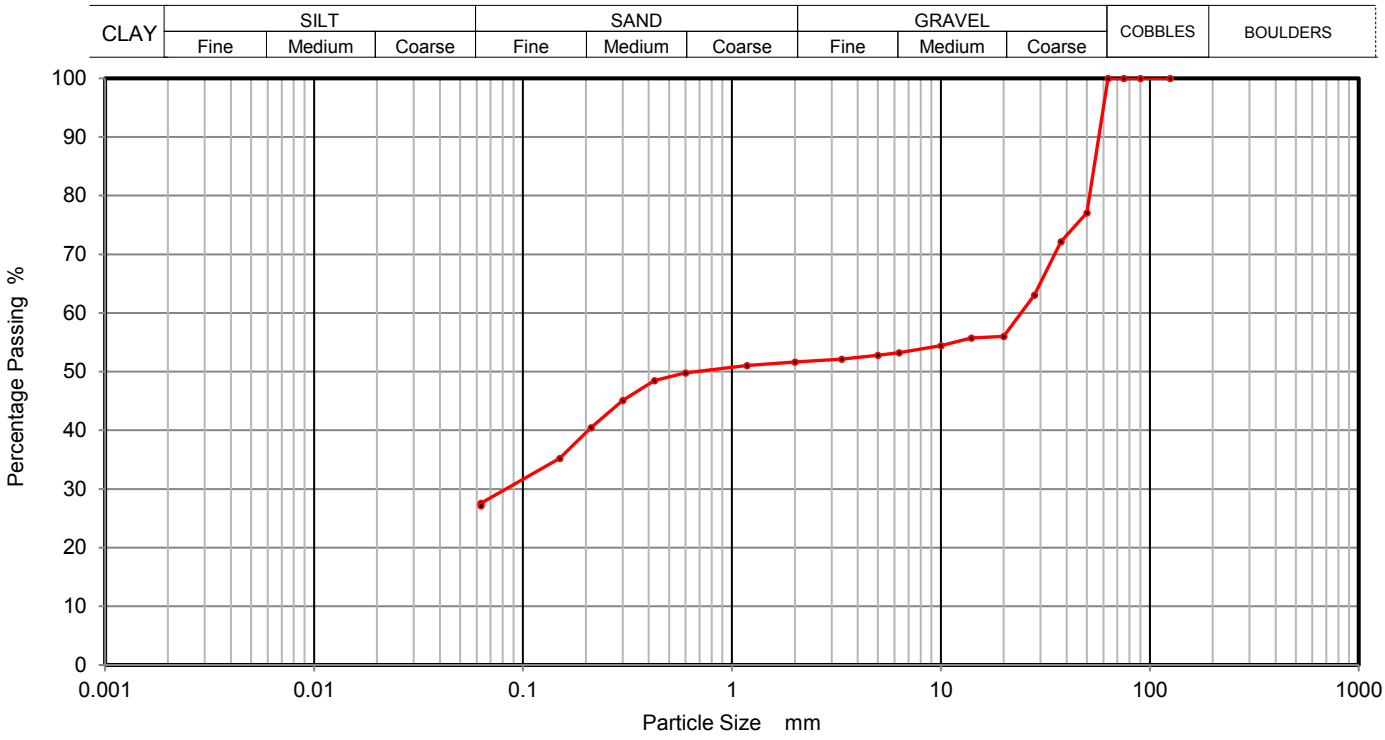
Remarks

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH04
Site Name	Harbourside, Port Talbot	Sample No.	3
Soil Description	Grey fine to coarse sandy silty clayey fine to coarse GRAVEL	Depth Top	0.40
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	77		
37.5	72		
28	63		
20	56		
14	56		
10	54		
6.3	53		
5	53		
3.35	52		
2	52		
1.18	51		
0.6	50		
0.425	49		
0.3	45		
0.212	40		
0.15	35		
0.063	28		

Sample Proportions	% dry mass
Cobbles	0
Gravel	48
Sand	24
Silt and Clay	28

Grading Analysis	
Uniformity Coefficient	

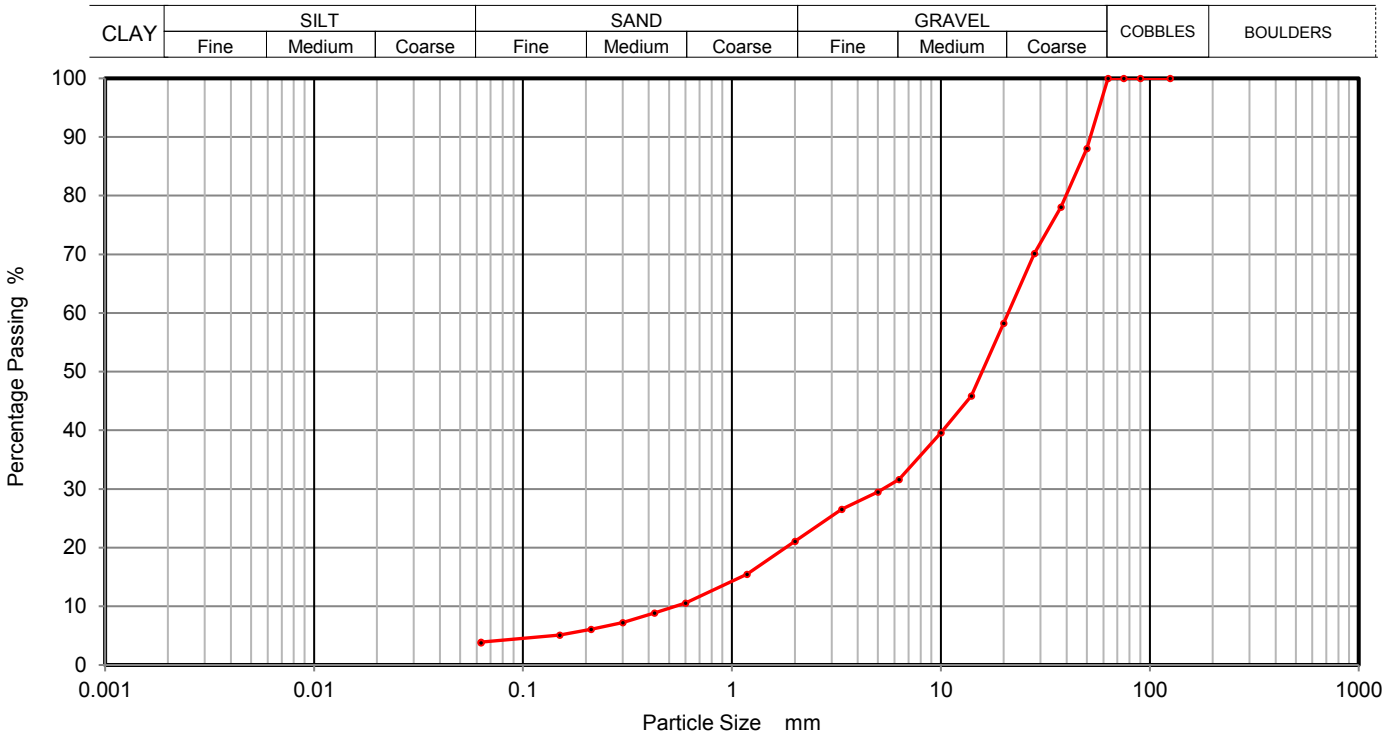
Remarks

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RO/MH	Approved	07/08/2017	Ben Sharp	

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH04
Site Name	Harbourside, Port Talbot	Sample No.	5
Soil Description	Dark grey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.00
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	88		
37.5	78		
28	70		
20	58		
14	46		
10	40		
6.3	32		
5	29		
3.35	27		
2	21		
1.18	15		
0.6	11		
0.425	9		
0.3	7		
0.212	6		
0.15	5		
0.063	4		

Sample Proportions	% dry mass
Cobbles	0
Gravel	79
Sand	17
Silt and Clay	4

Grading Analysis	
Uniformity Coefficient	

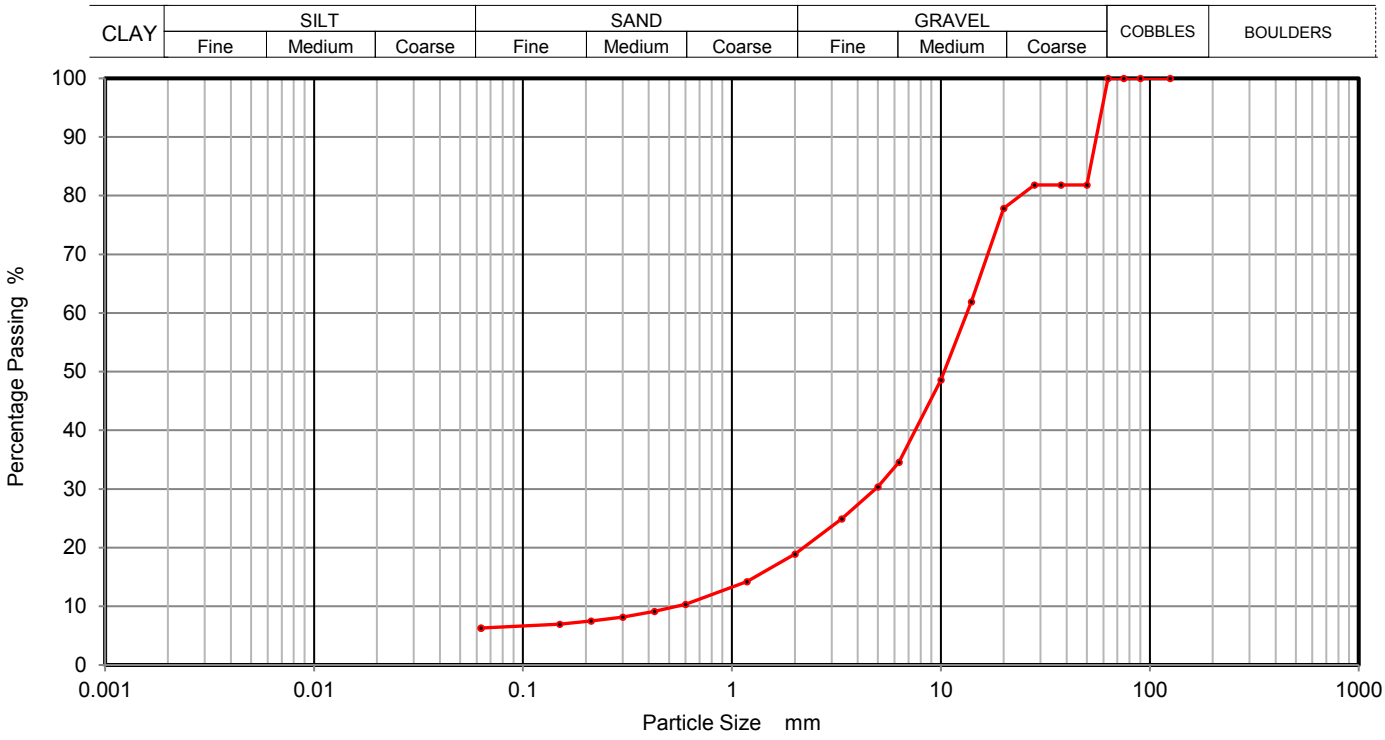
Remarks

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RO/MH	Approved	07/08/2017	Ben Sharp	

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH04
Site Name	Harbourside, Port Talbot	Sample No.	8
Soil Description	Grey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.30
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	82		
37.5	82		
28	82		
20	78		
14	62		
10	49		
6.3	35		
5	30		
3.35	25		
2	19		
1.18	14		
0.6	10		
0.425	9		
0.3	8		
0.212	7		
0.15	7		
0.063	6		

Sample Proportions	% dry mass
Cobbles	0
Gravel	81
Sand	13
Silt and Clay	6

Grading Analysis	
Uniformity Coefficient	

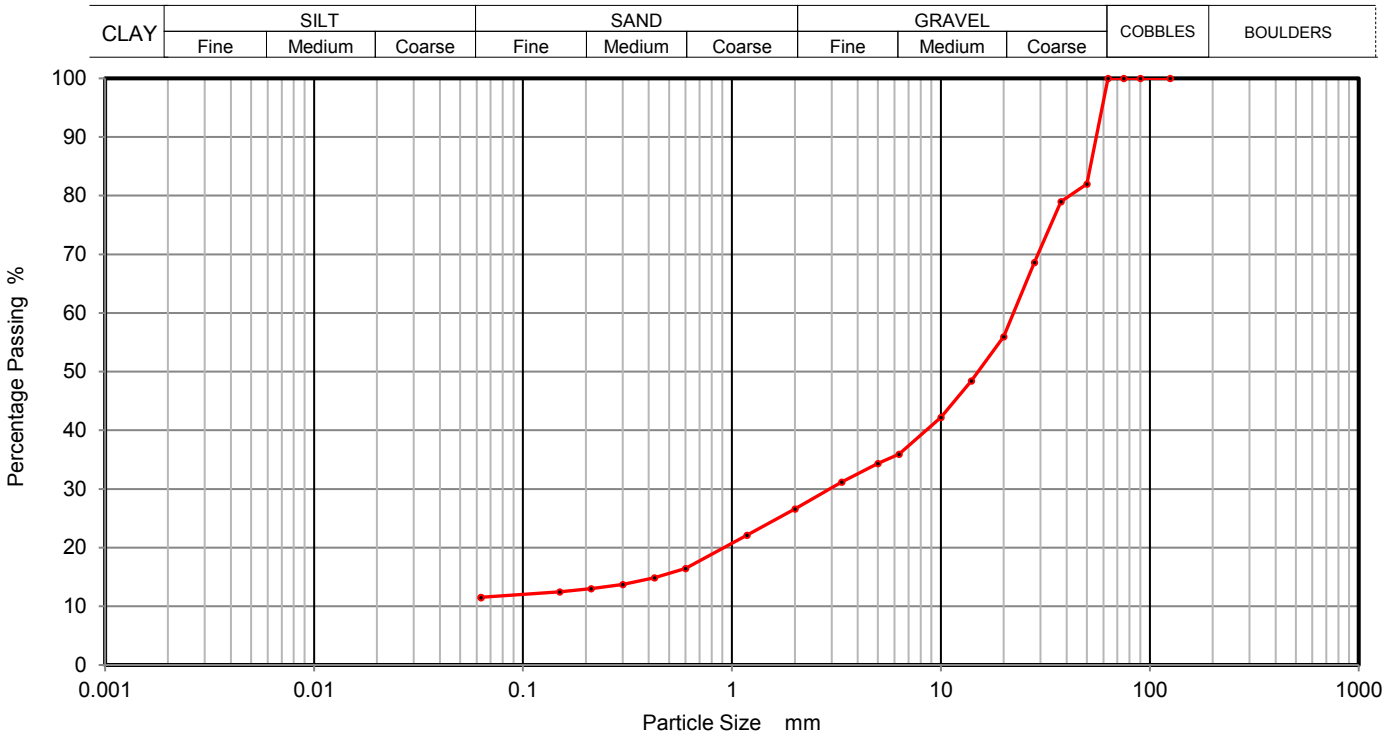
Remarks

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GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH05
Site Name	Harbourside, Port Talbot	Sample No.	3
Soil Description	Brown silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	0.50
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	82		
37.5	79		
28	69		
20	56		
14	48		
10	42		
6.3	36		
5	34		
3.35	31		
2	27		
1.18	22		
0.6	16		
0.425	15		
0.3	14		
0.212	13		
0.15	12		
0.063	12		

Sample Proportions	% dry mass
Cobbles	0
Gravel	73
Sand	15
Silt and Clay	12

Grading Analysis	
Uniformity Coefficient	

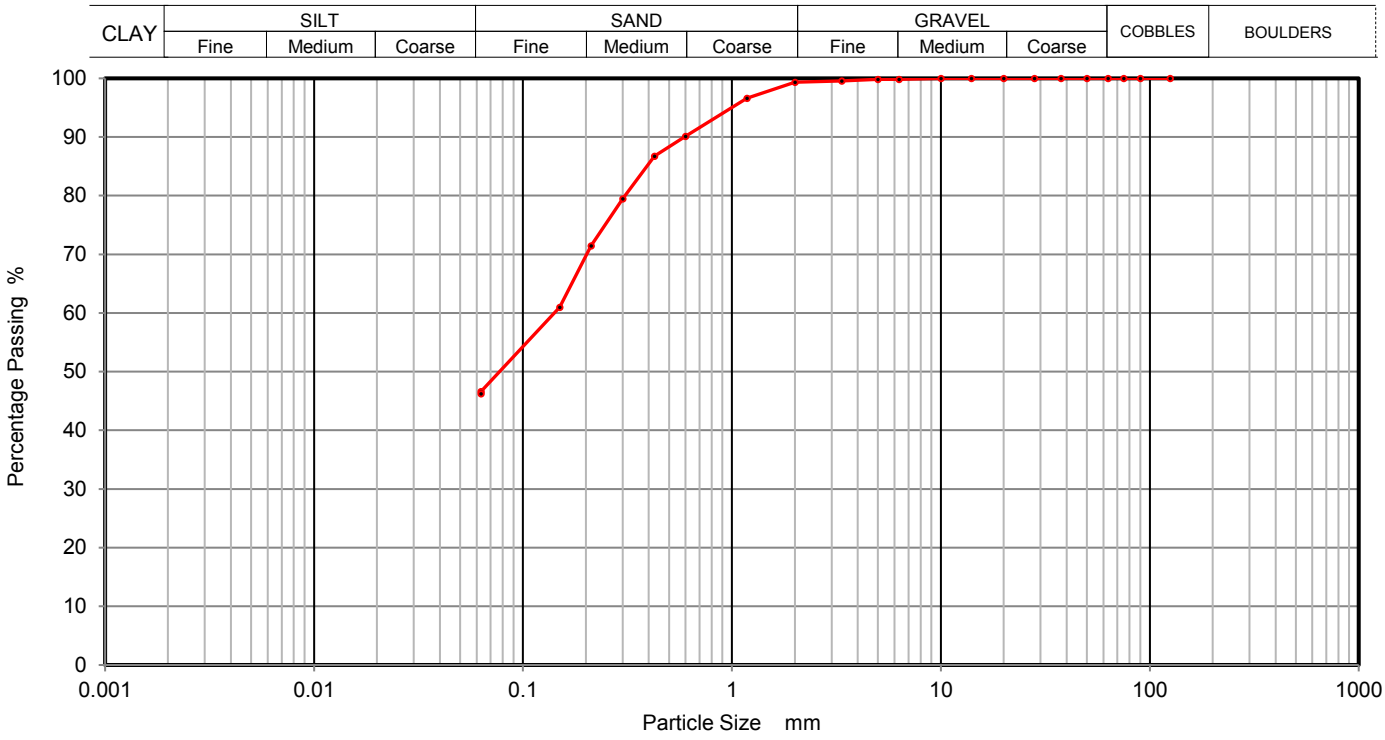
Remarks

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RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH05
Site Name	Harbourside, Port Talbot	Sample No.	9
Soil Description	Grey slightly fine gravelly silty clayey fine to coarse SAND	Depth Top	1.90
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	97		
0.6	90		
0.425	87		
0.3	79		
0.212	71		
0.15	61		
0.063	47		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	52
Silt and Clay	47

Grading Analysis	
Uniformity Coefficient	

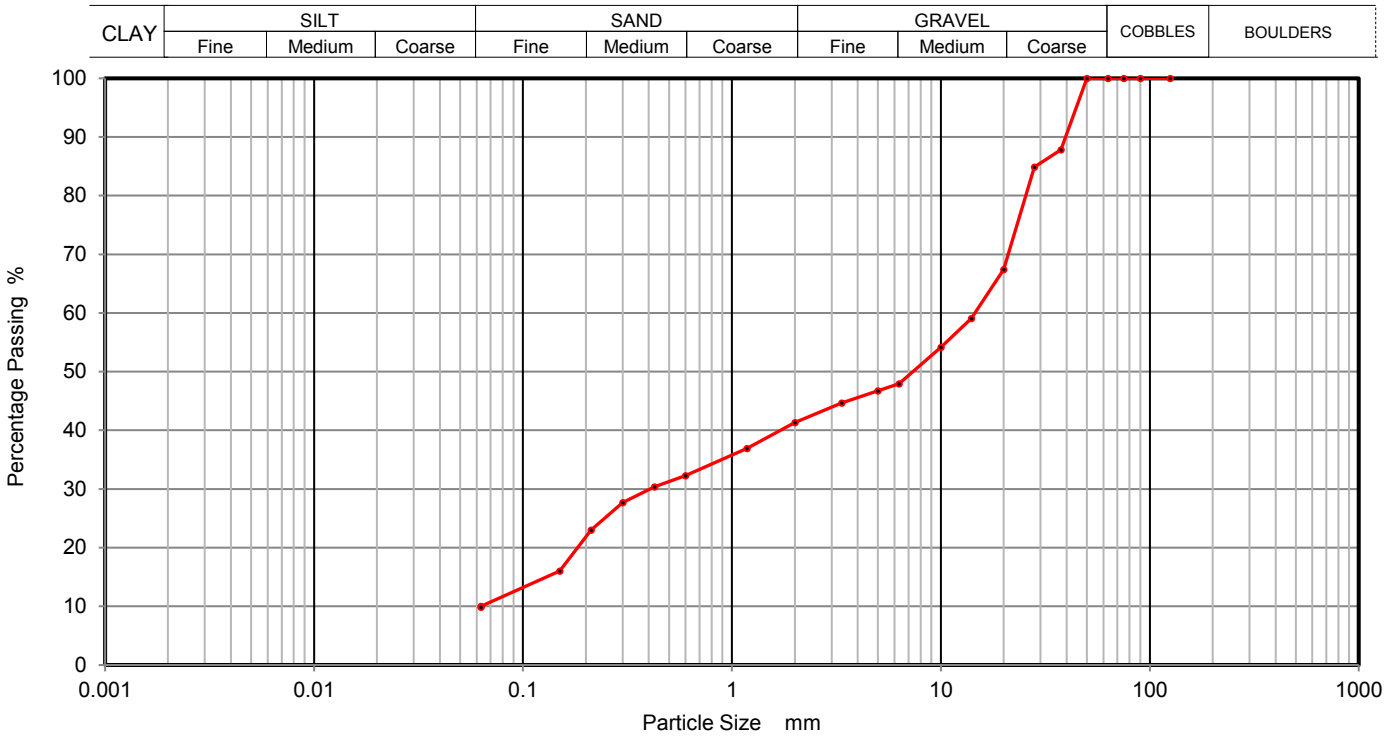
Remarks

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RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH06
Site Name	Harbourside, Port Talbot	Sample No.	4
Soil Description	Grey silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	0.60
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	100		
37.5	88		
28	85		
20	67		
14	59		
10	54		
6.3	48		
5	47		
3.35	45		
2	41		
1.18	37		
0.6	32		
0.425	30		
0.3	28		
0.212	23		
0.15	16		
0.063	10		

