Civil Engineering and Development Department

Kai Tak Development - Trunk Road T2 and Infrastructure at South Apron Investigation, Design and Construction

Agreement No.: CE 38/2008 (HY)

Environmental Permit: No. EP - 451/2013

Supplementary Contamination Assessment Report (October 2014)

Certified by:

Environmental Team Leader

Verified by: Angle Dean

Independent Environmental Checker







Civil Engineering and Development Department Agreement No. CE 38/2008 (HY)

Kai Tak Development - Trunk Road T2 and Infrastructure at South Apron Investigation, Design and Construction

Supplementary Contamination Assessment Report

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Civil Engineering and Development Department Agreement No. CE 38/2008 (HY)

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Supplementary Contamination Assessment Report

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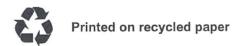
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Date

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Summary of Laboratory Results





1 INTRODUCTION

- 1.1.1 On 31 July 2009, the Civil Engineering and Development Department (CEDD) of the Government of the Hong Kong Special Administrative Region appointed Hyder-Meinhardt JV (HMJV) under Agreement No CE38/2008 (HY) to provide professional services in respect of Kai Tak Development Trunk Road T2 and Infrastructure at South Apron Investigation, Design and Construction. The date for commencement of the Assignment was 31 July 2009.
- 1.1.2 Trunk Road T2 involves the construction and operation of highways and the associated link roads and, thus, consists of designated project elements including Items A.1, A.7 and F.6 Part I under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO). The Project may also include changes to associated roads and other facilities that constitute material change(s) to exempted project(s) including relocation of existing breakwaters, and other designated project(s), e.g. dredging, temporary reclamation, to be identified during the course of this study. According to Section 5(1) of the EIAO, a project profile was submitted to the Environmental Protection Department (EPD) on 24 March 2009 for application of an EIA Study Brief, which was subsequently issued to the CEDD pursuant to Section 5(7)(a) of the EIAO (EIA Study Brief No: ESB-203/2009 dated 30 April 2009). In the EIA study, a land contamination assessment was carried out based on the Contamination Assessment Plan (CAP) approved by the EPD on 22 March 2011, and a Contamination Assessment Report (CAR) was included in the EIA Report approved on 19 September 2013. An Environmental Permit (No. EP -451/2013) was also issued on 19 September 2013.
- 1.1.3 According to EP-451/2013 Condition 2.10, a supplementary site investigation (SI) to complete the land contamination assessment for locations EH01 and EH03 should be conducted in accordance with the requirement as set out in the approved CAP, and a Contamination Assessment Report (CAR) to document the findings of the supplementary land contamination investigation works and assessment on the nature and extent of land contamination should be submitted to the EPD for approval.
- 1.1.4 If land contamination is confirmed, a Remediation Action plan (RAP) to formulate the necessary remedial measures should be submitted to the EPD for approval. All remedial measures described in the approved RAP should be fully and properly implemented. If remediation is required, a Remediation Report (RR) to provide details on the remediation works carried out, types and volume of contaminated soil, standards and levels of treatment, and locations of all on-site and off-site disposal sites (including record of disposal) should be deposited to the EPD after the completion of the remediation works. No construction works should be carried out prior to the EPD's endorsement of the RR.
- 1.1.5 Before the submission to the EPD, the CAR, RAP and RR should be certified by the Environmental Team (ET) Leader and verified by the Independent Environmental Checker (IEC) as conforming to the information and recommendations contained in the EIA Report.





2 **OBJECTIVES**

2.1.1 This Supplementary CAR was prepared to present the findings of the supplementary land contamination SI works at EH01 (renamed as "EH1B" herein this report) and EH03 (renamed as "EH3B" herein this report) and to assess the nature, level and extent of contamination. If contamination is identified, remediation proposal of appropriate remediation actions for the contaminated area should be recommended in the RAP, and a Remediation Report (RR) should be prepared upon the completion of all remediation action.





3 CONTAMINATION ASSESSMENT

3.1 **Summary of Site Investigation**

3.1.1 **Table 3.1** summarises the details and status of the completed supplementary SI works. The as-built sampling locations are shown in **Figure 3.1**.

Table 3.1: Summary of SI Works

No	Naming	Type	Status	Co-ord	linates
	in CAP			Easting	Northing
EH1B	BH1	Borehole	Completed in accordance with CAP	839763.19	819573.07
EH3B	BH3	Borehole	Completed in accordance with CAP	839734.91	819553.20

3.2 Assessment Methodology

- 3.2.1 Based on the initial site appraisal and a review of previous site investigation records and other relevant information, the potential sources of land contamination relevant to the study area were identified in the approved CAP. The contaminants of concern (COCs) for the study site were selected based on the historical land use information collected during the above initial site appraisal The broad groups of COCs for this investigation include volatile organic compounds (BTEX: benzene, toluene, ethylbenzene, xylene), semivolatile organic compounds (PAHs: polycyclic aromatic hydrocarbons), metals, PCBs, and petroleum hydrocarbon.
- 3.2.2 The SI works were carried out between 1 September 2014 and 8 September 2014, including the 2 boreholes listed in **Table 3.1** and as depicted in the as-built **Figure 3.1**. During the progress of the SI, there was some minor adjustment of locations of the boreholes to the approved CAP in order to suit the site specific conditions.
- 3.2.3 A preliminary metal detection survey was undertaken at each drilling location. Only metal (or utility) free locations were drilled. The concrete road pavement was removed before the actual fill material samples were taken from underneath. U-100 samplers were deployed for soil sampling at all boreholes.
- 3.2.4 No organic (carbon or petroleum based lubricants) or any kind of metal containing lubricants were allowed for use as drilling bit lubricant. When required, only minimum amount of clean fresh water was used as lubricating medium as instructed and agreed by the Contamination Specialist in order to avoid sample contamination.





3.2.5 Prior to drilling, a trail/inspection pit of 2.0m deep was constructed first (as described below). Drilling was then undertaken to a depth of ~9m below ground level or as instructed. From each borehole, continuous U100 samples were taken although only soil samples 0.5m, 3.0m, 6.0m and ~9.0m below ground level, or as instructed, were delivered to the testing laboratory. The exact location of the boreholes was adjusted onsite due to site conditions or unforeseeable underground conditions as instructed by the Contamination Specialist.

Soil Sampling

- 3.2.6 Sampling of soil was carried out with a stainless steel spoon. The samples were scooped directly from the sampling core box into the sample containers and the spoon was decontaminated by washing with distilled water between samples. If a gloved hand came into contact with the sample, new gloves were used for each new sample.
- 3.2.7 Field personnel washed hands before sampling and wore a new pair of clean PVC/latex disposable gloves before and during sampling. Field personnel avoided handling the samples directly and manipulated the samples into the appropriate laboratory sampling jars using the cleaned spoon(s). All sampling equipment was decontaminated in between each sampling. A clean area was established immediately adjacent to each drilling location with a portable table covered with a clean plastic sheet, on which all equipment was placed.
- 3.2.8 Each sample was labelled uniquely and unambiguously. The nature of the soil/fill material in the core was recorded at different depths for each core. Records were made of the details of depth and the sampling location and other pertinent data such as any non-standard sampling events. The description of soil samples included but not restricted to:
 - Test site where the sample was collected;
 - Sample identification number;
 - Soil sampling depth (with respect to the lowest level of the concrete cover, if any);
 - Estimated physical characteristics (clay, silt, sand, gravel, stone, cobble, colour, odour, moisture);
 - Colour photograph; and
 - Any other relevant information.
- 3.2.9 All samples for laboratory tests were stored in portable cool box with frozen chilled packs at 0-4°C whilst in the field or in transit and returned to the laboratory on the same evening as the day of sampling. A chain-of-custody form was completed for all the samples delivered.





- 3.2.10 Each sample tube was fully sealed, except that the tube ends were first covered by decontaminated metal foil so that the foil is the only material in direct contact with the soil sample collected. The sample tube was sealed tightly such that leakage into and out of the tube was minimised.
- 3.2.11 Strata logging for boreholes was conducted by a qualified geologist during the drilling and sampling. The logs included general stratigraphic description, soil sampling depth, sample notation and level of groundwater. The presence of rocks/boulders/cobbles and foreign objects (e.g. wood, metals and plastics) was recorded.
- 3.2.12 All equipment used for sample handling and storage was decontaminated before and after collection of each sample. Standard procedures for cleaning the drilling rig and sampling equipment is described below:
 - Clean with fresh water and lab-grade detergent (use brush if necessary) to remove particulate matter and surface film;
 - Rinse thoroughly with tap water (for drilling equipment) followed by steam cleaning, and then rinsing with distilled water (for sampling equipment);
 - After field cleaning, the equipment was handled by personnel wearing clean gloves to avoid re-contamination. If the equipment was not to be used immediately, it was covered with clean plastic sheeting or put in a box to avoid recontamination: and
 - The drilling equipment and sampling equipment was cleaned according to the above procedures between sampling holes.
- 3.2.13 As the Toxicity Characteristic Leaching Procedure (TCLP) may be required for all soil samples if landfill disposal is selected as the remediation method, surplus soil samples were collected and stored for use.

Groundwater Sampling

- 3.2.14 Groundwater was encountered during drilling depending on the water table at the drilling locations. If groundwater was encountered, water sampling was carried out and samples were sent to the laboratory for analysis.
- 3.2.15 Purging of groundwater from the boreholes was undertaken prior to sampling to remove fine-grained materials and to collect freshly infiltrating representative samples. The boreholes were purged by removing not less than three times the original volume of groundwater within the boreholes with a pump.
- 3.2.16 At least two hours after purging, the depth to water table was measured. groundwater sample was then collected at each borehole using a hand operated pump.
- 3.2.17 The groundwater in the boreholes was removed with the selected pump, decanted into a separate clear glass vessel and allowed to settle for five minutes. The presence of any





supernatant free product on the groundwater and the respective thickness was recorded. The presence of any emulsification of the groundwater was also noted. The floating layer was removed/recovered and analysed separately from the main aqueous phase of the groundwater (as far as reasonably practicable). All samples were uniquely labelled.

- 3.2.18 Between samples, all equipment used for sample handling and storage was thoroughly decontaminated with laboratory-grade detergent. Samples were stored in appropriate pre-washed containers (provided by the laboratory) and immediately put in an insulated cool box. The sample containers and the box were tightly closed and that sufficient chilling packs or ice were provided to maintain a temperature of 0-4°C inside the box.
- 3.2.19 Chilled groundwater samples were transferred to the custody of the HKOLAS accredited laboratory on the same day as sampling. A chain-of-custody system was operated in triplicate a part of the QA/QC procedure. The accredited laboratory QA/QC procedures were precisely followed.

3.3 **Assessment Criteria**

- 3.3.1 The assessment criteria followed the EPD's Guidance Note for Contaminated Land Assessment and Remediation, and Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management. Reference was made to the RBRGs criteria for assessing the extent of land contamination in the site based on the proposed future land use as re-cited in **Tables 3.2** and **3.3**.
- 3.3.2 There are 4 different post-restoration land use scenarios (Urban Residential, Rural Residential, Industrial, Public Parks) reflecting the typical physical settings in Hong Kong are categorised under which people could be exposed to contaminated soil and groundwater. The future land use of the study area for the trunk road inside the cut-andcover tunnel with transport operation was classified as "Industrial". Also, with reference to the Outline Zoning Plan No. S/K22/2: Kowloon Planning Area No. 22 Kai Tak, the future land uses above the trunk road cut-and-cover tunnel would be "Open Space" and "Other Specified Use", so they were classified as "Public Park" for this contamination assessment. It would be based on these classifications that the land contamination assessment (and remediation if required) was carried out.

Table 3.2: Risk-Based Remediation Goals for Soil and Soil Saturation Limit

	Risk-Based Remed	Soil Saturation	
Chemical	Industrial	Public Parks	Limit (Csat)
	(mg/kg)	(mg/kg)	(mg/kg)
VOCs			
Benzene	9.21E+00	4.22E+01	3.36E+02
Ethylbenzene	8.24E+03	1.00E+04*	1.38E+02
Toluene	1.00E+04*	1.00E+04*	2.35E+02
Xylenes (Total)	1.23E+03	1.00E+04*	1.50E+02
SVOCs			
Acenaphthene	1.00E+04*	1.00E+04*	6.02E+01
Acenaphthylene	1.00E+04*	1.00E+04*	1.98E+01
Anthracene	1.00E+04*	1.00E+04*	2.56E+00

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	Risk-Based Remed	Soil Saturation	
Chemical	Industrial	Public Parks	Limit (Csat)
	(mg/kg)	(mg/kg)	(mg/kg)
Benzo(a)anthracene	9.18E+01	3.83E+01	-
Benzo(a)pyrene	9.18E+00	3.83E+00	-
Benzo(b)fluoranthene	1.78E+01	2.04E+01	-
Benzo(g,h,i)perylene	1.00E+04*	5.74E+03	-
Benzo(k)fluoranthene	9.18E+02	3.83E+02	-
Chrysene	1.14E+03	1.54E+03	-
Dibenzo(a,h)anthracene	9.18E+00	3.83E+00	-
Fluoranthene	1.00E+04*	7.62E+03	-
Fluorene	1.00E+04*	7.45E+03	5.47E+01
Indeno(1,2,3-cd)pyrene	9.18E+01	3.83E+01	-
Naphthalene	4.53E+02	9.14E+02	1.25E+02
Phenanthrene	1.00E+04*	1.00E+04*	2.80E+01
Pyrene	1.00E+04*	5.72E+03	-
Metals			
Antimony	2.61E+02	9.79E+01	-
Arsenic	1.96E+02	7.35E+01	-
Barium	1.00E+04*	1.00E+04*	-
Cadmium	6.53E+02	2.45E+02	-
Chromium III	1.00E+04*	1.00E+04*	-
Chromium VI	1.96E+03	7.35E+02	-
Cobalt	1.00E+04*	4.90E+03	-
Copper	1.00E+04*	9.79E+03	-
Lead	2.29E+03	8.57E+02	-
Manganese	1.00E+04*	1.00E+04*	-
Mercury	3.84E+01	4.56E+01	-
Molybdenum	3.26E+03	1.22E+03	-
Nickel	1.00E+04*	4.90E+03	-
Tin	1.00E+04*	1.00E+04*	-
Zinc	1.00E+04*	1.00E+04*	-
Dioxins/PCBs			
PCBs	7.48E-01	7.56E-01	-
Petroleum Carbon Ranges			
C6 - C8	1.00E+04*	1.00E+04*	1.00E+03
C9 - C16	1.00E+04*	1.00E+04*	3.00E+03
C17 - C35	1.00E+04*	1.00E+04*	5.00E+03

Note: Soil saturation limits for petroleum carbon ranges taken from the Canada-Wide Standards for Petroleum Hydrocarbons in Soil, CCME 2000. * denotes a 'ceiling limit' concentration.

Table 3.3: Risk-Based Remediation Goals for Groundwater and Solubility Limit

Tuble 6.6.1 Mish Bused Remediation Souls for Stoundwater and Solubinty Emile				
Chartal	Risk-Based Remediation Goals for Groundwater	Solubility Limit (mg/L)		
Chemical	Industrial			
	(mg/L)			
VOCs				
Benzene	5.40E+01	1.75E+03		





	Risk-Based Remediation Goals	
Chemical	for Groundwater	Solubility Limit
	Industrial	(mg/L)
	(mg/L)	
Ethylbenzene	1.00E+04*	1.69E+02
Toluene	1.00E+04*	5.26E+02
Xylenes (Total)	1.57E+03	1.75E+02
SVOCs		
Acenaphthene	1.00E+04*	4.24E+00
Acenaphthylene	1.00E+04*	3.93E+00
Anthracene	1.00E+04*	4.34E-02
Benzo(a)anthracene	-	=
Benzo(a)pyrene	-	-
Benzo(b)fluoranthene	7.53E+00	1.50E-03
Benzo(g,h,i)perylene	-	-
Benzo(k)fluoranthene	-	-
Chrysene	8.12E+02	1.60E-03
Dibenzo(a,h)anthracene	-	-
Fluoranthene	1.00E+04*	2.06E-01
Fluorene	1.00E+04*	1.98E+00
Indeno(1,2,3-cd)pyrene	-	-
Naphthalene	8.62E+02	3.10E+01
Phenanthrene	1.00E+04*	1.00E+00
Pyrene	1.00E+04*	1.35E-01
Metals		
Antimony	-	-
Arsenic	-	=
Barium	-	-
Cadmium	-	-
Chromium III	-	-
Chromium VI	-	-
Cobalt	-	-
Copper	-	-
Lead	-	-
Manganese	-	-
Mercury	6.79E+00	-
Molybdenum	-	-
Nickel	-	-
Tin	-	-
Zinc	_	-
Dioxins/PCBs		
PCBs	5.11E+00	3.10E-02
Petroleum Carbon Ranges	2.7.2.100	2.102 02
C6 - C8	1.15E+03	5.23E+00
C9 - C16	9.98E+03	2.80E+00
C17 - C35	1.78E+02	2.80E+00
01, 033	1.701102	2.002100

Notes: "-" denotes that RBRG could not be calculated because the toxicity or physical/chemical values were unavailable, or the condition of Henry's Law Constant>1.00E-05 was not met for the inhalation





pathway; Water solubilities for Petroleum Carbon Range aliphatic C9-C16 and greater than C16 generally are considered to be effectively zero and therefore the aromatic solubility for C9-C16 is used; * denotes a 'ceiling limit' concentration.

3.4 **Interpretation of Results**

Ground Condition

The general ground conditions were shown to be a top layer of fill materials, below a 3.4.1 concrete paving of ~300mm, down to ~9m mainly consisting of silt to fine coarse sand and gravel of fill materials. Groundwater was encountered at all borehole locations during the course of drilling due to low groundwater table in the study area near the coastline. The strata logging records are included in **Appendix 3.1**.

Soil Contamination Assessment

- 3.4.2 A total of 8 soil samples were collected in this SI for land contamination (details of SI records as provided in **Appendix 3.1**). The soil samples collected from 4 depths of 2 boreholes namely EH1B and EH3B as shown in **Figure 3.1**.
- 3.4.3 A summary of laboratory results and laboratory reports for the tested COCs are provided in **Appendix 3.2**. For the soil samples collected, the concentrations of petroleum hydrocarbon, VOCs, SVOC and PCBs were all below the reporting limits of the laboratory. The concentrations of metals were mostly determined above the reporting limits but they were well below the RBRGs criteria. exceedance of the RBRGs determined for all the soil samples collected in the SI.

Groundwater Contamination Assessment

3.4.4 There were 2 groundwater samples at the 2 borehole locations as shown in **Figure 3.1**. A summary of laboratory results and laboratory reports are provided in **Appendix 3.2**. All of the tested COCs in the groundwater sample were below the reporting limits of the laboratory, and there was no exceedance of the RBRGs criteria.

QA/QC Results

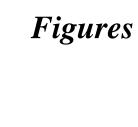
3.4.5 All QA/QC results were included in the laboratory analysis reports for soil and groundwater samples (Appendix 3.2). The results for the QA/QC requirements on field sampling were all determined to be below the corresponding reporting limits of individual parameters, which indicated that the field sampling procedures were unlikely subjected to cross-contamination during SI and sample delivery. The results for the QA/QC requirements on laboratory testing were all determined to be within the acceptable tolerance for normal laboratory operating procedures.





4 CONCLUSION AND RECOMMENDATION

- 4.1.1 A total of 8 soil samples and 2 groundwater samples were collected in this SI for land There was no exceedance of the corresponding RBRGs criteria. Section 3.3.2 of this report stated the land use classification as "Industrial" and "Public Park", and the corresponding RBRGs adopted for the land contamination assessment are shown in **Tables 3.2** and **3.3**.
- 4.1.2 According to the EPD's Guidance Note for Contaminated Land Assessment and Remediation, Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management, and Practice Guide for Investigation and Remediation of Contaminated Land, no exceedance of RBRGs or NAPL assessment criteria were determined, hence remediation is not required.



土木工程拓展署 Civil Engineering and **MEINHARDT** AGREEMENT NO. CE 38/2008(HY) Development Department KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION 九龍拓展處 Hyder-Meinhardt JV _EGEND: STUDY AREA STUDY AREA COVED BY ARGEMENT NO. KDO 02/05 ASSESSEMENT OF POSSIBLE LAND CONTAMINATION ASSOCISTED WITH DECOMMISSIONED FUEL PIPELINE AND HYDRANT SYSTEM AT SOUTH APRON OF FORMER KAI TAK AIRPORT PLAN OF HONG KONG INTERNATIONAL AIRPORT (PLAN NO. KM 9165g DATED 1.11.1994) (LANDS DEPT. LETTER REF: (20) IN LAD KEEP/103/13(II)) BOUNDARY OF CONTRACT KL/2008/02 KAI TAK DEVDLEPMEMT - DECOMMISSIONING AND DECONTAMINATION WORKS AT THE SOUTH APRON OF THE FORMER KAI TAK PROPOSED TRUNK ROAD T2 EH1B + EH1 SAMPLING LOCATION +4.9 貨櫃場 EH3B Container Yard AS-BUILD COORDINATE: 嘉里(九龍灣)危險品貨倉 EH01B 839763.19 819573.07 Kerry D. G. Godown (Kowloon Bay) EH03B 839734.91 819553.20 PUBLIC WORK CENTRAL ŁABORATORY BUILDING 40m 30 SCALE 1 : 1000

AS-BUILT SAMPLING LOCATION

110CT2012

Rev.

Figure 3.1.dgn

1: 1000 (A3) Date

FIGURE 3.1

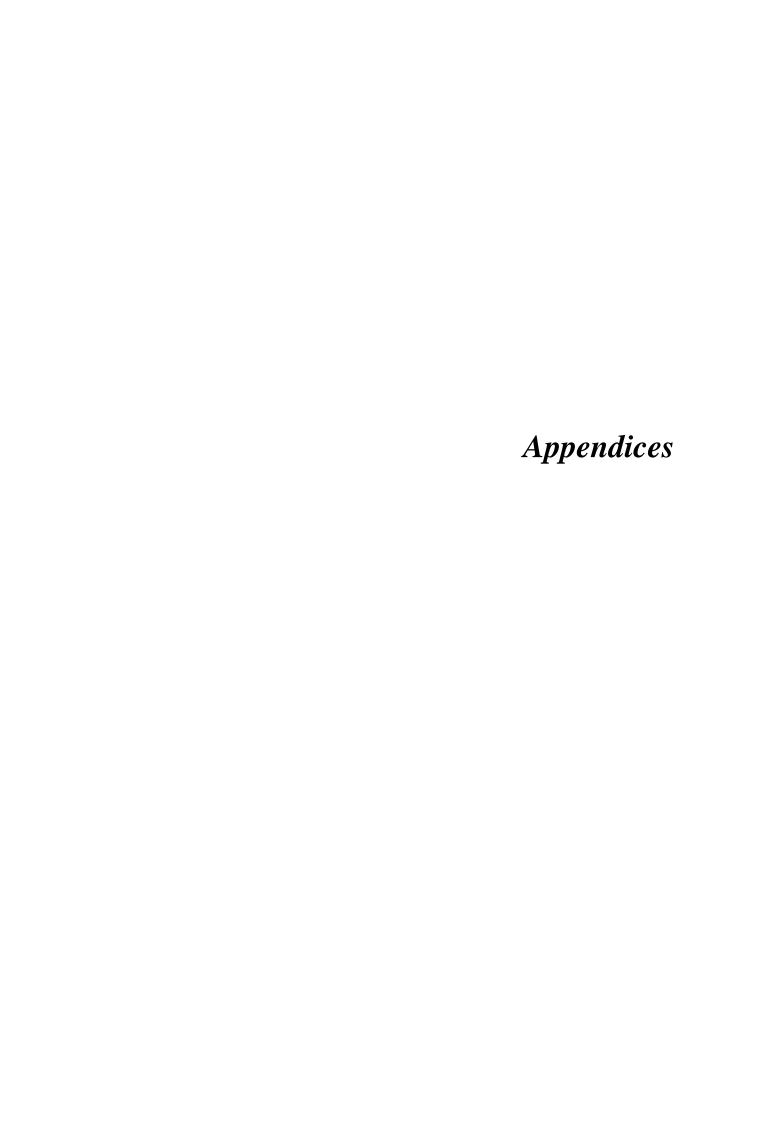
File name

Drawing No.

Original

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Drawing title



Appendix 3.1

Strata Logging Records



FINAL FIELDWORK REPORT

(Section 1 – Environmental Drillholes)

CLIENT

KOWLOON DEVELOPMENT OFFICE CIVIL ENGINEERING & DEVELOPMENT DEPARTMENT

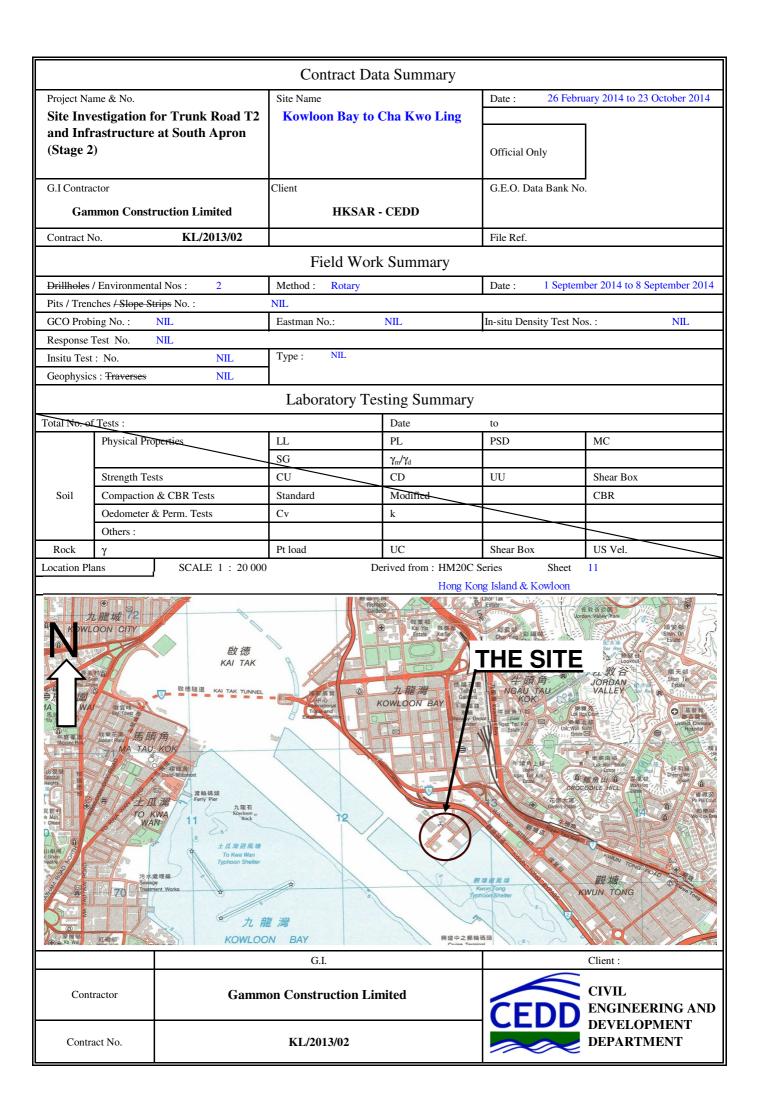
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November 2014





FINAL FIELDWORK REPORT

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FINAL FIELDWORK REPORT

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FINAL FIELDWORK REPORT

1.0 **INTRODUCTION**

In February 2014, Gammon Construction Limited was awarded a contract to carry out Contract No KL/2013/02 Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2). The site location is shown on the Contract Data Summary.

The overall scope of the ground investigation works includes land investigation and marine boreholes drilling, and trial pits excavation together with field and laboratory testing and preparing this factual report.

The ground investigation in the designated area was generally implemented in accordance with Geoguide 2: (GCO 2000): 'Guide to Site Investigation', BS1377: (BSI 1990): 'Methods of test for Soils for civil engineering purposes' and the Specification for this Contract. References to other standards and publications are given in the individual sections of the report corresponding to the relevant work conducted.

This report details a brief description of the site and the procedures adopted together with the findings of the fieldwork for the environmental Ground Investigation. The fieldwork consists of 2 nos of environmental drillholes. The fieldwork was carried out between 1 September 2014 and 8 September 2014 under the supervision of Hyder-Meinhardt Joint Venture.

2.0 THE SITE

The environmental drillholes are at Cheung Yip Street, Kowloon (see Contract Data Summary). The investigation stations are located within the area bounded by co-ordinates of:

- 839700 E and 819550 N
- 839700 E and 819600 N
- 839800 E and 819600 N
- 839800 E and 819550 N

The positions of the investigation stations are indicated on Investigation Stations Location Plan included in **Appendix 6**.



FINAL FIELDWORK REPORT

3.0 GEOLOGY

3.1 PUBLISHED GEOLOGY

The 1: 20000 scale HGM 20 series geological map of Hong Kong Sheet 11 (Hong Kong & Kowloon – Edition II, 2012) indicates the site is mainly underlain by QUATERNARY FILL and Cretaceous fine to medium grained GRANITE. According to the ground investigation works, the site is underlain by FILL.

3.2 GEOLOGICAL SUMMARY

For a full description of the materials encountered reference should be made to the individual drillhole records in **Appendix 3.**



FINAL FIELDWORK REPORT

4.0 FIELDWORK

4.1 SETTING OUT

The as-built locations were surveyed to the Hong Kong 1980 Grid and levelled to Hong Kong Principal Datum. The co-ordinates and levels of the investigation stations are summarized in **Table 1.**

4.2 INVESTIGATION STATIONS

4.2.1 Environmental Drillholes

Two drillholes (EH1B and EH3B) were carried out at the locations agreed with the Engineer and shown on the enclosed Investigation Stations Location Plan (**Appendix 6**). The co-ordinates and reduced levels of each individual drillhole are given in **Table 1**. The drillhole logs are presented in **Appendix 3**.

The drillholes were started by hand excavating inspection pits in order to expose underground utilities. The drillholes were advanced through common ground by rotating Sx (168mm diameter) and Px (140mm diameter) drill casing using fresh water as the flushing medium.

U100 samples were taken in specific drillholes at required depths as instructed by the Engineer. Small-disturbed samples were obtained from the cutting shoe of samplers. All sampling was reported at the relevant depths on the drillhole records.

As the samples were used for environmental laboratory analysis, decontamination procedures were employed to prevent cross-contamination in the drilling process and contamination of samples by extraneous material and/or pollutants. The drilling rig was thoroughly cleaned with water when it mobilized to a new Investigation Station. All down-the-hole equipment and samplers were cleaned before taking each sample.

The specific soil samples requiring environmental laboratory analysis should be kept in particular jar bottles and immediately stored in lightproof ice box at site, which shall be maintained at a temperature below 4 degree Celsius but not frozen.

Groundwater samples were collected by Teflon bailer and stored in a specific glass jar. All sampling was indicated at relevant depths on the drillhole records.

The collected samples together with a chain of custody documentation shall then be delivered to the accredited environmental testing laboratory within 24 hours.



FINAL FIELDWORK REPORT

4.0 FIELDWORK (Continued)

4.2.2 Rock and Soil Descriptions

Rock and Soil descriptions are in accordance with the general principles given in Geoguide 3: 'Guide to Rock and Soil Descriptions' (GCO 2000) with the exception of the use of Munsell Colour Charts and the descriptive terms for the additional constituents in composite soil types. The terms used are as follows:

'with occasional' for less than 5% additional materials

'with some' for between 5% and 20% additional materials

'with much' for between 20% and 50% additional materials

Soil descriptions and delineation of strata on the drillholes records were based primarily on the examination of samples obtained during drilling, to a lesser extent, on the daily site records. Non-destructive logging techniques have been employed in the preparation of rock descriptions.

4.2.3 Photography

Photographs taken of the drillholes are included in **Appendix 4.** The reference board shown in the photographs gives details of the photographs contents.



FINAL FIELDWORK REPORT

5.0 <u>DIGITAL RECORDS</u>

5.1 METHOD

Both the preliminary and final logs have been produced using gINT (Windows version 8.20), a commercially available software package capable of providing the ground investigation data in ASCII digital format. The data is provided in uncompressed form on the CD rom disk (formatted to WIN95 version) submitted with the Final Fieldwork Report. The data file format complies with the third edition of the Association of Geotechnical Specialists (AGS) publication "Electronic Transfer of Geotechnical Data from Ground Investigations". The data dictionary used for data field headings is recommended by the AGS with local variations as instructed by the GEO.

5.2 DATA INDEX

The media index record and the data CD-ROM are included in each copy of the Final Fieldwork Report in **Appendix 7**.

Prepared By:

Jason Lau

Geotechnical Engineer

Certified By:

B C Tarn

The Person appointed to act for

the Contractor



FINAL FIELDWORK REPORT

6.0 REFERENCES

AGS (1999): 'Electronic Transfer of Geotechnical and Geoenvironmental Data'. Association of Geotechnical and Geoenvironmental Specialists, United Kingdom.

British Standard BS 1377: 1990, 'Method of Test for Soils for Civil Engineering Purposes'.

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GEO (2001): GEOSPEC 3 'Model Specification For Soil Testing'. Geotechnical Engineering Office, Hong Kong.

GEO (2012): Geological Sheet No. 11: 'Hong Kong Island & Kowloon Series HGM20: Edition 2 - 2012'. Geotechnical Engineering Office, Hong Kong.

Macbeth (1992): 'Munsell Soil Colour Charts'. Kollmorgen Instruments Corp, USA.



TABLE 1Table of Co-ordinates and Levels of Investigation Stations



Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2)

Table 1. TABLE OF CO-ORDINATES AND LEVELS OF INVESTIGATION STATIONS

Environmental Nos.		Easting (m)	Northing (m)	Ground Level (mPD)	Termination Level (mPD)
1	EH1B	839763.19	819573.07	+4.12	-4.88
2	ЕН3В	839734.91	819553.20	+4.08	-4.92



APPENDICES



Appendix 1
Rock and Soil Descriptions

CHECKLIST FOR ROCK DESCRIPTION

GEOTECHNICAL ENGINEERING OFFICE, HKSAR

1. STRENGTH

Identification Term Extremely weak Easily crumbled by hand; indented deeply by thumbnail.

Crumbled with difficulty; scratched easily by thumbnail; peeled easily by pocket Very weak

Broken into pieces by hand; scratched by thumbnail; peeled by pocket knife; Weak deep indentations (to 5 mm) by point of geological pick; hand-held specimen

easily broken by single light hammer blow.

Broken with difficulty in two hands; scratched with difficulty by thumbnail; Moderately weak difficult to peel but easily scratched by pocket knife; shallow indentations easily made by point of pick; hand-held specimen usually broken by single

light hammer blow

Moderately strong Scratched by pocket knife; shallow indentations made by firm blow with point of pick; hand-held specimen usually broken by single firm hammer blow. Point

load strength (PLS) 0.5 - 2 MPa.

Firm blows with point of pick cause only superficial surface damage; hand-held Strona specimen requires more than one firm hammer blow to break. PLS 2 - 4

Very strong Many hammer blows required to break specimen. PLS 4 - 8 MPa. Specimen only chipped by hammer blows. PLS > 8 MPa

Extremely strong 2. COLOUR

Parameter Terms

Value Light, Dark

Chroma Pinkish, Reddish, Yellowish, Orangish, Brownish, Greenish, Bluish, Purplish,

Grevish

Pink, Red, Yellow, Orange, Brown, Green, Blue, Purple, White, Grey, Black Hue

For uniform colour distribution, choose a hue, supplemented by a value and/or chroma if necessary.

For non-uniform distribution, repeat this procedure using one of the following descriptors: spotted, mottled, dappled, streaked, striped (e.g. light pinkish grey spotted with black).

State whether sample was wet or dry when described

3. TEXTURE/FABRIC

Texture Terms (Applicable Mainly to Igneous Rocks)

Equigranular, Inequigranular, Megacrystic, Porphyritic, Crystalline, Cryptocrystalline, Aphanitic

Fabric

Describe preferred orientation of grains/crystals where apparent.

Describe intensity, spacing, continuity and any preferred orientation of microfractures where apparent.

4. MATERIAL WEATHERING/ALTERATION Grade

Decomposition	Grade	
<u>Term</u>	Symbol	Typical Characteristics
Residual	VI	Original rock texture completely destroyed; can be crumbled by
Soil		hand and finger pressure into constituent grains.
Completely	V	Original rock texture preserved; can be crumbled by hand and
Decomposed		finger pressure into constituent grains; easily indented by point of geological pick; slakes in water; completely discoloured compared with fresh rock.
Highly	IV	Can be broken by hand into smaller pieces; makes a dull sound
Decomposed		when struck by hammer; not easily indented by point of pick; does not slake in water; completely discoloured compared with fresh rock.
Moderately	Ш	Cannot usually be broken by hand; easily broken by hammer;
Decomposed		makes a dull or slight ringing sound when struck by hammer; completely stained throughout.
Slightly	II	Not broken easily by hammer; makes a ringing sound when struck
Decomposed		by hammer; fresh rock colours generally retained but stained near joint surfaces.
Fresh	1	Not broken easily by hammer; makes a ringing sound when struck
Rock		by hammer; no visible signs of decomposition (i.e. no

This classification is applicable to igneous and volcanic rocks and other rocks of equivalent strength in fresh state

discolouration).

Disintegration

Describe small-scale cracking and fracturing caused by mechanical weathering, where apparent

Alteration

Metamorphic

Sedimentary

Describe state of alteration (e.g. mineralised, kaolinised) where apparent.

5. ROCK NAME (Including Grain Size)

Igneous Coarse- (6-20 mm), Medium- (2-6 mm) & Fine- (0.06-2 mm) grained GRANITE; GRANODIORITE. Very Fine-grained (< 0.06 mm) RHYOLITE;

BASALT. (Common types only, see Geoguide 3 for others)

Pyroclastic PYROCLASTIC BRECCIA (> 60 mm), Lapilli TUFF (2-60 mm), Coarse ash TUFF (0.06-2 mm), Fine ash TUFF (< 0.06 mm).

Foliated - SCHIST (> 0.06 mm), PHYLLITE (< 0.06 mm).

MARBLE, QUARTZITE, FAULT BRECCIA. SANDSTONE (0.06-2 mm)

CONGLOMERATE, BRECCIA (> 2 mm),

MUDSTONE (< 0.06 mm) = SILTSTONE (0.002-0.06 mm) + CLAYSTONE

(< 0.002 mm). (Common types only)

If rock name cannot be identified, describe grain size quantitatively, including textural term where

6. STRUCTURE

Structural Term Rock Type Bedded, Laminated, Massive Sedimentary Igneous, Pyroclastic Massive, Flow-banded Foliated Banded Cleaved Metamorphic

Spacing of Planar Structures

Very thick (> 2 m), Thick (0.6-2 m), Medium (200-600 mm),

Thin (60-200 mm), Very thin (20-60 mm),

Thickly-laminated (Sedimentary) (6-20 mm) or Narrow (Igneous, Metamorphic) (6-20 mm), Thinly-laminated (Sedimentary) (< 6 mm) or Very narrow (Igneous, Metamorphic) (< 6 mm).

Examples: Thickly-bedded SANDSTONE. Narrowly flow-banded RHYOLITE.

7. DISCONTINUITIES

Nature (Type of Discontinuity) Bedding Fault zone Fissure Cleavage

Fault Schistocity Tension crack

Joint Shear plane Foliation

Location and Orientation

Record location as co-ordinates or relative position along datum line, preferably on map or plan.

Record orientation as dip direction/dip in degrees (e.g. 032/55).

Spacing

Extremely widely-spaced (> 6 m), Very widely-spaced (2-6 m), Widely-spaced (0.6-2 m), Medium-spaced (200-600 mm), Closely-spaced (60-200 mm), Very closely-spaced (20-60 mm),

Extremely closely-spaced (< 20 mm).

In exposures, supplement spacing with description of rock block shape where possible. Descriptors: Blocky, Tabular, Columnar, Polyhedral.

Persistence (Areal extent or size of a discontinuity within a plane)

Measured maximum persistence dimension should be used where possible (e.g. the discontinuity trace length on the surfaces of rock exposures). For general descriptions of different discontinuity sets, relative terms should be used.

Roughness

Waviness (large-scale): Estimate/measure wavelength and amplitude in metres.

Unevenness (small-scale), use one term from the following:

Slickensided stepped Rough stepped Smooth stepped Smooth undulating Slickensided undulating Rough undulating Rough planar Smooth planar Slickensided planar

Aperture Size

Wide (> 200 mm), Moderately wide (60-200 mm), Moderately narrow (20-60 mm), Narrow (6-20 m), Very narrow (2-6 mm), Extremely narrow (> 0-2 mm), Tight (zero).

Infilling (Nature)

Clean Surface staining Decomposed/ Non-cohesive soil Cohesive soil disintegrated rock Manganese Quartz Other (Specify) Kaolin

Give full description of infill materials/minerals where appropriate

Seepage

Dry Seepage present (estimate quantity in 1/sec or 1/min) Damp/wet

Fracture State

In borehole cores, measure the following: Total Core Recovery (TCR), Solid Core Recovery (SCR), Rock Quality Designation (RQD), Fracture Index (FI). See Geoguide 3 for definitions.

Typical Characteristics

8. MASS WEATHERING

Zono Symbol

<u>ı erm</u>	Zone Symbol	<u>rypical Characteristics</u>
Residual	RS	Residual soil derived from insitu weathering; mass structure and
Soil		material texture/fabric completely destroyed: 100% soil
	/ PW	Less than 30% rock
	0/30	Soil retains original mass structure and material texture/fabric (i.e. saprolite)
		Rock content does not affect shear behaviour of mass, but relict discontinuities in soil may do so.
Partially)	Rock content may be significant for investigation and construction.
Weathered	\ PW	30% to 50% rock
Rock	30/50	Both rock content and relict discontinuities may affect shear behaviour of mass.
	PW	50% to 90% rock
	50/90	Interlocked structure.
	PW	Greater than 90% rock
	90/100	Small amount of the material converted to soil along discontinuities.
Unweathered	UW	100% rock
Rock		May show slight discolouration along discontinuities.

9. ADDITIONAL GEOLOGICAL INFORMATION

Record geological formation name if known. Avoid conjecture. Refer to HKGS maps & memoirs for further information.

NOTES:

- Rock material description normally includes: strength, colour, texture/fabric, material weathering/alteration and ROCK NAME.
- Rock mass description normally includes: strength, colour, structure, mass weathering, ROCK NAME, discontinuities and additional geological information. Can be supplemented with more detailed information on texture/fabric and material weathering/alteration of different materials within the mass where necessary.

CHECKLIST FOR SOIL DESCRIPTION

GEOTECHNICAL ENGINEERING OFFICE, HKSAR

1. STRENGTH (Compactness & Consistency)

Soil Type	Term	Identification	
Very Coarse	Loose		
(COBBLES & BOULDERS)	1	By inspection of voids and particle packing in the field.	
	Dense		
	(Very loose	SPT 'N' value 0-4.	
	Loose	SPT 4-10; can be excavated with spade; 50 mm peg easily	
Coarse		driven.	
(SANDS & GRAVELS)	Medium dense	SPT 10-30.	
	Dense	SPT 30-50; requires pick for excavation; 50 mm peg hard to drive.	
	Very dense	SPT > 50.	
Fine (CLAYS & SILTS)	Very soft	Undrained shear strength (USS) < 20 kPa; exudes between fingers when squeezed in hand.	
	Soft	USS 20-40 kPa; moulded by light finger pressure.	
	Firm	USS 40-75 kPa; can be moulded by strong finger pressure.	
	Stiff	USS 75-150 kPa; cannot be moulded by fingers; can be indented by thumb.	
	Very stiff	USS > 150 kPa; can be indented by thumbnail.	
	or hard		
Organic	Compact	Fibres already compressed together.	
(ORGANIC CLAYS, SILTS SANDS & PEATS	Spongy	Very compressible and open structure.	
	S) Plastic	Can be moulded in hand and smears fingers.	

Terms applicable only to transported soils. For soils derived from insitu rock weathering, record actual values of quantitative tests (e.g. SPT 'N' value) as part of the description, where appropriate.

2. COLOUR

Parameter Terms

Light, Dark Value

Chroma Pinkish, Reddish, Yellowish, Orangish, Brownish, Greenish, Bluish, Purplish, Greyish Pink, Red, Yellow, Orange, Brown, Green, Blue, Purple, White, Grey, Black

For uniform colour distribution, choose a hue, supplemented by a value and/or chroma if necessary.

For non-uniform distribution, repeat this procedure using one of the following descriptors: spotted, mottled, dappled, streaked, striped (e.g. light yellowish brown mottled with red).

State whether sample was wet or dry when described.

3. PARTICLE SHAPE & COMPOSITION

Characteristic	<u>l erms</u>	
Form	Equidimensional, Flat, Elongate, Flat & Elongate	
Angularity	Angular, Subangular, Subrounded, Rounded	
Surface Texture	Smooth, Rough, Glassy, Honeycombed, Pitted, Striated	

Describe composition of coarse particles where appropriate. Gravel and larger particles are usually rock fragments (e.g. granite, tuff); sand particles are usually individual minerals (e.g. quartz, feldspar)

4. STRUCTURE

Soil Type	Term	<u>Identification</u>
	Homogenous	Deposit consists essentially of one type.
Coarse &	Interstratified	Alternating layers of varying types or with bands or lenses of oth
Fine	(Interbedded or	materials.
	Interlaminated)	
Coarse	Heterogenous	A mixture of types.
Fine	∫ Fissured	Breaks into polyhedral fragments along fissures.
	โ Intact	No fissures.
Organic	Fibrous Amorphous	Plant remains recognizable & retain some strength.
	L Amorphous	No recognizable plant remains.

Describe spacing of bedding planes, fissures, shell bands, etc using the spacing terms given in items 6 & 7 for rock description (see other side).

Above terms applicable only to transported soils. For soils derived from insitu rock weathering, describe relict structures in accordance with item 6 of rock description (see other side).

5. WEATHERING

Soils Derived from Insitu Weathering of Rocks

There are two main types: saprolites (rock texture/structure retained) and residual soils (rock texture/structure completely destroyed). Describe state of weathering in accordance with items 4 & 8 for rock description (see other side).

Sedimentary (Transported) Soils

Coarse soils: Describe overall discolouration of soil and degree of decomposition of gravel and larger particles (see item 4, other side). Also note any signs of disintegration of large particles where

Fine Soils: Describe overall discolouration of soil where apparent.

6. SOIL NAME

A. Basic Soil Types							
Soil Type	Particle Sizes (mm)		Identification				
BOULDERS		> 200	Only seen complete in pits or exposures.				
COBBLES		60 - 200	Often difficult to recover from boreholes.				
			Easily visible to naked eye; particle shape and grading				
	Coarse	20 - 60	can be described.				
GRAVELS	Medium	6 - 20	Well-graded: wide range of grain sizes.				
	← Fine	2 - 6	Poorly-graded: not well-graded (split further into uniform or gap-graded).				
	r Coarse	0.6 - 2	Visible to naked eye; very little or no cohesion; grading				
SANDS	Medium	0.2 - 0.6	can be described.				
0/4/20	Fine	0.06 - 0.2	May be well-graded or poorly-graded (uniform or gap-graded) as for gravel.				
			Only coarse silt barely visible to naked eye; exhibits				
	Coarse	0.02 - 0.06	little plasticity and marked dilatancy; slightly granular				
SILTS	Medium	0.006 - 0.02					
	Fine	0.002 - 0.006	dry quickly; possesses cohesion but can be				
			powdered easily between fingers.				
			Dry lumps can be broken by hand but not powdered				
			between the fingers. Disintegrates in water more				
			slowly than silt; smooth to the touch; exhibits				
CLAYS		< 0.002	plasticity but no dilatancy; sticks to the fingers and				
			dries slowly; shrinks appreciably on drying, usually				
			showing cracks. These properties more noticeable with increasing plasticity.				
ORGANIC			with increasing plasticity.				
CLAYS,			Contains much organic vegetable matter: often has a				
SILTS OR		varies	Contains much organic vegetable matter; often has a noticeable smell and changes colour on oxidation.				
SANDS							
			Predominantly plant remains; usually dark brown or				
PEATS		varies	black in colour, often with distinctive smell; low bulk density.				
			density.				
B. Composite Soil Types (Mixtures of Basic Types)							

Terminology	Term for Secondary	% of Secondary
Sequence	· · · · · · · · · · · · · · · · · · ·	Constituent
Secondary constituents (finer material) ▲ after principal	With a little	< 5
	With some	5 - 20
	With much	20 - 50
		20 00
	or silty/clayey) *	< 5
		5 - 15
Secondary		0 10
constituents		15 - 35
before principal	AND/OR	.0 00
	Slightly (gravelly	
& boulders) +	or sandy) *	< 5
	, ,	5 - 20
	77	
	or sandy) *	20 - 50
Secondary	CSlightly (gravelly	
constituents	or sandy or	
before principal	both) *	< 35
(excluding cobbles	- (gravelly	
& boulders) +	or sandy) *	35 - 65
	Sequence Secondary constituents (finer material) ▲ after principal Secondary constituents before principal (excluding cobbles & boulders) + Secondary constituents before principal (excluding cobbles)	Secondary constituents (finer material) ▲ after principal Secondary constituents (finer material) ▲ Secondary constituents before principal (excluding cobbles & boulders) + Secondary constituents before principal (excluding cobbles & boulders) + Secondary constituents before principal (excluding cobbles & boulders) + Secondary constituents before principal (excluding cobbles (excluding cobbles (excluding cobbles) Secondary constituents before principal (excluding cobbles)

- Full name of finer material should be given (see examples below).
- Secondary soil type as appropriate; use 'silty/clayey' when a distinction cannot be made between the two.
- If cobbles or boulders are also present in a coarse or fine soil, this can be indicated by using one of the following terms relating to the very coarse fraction after the principal: 'with occasional' (< 5), 'with some' (5-20), 'with many' (20-50), where figures in brackets are % very coarse material expressed as a fraction of the whole soil (see examples below).

Examples: Slightly silty/clayey, sandy GRAVEL. Slightly gravelly, sandy SILT. Very gravelly SAND. Sandy GRAVEL with occasional boulders. BOULDERS with much finer material (silty/clayey, very sandy gravel).

For fine soils, plasticity terms should also be described where possible, viz: 'non-plastic' (generally silts), 'intermediate plasticity' (lean clays), 'high plasticity' (fat clays).

7. DISCONTINUITIES

Full description of discontinuities, where necessary, should be made using the methods and terms given in item 7 for rock description (see other side).

8. ADDITIONAL GEOLOGICAL INFORMATION

Record geological name which indicates geological origin or soil type (e.g. Alluvium, Colluvium, Marine sand etc.). Refer to HKGS maps & memoirs for further information.

- Mass characteristics of soils (i.e. structure, weathering, discontinuities) can only be described satisfactorily in undisturbed field exposures or large undisturbed samples.
- For full descriptions of soils derived from insitu rock weathering:
 - (a) saprolites describe as rocks, supplemented by soil strength and soil name terms in
 - (b) residual soils describe as soils, supplemented by name of parent rock where apparent from field evidence.



Appendix 2
Material Code for Log Legend

Description Name **AGGLOM** Pyroclastic Breccia (volcanic ash, agglomerate) **ASPHALT** Asphalt **BASALT Basalt BEDROCK** Bedrock Shells, Bioclastic Remains **BIOCLAST BLANK BLDCBBCL** BOULDERS & COBBLES with clay matrix. **BLDCBBSD** BOULDERS & COBBLES with Sand matrix. **BLDCBBSS** BOULDERS & COBBLES with silty sand matrix. BOULDERS & COBBLES with clayey gravel. BLDCBGCL BOULDERS & COBBLES with gravelly sand matrix. **BLDCBGSD BLDR BOULDERS BLDRC BOULDERS** with clay **BLDRCBBL BOULDERS** and COBBLES BOULDERS with clayey gravel. **BLDRCG** BOULDERS with clayey gravel and cobbles **BLDRCGK** BOULDERS with clayey cobbles. **BLDRCK BLDRCZS** BOULDER with clayey silty sandy **BLDRG** BOULDERS with gravel. **BLDRGK** BOULDERS with gravel and cobbles **BLDRK BOULDERS** with cobbles BOULDERS with sand. **BLDRS BLDRSG** BOULDERS with sandy gravel. BOULDERS with sandy gravel and cobbles. **BLDRSGK BLDRSK** BOULDERS with sandy cobbles. **BLDRZG** BOULDERS with silty gravel. **BLDRZK** BOULDERS with silty cobbles. BOULDERS with silty sandy gravel. **BLDRZSG** BOULDERS with silty sandy gravel and cobbles. **BLDRZSGK BLDRZSK** BOULDERS with silty sand and Cobbles. **BRECCIA** Sedimentary Breccia COBBLES & BOULDERS with gravelly sandy silty clay. **CBBDGCSS CBBL** Cobbles **CBBLB** COBBLES with a little / some / much shells **CBBLC** COBBLES with clay. **CBBLCG** COBBLES with clayey gravel. **CBBLCO** COBBLES with clay and organic matter. COBBLES with clay and sand. **CBBLCS** COBBLES with clay sandy gravel. **CBBLCSG CBBLCSGO** COBBLES with clayey sandy gravel and organic matter. **CBBLCZ** COBBLES with silt and clay. **CBBLCZG** COBBLES with clayey silty gravel. COBBLES with clayey silty sand. **CBBLCZS CBBLCZSG** COBBLES & BOULDERS with silty, sandy gravel **CBBLG** COBBLES with gravel. **CBBLS** COBBLES with sand. COBBLES with sand and gravel. **CBBLSG** COBBLES with sandy gravel and organic matter. **CBBLSGO** COBBLES with silt. CBBLZ **CBBLZG** COBBLES with silt and gravel. **CBBLZS** COBBLES with silt and sand. **CBBLZSG** COBBLES with silty sandy gravel. **CBBLZSO** COBBLES with silty sand and organic matter. **CHALK** Chalk

CLAY CLAY CLAYB Shelly CLAY **CLAYG** Gravelly CLAY

CLAYGB Gravelly CLAY with shell. **CLAYGK** Gravelly CLAY with cobbles.

CLAYGKB Gravelly CLAY with cobbles and shell.

Name	Description
CLAYGKO	Gravelly CLAY with cobbles and organic matter.
CLAYGO	Gravelly CLAY with organic matter.
CLAYK	CLAY with cobbles.
CLAYKB	CLAY with cobbles and shell.
CLAYO	CLAY with organic matter.
CLAYOB	CLAY with organic matter and shell.
CLAYS	Sandy CLAY
CLAYSB	Sandy CLAY with shells.
CLAYSG	Gravelly sandy CLAY
CLAYSGB	Gravelly sandy CLAY with shell.
CLAYSGK	Gravelly sandy CLAY with cobbles.
CLAYSGO	Gravelly sandy CLAY with organic matter
CLAYSK	Sandy CLAY with cobbles.
CLAYSO	Sandy CLAY with organic matter.
CLAYSTON	Claystone
CLAYZ	Silty CLAY
CLAYZB	Silty CLAY with shells
CLAYZBO	Silty CLAY with shells and organic matter
CLAYZG	Gravelly silty CLAY.
CLAYZGB	Gravelly silty CLAY with shell.
CLAYZGK	Gravelly silty CLAY with solels.
CLAYZGO	Gravelly silty CLAY with organic matter.
CLAYZK	Silty CLAY with cobbles.
CLAYZO	Silty CLAY with organics
CLAYZS	Sandy silty CLAY
CLAYZSB	Sandy silty CLAY with shells
CLAYZSG	Gravelly sandy silty CLAY.
CLAYZSGB	Gravelly salty CLAY with shells.
CLAYZSGK	Gravelly sandy salty CLAY with shehs. Gravelly sandy silty CLAY with cobbles.
CLAYZSGO	
CLAYZSK	CLAY with silty sandy gravelly with organic matter.
CLAYZSO	Sandy silty CLAY with cobbles.
	Sandy silty CLAY with organics. Coal
COAL CONCRETE	
CONGLOM	Concrete
	Corpl
CORAL DOLOMITE	Coral Dolomitic, dolomitic limestone
FAULT	Fault rock (breccia, gouge, mylonite)
FILL	Artificial Fill; includes landfill, rock fill, masonry wall
FINE	SILT / CLAY (Geoguide 3 p.39)
FISSIN	Fissure Infill
GABBRO	Gabbro, Lamprophyre
GNEISS GRABLDSS	Gneiss, Coarse-grained metamorphic rock Sandy silty GRAVEL with occaional / some / many boulders
GRACBBBD	•
GRANITE	GRAVEL with occasional / some / many boulders & cobbles
	Granite, Coarse-grained Acid Igneous Rock GRAVEL
GRAVE	
GRAVE	GRAVEL with shell.
GRAVED	Clayey GRAVEL
GRAVCDDI	Clayey GRAVEL with shell.
GRAVCBBL	GRAVEL and COBBLES.
GRAVCK	Clayey GRAVEL with cobbles.
GRAVCS	Clayey sandy GRAVEL
GRAVCSB	Clayey sandy GRAVEL with shell.
GRAVCSK	Clayey sandy GRAVEL with cobbles.
GRAVCSO	Clayey sandy GRAVEL with organics.
GRAVCZ	Clayey silty GRAVEL.
GRAVCZB	Silty clayey GRAVEL with shells
GRAVCZK	Clayey silty GRAVEL with cobbles.
GPAVC7S	Clayer Silty Sandy CD AVEI

Clayey Silty Sandy GRAVEL

GRAVCZS

Description Name **GRAVCZSB** Sandy silty clayey GRAVEL with shells. **GRAVCZSK** Sandy silty clayey GRAVEL with cobbles. GRAVEL with cobbles. **GRAVK GRAVS** Sandy GRAVEL Sandy GRAVEL with shells. **GRAVSB** Sandy GRAVEL with cobbles. **GRAVSK GRAVSO** Sandy GRAVEL with organics. **GRAVZ** Silty GRAVEL **GRAVZK** Silty GRAVEL with cobbles. Silty GRAVEL with organic. **GRAVZO** Silty Sandy GRAVEL **GRAVZS GRAVZSB** Sandy silty GRAVEL with shells. **GRAVZSK** Silty sandy GRAVEL with cobbles. Silty sandy GRAVEL with cobbles & shells **GRAVZSKB** Gypsum, Rocksalt, etc. **GYPSUM** LIMESTONE LST LSTSLT Interbedded Limestone and Siltstone **MARBLE** Marble (pure or impure) Interbedded mudstone and siltstone **MDSTSLTS METACG** Coarse-grained Metamorphic Rock **METACON** Contact Metamorphic Rock Medium grained Metamorphic Rock **METAMG METAREG** Regional Metamorphic Rock Mudstone **MUDSTONE MUDSTONEST** Silty Mudstone **ORGANICS** Peat **PEATCL BSI Clayey Peat BSI** Gravelly Peat **PEATGR BSI Sandy Peat PEATSD PEATST BSI Silty Peat PEGMTITE** Pegmatite (Very Coarse-grained Igneous Rock)

Phyllite, Mylonite (fine grained metamorphic rock) PHYLLITE

OUARTZIT Quartzite, quartz (vein) Coarse-grained Metamorphic Rock

Rhyolite (feldsparphyric, quartzphyric), fine grained acid igneous rock RHYOLITE

SAND SAND SANDB Shelly SAND **SANDC** Clayey SAND

SANDCB Clayey SAND with shell fragments

Clayey SAND with some / occassional gravel **SANDCG**

SANDCGB Gravelly clayey SAND with shell. Gravelly clayey SAND with cobbles. **SANDCGK** Gravelly clayey SAND with organics. **SANDCGO**

Clayey SAND with cobbles. **SANDCK SANDCO** Clayey SAND with organics.

SANDCZ Silty clayey SAND

SANDCZB Silty clayey SAND with shells Silty clayey SAND with gravel SANDCZG

Silty clayey SAND with gravel & shells **SANDCZGB** Silty clayey SAND with gravel and cobbles SANDCZGK

SANDCZK Silty clayey SAND with cobbles. **SANDCZO** Clayey silty SAND with organics.

Gravelly SAND **SANDG**

Gravelly SAND with shells. **SANDGB**

SAND with occasional gravel and cobbles **SANDGK**

SANDGO Gravelly SAND with organics.

SANDK SAND with cobbles. **SANDO** SAND with organics. **SANDSTON SANDSTONE SANDZ** Silty SAND

SANDZB Silty SAND with shells.

Name **Description SANDZG** Silty SAND with gravel. **SANDZGB SANDZGK**

Silty gravelly SAND with shells. Gravelly silty SAND with cobbles.

Silty gravelly SAND with cobbles & shells **SANDZGKB**

Silty gravelly SAND with organic. **SANDZGO**

Silty SAND with cobbles. **SANDZK SANDZO** Silty SAND with organics.

Schist (Medium grained Metamorphic Rock) **SCHIST**

SHALE Shale, Fissile Mudstone

SILT. SILT Shelly SILT. **SILTB**

Shelly SILTwith organic. **SILTBO**

SILTC Clayey SILT.

SILTCB Clayey SILT with shells. Clayey SILT with gravel. **SILTCG** Gravelly clayey SILT with shell. **SILTCGB** Gravelly clayey SILT with cobbles. **SILTCGK**

SILTCGKB Gravelly clayey SILT with cobbles and shell. Gravelly clayey SILT with cobbles and organic. **SILTCGKO**

SILTCGO Gravelly clayey SILT with organics.

Clayey SILT with cobbles. **SILTCK** Clayey SILT with organics. **SILTCO SILTCS** Sandy clayey SILT.

SILTCSB Sandy clayey SILT with shells. Sandy clayey SILT with gravel. **SILTCSG** Gravelly clayey sandy SILT with shell. **SILTCSGB** Gravelly sandy clayey SILT with cobbles. **SILTCSGK**

Gravelly sandy clayey SILT with cobbles and shell **SILTCSGKB** Gravelly sandy clayey SILT with cobbles and orgainic **SILTCSGKO**

SILTCSGO Gravelly sandy clayey SILT with organics.

SILTCSK Sandy clayey SILT with cobbles. Sandy clayey SILT with organics. **SILTCSO**

SILTG Gravelly SILT.

Gravelly SILT with shell. **SILTGB**

SILTGK SILT with some / occasional gravel and cobbles

SILTGO Gravelly SILT with organics.

SILTK SILT with cobbles. **SILTMUD** Siltstone & Mudstone

SILTO Organic SILT **SILTS** Sandy SILT

Sandy SILT with shell. **SILTSB** Gravelly sandy SILT. **SILTSG**

SILTSGB Gravelly sandy SILT with shell. **SILTSGK** Gravelly sandy SILT with cobbles. Gravelly sandy SILT with organics. **SILTSGO**

SILTSK Sandy SILT with occasional / some / many cobbles

SILTSKO Sandy SILT with cobbles and organics.

Sandy SILT with organics. **SILTSO SILTSTON** Siltstone (Hong Kong)

SYENITE Granodiorite, Syenite, Monzonite

TOPSOIL Topsoil

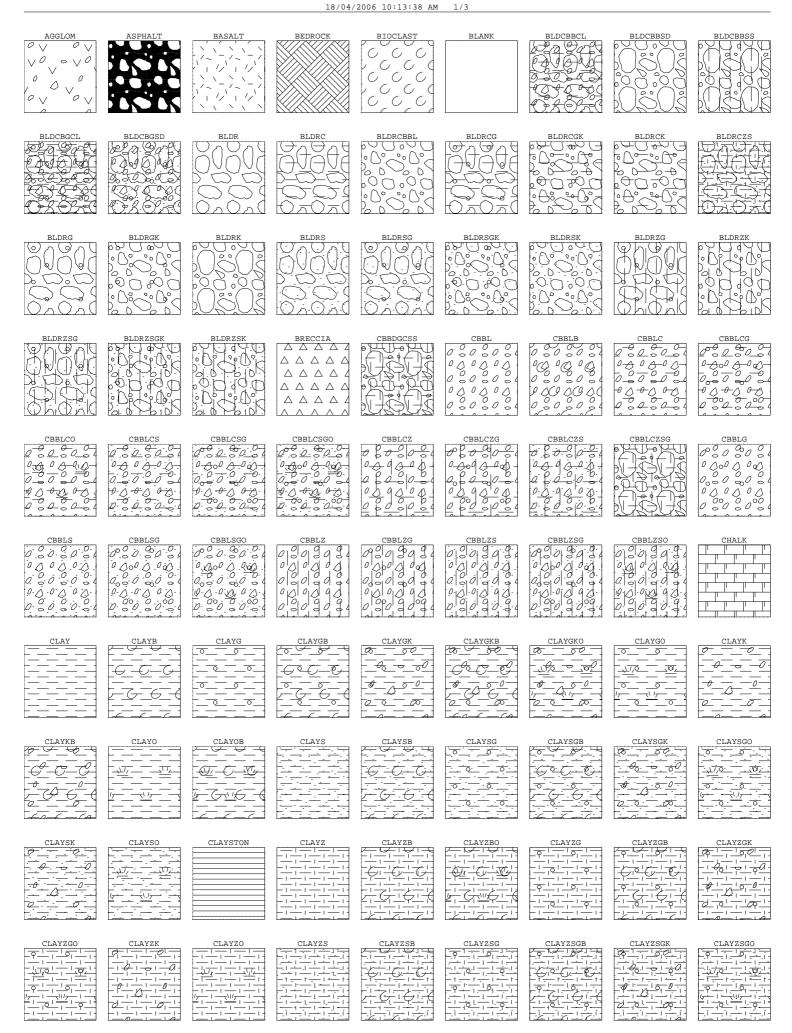
TRACHYTE, TRACHYANDESITE, ANDESITE, LATITE and DACITE. TRACHYTE

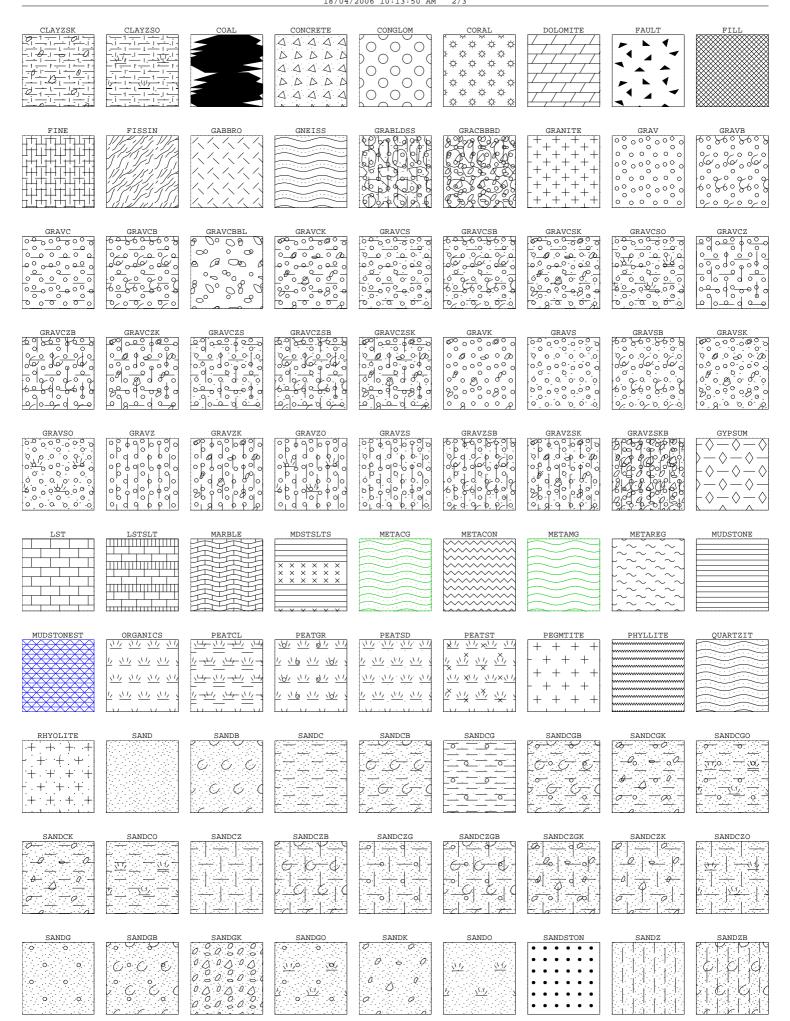
Coarse Ash Tuff, Lapilli Tuff (Fine-grained Igneous Rock) **TUFF**

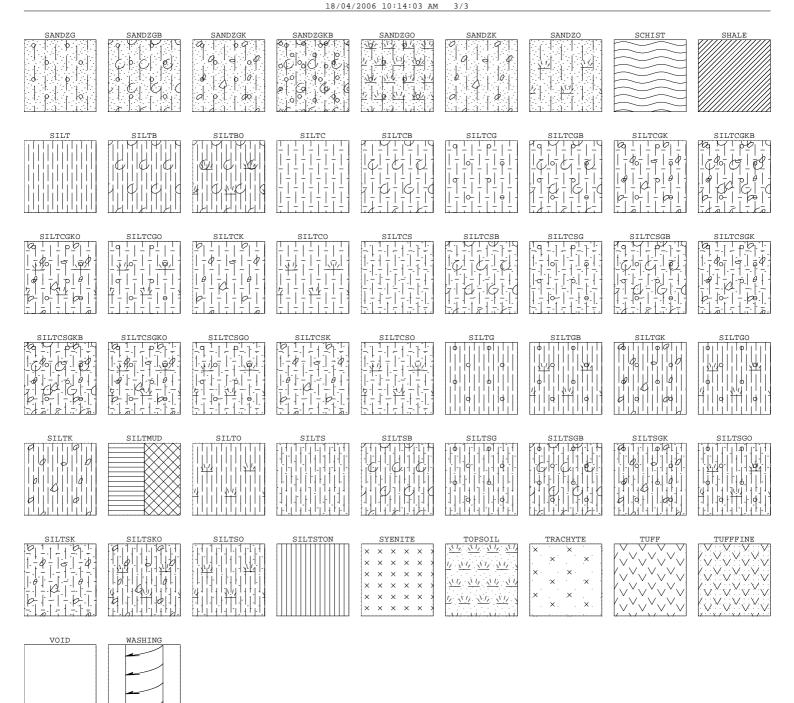
TUFFFINE Fine Ash Tuff

VOID Void

WASHING Wash Boring (No Sample recovered attempted)









Appendix 3 Drillhole Records



DRILLHOLE RECORD

HOLE No. EH1B

CONTRACT No. KL/2013/02

SHEET

of 1

Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2) PROJECT

METHOD CO-ORDINATES Rotary

PROJECT No.