Sample Proportions	% dry mass
Cobbles	0
Gravel	59
Sand	31
Silt and Clay	10

Grading Analysis	
Uniformity Coefficient	

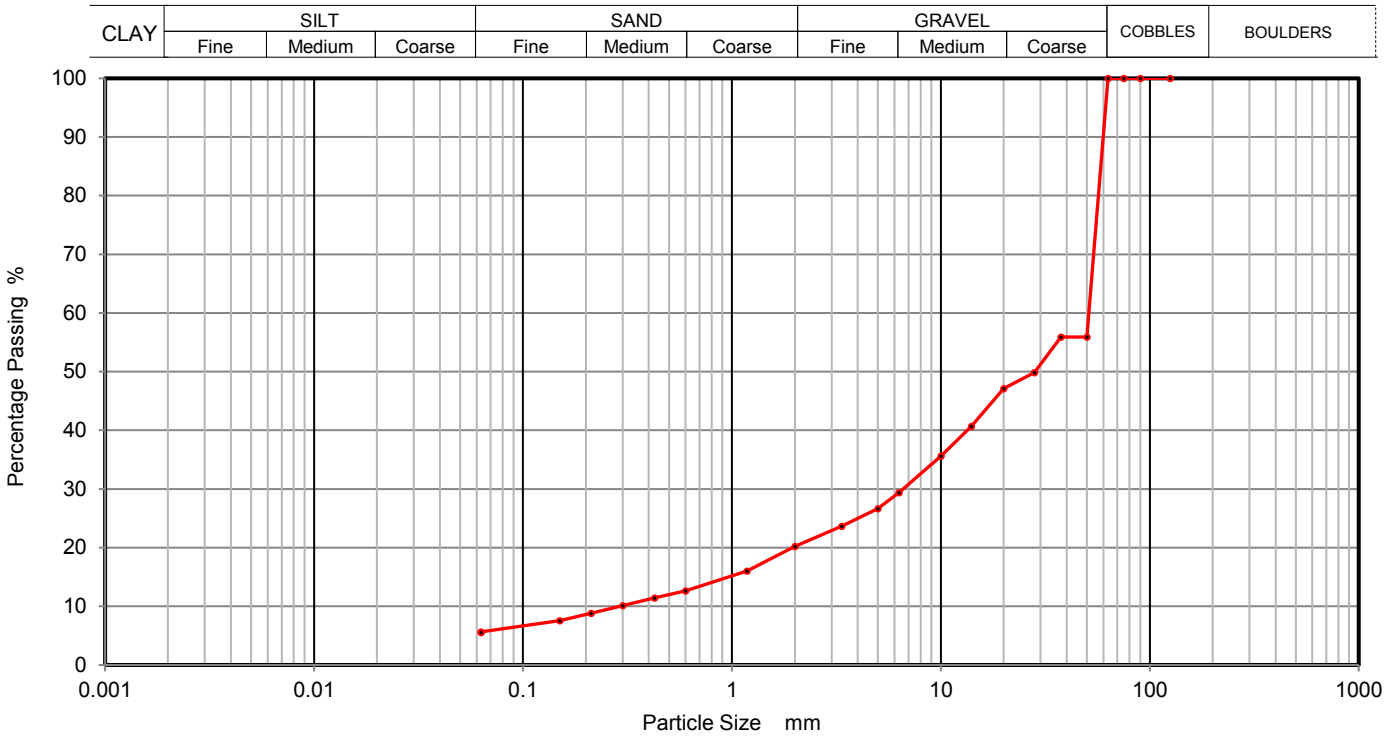
Remarks

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RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH06
Site Name	Harbourside, Port Talbot	Sample No.	6
Soil Description	Grey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.00
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	56		
37.5	56		
28	50		
20	47		
14	41		
10	36		
6.3	29		
5	27		
3.35	24		
2	20		
1.18	16		
0.6	13		
0.425	11		
0.3	10		
0.212	9		
0.15	8		
0.063	6		

Sample Proportions	% dry mass
Cobbles	0
Gravel	80
Sand	14
Silt and Clay	6

Grading Analysis	
Uniformity Coefficient	

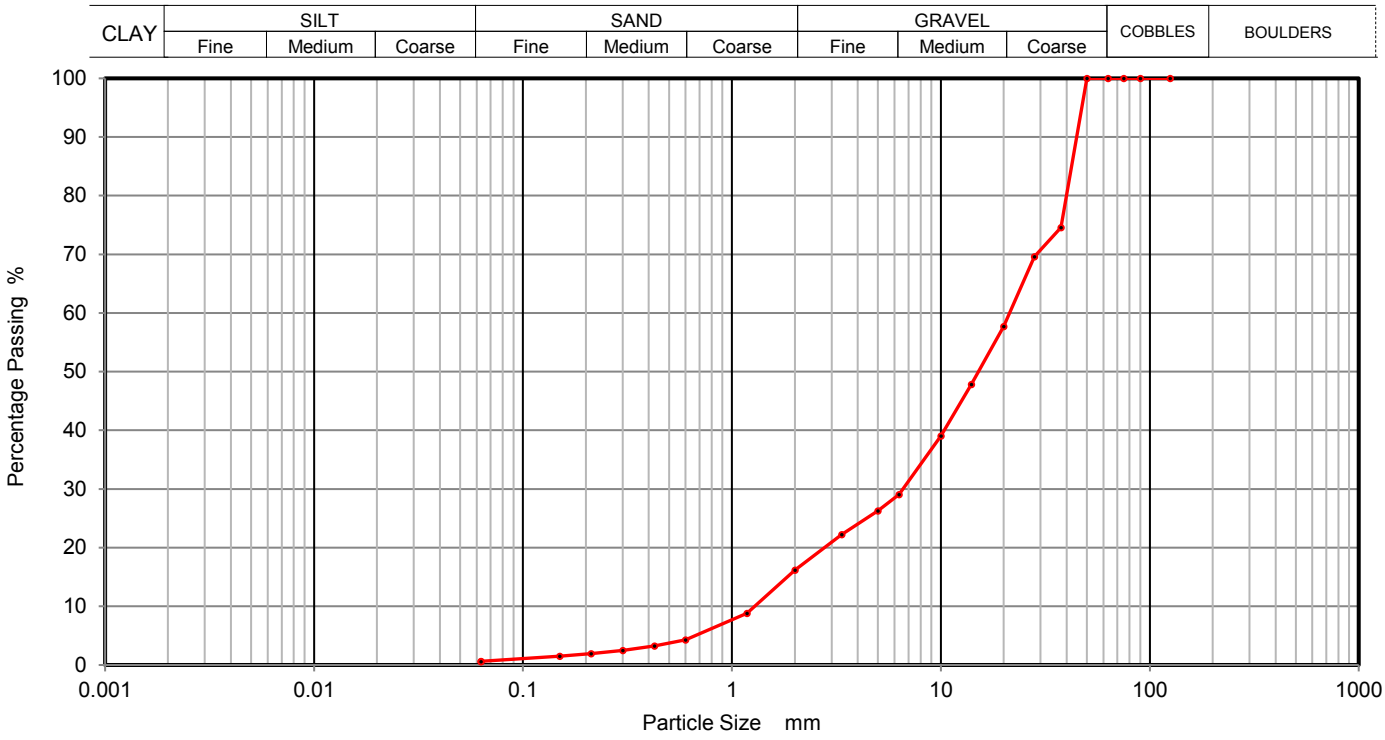
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/08/2017	Sean Penn	
RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH07
Site Name	Harbourside, Port Talbot	Sample No.	3
Soil Description	Grey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	0.60
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	100		
37.5	75		
28	70		
20	58		
14	48		
10	39		
6.3	29		
5	26		
3.35	22		
2	16		
1.18	9		
0.6	4		
0.425	3		
0.3	2		
0.212	2		
0.15	1		
0.063	1		

Sample Proportions	% dry mass
Cobbles	0
Gravel	84
Sand	15
Silt and Clay	1

Grading Analysis	
Uniformity Coefficient	

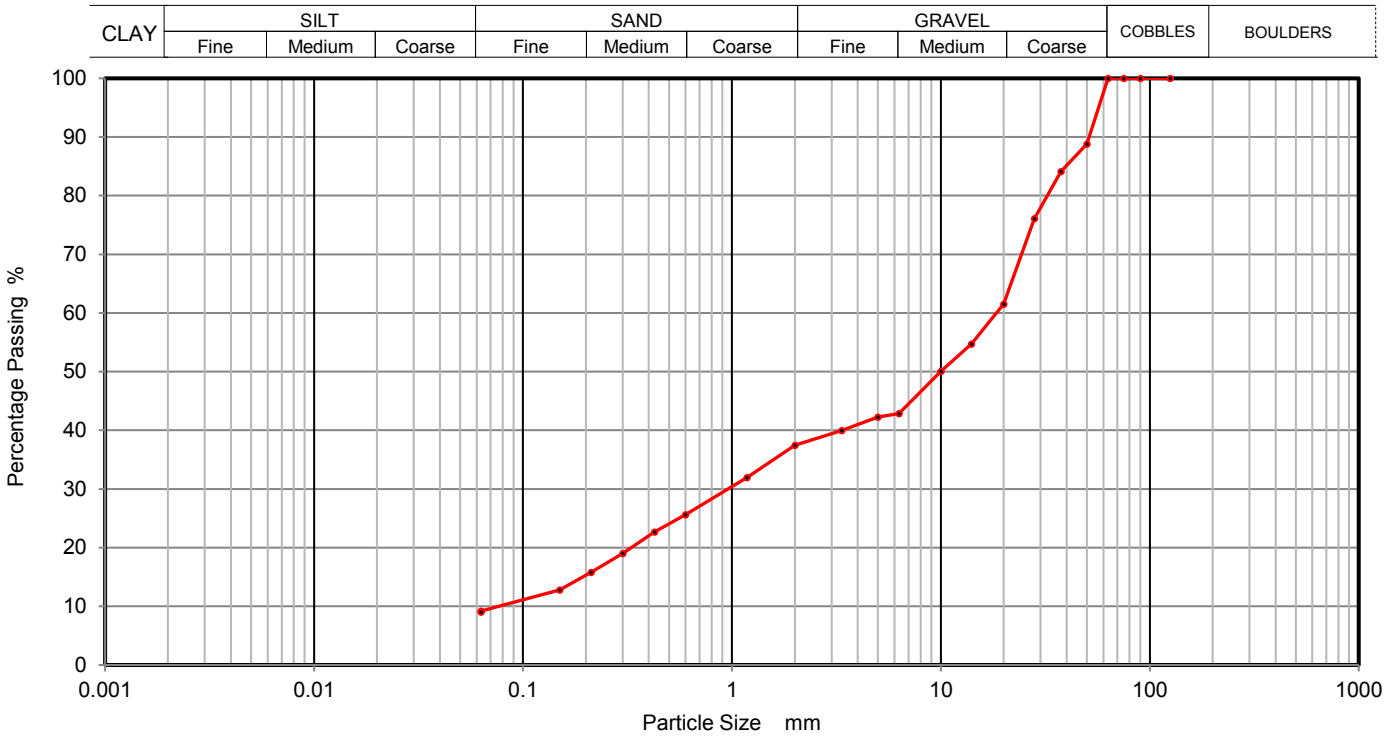
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/08/2017	Sean Penn	
RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH07
Site Name	Harbourside, Port Talbot	Sample No.	6
Soil Description	Grey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.60
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	89		
37.5	84		
28	76		
20	62		
14	55		
10	50		
6.3	43		
5	42		
3.35	40		
2	37		
1.18	32		
0.6	26		
0.425	23		
0.3	19		
0.212	16		
0.15	13		
0.063	9		

Sample Proportions	% dry mass
Cobbles	0
Gravel	63
Sand	28
Silt and Clay	9

Grading Analysis	
Uniformity Coefficient	

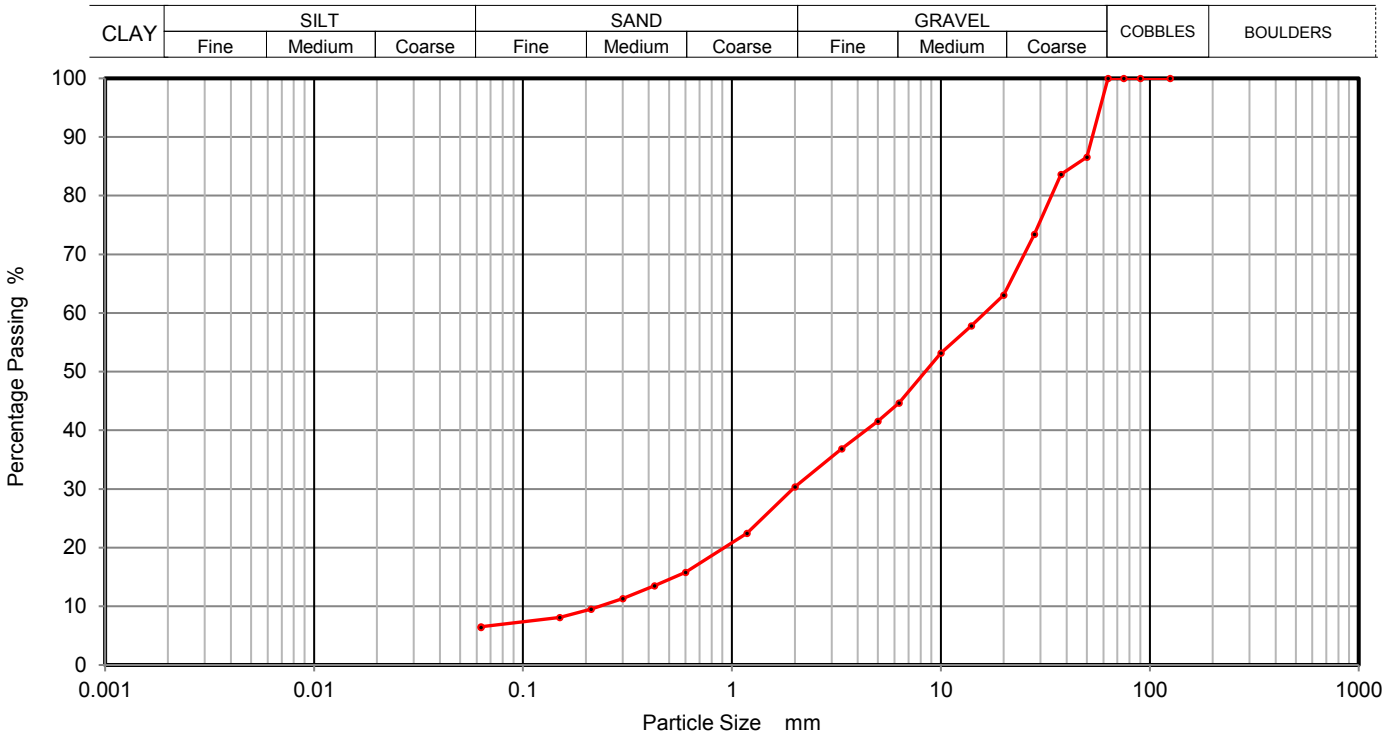
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/08/2017	Sean Penn	
RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH08
Site Name	Harbourside, Port Talbot	Sample No.	3
Soil Description	Grey/brown slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	0.30
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	87		
37.5	84		
28	73		
20	63		
14	58		
10	53		
6.3	45		
5	42		
3.35	37		
2	30		
1.18	22		
0.6	16		
0.425	14		
0.3	11		
0.212	10		
0.15	8		
0.063	7		

Sample Proportions	% dry mass
Cobbles	0
Gravel	70
Sand	23
Silt and Clay	7

Grading Analysis	
Uniformity Coefficient	

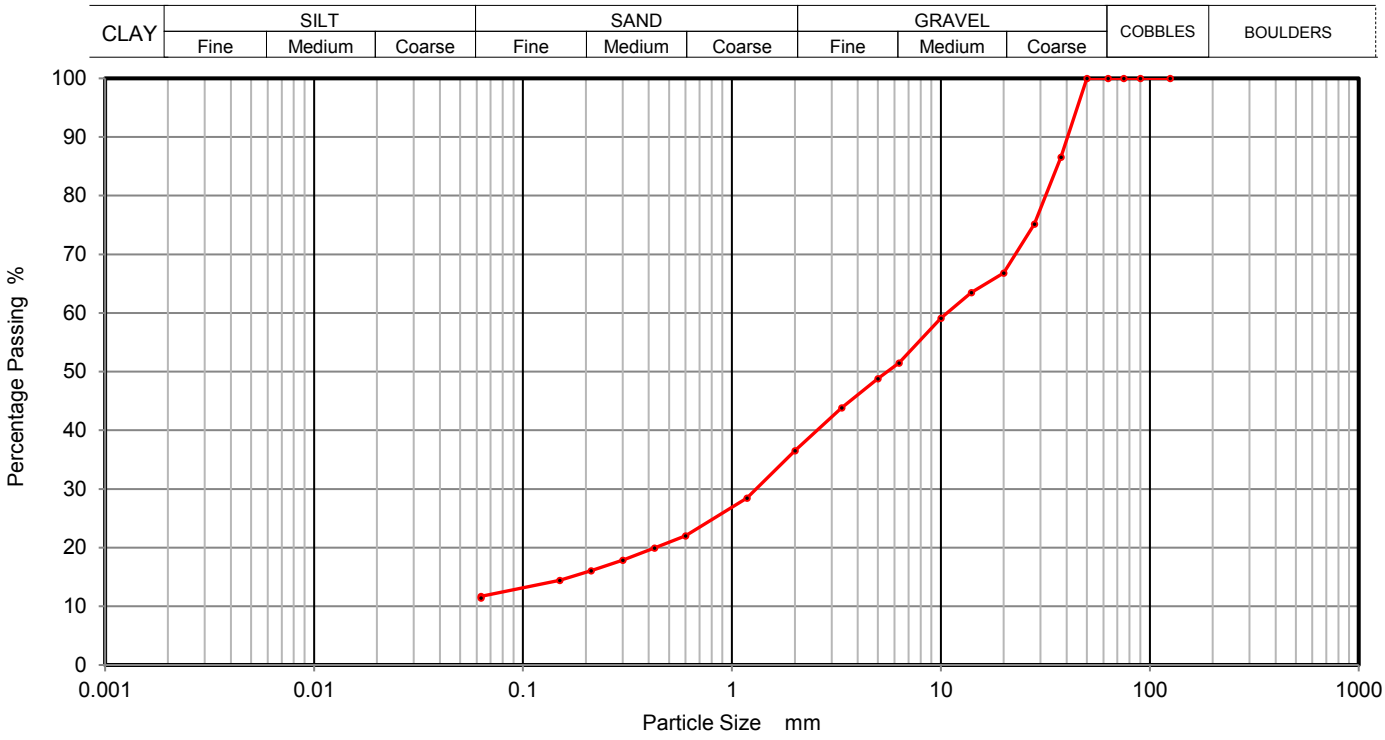
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/08/2017	Sean Penn	
RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH08
Site Name	Harbourside, Port Talbot	Sample No.	6
Soil Description	Dark grey silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.00
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	100		
37.5	87		
28	75		
20	67		
14	63		
10	59		
6.3	51		
5	49		
3.35	44		
2	37		
1.18	28		
0.6	22		
0.425	20		
0.3	18		
0.212	16		
0.15	14		
0.063	12		

Sample Proportions	% dry mass
Cobbles	0
Gravel	63
Sand	25
Silt and Clay	12

Grading Analysis	
Uniformity Coefficient	

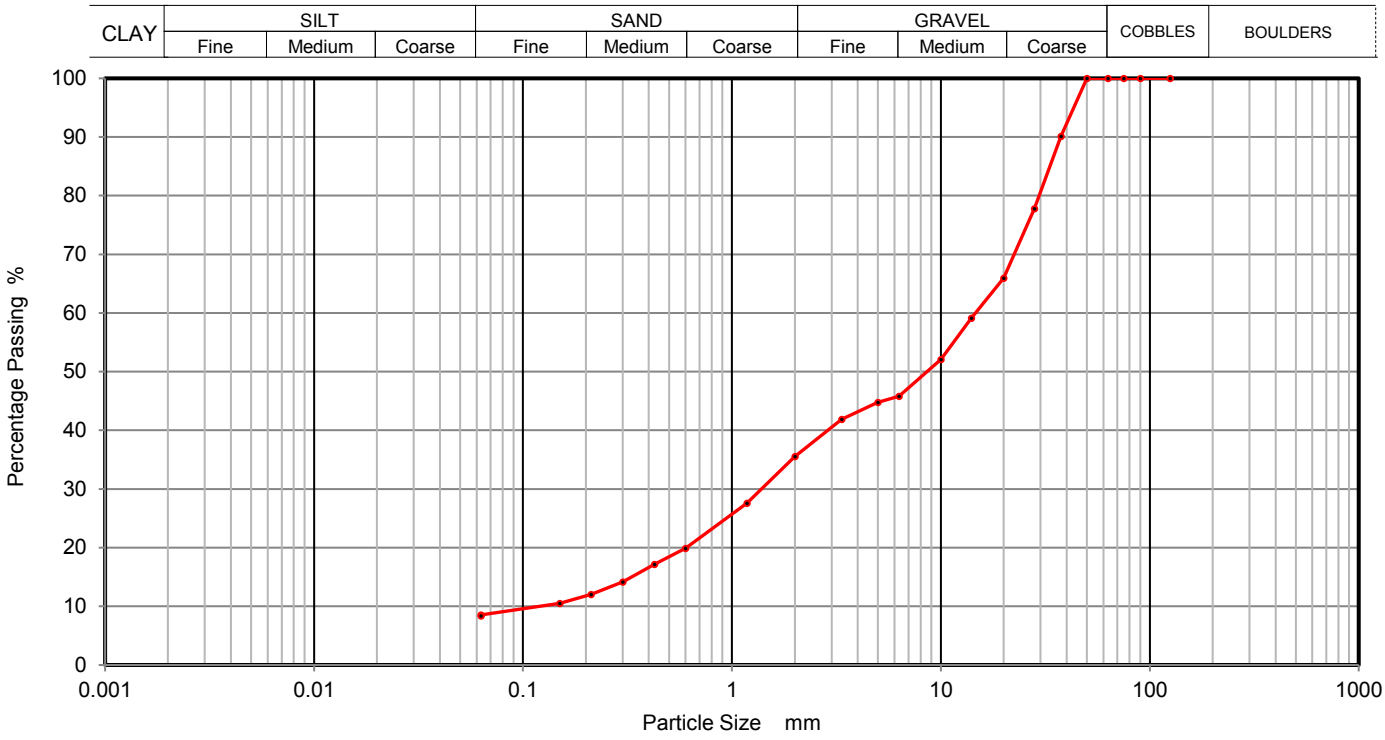
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/08/2017	Sean Penn	
RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH09
Site Name	Harbourside, Port Talbot	Sample No.	3
Soil Description	Grey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	0.30
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	100		
37.5	90		
28	78		
20	66		
14	59		
10	52		
6.3	46		
5	45		
3.35	42		
2	36		
1.18	28		
0.6	20		
0.425	17		
0.3	14		
0.212	12		
0.15	11		
0.063	9		