J3539

MACHINE & No. 20-111

Ε 839763.19 819573.07

DATE from

03/09/2014 01/09/2014 to

FLUSHING MEDIUM WATER

ORIENTATION

Vertical

GROUND LEVEL

+ 4.12

mPD

Dry 18:00	Tests	Progress Casing depth/size (a) and depth/size Water Recovery % Total core Recovery % Solid core Recovery % R.Q.D.	۵		ا ت ا ت	Description	
Dry at 18:00 2.30m at 08:00 3.00 PX SX 3.00 PX		9/2014 SX		4.12 0.0	00 4 4	CONCRETE slab.	
3.00 PX 67 12 bis 28 bis 26 bis 50 bis 27 40 bis 64 bis		06.00	A • 0.45 0.50	3.82 - 0.3	30	Brown (10YR 5/4), fine to coarse SAND with some subangular fine to coarse gravel sized rock and concrete fragments. (FILL)	
3.00 PX 67 12 bis 28 bis 26 bis 58 40 bis 758 64 bis			C La				
3.00 PX 67 21 bls 12 bls 28 bls 26 bls 50 bls 50 bls 64 bls		Dry at 18:00	F 2.45 - 2.50	1.62 2.5	50		
0 12 bis 28 bis 28 bis 26 bis 40 bis 50 bis 64 bis		3.00	1/2 2.95	E		Firm, greyish brown (10YR 5/2), sandy SILT with some subangular fine to medium gravel sized rock fragments. (FILL)	
0 26 bls 40 bls 27 0 64 bls				0.62 3.5	50	Light brown (7.5YR 6/4), slightly silty fine to	
0 26 bls 40 bls 27 0 64 bls	8 bls	758	28 bis 5 3.95 4.00	0.12 4.0	00	coarse SAND with some subangular fine to medium gravel sized rock fragments. (FILL) Greyish brown (10YR 5/2), silty fine to coarse SAND with some subangular fine to coarse	
50 bls	5 bls	0	26 bls 7 4.45 4.50	0.38 4.5	50	gravel sized rock fragments. (FILL) Light brown (7.5YR 6/4), dappled brownish orange, COBBLE with occasional subangular fine	
) bls	758	40 bls 9 5.00	0.88 5.0	00	to coarse gravel sized rock and ceramic fragments in sandy matrix. (FILL) Brownish grey (5YR 5/2), silty fine to coarse	
64 bis) bis		50 bls 10 5.45 11 5.50 12/13 5.95 - 6.00	1.88 6.0	00	SAND with some subangular fine to coarse gravel sized rock fragments. (FILL)	
			T6116	-		Brownish orange (10R 5/8), orangish brown (5YR 5/8) and grey (N6), BOULDER with some subangular coarse gravel and cobble sized rock, concrete and brick fragments. (FILL)	
PX 8.50 24 bis 1.95m at 18:00 24 bis 24 bis 25 Small disturbed sample A Water sample	1 bis	0	64 bis 7.50	3.38 7.5	50	Dark brownish grey (2.5YR 4/1), subangular fine to coarse GRAVEL and COBBLE sized rock	
1.95m at 18:00 24 bis 24 bis 25 Small disturbed sample	3 bls			3.88 8.0	00	fragments in sandy silty matrix. (FILL) Light brown (7.5YR 6/4), slightly silty fine to coarse SAND with some subangular fine to	
Small disturbed sample A Water sample	1 bis	1.95m	24 bls 16 8.50	4.88 9.0		coarse gravel sized rock fragments. (FILL) Greyish brown (10YR 5/2), mottled grey, slightly silty fine to coarse SAND with some subangular fine to coarse gravel sized rock fragments. (FILL)	
Small disturbed sample A Water sample				- - - - - -		End of hole at 9.00m depth.	
SPT liner sample U76 undisturbed sample D76 undisturbed sample D77 undisturbed sample	oipe tip	U76 undisturbed sample Permeabilit		SIU /	2. Water sample	was dug to 2.50m depth. was taken at 7.50m depth. es 0.50m, 3.00m, 6.00m, 9.00m and water sample were	
U100 undisturbed sample ☐ Mazier sample ☐ Piston sample ☐ Piston sample ☐ Standard penetration test ☐ U100 undisturbed sample ☐ Packer (Water Absorption packer test Impression packe	est Survey Tes	U100 undisturbed sample Mazier sample Piston sample T Packer (Wa Impression Acoustic Te	r test er Survey Test CHECKED JASO	sent to laboratory.			



DRILLHOLE RECORD

HOLE No.

EH3B

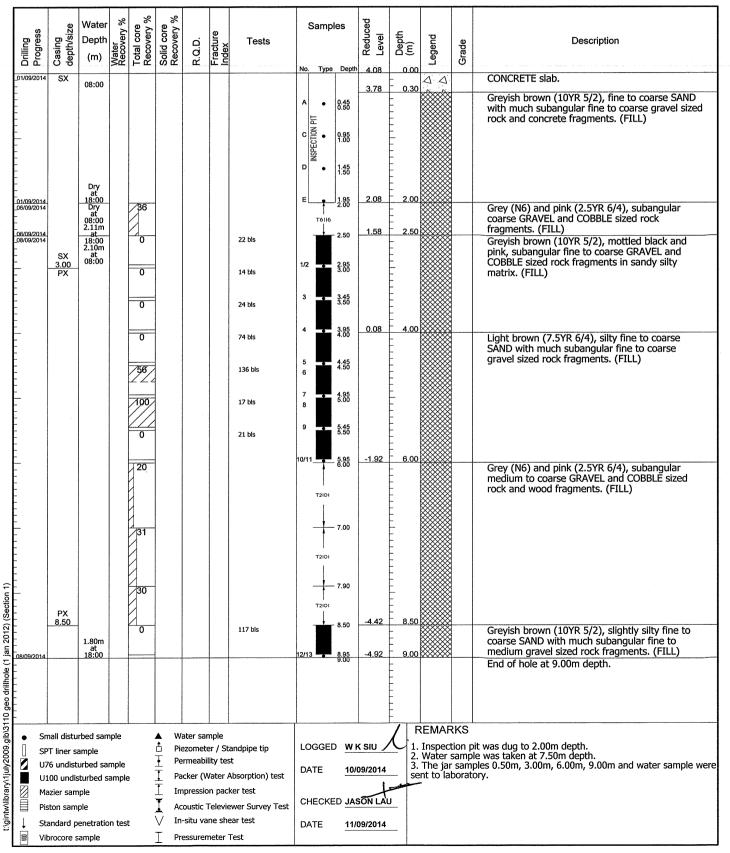
1

CONTRACT No. KL/2013/02

SHEET 1 of

Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2) **PROJECT CO-ORDINATES** PROJECT No. J3539 **METHOD** Rotary Е 839734.91 01/09/2014 08/09/2014 DATE from MACHINE & No. 20-111 to N 819553.20

FLUSHING MEDIUM WATER ORIENTATION Vertical GROUND LEVEL + 4.08 mPD





Appendix 4 Drillhole Photographs







Appendix 5Environmental Samples Photographs

KL/2013/02 Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2)





KL/2013/02
Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2)





KL/2013/02 Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2)









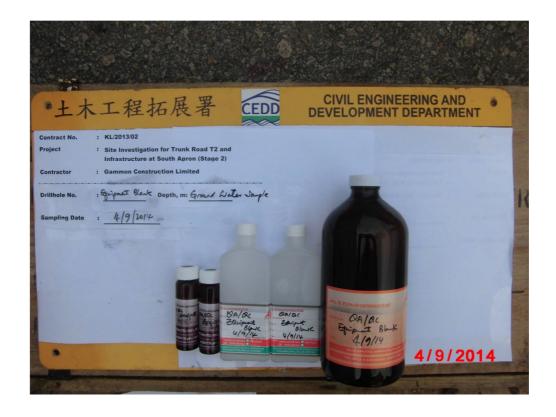


Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2)



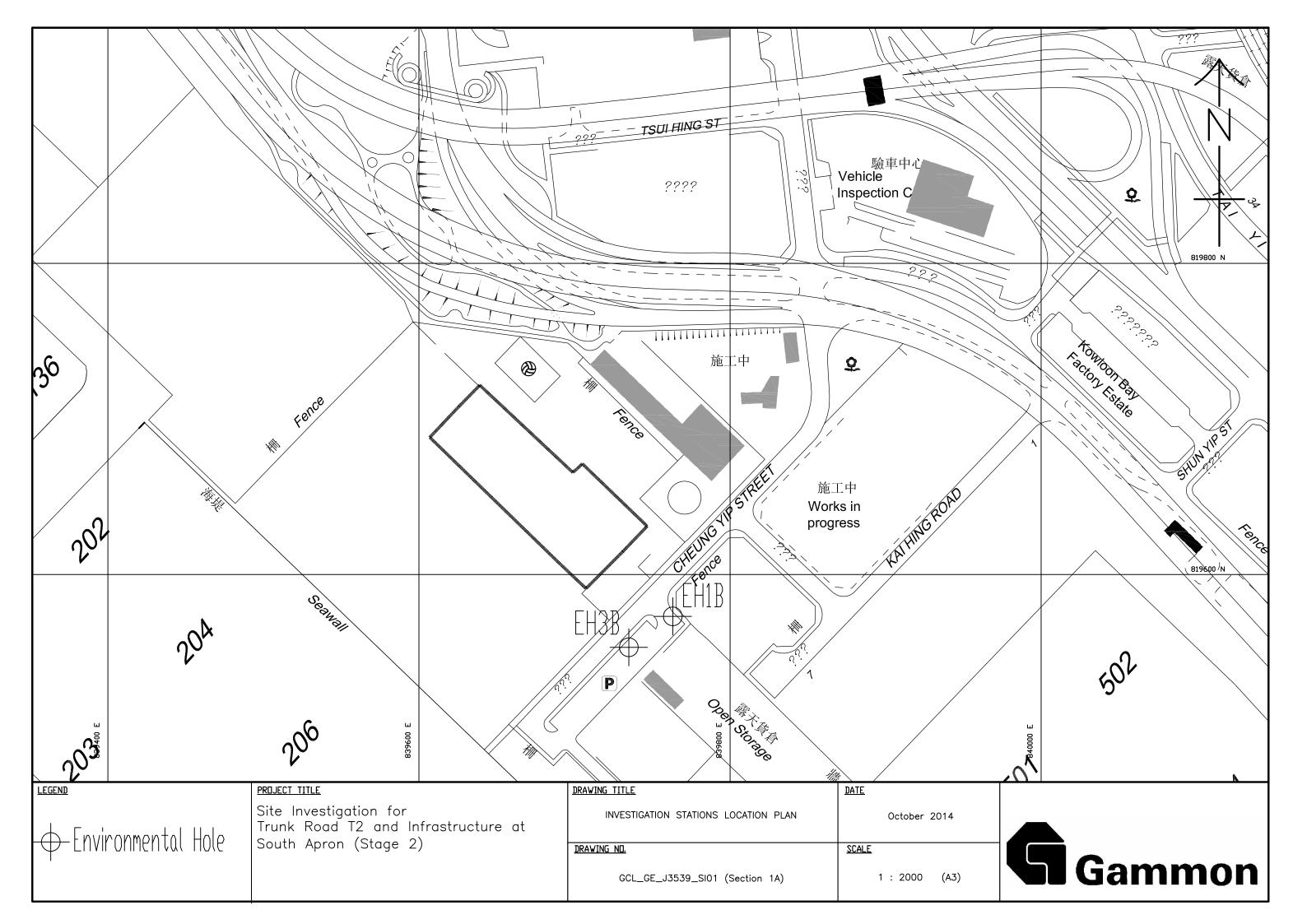


KL/2013/02 Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2)





Appendix 6Investigation Stations Location Plan





Appendix 7Digital Records



Media Index Record

Contract No. : KL/2013/02

Project No.: J3539

Date of issue to the Engineer: 11/11/2014

Description: Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2)

File Name	Creation Date	Creation Time	Size (Bytes)	Description
J3539	23/10/2014	15:54:00	10.5 KB	Project Information
Section 1. AGS	25/10/2011	13.51.00	10.5 11	1 Toject Information

Appendix 3.2

Summary of Laboratory Results

Standard Form 3.2

Soil Data Summary and Comparison to RBRGs and Csat

Chemical	Frequency of Detection ⁽¹⁾	Range of Detected Concentration ⁽²⁾	Range of Method Reporting Limit ⁽³⁾	Analytica l Method	Relevant Land Use Categories	Lowest RBRG(s)	Csat (mg/kg)	Maximum Concentrat (Check if a	on Exceeds		
	(x/y)	(mg/kg)	(mg/kg)		Categories	(mg/kg)		RBRG	Csat		
Volatile Organic Chemicals	1										
Benzene	0/8	< 0.2	0.2			9.21E+00	3.36E+02	Nil	Nil		
Toluene	0/8	< 0.5	0.5	USEPA	Industrial,	8.24E+03	1.38E+02	Nil	Nil		
Ethylbenzene	0/8	< 0.5	0.5	8260	Public Parks	1.00E+04	2.35E+02	Nil	Nil		
Xylenes (Total)	0/8	<2.0	2			1.23E+03	1.50E+02	Nil	Nil		
Semi Volatile Organic Chemicals											
Acenaphthene	0/8	< 0.5	0.5			1.00E+04	6.02E+01	Nil	Nil		
Acenaphthylene	0/8	< 0.5	0.5			1.00E+04	1.98E+01	Nil	Nil		
Anthracene	0/8	< 0.5	0.5			1.00E+04	2.56E+00	Nil	Nil		
Benzo(a)anthracene	0/8	< 0.5	0.5			3.83E+01	-	Nil	Nil		
Benzo(a)pyrene	0/8	< 0.5	0.5			3.83E+00	-	Nil	Nil		
Benzo(b)fluoranthene	0/8	< 0.5	0.5			1.78E+01	-	Nil	Nil		
Benzo(g,h,i)perylene	0/8	< 0.5	0.5		Industrial, Public Parks	5.74E+03	-	Nil	Nil		
Benzo(k)fluoranthene	0/8	< 0.5	0.5	USEPA		3.83E+02	-	Nil	Nil		
Chrysene	0/8	< 0.5	0.5	8270		1.14E+03	-	Nil	Nil		
Dibenzo(a,h)anthracene	0/8	< 0.5	0.5			3.83E+00	-	Nil	Nil		
Fluoranthene	0/8	< 0.5	0.5			7.62E+03	-	Nil	Nil		
Fluorene	0/8	< 0.5	0.5			7.45E+03	5.47E+01	Nil	Nil		
Indeno(1,2,3-cd)pyrene	0/8	< 0.5	0.5			3.83E+01	-	Nil	Nil		
Naphthalene	0/8	< 0.5	0.5			4.53E+02	1.25E+02	Nil	Nil		
Phenanthrene	0/8	< 0.5	0.5			1.00E+04	2.80E+01	Nil	Nil		
Pyrene	0/8	< 0.5	0.5			5.72E+03	-	Nil	Nil		
Metals											
Antimony	1/8	<1 to 1	1			9.79E+01	-	Nil	Nil		
Arsenic	5/8	<1 to 6	1			7.35E+01	-	Nil	Nil		
Barium	8/8	10.3 to 27.7	0.5			1.00E+04	-	Nil	Nil		
Cadmium	0/8	< 0.2	0.2	USEPA 6020A	Industrial,	2.45E+02	-	Nil	Nil		
Chromium III	8/8	3 to 38	1		Public Parks	1.00E+04	-	Nil	Nil		
Chromium VI	0/8	<1	1		Fublic Parks	7.35E+02	-	Nil	Nil		
Cobalt	7/8	<1 to 6	1			4.90E+03	-	Nil	Nil		
Copper	8/8	1 to 49	1			9.79E+03	-	Nil	Nil		
Lead	8/8	20 to 88	1			8.57E+02	-	Nil	Nil		

Standard Form 3.2 Soil Data Summary and Comparison to RBRGs and Csat

Chemical	Frequency of Detection ⁽¹⁾ (x/y)	Range of Detected Concentration ⁽²⁾ (mg/kg)	Range of Method Reporting Limit ⁽³⁾ (mg/kg)	Analytica l Method	Relevant Land Use Categories	Lowest RBRG(s) (mg/kg)	Csat (mg/kg)	Maximum Concentrati (Check if a	on Exceeds			
Manganese	8/8	261 to 895	1			1.00E+04	-	Nil	Nil			
Mercury	0/8	< 0.2	0.2			3.84E+01	-	Nil	Nil			
Molybdenum	4/8	<1 to 14	1			1.22E+03	-	Nil	Nil			
Nickel	7/8	<1 to 18	1			4.90E+03	-	Nil	Nil			
Tin	8/8	2 to 6	1			1.00E+04	-	Nil	Nil			
Zinc	8/8	20 to 50	0.2			1.00E+04	-	Nil	Nil			
Dioxins/PCBs												
PCBs	0/8	<0.1	0.1	USEPA 8270C	Industrial, Public Parks	7.48E-01	1	Nil	Nil			
Petroleum Carbon Ranges	Petroleum Carbon Ranges											
C6 - C8	0/8	<5	5	USEPA	Industrial	1.00E+04	1.00E+03	Nil	Nil			
C9 - C16	0/8	<200	200	8015	A Industrial, Public Parks	1.00E+04	3.00E+03	Nil	Nil			
C17 - C35	0/8	< 500	500	6015		1.00E+04	5.00E+03	Nil	Nil			

^{1.} x = number of samples in which chemical was not found above the method reporting limit y = number of samples analysed for chemicalMinimum and maximum detected values

- 3. Minimum and maximum method reporting limits

Standard Form 3.3 Groundwater Data Summary and Comparison to RBRGs and Solubility Limits

Chemical	Frequency of Detection ⁽¹⁾	Range of Detected Concentration ⁽²⁾	Range of Method Reporting	Analytica l Method	Relevant Land Use	Lowest RBRG(s)	Solubility Limit	Concentrat	n Detected ion Exceeds applicable)
	(x/y)	(µg/L)	Limit ⁽³⁾ (µg/L)		Categories	(mg/L)	(mg/L)	RBRG	Solubility
Volatile Organic Chemicals	S								
Benzene	0/2	<5	5			5.40E+01	1.75E+03	Nil	Nil
Toluene	0/2	<5	5	USEPA	Industrial	1.00E+04	1.69E+02	Nil	Nil
Ethylbenzene	0/2	<5	5	8260	musurar	1.00E+04	5.26E+02	Nil	Nil
Xylenes (Total)	0/2	<20	20			1.57E+03	1.75E+02	Nil	Nil
Semi Volatile Organic Che	micals								
Acenaphthene	0/2	<2	2			1.00E+04	4.24E+00	Nil	Nil
Acenaphthylene	0/2	<2	2			1.00E+04	3.93E+00	Nil	Nil
Anthracene	0/2	<2	2		Industrial	1.00E+04	4.34E-02	Nil	Nil
Benzo(b)fluoranthene	0/2	<1	1			7.53E+00	1.50E-03	Nil	Nil
Chrysene	0/2	<1	1	USEPA		8.12E+02	1.60E-03	Nil	Nil
Fluoranthene	0/2	<2	2	8270	ilidustiiai	1.00E+04	2.06E-01	Nil	Nil
Fluorene	0/2	<2	2			1.00E+04	1.98E+00	Nil	Nil
Naphthalene	0/2	<2	2			8.62E+02	3.10E+01	Nil	Nil
Phenanthrene	0/2	<2	2			1.00E+04	1.00E+00	Nil	Nil
Pyrene	0/2	<2	2			1.00E+04	1.35E-01	Nil	Nil
Metals									
Mercury	0/2	<0.5	0.5	USEPA 6020A	Industrial	6.79E+00	-	Nil	Nil
Dioxins/PCBs									
PCBs	0/2	<1	1	USEPA 8270C	Industrial	5.11E+00	3.10E-02	Nil	Nil
Petroleum Carbon Ranges									
C6 - C8	0/2	<20	20	USEPA		1.15E+03	5.23E+00	Nil	Nil
C9 - C16	0/2	< 500	500	8015	Industrial	9.98E+03	2.80E+00	Nil	Nil
C17 - C35	0/2	< 500	500	8013		1.78E+02	2.80E+00	Nil	Nil

x = number of samples in which chemical was not found above the method reporting limit
 y = number of samples analysed for chemical

^{2.} Minimum and maximum detected values

^{3.} Minimum and maximum method reporting limits

Standard Form 3.4
Soil Sample Concentrations and Exceedances of RBRGs and Csat

Chamiaal	List Sa	amples	Concentration	Check if RBRG	Check if Csat	Approximate Size of
Chemical	Sample Number	Sample Depth	(mg/kg)	Exceeded	Exceeded	Affected Area
Volatile Organic Chemicals				•		•
Benzene	EH1B (BH1)	0.5m to 1.0m	< 0.2	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.2	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.2	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.2	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.2	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.2	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.2	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.2	Not exceeded	Not exceeded	Not applicable
Toluene	EH1B (BH1)	0.5m to 1.0m	< 0.5	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.5	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
Ethylbenzene	EH1B (BH1)	0.5m to 1.0m	< 0.5	Not exceeded	Not exceeded	Not applicable
•		3.0m to 3.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.5	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.5	Not exceeded	Not exceeded	Not applicable
Xylenes (Total)	EH1B (BH1)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
-		3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
emi Volatile Organic Chen						
Acenaphthene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable

Standard Form 3.4
Soil Sample Concentrations and Exceedances of RBRGs and Csat

C1 1 1	List Sa		Concentration	Check if RBRG	Check if Csat	Approximate Size of
Chemical	Sample Number	Sample Depth	(mg/kg)	Exceeded	Exceeded	Affected Area
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
Acenaphthylene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
-		3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
Anthracene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
Benzo(a)anthracene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
Benzo(a)pyrene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
Benzo(b)fluoranthene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable

Standard Form 3.4
Soil Sample Concentrations and Exceedances of RBRGs and Csat

C1 1	List Sa	imples	Concentration	Check if RBRG	Check if Csat	Approximate Size of
Chemical	Sample Number	Sample Depth	(mg/kg)	Exceeded	Exceeded	Affected Area
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
	,	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
Benzo(g,h,i)perylene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
(C) / / 1	` '	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
	` '	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
Benzo(k)fluoranthene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
	, , ,	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
	, ,	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
Chrysene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
	, ,	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
	, ,	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
Dibenzo(a,h)anthracene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
	, ,	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
Fluoranthene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable

Standard Form 3.4
Soil Sample Concentrations and Exceedances of RBRGs and Csat

C1 A 3	List Sa		Concentration	Check if RBRG	Check if Csat	Approximate Size of
Chemical	Sample Number	Sample Depth	(mg/kg)	Exceeded	Exceeded	Affected Area
	EH3B (BH3)	0.5m to 1.0m	<0.500	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
Fluorene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
	` ′	3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
Indeno(1,2,3-cd)pyrene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
, , , , , , , , , , , , , , , , , , ,	, ,	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
	, ,	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable
Naphthalene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
*	, ,	3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
Phenanthrene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not exceeded	Not applicable
Pyrene	EH1B (BH1)	0.5m to 1.0m	< 0.500	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable

Standard Form 3.4
Soil Sample Concentrations and Exceedances of RBRGs and Csat

~- · ·	List Sa		Concentration	Check if RBRG	Check if Csat	Approximate Size of	
Chemical	Sample Number	Sample Depth	(mg/kg)	Exceeded	Exceeded	Affected Area	
	EH3B (BH3)	0.5m to 1.0m	<0.500	Not exceeded	Not applicable	Not applicable	
	, ,	3.0m to 3.45m	< 0.500	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	< 0.500	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	< 0.500	Not exceeded	Not applicable	Not applicable	
Metals		•			••	**	
Antimony	EH1B (BH1)	0.5m to 1.0m	<1	Not exceeded	Not applicable	Not applicable	
•	, ,	3.0m to 3.45m	<1	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	<1	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	<1	Not exceeded	Not applicable	Not applicable	
	EH3B (BH3)	0.5m to 1.0m	<1	Not exceeded	Not applicable	Not applicable	
	, ,	3.0m to 3.45m	<1	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	<1	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	<1	Not exceeded	Not applicable	Not applicable	
Arsenic	EH1B (BH1)	0.5m to 1.0m	1	Not exceeded	Not applicable	Not applicable	
	,	3.0m to 3.45m	<1	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	<1	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	<1	Not exceeded	Not applicable	Not applicable	
	EH3B (BH3)	0.5m to 1.0m	2	Not exceeded	Not applicable	Not applicable	
	, ,	3.0m to 3.45m	6	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	1	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	2	Not exceeded	Not applicable	Not applicable	
Barium	EH1B (BH1)	0.5m to 1.0m	10.3	Not exceeded	Not applicable	Not applicable	
	, ,	3.0m to 3.45m	25.4	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	12.4	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	13.3	Not exceeded	Not applicable	Not applicable	
	EH3B (BH3)	0.5m to 1.0m	27.7	Not exceeded	Not applicable	Not applicable	
	, ,	3.0m to 3.45m	15	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	21.6	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	13.9	Not exceeded	Not applicable	Not applicable	
Cadmium	EH1B (BH1)	0.5m to 1.0m	< 0.2	Not exceeded	Not applicable	Not applicable	
		3.0m to 3.45m	< 0.2	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	< 0.2	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	< 0.2	Not exceeded	Not applicable	Not applicable	
	EH3B (BH3)	0.5m to 1.0m	< 0.2	Not exceeded	Not applicable	Not applicable	
	`	3.0m to 3.45m	< 0.2	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	< 0.2	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	< 0.2	Not exceeded	Not applicable	Not applicable	
Chromium III	EH1B (BH1)	0.5m to 1.0m	3	Not exceeded	Not applicable	Not applicable	
		3.0m to 3.45m	7	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	5	Not exceeded	Not applicable	Not applicable	

Standard Form 3.4 Soil Sample Concentrations and Exceedances of RBRGs and Csat

CI 1 I	List Sa	imples	Concentration	Check if RBRG	Check if Csat	Approximate Size of	
Chemical	Sample Number	Sample Depth	(mg/kg)	Exceeded	Exceeded	Affected Area	
	•	9.0m to 9.45m	7	Not exceeded	Not applicable	Not applicable	
	EH3B (BH3)	0.5m to 1.0m	4	Not exceeded	Not applicable	Not applicable	
		3.0m to 3.45m	38	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	3	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	3	Not exceeded	Not applicable	Not applicable	
Chromium VI	EH1B (BH1)	0.5m to 1.0m	<1	Not exceeded	Not applicable	Not applicable	
		3.0m to 3.45m	<1	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	<1	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	<1	Not exceeded	Not applicable	Not applicable	
	EH3B (BH3)	0.5m to 1.0m	<1	Not exceeded	Not applicable	Not applicable	
		3.0m to 3.45m	<1	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	<1	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	<1	Not exceeded	Not applicable	Not applicable	
Cobalt	EH1B (BH1)	0.5m to 1.0m	1	Not exceeded	Not applicable	Not applicable	
	,	3.0m to 3.45m	2	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	<1	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	1	Not exceeded	Not applicable	Not applicable	
	EH3B (BH3)	0.5m to 1.0m	4	Not exceeded	Not applicable	Not applicable	
	, ,	3.0m to 3.45m	6	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	3	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	2	Not exceeded	Not applicable	Not applicable	
Copper	EH1B (BH1)	0.5m to 1.0m	1	Not exceeded	Not applicable	Not applicable	
	,	3.0m to 3.45m	2	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	4	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	3	Not exceeded	Not applicable	Not applicable	
	EH3B (BH3)	0.5m to 1.0m	7	Not exceeded	Not applicable	Not applicable	
	,	3.0m to 3.45m	49	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	4	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	3	Not exceeded	Not applicable	Not applicable	
Lead	EH1B (BH1)	0.5m to 1.0m	23	Not exceeded	Not applicable	Not applicable	
		3.0m to 3.45m	20	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	26	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	23	Not exceeded	Not applicable	Not applicable	
	EH3B (BH3)	0.5m to 1.0m	64	Not exceeded	Not applicable	Not applicable	
	` '	3.0m to 3.45m	39	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	88	Not exceeded	Not applicable	Not applicable	
		9.0m to 9.45m	48	Not exceeded	Not applicable	Not applicable	
Manganese	EH1B (BH1)	0.5m to 1.0m	759	Not exceeded	Not applicable	Not applicable	
<u> </u>	` '	3.0m to 3.45m	895	Not exceeded	Not applicable	Not applicable	
		6.0m to 6.45m	526	Not exceeded	Not applicable	Not applicable	

Standard Form 3.4
Soil Sample Concentrations and Exceedances of RBRGs and Csat

Chemical	List Samples		Concentration	Check if RBRG	Check if Csat	Approximate Size of
	Sample Number	Sample Depth	(mg/kg)	Exceeded	Exceeded	Affected Area
		9.0m to 9.45m	321	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	639	Not exceeded	Not applicable	Not applicable
	,	3.0m to 3.45m	355	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	487	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	261	Not exceeded	Not applicable	Not applicable
Mercury	EH1B (BH1)	0.5m to 1.0m	< 0.2	Not exceeded	Not applicable	Not applicable
	,	3.0m to 3.45m	< 0.2	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.2	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	<0.2	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.2	Not exceeded	Not applicable	Not applicable
	,	3.0m to 3.45m	< 0.2	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.2	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.2	Not exceeded	Not applicable	Not applicable
Molybdenum	EH1B (BH1)	0.5m to 1.0m	<1	Not exceeded	Not applicable	Not applicable
	,	3.0m to 3.45m	<1	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	<1	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	1	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	2	Not exceeded	Not applicable	Not applicable
	, ,	3.0m to 3.45m	3	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	14	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	<1	Not exceeded	Not applicable	Not applicable
Nickel	EH1B (BH1)	0.5m to 1.0m	<1	Not exceeded	Not applicable	Not applicable
	, ,	3.0m to 3.45m	2	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	2	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	2	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	1	Not exceeded	Not applicable	Not applicable
	, ,	3.0m to 3.45m	18	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	2	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	2	Not exceeded	Not applicable	Not applicable
Tin	EH1B (BH1)	0.5m to 1.0m	4	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	2	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	3	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	3	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	3	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	6	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	3	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	2	Not exceeded	Not applicable	Not applicable
Zinc	EH1B (BH1)	0.5m to 1.0m	20	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	24	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	21	Not exceeded	Not applicable	Not applicable

Standard Form 3.4
Soil Sample Concentrations and Exceedances of RBRGs and Csat

c	List Sa		Concentration	Check if RBRG	Check if Csat	Approximate Size of
Chemical	Sample Number	Sample Depth	(mg/kg)	Exceeded	Exceeded	Affected Area
	•	9.0m to 9.45m	21	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	50	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	20	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	22	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	21	Not exceeded	Not applicable	Not applicable
Dioxins/PCBs	•				**	•
PCBs	EH1B (BH1)	0.5m to 1.0m	<0.1	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	<0.1	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	<0.1	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	<0.1	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<0.1	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.1	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.1	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	<0.1	Not exceeded	Not applicable	Not applicable
Petroleum Carbon Ranges						
C6 - C8	EH1B (BH1)	0.5m to 1.0m	<5	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<5	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<5	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<5	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<5	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<5	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<5	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<5	Not exceeded	Not exceeded	Not applicable
C9 - C16	EH1B (BH1)	0.5m to 1.0m	<200	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<200	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<200	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<200	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<200	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<200	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<200	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<200	Not exceeded	Not exceeded	Not applicable
C17 - C35	EH1B (BH1)	0.5m to 1.0m	< 500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 500	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 500	Not exceeded	Not exceeded	Not applicable

Standard Form 3.5

Groundwater Sample Concentrations and Exceedances of RBRGs and Solubility Limits

CI 1	List Sa	mples	Concentration	Check if RBRG	Check if Solubility	Approximate Size of
Chemical	Sample Number	Sample Depth	(µg/L)	Exceeded	Limit Exceeded	Affected Area
Volatile Organic Chemicals		<u> </u>	40	<u> </u>	•	
Benzene	EH1B (BH1)	0.5m to 1.0m	< 5.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<5.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 5.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 5.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 5.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<5.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<5.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<5.0	Not exceeded	Not exceeded	Not applicable
Toluene	EH1B (BH1)	0.5m to 1.0m	<5.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<5.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<5.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<5.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<5.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 5.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 5.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 5.0	Not exceeded	Not exceeded	Not applicable
Ethylbenzene	EH1B (BH1)	0.5m to 1.0m	<5.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 5.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<5.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<5.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 5.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 5.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 5.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 5.0	Not exceeded	Not exceeded	Not applicable
Xylenes (Total)	EH1B (BH1)	0.5m to 1.0m	<20	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<20	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<20	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<20	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<20	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<20	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<20	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<20	Not exceeded	Not exceeded	Not applicable
Semi Volatile Organic Cher						
Acenaphthene	EH1B (BH1)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable

Standard Form 3.5 Groundwater Sample Concentrations and Exceedances of RBRGs and Solubility Limits

	List Sa		Concentration	Check if RBRG	Check if Solubility	Approximate Size of
Chemical	Sample Number	Sample Depth	(μg/L)	Exceeded	Limit Exceeded	Affected Area
	EH3B (BH3)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
	,	3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
Acenaphthylene	EH1B (BH1)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
1 7	,	3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
	,	3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
Anthracene	EH1B (BH1)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
	, ,	3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
	,	3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
Benzo(b)fluoranthene	EH1B (BH1)	0.5m to 1.0m	<1.0	Not exceeded	Not exceeded	Not applicable
. ,	, ,	3.0m to 3.45m	<1.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<1.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<1.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<1.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<1.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<1.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<1.0	Not exceeded	Not exceeded	Not applicable
Chrysene	EH1B (BH1)	0.5m to 1.0m	<1.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<1.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<1.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<1.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<1.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<1.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<1.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<1.0	Not exceeded	Not exceeded	Not applicable
Fluoranthene	EH1B (BH1)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable

Standard Form 3.5 Groundwater Sample Concentrations and Exceedances of RBRGs and Solubility Limits

		amples	Concentration	Check if RBRG	Check if Solubility	Approximate Size of
Chemical	Sample Number	Sample Depth	(μg/L)	Exceeded	Limit Exceeded	Affected Area
	EH3B (BH3)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
Fluorene	EH1B (BH1)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
	Brief (Brie)	3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
Naphthalene	EH1B (BH1)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
	Elise (Bils)	3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
Phenanthrene	EH1B (BH1)	0.5m to 1.0m	<2.0	Not exceeded	Not exceeded	Not applicable
Thenanunche	EIIIB (BIII)	3.0m to 3.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<2.0	Not exceeded Not exceeded	Not exceeded	Not applicable
	EHSB (BHS)	3.0m to 3.45m	<2.0	Not exceeded Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded Not exceeded	Not exceeded Not exceeded	Not applicable
Pyrene	EH1B (BH1)	0.5m to 1.0m	<2.0	Not exceeded Not exceeded	Not exceeded Not exceeded	Not applicable Not applicable
ryielle	EHIB (BHI)	3.0m to 3.45m	<2.0	Not exceeded Not exceeded	Not exceeded Not exceeded	Not applicable Not applicable
		6.0m to 6.45m	<2.0	Not exceeded Not exceeded	Not exceeded Not exceeded	Not applicable
		9.0m to 9.45m	<2.0	Not exceeded Not exceeded	Not exceeded Not exceeded	Not applicable Not applicable
	EH3B (BH3)	0.5m to 1.0m	<2.0	Not exceeded Not exceeded	Not exceeded Not exceeded	* *
	Епэр (рпэ)	3.0m to 3.45m	<2.0		Not exceeded Not exceeded	Not applicable
		6.0m to 6.45m	<2.0	Not exceeded	Not exceeded Not exceeded	Not applicable
		l l		Not exceeded		Not applicable
Metals		9.0m to 9.45m	<2.0	Not exceeded	Not exceeded	Not applicable
Mercury	EH1B (BH1)	0.5m to 1.0m	<0.5	Not exceeded	Not applicable	Not applicable
Mercury	Епів (впі)	3.0m to 3.45m	<0.5	Not exceeded Not exceeded	Not applicable Not applicable	Not applicable Not applicable
		6.0m to 6.45m	<0.5	Not exceeded Not exceeded		
		0.0m to 0.45m	<0.5	Not exceeded	Not applicable	Not applicable

Standard Form 3.5 Groundwater Sample Concentrations and Exceedances of RBRGs and Solubility Limits

Cl L	List Sa	mples	Concentration	Check if RBRG	Check if Solubility	Approximate Size of
Chemical	Sample Number	Sample Depth	(µg/L)	Exceeded	Limit Exceeded	Affected Area
	•	9.0m to 9.45m	<0.5	Not exceeded	Not applicable	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 0.5	Not exceeded	Not applicable	Not applicable
		3.0m to 3.45m	< 0.5	Not exceeded	Not applicable	Not applicable
		6.0m to 6.45m	< 0.5	Not exceeded	Not applicable	Not applicable
		9.0m to 9.45m	< 0.5	Not exceeded	Not applicable	Not applicable
Dioxins/PCBs	•			•	•	• •
PCBs	EH1B (BH1)	0.5m to 1.0m	<1	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<1	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<1	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<1	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<1	Not exceeded	Not exceeded	Not applicable
	, , ,	3.0m to 3.45m	<1	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<1	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<1	Not exceeded	Not exceeded	Not applicable
Petroleum Carbon Ranges	•				•	••
C6 - C8	EH1B (BH1)	0.5m to 1.0m	<20	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	<20	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<20	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<20	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	<20	Not exceeded	Not exceeded	Not applicable
	, , ,	3.0m to 3.45m	<20	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	<20	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	<20	Not exceeded	Not exceeded	Not applicable
C9 - C16	EH1B (BH1)	0.5m to 1.0m	< 500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 500	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 500	Not exceeded	Not exceeded	Not applicable
C17 - C35	EH1B (BH1)	0.5m to 1.0m	< 500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 500	Not exceeded	Not exceeded	Not applicable
	EH3B (BH3)	0.5m to 1.0m	< 500	Not exceeded	Not exceeded	Not applicable
		3.0m to 3.45m	< 500	Not exceeded	Not exceeded	Not applicable
		6.0m to 6.45m	< 500	Not exceeded	Not exceeded	Not applicable
		9.0m to 9.45m	< 500	Not exceeded	Not exceeded	Not applicable



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Project: J3539

Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2)

Test Report

Prepared for

Civil Engineering and Development Department
Kowloon Development Office

Prepared By

ALS Technichem (HK) Pty Ltd

04 November 2014



Project: J3539 Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2)

Laboratory Testing Report (Final Report)

CLIENT:

Civil Engineering and Development Department

Kowloon Development Office

7/F Empire Centre, 68 Mody Road, Tsim Sha Tsui East, Kowloon

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Section 1 Summary Reports

Summary of Soil Analytical Results

(813)			(=						EG: M	EG: Metals and Major Cations	d Majo	r Catio	Su						EP-066: Polychlorinated Biphenyls
		Analysis Description	Moisture Content (dried @ 103'0	ynomitnA	Hexavalent Chromium	Метсигу	Trivalent Chromium	Arsenic	Barium	muimbsO	Cobalt	Copper	bsad	esanaganaM	Molybdenum	ліске)	nii	oui ^z	otal Polychlorinated biphenyls
		Unit	%	mg/kg	Ě	9	mg/kg	ĝ	2 2	b S	mg/kg mg/kg	ng/kg r	ng/kg r	ng/kg n	ng/ka n	mg/kg mg/kg mg/kg mg/kg	a/ka m	la/ka	ma/ka
i		LOR	0.1	-	1	7				-	-	-	-	-	, -	-	-		
ALS Lab ID	Sample ID	Date / Time of sampling											-			-			ŝ
HK1428586001	EH1B 3.0M	03/(19,9	·	⊽	<0.2		~	25.4	<0.2	2	2	20	895	~	2	2	24	<0.1
HK1428586002	EH1B 6.0M	03/09/2014 14:15	13.8	[V	۲ <u>-</u>	<0.2	2	~	12.4	<0.2	7	4	26	526	~	2	m	21	<0.1
HK1428586003	EH1B 9.0M	03/09/2014 15:20	14.8	⊽	~	<0.2	7	~	13.3	<0.2	-	m	23	321	_	2	~ ~	2.1	<0.1
HK1428555001	EH18 0.5M	01/09/2014 14:00	9.0	⊽	~	<0.2	m	-	10.3	<0.2	-	_	23	759	~	⊽	4	20	<0.1
HK1428555002	EH3B 0.5M	01/09/2014 14:00	8.2	⊽	⊽	<0.2	4	2	27.7	<0.2	4	7	64	639	2	-	3	50	<0.1
HK1429117001	EH3B 3.0M	08/09/2014 09:00	18.7	-	⊽	<0.2	38	9	15.0	<0.2	9	49	39	355	m	18	9	20	<0.1
HK1429117002	EH3B 6.0M	08/09/2014 10:30	19.5	⊽	⊽	<0.2	m	-	21.6	<0.2	m	4	88	487	14	2	2	22	<0.1
HK1429117003	EH3B 9.0M	08/09/2014 12:00	20.2	~	~	<0.2	m	2	13.9	<0.2	2	m	84	261	~	2	2	21	<0.1



Summary of Soil Analytical Results

			Bromodichloromethane	Bromodichloromethane	Bromodichloromethane	Bromodichloromethane	Stomodichloromethane	A CO. 1 Stromodichloromethane	\$ 60.1	\$ 60.1	3 д	3 вготобісhloromethane 60.1	6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6
			\ 	Tetrachloroethene	Terrachloroethene	9 F Tetrachloroethene	O Tetrachloroethene	0.0 A Tetrachloroethene py/kg Tetrachloroethene	90.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	<u>s</u>		Frichloroethene										
	EP-074_SR: Volatile Organic Compounds	Methylene chloride	Ĕ	0.5		<0.5	<0.5	<0.5	<0,5	<0.5	<0.5	ć	0.0
	yanic Co	Z-Butanone (MEK)	Ĕ			₽	<5	<5	\$	<5	<5	<5	Ì
	atile Org	2-Propanone (Acetone)	Ē	20		×50	<50	<50	<50	<50	<50	<50	
	SR: Vol	Xylenes (Total)	ĚΪ	2		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
	EP-074	ortho-Xylene	Ē			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
		Z tyrene	Ĕ.	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
		meta- & para-Xylene	g mg/kg	_		0.1>	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
		Ethylbenzen e	g mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
		Toluene	g mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
		əuəzuəg	mg/k			<0.2	> <0.2	> <0.2	> <0.2	> <0.2	0 <0.2	<0.2	
	EP-071 HK_SR: Total Petroleum Hydrocarbons (TPH)	C17 - C35 Fraction	mg/kg mg/kg mg/kg	200		<500	<500	<500	<500	<500	<500	<500	
	71HK_SR: 7 Petroleum rocarbons (C9 - C16 Fraction	g mg/k	200		<200	<200	<200	<200	<200	<200	<200	
	EP-(e - C8 Fraction		2				\$	\$		\$	\$	-
		Analysis Description	Unit	LOR	Date / Time of sampling	03/09/2014 10:30	03/09/2014 14:15	03/09/2014 15:20	01/09/2014 14:00	01/09/2014 14:00	08/09/2014 09:00	08/09/2014 10:30	
			- 1		Sample ID	EH1B 3.0M	EH1B 6.0M	EH1B 9.0M	EH1B 0.5M	EH38 0.5M	EH3B 3.0M	EH3B 6.0M	
SIA					ALS Lab ID	HK1428586001	HK1428586002	HK1428586003	HK1428555001	HK1428555002	HK1429117001	HK1429117002	



Summary of Soil Analytical Results

		Bis(S-ethylhexyl)phthalate	mg/kg	ı		\$	<5	<5	<5	<5	<5	<5	<5
		Hexachlorobenzene (HCB)	mg/kg	0.2		<0.2	<0.2	<0'7	<0.2	<0.2	<0.2	<0.2	<0.2
		Phenol	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		Benzo(g.h.i)perylene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		Dibenz(a.h)anthracene	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		enalyq(bɔ.٤.১.f)onebnl	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	ds	Benzo(a)pyrene	mg/kg	0.05		<0.05	<0.05	<0.0>	<0.0>	<0.05	<0.05	<0.05	<0.0>
	unodwo	Benzo(k)fluoranthene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	EP-076A: Semivolitale Organic Compounds	Benzo(b)fluoranthene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	itale Or	Chrysene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Semivol	Benz(ล)สกะhrลcene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	-076A:	Pyrene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	a	Fluoranthene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		Anthracene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		Phenanthrene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0,5	<0.5	<0.5	<0.5
		Fluorene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		Асепарhthene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		Асепарһтһуlепе	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		Naphthalene	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		Analysis Description	Unit	LOR	Date / Time of sampling	03/09/2014 10:30	03/09/2014 14:15	03/09/2014 15:20	01/09/2014 14:00	01/09/2014 14:00	08/09/2014 09:00	08/09/2014 10:30	08/09/2014 12:00
					Sample ID	EH1B 3.0M	EH18 6.0M	EH1B 9.0M	EH1B 0.5M	EH3B 0.5M	EH3B 3.0M	EH3B 6.0M	EH3B 9.0M
(ALS)				:	ALS Lab ID	HK1428586001	HK1428586002	HK1428586003	HK1428555001	HK1428555002	HK1429117001	HK1429117002	HK1429117003



Summary of Groundwater and Blanks Analytical Results

Polychiorina Poly	
40.5 N/A N/A <th></th>	
μg/L μg/L <t< td=""><td>Analysis Description</td></t<>	Analysis Description
6.5 10 20 1 0.2 1 1 1 1 1 1 1 1 10 <0.5	Unit µg/L
<0.5 N/A N/A <td>LOR</td>	LOR
<0.5 N/A N/A <td>Date / Time of sampling</td>	Date / Time of sampling
<0.5 N/A N/A <td>04/09/2014 12:30 N/A</td>	04/09/2014 12:30 N/A
<0.5 <10 <20 <1 <0.2 <1 <1 <1 <1 <1 <1 <10 <0.5	08/09/2014 14:30 N/A
<0.5	04/09/2014 12:30 <1
	04/09/2014 12:30 <1



Summary of Groundwater and Blanks Analytical Results

VIA					ľ															г
			EP-071 P	EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)	Total TPH)					EP-0	EP-074_SR: Volatile	Volatile	Organic	Organic Compounds	spun					
		Analysis Description	C6 - C8 Fraction	C9 - C16 Fraction	C17 - C35 Fraction	euezueg	eneuloT.	Ethylbenzen e	meta- & para-Xylene	Styrene	ouţµo-Xylene	Xylenes (Total)	2-Propanone (Acetone)	Z-Butanone (MEK)	Methylene chloride Trichloroethene	Tetrachloroethene	Chłoroform	Bromodichloromethane	Methyl tert-Butyl Ether (MTBE)	
		Unit	µg/L	µg/L	µg/L	µg/L	J/6rl		ng/t	7		ب		رے	 	==			3	_
:		LOR	20	200		\vdash			 	_	_	-				_	_		-	_
ALS Lab 1D	Sample ID	Date / Time of sampling																-		_
HK1428873001	EH18	04/09/2014 12:30	<20	<500	<500	<5	<5	< <u>\$</u>	<10	<5	<5	<20 <	<500 <	> 05>	<50 <5	5 <5	5 13	- 5	- ₹	
HK1429117004	EH38	08/09/2014 14:30	<20	<500	<500	\$	-\$	\$	√10	<5	< <u>\$</u>	> 07>	<500 <	<50 <	<50 <5	5 <5	5 24.4	4 7.5	-5	
HK1428873002	FIELD BLANK	04/09/2014 12:30	<20	<500	<500		\$		^10			<20 <	<500 <	<50 <	<50 <5	-S				
HK1428873003	EQUIPMENT BLANK	04/09/2014 12:30	<20	<500	<500	-\$-	< <u>\$</u>	< <u>\$</u>	<10	<5	<5	<20 <	<500 <	<50 <	<50 <5	5	<5	< <u></u>	\$	
N/A denotes Not Applicable	oplicable																			1





Summary of Groundwater and Blanks Analytical Results

Section 2 Certificate of Analysis

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES





CERTIFICATE OF ANALYSIS

Page	Work Order	
ALS Technichem HK Pty Ltd	Fung Lim Chee, Richard	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
Laboratory	Contact	Address
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	HANNAH CHIU	: 7/F, EMPIRE CENTRE, 68 MODY ROAD, TSIM SHA TSUI EAST.
Client	Contact	Address

HK1428555

: 1 of 11

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Project	SITE INVESTIGATION FOR TRUNK ROAD T2 Quote number AND INFRASTRUCTURE AT SOUTH APRON	Quote number	I
Order number	: J3539		
C-O-C number	: H029001		

Site

:01-SEP-2014

Date Samples Received

18-SEP-2014

2 2

No. of samples analysed

No. of samples received

Issue Date

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(ALS Technichem (HK) Pty Ltd) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories. The results	Chan Ka Wong Wir
shown in this certificate were determined by this laboratory in accordance with its terms of accreditation.	

This document has bed compliance with proces
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compliance with procedures	compilance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter
Signatories	Position
Chan Ka Yu, Karen Wong Wing, Kenneth	Manager - Organics Manager - Metals

Organics Inorganics

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CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428555

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Page Number

Client Work Order General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is:

Key: Lor = Limit of reporting: CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1428555

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 based on ASTM D3974-09, prior to determination of metals.

Dioxins was subcontracted to and analysed by ALS Czech Republic.



: 3 of 11 : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428555 Page Number Client Work Order

Analytical Results						
Sub-Matrix; SOIL		Client sa	Client sample ID	EH1B 0.5M 01-SEP-2014 14:00	EH3B 0.5M	
Compound	CAS Number		Unit	HK1428555-001	HK142855-002	
EA/ED: Physical and Aggregate Properties						
EA055: Moisture Content (dried @ 103°C)		0.1	%	9.0	8.2	The special state of the speci
EG: Metals and Major Cations						
EG020: Antimony	7440-36-0	-	mg/kg	₹	₹	
EG020: Arsenic	7440-38-2	-	mg/kg	-	2	ac =
EG020: Barium	7440-39-3	0.5	mg/kg	10.3	27.7	
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	
EG020: Cobalt	7440-48-4	-	mg/kg		4.	
EG020: Copper	7440-50-8	-	mg/kg			The separation of the second s
EG020: Lead	7439-92-1	-	тд/кд	23	79	
EG020: Manganese	7439-96-5	-	mg/kg	759	639	
EG020: Molybdenum	7439-98-7	-	mg/kg	₹	2	
EG020: Nickel	7440-02-0	-	mg/kg	۲	A TO THE PROPERTY OF THE PROPE	in contract of
EG020: Tin	7440-31-5		mg/kg	4	The second secon	
EG020: Zinc	7440-66-6	-	mg/kg	20	20	Application of the contraction o
EG036: Mercury	7439-97-6	0.2	mg/kg	<0.2	<0.2	
EG049: Trivalent Chromium	16065-83-1	· -	mg/kg	m	4	
EG3060: Hexavalent Chromium	18540-29-9	-	mg/kg	₹		14 444
EP-066: Polychlorinated Biphenyls						
Total Polychlorinated biphenyls	: 1	0.1	mg/kg	<0.1	<0.1	
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)	s (PAHs)					
Naphthalene	9120-3	0.500	mg/kg	<0.500	<0.500	Property
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	The second secon
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	
Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	
Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	
Benzo(a)pyrene	50-32-8	0.050	mg/kg	<0.050	<0.050	The second secon
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	
Dibenz(a.h)anthracene	53-70-3	0.050	mg/kg	<0.050	<0.050	
Benzo(g.h.i)perylene	19124-2	0.500	mg/kg	<0.500	<0.500	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate	3is(2-ethylhex	yl) Phth	alate			

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: 4 of 11 : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428555 Page Number Client Work Order

	:	Client san	Client sample ID Client sampling date / time	EH1B 0.5M 01-SEP-2014 14:00	EH3B 0.5M 01-SEP-2014 14:00	
Compound	CASNumber	LOR	Unit	HK1428555-001	HK1428555-002	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate - Continued	and Bis(2-ethylhe	xyl) Phti	nalate - Contin	ued		
Hexachlorobenzene (HCB)	118741	0.200	mg/kg	<0.200	<0.200	
Bis(2-ethylhexyl)phthalate	117-81-7	2.00	mg/kg	<5.00	5.00	
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)	carbons (TPH)					
C6 - C8 Fraction	1	ĸ	mg/kg	\$	₩.	
C9 - C16 Fraction	1	200	тд/кд	<200	<200	THE STATE OF THE S
C17 - C35 Fraction	,	200	mg/kg	<500	<500	
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)	ydrocarbons (MAH					
Benzene	7143.2	0.2	mg/kg	<0.2	<0.2	
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	
Ethylbenzene	100-414	0.5	mg/kg	<0.5	<0.5	
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	and the state of t
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	
ortho-Xylene	95-47-8	9.0	mg/kg	<0.5	<0.5	
Xylenes (Total)		2.0	mg/kg	<2.0	<2.0	
EP-074_SR-B: Oxygenated Compounds	w					
2-Propanone (Acetone)	67-84-1	20	mg/kg	<50	<50	
2-Butanone (MEK)	78-93-3	က	mg/kg	\$\$	<.	
EP-074_SR-E: Halogenated Aliphatics						
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	
Trichloroethene	79-01-6	0.1	тв/ка	<0.1	<0.1	
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.04	
EP-074_SR-G: Trihalomethanes (THM)					Processing and the second seco	
Chloroform	67-68-3	0.04	mg/kg	<0.04	<0.04	
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	
EP-074_SR-I: Methyl-tert-butyl Ether						
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5	
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates	arbons (PAHs) Su	rrogates				Surrogate control limits listed at end of this report.
2-Fluorobiphenyl	32160-8	7.0	%	89.2	84.7	
4-Terphenyl-d14	1718-540	0.1	%	99.4	93.2	
EP-066S: PCB Surrogate						Surrogate control limits listed at end of this report.
Tetrachlorometaxylene	8-60-228	0.1	%	102	102	The second secon
Dibutylchlorendate	1770-80-5	0.1	*	125	125	
EP-080_SRS: TPH(Volatile)/BTEX Surrogate	ogate			:		Surrogate control limits listed at end of this report.
Dibromofluoromethane	1868-53-7	0.1	%	2.96	95.9	
Toluene-D8	2037-26-5	0.1	%	102	101	
4-Bromofluorobenzene	460-00-4	0.1	%	106	104	
EP-074_SR-S: VOC Surrogates					also and a second a	Surrogate control limits listed at end of this report.
Dibromofluoromethane	1868-53-7	0.1	%	96.7	95.9	
- 1	1 00 4000	-	*	202	T. C.	

: 5 of 11 : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428555

Page Number Client Work Order

Sub-Matrix: SOIL		C	Client sample ID	EH1B 0.5M	EH3B 0.5M		
	Clien	Client samp	Client sampling date / time	01-SEP-2014 14:00	01-SEP-2014 14:00		
Compound	CAS Number LOR	LOR	Unit	HK1428555-001	HK1428555-002		
EP-074_SR-S: VOC Surrogates - Continued						Surrogate control	Surrogate control limits listed at and of this report
4-Bromofluorobenzene	460-00-4	0.1	%	106	104		mind hotel at old of this report.



: CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428555

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Page Number

Work Order

Laboratory Duplicate (DUP) Report

Laboratory samue ID	Client comple 10				The second second second second second			
ar ardune from town	Circuit Sandyle ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
A/ED: Physical	EA/ED: Physical and Aggregate Properties	as (QC Lot: 3632420)						
HK1428555-001	EH1B 0.5M			0.1	%	0	6	c
HK1428803-001	Anonymous	EA055: Moisture Content (dried @ 103°C)			76	S. C.	9.1	0.0
E.C. Motolo and Major Cottons	State Cottons (OC 24: 3	Something content (allege		-	8	92.0	51.1	4 .
Co. Interaction	ajor cations (QC Lot: 3626340)	(070240)						
HK1428018-003	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	_	mg/kg	₹	⊽	0.0
HK1428555-002	EH3B 0.5M	EG3060: Hexavalent Chromium	18540-29-9	-	mg/kg	⊽	⊽	0.0
EG: Metals and Major Cations	lajor Cations (QC Lot: 3626873)	(626873)						
HK1428478-006	Anonymous	EG036: Mercury	7439-97-6	0.02	malka	<0.00	×0.02	C
HK1428555-002	EH3B 0.5M	EG036: Mercury	7439-97-6	0.2	malka	\$ C US	2 S	9 6
EG: Metals and Major Cations	lajor Cations (QC Lot: 3626881)	626881)			, ,		į	2
HK1428555-002		EG020: Cadmium	7440-43-9	0.2	ma/ka	<0.2	<0.5 0.5 0.5	0
		EG020: Barium	7440-39-3	0.5	ma/kg	27.7	29.2	5.5
		EG020: Antimony	7440-36-0	-	mg/kg	⊽	¦ ⊽	0.0
		EG020: Arsenic	7440-38-2	-	mg/kg	. 2	. 2	00
		EG020: Cobalt	7440-48-4	-	mg/kg	4	ı m	0.0
		EG020: Copper	7440-50-8	,	mg/kg	7	7	0.0
		EG020: Lead	7439-92-1	1	mg/kg	64	62	3.6
		EG020: Manganese	7439-96-5	-	mg/kg	639	538	17.2
		EG020: Molybdenum	7439-98-7	-	mg/kg	.5		0.0
		EG020: Nickel	7440-02-0	-	mg/kg	-	-	0.0
		EG020: Tin	7440-31-5	-	mg/kg	m	m	0.0
		EG020: Zinc	7440-66-6	-	ma/kg	50	24	88
P-066: Polychlo	EP-066: Polychlorinated Biphenyls (QC Lot: 3621065)	.ot: 3621065)			9			2
HK1428586-002	Anonymous	Total Polychlorinated biohenyls	I	0.1	ma/ka	C 0.1	6	0
P-076A: Polycyc	lic Aromatic Hydrocarbo	EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3621068)			9			ì
HK1428586-002	Anonymous	Benzo(a)pyrene	50-32-8	20	ug/kg	<50	< 2 0	0.0
		Dibenz(a.h)anthracene	53-70-3	20	ng/kg	<50	<50	0.0
		Naphthalene	91-20-3	200	ng/kg	<500	<200	0.0
		Acenaphthylene	208-96-8	200	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	200	µg/kg	<200	<500	0.0
		Fluorene	86-73-7	200	µg/kg	<500	<500	0.0
		Phenanthrene	85-01-8	200	ng/kg	<500	<500	0.0
		Anthracene	120-12-7	200	hg/kg	<500	<500	0.0
		Fluoranthene	206-44-0	200	hg/kg	<500	<200	0.0
		Pyrene	129-00-0	500	pg/kg	<500	<500	0.0
		Benz(a)anthracene	56-55-3	200	hg/kg	<500	<200	0.0
		Chrysene	218-01-9	200	ng/kg	<500	<500	0.0
		Benzo(b)fluoranthene	202-99-2	200	hg/kg	<500	<500	0.0
		Benzo(k)fluoranthene	207-08-9	200	hg/kg	<500	<500	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	200	µg/kg	<500	<500	0.0
		Benzo(g.h.i)perylene	191-24-2	200	ng/kg	<500	<500	0.0
P-076B: Phenol,	Hexachlorobenzene and	EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 3621068)	(8)					
HK142858C DO2	Amountain			1				

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7 of 11 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428555

Page Number Client Work Order

(QC Lot: 3621068) - Continued 108-95-2 500 µg/kg <5000 117-81-7 5000 µg/kg <5000	Toluene Table 10 Toluene Table 286-002 Anonymous Third SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621066) Third SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621075) Third SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621075) Third SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621075) Third SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621075) Third SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3615502) Third SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3615502) Third SR: Total Petroleum Hydrocarbons (MAH) (QC Lot: 3615502) Third SR		HOT			Dereitrate Decret	
yl) Prithalate (QC Lot: 3621068) - Continued 108-95-2 500	76B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 36) 28586-002 Anonymous Bis(2-ethylhexyl)phthalate 28586-002 Anonymous C9 - C16 Fraction C17 - C35 Fraction C17 - C36 - C36 - C			CONT	Original Result	Dupmento resum	RPD (%)
108-95-2 500 µg/kg \$<500	Phenoi Bis(2-ethylhexyl)phthalate FIHK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621066) 28586-002 Anonymous C17 - C35 Fraction C17 - C35 F	108-95-2					
July	Bis(2-ethylhexyl)phthalate 28586-002 Anonymous C9 - C16 Fraction C17 - C35 Fraction C18 - C16 Fraction C19 - C16 Fraction C17 - C35 Fraction C18 - C16 Fraction C17 - C35 Fraction C18 - C16 Fraction C17 - C35 Fraction C3 - C16 Fraction C17 - C35 Fraction C17 - C36 Fraction C17 - C36 Fraction C17 - C36 Fraction C17 - C36 Fraction C18 - C18 Fraction		200	hg/kg	<500	<500	0.0
Lot: 3621066)	7.HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621066) 28586-002 Anonymous C9 - C16 Fraction C17 - C35 Fraction C17 - C36 Fraction C17 - C3	117-81-7	2000	ng/kg	<5000	<5000	00
on tion 200 mg/kg <200 tion 500 mg/kg <200 i Lot: 3615502) 71-43-2 0.2 mg/kg <50 n CQC Lot: 3615502) 71-43-2 0.2 mg/kg <0.2 n CQC Lot: 3615502) 71-43-2 0.2 mg/kg <0.2 n 108-88-3 0.5 mg/kg <0.5 mg/kg <0.5 n 100-41-4 0.5 mg/kg <0.5 mg/kg <0.5 ylene 100-42-5 0.5 mg/kg <0.5 mg/kg <0.5 EK) 78-93-3 5 mg/kg <0.04 <0.04 ene 79-01-6 0.1 mg/kg <0.04 <0.04 methane 75-03-2 0.5 mg/kg <0.04 <0.04 methane 75-27-4 0.1 mg/kg <0.0 <0.0 1634-04-4 0.5 mg/kg <0.0 <0.0 1634-04-4 0.5 m	28586-002 Anonymous C9 - C16 Fraction C17 - C35 Fraction C4_SR-4: Monoymous C6 - C8 Fraction C6 - C8 - C8 Fraction C6 - C8 - C8 Fraction C6 - C8 -))			ò
tion 1 Lot: 3621075) n 1 Lot: 3651075) n (QC Lot: 3615502) 71-43-2 108-88-3 108-88-3 100-42-5 100-42-5 100-42-5 100-42-5 100-42-5 100-42-3 2) 100-42-3 2) 100-42-3 2) 100-42-3 2) 100-42-3 2) 100-42-3 20 100-42-6	C17 - C35 Fraction 28480-003 Anonymous C6 - C8 Fraction C4_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3615502) 28018-002 Anonymous Benzene Toluene Toluene Styrene Styrene Meta- & para-Xylene meta- & para-Xylene Xylenes (Total) Xylenes (Total) 2-Propanone (MEK) 2-Propanone (Acetone)	The street of th	200	ma/ka	<200	<200	c
Coc Lot: 3615502 T143-2 0.2 mg/kg <5 T143-2 0.2 mg/kg <0.5 T143-2 0.2 mg/kg <0.5 T168-88 0.5 mg/kg <0.5 T108-88 T106-41 0.5 mg/kg <0.5 T108-88 T108-41 T108-42 T108-	74HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621075) 28480-003 Anonymous C6 - C8 Fraction 74_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3615502) 28018-002 Anonymous Benzene Toluene Toluene Styrene Ortho-Xylene meta- & para-Xylene meta- & para-Xylene Xylenes (Total) 74_SR-B: Oxygenated Compounds (QC Lot: 3615502) 28018-002 Anonymous 2-Butanone (MEK) 2-Propanone (Acetone)		200	ma/ka	<500	004	9 6
CCC Lot: 3615502 71-43-2 0.2 mg/kg <5 108-88-3 0.5 mg/kg <0.5 108-88-3 0.5 mg/kg <0.5 100-41-4 0.5 mg/kg <0.5 100-41-4 0.5 mg/kg <0.5 0.5 mg/kg <0.5 0.5 mg/kg <0.5 0.5 mg/kg <0.5 0.5 mg/kg <2.0 <0.5 0.5 mg/kg <2.0 <0.5 0.5 0.5 mg/kg <2.0 0.5 0.5 mg/kg <0.04 0.5 0.5 mg/kg <0.04 0.04 mg/kg <0.04 mg/kg <0.04 0.04 mg/kg <0.04 0.04 mg/kg <0.05 0.5 0.5 mg/kg <0.05 0.5	28480-003 Anonymous C6 - C8 Fraction [4_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3615502) 28018-002 Anonymous Benzene Toluene Toluene Styrene Ortho-Xylene meta- & para-Xylene meta- & para-Xylene Xylenes (Total) Xylenes (Total) Z-Butanone (MEK) 2-Propanone (Acetone)					2000	9
CQC Lot: 3615502)	74_SR-B: Oxygenated Compounds (AMP) (QC Lot: 3615502) 28018-002 Anonymous Benzene Toluene Toluene Styrene Ortho-Xylene meta- & para-Xylene meta- & para-Xylene Xylenes (Total) Xylenes (Total) 2-Butanone (MEK) 2-Propanone (Acetone)	in market	v	Mom	Ų	Ļ	(
71-43-2 0.2 mg/kg <0.5 108-88-3 0.5 mg/kg <0.5 100-41-4 0.5 mg/kg <0.5 100-41-4 0.5 mg/kg <0.5 100-41-4 0.5 mg/kg <0.5 100-41-4 0.5 mg/kg <0.5 2) EK) Cetone) Cetone) Cetone Coetone Coeton	28018-002 Anonymous Benzene Toluene Ethylbenzene Styrene ortho-Xylene meta- & para-Xylene meta- & para-Xylene Xylenes (Total) Zylenes (QC Lot: 3615502) 2-Butanone (MEK) 2-Propanone (Acetone)		>	By Sill	7	ç	
108-88-3 0.5 mg/kg <0.5 100-41-4 0.5 mg/kg <0.5 100-41-4 0.5 mg/kg <0.5 100-41-5 0.5 mg/kg <0.5 100-48-3 1.0 mg/kg <1.0 106-38-3 1.0 mg/kg <1.0 106-38-3 5 mg/kg <2.0 106-38-3 5 mg/kg <5.0 106-38-3 5 mg/kg <0.04 106-38-3 5 mg/kg <0.04 106-38-3 5 mg/kg <0.04 106-38-3 0.04 mg/kg <0.05 106-38-3 0.04 mg/kg <0.05 106-41-4 0.5 mg/kg <0.05 106-41-5 0.5 0.5 0.5 106-41-5 0.5 0.5 0.5 0.5 106-41-5 0.5 0.5 0.5 0.5	Toluene Ethylbenzene Styrene Ortho-Xylene meta- & para-Xylene Xylenes (Total) Xylenes (Total) Z-Butanone (MEK) Z-Propanone (Acetone)	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
100-41-4 0.5 mg/kg <0.5 100-42-5 0.5 mg/kg <0.5 100-42-5 0.5 mg/kg <0.5 108-38-3 1.0 mg/kg <1.0 108-42-3 1.0 mg/kg <2.0 EK)	Ethylbenzene Styrene Ortho-Xylene meta- & para-Xylene Xylenes (Total) Xylenes (Total) 2-Butanone (MEK) 2-Propanone (Acetone)	108-88-3	0.5	mg/kg	<0.5	<0.5	00
100-42-5 0.5 mg/kg <0.5 100-42-5 0.5 mg/kg <0.5 108-38-3 1.0 mg/kg <1.0 106-42-3 1.0 mg/kg <1.0	Styrene ortho-Xylene meta- & para-Xylene Xylenes (Total) Xylenes (Total) 28018-002 Anonymous 2-Butanone (MEK) 2-Propanone (Acetone)	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
ylene 95-47-6 0.5 mg/kg <0.5 2) mg/kg <0.05 mg/kg <0.05 2) mg/kg <2.0 mg/kg <2.0 EK) 78-93-3 5 mg/kg <5 cetone) 67-64-1 50 mg/kg <0.04 e 79-01-6 0.1 mg/kg <0.04 ride 75-09-2 0.5 mg/kg <0.04 methane 75-27-4 0.1 mg/kg <0.04 ride 75-27-4 0.1 mg/kg <0.04	ortho-Xylene meta- & para-Xylene Xylenes (Total) 28018-002 Anonymous (QC Lot: 3615502) 2-Propanone (MEK) 2-Propanone (Acetone)	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
2) mg/kg <1.0 2) mg/kg <1.0 EK) 78-93-3 5 mg/kg <2.0 ext 78-93-3 5 mg/kg <5 cetone) 67-64-1 50 mg/kg <5 enne 79-01-6 0.1 mg/kg <0.04 ride 75-09-2 0.5 mg/kg <0.04 methane 75-27-4 0.1 mg/kg <0.04 ride 75-27-4 0.1 mg/kg <0.04	Meta- & para-Xylene Xylenes (Total) 28018-002 Anonymous (QC Lot: 3615502) 2-Butanone (MEK) 2-Propanone (Acetone)	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
2) mg/kg <2.0 EK) 78-93-3 5 mg/kg <5 Cetone) 67-64-1 50 mg/kg <50 ene 127-18-4 0.04 mg/kg <0.04 ride 79-01-6 0.1 mg/kg <0.1 ride 75-09-2 0.5 mg/kg <0.04 methane 75-27-4 0.1 mg/kg <0.04 ride 75-27-4 0.1 mg/kg <0.04	Xylenes (Total) 28018-002 Anonymous 2-Butanone (MEK) 2-Propanone (Acetone)	108-38-3 106-42-3	1.0	mg/kg	<1.0	0.1	0.0
2) T8-93-3 5 mg/kg <5 Cetone) 67-64-1 50 mg/kg <5	74. SR-B: Oxygenated Compounds (QC Lot: 3615502) 28018-002 Anonymous 2-Butanone (MEK) 2-Propanone (Acetone)	40000	2.0	ma/ka	<2.0	ç	c
EK) 78-93-3 5 mg/kg <5 Acetone) 67-64-1 50 mg/kg <5	28018-002 Anonymous 2-Butanone (MEK) 2-Propanone (Acetone)		•	n in	Q.	0.37	5
cetone) 67-64-1 50 mg/kg <50 e 127-18-4 0.04 mg/kg <0.04 ride 79-01-6 0.1 mg/kg <0.1 ride 75-09-2 0.5 mg/kg <0.5 methane 75-27-4 0.1 mg/kg <0.04 ride 75-27-4 0.5 mar/kg <0.05	2-Propanone (Acetone)	78-93-3	ıs	ma/ka	\$	ζ,	c
ene 127-18-4 0.04 mg/kg <0.04 ride <0.04 mg/kg <0.01 ride <0.05 mg/kg <0.1 mg/kg <0.1 mg/kg <0.1 mg/kg <0.05 mg/kg <0.05 mg/kg <0.05 mg/kg <0.04 mg/kg <0.04 mg/kg <0.01 mg/kg <0.00 mg/kg	A CO F. University of Allert Action 1 (200)	67-64-1	20	ma/kn	. VZ	, G	9 6
ene 127-18-4 0.04 mg/kg <0.04 ride 79-01-6 0.1 mg/kg <0.1 75-09-2 0.5 mg/kg <0.5 mg/kg <0.1 67-66-3 0.04 mg/kg <0.04 methane 75-27-4 0.1 mg/kg <0.1 1634-04-4 0.5 mg/kg <0.1	4_Sh-E. naiogenated Aliphatics (QC Lot: 3615502)		1	n h	3	9	3
e 79-01-6 0.1 mg/kg <0.1 ride <0.1 mg/kg <0.1 mg/kg <0.5 mg/kg <0.5 mg/kg <0.5 mg/kg <0.5 mg/kg <0.05 mg/kg <0.04 mg/kg <0.04 mg/kg <0.1 mg/kg <0.1 mg/kg <0.1 mg/kg <0.1 cm/kg <0.1 mg/kg <0.1 mg/kg <0.1 mg/kg <0.1 cm/kg <0.1 cm/kg <0.5 mg/kg <0.1 cm/kg <0.5 mg/kg <0.5 cm/kg	Anonymous	127-18-4	0.04	mg/kg	<0.04	\$0.0×	0.0
ride 75-09-2 0.5 mg/kg <0.5 methane 67-66-3 0.04 mg/kg <0.04 rether (MTBE) 1634-04-4 0.5 mg/kg <0.5	Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
methane 67-66-3 0.04 mg/kg <0.04 75-27-4 0.1 mg/kg <0.1	Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
methane 67-66-3 0.04 mg/kg <0.04 75-27-4 0.1 mg/kg <0.1 1634-04-4 0.5 mg/kg <0.05	74_SR-G: Trihalomethanes (THM) (QC Lot: 3615502)			,			?
romethane 75-27-4 0.1 mg/kg <0.1 utyl Ether (MTBE) 1634-04-4 0.5 mg/kg <0.1	28018-002 Anonymous Chloroform	67-66-3	0.04	mg/kg	<0.04	\$0.0V	0.0
utyl Ether (MTBE) 1634-04-4 0.5 ma/kg <0.5	Bromodichloromethane	75-27-4	0.1	mg/kg	6 .1	<0.1	0.0
Anonymous Methyl tert-Butyl Ether (MTBE) 1634-044 0.5 ma/kg <0.5	'4_SR-I: Methyl-tert-butyl Ether (QC Lot: 3615502)			,			;
		1634-04-4	0.5	ma/ka	<0.5	<0 ≥	C