Sample Proportions	% dry mass
Cobbles	0
Gravel	64
Sand	27
Silt and Clay	9

Grading Analysis	
Uniformity Coefficient	

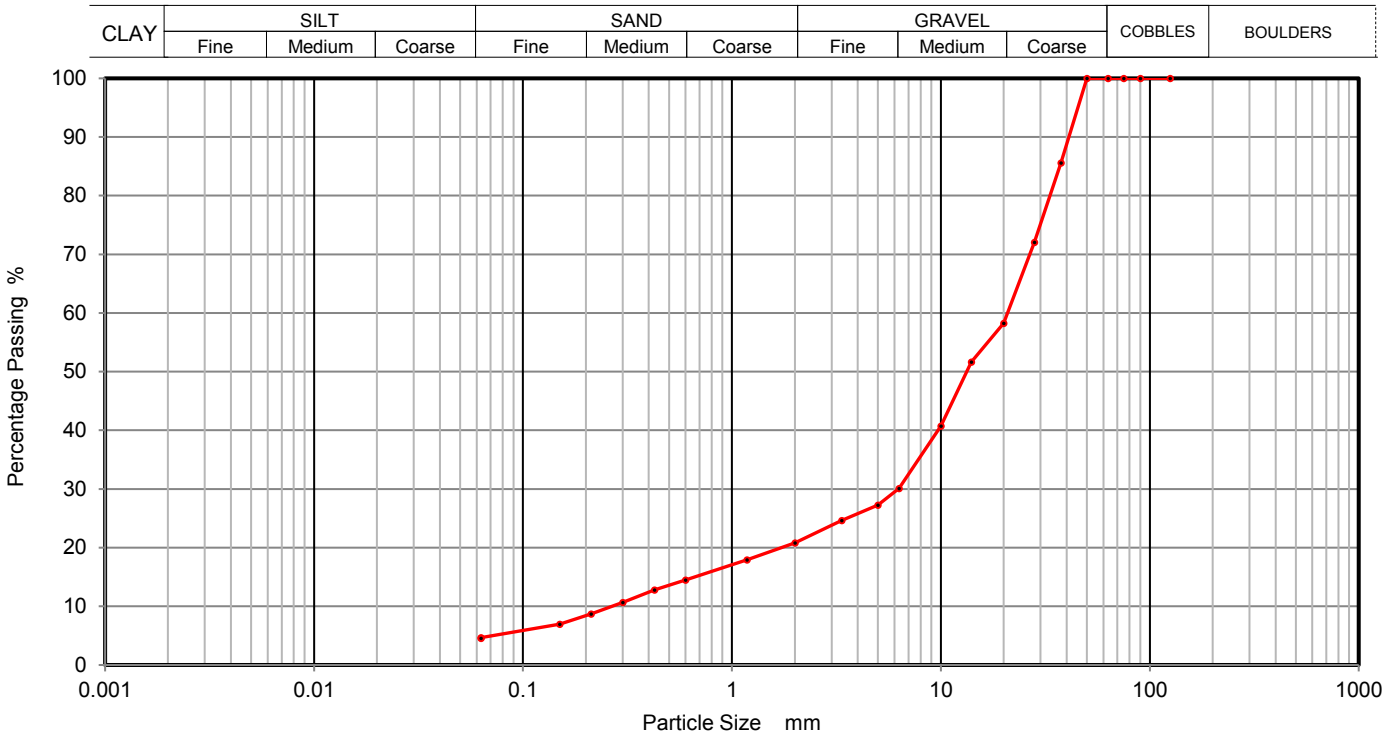
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/08/2017	Sean Penn	
RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH09
Site Name	Harbourside, Port Talbot	Sample No.	6
Soil Description	Grey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	0.90
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	100		
37.5	86		
28	72		
20	58		
14	52		
10	41		
6.3	30		
5	27		
3.35	25		
2	21		
1.18	18		
0.6	14		
0.425	13		
0.3	11		
0.212	9		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Cobbles	0
Gravel	79
Sand	16
Silt and Clay	5

Grading Analysis	
Uniformity Coefficient	

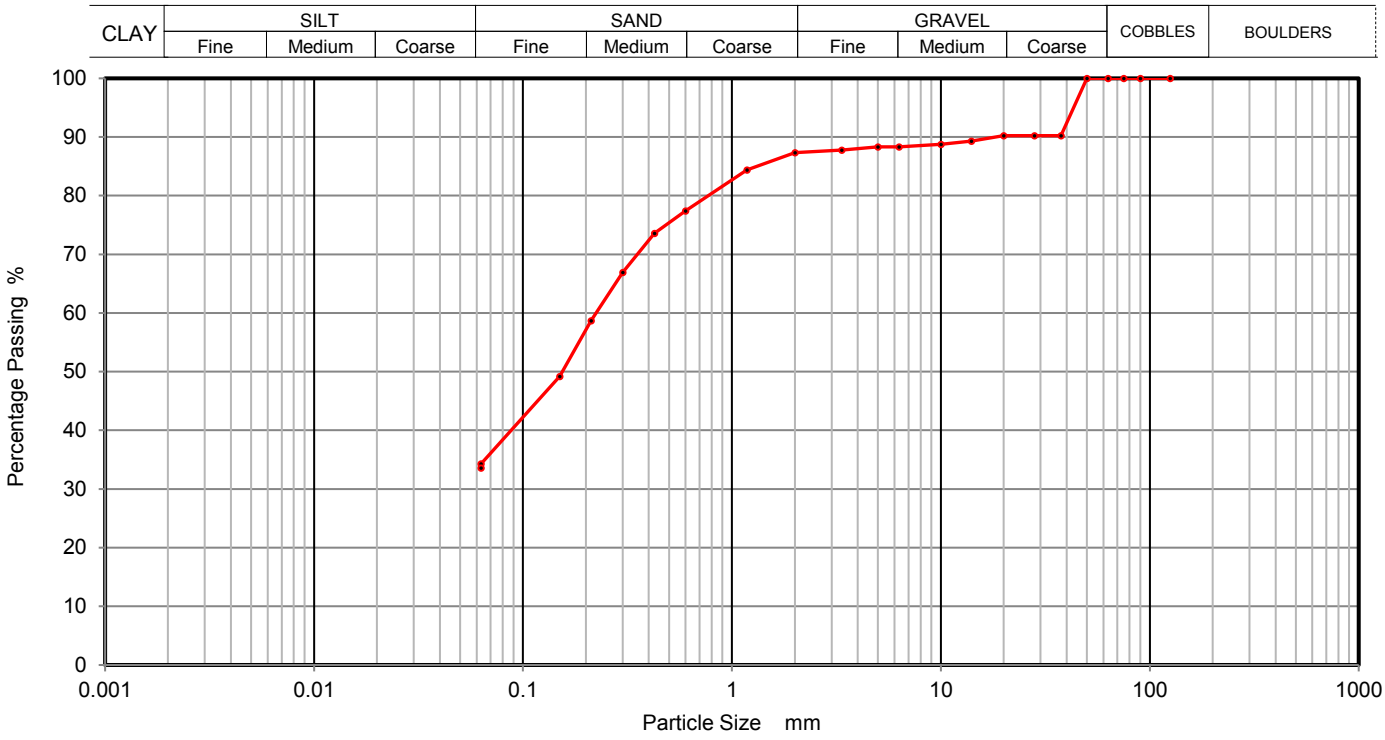
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/08/2017	Sean Penn	
RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH10
Site Name	Harbourside, Port Talbot	Sample No.	3
Soil Description	Grey/brown fine to coarse gravelly silty clayey fine to coarse SAND	Depth Top	0.50
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	100		
37.5	90		
28	90		
20	90		
14	89		
10	89		
6.3	88		
5	88		
3.35	88		
2	87		
1.18	84		
0.6	77		
0.425	74		
0.3	67		
0.212	59		
0.15	49		
0.063	34		

Sample Proportions	% dry mass
Cobbles	0
Gravel	13
Sand	53
Silt and Clay	34

Grading Analysis	
Uniformity Coefficient	

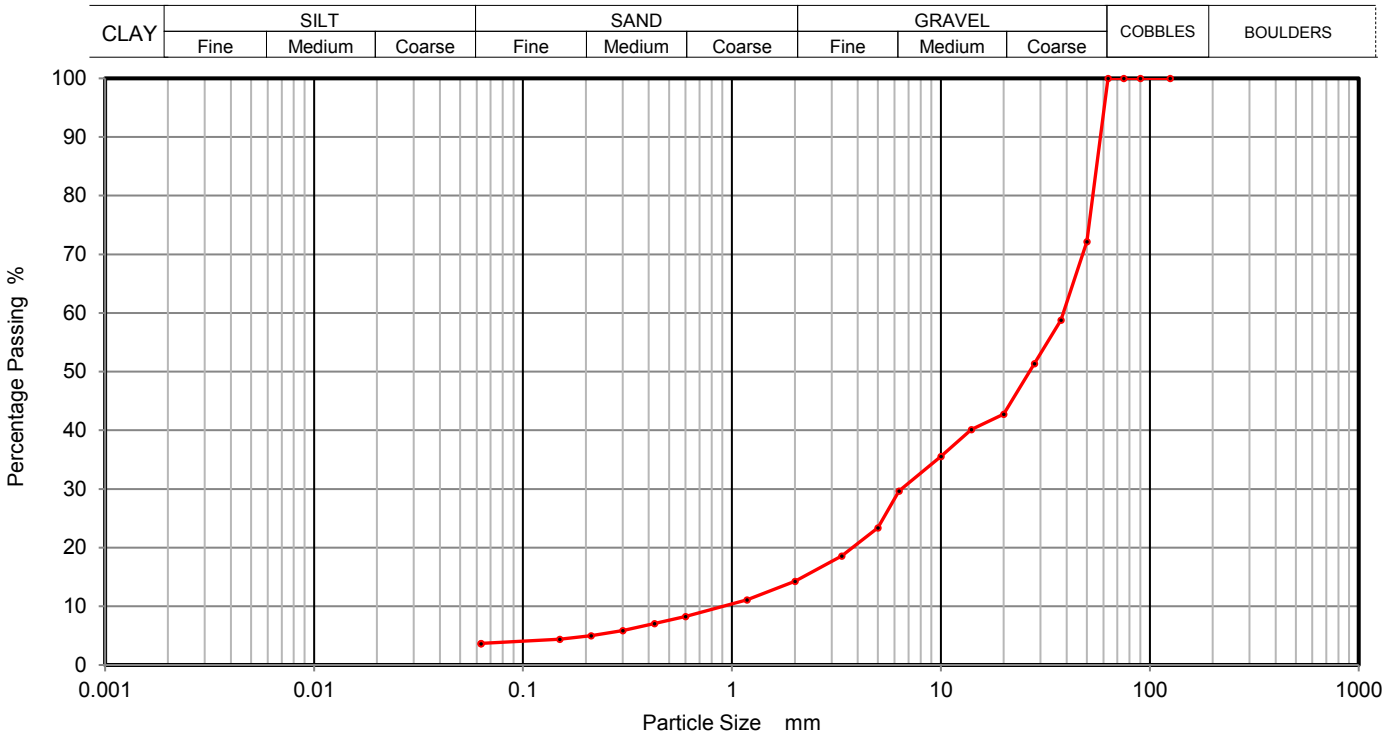
Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/08/2017	Sean Penn	
RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	PARTICLE SIZE DISTRIBUTION BS 1377 Part 2:1990 Wet Sieve, Clause 9.2	Contract Number	36059
		Borehole/Pit No.	TPH10
Site Name	**Harbourside, Port Talbot**	Sample No.	6
Soil Description	Grey slightly clayey slightly silty fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.30
		Depth Base	
		Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	
90	100	0.0060	
75	100	0.0019	
63	100		
50	72		
37.5	59		
28	51		
20	43		
14	40		
10	36		
6.3	30		
5	23		
3.35	19		
2	14		
1.18	11		
0.6	8		
0.425	7		
0.3	6		
0.212	5		
0.15	4		
0.063	4		

Sample Proportions	% dry mass
Cobbles	0
Gravel	86
Sand	10
Silt and Clay	4

Grading Analysis	
Uniformity Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	06/08/2017	Sean Penn	
RO/MH	Approved	07/08/2017	Ben Sharp	

UKAS TESTING 2788

GSTL	Certificate of Chemical Analysis (BRE BR 279)	Contract Number	36059
		Client Reference	G40066
Client	Quantum	Date Received	25/08/2017
Site Name	Harbourside	Date Started	04/08/2017
		Date Completed	07/08/2017
		No. of Samples	21

Hole Number	Sample Number	Sample Type	Depth (m)			Acid Soluble Sulphate	Aqueous Extract Sulphate	Chloride Content	Ph Value	Total Sulphur	Magnesium	Nitrate
TPH01		B	0.40	-		0.10	<0.01		7.66	0.04		
				-								
TPH02		B	0.90	-		0.10	0.02		7.23	0.04		
TPH02		B	2.00	-		0.08	0.01		7.31	0.03		
TPH03		B	0.40	-		0.14	0.02		8.12	0.05		
TPH03		B	1.40	-		0.12	0.02		8.06	0.05		
TPH04		B	0.40	-		0.10	0.02		7.50	0.04		
TPH04		B	1.00	-		0.06	0.02		7.61	0.03		
TPH04		B	1.30	-		0.14	0.02		7.59	0.05		
TPH05		B	0.50	-		0.06	<0.01		8.01	0.03		
TPH05		B	1.90	-		0.21	0.02		8.13	0.08		
TPH06		B	0.60	-		0.14	0.02		7.25	0.05		
TPH06		B	1.00	-		0.19	0.02		7.31	0.07		
TPH07		B	0.60	-		0.06	0.01		7.36	0.03		
TPH07		B	1.60	-		0.04	<0.01		7.41	0.02		
TPH08		B	0.30	-		0.16	0.02		7.82	0.06		
TPH08		B	1.00	-		0.02	<0.01		7.96	0.01		
TPH08		B	2.00	-		0.12	0.02		7.77	0.05		
TPH09		B	0.30	-		0.08	0.01		8.09	0.03		
TPH09		B	0.90	-		0.10	<0.01		8.23	0.04		
TPH10		B	0.50	-		0.04	<0.01		7.30	0.02		
TPH10		B	1.30	-		0.10	0.01		7.16	0.04		
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								

Key	Reported As
Acid Soluble Sulphate	% SO_4
Aqueous Extract Sulphate	g/l SO_4
Chloride Content (Semi)	mg Cl/l
PH Value	@ 25°
Total Sulphur	% S
Magnesium	g/l SO_4
Nitrate	NO_3 mg/l

Remarks

NCP = No Chloride Present

Test Operator	Checked and Authorised by		Ben Sharp	
Neil Edwards	Date	07/08/2017		

UKAS TESTING 2788

GSTL	Certificate of Chemical Analysis (B.S. 1377 : PART 3 : 1990)	Contract Number	36059
		Client Reference	G40066
Client	Quantum	Date Received	25/08/2017
Site Name	Harbourside, Port Talbot	Date Started	04/08/2017
		Date Completed	07/08/2017
		No. of Samples	10

Hole Number	Sample Number	Sample Type	Depth (m)			Acid Soluble Sulphate	Aqueous Extract Sulphate	Water Soluble Chloride	PH Value	Organic Matter Content	Redox Mv	Loss On Ignition
TPHO1		B	0.40	-								14
TPH02		D	0.40	-								10.2
TPH02		B	0.90	-								9
TPH03		B	0.40	-								13.4
TPH04		B	1.40	-								19.8
TPH04		B	1.00	-								18.8
TPH05		B	0.50	-								21.2
TPH06		B	1.00	-								9.2
TPH07		B	0.60	-								9
TPH08		B	0.30	-								26.9
TPH08		B	30.00	-								30
TPH09		B	6.20	-								6.2
TPH10		B	24.40	-								24.4
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								
				-								

Key	Reported As	Clause
Acid Soluble Sulphate	% SO_3	Clause 5.2 & 5.5
Aqueous Extract Sulphate	g/l SO_3	Clause 5.3 & 5.5
2/1 Chloride	%	Clause 7.2
PH Value	@ 25°	Clause 9.5
Organic	%	Clause 3
Redox Mv	Mv	Clause 4
LOI	%	Clause 4

Remarks

NCP = No Chloride Present

Test Operator	Checked and Authorised by		Ben Sharp	
Neil Edwards	Date	07/08/2017		

UKAS TESTING 2788

APPENDIX VII – ENVIRONMENTAL LABORATORY TEST RESULTS

James Phillips
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e: reception@i2analytical.com

Analytical Report Number : 17-54859

Project / Site name:	Harbourside, Port Talbot	**Samples received on:**	19/07/2017
Your job number:	G40066	**Samples instructed on:**	20/07/2017
Your order number:		**Analysis completed by:**	28/07/2017
Report Issue Number:	1	**Report issued on:**	28/07/2017
Samples Analysed:	17 leachate samples - 28 soil samples - 1 water sample		

Signed: CCStone

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785625	785626	785627	785628	785629
Sample Reference				BHH03	TPH01	TPH01	TPH02	TPH02
Sample Number				3	1	4	3	6
Depth (m)				1.50	0.40	1.50	0.90	2.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	%	N/A	NONE	7.6	6.1	9.2	8.9	11
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0	2.0	2.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile- Loose Fibrous Debris	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	11.2	10.0	9.1	8.5	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	2	< 1	-
Total Sulphate as SO_4	mg/kg	50	MCERTS	3400	2300	2200	710	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	1600	1700	1200	470	-
Organic Matter	%	0.1	MCERTS	3.8	3.3	5.1	1.2	3.5
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.37	0.18	0.68	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.14	0.82	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.17	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.16	0.19	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	3.5	2.9	2.3	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.51	0.36	1.3	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	5.8	5.4	10	< 0.05	0.22
Pyrene	mg/kg	0.05	MCERTS	4.1	4.6	13	< 0.05	0.18
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.0	3.0	10	< 0.05	0.22
Chrysene	mg/kg	0.05	MCERTS	3.4	3.5	14	< 0.05	0.22
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	3.4	4.3	23	< 0.05	0.26
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.4	2.4	5.8	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.1	3.2	14	< 0.05	0.18
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.2	2.2	9.2	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.42	0.55	2.8	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.3	2.6	11	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	30.3	35.6	118	< 0.80	1.28

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785625	785626	785627	785628	785629
Sample Reference				BHH03	TPH01	TPH01	TPH02	TPH02
Sample Number				3	1	4	3	6
Depth (m)				1.50	0.40	1.50	0.90	2.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	13	32	69	10	-
Boron (water soluble)	mg/kg	0.2	MCERTS	9.6	1.0	1.2	0.9	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	1.3	1.1	< 0.2	-
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	290	290	100	16	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	73	340	310	22	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	250	1100	19	-
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	27	53	58	23	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	170	570	480	72	-
Monoaromatics								
Benzene	ug/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								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	20	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	29	38	70	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	31	44	90	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	1.1	1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	4.1	5.3	5.1	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	29	35	85	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	99	160	700	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	130	200	790	< 10	13

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785625	785626	785627	785628	785629
Sample Reference				BHH03	TPH01	TPH01	TPH02	TPH02
Sample Number				3	1	4	3	6
Depth (m)				1.50	0.40	1.50	0.90	2.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	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
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	21	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 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
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	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
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 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
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785625	785626	785627	785628	785629
Sample Reference				BHH03	TPH01	TPH01	TPH02	TPH02
Sample Number				3	1	4	3	6
Depth (m)				1.50	0.40	1.50	0.90	2.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785630	785631	785632	785633	785634
Sample Reference				TPH02	TPH03	TPH03	TPH03	TPH03
Sample Number				9	1	4	10	13
Depth (m)				2.70	0.40	1.40	3.40	4.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	%	N/A	NONE	20	11	6.8	26	17
Total mass of sample received	kg	0.001	NONE	0.48	2.0	2.0	2.0	2.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile- Loose Fibres	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Detected	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1	8.5	10.4	7.3	-
Total Cyanide	mg/kg	1	MCERTS	-	< 1	-	-	-
Total Sulphate as SO_4	mg/kg	50	MCERTS	-	410	-	-	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	250	-	-	-
Organic Matter	%	0.1	MCERTS	4.5	2.6	2.7	6.6	1.7
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.33	< 0.05	< 0.05	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	0.25	< 0.05	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	-
Fluorene	mg/kg	0.05	MCERTS	0.55	< 0.05	< 0.05	-	-
Phenanthrene	mg/kg	0.05	MCERTS	4.6	< 0.05	< 0.05	-	-
Anthracene	mg/kg	0.05	MCERTS	3.5	< 0.05	< 0.05	-	-
Fluoranthene	mg/kg	0.05	MCERTS	7.7	< 0.05	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	6.1	< 0.05	< 0.05	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.1	< 0.05	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	4.3	< 0.05	< 0.05	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	4.3	< 0.05	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.9	< 0.05	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.8	< 0.05	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.0	< 0.05	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.50	< 0.05	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.0	< 0.05	< 0.05	-	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	45.9	< 0.80	< 0.80	-	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785630	785631	785632	785633	785634
Sample Reference				TPH02	TPH03	TPH03	TPH03	TPH03
Sample Number				9	1	4	10	13
Depth (m)				2.70	0.40	1.40	3.40	4.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	-	46	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.6	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	25	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	110	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	50	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	26	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	89	-	-	-
Monoaromatics								
Benzene	ug/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								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	9.4	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	1.4	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	5.9	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	45	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	82	< 10	< 10	27	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	130	< 10	< 10	36	< 10