Matrix: SOIL			Method Blank (MB) Report	3) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	pike (LCS) and Lat	soratory Control	Spike Duplicate	(DCS) Report	
	3				Spike	Spike Recovery (%)	very (%)	Recovery	Recovery Limits (%)	æ	RPD (%)
Method: Compound	CAS Number	TOR	Unit	Result	Concentration	SOT	DCS	Low	Hiah	Value	Value Control I imit
EG: Metals and Major Cations (QC Lot: 3626540)	3626540)										
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	103	1	66	122		
EG: Metals and Major Cations (QC Lot: 3626873)	3626873)		:					!	!		
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	95.6	HIPANI'S	76	110		
EG: Metals and Major Cations (QC Lot: 3626881)	3626881)		i i			The state of the s		2	2		
EG020: Antimony	7440-36-0	-	mg/kg	₹	5 ma/ka	6 96	1	78	104	- Company	1
EG020: Arsenic	7440-38-2	-	mg/kg	₹	5 ma/kg	89.3		7.5	100		
EG020: Barium	7440-39-3		mg/kg	₹	5 mg/kg	87.3	-	5.2	11.		
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	86.1		8 2	109		

A Campbell Brothers Limited Company



CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428555

Work Order

Page Number Client

Method: Compound CAS Number LOR Unit	626881) - Cor 7440-484 7440-50-8 7439-92-1 7439-96-5 7440-02-0 7440-31-5 7440-31-5 7440-31-5 7440-31-5 7440-31-5 740-6-6 ot: 3621065) 91-20-3 89-73-7 85-01-8 120-12-7 206-44-0	tinued 1	Chit	Result	Spike Concentration	Spike Recovery (%) Recovery Limits (%) F LCS DCS Low High Value	very (%) DCS	Recovery Limits (%) Low High	Limits (%) High	RP	RPD (%) Control Limit
Method: Compound EG: Metals and Major Cations (QC Lot: 36 EG020: Cobalt EG020: Lead EG020: Manganese EG020: Manganese EG020: Nickel EG020: Zinc EG020: Zinc EP-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls Acenaphthylene Acenaphthylene Acenaphthylene Fivorene	26881) - Cor 7440-48-4 7440-50-8 7439-92-1 7439-96-5 7440-02-0 7440-31-5 7440-66-6 xt: 3621065) xt: 3621065 xt: 3621065 xt: 3621065 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0	tinued 1	Unit	Result	Concentration	SD7	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 36 EG020: Cobalt EG020: Copper EG020: Lead EG020: Marganese EG020: Marganese EG020: Molybdenum EG020: Nickel EG020: Tin EG020: Zinc EP-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls Acenaphthylene Acenaphthylene Acenaphthylene Fluorene	26881) - Cor 7440-48-4 7440-50-8 7439-96-5 7440-02-0 7440-31-5 7440-66-6 xt: 3621065) xt: 3621065 31-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0	pen r r r r r r r r r r r r r r r r r r r	Man								
EG020: Cobalt EG020: Copper EG020: Lead EG020: Manganese EG020: Molybdenum EG020: Tin EG020: Zinc EG020: Zinc EF-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls Acenaphthylene Acenaphthylene Fluorene	7440-48-4 7440-50-8 7439-92-1 7439-96-5 7440-02-0 7440-31-6 7440-31-6 7440-68-6 74: 3621065) 74: 3621065) 81-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7		Manuella								
EG020: Copper EG020: Lead EG020: Manganese EG020: Manganese EG020: Molybdenum EG020: Tin EG020: Zinc EG020: Zinc EP-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls EP-076A: Polycyclic Aromatic Hydrocarbon Naphthalene Acenaphthylene Acenaphthylene Fluorene	7440-50-8 7439-92-1 7439-96-5 7440-02-0 7440-31-5 7440-31-6 nt: 3621065) nt: 3621065) nt: 3621065) 891-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7		המ/עם	⊽	5 ma/ka	95.6	1	77	107		
EG020: Lead EG020: Manganese EG020: Manganese EG020: Molybdenum EG020: Tin EG020: Zinc EP-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls EP-076A: Polycyclic Aromatic Hydrocarbon Naphthalene Acenaphthylene Acenaphthylene Fluorene	7439-92-1 7439-96-5 7440-02-0 7440-31-6 7440-31-6 7440-31-6 7440-31-6 7420-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7	+	mg/kg	⊽	5 mg/kg	96.2	İ	52	105	Ì	
EG020: Manganese EG020: Molybdenum EG020: Nickel EG020: Tin EG020: Zinc EP-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls EP-076A: Polycyclic Aromatic Hydrocarbor Naphthalene Acenaphthylene Acenaphthylene Fivorene	7439-96-5 7439-98-7 7440-02-0 7440-31-5 7440-31-5 7440-66-6 Nt: 3621065) ns (PAHs) (91-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0		mg/kg	₹	5 mg/kg	93.2	-	08	104		1
EG020: Molybdenum EG020: Nickel EG020: Tin EG020: Zinc EP-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls EP-076A: Polycyclic Aromatic Hydrocarbor Naphthalene Acenaphthylene Acenaphthylene Fivorene	7439-98-7 7440-02-0 7440-31-5 7440-66-6 nt: 3621065) ns (PAHs) ((91-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0		mg/kg	⊽	5 mg/kg	103	ı	11	115	******	1
EG020: Nickel EG020: Tin EG020: Zinc EP-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls Total Polychlorinated biphenyls Naphthalene Acenaphthylene Acenaphthylene Fivorene	7440-02-0 7440-31-5 7440-66-6 nt: 3621065) ns (PAHs) ((91-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0	,,- ;	mg/kg	₹	5 mg/kg	90.5		82	106	-	
EG020: Tin EG020: Zinc EG020: Zinc EP-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls Total Polychlorinated biphenyls Naphthalene Acenaphthylene Acenaphthylene Fivorene	7440-31-5 7440-66-6 vt: 3621065) ns (PAHs) (91-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0	- ₁- (mg/kg	₹	5 mg/kg	96.6	1	62	105	1	1
EG020: Zinc EP-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls EP-076A: Polycyclic Aromatic Hydrocarbor Naphthalene Acenaphthylene Acenaphthylene Fivorene	7440-66-6 nt: 3621065) ns: (PAHs) (Carage Barana Ba	, - ,	mg/kg	₹	5 ma/kg	94.7		62	103		
EP-066: Polychlorinated Biphenyls (QC Lc Total Polychlorinated biphenyls EP-076A: Polycyclic Aromatic Hydrocarbon Naphthalene Acenaphthylene Acenaphthene Fivorene	ns (PAHs) (C 91-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0	,	mg/kg	₹	5 ma/kg	11.	-	92	214		
Total Polychlorinated biphenyls EP-076A: Polycyclic Aromatic Hydrocarbor Naphthalene Acenaphthylene Acenaphthene Fivorene	ns (PAHs) ((91-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0))					2			
EP-076A: Polycyclic Aromatic Hydrocarbor Naphthalene Acenaphthylene Acenaphthene Fivorene	ns (PAHs) ((91-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0	0.7	ma/ka	0.1	0.5 ma/km	104		AA	123		
Naphthalene Acenaphthylene Acenaphthene Fivorene	91-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7	10 1 of 2	000760		Burk and	5		P	3		
Naprithalene Acenaphthylene Acenaphthene Fiuorene	91-20-3 208-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0	יר ויסני	(200170								
Acenaphthylene Acenaphthene Fiuorene	208-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0	52	hg/kg	<50	250 µg/kg	79.4	-	63	111		-
Acenaphthene Fluorene	83-32-9 86-73-7 85-01-8 120-12-7 206-44-0	22	µg/kg	- 20 - 20	250 µg/kg	80.1		63	111	1	
Fluorene	86-73-7 85-01-8 120-12-7 206-44-0	52	µg/kg	<50	250 µg/kg	82.0		29	108		
	85-01-8 120-12-7 206-44-0	52	µg/kg	<50	250 µg/kg	84.3	1	19	110	T T T T T T T T T T T T T T T T T T T	
Phenanthrene	120-12-7 206-44-0	52	µg/kg	< 2 0	250 µg/kg	86.2	i	29	108	-	1
Anthracene	206-44-0	25	ug/kg	<50	250 µg/kg	80.5	į	69	113	ļ	1
Fluoranthene		22	ng/kg	<50	250 µg/kg	87.3	İ	7.1	114	1	I
Pyrene	129-00-0	25	ng/kg	<50	250 µg/kg	88.4	al primare	71	114		1
Benz(a)anthracene	56-55-3	52	ug/kg	<50	250 µg/kg	87.2	and builting only	63	41.		1
Chrysene	218-01-9	52	µg/kg	<50	250 µg/kg	88.4	1	29	122	į	Ī
Benzo(b)fluoranthene	205-99-2	22	µg/kg	<50	250 µg/kg	85.1	in the second	59	114	1	I
Benzo(k)fluoranthene	207-08-9	52	µg/kg	<50	250 µg/kg	88.0	1	28	119	İ	1
Benzo(a)pyrene	50-32-8	22	µg/kg	<50	250 µg/kg	83.2	1	58	117	PR STATE OF THE PARTY OF THE PA	
Indeno(1.2.3.cd)pyrene	193-39-5	22	pg/kg	<50 <50	250 µg/kg	88.4	1	57	115		1
Dibenz(a.h)anthracene	53-70-3	22	hg/kg	<50	250 µg/kg	86.4	1	59	114		1
Benzo(g.h.i)perylene	191-24-2	22	ug/kg	<50	250 µg/kg	90.1	į	58	120	****	ļ
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 36)	Bis(2-ethylh	exyl) Phtl	nalate (QC Lo	t: 3621068)							
Pheno!	108-95-2	22	ng/kg	<200	250 µa/kg	81.9	1	52	118	1	1
Hexachlorobenzene (HCB)	118-74-1	25	ng/kg	<50	250 µg/kg	85.2	Ì	7.72	13	Ì	-
Bis(2-ethylhexyl)phthalate	117-81-7	22	hg/kg	<1000	250 µg/kg	105	1	82	4.	1	And delated
EP-07 HK SR: Total Petroleum Hydrocarbons (TPH)		(QC Lot: 3621066)	321066)))						
C9 - C16 Fraction		200	ma/ka	<200	32 ma/kg	77.3	1	55	121		
C17 - C35 Fraction	i	200	ma/ka	<500	67.5 ma/ka	90.1	ment on the	41	110		
EP-07/HK SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621075)	ons (TPH) (C	C Lot: 30	321075)		1				2		
C8 - C8 Fraction		ıc	ma/ka	£.	4.5 malka	407		7.4	4.0		
EP-074 SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (OC Lot: 3615502)	carbons (MA	H) (OC I	ot: 3615502)		,	5			2		
Benzene	71-43-2	0.1	ma/ka	۸۵.	0.25 ma/kg	404		u	007		
Toluene	108-88-3	0.2	ma/ka	<0.5	0.25 mg/kg	108		99	110		
Ethylbenzene	100-41-4	0.2	ma/ka	<0.0>	0.25 mg/kg	141		3 8	133		
meta- & para-Xylene	108-38-3	0.4	ma/ka	< 0 >	0.50 mg/kg	113		82	122		
	106-42-3		0	i	n n	<u>.</u>		2	47		



NT DEPARTMENT

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Page Number	Client	Work Order	

Matrix: SOIL			Method Blank (MB) Report) Report		Laboratory Control	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	oratory Control	Spike Duplicate	(DCS) Report	
					Spike	Spike Rec	Spike Recovery (%)	Recovery	Recovery Limits (%)	æ	RPD (%)
Method: Compound	CAS Number LOR	LOR	Unit	Result	Concentration	SOT	DCS	TOW	High	Value	Control Limit
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3615502) -	tic Hydrocarbons (M	AH) (QC I	ot: 3615502)	- Continued							
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	104	-	87	111	-	1
ortho-Xylene	92-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	110	110-1	22	125	1	
Xylenes (Total)	1	10	mg/kg	<1.0	0.75 mg/kg	112	1	76	122	- di la ses	!
EP-074_SR-B: Oxygenated Compounds (QC Lot: 3615502)	ounds (QC Lot: 3615	5502)			: :						
2-Propanone (Acetone)	67-64-1	7	mg/kg	7	2.5 mg/kg	92.1	Newvon	82	129	1	
2-Butanone (MEK)	78-93-3	5	mg/kg	8	2.5 mg/kg	87.1		. 6	133	1	1
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 3615502)	atics (QC Lot: 36155	02)									
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	109	1	2	134	ļ	Minde
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	105	*****	83	41.	77716	
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	105	500	88	110		
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 3615502)	THM) (QC Lot: 36155	02)									
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	98.4	The second secon	11	113	1	ı
Bromodichloromethane	75-27-4	0.1	mg/kg	^0.1	0.25 mg/kg	7.76	-	71	125		
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3615502)	ner (QC Lot: 3615502	.									
Methyl tert-Butyl Ether (MTBE)	1634-04-4 0.2	0.2	mg/kg	<0.2	0.25 mg/kg	6.96		89	116	ŧ	-



Page Number : 10 of 11
Client
Work Order HK1428555
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

∴ 10 of 11 ○ CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428555

			Spike	Spike Re	Spike Recovery (%)	Recovery Limits (%)	Limits (%)		RPD (%)
Laboratory Client sample ID sample ID	Method: Compound	CAS	Concentration	MS	MSD	Гом	High	Value	Control
EG: Metals and Major Cations (QC Lot: 3626540)	ot: 3626540)								
HK1428018-002 Anonymous	EG3060: Hexavalent Chromium	18540-29-9	2.5 mg/kg	110	-	7.5	125	-	
EG: Metals and Major Cations (QC Lot: 3626873)	ot: 3626873)					the second of the second of the second			
HK1428478-005 Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	103		75	125		1
EG: Metals and Major Cations (QC Lot: 3626881)	ot: 3626881)								10
HK1428555-001 EH1B 0.5M	EG020: Antimony	7440-36-0	5 mg/kg	102	I	75	125	4184-7	į
	EG020: Arsenic	7440-38-2	5 mg/kg	94.8	1	75	125	İ	İ
	EG020: Barium	7440-39-3	5 mg/kg	78.3	į	75	125	I	1
	EG020: Cadmium	7440-43-9	5 mg/kg	92.7	1	75	125	Į.	į
	EG020: Cobalt	7440-48-4	5 mg/kg	97.3	J	75	125		ļ
	EG020: Copper	7440-50-8	5 mg/kg	94.4	Į	75	. 125	an en an en	1
	EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	1	75	125		1
	EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	1	75	125	400	1
	EG020: Molybdenum	7439-98-7	5 mg/kg	92.0	I	75	125		II _I
	EG020: Nickel	7440-02-0	5 mg/kg	98.2	-	75	125		į
	EG020: Tin	7440-31-5	5 mg/kg	88.8	J	75	125		-
	EG020: Zinc	7440-66-6	5 mg/kg	95.1	1	75	125	3	į
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621066)	ocarbons (TPH) (QC Lot: 3621066)								
HK1428484-001 Anonymous	C9 - C16 Fraction		32 mg/kg	73.8		20	130		1
	C17 - C35 Fraction	1	67.5 mg/kg	93.8	Pro-SEED	20	130	E	Ī
EP-074HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621075)	ocarbons (TPH) (QC Lot: 3621075)								
HK1428482-002 Anonymous	C6 - C8 Fraction	-	4.5 ma/kg	114	Total Control	T T	130		

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery	Recovery Limits (%)
Compound	CAS Number	FOW	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates	arbons (PAHs) Surrogates	10	
2-Fluorobiphenyl	321-60-8	20	130
4-Terphenyl-d14	1718-51-0	20	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	8-60-228	20	130
Dibutyichlorendate	1770-80-5	20	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate	gate		
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	.8	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074 SR-S: VOC Surrogates			



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Client

Client

Work Order HK1428555

Sub-Matrix: SOIL

Compound

Compound

Compound

Low High

Sub-Matrix; SOIL		Recovery Limits (%)	.imits (%)	
Compound	CAS Number	TOW	High	
EP-074_SR-S: VOC Surrogates - Continued)	
Dibromofluoromethane	1868-53-7	80	120	
Toluene-D8	2037-26-5	81	117	
4-Bromofluorobenzene	460-00-4	74	121	

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



SUB-CONTRACTING REPORT

CONTACT : HANNAH CHIU WORK ORDER HK1428555

CLIENT : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

ADDRESS 7/F, EMPIRE CENTRE, SUB-BATCH : 1
68 MODY ROAD. DATE RECEIVED : 1-SEP-20

TSIM SHA TSUI EAST,
KOWLOON, HONG KONG

PROJECT : SITE INVESTIGATION FOR TRUNK ROAD T2 AND NO. OF SAMPLES : 2

INFRASTRUCTURE AT SOUTH APRON (STAGE 2) CLIENT ORDER J3539

General Comments

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

• Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

 Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 based on ASTM D3974-09, prior to determination of metals.

Dioxins was subcontracted to and analysed by ALS Czech Republic.

Signatories

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Position

Richard Fung

General Manager

WORK ORDER

≅HK1428555

SUB-BATCH

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT CLIENT **PROJECT**

I SITE INVESTIGATION FOR TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH

APRON (STAGE 2)



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1428555-001	EH1B 0.5M	SOIL	01-SEP-2014 14:00	PR1449686001
HK1428555-002	EH3B 0.5M	SOIL	01-SEP-2014 14:00	PR1449686002



CERTIFICATE OF ANALYSIS

Work Order	PR1449686	Issue Date	16-SEP-2014
Client	ALS Technichem (HK) Pty Ltd.	Laboratory	ALS Czech Republic, s.r.o.
Contact	Mr. Richard Fung	Contact	Client Service
Address	11/F, Chung Shun Knitting Centre	Address	Na Harfe 336/9 Prague 9 - Vysocany
	1-3 Wing Yip Street Kwai Chung Hong Kong		Czech Republic 190 00
E-mail	richard.fung@alsglobal.com	E-mail	customer.support@alsglobal.com
Telephone	+852 26101044	Telephone	+420 226 226 228
Facsimile	+852 26102021	Facsimile	+420 284 081 635
Project	5.000	Page	# 1 of 2
Order number	_ 	Date Samples	:: 11-SEP-2014
		Received	
C-O-C number	Same	Quote number	PR2011ALSTE-HK0268
Site	19-1-E	Date of test	12-SEP-2014 - 16-SEP-2014
Sampled by	li client	QC Level	ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory. The laboratory declares that the test results relate only to the listed samples.

Responsible for accuracy

<u>Signatories</u> Zdenek Jirak



<u>Position</u> Environmental Business Unit Manager



Testing Laboratory Accredited by CAI





Issue Date

16-SEP-2014

Page Work Order

2 of 2 PR1449686

Client

ALS Technichem (HK) Pty Ltd.



Analytical Results

Sub-Matrix: SOIL		Laborati	ent sample ID ory sample ID ing date / time	HK1428555 EH1B 0. PR144968 01-SEP-2014	5M 6001	HK1428555 EH3B 0. PR144968 01-SEP-2014	5M 6002		
Parameter	Method	LOR	Unit	Result	Mi)				
	Welliou	LUA	Onn			Result	MU .		0000
Physical Parameters Dry matter @ 105°C	S-DRY-GRCI	0.10	96	93.0		91.9			
	1. P. S. S. S. S. S. S. S. S. S. S. S. S. S.	0.10		93.0	±5.0 %		±5.0 %		
PCDDs and PCDFs (Dioxins a 2878-TCDD)		7							
	S-DFHMS03	 -	ng/g DW	n.d.		n.d.			
12378-PeCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.			
123478-HxCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.			
123678-HxCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.		****	-
123789-HxCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.		-	
1234678-HpCDD	S-DFHM\$03	-	ng/g DW	0.0260	±30.0 %	n.d.			
OCDD	S-DFHMS03	-	ng/g DW	0.710	±30.0 %	0.359	±30.0 %		
2378-TCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.			
12378-PeCDF	S-DFHMS03	-	ng/g DW	л.d.	_	n.d.			
23478-PeCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.			
123478-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.			
123678-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.			
123789-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.			
234678-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.			
1234678-HpCDF	S-DFHMS03	-	ng/g DW	n,đ,		n.d.			
1234789-HpCDF	S-DFHMS03	-	ng/g DW	n.đ.		n.d.			
OCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.			
TEQ-Lowerbound	S-DFHMS03	-	ng/g DW	0.00097		0.00035			
TEQ-Upperbound	S-DFHMS03	-	ng/g DW	0.0032		0.0031			

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test perform	ance: V Raji 906 Pardubice - Zelene Predmesti Czech Republic 530 02
S-DFHMS03	CZ_SOP_D06_06_175 - except chap. 8.2.1.1 B,8.2.1.3 B, 8.2.1.5 B,C,D, 11.2.3.1, 11.2.3.6, 11.2.3.7, 11.2.5 (US EPA1613);
	Determination of tetra- to octa-chlorinated dioxins and furanes by isotope dilution method using HRGC-HRMS and calculatio
	of TEQ parameters from measured values.
	The samples were stored in laboratory in the darkness and under temperature <4°C.
	Actual LOQ are noticed in the annex.
S-DRY-GRCI	CZ_SOP_D06_01_045, CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880) Determination of dry matter by gravimetr
	and determination of moisture by calculation from measured values,

A '* symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.



Attachment no. 1 to the Certificate of Analysis for work order PR1449686

Sample: HK1428555-001 EH1B 0.5M

Measurement results:

Sample:	HK1428555-	001 EH1B 0.5M			
			Final extract [µl]:		75
Sample weight [g]:	6	.369	Injection volume [µl]:		4
Dry matter [%]:		93.0	Acquisition date [d.m.	y h:m]:	15.9.14 13:24
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹ I-TEFs	I-TEQ
, .		Detection	Quantification		
	[ng/g dw]	[ng/g dw]	[ng/g dw]		[ng/g dw]
2,3,7,8-TCDD	n.d.	0.00036	0.00071	1	0
1,2,3,7,8-PeCDD	n.d.	0.00058	0.0012	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	0.0011	0.0022	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	0.0011	0.0022	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	0.0011	0.0022	0.1	0
1,2,3,4,6,7,8-HpCDD	0.026	0.0015	0.003	0.01	0.00026
OCDD	0.71	0.0027	0.0054	0.001	0.00071
2,3,7,8-TCDF	n.d.	0.00046	0.00092	0.1	0
1,2,3,7,8-PeCDF	n.d.	0.00093	0.0019	0.05	0
2,3,4,7,8-PeCDF	n.d.	0.00093	0.0019	0.5	0
1,2,3,4,7,8-HxCDF	n.d.	0.0015	0.003	0.1	0
1,2,3,6,7,8-HxCDF	n.d.	0.0015	0.003	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	0.0015	0.003	0.1	0
2,3,4,6,7,8-HxCDF	n.d.	0.0015	0.003	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	0.0035	0.007	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	0.0035	0.007	0.01	0
OCDF	n.d.	0.0032	0.0065	0.001	0
I-TEQ from quantifie	d 2,3,7,8-PCD	D/Fs [ng 2,3,7,8	-TCDD/g dw]-"Lowerbou	ınd"	0.00097
I-TEQ from quantified				.0 (1	0.00097
I-TEQ from quantified	1 2,3,7,8-PCDFs	[ng 2,3,7,8-TCI			0
I-TEQ from n.d. and r	on quantified 2	2,3,7,8-PCDD/Fs	[ng 2,3,7,8-TCDD/g dw]		0.0022
Maximum possible I-	TEQ [ng 2,3,7,	8-TCDD/g dw]-'	'Upperbound'		0.0032
PCDDs	Content [ng/g dw]	PCDFs	Content	[ng/g dw]
Tetra-CDDs	r	ı.d.	Tetra-CDFs	155 10	n.d.
Penta-CDDs	r	ı.d.	Penta-CDFs		n.d.
Hexa-CDDs	y and the first of	ı.d.	Hexa-CDFs	172 DE	n.d.
Hepta-CDDs	. (0.043	Hepta-CDFs		n.d.
OCDD	().71	OCDF		n.d.
Total PCDDs	,().75	Total PCDFs	_	n.d.

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

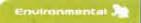
These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

ALS Czech Republic, s.r.o.

ADRESA V Ráji 906, 530 02 Pardubice, Czech republic





Attachment no. 2 to the Certificate of Analysis for work order PR1449686

Sample: HK1428555-002 EH3B 0.5M

Measurement results:

Sample:	HK1428555	-002 EH3B 0.5M			
	<u>.</u>		Final extract [µl]:		75
Sample weight [g]:		5.376	Injection volume [μl]:		4
Dry matter [%]:		91.9	Acquisition date [d.m.	y h:m]:	15.9.14 15:20
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹ I-TEFs	I-TEQ
		Detection	Quantification		
	[ng/g dw]	[ng/g dw]	[ng/g dw]		[ng/g dw]
2,3,7,8-TCDD	n.d.	0.00067	0.0013	1	0
1,2,3,7,8-PeCDD	n.d.	0.0011	0.0022	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	0.0011	0.0022	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	0.0011	0.0022	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	0.0011	0.0022	0.1	0
1,2,3,4,6,7,8-HpCDD	n.d.	0.0015	0.0029	0.01	0
OCDD	0.35	0.0026	0.0052	0.001	0.00035
2,3,7,8-TCDF	n.d.	0.00065	0.0013	0.1	0
1,2,3,7,8-PeCDF	n.d.	0.0012	0.0024	0.05	0
2,3,4,7,8-PeCDF	n.d.	0.0012	0.0024	0.5	0
1,2,3,4,7,8-HxCDF	n.d.	0.0011	0.0022	0.1	0
1,2,3,6,7,8-HxCDF	n.d.	0.0011	0.0022	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	0.0011	0.0022	0.1	0
2,3,4,6,7,8-HxCDF	n.d.	0.0011	0.0022	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	0.0012	0.0024	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	0.0012	0.0024	0.01	0
OCDF	n.d.	0.0026	0.0052	0.001	0
-TEQ from quantifie	d2,3,7,8-PCD	D/Fs [ng 2,3,7,8	-TCDD/g dw]-"Lowerbou	ınd'	0.00035
-TEQ from quantified				raci	0.00035
-TEQ from quantified				0: 0	0
-TEQ from n.d. and r	on quantified	2,3,7,8-PCDD/Fs	[ng 2,3,7,8-TCDD/g dw]		0.0028
Maximum possible I-	TEQ [ng 2,3,7	,8-TCDD/g dw]-	"Upperbound"		0.0031
PCDDs		[ng/g dw]	PCDFs	Content	[ng/g dw]
Геtra-CDDs		n.d.	Tetra-CDFs		n.d.
Penta-CDDs		n.d.	Penta-CDFs		n.d.
Hexa-CDDs	1270	n.d.	Hexa-CDFs	1940 00	n.d.
Hepta-CDDs		n.d.	Hepta-CDFs		n.d.
OCDD	,	0.35	OCDF		n.d.
Total PCDDs	1	0.35	Total PCDFs		n.d.

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

ALS Ezech Republic, s.r.p.

*DRESA V Ráji 906, 530 02 Pardubice, Czech republic



ALS Technichem (HK) Pty Ltd

ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES





CERTIFICATE OF ANALYSIS

Client	CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	Laboratory	ALS Technichem HK Pty Ltd	Page	: 1 of 12
Contact	: HANNAH CHIU	Contact	Fung Lim Chee, Richard	Work Order	HK1478586
Address	: 7/F, EMPIRE CENTRE, 68 MODY ROAD, TSIM SHA TSU! EAST, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	I	E-mail	Richard Fund@aleglobal com		
Telephone		Telephone	+852 2610 1044		
Facsimile	Ţ	Facsimile	+852 2610 2021		
Project	SITE INVESTIGATION FOR TRUNK ROAD TO AND INFRASTRUCTURE AT SOUTH APRON	Quote number		Date Samptes Received	: 03-SEP-2014
Order number	. 13539			Issue Date	: 19-SFP-2014
C-O-C number	: H029002			No. of samples received	67
Site				No. of samples analysed	

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6. Organics Assistant Manager - Organics Signatories

Chan Ka Yu, Karen Wong Wing, Kenneth

Manager - Metals

Inorganics

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Client : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Work Order HK1428586

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 17-SEP-2014

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1428586

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 based on ASTM D3974-09, prior to determination of metals.

Dioxins was subcontracted to and analysed by ALS Czech Republic.



CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

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Page Number Client Work Order	

Sub-Matrix: SOII			Client sample ID			1		
		Client san	Client sampling date / time	03-SEP-2014 10:30	03-SEP-2014 14:15	03-SEP-2014 15:20		
Compound	CAS Number	TOR	Unit	HK1428586-001	HK1428586-002	HK1428586-003		
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)		0.1	%	19.9	13.8	14.8		
EG: Metals and Major Cations								
EG020: Antimony	7440-36-0	-	mg/kg	₹	₽			
EG020: Arsenic	7440-38-2	:	mg/kg	V	. ₽	A section of the sect		
EG020: Barium	7440-39-3	0.5	mg/kg	25.4	12.4	£.		
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	200		
EG020: Cobalt	7440-48-4	-	mg/kg	2	l∵ ⊽			
EG020: Copper	7440-50-8	-	mg/kg	. 7	4	Cr.j		
EG020: Lead	7439-92-1	-	mg/kg	20	26	. 23		
EG020: Manganese	7439-96-5	-	mg/kg	895	526	324	manuful Property	
EG020: Molybdenum	7439-98-7	-	mg/kg	₹	⊽			
EG020: Nickel	7440-02-0	-	mg/kg	7	2			
EG020: Tin	7440-315	-	mg/kg	7	ריז	1 877		
EG020: Zinc	7440-66-6		mg/kg	24	Z	27		ĺ
EG036: Mercury	7439-97-6	0.2	mg/kg	<0.2	<0.2	<0.2		
EG049: Trivalent Chromium	16065-83-1	-	тд/кд	7	LO.	7		
EG3060: Hexavalent Chromium	18540-29-9	-	mg/kg	V	⊽	⊽		
EP-066: Polychiorinated Biphenyls								
Total Polychlorinated biphenyls	1	0.1	mg/kg	<0.1	<0.1	<0.1		
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)	s (PAHs)							Ī
Naphthalene	91-20-3	0.500	mg/kg	<0.500	<0.500	<0.500		
Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500		
Acenaphthene	83-32-9	0.500	mg/kg	<0.500	<0.500	<0.500	The second secon	
Fluorene	86-73-7	0.500	mg/kg	<0.500	<0.500	<0.500		
Phenanthrene	82-01-8	0.500	mg/kg	<0.500	<0.500	<0.500		
Anthracene	120-12-7	0.500	mg/kg	<0.500	<0.500	<0.500		Ī
Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500		
Pyrene	129-00-0	0.500	mg/kg	<0.500	<0.500	<0.500		
Benz(a)anthracene	56-55-3	0.500	твлка	<0.500	<0.500	<0.500		
Chrysene	218-01-9	0.500	mg/kg	<0.500	<0.500	<0.500		Ī
Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500		
Benzo(k)fluoranthene	207-08-9	0.500	mg/kg	<0.500	<0.500	<0.500		
Benzo(a)pyrene	50-32-8	0.050	mg/kg	<0.050	<0.050	<0.050		
Indeno(1.2.3.cd)pyrene	193-39-5	0.500	mg/kg	<0.500	<0.500	<0.500		
Dibenz(a.h)anthracene	53-70-3	0.050	mg/kg	<0.050	<0.050	<0.050		
Benzo(g.h.i)perylene	19124-2	0.500	твука	<0.500	<0.500	<0.500		
EP-076B: Phenol, Hexachlorobenzene and Bls(2-ethylhexyl) Phthalate	3ls(2-ethylhex	yl) Phtha	late					
Dhonol	108062	0.50	and the same	6			the second of the second of the second of	

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Page Number Client Work Order	Sub Matrix: COI

		Client sam	Client sampling date / time	03-SEP-2014 10:30	03-SEP-2014 14:15	03-SEP-2014 15:20	
Compound	CAS Number	HO7	£r.∪	HK1428586-001	HK1428586-002	HK1428586-003	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate - Continued	and Bis(2-ethylhe	xyl) Phth	alate - Contir				
Hexachlorobenzene (HCB)	118741	0.200	mg/kg	<0.200	<0.200	<0 >0 >0 >	
Bis(2-ethylhexyl)phthalate	117-817	5.00	mg/kg	<5.00	<5.00	<5.00	
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)	arbons (TPH)						
C6 - C8 Fraction	. T	ĸ	mg/kg	<5 <5	₽	\$	
C9 - C16 Fraction	I	200	mg/kg	<200	<200	<200	
C17 - C35 Fraction	1	200	mg/kg	<500	<500	<500	
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)	drocarbons (MAP	_					
Benzene	7143-2	0.2	mg/kg	<0.2	<0.2	<0.5	
Toluene	108-88-3	0.5	mg/kg	<0.5		A 0.5	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	\$0.5 50.5	
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	<1.0	
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	7 O	
ortho-Xylene	95-47-8	0.5	mg/kg	<0.5	\$ 0×	20.5	
Xylenes (Total)		2.0	mg/kg	<2.0	<2.0	<2.0	
EP-074_SR-B: Oxygenated Compounds							
2-Propanone (Acetone)	67-64-1	20	mg/kg	<50	<50	<50	
2-Butanone (MEK)	78-93-3	ιO	mg/kg	ιŞ	; . &	} •₩	
EP-074_SR-E: Halogenated Aliphatics							
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	<0.5	
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	<0.1	
Tetrachioroethene	127-18-4	0.04	mg/kg	<0.04	<0.04	<0.04	
EP-074_SR-G: Trihalomethanes (THM)							
Chloroform	6-99-29	0.04	mg/kg	<0.04	<0.04	<0.04	
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	<0.1	
EP-074 SR-I: Methyl-tert-butyl Ether						19	
Methyl tert-Butyl Ether (MTBE)	1634-04-4	9.5	mg/kg	<0.5	<0.5	<0.5	
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates	rbons (PAHs) Su	rrogates					Surrogate control limits listed at end of this report
2-Fluorobiphenyl	32160-8	0.1	%	82.3	78.7	75.9	
4-Terphenyl-d14	1718-510	0.1	%	7.06	85.0	0.50	
EP-066S: PCB Surrogate							Surrocate control limite listed at and of this second
Tetrachlorometaxylene	877-09-8	0.1	%	98.8	101	76.4	
Dibutylchlorendate	1770-80-5	0.1	%	126	121	102	
EP-080_SRS: TPH(Volatile)/BTEX Surrogate	gate						Surrogate control limits listed at and of this record
Dibromofluoromethane	1868-53-7	0.1	%	96.4	95.2	98.3	
Toluene-D8	2037-28-5	0.1	*	101	101	102	
4-Bromofluorobenzene	460-00-4	0.1	%	103	104	104	
EP-074_SR-S: VOC Surrogates							Surrogate control limits listed at and of this report
Dibromofluoromethane	1868-53-7	0.1	*	96.4	95.2	60	
Toluene-D8	2037-26-5	0.1	%	101	101	102	



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Page Number Client Work Order

Sub-Matrix: SOIL		0	Client sample ID	EH1B 3.0M	EH1B 6.0M	EH1B 9.0M	
	:	Client sampling	oling date / time	03-SEP-2014 10:30	Client sampling date / time 03-SEP-2014 10:30 03-SEP-2014 14:15 C	\sim	
Compound	CASNumber LOR Unit	LOR	Unit	HK1428586-001	HK1428586-002	HK1428586-003	
EP-074_SR-S: VOC Surrogates - Continued							Surrogate control limits listed at end of this report
4-Bromofluorobenzene	460-00-4 0.1	0.1	%	103	104	104	



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Page Number Client Work Order