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785630	785631	785632	785633	785634
Sample Reference				TPH02	TPH03	TPH03	TPH03	TPH03
Sample Number				9	1	4	10	13
Depth (m)				2.70	0.40	1.40	3.40	4.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	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
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 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
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	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
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 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
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785630	785631	785632	785633	785634
Sample Reference				TPH02	TPH03	TPH03	TPH03	TPH03
Sample Number				9	1	4	10	13
Depth (m)				2.70	0.40	1.40	3.40	4.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	0.46	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	2.3	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	0.20	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	-	-	0.30	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	1.9	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	-	0.43	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	1.7	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	-	1.4	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	0.87	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	-	0.75	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	0.77	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	0.30	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	0.60	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	0.33	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	0.38	< 0.05

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785635	785636	785637	785638	785639
Sample Reference				TPH04	TPH04	TPH04	TPH05	TPH05
Sample Number				1	6	9	1	4
Depth (m)				0.40	1.30	2.00	0.50	1.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	%	N/A	NONE	4.7	12	13	4.4	3.5
Total mass of sample received	kg	0.001	NONE	2.0	0.70	0.67	2.0	2.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile- Loose Fibres	Chrysotile- Loose Fibres
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Detected	Detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	9.8	8.8	7.6	10.2	11.1
Total Cyanide	mg/kg	1	MCERTS	< 1	-	-	< 1	< 1
Total Sulphate as SO_4	mg/kg	50	MCERTS	1400	-	-	2200	2700
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	110	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.057	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	56.9	-	-	-
Total Sulphur	mg/kg	50	MCERTS	650	-	-	1400	1800
Organic Matter	%	0.1	MCERTS	2.9	1.5	1.8	2.4	1.3
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.86	-	-	1.4	1.5
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.42	-	-	< 0.05	1.5
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	0.36
Fluoranthene	mg/kg	0.05	MCERTS	0.61	-	-	< 0.05	3.5
Pyrene	mg/kg	0.05	MCERTS	0.43	-	-	< 0.05	3.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.38	-	-	< 0.05	2.4
Chrysene	mg/kg	0.05	MCERTS	0.54	-	-	< 0.05	3.0
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.63	-	-	< 0.05	4.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.27	-	-	< 0.05	1.5
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.33	-	-	< 0.05	2.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.29	-	-	< 0.05	1.7
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	0.58
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.38	-	-	< 0.05	2.0
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	5.14	-	-	1.35	28.1

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785635	785636	785637	785638	785639
Sample Reference				TPH04	TPH04	TPH04	TPH05	TPH05
Sample Number				1	6	9	1	4
Depth (m)				0.40	1.30	2.00	0.50	1.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	47	-	-	34	25
Boron (water soluble)	mg/kg	0.2	MCERTS	1.0	-	-	1.7	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	-	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	380	-	-	530	450
Copper (aqua regia extractable)	mg/kg	1	MCERTS	100	-	-	120	48
Lead (aqua regia extractable)	mg/kg	1	MCERTS	160	-	-	89	29
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	-	-	61	39
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	4.8	-	-	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	200	-	-	96	30
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	8.0	2.6	< 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								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	3.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	41	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	42	11	10	290	49
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	43	11	15	330	58
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	0.008	0.003	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	0.003	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	7.8	5.2	5.7	1.5
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	5.2	16	8.2	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	17	46	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	11	22	58	370	56
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	13	40	96	430	63

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785635	785636	785637	785638	785639
Sample Reference				TPH04	TPH04	TPH04	TPH05	TPH05
Sample Number				1	6	9	1	4
Depth (m)				0.40	1.30	2.00	0.50	1.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	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
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	8.0	2.6	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 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
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	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
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 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
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	1.9	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	1.5	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785635	785636	785637	785638	785639
Sample Reference				TPH04	TPH04	TPH04	TPH05	TPH05
Sample Number				1	6	9	1	4
Depth (m)				0.40	1.30	2.00	0.50	1.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	< 0.2	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	< 0.2	-	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	6.6	4.7	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	3.2	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	0.64	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	0.4	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	0.25	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	0.12	-	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785640	785641	785642	785643	785644
Sample Reference				TPH05	TPH06	TPH06	TPH06	TPH07
Sample Number				7	2	5	10	1
Depth (m)				1.90	0.60	1.00	2.60	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	%	N/A	NONE	27	3.1	6.4	20	5.9
Total mass of sample received	kg	0.001	NONE	1.8	2.0	2.0	2.0	2.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile- Loose Fibrous Debris
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	-	Detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.6	11.8	11.0	8.0	11.0
Total Cyanide	mg/kg	1	MCERTS	-	< 1	< 1	-	< 1
Total Sulphate as SO_4	mg/kg	50	MCERTS	-	2900	2400	-	1600
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	1400	1300	-	830
Organic Matter	%	0.1	MCERTS	4.8	0.9	2.2	2.0	3.0
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	2.9	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	0.27	3.2	-	0.26
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	0.12	-	0.22
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	0.60	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	0.23	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	0.36	-	0.90
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	0.12	-	0.31
Fluoranthene	mg/kg	0.05	MCERTS	-	0.19	0.60	-	2.7
Pyrene	mg/kg	0.05	MCERTS	-	0.14	0.49	-	2.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.14	0.39	-	2.1
Chrysene	mg/kg	0.05	MCERTS	-	0.16	0.50	-	2.3
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	0.70	-	3.5
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	0.22	-	1.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	0.42	-	2.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	0.35	-	1.5
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	0.48
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	0.41	-	1.8
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	0.90	8.74	-	22.4

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785640	785641	785642	785643	785644
Sample Reference				TPH05	TPH06	TPH06	TPH06	TPH07
Sample Number				7	2	5	10	1
Depth (m)				1.90	0.60	1.00	2.60	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	-	1.3	14	-	22
Boron (water soluble)	mg/kg	0.2	MCERTS	-	2.5	2.7	-	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	0.6
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	1700	840	-	240
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	33	61	-	130
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	55	230	-	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	11	24	-	45
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	1.8	4.6	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	32	180	-	220
Monoaromatics								
Benzene	ug/kg	1	MCERTS	280	< 1.0	< 1.0	48	< 1.0
Toluene	µg/kg	1	MCERTS	54	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	450	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	840	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	46	< 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								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	0.19	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	4.7	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	8.5	< 8.0	29
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	12	< 10	< 10	< 10	32
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	0.28	< 0.001	< 0.001	0.048	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	0.052	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	1.4	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	7.4	< 1.0	5.2	1.8	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	8.4	< 2.0	7.4	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	11	< 10	17
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	19	< 10	59	16	130
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	45	< 10	83	22	140

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785640	785641	785642	785643	785644
Sample Reference				TPH05	TPH06	TPH06	TPH06	TPH07
Sample Number				7	2	5	10	1
Depth (m)				1.90	0.60	1.00	2.60	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	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
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	280	< 1.0	< 1.0	48	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	54	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	450	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	840	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	46	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	4.3	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	26	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	66	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785640	785641	785642	785643	785644
Sample Reference				TPH05	TPH06	TPH06	TPH06	TPH07
Sample Number				7	2	5	10	1
Depth (m)				1.90	0.60	1.00	2.60	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	29	-	-	1.3	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	1.5	-	-	1.0	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	0.46	-	-	0.14	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	0.29	-	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	0.52	-	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	0.32	-	-	0.13	-
Pyrene	mg/kg	0.05	MCERTS	0.21	-	-	0.11	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.29	-	-	0.12	-
Chrysene	mg/kg	0.05	MCERTS	0.15	-	-	0.10	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785645	785646	785647	785648	785649
Sample Reference				TPH07	TPH08	TPH08	TPH08	TPH09
Sample Number				7	1	4	7	4
Depth (m)				2.20	0.30	1.00	2.00	0.90
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	10	< 0.1	< 0.1	< 0.1	12
Moisture Content	%	N/A	NONE	8.2	7.4	15	54	3.4
Total mass of sample received	kg	0.001	NONE	2.0	2.0	1.9	1.8	2.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile- Loose Fibrous Debris	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Detected	-	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	11.0	10.6	9.3	5.9	10.6
Total Cyanide	mg/kg	1	MCERTS	-	< 1	< 1	-	< 1
Total Sulphate as SO_4	mg/kg	50	MCERTS	-	2400	1800	-	820
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	990	890	-	430
Organic Matter	%	0.1	MCERTS	1.5	3.2	19	19	1.8
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	0.37	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	0.61	-	0.28
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	0.26	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	0.31	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	2.4	-	0.57
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	1.5	-	0.30
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	5.5	-	1.7
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	7.2	-	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	4.8	-	1.3
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	4.1	-	1.1
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	7.1	-	1.8
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	2.1	-	0.82
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	4.0	-	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	2.1	-	0.91
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	0.79	-	0.30
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	2.2	-	0.97
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	45.4	-	12.6

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785645	785646	785647	785648	785649
Sample Reference				TPH07	TPH08	TPH08	TPH08	TPH09
Sample Number				7	1	4	7	4
Depth (m)				2.20	0.30	1.00	2.00	0.90
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	-	16	71	-	15
Boron (water soluble)	mg/kg	0.2	MCERTS	-	6.2	2.0	-	1.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	1.0	< 0.2	-	1.5
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	790	200	-	170
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	98	300	-	140
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	420	360	-	82
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	29	84	-	35
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	220	430	-	240
Monoaromatics								
Benzene	ug/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								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	2.1	10	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	21	140	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	53	560	28	17
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	76	710	34	17
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	1.1	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	11	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	12	160	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	51	1000	54	79
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	63	1200	62	87

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785645	785646	785647	785648	785649
Sample Reference				TPH07	TPH08	TPH08	TPH08	TPH09
Sample Number				7	1	4	7	4
Depth (m)				2.20	0.30	1.00	2.00	0.90
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	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
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 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
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	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
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 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
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785645	785646	785647	785648	785649
Sample Reference				TPH07	TPH08	TPH08	TPH08	TPH09
Sample Number				7	1	4	7	4
Depth (m)				2.20	0.30	1.00	2.00	0.90
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.67	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.25	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.39	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.6	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.40	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	2.3	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.9	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.1	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.0	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.2	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.44	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.82	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.46	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.48	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785650	785651	785652		
Sample Reference				TPH09	TPH10	TPH10		
Sample Number				8	1	7		
Depth (m)				2.10	0.50	2.00		
Date Sampled				Deviating	Deviating	Deviating		
Time Taken				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		
Moisture Content	%	N/A	NONE	20	7.4	4.0		
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0		
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-		
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.4	11.2	8.7		
Total Cyanide	mg/kg	1	MCERTS	-	< 1	-		
Total Sulphate as SO_4	mg/kg	50	MCERTS	-	1500	-		
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-		
Total Sulphur	mg/kg	50	MCERTS	-	670	-		
Organic Matter	%	0.1	MCERTS	5.1	1.8	0.8		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	0.12	-		
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	-	0.25	-		
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-		
Fluoranthene	mg/kg	0.05	MCERTS	-	0.39	-		
Pyrene	mg/kg	0.05	MCERTS	-	0.31	-		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.20	-		
Chrysene	mg/kg	0.05	MCERTS	-	0.19	-		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	0.25	-		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	0.15	-		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	0.18	-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	2.04	-		

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785650	785651	785652		
Sample Reference				TPH09	TPH10	TPH10		
Sample Number				8	1	7		
Depth (m)				2.10	0.50	2.00		
Date Sampled				Deviating	Deviating	Deviating		
Time Taken				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	-	39	-		
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.9	-		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-		
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	-		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	320	-		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	73	-		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	42	-		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	29	-		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	68	-		
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	2.7	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	24	30	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	31	36	< 10		

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785650	785651	785652		
Sample Reference				TPH09	TPH10	TPH10		
Sample Number				8	1	7		
Depth (m)				2.10	0.50	2.00		
Date Sampled				Deviating	Deviating	Deviating		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785650	785651	785652		
Sample Reference				TPH09	TPH10	TPH10		
Sample Number				8	1	7		
Depth (m)				2.10	0.50	2.00		
Date Sampled				Deviating	Deviating	Deviating		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1		
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	< 0.2		
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2		
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1		
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1		
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	< 0.1		
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	< 0.3		
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Phenanthrene	mg/kg	0.05	MCERTS	0.75	-	< 0.05		
Anthracene	mg/kg	0.05	MCERTS	0.22	-	< 0.05		
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Fluoranthene	mg/kg	0.05	MCERTS	1.3	-	< 0.05		
Pyrene	mg/kg	0.05	MCERTS	1.2	-	< 0.05		
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	< 0.3		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.73	-	< 0.05		
Chrysene	mg/kg	0.05	MCERTS	0.74	-	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.0	-	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.44	-	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.88	-	< 0.05		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.49	-	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.16	-	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.52	-	< 0.05		

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785653				
Sample Reference				TPH05				
Sample Number				6				
Depth (m)				1.70				
Date Sampled				Deviating				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	47900				
Toluene	µg/l	1	ISO 17025	74700				
Ethylbenzene	µg/l	1	ISO 17025	11200				
p & m-xylene	µg/l	1	ISO 17025	33500				
o-xylene	µg/l	1	ISO 17025	6410				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	260				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	6500				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	40000				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	20000				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	9300				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	12000				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	88000				
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	48000				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	75000				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	64000				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	160000				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	59000				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	20000				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	47000				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	480000				

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785653				
Sample Reference				TPH05				
Sample Number				6				
Depth (m)				1.70				
Date Sampled				Deviating				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	NONE	< 1.0				
Trichlorofluoromethane	µg/l	1	NONE	< 1.0				
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	47900				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	74700				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	11200				
p & m-Xylene	µg/l	1	ISO 17025	33500				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-Xylene	µg/l	1	ISO 17025	6410				
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	161				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
n-Propylbenzene	µg/l	1	ISO 17025	115				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	3820				
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	3800				
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785653				
Sample Reference				TPH05				
Sample Number				6				
Depth (m)				1.70				
Date Sampled				Deviating				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	µg/l	0.05	NONE	< 0.05				
Phenol	µg/l	0.05	NONE	< 0.05				
2-Chlorophenol	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05				
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05				
2-Methylphenol	µg/l	0.05	NONE	< 0.05				
Hexachloroethane	µg/l	0.05	NONE	< 0.05				
Nitrobenzene	µg/l	0.05	NONE	< 0.05				
4-Methylphenol	µg/l	0.05	NONE	< 0.05				
Isophorone	µg/l	0.05	NONE	< 0.05				
2-Nitrophenol	µg/l	0.05	NONE	< 0.05				
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05				
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05				
Naphthalene	µg/l	0.01	ISO 17025	8300				
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05				
4-Chloroaniline	µg/l	0.05	NONE	< 0.05				
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05				
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05				
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2-Methylnaphthalene	µg/l	0.05	NONE	7300				
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05				
Dimethylphthalate	µg/l	0.05	NONE	< 0.05				
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05				
Acenaphthylene	µg/l	0.01	ISO 17025	36				
Acenaphthene	µg/l	0.01	ISO 17025	1400				
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05				
Dibenzofuran	µg/l	0.05	NONE	660				
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05				
Diethyl phthalate	µg/l	0.05	NONE	< 0.05				
4-Nitroaniline	µg/l	0.05	NONE	< 0.05				
Fluorene	µg/l	0.01	ISO 17025	280				
Azobenzene	µg/l	0.05	NONE	< 0.05				
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05				
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05				
Phenanthrene	µg/l	0.01	ISO 17025	130				
Anthracene	µg/l	0.01	ISO 17025	22				
Carbazole	µg/l	0.05	NONE	< 0.05				
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05				
Anthraquinone	µg/l	0.05	NONE	< 0.05				
Fluoranthene	µg/l	0.01	ISO 17025	37				
Pyrene	µg/l	0.01	ISO 17025	30				
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	13				
Chrysene	µg/l	0.01	ISO 17025	15				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	12				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	5.2				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	7.7				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	4.1				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	1.2				
Benzo(ghi)perylene	µg/l	0.01	NONE	4.6				

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

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785654	785655	785656	785657	785658
Sample Reference				BHH03	TPH01	TPH01	TPH02	TPH03
Sample Number				3	1	4	3	1
Depth (m)				1.50	0.40	1.50	0.90	0.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	4.6	34	5.3	13
Boron (dissolved)	µg/l	10	ISO 17025	200	< 10	17	24	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	2.5	1.2	4.4	< 0.4	3.2
Copper (dissolved)	µg/l	0.7	ISO 17025	11	9.9	17	2.4	15
Lead (dissolved)	µg/l	1	ISO 17025	1.7	4.2	14	1.4	6.9
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3	1.3	2.6	1.2	1.7
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	2.9	14	15	1.8	7.6

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785659	785660	785661	785662	785663
Sample Reference				TPH03	TPH04	TPH04	TPH05	TPH05
Sample Number				10	1	6	1	4
Depth (m)				3.40	0.40	1.30	0.50	1.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	4.2	6.9	1.5	8.1	1.4
Boron (dissolved)	µg/l	10	ISO 17025	120	< 10	23	16	19
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.8	4.5	1.1	5.6	2.2
Copper (dissolved)	µg/l	0.7	ISO 17025	5.8	4.2	0.9	18	7.7
Lead (dissolved)	µg/l	1	ISO 17025	9.6	23	3.4	31	11
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	3.2	2.9	0.7	3.4	1.3
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	4.8	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	15	27	9.7	30	7.3

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785664	785665	785666	785667	785668
Sample Reference				TPH06	TPH06	TPH07	TPH08	TPH08
Sample Number				2	5	1	1	4
Depth (m)				0.60	1.00	0.60	0.30	1.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	9.2	4.8	4.8	12
Boron (dissolved)	µg/l	10	ISO 17025	46	48	14	87	63
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	8.3	4.6	2.2	50	23
Copper (dissolved)	µg/l	0.7	ISO 17025	2.2	6.5	18	11	16
Lead (dissolved)	µg/l	1	ISO 17025	7.3	36	15	16	8.0
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3	2.1	1.8	6.0	5.8
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	2.3	15	23	16	19

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785669	785670			
Sample Reference				TPH09	TPH10			
Sample Number				4	1			
Depth (m)				0.90	0.50			
Date Sampled				Deviating	Deviating			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	1.6	5.0			
Boron (dissolved)	µg/l	10	ISO 17025	17	12			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Chromium (dissolved)	µg/l	0.4	ISO 17025	3.2	8.3			
Copper (dissolved)	µg/l	0.7	ISO 17025	11	4.0			
Lead (dissolved)	µg/l	1	ISO 17025	12	3.7			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.8	< 0.3			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Zinc (dissolved)	µg/l	0.4	ISO 17025	25	0.7			

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Analytical Report Number : 17-54859

Project / Site name: Harbourside, Port Talbot

* 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 *
785625	BHH03	3	1.50	Brown loam and sand with gravel.
785626	TPH01	1	0.40	Brown loam and sand with gravel.
785627	TPH01	4	1.50	Brown loam and sand with gravel and rubble.
785628	TPH02	3	0.90	Brown loam and sand with gravel.
785629	TPH02	6	2.00	Brown clay and sand with gravel.
785630	TPH02	9	2.70	Brown clay and sand with gravel.
785631	TPH03	1	0.40	Brown loam and sand with gravel and vegetation.
785632	TPH03	4	1.40	Brown loam and sand with gravel.
785633	TPH03	10	3.40	Brown clay and sand.
785634	TPH03	13	4.00	Brown clay.
785635	TPH04	1	0.40	Brown loam and sand with gravel and rubble.
785636	TPH04	6	1.30	Brown clay and sand with gravel.
785637	TPH04	9	2.00	Brown clay and sand with gravel.
785638	TPH05	1	0.50	Brown loam and sand with gravel.
785639	TPH05	4	1.30	Brown clay and sand with gravel.
785640	TPH05	7	1.90	Brown clay and sand with gravel and vegetation.
785641	TPH06	2	0.60	Brown loam and sand with gravel.
785642	TPH06	5	1.00	Brown loam and sand with gravel.
785643	TPH06	10	2.60	Brown clay.
785644	TPH07	1	0.60	Brown loam and sand with gravel.
785645	TPH07	7	2.20	Grey clay and sand with gravel and stones.
785646	TPH08	1	0.30	Brown loam and sand with gravel and vegetation.
785647	TPH08	4	1.00	Brown loam and sand with gravel and clinker
785648	TPH08	7	2.00	Brown clay and sand.
785649	TPH09	4	0.90	Brown loam and sand with gravel and stones.
785650	TPH09	8	2.10	Brown loam and clay with gravel and vegetation.
785651	TPH10	1	0.50	Brown loam and sand with gravel and clinker
785652	TPH10	7	2.00	Non Soil

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Analytical Report Number : 17-54859

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	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
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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
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
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	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
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
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
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	NONE
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
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

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Analytical Report Number : 17-54859

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil by Gallery 16hr	Determination of water soluble Sulphate by discrete analyser (precipitation method).	In house method based on BS1377-3: 1990.	L082B-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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
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
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

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.

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Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BHH03	3	L	17-54859	785654	a			
BHH03	3	S	17-54859	785625	a			
TPH01	1	L	17-54859	785655	a			
TPH01	1	S	17-54859	785626	a			
TPH01	4	L	17-54859	785656	a			
TPH01	4	S	17-54859	785627	a			
TPH02	3	L	17-54859	785657	a			
TPH02	3	S	17-54859	785628	a			
TPH02	6	S	17-54859	785629	a			
TPH02	9	S	17-54859	785630	a			
TPH03	1	L	17-54859	785658	a			
TPH03	1	S	17-54859	785631	a			
TPH03	10	L	17-54859	785659	a			
TPH03	10	S	17-54859	785633	a			
TPH03	13	S	17-54859	785634	a			
TPH03	4	S	17-54859	785632	a			
TPH04	1	L	17-54859	785660	a			
TPH04	1	S	17-54859	785635	a			
TPH04	6	L	17-54859	785661	a			
TPH04	6	S	17-54859	785636	a			
TPH04	9	S	17-54859	785637	a			
TPH05	1	L	17-54859	785662	a			
TPH05	1	S	17-54859	785638	a			
TPH05	4	L	17-54859	785663	a			
TPH05	4	S	17-54859	785639	a			
TPH05	6	W	17-54859	785653	a			
TPH05	7	S	17-54859	785640	a			
TPH06	10	S	17-54859	785643	a			
TPH06	2	L	17-54859	785664	a			
TPH06	2	S	17-54859	785641	a			
TPH06	5	L	17-54859	785665	a			
TPH06	5	S	17-54859	785642	a			
TPH07	1	L	17-54859	785666	a			
TPH07	1	S	17-54859	785644	a			
TPH07	7	S	17-54859	785645	a			
TPH08	1	L	17-54859	785667	a			
TPH08	1	S	17-54859	785646	a			
TPH08	4	L	17-54859	785668	a			
TPH08	4	S	17-54859	785647	a			
TPH08	7	S	17-54859	785648	a			
TPH09	4	L	17-54859	785669	a			
TPH09	4	S	17-54859	785649	a			
TPH09	8	S	17-54859	785650	a			
TPH10	1	L	17-54859	785670	a			
TPH10	1	S	17-54859	785651	a			
TPH10	7	S	17-54859	785652	a			

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

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Analytical Report Number : 17-54859

Replaces Analytical Report Number : 17-54859, issue no. 1

Project / Site name:	Harbourside, Port Talbot	**Samples received on:**	19/07/2017
Your job number:	G40066	**Samples instructed on:**	20/07/2017
Your order number:		**Analysis completed by:**	04/08/2017
Report Issue Number:	2	**Report issued on:**	04/08/2017
Samples Analysed:	17 leachate samples - 28 soil samples - 1 water sample		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785625	785626	785627	785628	785629
Sample Reference				BHH03	TPH01	TPH01	TPH02	TPH02
Sample Number				3	1	4	3	6
Depth (m)				1.50	0.40	1.50	0.90	2.00
Date Sampled				10/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
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	%	N/A	NONE	7.6	6.1	9.2	8.9	11
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0	2.0	2.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile- Loose Fibrous Debris	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	11.2	10.0	9.1	8.5	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	2	< 1	-
Total Sulphate as SO_4	mg/kg	50	MCERTS	3400	2300	2200	710	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	1600	1700	1200	470	-
Organic Matter	%	0.1	MCERTS	3.8	3.3	5.1	1.2	3.5
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.37	0.18	0.68	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.14	0.82	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.17	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.16	0.19	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	3.5	2.9	2.3	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.51	0.36	1.3	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	5.8	5.4	10	< 0.05	0.22
Pyrene	mg/kg	0.05	MCERTS	4.1	4.6	13	< 0.05	0.18
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.0	3.0	10	< 0.05	0.22
Chrysene	mg/kg	0.05	MCERTS	3.4	3.5	14	< 0.05	0.22
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	3.4	4.3	23	< 0.05	0.26
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.4	2.4	5.8	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.1	3.2	14	< 0.05	0.18
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.2	2.2	9.2	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.42	0.55	2.8	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.3	2.6	11	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	30.3	35.6	118	< 0.80	1.28
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	32	69	10	-
Boron (water soluble)	mg/kg	0.2	MCERTS	9.6	1.0	1.2	0.9	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	1.3	1.1	< 0.2	-
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	290	290	100	16	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	73	340	310	22	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	250	1100	19	-
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	27	53	58	23	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	170	570	480	72	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785625	785626	785627	785628	785629
Sample Reference				BHH03	TPH01	TPH01	TPH02	TPH02
Sample Number				3	1	4	3	6
Depth (m)				1.50	0.40	1.50	0.90	2.00
Date Sampled				10/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/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								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	20	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	29	38	70	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	31	44	90	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	1.1	1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	4.1	5.3	5.1	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	29	35	85	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	99	160	700	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	130	200	790	< 10	13

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785625	785626	785627	785628	785629
Sample Reference				BHH03	TPH01	TPH01	TPH02	TPH02
Sample Number				3	1	4	3	6
Depth (m)				1.50	0.40	1.50	0.90	2.00
Date Sampled				10/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	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
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	21	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 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
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	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
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 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
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785625	785626	785627	785628	785629
Sample Reference				BHH03	TPH01	TPH01	TPH02	TPH02
Sample Number				3	1	4	3	6
Depth (m)				1.50	0.40	1.50	0.90	2.00
Date Sampled				10/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785630	785631	785632	785633	785634
Sample Reference				TPH02	TPH03	TPH03	TPH03	TPH03
Sample Number				9	1	4	10	13
Depth (m)				2.70	0.40	1.40	3.40	4.00
Date Sampled				13/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
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	%	N/A	NONE	20	11	6.8	26	17
Total mass of sample received	kg	0.001	NONE	0.48	2.0	2.0	2.0	2.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile- Loose Fibres	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Detected	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1	8.5	10.4	7.3	-
Total Cyanide	mg/kg	1	MCERTS	-	< 1	-	-	-
Total Sulphate as SO_4	mg/kg	50	MCERTS	-	410	-	-	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	250	-	-	-
Organic Matter	%	0.1	MCERTS	4.5	2.6	2.7	6.6	1.7
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.33	< 0.05	< 0.05	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	0.25	< 0.05	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	-
Fluorene	mg/kg	0.05	MCERTS	0.55	< 0.05	< 0.05	-	-
Phenanthrene	mg/kg	0.05	MCERTS	4.6	< 0.05	< 0.05	-	-
Anthracene	mg/kg	0.05	MCERTS	3.5	< 0.05	< 0.05	-	-
Fluoranthene	mg/kg	0.05	MCERTS	7.7	< 0.05	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	6.1	< 0.05	< 0.05	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.1	< 0.05	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	4.3	< 0.05	< 0.05	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	4.3	< 0.05	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.9	< 0.05	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.8	< 0.05	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.0	< 0.05	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.50	< 0.05	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.0	< 0.05	< 0.05	-	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	45.9	< 0.80	< 0.80	-	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	46	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.6	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	25	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	110	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	50	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	26	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	89	-	-	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785630	785631	785632	785633	785634
Sample Reference				TPH02	TPH03	TPH03	TPH03	TPH03
Sample Number				9	1	4	10	13
Depth (m)				2.70	0.40	1.40	3.40	4.00
Date Sampled				13/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/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								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	9.4	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	1.4	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	5.9	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	45	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	82	< 10	< 10	27	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	130	< 10	< 10	36	< 10

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785630	785631	785632	785633	785634
Sample Reference				TPH02	TPH03	TPH03	TPH03	TPH03
Sample Number				9	1	4	10	13
Depth (m)				2.70	0.40	1.40	3.40	4.00
Date Sampled				13/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	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
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 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
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	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
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 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
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785630	785631	785632	785633	785634
Sample Reference				TPH02	TPH03	TPH03	TPH03	TPH03
Sample Number				9	1	4	10	13
Depth (m)				2.70	0.40	1.40	3.40	4.00
Date Sampled				13/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	0.46	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	2.3	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	0.20	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	-	-	0.30	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	1.9	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	-	0.43	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	1.7	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	-	1.4	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	0.87	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	-	0.75	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	0.77	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	0.30	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	0.60	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	0.33	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	0.38	< 0.05

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785635	785636	785637	785638	785639
Sample Reference				TPH04	TPH04	TPH04	TPH05	TPH05
Sample Number				1	6	9	1	4
Depth (m)				0.40	1.30	2.00	0.50	1.30
Date Sampled				13/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
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	%	N/A	NONE	4.7	12	13	4.4	3.5
Total mass of sample received	kg	0.001	NONE	2.0	0.70	0.67	2.0	2.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile- Loose Fibres	Chrysotile- Loose Fibres
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Detected	Detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	9.8	8.8	7.6	10.2	11.1
Total Cyanide	mg/kg	1	MCERTS	< 1	-	-	< 1	< 1
Total Sulphate as SO_4	mg/kg	50	MCERTS	1400	-	-	2200	2700
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	110	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.057	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	56.9	-	-	-
Total Sulphur	mg/kg	50	MCERTS	650	-	-	1400	1800
Organic Matter	%	0.1	MCERTS	2.9	1.5	1.8	2.4	1.3
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.86	-	-	1.4	1.5
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.42	-	-	< 0.05	1.5
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	0.36
Fluoranthene	mg/kg	0.05	MCERTS	0.61	-	-	< 0.05	3.5
Pyrene	mg/kg	0.05	MCERTS	0.43	-	-	< 0.05	3.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.38	-	-	< 0.05	2.4
Chrysene	mg/kg	0.05	MCERTS	0.54	-	-	< 0.05	3.0
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.63	-	-	< 0.05	4.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.27	-	-	< 0.05	1.5
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.33	-	-	< 0.05	2.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.29	-	-	< 0.05	1.7
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	0.58
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.38	-	-	< 0.05	2.0
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	5.14	-	-	1.35	28.1
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	47	-	-	34	25
Boron (water soluble)	mg/kg	0.2	MCERTS	1.0	-	-	1.7	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	-	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	380	-	-	530	450
Copper (aqua regia extractable)	mg/kg	1	MCERTS	100	-	-	120	48
Lead (aqua regia extractable)	mg/kg	1	MCERTS	160	-	-	89	29
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	-	-	61	39
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	4.8	-	-	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	200	-	-	96	30

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785635	785636	785637	785638	785639
Sample Reference				TPH04	TPH04	TPH04	TPH05	TPH05
Sample Number				1	6	9	1	4
Depth (m)				0.40	1.30	2.00	0.50	1.30
Date Sampled				13/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	8.0	2.6	< 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

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	3.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	41	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	42	11	10	290	49
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	43	11	15	330	58

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	0.008	0.003	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	0.003	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	7.8	5.2	5.7	1.5
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	5.2	16	8.2	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	17	46	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	11	22	58	370	56
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	13	40	96	430	63

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785635	785636	785637	785638	785639
Sample Reference				TPH04	TPH04	TPH04	TPH05	TPH05
Sample Number				1	6	9	1	4
Depth (m)				0.40	1.30	2.00	0.50	1.30
Date Sampled				13/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	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
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	8.0	2.6	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 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
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	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
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 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
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	1.9	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	1.5	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785635	785636	785637	785638	785639
Sample Reference				TPH04	TPH04	TPH04	TPH05	TPH05
Sample Number				1	6	9	1	4
Depth (m)				0.40	1.30	2.00	0.50	1.30
Date Sampled				13/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	< 0.2	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	< 0.2	-	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	6.6	4.7	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	< 0.1	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	3.2	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	0.64	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	0.4	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	0.25	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	0.12	-	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785640	785641	785642	785643	785644
Sample Reference				TPH05	TPH06	TPH06	TPH06	TPH07
Sample Number				7	2	5	10	1
Depth (m)				1.90	0.60	1.00	2.60	0.60
Date Sampled				13/07/2017	12/07/2017	12/07/2017	12/07/2017	12/07/2017
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	%	N/A	NONE	27	3.1	6.4	20	5.9
Total mass of sample received	kg	0.001	NONE	1.8	2.0	2.0	2.0	2.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile- Loose Fibrous Debris
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	-	Detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.6	11.8	11.0	8.0	11.0
Total Cyanide	mg/kg	1	MCERTS	-	< 1	< 1	-	< 1
Total Sulphate as SO_4	mg/kg	50	MCERTS	-	2900	2400	-	1600
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	1400	1300	-	830
Organic Matter	%	0.1	MCERTS	4.8	0.9	2.2	2.0	3.0
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	2.9	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	0.27	3.2	-	0.26
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	0.12	-	0.22
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	0.60	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	0.23	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	0.36	-	0.90
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	0.12	-	0.31
Fluoranthene	mg/kg	0.05	MCERTS	-	0.19	0.60	-	2.7
Pyrene	mg/kg	0.05	MCERTS	-	0.14	0.49	-	2.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.14	0.39	-	2.1
Chrysene	mg/kg	0.05	MCERTS	-	0.16	0.50	-	2.3
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	0.70	-	3.5
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	0.22	-	1.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	0.42	-	2.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	0.35	-	1.5
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	0.48
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	0.41	-	1.8
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	0.90	8.74	-	22.4
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	1.3	14	-	22
Boron (water soluble)	mg/kg	0.2	MCERTS	-	2.5	2.7	-	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	0.6
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	1700	840	-	240
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	33	61	-	130
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	55	230	-	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	11	24	-	45
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	1.8	4.6	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	32	180	-	220

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785640	785641	785642	785643	785644
Sample Reference				TPH05	TPH06	TPH06	TPH06	TPH07
Sample Number				7	2	5	10	1
Depth (m)				1.90	0.60	1.00	2.60	0.60
Date Sampled				13/07/2017	12/07/2017	12/07/2017	12/07/2017	12/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	280	< 1.0	< 1.0	48	< 1.0
Toluene	µg/kg	1	MCERTS	54	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	450	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	840	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	46	< 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

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	0.19	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	4.7	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	8.5	< 8.0	29
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	12	< 10	< 10	< 10	32

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	0.28	< 0.001	< 0.001	0.048	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	0.052	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	1.4	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	7.4	< 1.0	5.2	1.8	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	8.4	< 2.0	7.4	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	11	< 10	17
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	19	< 10	59	16	130
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	45	< 10	83	22	140

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785640	785641	785642	785643	785644
Sample Reference				TPH05	TPH06	TPH06	TPH06	TPH07
Sample Number				7	2	5	10	1
Depth (m)				1.90	0.60	1.00	2.60	0.60
Date Sampled				13/07/2017	12/07/2017	12/07/2017	12/07/2017	12/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	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
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	280	< 1.0	< 1.0	48	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	54	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	450	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	840	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	46	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	4.3	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	26	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	66	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785640	785641	785642	785643	785644
Sample Reference				TPH05	TPH06	TPH06	TPH06	TPH07
Sample Number				7	2	5	10	1
Depth (m)				1.90	0.60	1.00	2.60	0.60
Date Sampled				13/07/2017	12/07/2017	12/07/2017	12/07/2017	12/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	29	-	-	1.3	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	1.5	-	-	1.0	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	0.46	-	-	0.14	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	0.29	-	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	0.52	-	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	0.32	-	-	0.13	-
Pyrene	mg/kg	0.05	MCERTS	0.21	-	-	0.11	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.29	-	-	0.12	-
Chrysene	mg/kg	0.05	MCERTS	0.15	-	-	0.10	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785645	785646	785647	785648	785649
Sample Reference				TPH07	TPH08	TPH08	TPH08	TPH09
Sample Number				7	1	4	7	4
Depth (m)				2.20	0.30	1.00	2.00	0.90
Date Sampled				12/07/2017	12/07/2017	12/07/2017	12/07/2017	12/07/2017
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	10	< 0.1	< 0.1	< 0.1	12
Moisture Content	%	N/A	NONE	8.2	7.4	15	54	3.4
Total mass of sample received	kg	0.001	NONE	2.0	2.0	1.9	1.8	2.0
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile- Loose Fibrous Debris	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Detected	-	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	11.0	10.6	9.3	5.9	10.6
Total Cyanide	mg/kg	1	MCERTS	-	< 1	< 1	-	< 1
Total Sulphate as SO_4	mg/kg	50	MCERTS	-	2400	1800	-	820
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Total Sulphur	mg/kg	50	MCERTS	-	990	890	-	430
Organic Matter	%	0.1	MCERTS	1.5	3.2	19	19	1.8
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	0.37	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	0.61	-	0.28
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	0.26	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	0.31	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	2.4	-	0.57
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	1.5	-	0.30
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	5.5	-	1.7
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	7.2	-	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	4.8	-	1.3
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	4.1	-	1.1
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	7.1	-	1.8
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	2.1	-	0.82
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	4.0	-	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	2.1	-	0.91
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	0.79	-	0.30
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	2.2	-	0.97
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	45.4	-	12.6
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	16	71	-	15
Boron (water soluble)	mg/kg	0.2	MCERTS	-	6.2	2.0	-	1.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	1.0	< 0.2	-	1.5
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	790	200	-	170
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	98	300	-	140
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	420	360	-	82
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	29	84	-	35
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	220	430	-	240

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785645	785646	785647	785648	785649
Sample Reference				TPH07	TPH08	TPH08	TPH08	TPH09
Sample Number				7	1	4	7	4
Depth (m)				2.20	0.30	1.00	2.00	0.90
Date Sampled				12/07/2017	12/07/2017	12/07/2017	12/07/2017	12/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/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

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	2.1	10	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	21	140	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	53	560	28	17
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	76	710	34	17

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	1.1	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	11	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	12	160	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	51	1000	54	79
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	63	1200	62	87

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785645	785646	785647	785648	785649
Sample Reference				TPH07	TPH08	TPH08	TPH08	TPH09
Sample Number				7	1	4	7	4
Depth (m)				2.20	0.30	1.00	2.00	0.90
Date Sampled				12/07/2017	12/07/2017	12/07/2017	12/07/2017	12/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	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
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 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
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	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
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 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
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785645	785646	785647	785648	785649
Sample Reference				TPH07	TPH08	TPH08	TPH08	TPH09
Sample Number				7	1	4	7	4
Depth (m)				2.20	0.30	1.00	2.00	0.90
Date Sampled				12/07/2017	12/07/2017	12/07/2017	12/07/2017	12/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.67	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.25	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.39	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.6	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.40	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	2.3	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.9	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.1	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.0	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.2	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.44	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.82	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.46	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.48	-

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785650	785651	785652		
Sample Reference				TPH09	TPH10	TPH10		
Sample Number				8	1	7		
Depth (m)				2.10	0.50	2.00		
Date Sampled				12/07/2017	12/07/2017	12/07/2017		
Time Taken				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		
Moisture Content	%	N/A	NONE	20	7.4	4.0		
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0		
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-		
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.4	11.2	8.7		
Total Cyanide	mg/kg	1	MCERTS	-	< 1	-		
Total Sulphate as SO_4	mg/kg	50	MCERTS	-	1500	-		
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-		
Total Sulphur	mg/kg	50	MCERTS	-	670	-		
Organic Matter	%	0.1	MCERTS	5.1	1.8	0.8		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	0.12	-		
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	-	0.25	-		
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-		
Fluoranthene	mg/kg	0.05	MCERTS	-	0.39	-		
Pyrene	mg/kg	0.05	MCERTS	-	0.31	-		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.20	-		
Chrysene	mg/kg	0.05	MCERTS	-	0.19	-		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	0.25	-		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	0.15	-		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	0.18	-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	2.04	-		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	39	-		
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.9	-		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-		
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	-		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	320	-		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	73	-		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	42	-		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	29	-		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	68	-		

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785650	785651	785652		
Sample Reference				TPH09	TPH10	TPH10		
Sample Number				8	1	7		
Depth (m)				2.10	0.50	2.00		
Date Sampled				12/07/2017	12/07/2017	12/07/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

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

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	2.7	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	24	30	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	31	36	< 10		

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785650	785651	785652		
Sample Reference				TPH09	TPH10	TPH10		
Sample Number				8	1	7		
Depth (m)				2.10	0.50	2.00		
Date Sampled				12/07/2017	12/07/2017	12/07/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785650	785651	785652		
Sample Reference				TPH09	TPH10	TPH10		
Sample Number				8	1	7		
Depth (m)				2.10	0.50	2.00		
Date Sampled				12/07/2017	12/07/2017	12/07/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1		
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	< 0.2		
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2		
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1		
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1		
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	< 0.1		
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	< 0.3		
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Phenanthrene	mg/kg	0.05	MCERTS	0.75	-	< 0.05		
Anthracene	mg/kg	0.05	MCERTS	0.22	-	< 0.05		
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3		
Fluoranthene	mg/kg	0.05	MCERTS	1.3	-	< 0.05		
Pyrene	mg/kg	0.05	MCERTS	1.2	-	< 0.05		
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	< 0.3		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.73	-	< 0.05		
Chrysene	mg/kg	0.05	MCERTS	0.74	-	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.0	-	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.44	-	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.88	-	< 0.05		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.49	-	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.16	-	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.52	-	< 0.05		

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785653				
Sample Reference				TPH05				
Sample Number				6				
Depth (m)				1.70				
Date Sampled				13/07/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	ISO 17025	47900				
Toluene	µg/l	1	ISO 17025	74700				
Ethylbenzene	µg/l	1	ISO 17025	11200				
p & m-xylene	µg/l	1	ISO 17025	33500				
o-xylene	µg/l	1	ISO 17025	6410				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	260				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	6500				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	40000				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	20000				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	9300				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	12000				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	88000				
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	48000				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	75000				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	64000				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	160000				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	59000				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	20000				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	47000				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	480000				