						: .		
	: :- :- :- :-				Ţ.	Laboratory Duplicate (DUP) Report	Report	
Laboratory sample ID	Cilent sample ID	Method: Compound	CAS Number	X07	Unit	Original Result	Duplicate Result	RPD (%)
VED: Physical a	EA/ED: Physical and Aggregate Properties	s (QC Lot: 3632420)						
HK1428555-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	İ	0.1	%	00	0	c
HK1428803-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	PERMIT	0.1	%	32.6	34.1	. A
EG: Metals and Major Cations	ior Cations (QC Lot: 3626876)	626876)			:	e i		ř
HK1428478-015	Anonymous	EG036: Mercury	7439-97-6	200	ma/ka	700	30.0	ć
HK1428830-001	Anonymous	EG036: Mercury	7439-97-6	0.5	mo/kg	20.2	0.0	9 6
: Metals and Ma	EG: Metals and Major Cations (QC Lot: 3626881)	626881			7) 1)	1	7.0	S
HK1428555-002	Anonymous	EG020 Cadmium	7440.43.0	0.0	and less	ç	c c	6
			7440 00 0	2.0	mg/kg	2.0.2 2.0.2	<0.2	0.0
		FOCEO. Ballull	7440-08-5	o.,	mg/kg	1.12	29.2	5.2
		EGUZU: Antimony	7440-36-0	-	mg/kg	₹	∵	0.0
		EG020: Arsenic	7440-38-2	-	mg/kg	2	2	0.0
		EG020: Cobalt	7440-48-4	- -	mg/kg	4	က	0.0
		EG020: Copper	7440-50-8	-	mg/kg	7	7	0.0
		EG020: Lead	7439-92-1	3	mg/kg	64	62	3.6
		EG020: Manganese	7439-96-5	-	mg/kg	639	538	17.2
		EG020: Molybdenum	7439-98-7	-	mg/kg	2	-	0
		EG020: Nickel	7440-02-0	-	mg/kg			00
		EG020: Tin	7440-31-5	-	ma/ka	ന	· m	0 0
		EG020: Zinc	7440-66-6	-	ma/ka	r.	2	9
Metals and Ma	EG: Metals and Major Cations (QC Lot: 3628577)	628577)			b b	3	5	2
HK1428482-003	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	-	ma/ka	₹	₹	0
HK1428830-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9		mo/ka	. ₽	√ ∨	9 6
066: Polychlori	EP-066: Polychlorinated Biphenyls (QC Lot: 3621065)	ot: 3621065)			0			3
HK1428586-002	EH1B 6 0M	Total Dehichlerington blakemile		4	1	Ţ		,
076A: Polycycl	c Aromatic Hydrocarbo	EP-0764: Polycyclic Aromatic Hydrocarbons (PAHs) (OC 1 of: 3624068)	i	-	EN/Bill	- - - - -	 	0.0
HK142858-002	EH1B 6 OM		0 00	2		Į.		i
700-000-1	10.00	Derizu(a)pyrene	9-75-00	00 2	ng/kg	ng>	0¢>	0.0
		Dibenz(a.n)anthracene	53-70-3	200	ng/kg	99 99	~20 ~20	0.0
		Naphthalene	91-20-3	200	hg/kg	<500	<500	0.0
		Acenaphthylene	208-96-8	500	µg/kg	<500	<500	0.0
		Acenaphthene	83-32-9	200	ng/kg	<500	<200	0.0
		Fluorene	86-73-7	200	ng/kg	<200	<500	0 0
		Phenanthrene	85-01-8	200	ng/kg	<200	<500	0.0
		Anthracene	120-12-7	200	na/ka	<500	<500	00
		Fluoranthene	206-44-0	200	ua/ka	×200	<500	00
		Pyrene	129-00-0	500	ng/kg	<500	<500	000
		Benz(a)anthracene	56-55-3	500	ug/kg	<500	<500	0.0
		Chrysene	218-01-9	200	ua/ka	<500	<500	0.0
		Benzo(b)fluoranthene	205-99-2	200	ua/ka	<500	<500	00
		Benzo(k)fluoranthene	207-08-9	200	na/ka	<500	<500	00
		Indeno(1.2.3.cd)pyrene	193-39-5	200	ug/kg	<500	<500	0.0
		Benzo(g.h.l)perylene	191-24-2	200	ug/kg	<500	<500	0.0
076B: Phenol I	lexachlorobenzene and	EP-0768: Phenot Hexachlorobenzene and Bis(2-ethylhexy) Phthalate (CC of: 3621068)			9			9
6011011								



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Client : CIVIL ENGINEE
Work Order HK1428586

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Factor Participation Par		:				Lat	Laboratory Duplicate (DUP) Report	port	
vyl Pritinalarie (QC Lot: 3621068) - Confinued S00 µg/kg <500	Laboratory sample ID	llent sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
Vjphithaliste 1108-95-2 500 lighkg <-500 c500 Lot: 3821076) 1.748-7 5000 lighkg <-500 c500 Lot: 3821075)	EP-076B: Phenol, He	xachlorobenzene a							
Cartical Section 17-81-7 5000 Highing <5000 <5000	HK1428586-002	H1B 6.0M	Phenol	108-95-2	500	µg/kg	<200	<500	0.0
Coc Lot; 3621076)			Bis(2-ethylhexyl)phthalate	117-81-7	2000	hg/kg	<5000	<5000	0.0
Continue	EP-07 THK SR: Total	Petroleum Hydroca	rbons (TPH) (QC Lot: 3621066)						
CC Lot. 3671076)		H1B 6.0M	C9 - C16 Fraction		200	mg/kg	<200	<200	0.0
CC Lot: 3615502			C17 - C35 Fraction	1	200	mg/kg	<500	<500	0.0
CC Lot: 361502)	EP-071HK_SR: Total	Petroleum Hydroca	rbons (TPH) (QC Lot: 3621075)						
(QC Lot: 36f5502)	HK1428480-003 A	nonymous	C6 - C8 Fraction	1	S.	mg/kg	ιςς V	\$	0.0
Colored 17432 0.2 mg/kg <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.2 <0.	EP-074 SR-A: Mono	cyclic Aromatic Hyd	rocarbons (MAH) (QC Lot: 3615502)						
100-88-3	HK1428018-002 A	nonymous	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
100-41-4 0.5			Toluene	108-88-3	0.5	ma/ka	<0.5	\$ C	
ylene 100.42-5 0.5 mg/kg <0.5 <0.5 ylene 108.43-3 1.0 mg/kg <0.5 <0.5 j (QC Lot: 3621076) 71.43-2 0.5 mg/kg <0.5 <0.5 j (QC Lot: 3621076) 77.43-2 0.2 mg/kg <0.2 <0.2 106.42-3 1.0 mg/kg <0.5 <0.5 <0.5 106.42-3 0.5 mg/kg <0.5 <0.5 ylene 108.83-3 0.5 mg/kg <0.5 <0.5 kly 7 78.93-3 1.0 mg/kg <0.5 <0.5 kly 7 78.93-3 5 mg/kg <0.5 <0.5 kly 7 78.93-3 5 mg/kg <0.0 <0.0 follow 7 78.91-4 50 mg/kg <0.0 <0.0 follow 7 78.91-8 0.0 mg/kg <0.0 <0.0 follow 77-01-8 0.1 <t< td=""><td></td><td></td><td>Ethylbenzene</td><td>100-41-4</td><td>0.5</td><td>ma/ka</td><td>\$0 S</td><td>, C</td><td>0 0</td></t<>			Ethylbenzene	100-41-4	0.5	ma/ka	\$0 S	, C	0 0
100-26-3 1.0 mg/kg 40.5 mg/kg 40.5 40			Styrene	100-42-5	0.5	ma/ka	0.5	\$0.5	0 0
yiene 108-38-3 1.0 mg/kg <1.0 <1.0 i) (QC Lot: 3621076) 71-43-2 2.0 mg/kg <2.0 <2.0 i) (QC Lot: 3621076) 71-43-2 0.5 mg/kg <0.5 <0.5 i (QC Lot: 3621076) 71-43-2 0.5 mg/kg <0.5 <0.5 i (QC Lot: 3621076) 71-43-2 0.5 mg/kg <0.5 <0.5 i (QC Lot: 3621076) 71-43-2 0.5 mg/kg <0.5 <0.5 i (QC Lot: 3621076) 71-43-2 0.5 mg/kg <0.5 <0.5 i (QC Lot: 3621076) 71-43-3 0.5 mg/kg <0.5 <0.5 <0.5 i (QC Lot: 3621076) 71-43-3 0.5 mg/kg <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0 <0.0			ortho-Xylene	95-47-6	0.5	ma/ka	<0 5 5 5 7	5.0 <0.5	0 0
Cac Lot: 3621076 174-43-2 2.0 mg/kg <2.0 <2.0			meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
(QC Lot: 3621076)			Xylenes (Total)	I	2.0	mg/kg	<2.0	<2.0	0.0
108-88-3 0.5 mg/kg	EP-074 SR-A: Mono	cyclic Aromatic Hyd	rocarbons (MAH) (QC Lot: 3621076)						
View 108-88-3 0.5 mg/kg <0.5 <0.5 View 100-42-6 0.5 mg/kg <0.5 <0.5 View 106-42-6 0.5 mg/kg <0.5 <0.5 View 108-38-3 1.0 mg/kg <0.5 <0.5 Ch 108-38-3 1.0 mg/kg <1.0 <1.0 EK) 78-83-3 5 mg/kg <5 <5 EK) 78-83-3 5 mg/kg <5 <5 Ek) 78-83-3 5 mg/kg <5 <5 Acetone) 67-84-1 50 mg/kg <5 <5 EK) 78-83-3 5 mg/kg <5 <5 Acetone) 67-84-1 50 mg/kg <5 <5 Acetone 75-09-2 0.5 mg/kg <0.04 <0.04 e 75-07-4 0.1 mg/kg <0.04 <0.04 e 75-07-4	HK1428586-002 E	H1B 6.0M	Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0
100-41-4 0.5 mg/kg <0.5 <0.5 100-42-5 0.5 mg/kg <0.5 <0.5 <0.5 <0.5 100-42-5 0.5 mg/kg <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5			Toluene	108-88-3	0.5	mg/kg	<0.5	40.5	0.0
ylene 100-42-5 0.5 mg/kg <0.5 <0.5 ylene 96-47-6 0.5 mg/kg <0.5 <0.5 2) mg/kg <0.5 <0.5 <0.5 2) mg/kg <1.0 <1.0 <1.0 EK) 78-93-3 5 mg/kg <5 <5 EK) 78-93-3 5 mg/kg <5 <5 ene 72-04-1 50 mg/kg <5 <5 ene 75-09-2 0.5 mg/kg <0.04 <0.04 ene 75-09-2 0.5 mg/kg <0.05 <0.04 ene 75-09-2 0.5 mg/kg <0.04 <0.04 ene 75-09-2 0.5 mg/kg			Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
ylene 95-47-6 0.5 mg/kg <0.5 <0.5 ylene 108-38-3 1.0 mg/kg <0.5 <0.5 2) 20 mg/kg <2.0 <2.0 <1.0 2) 78-83-3 5 mg/kg <5 <5 EK) 78-83-3 5 mg/kg <5 <5 EK) 78-83-3 5 mg/kg <5 <5 EK) 78-83-3 5 mg/kg <5 <5 Acetone) 67-64-1 50 mg/kg <5 <5 Acetone 67-64-1 50 mg/kg <0.04 <0.04 ene 75-01-6 0.1 mg/kg <0.04 <0.04 ene 75-03-2 0.5 mg/kg <0.04 <0.04 ene 75-03-2 0.5 mg/kg <0.04 <0.04 ene 75-07-6 0.1 mg/kg <0.04 <0.04 ene 75-07-7			Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
ylene 108-38-3 1.0 mg/kg <1.0 <1.0 2) C2.0 C2.0 <2.0 <2.0 EK) 78-93-3 5 mg/kg <5 <5 ene 79-01-6 0.1 mg/kg <0.04 <0.04 ene 79-01-6 0.1 mg/kg			ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
2.0 mg/kg			meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	0.0
2) T8-93-3 5 mg/kg 45 45 Acetone) 67-64-1 50 mg/kg 45 45 6) T8-93-3 5 mg/kg 45 45 EK) T8-93-3 5 mg/kg 45 45 EK) T8-93-3 5 mg/kg 45 45 EK) T8-93-3 5 mg/kg 45 45 ene T27-18-4 0.04 mg/kg 40.04 40.04 ene T5-09-2 0.5 mg/kg 40.04 40.04 ene T5-01-6 0.1 mg/kg 40.1 40.1 ene T5-01-6 0.5 mg/kg 40.1 40.1 ene T5-01-6 0.1			Xylenes (Total)		2.0	mg/kg	<2.0	<2.0	0.0
EK) 78-93-3 5 mg/kg <5 <5 6) R67-64-1 50 mg/kg <5 <5 EK) 78-93-3 5 mg/kg <5 <5 EK) 78-93-3 5 mg/kg <5 <5 Acetone) 67-64-1 50 mg/kg <50 <50 ene 79-01-6 0.1 mg/kg <0.04 <0.04 ene 79-01-6 0.1 mg/kg <0.04 <0.04 ene 79-01-6 0.1 mg/kg <0.04 <0.05 ene 79-01-6 0.1 mg/kg <0.0 <0.0 ene 79-01-6 0.1	EP-074_SR-B: Oxyge	nated Compounds	(QC Lot: 3615502)						
Acetone) 67-64-1 50 mg/kg <50 <50 EK) 78-93-3 5 mg/kg <5 <5 Acetone) 67-64-1 50 mg/kg <5 <5 ene 127-18-4 0.04 mg/kg <0.04 <0.04 ene 79-01-6 0.1 mg/kg <0.05 <0.05 ene 79-01-6 0.1 mg/kg <0.04 <0.06 ene 79-01-6 0.1 mg/kg <0.04 <0.05 ride 75-09-2 0.5 mg/kg <0.0 <0.0 e 75-09-2		nonymous	2-Butanone (MEK)	78-93-3	S	mg/kg	\$	4	0.0
EF() 78-93-3 5 mg/kg <5 <5 Acetone) 67-64-1 50 mg/kg <5 <5 ene 127-18-4 0.04 mg/kg <0.04 <0.04 e 79-01-6 0.1 mg/kg <0.1 <0.1 inide 75-09-2 0.5 mg/kg <0.04 <0.04 e 79-01-6 0.1 mg/kg <0.04 <0.04 e 79-01-6 0.1 mg/kg <0.04 <0.04 ride 75-09-2 0.5 mg/kg <0.04 <0.05 e 75-09-2 0.5 mg/kg <0.05 <0.04 e 75-09-2 0.5 mg/kg <0.05 <0.04 e 75-09-2 0.5 mg/kg <0.04 <0.04 e 75-07-4 0.1 mg/kg <0.04 <0.04 e 75-27-4 0.1 mg/kg <0.01 <0.01	0.00		2-Propanone (Acetone)	67-64-1	20	mg/kg	<50	<50	0.0
EK) 78-93-3 5 mg/kg <5 <5 Acetone) 67-64-1 50 mg/kg <5 <5 ene 127-18-4 0.04 mg/kg <0.04 <0.04 e 79-01-6 0.1 mg/kg <0.1 <0.1 inide 75-09-2 0.5 mg/kg <0.04 <0.04 e 79-01-6 0.1 mg/kg <0.04 <0.04 ride 75-09-2 0.5 mg/kg <0.04 <0.04 e 75-09-2 0.5 mg/kg <0.04 <0.04 e 75-09-2 0.5 mg/kg <0.04 <0.04 methane 75-27-4 0.1 mg/kg <0.01 <0.01	Er-0/4 Sh-b. Oxyge	enated compounds	(UC LOT: 3621076)						
Acetone) 67-64-1 50 mg/kg <50 <50 ene 127-18-4 0.04 mg/kg <0.04		H1B 6.0M	2-Butanone (MEK)	78-93-3	ro.	mg/kg	\$	\$	0.0
ene 127-18-4 0.04 mg/kg <0.04 <0.04 e 79-01-6 0.1 mg/kg <0.1 <0.1 ride 75-09-2 0.5 mg/kg <0.04 <0.04 e 79-01-6 0.1 mg/kg <0.04 <0.04 ride 79-01-6 0.1 mg/kg <0.0 <0.05 e 75-09-2 0.5 mg/kg <0.0 <0.0 f 67-66-3 0.04 mg/kg <0.04 <0.04 methane 75-27-4 0.1 mg/kg <0.04 <0.04			2-Propanone (Acetone)	67-64-1	50	mg/kg	<50	<50	0.0
ene 127-18-4 0.04 mg/kg <0.04 <0.04 e 79-01-6 0.1 mg/kg <0.1 <0.1 ride 75-09-2 0.5 mg/kg <0.04 <0.04 ene 79-01-6 0.1 mg/kg <0.04 <0.04 ride 75-01-6 0.1 mg/kg <0.1 <0.1 inde 75-09-2 0.5 mg/kg <0.05 <0.5 methane 75-27-4 0.1 mg/kg <0.04 <0.04	EP-0/4 SK-E: Halog	enated Aliphatics ((ac Lot: 3615502)						
e 79-01-6 0.1 mg/kg <0.1 <0.1 ride 75-09-2 0.5 mg/kg <0.04 <0.04 ene 79-01-6 0.1 mg/kg <0.04 <0.04 ride 75-09-2 0.5 mg/kg <0.1 <0.1 ride 75-09-2 0.5 mg/kg <0.5 <0.5 methane 75-27-4 0.1 mg/kg <0.04 <0.04 methane 75-27-4 0.1 mg/kg <0.01 <0.1	•	nonymous	Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.04	0.0
rride 75-09-2 0.5 mg/kg <0.5 <0.5 ene 127-18-4 0.04 mg/kg <0.04 <0.04 ride 79-01-6 0.1 mg/kg <0.1 <0.1 ride 75-09-2 0.5 mg/kg <0.5 <0.5 mg/kg <0.05 <0.5 <0.05 mg/kg <0.05 <0.04 <0.04 rmethane 75-27-4 0.1 mg/kg <0.01 <0.1			Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
ene 127-18-4 0.04 mg/kg <0.04 <0.04 e 79-01-6 0.1 mg/kg <0.1 <0.1 ride 75-09-2 0.5 mg/kg <0.5 <0.5 ng/kg <0.05 <0.5 ng/kg <0.05 <0.5 mg/kg <0.04 <0.04 75-27-4 0.1 mg/kg <0.04 <0.04 ~0.04 <0.04			Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
ene 127-18-4 0.04 mg/kg <0.04 <0.04 e 79-01-6 0.1 mg/kg <0.1 <0.1 ride 75-09-2 0.5 mg/kg <0.5 <0.5 i 67-66-3 0.04 mg/kg <0.04 <0.04 methane 75-27-4 0.1 mg/kg <0.1 <0.1	EP-074_SR-E: Halog	enated Aliphatics ((2C Lot: 3621076)			2			}
e 79-01-6 0.1 mg/kg <0.1 <0.1 iride 75-09-2 0.5 mg/kg <0.5 <0.5 i 67-66-3 0.04 mg/kg <0.04 <0.04 imethane 75-27-4 0.1 mg/kg <0.1 <0.1		H1B 6.0M	Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	<0.0>	0.0
15-09-2			Trichloroethene	79-01-6	0.1	mg/kg	<0.1	<0.1	0.0
67-66-3 0.04 mg/kg <0.04 <0.04 mg/kg <0.04 <0.04 mg/kg <0.1 <0.1			Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0
67-66-3 0.04 mg/kg <0.04 <0.04 mg/kg <0.04 <0.04	EP-074_SR-G: Trihal	omethanes (THM) ((2C Lot: 3615502))))
methane 75-27-4 0.1 mg/kg <0.1 <0.1		nonymous	Chloroform	67-66-3	0.04	mg/kg	<0.04	<0.0>	0.0
			Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	<0.1	0.0



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4		į					Labo	Laboratory Duplicate (DUP) Report	P) Report	:	
Laboratory sample ID	Method: Compound	puno			CAS Number	LOR	Unk	Original Result	Duplica	Duplicate Result	RPD (%)
Trih	A) (QC Lot: 36210		- Continued								
HK1428586-002 EH1B 6.0M	Chloroform					0.04	mg/kg	<0.0>	\$	<0.04	0.0
	Bromodichloromethane	lorometha	ne		75-27-4	0.1	mg/kg	<0.1	٧	<0.1	0.0
Jeth	(QC Lot: 361550)	(2	:				1				
Meth	Methyl tert-Butyl Ether (MTBE) (QC Lot: 3621076)	Butyl Ethe 3)	r (MTBE)		1634-04-4	0.5	mg/kg	<0.5	Ÿ	<0.5	0.0
HK1428586-002 EH1B 6.0M	Methyl tert-Butyl Ether (MTBE)	Butyl Ethe	r (MTBE)		1634-04-4	0.5	mg/kg	<0.5	Α.	<0.5	0.0
Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Cont	ontrol Spike (LC	S) and	Laboratory C	ontrol Spike	trol Spike Duplicate (DCS) Report	CS) Report					
Matrix: SOIL			Method Blank (MB) Report	Report		Laboratory	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	Laboratory Control	Spike Duplicate	(DCS) Report	
					Spike		Spike Recovery (%)	Recovery	Recovery Limits (%)	RP	RPD (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	7	DCS	TOW	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3626876)	ot: 3626876)										
EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 mg/kg	5.06	PROPERTY	76	110	1	
EG: Metals and Major Cations (QC Lot: 3626881)	ot: 3626881)				3				2		
EG020: Antimony	7440-36-0	-	mg/kg	٧	5 ma/kg	96.9	177	78	104	1	
EG020: Arsenic	7440-38-2	-	mg/kg	₹	5 mg/kg	89.3	1	22	109		
EG020: Barium	7440-39-3	-	mg/kg	⊽	5 mg/kg	87.3	1	2.62	=======================================	1	1
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	86.1	Arres	81	109	1	1
EG020: Cobalt	7440-48-4	-	mg/kg	⊽	5 mg/kg	92.6		11	107		1
EG020: Copper	7440-50-8	-	mg/kg	₹	5 mg/kg	96.2	1	6/	105	1	
EG020: Lead	7439-92-1	-	mg/kg	₹	5 mg/kg	93.2		80	104	1	d de la constante de la consta
EG020: Manganese	7439-96-5	-	mg/kg	₹	5 mg/kg	103	1	77	115	all year see first	Wall Walnut and Andrews
EG020: Molybdenum	7439-98-7	-	mg/kg	₹	5 mg/kg	90.5	i	82	106		***************************************
EG020: Nickel	7440-02-0	_	mg/kg	.⊽	5 mg/kg	96.6	1	6/	105	Transition (Control of Control of	***
EG020: Tin	7440-31-5	_	mg/kg	₹	5 mg/kg	94.7	1	79	103	-	i
EG020: Zinc	7440-66-6	_	mg/kg	₹	5 mg/kg	111	1	9/	114		1
EG: Metals and Major Cations (QC Lot: 3628577)	ot: 3628577)										
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	2.5 mg/kg	112	1	92	122	1	1
EP-066: Polychlorinated Biphenyls (QC Lot: 3621065)	QC Lot: 3621065)										
Total Polychlorinated biphenyls		0.1	mg/kg	<0.1	0.5 mg/kg	101		46	133	****	1000
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3621068)	arbons (PAHs) (ac Lot: 3	621068)			,					
Naphthalene	91-20-3	25	µg/kg	<50	250 µg/kg	79.4	ALE: VIII	63	111	1	n de la companya de l
Acenaphthylene	208-96-8	22	ng/kg	<20	250 µg/kg	80.1		83 83	11	1	: 10
Acenaphthene	83-32-9	25	hg/kg	<50	250 µg/kg	82.0	1	29	108	ŀ	II.
Fluorene	86-73-7	22	µg/kg	<50	250 µg/kg	84.3		67	110		
Phenanthrene	85-01-8	52	µg/kg	<50	250 µg/kg	86.2		29	108	*****	
Anthracene	120-12-7	52	µg/kg	<50	250 µg/kg	80.5	1	69	113	7)	1
Fluoranthene	206-44-0	52	µg/kg	<50	250 µg/kg	87.3	1	<i>L</i>	411	1	1
Pyrene	129-00-0	22	ng/kg	<50	250 µg/kg	88.4	Microsom	77	4:1	1	1
Benz(a)anthracene	56-55-3	25	µg/kg	<50	250 µg/kg	87.2	1	63	114	1	- The state of the
Chrysene	218-01-9	25	µg/kg	<50	250 µg/kg	88.4	1	29	122	1	ŀ
Benzo(b)fluoranthene	202-99-2	22	hg/kg	,	250 µg/kg	85.1		29	114		ì



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Matrix: SOIL									mental and a series of the series of the property of the political and the series of the political and the series of the political and the series of the political and the series of the political and the series of	the state of the state of	
Control of the Control April 1		:	The state of the s		Spike	Spike Recovery (%)	very (%)	Recovery	Recovery Limits (%)	æ	RPD (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	SO7	DCS	Low	High	Value	Control Limit
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)		(QC Lot: 3621068)		- Continued							
Benzo(k)fluoranthene	207-08-9	52	ng/kg	×20	250 ua/ka	88.0	ļ	25	119	1	
Benzo(a)pyrene	50-32-8	5 2	ug/kg	<50	250 ua/kg	83.2	1	2 gc	117		
Indeno(1.2.3.cd)pyrene	193-39-5	52	ug/kg	<50	250 ua/ka	88.4	design	<u> 1</u>	7.5		
Dibenz(a.h)anthracene	53-70-3	25	µg/kg	<50	250 µg/kg	86.4	7772	22	114	-	
Benzo(g.h.i)perylene	191-24-2	52	µg/kg		250 µg/kg	90.1		58	120	į	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 36	and Bis(2-ethyl	hexyl) Ph	thalate (QC L	ot: 3621068)							
Phenol	108-95-2	25	ua/ka	<500	250 ua/ka	0.00	1	53	118		
Hexachlorobenzene (HCB)	118-74-1	25	na/ka	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	250 ug/kg	85.0	1873	2 4	2 7 2 2 2 2 2		
Bis(2-ethylhexyl)phthalate	117-81-7	22	ng/kg	<1000	250 ua/ka	105		4 %	- 1 - 14	T IN	
EP-074HK SR: Total Petroleum Hydrocarbons (TPH)		(OC Lot: 3621066)	1621066)					3			
C9 - C16 Fraction		200	malka	>200	32 malka	77.3		li	40.4		
C17 - C35 Fraction	***	200	ma/ka	<500	57.5 ma/kg	2.00		55	- 5		***************************************
EP-074HK SR: Total Petroleum Hydrocarbons (TPH) (GC Lot: 3621075)	carbons (TPH)	OC Lot: 3	1621075)		0				2		
C6 - C8 Fraction	erman-	5	ma/ka	< 55	4.5 ma/kg	107		7.1	110	1212	
EP-074 SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (OC I of: 3615502)	Ivdrocarbons (M	AH) (OC	l of: 3615502)					-	2		
Benzene	7143.2) 1	ma/ka	,	0.2E males	707		ì	7		
Tolliene	108-88-3	- 0	By Bu	- c	O DE marka	101	l	ဂ ဂ	170	an decrease an	
Ethylhenzene	100 44 4	9 0	Sugar.	7.07	0.23 IIIg/Ng	90 7	i	8	<u> </u>		-
moto 2 none Vidose	400 000	7.0	mg/kg	\$0.2 6.4	0.25 mg/kg	111	-	99	123		
mera a para-vylene	106-39-3	4	mg/kg	4.0×	0.50 mg/kg	113	1	78	122	ij	
Styrene	100-42-5	0.2	ma/ka	<0.2	0.25 ma/kg	104	}	78	111	j	
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 ma/kg	110	-	22	125		
Xylenes (Total)]	1.0	mg/kg	√ V	0.75 ma/kg	112		1 92	122		
EP-074, SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot:: 3621076)	Ivdrocarbons (M.	AH) (OC	Lot: 3621076)					2	1		
Renzene	71.49.2		malled	,	0 Of made	400		ì	4		
	108 88 3		מאולים מ	- c	O.23 mg/kg	202	ı	8	128		
Ethylhoniono	400-00-0	7 0	DA/BIII	7.0.5	0.25 mg/kg	9 6	l	9	110	ţ	I
mote of the contract of the co	100-41-4	7.0	mg/kg	<0.2	0.25 mg/kg	97.5	I	99	123	i	1
meta- & para-Aylene	108-38-3	4.0	mg/kg	<0.4 4.0	0.50 mg/kg	103	į,	28/	122	į	1
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	96.7	and a second	87	111	1	ĵ
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	96.8		72	125	ı	I
Xylenes (Total)		1.0	mg/kg	4.0	0.75 mg/kg	101		92	122	1	i i
EP-074_SR-B: Oxygenated Compounds (QC Lot: 3615502)	ds (QC Lot: 3618	502)	r I					1			
2-Propanone (Acetone)	67-64-1	. 4	ma/ka	\$	2.5 ma/kg	92.1		ģ	120		ll.
2-Butanone (MEK)	78-93-3	7	ma/ka	8	2.5 mg/kg	87.1	1		133		
EP-074_SR-B: Oxygenated Compounds (QC Lot: 3621076)	ds (QC Lot: 3621	076)))				3		
2-Propanone (Acetone)	67-64-1	. 2	ma/ka	\$	2.5 ma/ka	112	ı	2	120	ļ	
2-Butanone (MEK)	78-93-3	7	mg/kg	8	2.5 mg/kg	88.8	1	. 20	133	1	
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 3615502)	(QC Lot: 36155	02)									
Methylene chloride	75-09-2	0.5	ma/ka	<0.5	0.25 ma/kg	100	· ·	70	707		
							ļ	30			-

A Campbell Brothers Limited Company



Page Number : 10 of 12
Client : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
Work Order HK1428586

Matrix; SOIL			Method Blank (MB)	Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	pike (LCS) and Lat	oratory Control	pike Duplicate (DCS) Report	
					Spike	Spike Recovery (%)	very (%)	Recovery	Recovery Limits (%)	8	RPD (%)
Method: Compound	CAS Number LOR	LOR	Chit	Result	Concentration	SO7	DCS	row	High	Value	Control Limit
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 3615502) - Continued	(QC Lot: 36155	02) - Con	tinued								
Tetrachioroethene	127-18-4 0.04	0.04	mg/kg	<0.04	0.25 mg/kg	105		80	110	1	7 79 70 70 70 70 70 70 70 70 70 70 70 70 70
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 3621076)	(QC Lot: 36210	(9/									
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	104	*****	84	131		}
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	97.3	I	82	114	ment with	1
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	98.6	1	83	110	İ	1
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 3615502)	(QC Lot: 36155	02)									
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	98.4	1	11	113	j	
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	7.78	i	7	125		1
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 3621076)	(QC Lot: 36210	(92			,			:			
Chloroform	67-66-3	0.04	mg/kg	<0.0>	0.25 mg/kg	97.1)	11	113	I	1
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	92.2	100	77	125	į	1
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3615502)	QC Lot: 3615502	£									
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	96.9	ì	89	116	1	
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3621076)	QC Lot: 3621076										
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	6.06		89	116	ì	į



: 11 of 12 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428586

Work Order HK1428586
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL

Page Number Client

1			Spike	SpikeRec	Spike Recovery (%)	Recovery Limits (%)	Limits (%)	RP	RPD (%)
Laboratory Client sample ID sample ID	Method: Compound	CAS	CAS Concentration	MS	MSD	TOW	High	Value	Control
EG: Metals and Major Cations (QC Lot: 3626876)	. Lot: 3626876)								
HK1428478-014 Anonymous	EG036: Mercury	7439-97-6	0.1 mg/kg	98.0	Pipipi	75	125		i
EG: Metals and Major Cations (QC Lot: 3626881)	: Lot: 3626881)						The second		
HK1428555-001 Anonymous	EG020: Antimony	7440-36-0	5 mg/kg	102		75	125	į	
	EG020: Arsenic	7440-38-2	5 mg/kg	94.8	1	75	125	1	1
	EG020: Barium	7440-39-3	5 mg/kg	78.3	-	75	125		1
	EG020: Cadmium	7440-43-9	5 mg/kg	92.7	1	75	125	ļ	1
	EG020: Cobalt	7440-48-4	5 mg/kg	97.3	ļ	75	125	į	
	EG020: Copper	7440-50-8	5 mg/kg	94.4		75	125	-	1
	EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	1	75	125	i	I
	EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined]	75	125	ı	
	EG020: Molybdenum	7439-98-7	5 mg/kg	92.0	4111	75	125		
	EG020: Nickel	7440-02-0	5 mg/kg	98.2	1	75	125	į	1
	EG020: Tin	7440-31-5	5 mg/kg	88.8	1	75	125	İ	-
i,	EG020: Zinc	7440-66-6	5 mg/kg	95.1	L	75	125		İ
EG: Metals and Major Cations (QC Lot: 3628577)	: Lot: 3628577)								
HK1428482-002 Anonymous	EG3060: Hexavalent Chromium	18540-29-9	2.5 rng/kg	111	Pinner	7.5	125	1	Aleman .
P-071HK_SR: Total Petroleum Hy	EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621066)								
HK1428484-001 Anonymous	C9 - C16 Fraction	4	32 mg/kg	73.8		20	130	1	ŀ
	C17 - C35 Fraction	1	67.5 mg/kg	8.66	browner	50	130	()	1
P-074HK_SR: Total Petroleum Hy	EP-074HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3621075)								
TIN 1420402-002 Allonymous	C6 - C8 Fraction		4.5 mg/kg	114	ı	20	130	ļ	1

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery	Recovery Limits (%)
Compound	CAS Number	Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates	arbons (PAHs) Surrogates	10	
2-Fluorobiphenyl	321-60-8	20	130
4-Terphenyl-d14	1718-51-0	20	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	20	130
Dibutylchlorendate	1770-80-5	20	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate	ogate		
Sibromofluoromethane	1868-53-7	80	120
oluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			



∴ 12 of 12
∴ CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428586

Page Number Client

Work Order

Sub-Matrix: SOIL		Recovery	Recovery Limits (%)
Compound	CAS Number	Low	High
EP-074_SR-S: VOC Surrogates - Continued			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	8	117
4-Bromofluorobenzene	460-00-4	74	121

ALS Technichem (HK) Pty Ltd



ANALYTICAL CHEMISTRY & TESTING SERVICES



SUB-CONTRACTING REPORT

CONTACT HANNAH CHIU **WORK ORDER** HK1428586

CLIENT CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

ADDRESS 7/F, EMPIRE CENTRE. SUB-BATCH DATE RECEIVED DATE OF ISSUE 68 MODY ROAD.

TSIM SHA TSUI EAST, KOWLOON, HONG KONG

PROJECT SITE INVESTIGATION FOR TRUNK ROAD T2 AND NO. OF SAMPLES 3 J3539

CLIENT ORDER INFRASTRUCTURE AT SOUTH APRON (STAGE 2)

General Comments

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 based on ASTM D3974-09, prior to determination of metals.

Dioxins was subcontracted to and analysed by ALS Czech Republic.

Signatories

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Richard Fung

General Manager

WORK ORDER

HK1428586

SUB-BATCH

PROJECT

: 1

CLIENT

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SITE INVESTIGATION FOR TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH

APRON (STAGE 2)



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1428586-001	EH1B 3.0M	SOIL	03-SEP-2014 10:30	PR1449685001
HK1428586-002	EH1B 6.0M	SOIL	03-SEP-2014 14:15	PR1449685002
HK1428586-003	EH1B 9.0M	SOIL	03-SEP-2014 15:20	PR1449685003



CERTIFICATE OF ANALYSIS

Work Order	PR1449685	Issue Date	17-SEP-2014
Client	ALS Technichem (HK) Pty Ltd.	Laboratory	ALS Czech Republic, s.r.o.
Contact	Mr. Richard Fung	Contact	Client Service
Address	11/F, Chung Shun Knitting Centre 1-3 Wing Yip Street Kwai Chung Hong Kong	Address	Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00
E-mail	richard.fung@aisglobal.com	E-mail	customer.support@alsglobal.com
Telephone	== +852 26101044	Telephone	+420 226 226 228
Facsimile	+852 26102021	Facsimile	+420 284 081 635
Project	Table:	Page	1 of 2
Order number	(544)	Date Samples Received	11-SEP-2014
C-O-C number	(1). 111.1	Quote number	= PR2011ALSTE-HK0268
Site		Date of test	12-SEP-2014 - 17-SEP-2014
Sampled by	client	QC Level	ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory. The laboratory declares that the test results relate only to the listed samples.

Responsible for accuracy

<u>Signatories</u> Zdenek Jirak



<u>Position</u> Environmental Business Unit Manager



Testing Laboratory Accredited by CAI





issue Date

= 17-SEP-2014

Page Work Order

2 of 2 PR1449685

Client

ALS Technichem (HK) Pty Ltd.