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785653				
Sample Reference				TPH05				
Sample Number				6				
Depth (m)				1.70				
Date Sampled				13/07/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	NONE	< 1.0				
Trichlorofluoromethane	µg/l	1	NONE	< 1.0				
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	47900				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	74700				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	11200				
p & m-Xylene	µg/l	1	ISO 17025	33500				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-Xylene	µg/l	1	ISO 17025	6410				
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	161				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
n-Propylbenzene	µg/l	1	ISO 17025	115				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	3820				
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	3800				
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785653				
Sample Reference				TPH05				
Sample Number				6				
Depth (m)				1.70				
Date Sampled				13/07/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	µg/l	0.05	NONE	< 0.05				
Phenol	µg/l	0.05	NONE	< 0.05				
2-Chlorophenol	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05				
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05				
2-Methylphenol	µg/l	0.05	NONE	< 0.05				
Hexachloroethane	µg/l	0.05	NONE	< 0.05				
Nitrobenzene	µg/l	0.05	NONE	< 0.05				
4-Methylphenol	µg/l	0.05	NONE	< 0.05				
Isophorone	µg/l	0.05	NONE	< 0.05				
2-Nitrophenol	µg/l	0.05	NONE	< 0.05				
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05				
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05				
Naphthalene	µg/l	0.01	ISO 17025	8300				
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05				
4-Chloroaniline	µg/l	0.05	NONE	< 0.05				
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05				
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05				
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2-Methylnaphthalene	µg/l	0.05	NONE	7300				
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05				
Dimethylphthalate	µg/l	0.05	NONE	< 0.05				
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05				
Acenaphthylene	µg/l	0.01	ISO 17025	36				
Acenaphthene	µg/l	0.01	ISO 17025	1400				
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05				
Dibenzofuran	µg/l	0.05	NONE	660				
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05				
Diethyl phthalate	µg/l	0.05	NONE	< 0.05				
4-Nitroaniline	µg/l	0.05	NONE	< 0.05				
Fluorene	µg/l	0.01	ISO 17025	280				
Azobenzene	µg/l	0.05	NONE	< 0.05				
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05				
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05				
Phenanthrene	µg/l	0.01	ISO 17025	130				
Anthracene	µg/l	0.01	ISO 17025	22				
Carbazole	µg/l	0.05	NONE	< 0.05				
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05				
Anthraquinone	µg/l	0.05	NONE	< 0.05				
Fluoranthene	µg/l	0.01	ISO 17025	37				
Pyrene	µg/l	0.01	ISO 17025	30				
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	13				
Chrysene	µg/l	0.01	ISO 17025	15				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	12				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	5.2				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	7.7				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	4.1				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	1.2				
Benzo(ghi)perylene	µg/l	0.01	NONE	4.6				

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

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785654	785655	785656	785657	785658
Sample Reference				BHH03	TPH01	TPH01	TPH02	TPH03
Sample Number				3	1	4	3	1
Depth (m)				1.50	0.40	1.50	0.90	0.40
Date Sampled				10/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	4.6	34	5.3	13
Boron (dissolved)	µg/l	10	ISO 17025	200	< 10	17	24	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	2.5	1.2	4.4	< 0.4	3.2
Copper (dissolved)	µg/l	0.7	ISO 17025	11	9.9	17	2.4	15
Lead (dissolved)	µg/l	1	ISO 17025	1.7	4.2	14	1.4	6.9
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3	1.3	2.6	1.2	1.7
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	2.9	14	15	1.8	7.6

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785659
Sample Reference				TPH03
Sample Number				10
Depth (m)				3.40
Date Sampled				13/07/2017
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Arsenic (dissolved)	µg/l	1.1	ISO 17025	4.2
Boron (dissolved)	µg/l	10	ISO 17025	120
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.8
Copper (dissolved)	µg/l	0.7	ISO 17025	5.8
Lead (dissolved)	µg/l	1	ISO 17025	9.6
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	3.2
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	15

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785660	785661	785662	785663	785664
Sample Reference				TPH04	TPH04	TPH05	TPH05	TPH06
Sample Number				1	6	1	4	2
Depth (m)				0.40	1.30	0.50	1.30	0.60
Date Sampled				13/07/2017	13/07/2017	13/07/2017	13/07/2017	12/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	6.9	1.5	8.1	1.4	< 1.1
Boron (dissolved)	µg/l	10	ISO 17025	< 10	23	16	19	46
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	4.5	1.1	5.6	2.2	8.3
Copper (dissolved)	µg/l	0.7	ISO 17025	4.2	0.9	18	7.7	2.2
Lead (dissolved)	µg/l	1	ISO 17025	23	3.4	31	11	7.3
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	2.9	0.7	3.4	1.3	< 0.3
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	4.8	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	27	9.7	30	7.3	2.3

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785665	785666	785667	785668	785669
Sample Reference				TPH06	TPH07	TPH08	TPH08	TPH09
Sample Number				5	1	1	4	4
Depth (m)				1.00	0.60	0.30	1.00	0.90
Date Sampled				12/07/2017	12/07/2017	12/07/2017	12/07/2017	12/07/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	9.2	4.8	4.8	12	1.6
Boron (dissolved)	µg/l	10	ISO 17025	48	14	87	63	17
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	4.6	2.2	50	23	3.2
Copper (dissolved)	µg/l	0.7	ISO 17025	6.5	18	11	16	11
Lead (dissolved)	µg/l	1	ISO 17025	36	15	16	8.0	12
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	2.1	1.8	6.0	5.8	1.8
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	15	23	16	19	25

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Analytical Report Number: 17-54859

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				785670			
Sample Reference				TPH10			
Sample Number				1			
Depth (m)				0.50			
Date Sampled				12/07/2017			
Time Taken				None Supplied			
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (dissolved)	µg/l	1.1	ISO 17025	5.0			
Boron (dissolved)	µg/l	10	ISO 17025	12			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08			
Chromium (dissolved)	µg/l	0.4	ISO 17025	8.3			
Copper (dissolved)	µg/l	0.7	ISO 17025	4.0			
Lead (dissolved)	µg/l	1	ISO 17025	3.7			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0			
Zinc (dissolved)	µg/l	0.4	ISO 17025	0.7			

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Analytical Report Number : 17-54859

Project / Site name: Harbourside, Port Talbot

* 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 *
785625	BHH03	3	1.50	Brown loam and sand with gravel.
785626	TPH01	1	0.40	Brown loam and sand with gravel.
785627	TPH01	4	1.50	Brown loam and sand with gravel and rubble.
785628	TPH02	3	0.90	Brown loam and sand with gravel.
785629	TPH02	6	2.00	Brown clay and sand with gravel.
785630	TPH02	9	2.70	Brown clay and sand with gravel.
785631	TPH03	1	0.40	Brown loam and sand with gravel and vegetation.
785632	TPH03	4	1.40	Brown loam and sand with gravel.
785633	TPH03	10	3.40	Brown clay and sand.
785634	TPH03	13	4.00	Brown clay.
785635	TPH04	1	0.40	Brown loam and sand with gravel and rubble.
785636	TPH04	6	1.30	Brown clay and sand with gravel.
785637	TPH04	9	2.00	Brown clay and sand with gravel.
785638	TPH05	1	0.50	Brown loam and sand with gravel.
785639	TPH05	4	1.30	Brown clay and sand with gravel.
785640	TPH05	7	1.90	Brown clay and sand with gravel and vegetation.
785641	TPH06	2	0.60	Brown loam and sand with gravel.
785642	TPH06	5	1.00	Brown loam and sand with gravel.
785643	TPH06	10	2.60	Brown clay.
785644	TPH07	1	0.60	Brown loam and sand with gravel.
785645	TPH07	7	2.20	Grey clay and sand with gravel and stones.
785646	TPH08	1	0.30	Brown loam and sand with gravel and vegetation.
785647	TPH08	4	1.00	Brown loam and sand with gravel and clinker
785648	TPH08	7	2.00	Brown clay and sand.
785649	TPH09	4	0.90	Brown loam and sand with gravel and stones.
785650	TPH09	8	2.10	Brown loam and clay with gravel and vegetation.
785651	TPH10	1	0.50	Brown loam and sand with gravel and clinker
785652	TPH10	7	2.00	Non Soil**

**Non Mcerts Matrix

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Analytical Report Number : 17-54859

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	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
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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
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
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	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
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
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
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	NONE
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
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

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Analytical Report Number : 17-54859

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil by Gallery 16hr	Determination of water soluble Sulphate by discrete analyser (precipitation method).	In house method based on BS1377-3: 1990.	L082B-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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
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
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

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.

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Analytical Report Number : 17-54862

Project / Site name:	Harbourside, Port Talbot	**Samples received on:**	19/07/2017
Your job number:	G40066	**Samples instructed on:**	20/07/2017
Your order number:		**Analysis completed by:**	02/08/2017
Report Issue Number:	1	**Report issued on:**	02/08/2017
Samples Analysed:	6 10:1 WAC Samples		

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Waste Acceptance Criteria Analytical Results

Report No:	**17-54862**						
					Client:	**QUANTUMLAB**	
Location	**Harbourside, Port Talbot**						
Lab Reference (Sample Number)	785676 / 785677				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date							
Sample ID	TPH02 2				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	0.40						
Solid Waste Analysis							
TOC (%)**	2.3				3%	5%	6%
Loss on Ignition (%) **	7.9				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	49				500	--	--
Total PAH (WAC-17) (mg/kg)	33				100	--	--
pH (units)**	8.1				--	>6	--
Acid Neutralisation Capacity (mol / kg)	11				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:01	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0047			0.0401	0.5	2	25
Barium *	0.0415			0.356	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0026			0.022	0.5	10	70
Copper *	0.016			0.13	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0016			0.0137	0.5	10	30
Nickel *	0.0017			0.015	0.4	10	40
Lead *	0.016			0.14	0.5	10	50
Antimony *	0.0036			0.031	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.029			0.25	4	50	200
Chloride *	0.58			5.0	800	4000	25000
Fluoride	0.21			1.8	10	150	500
Sulphate *	9.8			84	1000	20000	50000
TDS	61			520	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	< 0.100			< 1.00	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	2.0						
Dry Matter (%)	91						
Moisture (%)	8.9						

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 discrepencies with current legislation ** = MCERTS accrediited

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:	**17-54862**						
					Client:	**QUANTUMLAB**	
Location	**Harbourside, Port Talbot**						
Lab Reference (Sample Number)	785678 / 785679				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date							
Sample ID	TPH03 1				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	0.40						
Solid Waste Analysis							
TOC (%)**	1.6				3%	5%	6%
Loss on Ignition (%) **	5.5				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	1.6				100	--	--
pH (units)**	8.1				--	>6	--
Acid Neutralisation Capacity (mol / kg)	3.3				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:01	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0316			0.279	0.5	2	25
Barium *	0.0190			0.168	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0017			0.015	0.5	10	70
Copper *	0.0089			0.078	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0016			0.0142	0.5	10	30
Nickel *	0.0020			0.017	0.4	10	40
Lead *	0.0052			0.046	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0070			0.062	4	50	200
Chloride *	0.54			4.8	800	4000	25000
Fluoride	0.38			3.3	10	150	500
Sulphate *	1.5			13	1000	20000	50000
TDS	50			450	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	< 0.100			< 1.00	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	2.0						
Dry Matter (%)	89						
Moisture (%)	11						

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*= UKAS accredited (liquid eluate analysis only)
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Waste Acceptance Criteria Analytical Results

Report No:	**17-54862**						
					Client: QUANTUMLAB		
Location	**Harbourside, Port Talbot**						
Lab Reference (Sample Number)	785680 / 785681				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TPH04 2						
Depth (m)	0.40						
Solid Waste Analysis							
TOC (%)**	2.3				3%	5%	6%
Loss on Ignition (%) **	7.4				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	12				500	--	--
Total PAH (WAC-17) (mg/kg)	5.5				100	--	--
pH (units)**	8.1				--	>6	--
Acid Neutralisation Capacity (mol / kg)	2.1				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:01	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0103			0.0868	0.5	2	25
Barium *	0.0289			0.243	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0019			0.016	0.5	10	70
Copper *	0.0076			0.064	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0079			0.0666	0.5	10	30
Nickel *	0.0017			0.014	0.4	10	40
Lead *	0.0081			0.068	0.5	10	50
Antimony *	0.0033			0.028	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.015			0.13	4	50	200
Chloride *	1.2			9.9	800	4000	25000
Fluoride	0.13			1.1	10	150	500
Sulphate *	3.0			25	1000	20000	50000
TDS	43			360	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	< 0.100			< 1.00	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.9						
Dry Matter (%)	96						
Moisture (%)	3.7						

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Waste Acceptance Criteria Analytical Results

Report No:	**17-54862**						
					Client: QUANTUMLAB		
Location	**Harbourside, Port Talbot**						
Lab Reference (Sample Number)	785682 / 785683				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TPH07 2						
Depth (m)	0.60						
Solid Waste Analysis							
TOC (%)**	1.0				3%	5%	6%
Loss on Ignition (%) **	4.9				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	20				100	--	--
pH (units)**	8.5				--	>6	--
Acid Neutralisation Capacity (mol / kg)	9.6				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:01	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0100			0.0891	0.5	2	25
Barium *	0.0139			0.123	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0015			0.013	0.5	10	70
Copper *	0.011			0.097	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0025			0.022	0.4	10	40
Lead *	0.0095			0.084	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	0.0056			0.050	0.1	0.5	7
Zinc *	0.013			0.11	4	50	200
Chloride *	1.2			11	800	4000	25000
Fluoride	0.22			2.0	10	150	500
Sulphate *	2.9			26	1000	20000	50000
TDS	45			400	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	< 0.100			< 1.00	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.9						
Dry Matter (%)	93						
Moisture (%)	7.0						

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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Waste Acceptance Criteria Analytical Results

Report No:	**17-54862**						
					Client: QUANTUMLAB		
Location	**Harbourside, Port Talbot**						
Lab Reference (Sample Number)	785684 / 785685				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TPH08 2						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	1.9				3%	5%	6%
Loss on Ignition (%) **	7.9				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	12				100	--	--
pH (units)**	8.8				--	>6	--
Acid Neutralisation Capacity (mol / kg)	15				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:01	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0168			0.143	0.5	2	25
Barium *	0.0074			0.0627	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.031			0.26	0.5	10	70
Copper *	0.0072			0.061	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.874			7.42	0.5	10	30
Nickel *	0.0040			0.034	0.4	10	40
Lead *	0.0044			0.038	0.5	10	50
Antimony *	0.0039			0.033	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0068			0.057	4	50	200
Chloride *	1.2			9.8	800	4000	25000
Fluoride	0.068			0.58	10	150	500
Sulphate *	17			140	1000	20000	50000
TDS	69			590	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	< 0.100			< 1.00	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.7						
Dry Matter (%)	93						
Moisture (%)	6.9						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
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Waste Acceptance Criteria Analytical Results

Report No:	**17-54862**						
					Client:	**QUANTUMLAB**	
Location	**Harbourside, Port Talbot**						
Lab Reference (Sample Number)	785686 / 785687				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date							
Sample ID	TPH09 5				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	0.90						
Solid Waste Analysis							
TOC (%)**	0.8				3%	5%	6%
Loss on Ignition (%) **	2.5				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	0.017				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	15				100	--	--
pH (units)**	8.6				--	>6	--
Acid Neutralisation Capacity (mol / kg)	10				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:01	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0060			0.0549	0.5	2	25
Barium *	0.0205			0.187	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0033			0.030	0.5	10	70
Copper *	0.0094			0.086	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0067			0.0610	0.5	10	30
Nickel *	0.0018			0.016	0.4	10	40
Lead *	0.0065			0.060	0.5	10	50
Antimony *	0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.012			0.11	4	50	200
Chloride *	0.59			5.4	800	4000	25000
Fluoride	0.17			1.5	10	150	500
Sulphate *	5.2			48	1000	20000	50000
TDS	49			450	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	< 0.100			< 1.00	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	2.0						
Dry Matter (%)	96						
Moisture (%)	3.9						

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Analytical Report Number : 17-54862

Project / Site name: Harbourside, Port Talbot

* 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 *
785676	TPH02	2	0.40	Brown loam and sand with gravel.
785678	TPH03	1	0.40	Brown loam and sand with gravel and vegetation.
785680	TPH04	2	0.40	Brown loam and sand with gravel and vegetation.
785682	TPH07	2	0.60	Brown loam and sand with gravel.
785684	TPH08	2	0.30	Brown loam and sand with gravel and vegetation.
785686	TPH09	5	0.90	Grey gravelly clay.

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Analytical Report Number : 17-54862

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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-UK	W	NONE
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	in-house method	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
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	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	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	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS

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Analytical Report Number : 17-54862

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

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.

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Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TPH02	2	L	17-54862	785677	a			
TPH02	2	S	17-54862	785676	ab	BTEX in soil (Monoaromatics)	L073B-PL	b
TPH02	2	S	17-54862	785676	ab	Mineral Oil (Soil) C10 - C40	L076-PL	b
TPH02	2	S	17-54862	785676	ab	PCB's By GC-MS in soil	L027-PL	b
TPH02	2	S	17-54862	785676	ab	Speciated WAC-17 PAHs in soil	L064-PL	b
TPH02	2	S	17-54862	785676	ab	Total BTEX in soil (Poland)	L073-PL	b
TPH03	1	L	17-54862	785679	a			
TPH03	1	S	17-54862	785678	a			
TPH04	2	L	17-54862	785681	a			
TPH04	2	S	17-54862	785680	ab	BTEX in soil (Monoaromatics)	L073B-PL	b
TPH04	2	S	17-54862	785680	ab	Mineral Oil (Soil) C10 - C40	L076-PL	b
TPH04	2	S	17-54862	785680	ab	PCB's By GC-MS in soil	L027-PL	b
TPH04	2	S	17-54862	785680	ab	Speciated WAC-17 PAHs in soil	L064-PL	b
TPH04	2	S	17-54862	785680	ab	Total BTEX in soil (Poland)	L073-PL	b
TPH07	2	L	17-54862	785683	a			
TPH07	2	S	17-54862	785682	ab	BTEX in soil (Monoaromatics)	L073B-PL	b
TPH07	2	S	17-54862	785682	ab	Mineral Oil (Soil) C10 - C40	L076-PL	b
TPH07	2	S	17-54862	785682	ab	PCB's By GC-MS in soil	L027-PL	b
TPH07	2	S	17-54862	785682	ab	Speciated WAC-17 PAHs in soil	L064-PL	b
TPH07	2	S	17-54862	785682	ab	Total BTEX in soil (Poland)	L073-PL	b
TPH08	2	L	17-54862	785685	a			
TPH08	2	S	17-54862	785684	ab	BTEX in soil (Monoaromatics)	L073B-PL	b
TPH08	2	S	17-54862	785684	ab	Mineral Oil (Soil) C10 - C40	L076-PL	b
TPH08	2	S	17-54862	785684	ab	PCB's By GC-MS in soil	L027-PL	b
TPH08	2	S	17-54862	785684	ab	Speciated WAC-17 PAHs in soil	L064-PL	b
TPH08	2	S	17-54862	785684	ab	Total BTEX in soil (Poland)	L073-PL	b
TPH09	5	L	17-54862	785687	a			
TPH09	5	S	17-54862	785686	ab	BTEX in soil (Monoaromatics)	L073B-PL	b
TPH09	5	S	17-54862	785686	ab	Mineral Oil (Soil) C10 - C40	L076-PL	b
TPH09	5	S	17-54862	785686	ab	PCB's By GC-MS in soil	L027-PL	b
TPH09	5	S	17-54862	785686	ab	Speciated WAC-17 PAHs in soil	L064-PL	b
TPH09	5	S	17-54862	785686	ab	Total BTEX in soil (Poland)	L073-PL	b

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

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Analytical Report Number : 17-56144

Project / Site name:	Harbourside, Port Talbot	**Samples received on:**	03/08/2017
Your job number:	G40066	**Samples instructed on:**	03/08/2017
Your order number:		**Analysis completed by:**	10/08/2017
Report Issue Number:	1	**Report issued on:**	10/08/2017
Samples Analysed:	3 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-56144

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				792666	792667	792668		
Sample Reference				BH02	BH02	BH02		
Sample Number				1	2	4		
Depth (m)				0.50-1.00	2.00	5.00-6.00		
Date Sampled				01/08/2017	01/08/2017	01/08/2017		
Time Taken				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		
Moisture Content	%	N/A	NONE	3.3	18	13		
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0		
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile-Hard/Cement Type Material	-	-		
Asbestos in Soil	Type	N/A	ISO 17025	Detected	-	-		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	10.9	-	-		
Total Cyanide	mg/kg	1	MCERTS	7	-	-		
Total Sulphate as SO_4	mg/kg	50	MCERTS	2100	-	-		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.14	0.19	0.044		
Total Sulphur	mg/kg	50	MCERTS	1300	-	-		
Organic Matter	%	0.1	MCERTS	2.0	2.9	-		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	12	-	-		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-		
Acenaphthene	mg/kg	0.05	MCERTS	0.40	-	-		
Fluorene	mg/kg	0.05	MCERTS	0.11	-	-		
Phenanthrene	mg/kg	0.05	MCERTS	0.16	-	-		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-		
Fluoranthene	mg/kg	0.05	MCERTS	0.18	-	-		
Pyrene	mg/kg	0.05	MCERTS	0.17	-	-		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.19	-	-		
Chrysene	mg/kg	0.05	MCERTS	0.26	-	-		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.36	-	-		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.23	-	-		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.22	-	-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.22	-	-		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.25	-	-		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	14.9	-	-		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.1	-	-		
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3	-	-		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.8	-	-		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	-		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	760	-	-		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	53	-	-		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	94	-	-		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	-	-		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	160	-	-		

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Analytical Report Number: 17-56144

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				792666	792667	792668		
Sample Reference				BH02	BH02	BH02		
Sample Number				1	2	4		
Depth (m)				0.50-1.00	2.00	5.00-6.00		
Date Sampled				01/08/2017	01/08/2017	01/08/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	160	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	37	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	53	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	47	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	30	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	50	150	39		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	51	150	39		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	0.16	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	0.037	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	0.15	< 0.001		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	16	15	2.4		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	14	11	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	15	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	37	110	25		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	76	150	30		

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Analytical Report Number: 17-56144

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				792666	792667	792668		
Sample Reference				BH02	BH02	BH02		
Sample Number				1	2	4		
Depth (m)				0.50-1.00	2.00	5.00-6.00		
Date Sampled				01/08/2017	01/08/2017	01/08/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
Chloroethane	µg/kg	1	NONE	-	< 1.0	< 1.0		
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	< 1.0		
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	< 1.0		
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0		
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0		
Benzene	µg/kg	1	MCERTS	-	160	< 1.0		
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	-	37	< 1.0		
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0		
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	-	53	< 1.0		
p & m-Xylene	µg/kg	1	MCERTS	-	47	< 1.0		
Styrene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Tribromomethane	µg/kg	1	NONE	-	< 1.0	< 1.0		
o-Xylene	µg/kg	1	MCERTS	-	30	< 1.0		
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Isopropylbenzene	µg/kg	1	MCERTS	-	2.0	< 1.0		
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	8.4	< 1.0		
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	7.2	< 1.0		
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0		

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Analytical Report Number: 17-56144

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				792666	792667	792668		
Sample Reference				BH02	BH02	BH02		
Sample Number				1	2	4		
Depth (m)				0.50-1.00	2.00	5.00-6.00		
Date Sampled				01/08/2017	01/08/2017	01/08/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1		
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	< 0.2		
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1		
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1		
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1		
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	< 0.2		
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
Naphthalene	mg/kg	0.05	MCERTS	-	14	1.5		
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1		
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1		
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	< 0.1		
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1		
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
2-Methylnaphthalene	mg/kg	0.1	NONE	-	1.2	< 0.1		
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1		
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1		
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1		
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	-	0.16	< 0.05		
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3		
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
Fluorene	mg/kg	0.05	MCERTS	-	0.28	< 0.05		
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
Phenanthrene	mg/kg	0.05	MCERTS	-	0.14	< 0.05		
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2		
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3		
Fluoranthene	mg/kg	0.05	MCERTS	-	0.10	< 0.05		
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05		

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Analytical Report Number : 17-56144

Project / Site name: Harbourside, Port Talbot

* 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 *
792666	BH02	1	0.50-1.00	Brown sandy loam with gravel and vegetation.
792667	BH02	2	2.00	Brown clay and sand with gravel.
792668	BH02	4	5.00-6.00	Brown sandy clay with gravel.