Analytical Results

Sub-Matrix: SOIL		Cli	ent sample ID	HK142858 EH1B 3.		HK1428586 EH18 6.		HK142858 EH1B 9	
		Laborate	ory sample iD	PR144968	5001	PR144968	5002	PR144968	35003
	(Client sampli	ing date / time	03-SEP-201	4 10:30	03-SEP-2014	4 14:15	03-SEP-201	4 15:20
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters								18	
Dry matter @ 105°C	S-DRY-GRCI	0.10	96	80.4	±5.0 %	81.5	±5.0 %	78.2	±5.0 %
PCDDs and PCDFs (Dioxins	and Furans)								
2378-TCDD	S-DFHMS03	-	ng/g DW	n.d.	-	n.d.		n.d.	
12378-PeCDD	S-DFHMS03	-	ng/g DW	n.d.		n.đ.		n.d.	
123478-HxCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.	
123678-HxCDD	S-DFHMS03		ng/g DW	n.d.		n.d.		n.d.	
123789-HxCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.	
1234678-HpCDD	S-DFHM\$03	-	ng/g DW	n.d.		n.d.		n.d.	
OCDD	S-DFHMS03	-	ng/g DW	0.600	±30.0 %	0.880	±30.0 %	0.800	±30.0 %
2378-TCDF	S-DFHMS03	-	ng/g DW	n.d.	1	n.d.		n.d.	
12378-PeCDF	S-DFHMS03	-	ng/g DW	n.d.	-	n.d.		n.d.	
23478-PeCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.	
123478-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.	
123678-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.	
123789-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.	
234678-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.	
1234678-HpCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.	
1234789-HpCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.	
OCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.	
TEQ-Lowerbound	S-DFHMS03	-	ng/g DW	0.0006		0.00066		0.0008	
TEQ-Upperbound	S-DFHMS03	-	ng/g DW	9.0035		0.0036		0.0036	

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Method Descriptions
ce: V Raji 906 Pardubice - Zelene Predmesti Czech Republic 530 02
CZ_SOP_D06_06_175 - except chap. 8.2.1.1 B,8.2.1.3 B, 8.2.1.5 B,C,D, 11.2.3.1, 11.2.3.6, 11.2.3.7, 11.2.5 (US EPA1613): Determination of tetra- to octa-chlorinated dioxins and furanes by isotope dilution method using HRGC-HRMS and calculation of TEQ parameters from measured values. The samples were stored in laboratory in the darkness and under temperature <4°C.
Actual LOQ are noticed in the annex.
CZ_SOP_D06_01_045, CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.

A '* symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.



Attachment no. 1 to the Certificate of Analysis for work order PR1449685

Sample: HK1428586-001 EH1B 3.0M

Measurement results:

Sample:	HK1428586-	001 EH1B 3.0M			
			Final extract [µl]:		75
Sample weight [g]:	1	1.87	Injection volume [ul]:		4
Dry matter [%]:		80.4	Acquisition date [d.m	y h:m]:	15.9.14 16:29
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹ I-TEFs	I-TEQ
		Detection	Quantification		
	[ng/g dw]	[ng/g dw]	[ng/g dw]		[ng/g dw]
2,3,7,8-TCDD	n.d.	0.0005	0.001	1	0
1,2,3,7,8-PeCDD	n.d.	0.00086	0.0017	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	0.0017	0.0033	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	0.0017	0.0033	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	0.0017	0.0033	0.1	0
1,2,3,4,6,7,8-HpCDD	n.d.	0.016	0.032	0.01	0
OCDD	0.6	0.0079	0.016	0.001	0.0006
2,3,7,8-TCDF	n.d.	0.00047	0.00094	0.1	0
1,2,3,7,8-PeCDF	n.d.	0.00084	0.0017	0.05	0
2,3,4,7,8-PeCDF	n.d.	0.00084	0.0017	0.5	0
1,2,3,4,7,8-HxCDF	n.d.	0.0018	0.0036	0.1	0
,2,3,6,7,8-HxCDF	n.d.	0.0018	0.0036	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	0.0018	0.0036	0.1	0
2,3,4,6,7,8-HxCDF	n.d.	0.0018	0.0036	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	0.0028	0.0056	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	0.0028	0.0056	0.01	0
OCDF	n.d.	0.0063	0.013	0.001	0
-TEQ from quantifie	d 2,3,7,8-PCDI	D/Fs [ng 2,3,7,8	-TCDD/g dw]-"Lowerbou	ınd'	0.0006
-TEQ from quantified	1 2,3,7,8-PCDDs	[ng 2,3,7,8-TC]	DD/g dw]	12/20	0.0006
-TEQ from quantified	1 2,3,7,8-PCDFs	[ng 2,3,7,8-TCI	DD/g dw]		0
-TEQ from n.d. and r	on quantified 2	2,3,7,8-PCDD/Fs	[ng 2,3,7,8-TCDD/g dw]		0.0029
Maximum possible I-	TEQ [ng 2,3,7,	8-TCDD/g dw]-	'Upperbound'		0.0035
PCDDs	Content [ng/g dw]	PCDFs	Content	[ng/g dw]
Tetra-CDDs	r	ı.d.	Tetra-CDFs		n.d.
Penta-CDDs	r	.d.	Penta-CDFs		n.d.
łexa-CDDs	, r	.d.	Hexa-CDFs	E07 0.54	n.d.
Hepta-CDDs	< 0	0.032	Hepta-CDFs		n.d.
OCDD	C	.6	OCDF		n.d.
Total PCDDs	.0	.6	Total PCDFs		n.d.

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

ALS Czech Republic, s.r.o.

AORESA V Ráji 906, 530 02 Pardubice, Czech republic

Environmental 🌉



Attachment no. 2 to the Certificate of Analysis for work order PR1449685

Sample: HK1428586-002 EH1B 6.0M

Measurement results:

Sample:	HK1428586-	002 EH1B 6.0M			
			Final extract [µl]:		75
Sample weight [g]:	1	0.78	Injection volume [μl]:		4
Dry matter [%]:		81.5	Acquisition date [d.m.	y h:m]:	15.9.14 17:31
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹ I-TEFs	I-TEQ
		Detection	Quantification		
	[ng/g dw]	[ng/g dw]	[ng/g dw]		[ng/g dw]
2,3,7,8-TCDD	n.d.	0.00056	0.0011	1	0
1,2,3,7,8-PeCDD	n.d.	0.00098	0.002	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	0.0017	0.0033	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	0.0017	0.0033	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	0.0017	0.0033	0.1	0
1,2,3,4,6,7,8-HpCDD	n.d.	0.0056	0.011	0.01	0
OCDD	0.66	0.01	0.021	0.001	0.00066
2,3,7,8-TCDF	n.d.	0.00041	0.00083	0.1	0
1,2,3,7,8-PeCDF	n.d.	0.00092	0.0018	0.05	j o
2,3,4,7,8-PeCDF	n.d.	0.00092	0.0018	0.5	0
1,2,3,4,7,8-HxCDF	n.d.	0.0019	0.0038	0.1	0
1,2,3,6,7,8-HxCDF	n.d.	0.0019	0.0038	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	0.0019	0.0038	0.1	0
2,3,4,6,7,8-HxCDF	n.d.	0.0019	0.0038	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	0.0034	0.0068	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	0.0034	0.0068	0.01	0
OCDF	n.d.	0.0083	0.017	0.001	0
-TEQ from quantifie	d 2,3,7,8-PCD	D/Fs [ng 2,3,7,8	-TCDD/g dw]-"Lowerbou	ınd"	0.00066
-TEQ from quantified	2,3,7,8-PCDDs	s [ng 2,3,7,8-TCI	DD/g dw]	14 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.00066
-TEQ from quantified					0
-TEQ from n.d. and n	on quantified 2	2,3,7,8-PCDD/Fs	[ng 2,3,7,8-TCDD/g dw]		0.003
Maximum possible I-					0.0036
PCDDs	Content [ng/g dw]	PCDFs	Content	[ng/g dw]
Tetra-CDDs	r	ı.d.	Tetra-CDFs		0.00083
Penta-CDDs	r	n.d.	Penta-CDFs		n.d.
lexa-CDDs	· (r	ı.d.	Hexa-CDFs		n.d.
Hepta-CDDs	ı	ı.d.	Hepta-CDFs		n.d.
OCDD),66	OCDF		n.d.
Fotal PCDDs	0).66	Total PCDFs		0.00083

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

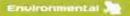
These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

ALS Czach Rapublic, s.r.o.

ADRESA V Ráji 906, 530 02 Pardubice, Czech republic





Attachment no. 3 to the Certificate of Analysis for work order PR1449685

Sample: HK1428586-003 EH1B 9.0M

Measurement results:

Sample:	HK1428586-	003 EH1B 9.0M			
			Final extract [µl]:		75
Sample weight [g]:	1	1.61	Injection volume [µl]:		4
Dry matter [%]:		78.2	Acquisition date [d.m	y h:m]:	15.9.14 18:34
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹ I-TEFs	I-TEQ
	}	Detection	Quantification		
	[ng/g dw]	[ng/g dw]	[ng/g dw]		[ng/g dw]
2,3,7,8-TCDD	n.d.	0.00046	0.00092	1	0
1,2,3,7,8-PeCDD	n.d.	0.00094	0.0019	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	0.0018	0.0036	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	0.0018	0.0036	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	0.0018	0.0036	0.1	0
1,2,3,4,6,7,8-HpCDD	n.d.	0.01	0.021	0.01	0
OCDD	0.8	0.0063	0.013	0.001	0.0008
2,3,7,8-TCDF	n.d.	0.0005	0.001	0.1	0
1,2,3,7,8-PeCDF	n.d.	0.00071	0.0014	0.05	0
2,3,4,7,8-PeCDF	n.d.	0.00071	0.0014	0.5	0
1,2,3,4,7,8-HxCDF	n.d.	0.0019	0.0037	0.1	0
1,2,3,6,7,8-HxCDF	n.d.	0.0019	0.0037	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	0.0019	0.0037	0.1	0
2,3,4,6,7,8-HxCDF	n.d.	0.0019	0.0037	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	0.0024	0.0048	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	0.0024	0.0048	0.01	-0
OCDF	n.d.	0.005	0.01	0.001	0
-TEQ from quantifie	d 2,3,7,8-PCDI	O/Fs [ng 2,3,7,8	-TCDD/g dw]-"Lowerbou	ınd"	0.0008
-TEQ from quantified	2,3,7,8-PCDDs	[ng 2,3,7,8-TCI	DD/g dw]		0.0008
-TEQ from quantified	2,3,7,8-PCDFs	[ng 2,3,7,8-TCI	DD/g dw]		0
-TEQ from n.d. and n	on quantified 2	2,3,7,8-PCDD/Fs	[ng 2,3,7,8-TCDD/g dw]		0.0028
Maximum possible I-	TEQ [ng 2,3,7,8	8-TCDD/g dw]-'	'Upperbound'		0.0036
PCDDs	Content [PCDFs	Content	[ng/g dw]
etra-CDDs	n	.d.	Tetra-CDFs	oversolo works	n.d.
enta-CDDs	n	.d.	Penta-CDFs		n.d.
Hexa-CDDs	រា	.d.	Hexa-CDFs		n.d.
lepta-CDDs	< 0	.021	Hepta-CDFs		n.d.
CDD	0	.8	OCDF		n.d.
Total PCDDs	0	.8	Total PCDFs		n.d.

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

ALS Czech Republic, s.r.o.

ADRESA V Ráji 906, 530 02 Pardubice, Czech republic



ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES





CERTIFICATE OF ANALYSIS

Client	CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	Laboratory	ALS Technichem HK Pty Ltd	Раде	: 1 of 14
Contact	HANNAH CHIU	Contact	Fung Lim Chee, Richard	Work Order	HK1429117
Address	: 7/F, EMPIRE CENTRE, 68 MODY ROAD, TSIM SHA TSUI EAST, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail		E-mail	: Richard Funo@alsolobal.com		
Telephone		Telephone	: +852 2610 1044		
Facsimile		Facsimile	: +852 2610 2021		
Project	SITE INVESTIGATION FOR TRUNK ROAD TO AND INFRASTRUCTURE AT SOUTH APRON	Quote number		Date Samples Received	: 08-SEP-2014
Order number	. 3539			Issue Date	23-SEP-2014
C-O-C number	: H029004			No. of samples received	· ·
Site				No. of samples analysed	4

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Hong Kong Accreditation Servico (HKAS) has accedited this laboratory (ALS Technichem (HK) Pty Ltd) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation.

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6. Authorised results for Inorganics Organics Assistant Manager - Organics Manager - Metals Chan Ka Yu, Karen Wong Wing, Kenneth

ALS Laboratory Group
Trading Name: ALS Technichem (HK) Pty Ltd
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CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Work Order HK1429117

Page Number

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 22-SEP-2014

Key: Lor = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1429117

Sample(s) were received in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

Water sample(s) were filtered prior to dissolved metal analysis.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 based on ASTM D3974-09, prior to determination of metals.

Dioxins was subcontracted to and analysed by ALS Czech Republic.



: 3 of 14 : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1429117

Page Number : 3 of 14
Client : CIVIL ENGINEERII
Work Order HK1429117

Client Sample CAS Namibe CAS Namibe CAS Namibe CAS Namibe CAS Namibe CAS Namibe LOR LOR HK1429117-001 H								
% HK1429117-001 HK1429117-002 % 18.7 19.5 mg/kg 6 1 mg/kg 15.0 21.5 mg/kg 49 4 mg/kg 40.2 3.14 mg/kg 33 88 mg/kg 35 487 mg/kg 35 487 mg/kg 35 487 mg/kg 35 487 mg/kg 40.2 3 mg/kg 20.2 487 mg/kg 35 487 mg/kg 40.2 487 mg/kg 40.5 40.5	Sub-Matrix: SOIL	3	Client sam	Client sample ID rpling date / time	EH3B 3.0M 08-SEP-2014 09:00	EH3B 6.0M 08-SEP-2014 10:30	EH3B 9.0M 08-SEP-2014 12:00	
% 18.7 19.5 mg/kg f 1 mg/kg 6 21.6 mg/kg 45 48 4 mg/kg 45 48 4 mg/kg 39 88 8 mg/kg 35 487 4 mg/kg 36 487 4 mg/kg 36 487 4 mg/kg 36 3 4 mg/kg 20 22 22 mg/kg 40.2 22 487 mg/kg 40.2 22 487 mg/kg 40.2 22 22 mg/kg 40.2 43 44 mg/kg 40.2 40.2 40.2 mg/kg 40.5 40.5 40.5 mg/kg 40.5 40.5 40.5 mg/kg 40.5 40.5 40.5 mg/kg 40.5 40.5 40.5 mg/kg <th>Compound</th> <th>CASNumber</th> <th>LOR</th> <th>Unit</th> <th>HK1429117-001</th> <th>HK1429117-002</th> <th>HK1429117-003</th> <th></th>	Compound	CASNumber	LOR	Unit	HK1429117-001	HK1429117-002	HK1429117-003	
% 18.7 19.5 mg/kg 1 <1 mg/kg 15.0 21.6 mg/kg 15.0 21.6 mg/kg 15.0 21.6 mg/kg 49 48 mg/kg 39 88 mg/kg 35 487 mg/kg 35 487 mg/kg 35 487 mg/kg 38 3 mg/kg 40.2 42.2 mg/kg 40.2 42.2 mg/kg 40.2 42.2 mg/kg 40.5 43.3 mg/kg 40.5 40.5	EA/ED: Physical and Aggregate Properties							
The color of the	EA055: Moisture Content (dried @ 103°C)		0.1	%	18.7	19.5	20.2	
The color of the	EG: Metals and Major Cations							
темера 6 11.6 темера 15.0 21.6 темера 4.9 4.1.6 темера 4.9 4.1.6 темера 3.9 8.8 темера 3.5 487 темера 3.5 487 темера 3.5 487 темера 3.6 3.3 темера 6 3.3 темера 2.0 2.2 темера 6.0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 темера <0.500 теме	EG020: Antimony	7440-36-0	-	mg/kg	-	₹	7	
тейға 15.0 21.6 тейға 4.0.2 20.2 тейға 4.9 4.8 тейға 3.5 4.87 тейға 3.5 4.87 тейға 3.8 4.87 тейға 3.8 4.87 тейға 2.0 2.2 тейға 2.0 2.0 <	EG020: Arsenic	7440-38-2	-	mg/kg	မ	•		
таука (0.2 < 0.2 mg/kg	EG020: Barium	7440-39-3	0.5	mg/kg	15.0	21.6	6,5	
таука 6 3 таука 49 4 таука 355 487 таука 3 14 таука 6 3 таука 60.2 3 таука 20 22 таука 20 22 таука 40.2 4.1 таука 4.1 4.1 таука 4.1 4.1 таука 4.0.500 4.500 4.0.500 4.0.500 <td>EG020: Cadmium</td> <td>7440-43-9</td> <td>0.2</td> <td>mg/kg</td> <td><0.2</td> <td><0.2</td> <td>0.2</td> <td></td>	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.2	
таука 49 88 88 7 487 487 487 487 395 888 487 7 144 7	EG020: Cobalt	7440-48-4	, - ;	mg/kg	ယ	. 873	2	
таука 39 88 таука 355 487 таука 18 2 таука 20 22 таука 20 22 таука 41 22 таука 41 41 таука 41 41 таука 41 41 таука 40.500 40.500 40.500 40.500 40.500 40.500 40.500 40.500 40.500 40.500 40.500 40.500 40.500 40.500 40.500	EG020: Copper	7440-50-8		mg/kg	49	***	l (m)	
тарка 355 487 тарка 3 144 тарка 6 3 тарка 20 22 тарка <0.2 22 тарка <0.2 <0.2 тарка <0.1 <0.1 тарка <0.500 <0.500 тарка <0.500 <0.500 <t< td=""><td>EG020: Lead</td><td>7439-92-1</td><td>-</td><td>mg/kg</td><td>39</td><td>80</td><td>48</td><td></td></t<>	EG020: Lead	7439-92-1	-	mg/kg	39	80	48	
таука 3 144 таука 6 3 таука 20 22 таука <0.2 <22 таука <0.2 <0.2 таука <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <	EG020: Manganese	7439-96-5	-	mg/kg	355	487	261	
тарка 18 2 тарка 6 3 тарка 20 22 тарка <0.2 <0.2 тарка <1 <1 тарка <0.500 <0.500	EG020: Molybdenum	7439-98-7	-	шаука	m	41	. ▼	
mg/kg 6 3 mg/kg 20 22 mg/kg <0.2 <0.2 mg/kg <1 <1 mg/kg <0.500 <0.500	EG020: Nickel	7440-02-0	-	mg/kg	8	7	~	
rag/kg 20 22 mg/kg <0.2 <0.2 mg/kg <1 <1 mg/kg <0.1 <0.1 mg/kg <0.500 <0.500 mg/kg <0.500 <0.500 <td>EG020: Tin</td> <td>7440-31-5</td> <td>-</td> <td>mg/kg</td> <td>9</td> <td>87)</td> <td>74</td> <td></td>	EG020: Tin	7440-31-5	-	mg/kg	9	87)	74	
mg/kg < 0.2 < 0.2 mg/kg < 1 < 1 mg/kg < 0.1 < 0.1 < 0.1 mg/kg < 0.500 < 0.500 < 0.500 mg/kg < 0.500 < 0.500 < 0.500 <t< td=""><td>EG020: Zinc</td><td>7440-66-6</td><td>;-</td><td>тд/ка</td><td>20</td><td>22</td><td>21</td><td></td></t<>	EG020: Zinc	7440-66-6	;-	тд/ка	20	22	21	
mg/kg 38 3 mg/kg <1	EG036: Mercury	7439-97-6	0.2	тдука	<0.2	<0.2	<0.2	
mg/kg <1 <1 mg/kg <0.1	EG049: Trivalent Chromium	16065-83-1	-	mg/kg	38	67	m	
mg/kg < 0.1 < 0.1 mg/kg < 0.500 < 0.500 mg/kg < 0.500 < 0.500 <td>EG3060: Hexavalent Chromium</td> <td>18540-29-9</td> <td>-</td> <td>mg/kg</td> <td>₹</td> <td>~</td> <td>₹</td> <td></td>	EG3060: Hexavalent Chromium	18540-29-9	-	mg/kg	₹	~	₹	
mg/kg <0.1 <0.1 mg/kg <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 mg/kg <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.500 <0.	2-066: Polychlorinated Biphenyls							
mg/kg <0.500	Total Polychlorinated biphenyls	T	0.1	mg/kg	<0.1	40.1	<0.1	
та/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500 ма/ка <0.500 <0.500	P-076A: Polycyclic Aromatic Hydrocarbons	s (PAHs)						
та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 Та/ка <0.500 <0.500	Naphthalene	9120-3	0.500	mg/kg	<0.500	<0.500	<0.500	Tantia.
та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500 та/ка <0.500 <0.500	Acenaphthylene	208-96-8	0.500	mg/kg	<0.500	<0.500	<0.500	made grant 8 to 18
rug/kg < 0.500 < 0.500 mg/kg < 0.500	Acenaphthene	83-32-8	0.500	mg/kg	<0.500	<0.500	<0.500	. P disk street
Color Colo	Fluorene	86-73-7	0.500	талка	<0.500	<0.500	<0.500	angun af de l
rag/kg < 0.500 < 0.500 rag/kg < 0.500	Phenanthrene	85-01-8	0.500	mg/kg	<0.500	<0.500	<0.500	
Color Colo	Anthracene	120-12-7	0.500	тд/кд	<0.500	<0.500	<0.500	42
CO CO CO CO CO CO CO CO	Fluoranthene	206-44-0	0.500	mg/kg	<0.500	<0.500	<0.500	
Color Colo	Pyrene	129-00-0	0.500	тдЛкд	<0.500	<0.500	<0.500	
mg/kg <0.500	Benz(a)anthracene	56-55-3	0.500	mg/kg	<0.500	<0.500	<0.500	
mg/kg <0.500 <0.500 c0.500 <0.500 c0.500 <0.500 mg/kg <0.050 <0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.500 c0.600	Chrysene	218-019	0.500	mg/kg	<0.500	<0.500	<0.500	
Trg/kg <0.500 <0.500 Trg/kg <0.050 <0.050 Trg/kg <0.050 <0.500 Trg/kg <0.050 <0.050 Trg/kg <0.500 <0.500 Trg/kg <0.500 <0.500	Benzo(b)fluoranthene	205-99-2	0.500	mg/kg	<0.500	<0.500	<0.500	
Trg/kg <0.050 <0.050 mg/kg <0.500 <0.050 mg/kg <0.050 <0.050 <0.050 mg/kg <0.500 <0.050	Benzo(k)fluoranthene	207-08-9	0.500	тд/кд	<0.500	<0.500	<0.500	
mg/kg <0.500 <0.500 mg/kg <0.050 <0.050 <0.050 mg/kg <0.500 <0.500	Benzo(a)pyrene	50-32-8	0.050	mg/kg	<0.050	<0.050	<0.050	
тg/kg <0.050 <0.050 пg/kg <0.500 <0.500	Indeno(1.2.3.cd)pyrene	193-39-5	0.500	таЛка	<0.500	<0.500	<0.500	
тg/kg <0.500 <0.500	Dibenz(a.h)anthracene	53-70-3	0.050	mg/kg	<0.050	<0.050	<0.050	
	Benzo(g.h.i)perylene	19124-2	0.500	mg/kg	<0.500	<0.500	<0.500	
	P-076B: Phenol, Hexachlorobenzene and Bi	3is/2-ethylhex	vd) Phtha	late				

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Page Number : 4 of 14
Client : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
Work Order HK1429117

Sub-Matrix: SOIL		Client san	Client sample ID Client sampling date / lime	EH3B 3.0M 08-SEP-2014 09:00	EH3B 6.0M 08-SFP-2014 10:30	EH3B 9.0M	
Compound	CAS Number	LOR	Unit	HK1429117-001	HK1429117.002	HK4428447.003	
EP-076B: Phenol, Hexachlorobenzene and Bis/2-ethylhexvil) Phthalate - Continued	and Bis(2-ethylhe	xvd) Phth	alate - Contin		700-11-07-13-13	C00-1116741VIII	
Hexachlorobenzene (HCB)	118.741	0.200	marka	0000	000	4 4	
Ric/2 othylboxylmbthalate	447.847	5		20.200	20.200	<0.200	
The Assembly Company of the Company		8	Day of the second	<5.00	<5.00	<5.00	
EF-UTHE SK: Total Petroleum Hydrocarbons (TPH)	arbons (TPH)						
C6 - C8 Fraction		വ	mg/kg	\$	~	<.	
C9 - C16 Fraction		200	mg/kg	<200	<200	<200	
C17 - C35 Fraction	1	200	mg/kg	<500	<500	<500	
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)	drocarbons (MAH	-					
Benzene	71432	0.2	mg/kg	<0.2	<0.2	<0>	
Toluene	108-88-3	0.5	mg/kg	<0.5	×0.5	20. 2	
Ethylbenzene	100-414	0.5	mg/kg	<0.5	<0.5	<0.5	
meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	×1.0	-t-0	
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	\ C V	abor. Apple
ortho-Xylene	9547-6	9.0	mg/kg	<0.5	<0.5	S. C	n-region.
Xylenes (Total)		2.0	mg/kg	<2.0	0 6>		d January de
EP-074_SR-B: Oxygenated Compounds					ì		
2-Propanone (Acetone)	67-64-1	20	mg/kg	<50	<50	<50	
2-Butanone (MEK)	78-93-3	ın	mg/kg	, \$2	; 4⁄9	\$ 45	
EP-074_SR-E: Halogenated Aliphatics						, :	Aur
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	\$0 20 22	
Trichloroethene	79-01-8	0.1	mg/kg	<0.1	<0.1	<0.1	
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.0>	<0.04	0.0	
EP-074_SR-G: Trihalomethanes (THM)							
Chloroform	67-66-3	0.04	mg/kg	<0.04	<0.0>	<0.04	
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.1	6 0.1	
EP-074_SR-I: Methyl-tert-butyl Ether							The second secon
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5	<0.5	The proportion of the control of the
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates	irbons (PAHs) Su	rrogates				The state of the s	Surrogate control limits listed at end of this report
2-Fluorobiphenyl	32160-8	0.1	%	71.0	78.6	80.4	
4-Terphenyl-d14	1718-510	0.1	%	77.4	60 63	84.2	
EP-066S: PCB Surrogate							Surrogate control limits listed at end of this report
Tetrachlorometaxylene	877-09-8	0.1	%	81.6	70.2	86.0	
Dibutylchlorendate	1770-80-5	0.1	%	111	98.4	116	danik v
EP-080_SRS: TPH(Volatile)/BTEX Surrogate	gate						Surrogate control limits listed at end of this report
Dibromofluoromethane	1868-53-7	0.1	%	96.0	94.3	94.8	
Toluene-D8	2037-26-5	0.1	*	104	104	104	Period
4-Bromofluorobenzene	460-00-4	0.1	%	100	100	101	
EP-074_SR-S: VOC Surrogates	,						Surrogate control limits listed at end of this report
Dibromofluoromethane	1868-53-7	0.1	%	0.96	94.3	94.8	
Toluene-D8	2037-26-5	0.1	%	104	104	104	
w.							

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: 5 of 14 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1429117 Page Number Client Work Order

Sub-Matrix: SOIL		O	Client sample ID	EH3B 3.0M	EH3B 6.0M	EH3B 9.0M	
		Client samp	Client sampling date / time	08-SEP-2014 09:00	08-SEP-2014 10:30	08-SEP-2014 12:00	
Compound	CAS Number LOR	TOR	Conit	HK1429117-001	HK1429117-002	HK1429117-003	
EP-074_SR-S: VOC Surrogates - Continued							Surrogate control limits listed at end of this report
4-Bromofluorobenzene	460-00-4 0.1	0.1	8	100	100	4	





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∴ CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1429117

Page Number Client Work Order

		Client sam,	Client sampling date / time	08-SEP-2014 14:30	
Compound	CASNumber	TOR	Unit	HK1429117-004	
EG: Metals and Major Cations - Filtered					
EG036: Mercury	7439-97-6	0.5	hg/L	<0.5	
EP-066: Polychlorinated Biphenyls					
Total Polychlorinated biphenyls	-	-	hg/L	₹	
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)	ns (PAHs)				
Naphthalene	91-20-3	2.0	hg/L	<2.0	
Acenaphthylene	208-96-8	2.0	иg/L	<2.0	
Acenaphthene	83-35-8	2.0	µg/L	<2.0	
Fluorene	86-73-7	2.0	hg/L	<2.0	
Phenanthrene	85-01-8	2.0	hg/L	<2.0	
Anthracene	120-12-7	2.0	hg/L	<2.0	
Fluoranthene	206-44-0	2.0	hg/L	<2.0	
Pyrene	129-00-0	2.0	hg/L	<2.0	
Chrysene	218-01-9	1.0	hg/L	0,10	
Benzo(b)fluoranthene	205-89-2	1.0	hg/L	<1.0	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate	Bis(2-ethylhex	yl) Phtha	late		
Hexachlorobenzene (HCB)	118-74-1	1.0	µg/L	<1.0	
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)	ons (TPH)				
C6 - C8 Fraction	1	50	hg/L	<20	
C9 - C16 Fraction	Ì	200	hg/L	<500	
C17 - C35 Fraction		200	hg/L	2000 Security Addition	
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH)	carbons (MAH)				
Benzene	7143-2	2.0	hg/L	<5.0	
Toluene	108-88-3	5.0	hg/L	<5.0	
Ethylbenzene	100-41-4	5.0	hg/L	<5.0	
meta- & para-Xylene	108-38-3	0	hg/L	<10	
Styrene	100-42-5	5.0	hg/L	<5.0	
ortho-Xylene	95-47-6	5.0	hg/L	<5.0	
Xylenes (Total)		20	hg/L	<20	
EP-074_SR-B: Oxygenated Compounds					
2-Propanone (Acetone)	67-64-1	200	μg/L	<200	
2-Butanone (MEK)	78-93-3	20	рgЛ.	<50	
EP-074_SR-E: Halogenated Aliphatics					
Methylene chloride	75-09-2	20	hg/L	<50	
Trichloroethene	79-01-6	5.0	hg/L	<5.0	
Tetrachloroethene	127-18-4	5.0	T/6rl	<5.0	
EP-074_SR-G: Trihalomethanes (THM)					
Chloroform	67-66-3	5.0	пgЛ	24.4	
Bromodichloromethane	75-27-4	5.0	Hg/L	7.5	



Page Number : 7 of 14
Client : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
Work Order HK1429117

Sub-Matrix: WATER			Client sample ID	EH3B	
	4	Client san	Client sampling date / time	08-SEP-2014 14:30	
Compound	CAS Number	TOR.	Unit	HK1429117-004	
EP-074_SR-I: Methyl-tert-butyl Ether - Continued	Continued				
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5.0	hg/L	<5.0	
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates	arbons (PAHs) Su	rrogates			Surrogate control limits listed at end of this report
2-Fluorobiphenyl	32460-8 0.1	0.1	%	104	
4-Terphenyl-d14	1718-510 ,	0.1	%	110	
EP-066S: PCB Surrogate					Surrogate control limits listed at and of this report
Tetrachlorometaxylene	877-09-8	0.1	%	80.4	
Dibutylchlorendate	1770-80-5	0.1	%	123	
EP-080_SRS: TPH(Volatile)/BTEX Surrogate	ogate				Surrogate control limits listed at end of this report
Dibromofluoromethane	1888-53-7	0.1	%	108	
Toluene-D8	2037-26-5	0.1	*	104	
4-Bromofluorobenzene	460-00-4	0.1	%	101	
EP-074_SR-S: VOC Surrogates					Surrogate control limits listed at end of this report
Dibromofluoromethane	1868-53-7	0.1	%	108	
Toluene-D8	2037-26-5	0.1	%	104	
4-Bromofluorobenzene	460-00-4	0.1	-%	101	, 25
The second secon					



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Laboratory Duplicate (DUP) Report

Page Number Client Work Order

- 2					Ţ	Laboratory Duplicate (DUP) Report	eport	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	TOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical a	EA/ED: Physical and Aggregate Properties							
HK1428850-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	4 174	0.1	%	13.9	13.5	2.9
HK1428954-002	Anonymous	EA055: Moisture Content (dried @ 103°C)	1	0.1	%	45.4	45.9	1.1
EG: Metals and M.	EG: Metals and Major Cations (QC Lot: 3632375)	32375)						
HK1428830-001	Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Antimony	7440-36-0	-	mg/kg	₹	ৢঢ়	0.0
		EG020: Arsenic	7440-38-2	-	mg/kg	က	- 5	0.0
		EG020: Barium	7440-39-3	-	mg/kg	14	-22	8
		EG020: Cobalt	7440-48-4	-	mg/kg	က	်က	0.0
		EG020: Copper	7440-50-8	τ-	mg/kg	4	- 22	16.8
		EG020: Lead	7439-92-1	-	mg/kg	1	: 02	15.4
		EG020: Manganese	7439-96-5	-	mg/kg	302	316	4.7
		EG020: Molybdenum	7439-98-7	-	mg/kg	-	₹	0.0
		EG020: Nickel	7440-02-0	ς-	mg/kg	9	so.	0.0
		EG020: Tin	7440-31-5	_	mg/kg	2	-	0.0
		EG020: Zinc	7440-66-6	-	mg/kg	27	24	13.7
HK1429150-002	Anonymous	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Antimony	7440-36-0	-	mg/kg	⊽	₹	0.0
		EG020: Arsenic	7440-38-2	-	mg/kg	2	2	00
		EG020: Barium	7440-39-3	-	mg/kg	20	9	17.3
	<i>x</i> .	EG020: Cobalt	7440-48-4	-	mg/kg	2	2	0.0
		EG020: Copper	7440-50-8	-	mg/kg	ဌာ	4	0.0
		EG020: Lead	7439-92-1	-	mg/kg	9	ဖ	0.0
		EC020: Manganese	7439-96-5		mg/kg	142	134	69.
	*	EC020: Molybdenum	7439-98-7	₹.	mg/kg	₹	₹	0.0
		EG020: Nickel	7440-02-0	-	mg/kg	က	က	0.0
		EG020; Tin	7440-31-5	-	mg/kg	⊽	₹	0.0
		EG020: Zinc	7440-66-6	-	mg/kg	179	166	7.7
EG: Metals and Ma	EG: Metals and Major Cations (QC Lot: 3638979)	18979)						
HK1429117-002		EG3060: Hexavalent Chromium	18540-29-9	-	mg/kg	₹	₹	0.0
HK1429619-001	Anonymons	EG3060: Hexavalent Chromium	18540-29-9	-	mg/kg	₹	⊽	0.0
EP-066: Polychlon	EP-066: Polychlorinated Biphenyls (QC Lot: 3621065)	t: 3621065)						
HK1428586-002	Anonymous	Total Polychlorinated biphenyls	***************************************	0.1	mg/kg	<0.1	40.1	0.0
EP-076A: Polycycl	ic Aromatic Hydrocarbon	EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3628453)						
HK1428930-001	Anonymous	Fluoranthene	206-44-0	150	hg/kg	<150	<150	0.0
	. K	Pyrene	129-00-0	150	hg/kg	<150	<150	0.0
		Benz(a)anthracene	56-55-3	150	hg/kg	<150	<150	0.0
		Chrysene	218-01-9	150	hg/kg	<150	<150	0.0
	•	Benzo(b)fluoranthene	205-99-2	150	hg/kg	<150	<150	0.0
		Benzo(k)fluoranthene	207-08-9	150	hg/kg	<150	<150	0.0
		Benzo(a)pyrene	50-32-8	150	hg/kg	<150	<150	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	150	hg/kg	<150	<150	0.0
		Dibenz(a.h)anthracene	53-70-3	150	hg/kg	<150	<150	0.0