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Analytical Report Number : 17-56144

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	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
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	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
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
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
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
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
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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 17-56144

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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

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.

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Analytical Report Number : 17-56312

Project / Site name:	Harbourside, Port Talbot	**Samples received on:**	04/08/2017
Your job number:	G40066	**Samples instructed on:**	04/08/2017
Your order number:		**Analysis completed by:**	09/08/2017
Report Issue Number:	1	**Report issued on:**	09/08/2017
Samples Analysed:	2 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-56312

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				793526	793527			
Sample Reference				BH03	BH05			
Sample Number				1A	2A			
Depth (m)				4.00-5.00	5.00-6.00			
Date Sampled				02/08/2017	02/08/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	7.5	9.5			
Total mass of sample received	kg	0.001	NONE	1.9	1.9			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.7	8.2			
Total Sulphate as SO_4	mg/kg	50	MCERTS	140	170			
Total Sulphur	mg/kg	50	MCERTS	170	60			
Organic Matter	%	0.1	MCERTS	0.5	0.3			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.2	6.5			
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.5			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	18			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	10	8.5			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	8.1	7.5			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	29	27			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	65	63			

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Analytical Report Number: 17-56312

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				793526	793527			
Sample Reference				BH03	BH05			
Sample Number				1A	2A			
Depth (m)				4.00-5.00	5.00-6.00			
Date Sampled				02/08/2017	02/08/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/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			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	8.0	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 17-56312

Project / Site name: Harbourside, Port Talbot

* 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 *
793526	BH03	1A	4.00-5.00	Brown sand with gravel.
793527	BH05	2A	5.00-6.00	Brown sand with gravel.

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Analytical Report Number : 17-56312

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	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
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	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
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	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
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 (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	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.

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Analytical Report Number : 17-56381

Project / Site name:	Harbourside, Port Talbot	**Samples received on:**	04/08/2017
Your job number:	G40066	**Samples instructed on:**	04/08/2017
Your order number:		**Analysis completed by:**	10/08/2017
Report Issue Number:	1	**Report issued on:**	10/08/2017
Samples Analysed:	1 leachate sample - 2 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Analytical Report Number: 17-56381

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				793902	793903			
Sample Reference				BH04	BH04			
Sample Number				1	2			
Depth (m)				0.50-1.00	2.00			
Date Sampled				03/08/2017	03/08/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	13	3.3			
Total mass of sample received	kg	0.001	NONE	2.0	2.0			
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile- Loose Fibres	-			
Asbestos in Soil	Type	N/A	ISO 17025	Detected	-			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.8	7.8			
Total Cyanide	mg/kg	1	MCERTS	< 1	-			
Total Sulphate as SO_4	mg/kg	50	MCERTS	770	230			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.12	0.059			
Total Sulphur	mg/kg	50	MCERTS	560	110			
Organic Matter	%	0.1	MCERTS	4.8	0.5			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.12	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	0.16	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	0.10	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	1.3	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	0.19	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	1.3	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	1.1	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.72	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	0.69	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.0	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.36	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.73	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.37	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.33	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	8.52	< 0.80			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	28	-			
Boron (water soluble)	mg/kg	0.2	MCERTS	2.6	-			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	-			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	83	-			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	66	-			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	-			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	130	-			

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Analytical Report Number: 17-56381

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				793902	793903			
Sample Reference				BH04	BH04			
Sample Number				1	2			
Depth (m)				0.50-1.00	2.00			
Date Sampled				03/08/2017	03/08/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/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			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	31	99			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	31	100			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	13	45			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	17	47			

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Analytical Report Number: 17-56381

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				793902	793903			
Sample Reference				BH04	BH04			
Sample Number				1	2			
Depth (m)				0.50-1.00	2.00			
Date Sampled				03/08/2017	03/08/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0			
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0			
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0			
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,1,2-Tetrachloroethane	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			
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0			
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			

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Analytical Report Number: 17-56381

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				793904				
Sample Reference				BH04				
Sample Number				1				
Depth (m)				0.50-1.00				
Date Sampled				03/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	13				
Boron (dissolved)	µg/l	10	ISO 17025	48				
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08				
Chromium (hexavalent)	µg/l	5	NONE	< 5.0				
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.5				
Copper (dissolved)	µg/l	0.7	ISO 17025	26				
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0				
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5				
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.1				
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0				
Zinc (dissolved)	µg/l	0.4	ISO 17025	5.8				

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Analytical Report Number : 17-56381

Project / Site name: Harbourside, Port Talbot

* 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 *
793902	BH04	1	0.50-1.00	Brown clay and sand with gravel and brick.
793903	BH04	2	2.00	Brown sand with gravel.

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Analytical Report Number : 17-56381

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	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
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
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
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	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
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	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
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
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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-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

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Analytical Report Number : 17-56381

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-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

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.

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Analytical Report Number : 17-56560

Project / Site name:	Harbourside, Port Talbot	**Samples received on:**	07/08/2017
Your job number:	G40066	**Samples instructed on:**	07/08/2017
Your order number:		**Analysis completed by:**	14/08/2017
Report Issue Number:	1	**Report issued on:**	14/08/2017
Samples Analysed:	3 leachate samples - 3 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-56560

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				794931	794932	794933		
Sample Reference				BH07	BH07	BH07		
Sample Number				1	3	4		
Depth (m)				0.30-0.50	2.00	3.00-4.00		
Date Sampled				03/08/2017	03/08/2017	03/08/2017		
Time Taken				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		
Moisture Content	%	N/A	NONE	4.8	9.8	15		
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	11.4	10.8	9.4		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Total Sulphate as SO_4	mg/kg	50	MCERTS	2200	1900	380		
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	200	480	140		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.10	0.24	0.069		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	100	240	69.2		
Total Sulphur	mg/kg	50	MCERTS	1200	1400	350		
Organic Matter	%	0.1	MCERTS	2.8	3.9	1.2		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.43	-	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	0.89	-	< 0.05		
Anthracene	mg/kg	0.05	MCERTS	0.20	-	< 0.05		
Fluoranthene	mg/kg	0.05	MCERTS	1.5	-	< 0.05		
Pyrene	mg/kg	0.05	MCERTS	1.3	-	< 0.05		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.82	-	< 0.05		
Chrysene	mg/kg	0.05	MCERTS	0.88	-	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.92	-	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.67	-	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.75	-	< 0.05		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.48	-	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.16	-	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.52	-	< 0.05		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	9.54	-	< 0.80		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.6	-	-		
Boron (water soluble)	mg/kg	0.2	MCERTS	5.1	-	-		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	-		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	-		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	1100	-	-		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	75	-	-		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	48	-	-		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	-	-		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	88	-	-		

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Analytical Report Number: 17-56560

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				794931	794932	794933		
Sample Reference				BH07	BH07	BH07		
Sample Number				1	3	4		
Depth (m)				0.30-0.50	2.00	3.00-4.00		
Date Sampled				03/08/2017	03/08/2017	03/08/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	3.4	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	11	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	23	110	19		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	25	130	20		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	1.5	3.8	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	4.2	6.7	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	12	28	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	51	130	40		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	69	170	42		

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Analytical Report Number: 17-56560

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				794931	794932	794933		
Sample Reference				BH07	BH07	BH07		
Sample Number				1	3	4		
Depth (m)				0.30-0.50	2.00	3.00-4.00		
Date Sampled				03/08/2017	03/08/2017	03/08/2017		
Time Taken				None Supplied	None Supplied	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	-		
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	-		

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-56560

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				794931	794932	794933		
Sample Reference				BH07	BH07	BH07		
Sample Number				1	3	4		
Depth (m)				0.30-0.50	2.00	3.00-4.00		
Date Sampled				03/08/2017	03/08/2017	03/08/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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	-	1.1	-		
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	-	1.5	-		
Anthracene	mg/kg	0.05	MCERTS	-	0.28	-		
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	-	2.6	-		
Pyrene	mg/kg	0.05	MCERTS	-	2.2	-		
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	-		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	1.4	-		
Chrysene	mg/kg	0.05	MCERTS	-	1.3	-		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	1.3	-		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	1.4	-		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	1.3	-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.70	-		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	0.24	-		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	0.91	-		

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Analytical Report Number: 17-56560

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				794934	794935	794936		
Sample Reference				BH07	BH07	BH07		
Sample Number				1	3	4		
Depth (m)				0.30-0.50	2.00	3.00-4.00		
Date Sampled				03/08/2017	03/08/2017	03/08/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	3.2	8.1		
Boron (dissolved)	µg/l	10	ISO 17025	29	50	31		
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08		
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0		
Chromium (dissolved)	µg/l	0.4	ISO 17025	3.4	1.5	0.4		
Copper (dissolved)	µg/l	0.7	ISO 17025	7.1	10	13		
Lead (dissolved)	µg/l	1	ISO 17025	1.8	4.7	< 1.0		
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5		
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.0	< 0.3	1.7		
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	5.0	< 4.0		
Zinc (dissolved)	µg/l	0.4	ISO 17025	6.0	4.7	12		

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Analytical Report Number : 17-56560

Project / Site name: Harbourside, Port Talbot

* 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 *
794931	BH07	1	0.30-0.50	Black sandy gravel with vegetation.
794932	BH07	3	2.00	Black sandy gravel.
794933	BH07	4	3.00-4.00	Brown sandy clay.

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Analytical Report Number : 17-56560

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	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
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
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
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	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
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
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
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
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
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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS

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Analytical Report Number : 17-56560

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-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

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.

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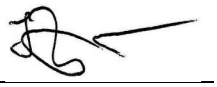
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Analytical Report Number : 17-57388

Project / Site name:	Harbourside, Port Talbot	**Samples received on:**	16/08/2017
Your job number:	G40066	**Samples instructed on:**	16/08/2017
Your order number:		**Analysis completed by:**	23/08/2017
Report Issue Number:	1	**Report issued on:**	23/08/2017
Samples Analysed:	2 water samples		

Signed: 

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Analytical Report Number: 17-57388

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				799375	799376			
Sample Reference				BH02	BH07			
Sample Number				1	1			
Depth (m)				1.63	1.73			
Date Sampled				14/08/2017	14/08/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10			
Sulphate as SO_4	µg/l	45	ISO 17025	47900	82000			
Sulphate as SO_4	mg/l	0.045	ISO 17025	48	82			
Hardness - Total	mgCaCO3/l	1	ISO 17025	317	335			
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10			
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.39	2.16			
Boron (dissolved)	µg/l	10	ISO 17025	170	180			
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02	< 0.02			
Calcium (dissolved)	mg/l	0.012	ISO 17025	100	110			
Chromium (hexavalent)	µg/l	5	ISO 17025	12	< 5.0			
Chromium (dissolved)	µg/l	0.2	ISO 17025	15	6.3			
Copper (dissolved)	µg/l	0.5	ISO 17025	7.4	3.5			
Lead (dissolved)	µg/l	0.2	ISO 17025	0.3	0.2			
Magnesium (dissolved)	mg/l	0.005	ISO 17025	15	15			
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05			
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.2	1.7			
Selenium (dissolved)	µg/l	0.6	ISO 17025	3.4	2.0			
Zinc (dissolved)	µg/l	0.5	ISO 17025	7.7	9.1			
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

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Analytical Report Number: 17-57388

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				799375	799376			
Sample Reference				BH02	BH07			
Sample Number				1	1			
Depth (m)				1.63	1.73			
Date Sampled				14/08/2017	14/08/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0			
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0			
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-57388

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				799375	799376			
Sample Reference				BH02	BH07			
Sample Number				1	1			
Depth (m)				1.63	1.73			
Date Sampled				14/08/2017	14/08/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	µg/l	0.05	NONE	< 0.05	< 0.05			
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05			
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05			
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05			
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05			
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05			
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05			
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05			
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05			
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05			
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05			
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05			
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05			
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05			
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05			
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05			
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05			
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05			
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05			
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05			
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05			
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05			
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05			
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05			
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05			
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05			
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05			
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05			
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05			
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05			
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05			
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05			
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			

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

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Analytical Report Number : 17-57388

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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
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
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
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
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-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
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	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-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	NONE
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

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.

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Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
BH02	1	W	17-57388	799375	d	BTEX and MTBE in water (Monoaromatics)	L073B-PL	d
BH02	1	W	17-57388	799375	d	TPHCWG (Waters)	L070-PL	d
BH02	1	W	17-57388	799375	d	Volatile organic compounds in water	L073B-PL	d
BH07	1	W	17-57388	799376	d	BTEX and MTBE in water (Monoaromatics)	L073B-PL	d
BH07	1	W	17-57388	799376	d	TPHCWG (Waters)	L070-PL	d
BH07	1	W	17-57388	799376	d	Volatile organic compounds in water	L073B-PL	d

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

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Analytical Report Number : 17-57509

Project / Site name:	Harbourside, Port Talbot	**Samples received on:**	17/08/2017
Your job number:	G40066	**Samples instructed on:**	17/08/2017
Your order number:		**Analysis completed by:**	24/08/2017
Report Issue Number:	1	**Report issued on:**	24/08/2017
Samples Analysed:	1 water sample		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 17-57509

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				800058				
Sample Reference				BH03				
Sample Number				1				
Depth (m)				1.16				
Date Sampled				14/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
Free Cyanide	µg/l	10	ISO 17025	< 10				
Sulphate as SO_4	µg/l	45	ISO 17025	117000				
Sulphate as SO_4	mg/l	0.045	ISO 17025	120				
Hardness - Total	mgCaCO3/l	1	ISO 17025	101				
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10				
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	7.27				
Boron (dissolved)	µg/l	10	ISO 17025	74				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02				
Calcium (dissolved)	mg/l	0.012	ISO 17025	35				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.0				
Copper (dissolved)	µg/l	0.5	ISO 17025	5.2				
Lead (dissolved)	µg/l	0.2	ISO 17025	0.4				
Magnesium (dissolved)	mg/l	0.005	ISO 17025	3.0				
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.75				
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.6				
Selenium (dissolved)	µg/l	0.6	ISO 17025	20				
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.2				
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				

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Analytical Report Number: 17-57509

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				800058				
Sample Reference				BH03				
Sample Number				1				
Depth (m)				1.16				
Date Sampled				14/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	NONE	< 1.0				
Trichlorofluoromethane	µg/l	1	NONE	< 1.0				
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	< 1.0				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-Xylene	µg/l	1	ISO 17025	< 1.0				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-Xylene	µg/l	1	ISO 17025	< 1.0				
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				

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Analytical Report Number: 17-57509

Project / Site name: Harbourside, Port Talbot

Lab Sample Number				800058				
Sample Reference				BH03				
Sample Number				1				
Depth (m)				1.16				
Date Sampled				14/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	µg/l	0.05	NONE	< 0.05				
Phenol	µg/l	0.05	NONE	< 0.05				
2-Chlorophenol	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05				
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05				
2-Methylphenol	µg/l	0.05	NONE	< 0.05				
Hexachloroethane	µg/l	0.05	NONE	< 0.05				
Nitrobenzene	µg/l	0.05	NONE	< 0.05				
4-Methylphenol	µg/l	0.05	NONE	< 0.05				
Isophorone	µg/l	0.05	NONE	< 0.05				
2-Nitrophenol	µg/l	0.05	NONE	< 0.05				
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05				
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05				
Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05				
4-Chloroaniline	µg/l	0.05	NONE	< 0.05				
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05				
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05				
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05				
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05				
Dimethylphthalate	µg/l	0.05	NONE	< 0.05				
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05				
Dibenzofuran	µg/l	0.05	NONE	< 0.05				
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05				
Diethyl phthalate	µg/l	0.05	NONE	< 0.05				
4-Nitroaniline	µg/l	0.05	NONE	< 0.05				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Azobenzene	µg/l	0.05	NONE	< 0.05				
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05				
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Carbazole	µg/l	0.05	NONE	< 0.05				
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05				
Anthraquinone	µg/l	0.05	NONE	< 0.05				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				

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

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 17-57509

Project / Site name: Harbourside, Port Talbot

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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
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
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
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
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-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
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	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-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	NONE
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

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.

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The results included within the report are representative of the samples submitted for analysis.

Appendix B

UXO Engineer Site Logs

RPS Energy

Daily Work Journal

RPS Energy, Explosives Engineering Services

Tel: +44 (0)1291 621821
Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	10 July 2017	Serial:	001	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0745hrs	Time of Leaving Site:	1600hrs

Time	Task	Notes
0745	Arrive	Signed in at security entrance to Murphy site office
0800	Introduction	OPUS mandatory Site Safety introduction
0820	Drill Rig	Arrives on site
0825	UXO TBC	To OPUS, Geo Engineer and drilling team,
0835	BH04	Test surface of BH4 for drill team to hand dig to 1m
0920	BH04	Borehole stopped due to Large diameter cable located at 1m
		Relocated to BH03 and tested surface for Drill Team to dig to 1m
1115	BH03	Drill Team start hand digging the first meter – Subbase very hard
1145	BH03 – 1m	Magnetometer test at 1m – Subbase very hard
1520	BH03 – 2m	Magnetometer test at 2m – Subbase very hard
1550	BH03	Drill Team Stop drilling for today
1600		Left Site

RPS Site Manager:	John Turnbull	Client Representative	JAMES PHILLIPS
Signature:		Signature:	

RPS Energy

Daily Work Journal

RPS Energy, Explosives Engineering Services

Tel: +44 (0)1291 621821

Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	11 July 2017	Serial:	002	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0745hrs	Time of Leaving Site:	1600hrs

Time	Task	Notes
0800	Arrive	Meet up with James Phillips new site manager from Quantum
		Geotechnical
0820	Drill Rig	Drill Rig arrives on site
0930	BH03	Magnetometer test at 3m
0940	BH03	CPT Test - refusal at 3m
		Due to the ground condition, the drilling team is taking longer
		than excepted
1530	BH03	CPT Test - refusal at 4m
1545	BH03	Borehole 03 Stopped at 4m by OPUS
1600	Leave	Left site

RPS Site Manager:	John Turnbull	Client Representative	James Phillips
Signature:		Signature:	

RPS Energy

Daily Work Journal

RPS Energy, Explosives Engineering Services

Tel: +44 (0)1291 621821

Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	12 July 2017	Serial:	003	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0745hrs	Time of Leaving Site:	1600hrs

Time	Task	Notes
0800	Arrive	Arrive on site and set up and test equipment
0815	Bh06	Surface test for BH06 due to the metal content in the ground from
		the Local steel works in a form of metallic slag which.
	Test Pits	5 x test pits were completed today around the site
		A Magnetometer test was completed on all 5 test pits but again the
		ground condition made the use of the Magnetometer un usable
		To cover each test pit a over watch was carry out.
0910	TPH09	Test pit size – 0.60m width x 2.0m length x 2.9m depth
		Stopped due sides collapsing when hitting the natural gravel and
		Water layer
1025	TPH07	Test pit size – 0.60m width x 2.0m length x 2.5m depth
		Stopped due sides collapsing when hitting the natural gravel and
		Water layer
1100	BH06	Magnetometer test at 1m – CPT test carry out 1,2m = Refusal
1220	TPH10	Test pit size – 0.60m width x 2.0m length x 2.1m depth
		Stopped due sides collapsing when hitting the natural gravel and
		Water layer
1315	TPH06	Test pit size – 0.60m width x 2.0m length x 2.8m depth
		Stopped due sides collapsing when hitting the natural gravel and
		Water layer
1420	TPH08	Test pit size – 0.60m width x 2.0m length x 2.1m depth
		Stopped due sides collapsing when hitting the natural gravel and
		Water layer
1545	BH06	CPT Test at 2m = Refusal. second refusal Magnetometer tests
		stopped due to ground conditions cleared to 3m
1600	Leave	Left site

RPS Site Manager:	John Turnbull	Client Representative	James Phillips
Signature:		Signature:	

RPS Energy

Daily Work Journal

RPS Energy, Explosives Engineering Services

Tel: +44 (0)1291 621821
Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	13 July 2017	Serial:	004	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0745hrs	Time of Leaving Site:	1600hrs

Time	Task	Notes
0800	Arrive	Arrive on site and set up and test equipment
0815	BH06	Magnetometer test at 2m cleared to 3m – CPT test at 2m = Refusal
	Test Pits	5 x test pits were completed today around the site
		A Magnetometer test was completed on all 5 test pits but again the
		ground condition made the use of the Magnetometer un usable
		To cover each test pit a over watch was carry out.
0910	TPH04	Test pit size – 0.60m width x 2.0m length x 2.15m depth
		Stopped due oil contamination in the gravel and water layer
1025	TPH05	Test pit size – 0.60m width x 2.0m length x 1.9m depth
		Stopped due oil contamination in the gravel and water layer
1100	BH06	Magnetometer test at 3m – cleared to 4m CPT test at 3m = Refusal
1315	TPH02	Test pit size – 0.60m width x 2.0m length x 2.8m depth
		Stopped due sides collapsing
1400	TPH01	Test pit size – 0.60m width x 2.0m length x 2.4m depth
		A concrete wall located just under the surface. Depth unknown
		Length before back fill 11m and still going OPUS may come back
		To investigate further later.
		side collapsing due the back fill is loosely filled with old bricks
1500	BH06	Magnetometer test at 4m - cleared to 5m CPT Test at 4m =Refusal.
1515	TPH03	Test pit size – 0.60m width x 2.0m length x 4.2m depth
		Stopped due reaching the planned depth.
1600	leave	Left site

RPS Site Manager:	John Turnbull	Client Representative	James Phillips
Signature:		Signature:	

RPS Energy

Daily Work Journal

RPS Energy, Explosives Engineering Services

Tel: +44 (0)1291 621821

Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	14 July 2017	Serial:	005	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0745hrs	Time of Leaving Site:	1300hrs

Time	Task	Notes
0800	Arrive	Arrive on site and set up and test equipment
0945	BH06	Magnetometer test at 6m cleared to 8m – CPT test at 2m = Refusal
		Due to high density of the ground the drilling is very slow
1300	Rig	Drilling team left site to go back to yard for equipment
		maintenance
1300	Leave	Left site

RPS Site Manager:	John Turnbull	Client Representative	Lee Simlett
Signature:		Signature:	

RPS Energy

Daily Work Journal

RPS Energy, Explosives Engineering Services

Tel: +44 (0)1291 621821
Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	17 July 2017	Serial:	006	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0745hrs	Time of Leaving Site:	1500hrs

Time	Task	Notes
0800	Arrive	Arrive on site and set up and test equipment
0830	BH05	Magnetometer test at ground level cleared to 1m
0930	BH06	Drill team stated to relocate to BH05
1430	BH05	Magnetometer test at 1m cleared to 2m – CPT test at 1m = Refusal
		Due to high density of the ground the drilling is very slow
1500	Lave	Left Site

RPS Site Manager:	John Turnbull	Client Representative	Lee Simlett
Signature:		Signature:	

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Daily Work Journal

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Tel: +44 (0)1291 621821

Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	18 July 2017	Serial:	007	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0745hrs	Time of Leaving Site:	1600hrs

Time	Task	Notes
0800	Arrive	Arrive on site and set up and test equipment
0830	BH05	Magnetometer test at 2m cleared to 3m – CPT test at 2m = Refusal
		Due to high density of the ground the drilling is very slow
1330	BH05	Magnetometer test at 3m cleared to 4m – CPT test at 3m = Refusal
		Due to high density of the ground the drilling is very slow
		Drilling team finished all works at 4m and have left site to go to
		another job
		A new Rotating Drilling team which was due tomorrow 19th July
		But now has been delayed posable to the end of the month.
1400	Leave	Left site

RPS Site Manager:	John Turnbull	Client Representative	Lee Simlett
Signature:		Signature:	

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Daily Work Journal

RPS Energy, Explosives Engineering Services

Tel: +44 (0)1291 621821
Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	31 July 2017	Serial:	008	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0745hrs	Time of Leaving Site:	1600hrs

Time	Task	Notes
0745	Arrive	Arrive on site
0750	OPUS	Opus arrives on site – quick site brief saying that the new Drilling
		Team will not arrive until 1000hrs
0930	Quantum	Two members of the drill team arrive with some equipment
0935	Site walk	Site walk around with OPUS and Quantum
0950	Test	Set up and test equipment
1000	BH01	Magnetometer test at surface cleared to 1m
1130	Drilling Rig	Drilling rig arrives on site and sets up
1243	BH01	Magnetometer test at 1m cleared to 2m – CPT test at 1.5m =
		Refusal
1415	BH01	Magnetometer test at 2m cleared to 3m – CPT test at 2.5m =
		Refusal
1435	BH01	Magnetometer test at 3m cleared to 4m – CPT test at 3.5m =
		Refusal
		CPT Test – Refusal magnetometer Test stopped due to very hard
		Ground conditions
1600	Leave	Pack up equipment and leave site

RPS Site Manager:	John Turnbull	Client Representative	Steffan Picton
Signature:		Signature:	

RPS Energy

Daily Work Journal

RPS Energy, Explosives Engineering Services

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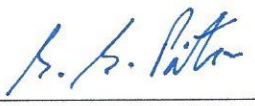
Site Manager:	John Turnbull	Date:	01 Aug 2017	Serial:	009	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0745hrs	Time of Leaving Site:	1600hrs

Time	Task	Notes
0745	Arrive	Arrive on site
0800	BH01	Set up and test equipment
		Drilling team continuing drilling on BH01
0930	Quantum Rig	CPT test equipment broken on last test, drill team waiting for new
		part from Quantum yard. BH01 finished rig will move to BH02
1000	BH02	Magnetometer test at surface cleared to 1m
1225	BH02	Magnetometer test at 1m cleared to 2m - CPT test at 1.m =
		Refusal
1305	BH02	Magnetometer test at 2m cleared to 3m - CPT test at 2.m =
		Refusal
1440	BH02	Magnetometer test at 3m cleared to 4m - CPT test at 3m =
		Refusal
1445	CPT	CPT Test at 4m - Refusal magnetometer Test stopped at 4mdue to
		very hard Ground conditions
1600	Leave	Pack up equipment and leave site

RPS Site Manager:	John Turnbull	Client Representative	Steffan Picton
Signature:		Signature:	

RPS Energy

Daily Work Journal

RPS Energy, Explosives Engineering Services

Tel: +44 (0)1291 621821

Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	02 Aug 2017	Serial:	010	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0730hrs	Time of Leaving Site:	1600hrs

Time	Task	Notes
0730	Arrive	Arrive on site
0800	BH01	Set up and test equipment
		Drilling team continuing drilling on BH02
1000	Quantum Rig	Moved on to BH03 location which has already had a Magnetometer
		Test to 4m and CPT test carried out all with refusal results.
		Rig is free to continue without any further Magnetometer testing
		on BH03.
1220	BH03	Drill team finished BH03, moving to BH05
	BH05	Magnetometer Test has been carried out on BH06 to 6m
		and CPT tests were also carried out all with refusal results.
		Quantum Rig is free to continue without any further Magnetometer
		testing
1600	Leave	Pack up equipment and leave site

RPS Site Manager:	John Turnbull	Client Representative	Steffan Picton
Signature:		Signature:	

RPS Energy

Daily Work Journal

RPS Energy, Explosives Engineering Services

Tel: +44 (0)1291 621821

Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	03 Aug 2017	Serial:	011	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0730hrs	Time of Leaving Site:	1600hrs

Time	Task	Notes
0730	Arrive	Arrive on site
0735		Set up and test equipment
		Drilling team continuing drilling finished on BH05
0740	BH04	Magnetometer Test for BH04 new location
		Magnetometer test at Surface, cleared to 1m
0800	Quantum Rig	Quantum Rig moved to new location and start hand digging to 1m
0840	BH04	Magnetometer test at 1m cleared to 2m – CPT test at 1.m =
		Refusal
0900	BH04	Magnetometer test at 2m cleared to 3m – CPT test at 2.m =
		Refusal
0930	BH04	Magnetometer test at 3m cleared to 4m – CPT test at 3.m =
		Refusal
1020	BH04	Magnetometer test at 4m – CPT test at 4.m = Refusal
1025	CPT Test	CPT Test – Refusal magnetometer Test stopped due to very hard
		Ground conditions
	Quantum Rig	Quantum Rig is free to continue without any further Magnetometer
		Testing on BH04
1350	BH04	Drill team reaches target depth
1400	BH07	Magnetometer test at Surface, cleared to 1m
	Quantum Rig	Moved to new location BH07
1430	BH07	Start drilling
1600	Leave	Pack up equipment and leave site

RPS Site Manager:	John Turnbull	Client Representative	Steffan Picton
Signature:		Signature:	

RPS Energy

Daily Work Journal

RPS Energy, Explosives Engineering Services

Tel: +44 (0)1291 621821
Email: uxoservices@rpsgroup.com (Marine) / vi.storey@rpsgroup.com (International & UK)

Site Manager:	John Turnbull	Date:	04 Aug 2017	Serial:	012	Page:	1 of 1
Project:	Neath Port Talbot	Client:	OPUS			Project No:	EES0804

Task: (survey, Site Support, etc)	UXO Site Support/ Borehole Locating	No. of RPS Engineers on Site:	01

Equipment Check List			Personnel	
Type	Quantity	Checked	Name	Position
Vallon Ferrous Locator	01	Yes	John Turnbull	EOD Engineer
MOD: El 1303 D2				
Serial: 1203				

Time Arrived on Site:	0710hrs	Time of Leaving Site:	0930hrs

Time	Task	Notes
0710	Arrive	Arrive on site
0735		Set up and test equipment
0745	BH07	Magnetometer test at 4m cleared to 5m – CPT test at 4m =
		Refusal
	BH07	Magnetometer test at 5m cleared to 6m – CPT test at 5m =
		Refusal
	BH07	Magnetometer test at 6m cleared to 7m – CPT test at 6m =
		Refusal
0900	CPT Test	CPT Test – Refusal magnetometer Test stopped due to very hard
		Ground conditions
	Quantum Rig	Quantum Rig is free to continue without any further Magnetometer
		Testing on BH07
0930	Leave	Pack up equipment and leave site

RPS Site Manager:	John Turnbull	Client Representative	Steffan Picton
Signature:		Signature:	

Appendix C

Methodology for the screening of soils

Opus Methodology for the Screening of Soils in Terms of the Risk to Human Health

Legislative Background

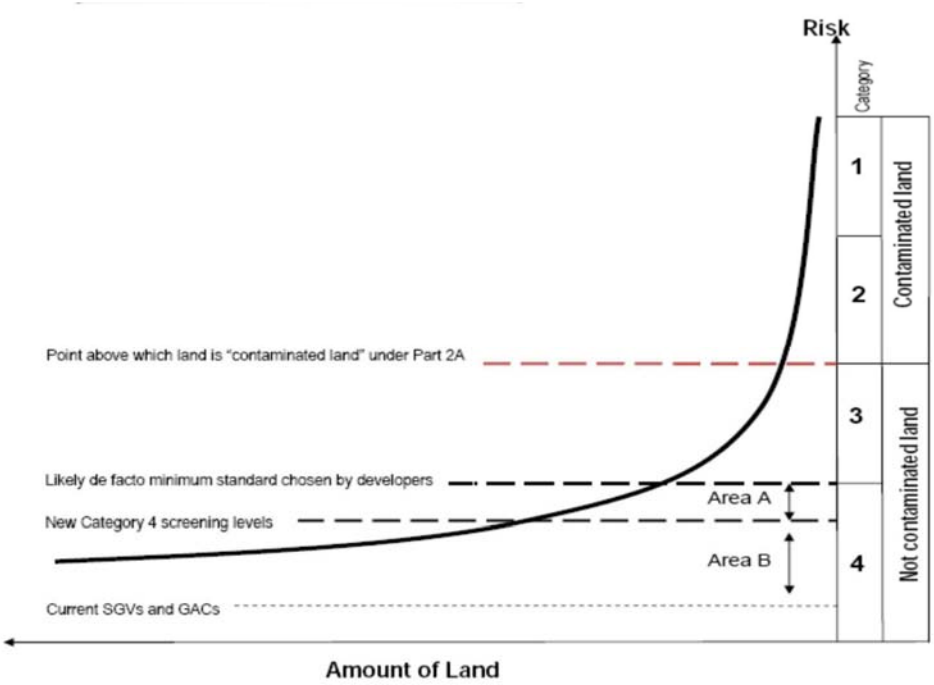
The legislative framework for the regulation of contaminated land is contained in Part 2A of the Environmental Protection Act 1990, which was implemented in the Contaminated Land (England) Regulations 2000 (and subsequent amendments). This legislation allows for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment. The basis of the UK contaminated land policy is the 'Suitable for Use' approach, which states that land should be suitable for its current use and made suitable for any new use as official permission (through the planning process) is given for that use.

Under Part 2A of the Environmental Protection Act 1990, contaminated land is defined as land where 'significant harm' is being caused or there is a 'significant possibility of such harm' being caused or where 'significant pollution of controlled waters' is being caused, or there is a 'significant possibility of such pollution' being caused. For contaminated land to occur under Part 2A, a **contaminant linkage** must exist i.e. there must be a **contaminant,** a relevant **receptor** and a plausible **migration pathway** by which the contaminant can impact the receptor.

In 2012, the Part 2A Statutory Guidance was revised and this introduced four categories of land to assist in defining risk to human health from contaminated land. With respect to contaminants that pose a risk to human health, statutory contaminated land comprises Category 1 (where significant harm is being caused) and Category 2 (where significant possibility of such harm (SPOSH) is being caused). Category 3 is land not capable of being determined as SPOSH and Category 4 is uncontaminated.

Under the National Planning Policy Framework (NPPF) introduced in England in 2012, land should be suitable for its new use taking the effects of ground contamination into consideration. To this end, adequate site investigation should be undertaken and prepared by competent persons. After remediation, as a minimum, land should be incapable of being determined as Part 2A contaminated land. Where a site is affected by contamination, responsibility for securing safe development rests with the developer and/or landowner.

The Defra impact assessment report accompanying the revised Part 2A Statutory Guidance indicated that most developers will want to ensure that under the planning regime their land is safely within Category 4 and this is the approach adopted by Opus in the preparation of this report (see below):



Published Human Health Generic Assessment Criteria

To assist with the implementation of Part 2A and contamination assessments under the planning process, Defra commissioned a research project to derive new Category 4 Screening Levels (C4SLs). In 2014, Defra published C4SLs for arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI and lead for six categories of land use, namely:

- Residential with home-grown produce;
- Residential without home-grown produce;
- Allotments;
- Commercial;
- Public open space 1 (public land near residential properties i.e. grassed area outside residential housing); and
- Public open space 2 (public land away from residential properties i.e. public parks).

The C4SLs differ from the earlier Soil Guideline Values (SGVs) in that they are considered by Defra to be more pragmatic (albeit still strongly precautionary) and indicate the concentration of a contaminant in soil that would potentially pose a *'low risk'* to human health, whereas the SGVs are considered indicative of *'minimal risk'*.

In 2015, Land Quality Management (LQM) and the Chartered Institute of Environmental Health (CIEH) published additional generic assessment criteria (GAC), referred to as Suitable 4 Use Values (S4ULs). These S4ULs replaced the earlier LQM/CIEH human health GAC (2nd Edition) that were published in 2009.

The C4SLs and S4ULs both utilise updated exposure parameters from those used in version 1.06 of the Environment Agency's Contaminated Land Exposure Assessment (CLEA) model. CLEA version 1.06 was also used to derive the following other human health GAC:

- Environment Agency SGVs (*either withdrawn or superseded by the C4SLs and S4ULs*);
- EIC/AGS/CL:AIRE publication 'Soil Generic Assessment Criteria for Human Health Risk Assessment', dated January 2010; and
- Atkins ATRISK^{soil} Soil Screening Values dated January 2015.

Whilst the C4SLs and S4ULs both use updated exposure parameters, they differ in that C4SLs have utilised Low Levels of Toxicological Concern (LLTC) in their derivation, whereas S4ULs use Health Criteria Values (HCVs). As a consequence of using LLTC the C4SLs are indicative of a '*low risk'* to human health, whereas the S4ULs, SGVs, EIC/AGS/CL:AIRE and Atkins ATRISK^{soil} GAC (which use HCVs), are all considered indicative of *'minimal risk'* to human health.

With respect to the consumption of home produce grown in contaminated soil, the C4SLs have adopted the 90th percentile consumption rates for the 'top two' produce types, but mean consumption rates for the remaining four produce types, in contrast with the S4ULs, SGVs, EIC/AGS/CL:AIRE and Atkins ATRISK^{soil} approach, which applies the 90th percentile consumption rates to all produce types.

Despite the differences in approach (e.g. *low risk* / *minimal risk* and produce consumption rates), all the above referenced GAC lie comfortably within Category 4 of the Part 2A Statutory Guidance, indicating that for the contaminant of concern, the land is uncontaminated and incapable of being determined under Part 2A.

Opus Tier 1 Soil Screening Values

The Tier 1 human health risk assessment methodology employed by Opus in this report is as follows:

Firstly, reference has been made to the published C4SLs. However, for compounds where there are no C4SLs available, reference has also been made to following other published GAC in the following descending order of preference:

- LQM/CIEH S4ULs for Human Health Risk Assessment dated 2015 *[Copyright Land Quality Management Limited reproduced with permission; Publication No. S4UL3028. All rights reserved];*
- EIC/AGS/CL:AIRE GAC; and
- Atkins ATRISK^{soil} Soil Screening Values.

Utilising the above referenced sources, Opus has compiled a database of published human health GAC, referred to as Opus Tier 1 Soil Screening Values (SSVs) and is currently using Version 2016.1 dated 21 November 2016. This database comprises GAC for 131 individual contaminants, of which 19 are inorganic and 112 organic substances.

Using Version 1.071 of the CLEA model, Opus has replicated the published GAC for organic contaminants at 1.0%, 2.5% and 6% soil organic matter (SOM) contents. In order to assess natural soils which can have a much lower SOM content than 1%, Opus has also derived Tier 1 SSVs at 0.25% SOM content for selected commonly occurring contaminants, so as to provide a sufficiently conservative output.

These GAC relate solely to the protection of human health from chronic exposure to contaminants in soil. The risks to other receptors (e.g. controlled waters, ecology and property) needs to be considered separately.

The GAC are based on a sandy loam soil type, except the ATRISK^{soil} values at 1% SOM which are based on a sand soil type (as defined in Environment Agency Science Report SC050021/SR3 dated 2009). For all substances it has been assumed that 100% of the intake would reach the systemic circulation (i.e. is 100% bioavailable).

The GAC for organic contaminants assume that non-aqueous phase liquid (NAPL) / free phase contamination is not present. Where the GAC exceeds the aqueous solubility or the saturated vapour concentration, the lower of these saturation limits is also presented in brackets. The soil saturation concentration is the theoretical concentration at which soil vapour and/or pore water have become fully saturated. This can indicate that NAPL is likely to be present. However, for contaminants that are strongly sorbed to soils (i.e. have high Koc) and that have a low aqueous solubility and vapour pressure, exceedance of the soil saturation concentration does not necessarily imply that NAPL is present. The presence of NAPL therefore needs to be considered qualitatively before applying these GAC.

In addition, the Tier 1 SSVs do not consider the additive or synergistic effects of any compounds.

Depending upon the conceptual site model for a given piece of land, exceedance of an Opus Tier 1 SSV may indicate that a **potential contaminant linkage** exists. In such circumstance this would indicate a requirement for further assessment, such as supplementary investigation and/or detailed quantitative risk assessment (DQRA). In the absence of further assessment, a **significant contaminant linkage** may be deemed to exist requiring remediation of the contamination on human health protection grounds.

Appendix D

Initial Characteristic Soil Parameters

Appendix D - Characteristic Soil Parameters

Characteristic Ultimate Limit State (ULS) soil parameters are shown in Table 1 below and are considered appropriate for design purposes. Reference should be made to the Factual Ground Investigation Report in Appendix A. Please refer to the notes at the foot of the table.

Table 1 Recommended Geotechnical Soil and Rock Parameters

Material	Consistency or density	Unit Weight γ (kN/m3)	Undrained shear strength C_u (kPa)	Peak effective shear strength parameters		Coefficient of volume compressibility m_v (m^2/MN)	Elastic Modulus E' (MPa)	SPT 'N' Value (Representative)
				Cohesion c_p' (kPa)	Friction angle ϕ_p' (deg)			
Made Ground		17	-	0	24	0.3	10	30-40
Alluvial Clay	Soft	18	20	0	20	0.5	6	10
Alluvial Gravel	Dense	20	-	0	35	-	35	40-50
Bedrock (Mudstone and Sandstone)	Weak	21	-	5	35	0.05	50	>50

Notes:

1. Table 1 provides a selection of representative geotechnical parameters for the geological stratum that should be encountered underlying the area of investigation for a range of soil and rock consistencies.
2. Geotechnical laboratory testing was undertaken to provide confirmation and validation of the above parameters. However in some instances the laboratory test results were not characteristic for the geological stratum, subsequently engineering judgement was adopted for selection of the appropriate design parameter.
3. The above design parameters should be selected with full consideration of the purpose for which the parameters are required.
4. It should be noted that the recommended geotechnical parameters presented within Table 1 have been produced using a combination of geotechnical laboratory testing, in-situ test data, correlation with published data (such as BS8002, CIRIA 143, CIRIA 504) and experience of similar soils within the region.
5. Parameters provided are representative and indicative for each unit which may have variable types of material and properties. Consistency/relative density not specified in this table can be interpolated appropriately.

Appendix E

Ground Gas Site Characterisation

GROUND GAS CHARACTERISATION

CLIENT: **Neath Port Talbot County Borough Council**

SITE: **Neath Port Talbot Harbourside**

JOB NO.: **V-C8602.01**

PEAK CONCENTRATIONS

CIRIA Report C665 Site Characterisation (Boyle and Witherington, 2007 classification)

Gas screening value (litres of gas per hour) = max borehole flow rate (l/hr) x max gas concentration (%)

Characterisation by borehole

	BHH01	BHH02(S)	BHH02(D)	BHH03	BHH04	BHH05	BHH06	BHH07(S)	BHH07(D)	MAXIMUM
Methane										
Max borehole flow rate (l/hr):	0.00	0.00	0.00	6.40	0.00	0.00	0.00	0.00	0.00	6.40
Max gas concentration (%):	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.10	0.10	0.10
GSV (l/hr):	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
Site Characteristic Situation (CIRIA R149):	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Carbon Dioxide										
Max borehole flow rate (l/hr):	0.00	0.00	0.00	6.40	0.00	0.00	0.00	0.00	0.00	6.40
Max gas concentration (%):	3.60	1.20	0.70	0.30	0.90	0.20	0.00	0.20	0.30	3.60
GSV (l/hr):	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.23
Site Characteristic Situation (CIRIA R149):	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00

Worst case situation

Methane	
Max borehole flow rate (l/hr):	6.40
Max gas concentration (%):	0.10
GSV (l/hr):	0.01
Site Characteristic Situation (CIRIA R149):	1.00
Carbon Dioxide	
Max borehole flow rate (l/hr):	6.40
Max gas concentration (%):	3.60
GSV (l/hr):	0.23
Site Characteristic Situation (CIRIA R149):	2.00

Checked:	GS	Approved:	GS



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