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Matrix; SOIL			rapo	Laboratory Duplicate (DUP) Report	Report	and the second s
Laboratory sample ID Client sample ID	Method: Compound	CAS Number	LOR Unit	Original Result	Duplicate Result	RPD (%)
P-076A: Polycyclic Aromatic H	EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs) (QC Lot: 3628453) - Continued				. 4	
HK1428930-001 Anonymous	Benzo(g.h.i)perylene	191-24-2	150 µg/kg	<150	<150	00
	Naphthalene	91-20-3	50 µg/kg	<50	<20 <20	0.0
	Acenaphthylene	208-96-8	50 µg/kg	<50	<50	0.0
	Acenaphthene			<50	<50	0.0
	Fluorene		50 µg/kg	<50	<50	0.0
	Phenanthrene		50 µg/kg	<50	<50	0.0
		120-12-7	50 µg/kg	<50	<50	0.0
P-0/6B: Phenol, Hexachlorobe	EP-0/6B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 3628453)					
HK1428930-001 Anonymous	Bis(2-ethylhexyl)phthalate		1000 µg/kg	<1000	<1000	0.0
	Hexachlorobenzene (HCB)			<50	<50	0.0
	Phenol	108-95-2	500 µg/kg	<500	<500	0.0
P-071HK_SR: Total Petroleum	EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3629316)					
HK1429138-006 Anonymous	C6 - C8 Fraction	1	5 mg/kg	\$	<5	0.0
P-071HK_SR: Total Petroleum	EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3629317)					
IK1429138-006 Anonymous	C9 - C16 Fraction	1	200 mg/kg	<200	<200	0.0
	C17 - C35 Fraction		500 mg/kg	<500	<500	0.0
P-074_SR-A: Monocyclic Arom	EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3621076)					
HK1428586-002 Anonymous	Benzene	71-43-2	0.2 mg/kg	<0.2	<0.2	0.0
	Toluene			<0.5	<0.5	0.0
	Ethylbenzene		0.5 mg/kg	<0.5	<0.5	0.0
	Styrene		3.5 mg/kg	<0.5	<0.5	0.0
	ortho-Xylene		0.5 mg/kg	<0.5	<0.5	0.0
	meta- & para-Xylene	108-38-3	1.0 mg/kg	0.12	<1.0	0.0
	Xylenes (Total)	L.	2.0 mg/kg	<2.0	<2.0	0.0
Š	pounds (QC Lot: 3621076)					
HK1428586-002 Anonymous	2-Butanone (MEK)		5 mg/kg		\$€	0.0
	2-Propanone (Acetone)	67-64-1	50 mg/kg	<50	<50	0.0
Haio	hatics (QC Lot: 3621076)					
HK1428586-002 Anonymous	Tetrachloroethene	127-18-4 0	0.04 mg/kg	<0.0>	<0.04	0.0
	Trichloroethene			· <0.1	<0.1	0.0
	Methylene chloride	75-09-2	0.5 mg/kg	<0.5	<0.5	0.0
	(THIM) (QC LOT: 36210/6)					
HK1428586-002 Anonymous	Chloroform		0.04 mg/kg	×0.04	<0.04	0.0
	Bromodichloromethane	75-27-4	0.1 mg/kg	€0.1	<0.1	0.0
Methy	ther (QC Lot: 3621076)					
HK1428586-002 Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5 mg/kg	<0.5	<0.5	0.0
ethod Blank (MB), Laborato	Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	pike Duplicate (DC	SS) Report			
Matrix; SOIL	Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	Laboratory Control Spil	ka Duplicate (DCS) Report	
		Spike		Recovery Limits (%)	mits (%)	RPD (%)
Market M. On many and						



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∴ CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1429117

Page Number Client Work Order

EG. Male and Major Cations (GC Let 3832739) Spike Convention Coda Number Cod	Matrix: SOIL			Method Blank (MB) Rep	Report		Laboratory Contro	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	boratory Contro	Spike Duplicate	(DCS) Report	
q Fleeuit Concentration LCS DoS Low High Value qq <1 5 mg/kq 88.1 — 75 104 — qq <1 5 mg/kq 88.5 — 75 104 — qq <1 5 mg/kq 88.1 — 77 107 — qq <1 5 mg/kq 88.1 — 77 107 — qq <1 5 mg/kq 88.3 — 77 107 — qq <1 5 mg/kq 88.3 — 77 107 — qq <1 5 mg/kq 88.7 — 77 106 — qq <1 5 mg/kq 88.7 — 77 114 — qq <1 5 mg/kq 104 — 78 114 — qq <1 5 mg/kq 102 — 78 114 —						Spike	Spike Re	covery (%)	Recover	V Limits (%)	02	PD (%)
Color Colo	Method: Compound	CAS Number	10g	Cnit	Result	Concentration	SO7	DCS	TOW	Hiah	Value	Confrol limit
Color Colo	EG: Metals and Major Cations (C	AC Lot: 3632375)										
Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Singling Second Part Second Pa	EG020: Antimony	7440-36-0	-	ma/ka	٧	5 ma/ka	88.1		78	707		
Color Colo	EG020: Arsenic	7440-38-2	-	ma/ka	7	5 ma/kg	92 t		0 42	<u> </u>]	1
9 <0.2	EG020: Barium	7440-39-3	-	ma/ka	.⊽	5 mg/kg	87.9		2 2	5 7	ļ	1
Color Simplified State Simplified State Simplified State Simplified State Simplified State Simplified State Simplified State Simplified State Simplified State Simplified State State Simplified State State Simplified State State State State State State Simplified State Sta	EG020: Cadmium	7440-43-9	0.2	ma/ka	<0.5	5 mo/kg	2, 78 3, 7, 8		. o	- 6	1	
Color Singlify St. Color Col	EG020: Cobalt	7440 48-4	_	ma/ka	₹	5 malka	2.08		5 6	203	4	
Simply S	EG020: Copper	7440-50-8	-	ma/ka	⊽	7 mg/kg	- c		÷ 6	10.4	1	
Section Sect	EG020: Lead	7439-92-1	-	ma/ka	7	S mg/kg	00.00	l	D 6	5 5	l	1
Section Sect	EG020: Manganese	7430.06.5	- •	Sales of the sales	, ,	ה בל הלובים הלובים הלובים	B. 70	i	8	4	I	1
9 < 1	EG020: Molyhdanim	7430.08.7	- ; .	DIG/NG	7 3	gy/gm c	82.3	41911-1	11	115	li	Bell from
3 <1	ECOSO: Nichol	1400-00-1	-	(IIIg/Kg	· ·	by/gm c	8/.7	ļ	85	901	1	1
S	EGOZO: NICKEI	/440-02-0	-	mg/kg	V	5 mg/kg	88.0		79	105	1	1
9	EG020: Tin	7440-31-5	-	mg/kg	₹	5 mg/kg	88.2	and the second	6,2	103	1	
9	EG020: Zinc	7440-66-6	-	mg/kg	₹	5 mg/kg	104	I	92	114	-	İ
9 <0.02 0.1 mg/kg 97.5	EG: Metals and Major Cations (Q	C Lot: 3632467)										
9 < 0.5 2.5 mg/kg 102 — 92 122 — 92 122 — 92 122 — 92 122 — 92 122 — 92 122 — 92 122 — 92 122 — 92 122 — 92 122 — 92 122 — 92 122 — 93 111 — 94 111 — 95 111	EG036: Mercury	7439-97-6	0.02	mg/kg	<0.02	0.1 ma/ka	97.5	-	75	110	j	
9 < 0.5 2.5 mg/kg 102 — 92 122 — 92 122 — 93 123 — 94 133 — 95 122 — 95 122 — 95 123 — 95 124	EG: Metals and Major Cations (C	C I of: 3638979)))					2	2		
9	EG3060: Hexavalent Chromium	18540-29-9	7.	ma/ka	40%	7.0			. 6			
9	ED OKS. Doborhoringtod Dinkon	In (OC 1 of 2624667)	2	D.	2	6.3 Hig/Ng	701	1	87	77	eprese	
g < 0.1 0.5 mg/kg 104 46 133 g < <50	Total Belieffer of the least of	IS (40 LOT: 3021003)										
Section Sect	Total Polychiorinated biphenyls	l	0.1	mg/kg	V	0.5 mg/kg	104	1	46	133	THE	1
\$\leqsig \cdot \sigma \cdot \	EP-076A: Polycyclic Aromatic Hy	drocarbons (PAHs) ((QC Lot: 3	628453)			:		:			
9 <50	Naphthalene	91-20-3	22	µg/kg	<50	250 µg/kg	84.7	1	63	111	978	
Section Sect	Acenaphthylene	208-96-8	25	ug/kg	<50	250 µg/kg	90.9	1	63	,	-	
\$\leqsig \cdot \sigma \cdot \	Acenaphthene	83-32-9	25	µg/kg	<50	250 µg/kg	85.4	****	67	108	3	1
\$\sigma \cdot \sigma	Fluorene	86-73-7	52	µg/kg	×50	250 ug/kg	89.4		67	110	-	
Section Sect	Phenanthrene	85-01-8	52	ng/kg	×20	250 µg/kg	89.8	1	67	108	****	
Secondary Seco	Anthracene	120-12-7	52	ng/kg	<50	250 µg/kg	91.7		69	. <u> </u>	*****	
\$\leqsign{align*} \eqsign{align*} alig	Fluoranthene	206-44-0	52	µg/kg	<50	250 µg/kg	92.3	77.1	Į.	114	1	- Annual -
450 250 µg/kg 98.7 63 114 450 250 µg/kg 94.4 67 122 50 250 µg/kg 91.3 64 119 50 250 µg/kg 91.3 64 119 50 250 µg/kg 97.5 58 117 50 250 µg/kg 97.5 59 114 50 250 µg/kg 92.4 59 114 50 250 µg/kg 95.8 58 120 64 119 64 119 64 117 64 119 64 119 11 56 114 64 116 11 51 114 64 11 58 114 64 11 520 µg/kg 95.8 54 114 50 250 µg/kg 71 119 64 11 52 114 64 113 11 65 114	Pyrene	129-00-0	52	µg/kg	<50	250 µg/kg	91.5	ļ	71	114	1	
450 250 µg/kg 94.4 67 122 9 <50	Benz(a)anthracene	56-55-3	22	µg/kg	<50	250 µg/kg	7.86	Beliver	63	114		-
9 <50	Chrysene	218-01-9	22	pg/kg	<50	250 µg/kg	94.4	Ť	29	122	AN TAN TAN IN	
4 550 250 µg/kg 91.3 64 119 50 250 µg/kg 93.8 58 117 50 250 µg/kg 97.5 51 115 50 250 µg/kg 92.4 59 114 4 50 250 µg/kg 95.8 58 120 50 250 µg/kg 78.7 52 118 50 250 µg/kg 78.7 52 118 50 250 µg/kg 107 85 114 50 4.5 mg/kg 107 85 114	Benzo(b)fluoranthene	205-99-2	52	µg/kg	<50 <50	250 µg/kg	102	ř	29	114	m-graph and	1
\$\circ \ci	Benzo(k)fluoranthene	207-08-9	52	µg/kg	<50	250 µg/kg	91.3	ı	9	119		İ
Section Sect	Benzo(a)pyrene	50-32-8	25	µg/kg	<50	250 µg/kg	93.8	-	58	117		İ
3 <50	Indeno(1.2.3.cd)pyrene	193-39-5	52	µg/kg	<50	250 µg/kg	97.5	1	27.	115		i
QC Lot: 3628453) 250 µg/kg 95.8 58 120 QC Lot: 3628453) 250 µg/kg 78.7 52 118 3 <500 250 µg/kg 83.6 54 113 4 3 <1000 250 µg/kg 107 85 114 4 4	Dibenz(a.h)anthracene	53-70-3	52	µg/kg	<50	250 µg/kg	92.4	İ	59	114	1	I
QC Lot: 3628453) 3 <500	Benzo(g.h.i)perylene	191-24-2	25	µg/kg	<50	250 µg/kg	95.8	1	28	120	l	1
3 <500 250 µg/kg 78.7 52 118 — 52 118 — 50 µg/kg 83.6 54 113 — 51 114 — 52 116 — 54 113 — 52 116 — 54 114 — 55 µg/kg 107 116 — 71 119 — 55 µg/kg 116 — 71 119 — 55 µg/kg 116 — 55 µg/kg 116 — 71 119 — 55 µg/kg 116 — 57 µg/kg 116 µg/	EP-076B: Phenol, Hexachloroben.	zene and Bis(2-ethylh	exyl) Pht	nalate (QC Lc	ot: 3628453)				:			
3 <50 250 µg/kg 83.6 == 54 113 == 51000 250 µg/kg 107 == 85 114 == 550 µg/kg 116 == 71 119 == 550 µg/kg 116	Phenol	108-95-2	52	µg/kg	<500	250 µg/kg	78.7	i	25	118	-	
3 <1000 250 µg/kg 107 85 114 3 <5 4.5 mg/kg 116 71 119	Hexachlorobenzene (HCB)	118-74-1	52	µg/kg	<50	250 µg/kg	83.6	ı	54	113	1	
3 <5 4.5 mg/kg 116 71 119	Bis(2-ethylhexyl)phthalate	117-81-7	52	µg/kg	<1000	250 µg/kg	107	-	82	114		****
3 <5 4.5 mg/kg 116 71 119	EP-071HK_SR: Total Petroleum H	ydrocarbons (TPH) (C	C Lot: 3	329316)								
	C6 - C8 Fraction	: :	ß	mg/kg	\$2	4.5 ma/kg	116	The state of the s	71	110		



1 1 1 1

98 97 93 95 95 111 111 124 124

60.0 54.6 57.9 62.5

0.5 µg/L 0.5 µg/L 0.5 µg/L 0.5 µg/L 0.5 µg/L 0.5 µg/L 0.5 µg/L 0.5 µg/L 0.5 µg/L 0.5 µg/L

199/L 199/L 199/L 199/L 199/L 199/L 199/L

85-01-8 120-12-7 206-44-0

86-73-7

83-32-9

<0.2

208-96-8

Acenaphthylene Acenaphthene Phenanthrene

Naphthalene

64.3 76.0 76.4 84.3 92.6

40.2 40.2 0.2 0.2

218-01-9 205-99-2

129-00-0

EP-066: Polychlorinated Biphenyls (QC Lot: 3626644)

Benzo(b)fluoranthene

Chrysene

Fluoranthene

Pyrene

Anthracene

Fluorene

: CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT 11 of 14 Page Number

HK1429117 Work Order

Matrix; SOIL			Method Blank (MB) Report	Report		Laboratory Cont	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	boratory Control	Spike Duplicate	(DCS) Report	
		:			Spike	SpikeR	Spike Recovery (%)	Recovery	Recovery Limits (%)	2	RPD (%)
Method: Compound	CAS Number	TOR	Unit	Result	Concentration	SOT	DCS	TOW	High	Value	Control Limit
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3629317)	Hydrocarbons (TPH) (QC Lot:	1629317)						,		
C9 - C16 Fraction		200	mg/kg	<200	32 mg/kg	6.77	-	Z.	121	į	
C17 - C35 Fraction		200	mg/kg	<500	67.5 mg/kg	83.0	dis la courr	14	110	ļ	
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3621076)	atic Hydrocarbons (M.	AH) (QC	Lot: 3621076)		ì			5			
Benzane	71-43-2	0.1	mg/kg	<0.1	0.25 mg/kg	103	1	22	128	-	
Toluene	108-88-3	0.2	mg/kg	<0.2	0.25 mg/kg	96.1		99	119	1	1
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	0.25 mg/kg	97.5		99	123	į	1
meta- & para-Xylene	108-38-3 106-42-3	4.0	mg/kg	<0.4	0.50 mg/kg	103	-	78	122		1
Styrene	100-42-5	0.2	mg/kg	<0.2	0.25 mg/kg	96.7	i	87	111		ļ
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	0.25 mg/kg	96.8	i	72	125	1	
Xylenes (Total)		1.0	mg/kg	<1.0	0.75 mg/kg	101	İ	9/	122		1
EP-074_SR-B: Oxygenated Compounds (QC Lot: 3621076)	pounds (QC Lot: 3621	(920)							l :		
2-Propanone (Acetone)	67-64-1	. 4	ma/ka	\$	2.5 ma/kg	112	Meditors.	à	129		100
2-Butanone (MEK)	78-93-3	2	mg/kg	8	2.5 ma/ka	88.8		6	133	į	
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 3621076)	hatics (QC Lot: 36210	(9/))						
Methylene chloride	75-09-2	0.5	mg/kg	<0.5	0.25 mg/kg	104	1	2	131	ļ	
Trichloroethene	79-01-6	0.1	mg/kg	<0.1	0.25 mg/kg	97.3	1	82	114	1	1
Tetrachloroethene	127-18-4	0.04	mg/kg	<0.04	0.25 mg/kg	98.6	İ	68	110	1	1
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 3621076)	(THM) (QC Lot: 36210	(92							! .		
Chloroform	67-66-3	0.04	mg/kg	<0.04	0.25 mg/kg	97.1		11	113	1	1
Bromodichloromethane	75-27-4	0.1	mg/kg	<0.1	0.25 mg/kg	92.2	Participan .	7	125	-	1
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3621076)	ther (QC Lot: 3621076				1						
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.2	mg/kg	<0.2	0.25 mg/kg	6.06		89	116	Programma de la companya de la compa	-
Matrix: WATER			Wethod Blank (MB) Rep	Report		Laboratory Contr	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	boratory Control	Spike Duplicate	(DCS) Report	The second section is a second section of the second section of the second section is a second section of the second section of the second section sec
			:		Spike	SpikeR	Spike Recovery (%)	Recovery	Recovery Limits (%)	ž	RPD (%)
Method: Compound	CAS Number	TOR	Unit	Result	Concentration	SO7	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations - Filtered (QC Lot: 3631639)	Filtered (QC Lot: 3631	639)									
EG036: Mercury	7439-97-6	0.05	µg/L	<0.05	2 µg/L	102	1	11	117	-	1
EP-076: Polycyclic Aromatics Hydrocarbons (PAHs) (QC Lot: 3629313)	drocarbons (PAHs) ((C Lot: 3	629313)		:						
Mandada	0 00 70	0		14	1						



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Page Number Client Work Order

Matrix: WATER			Method Blank (MB) Report	(MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	Spike (LCS) and Lat	oratory Control	Spike Duplicate	(DCS) Report	
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1						Spike	Spike Recovery (%)	overy (%)	Recovery	Recovery Limits (%)	2	RPD (%)
Method: Compound	CAS Number LOR	LOR	Unit		Result	Concentration	SO7	DCS	row	Low High	Value	Value Control I imit
EP-066: Polychlorinated Biphenyls (QC Lot: 3626644) - Continued	(QC Lot: 3626644	- Contin	panu									
Total Polychlorinated biphenyls]	-	hg/L		₹	10 µg/L	94.2		35	123		Bress
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot;	ne and Bis(2-ethyl	hexyl) Ph	thalate (Q	C Lot: 36	3629313)				3			
Hexachlorobenzene (HCB)	118-74-1	ည	hg/L	-	<5.0	0.5 µg/L	84.8	ļ	5.	96	and the same	Barry
EP-074HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot; 3626646)	rocarbons (TPH)	(QC Lot: 3	3626646)) :			i i	}		
C9 - C16 Fraction		0.5	l/om		<0 V	0.21 ma/i	7.47		4.2	7		

			method biank (mb) kepon	noday (di		Laboratory Contra	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	Boratory Control	Spike Duplicate	(DCS) Report	
					Spike	Spike Re	Spike Recovery (%)	Recovery	Recovery Limits (%)	RF	RPD (%)
Method: Compound	CAS Number	TOR	Unit	Result	Concentration	SO7	SOO	MO7	High	Value	Control Limit
EP-066: Polychlorinated Biphenyls (QC Lot: 3626644) - Continued	s (QC Lot: 3626644)	- Contin	pen								
Total Polychlorinated biphenyls	Ì	-	hg/L	₹	10 µg/L	94.2	100	35	123	1	1
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 3629313)	zene and Bis(2-ethyli	hexyl) Phi	thalate (QC)	Lot: 3629313)							
Hexachlorobenzene (HCB)	118-74-1	ζ.	hg/L	<5.0	0.5 µg/L	54.8	Į	5.1	96	a portant	harra
EP-07#HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot; 3626646)	ydrocarbons (TPH) (ac Lot: 3	1626646)		· ·			,	}		
C9 - C16 Fraction	1	0.5	mg/L	<0.5	0.21 mg/L	74.7	}	12	119		
C17 - C35 Fraction	:]	0.5	mg/L	<0.5	0.45 mg/L	100	-	<u>!</u> რ	116	ļ	
EP-074HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3633066)	ydrocarbons (TPH) (QC Lot: 3	1633066)								0000
C6 - C8 Fraction		0.02	mg/L	<0.02	0.03 mg/L	107	i	62	131	an year	
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3633062)	tic Hydrocarbons (MA	AH) (QC	Lot: 3633062	6							
Benzene	71-43-2	0.5	hg/L		2 µg/L	110	1	29	125	-	1
Toluane	108-88-3	0.5	hg/L	<0.5	2 µg/L	105		2	121	1	1
Ethylbenzene	100-41-4	0.5	ng/L	<0.5	2 µg/L	104		69	120	1	1
meta- & para-Xylene	108-38-3 106-42-3	-	hg/L	₹	4 µg/L	112	**************************************	92	119	İ	1
Styrene	100-42-5	0.5	hg/L	<0.5	2 ug/L	106	1	80	116		1
ortho-Xylene	95-47-6	0.5	hg/L	<0.5	2 µg/L	107	1	72	122		i
Xylenes (Total)		7	hg/L	7	6 µg/L	110	Ī	75	120	į	I
EP-074_SR-B: Oxygenated Compounds (QC Lot: 3633062)	ounds (QC Lot: 3633	1062)									
2-Propanone (Acetone)	1-64-1	2	hg/L	\$	20 µg/L	106	-	84	130	1	
2-Butanone (MEK)	78-93-3	2	hg/L	\$	20 µg/L	6.66	1	83	127	į	
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 3633062)	itics (QC Lot: 36330)	62)									
Methylene chloride	75-09-2	r.	hg/L	\$	2 µg/L	110	ı	80	126	ļ	1
Trichloroethene		0.5	ng/L	<0.5	2 µg/L	102	ı	77	114	ļ	Ī
Tetrachloroethene	127-18-4	0.5	hg/L	<0.5	2 µg/L	103	1	82	113	I	I
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 3633062)	THM) (QC Lot: 36330)	62)									
Chloroform	67-66-3	0.5	µg/L	<0.5	2 µg/L	109	-	72	118		E 1960 0
Bromodichloromethane	75-27-4	0.5	hg/L	<0.5	2 µg/L	95.8	*****	74	115	I	Billion as
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3633062)	er (QC Lot: 3633062	6				f					
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	97.5	Riveria	64	119	-	1
THE PERSON OF TH				22				Service - Servic	STREET, CONTRACTOR	PLANSFELD SAME TO THE PERSON OF THE PERSON O	4





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∴ CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1429117

Work Order

Matrix; SOIL				-	Matrix Spike	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report	ix Spike Dupli	icate (MSD)	Report	
	2 cha			Spike		Spike Recovery (%)	Recovery Limits (%)	Limits (%)		RPD (%)
Laboratory sample ID	Client sample ID	Method: Compound	CAS	Concentration	MS	MSD	Low	High	Value	Control
G: Metals	EG: Metals and Major Cations (QC Lot: 3632375)	ot: 3632375)								
K1429145-00	HK1429145-001 Anonymous	EG020: Antimony	7440-36-0	5 mg/kg	91.3	I	75	125		1
		EG020: Arsenic	7440-38-2	5 mg/kg	966	1	75	125	1	I
		EG020: Barium	7440-39-3	5 mg/kg	# Not Determined	E	7.5	125	1	I
		EG020: Cadmium	7440-43-9	5 mg/kg	0.86	Į.	75	125	1	1
		EG020: Cobalt	7440-48-4	5 mg/kg	109	P P P P P P P P P P P P P P P P P P P	75	125	l	
		EG020: Copper	7440-50-8	5 mg/kg	# Not Determined	ļ	75	125	and the second	1
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	1	75	125	Į	1
		EG020: Manganese	7439-96-5	5 mg/kg	# Not Determined	1	75	125	ļ	Ĭ
		EG020: Molybdenum	7439-98-7	5 mg/kg	401	1	75	125	ļ	I
		EG020: Nickel	7440-02-0	5 mg/kg	108	1	75	125	-	1
		EG020: Tin	7440-31-5	5 mg/kg	# Not	Pilwera	75	125	1	1
		EG020: Zinc	7440-66-6	5 mg/kg	# Not	****	75	125	ł	1
		:			Determined					
G: Metals	EG: Metals and Major Cations (QC Lot: 3632467)	ot: 3632467)								
<1429117-00	HK1429117-001 EH3B 3.0M	EG036: Mercury	7439-97-6	0.1 mg/kg	117	******	75	125		1
G: Metals	EG: Metals and Major Cations (QC Lot: 3638979)	ot: 3638979)						4.	<u> </u>	
K1429117-00	HK1429117-001 EH3B 3.0M	EG3060: Hexavalent Chromium	18540-29-9	2.5 mg/kg	100	ł	75	125	-	1
P-071HK_S	R: Total Petroleum Hydro	EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3629316)								
<1429150-00	HK1429150-002 Anonymous	C6 - C8 Fraction	l	4.5 mg/kg	123	44 71	20	130	1	g
P-071HK_S	R: Total Petroleum Hydro	EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3629317)								
<1429150-00	HK1429150-002 Anonymous	C9 - C16 Fraction	1	32 mg/kg	50.2	I	20	130	į	-
		C17 - C25 Erantion	177	67.5 ma/km	777		CH	430		

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery	Recovery Limits (%)
Compound	CAS Number	Том	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates	ons (PAHs) Surrogates		
2-Fluorobiphenyl	321-60-8	20	130
4-Terphenyl-d14	1718-51-0	20	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	8-60-228	20	130
Dibutylchlorendate	1770-80-5	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120



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Work Order

Compound		The state of the s	
	CAS Number	Low	High
EP-080_SRS: TPH(Volatile)/BTEX Surrogate - Continued	ate - Continued		
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
Sub-Matrix: WATER		Recovery	Recovery Limits (%)
Compound	CASNumber	Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates	bons (PAHs) Surrogates		
2-Fluorobiphenyl	321-60-8	20	130
4-Terphenyl-d14	1718-51-0	20	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	8-60-778	20	130
Dibutylchlorendate	1770-80-5	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate	ate		
Dibromofluoromethane	1868-53-7	98	118
Foluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	98	118
Foluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	480-00-4	æ	115

ALS Technichem (HK) Pty Ltd



ANALYTICAL CHEMISTRY & TESTING SERVICES



SUB-CONTRACTING REPORT

CONTACT HANNAH CHIU WORK ORDER HK1429117

CLIENT CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

ADDRESS 7/F, EMPIRE CENTRE, SUB-BATCH DATE RECEIVED 68 MODY ROAD DATE OF ISSUE

TSIM SHA TSUI EAST, KOWLOON, HONG KONG

SITE INVESTIGATION FOR TRUNK ROAD T2 AND **PROJECT** NO. OF SAMPLES 4 J3539

INFRASTRUCTURE AT SOUTH APRON (STAGE 2) CLIENT ORDER

General Comments

Sample(s) were received in a chilled condition.

- Water sample(s) analysed and reported on an as received basis.
- Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.
- Water sample(s) were filtered prior to dissolved metal analysis.
- Soil sample(s) as received, digested by In-house method E-ASTM D3974-09 based on ASTM D3974-09, prior to determination of metals.
- Dioxins was subcontracted to and analysed by ALS Czech Republic.

Signatories

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Position

Richard Fung

General Manager

WORK ORDER

HK1429117

SUB-BATCH

1.1

CLIENT PROJECT CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SITE INVESTIGATION FOR TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH

APRON (STAGE 2)



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1429117-001	EH3B 3.0M	SOIL	08-SEP-2014 09:00	PR1449687001
HK1429117-002	EH3B 6.0M	SOIL	08-SEP-2014 10:30	PR1449687002
HK1429117-003	EH3B 9.0M	SOIL	08-SEP-2014 12:00	PR1449687003
HK1429117-004	ЕН3В	WATER	08-SEP-2014 14:30	PR1449687004



CERTIFICATE OF ANALYSIS

Work Order	PR1449687	Issue Date	22-SEP-2014
Client	ALS Technichem (HK) Pty Ltd.	Laboratory	ALS Czech Republic, s.r.o.
Contact	Mr. Richard Fung	Contact	Client Service
Address	11/F, Chung Shun Knitting Centre 1-3 Wing Yip Street Kwai Chung Hong Kong	Address	Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00
E-mail	⊞ richard.fung@alsglobal.com	E-mail	customer.support@alsglobal.com
Telephone	+852 26101044	Telephone	+420 226 226 228
Facsimile	+852 26102021	Facsimile	+420 284 081 635
Project		Page	1 of 3
Order number	Aug	Date Samples Received	11-SEP-2014
C-O-C number	1. e	Quote number	PR2011ALSTE-HK0268
Site	****	Date of test	12-SEP-2014 - 22-SEP-2014
Sampled by	client	QC Level	ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory. The laboratory declares that the test results relate only to the listed samples.

Responsible for accuracy

<u>Signatories</u> Zdenek Jirak



<u>Position</u> Environmental Business Unit Manager



Testing Laboratory Accredited by CAI





Issue Date

22-SEP-2014

Page Work Order 2 of 3 PR1449687

Work Orde Client

: ALS Technichem (HK) Pty Ltd.



Analytical Results

Sub-Matrix: SOIL		Client sample ID Laboratory sample ID			HK1429117-001 EH38 3.0M		HK1429117-002 EH3B 6.0M		HK1429117-003 EH3B 9.0M	
					37001	PR1449687002		PR1449687003		
		Client sampli	ing date / time	08-SEP-2014 09:00		08-SEP-2014 10:30		08-SEP-2014 12:00		
Parameter	Method	LOR	Unit	Result	Mù	Result	MU	Result	MÜ	
Physical Parameter						e (d. Nagawa)	1176			
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	74.0		72.1	±5.0 %	75.8	±5.0 %	
PCDDs and PCDFs (Dioxins	and Furans)	**		/4.5	142.112.11				AN THE SATISFY CONTRACTOR AND ADDRESS.	
2378-TCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
12378-PeCDD	S-DFHMS03	- 1	ng/g DW	n.d.		n.d.		n.d.		
123478-HxCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.		п.d.		
123678-HxCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
123789-HxCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
1234678-HpCDD	S-DFHMS03	-	ng/g DW	n.d.		n.d.	1	n.d.		
OCDD	S-DFHMS03	-	ng/g DW	1.00	±30.0 %	1.30	±30.0 %	0.790	±30.0 %	
2378-TCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
12378-PeCDF	S-DFHMS03	-	ng/g DW	π.d.		n.d.		n.d.		
23478-PeCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
123478-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
123678-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
123789-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
234678-HxCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
1234678-HpCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
1234789-HpCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.		n.d.		
OCDF	S-DFHMS03	-	ng/g DW	n.d.		n.d.	1	n.d.		
TEQ-Lowerbound	S-DFHMS03	-	ng/g DW	0.001		0.0013		0.00079		
TEQ-Upperbound	S-DFHMS03	<u> </u>	ng/g DW	0.0039		0.004		0.0035		

	Clie	ent sample ID	HK142911	7-004				
			EH3B PR1449687004					
Laboratory sample ID								
	Dient samplii	ng date / time	08-SEP-2014	4 14:30				
Method	LOR	Unit	Result	MU				
ans)						N. A.		
W-DFHMS01	-	pg/L	n.d.				·	
W-DFHMS01	-	pg/L	n.d.					
W-DFHMS01	-	pg/L	n.d.					
W-DFHMS01	-	pg/L	n.d.					
W-DFHMS01	-	pg/L	n.d.					
W-DFHMS01	-	pg/L	35.0	±30.0 %				
W-DFHMS01	-	pg/L	2600	±30.0 %				_
W-DFHMS01	-	pg/L	n.d.					
W-DFHMS01	-	pg/L	n.d.					
W-DFHMS01	-	pg/L	n.d.					
W-DFHMS01	-	pg/L	n.d.					
W-DFHMS01	-	pg/L	n.d.		—			
W-DFHMS01	-	pg/L	n.d.		4844			
W-DFHMS01	- 1	pg/L	n.d.					
W-DFHMS01	-	pg/L	n.d.					
W-DFHMS01	-	pg/L	n.d.					
W-DFHM\$01	-	pg/L	n.d.	_				
W-DFHMS01	-	pg/L	3					
W-DFHMS01	-	pg/L	5.9					
	Method ans W-DFHMS01	Laborate Client sampling Method LOR	Client sampling date / time	Laboratory sample ID	Laboratory sample ID PR1449687004 O8-SEP-2014 14:30 O8-SEP	EH3B	EH3B	EH3B

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the

Issue Date

22-SEP-2014

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Work Order Client

ALS Technichem (HK) Pty Ltd.



time of sample collection is specified as 0:00 it means that the client did specify the date but not the time, indeasurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting: MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test perform	ance: V Raji 906 Pardubice - Zelene Predmesti Czech Republic 530 02
S-DFHMS03	CZ_SOP_D06_06_175 - except chap. 8.2.1.1 B,8.2.1.3 B, 8.2.1.5 B,C,D, 11.2.3.1, 11.2.3.6, 11.2.3.7, 11.2.5 (US EPA1613): Determination of tetra- to octa-chlorinated dioxins and furanes by isotope dilution method using HRGC-HRMS and calculation of TEQ parameters from measured values.
	The samples were stored in laboratory in the darkness and under temperature <4°C. Actual LOQ are noticed in the annex.
S-DRY-GRC	CZ_SOP_D08_01_045, CZ_SOP_D08_07_048 (CSN ISO 11465, CSN EN 12880) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
W-DFHMS01	CZ_SOP_D08_06_175 - except chap. 8.2.1.1 B, 8.2.1.3 B, 8.2.1.5 B,C,D, 11.2.3.7, 11.2.3.7, 11.2.4, 11.2.5 (US EPA 1813): Determination of tetra- to octa-chlorinated dioxins and furanes by isotope dilution method using HRGC-HRMS and calculation of TEQ parameters from measured values.
	The samples were stored in laboratory in the darkness and under temperature <4°C. Actual LOQ are noticed in the annex.

A '*' symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.



Attachment no. 1 to the Certificate of Analysis for work order PR1449687

Sample: HK1429117-001 EH3B 3.0M

Measurement results:

Sample:	HK1429117-	001 EH3B 3.0M				
			Final extract [µl]:		75	
Sample weight [g]: 12.31		Injection volume [µl]:	Injection volume [µl]:			
Ory matter [%]: 74.5		Acquisition date [d.m	Acquisition date [d.m.y h:m]:			
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹I-TEFs	I-TEQ	
		Detection	Quantification			
	[ng/g dw]	[ng/g dw]	[ng/g dw]		[ng/g dw]	
2,3,7,8-TCDD	n.d.	0.00056	0.0011	1	0	
1,2,3,7,8-PeCDD	n.d.	0.00075	0.0015	0.5	0	
1,2,3,4,7,8-HxCDD	n.d.	0.0017	0.0034	0.1	0	
1,2,3,6,7,8-HxCDD	n.d.	0.0017	0.0034	0.1	0	
1,2,3,7,8,9-HxCDD	n.d.	0.0017	0.0034	0.1	0	
1,2,3,4,6,7,8-HpCDD	n.d.	0.006	0.012	0.01	0	
OCDD	1	0.0097	0.019	0.001	0.001	
2,3,7,8-TCDF	n.d.	0.0004	0.0008	0.1	0	
1,2,3,7,8-PeCDF	n.d.	0.0008	0.0016	0.05	0	
2,3,4,7,8-PeCDF	n.d.	0.0008	0.0016	0.5	0	
1,2,3,4,7,8-HxCDF	n.d.	0.002	0.0041	0.1	0	
1,2,3,6,7,8-HxCDF	n.d.	0.002	0.0041	0.1	0	
1,2,3,7,8,9-HxCDF	n.d.	0.002	0.0041	0.1	0	
2,3,4,6,7,8-HxCDF	n.d.	0.002	0.0041	0.1	0	
1,2,3,4,6,7,8-HpCDF	n.d.	0.0042	0.0084	0.01	0	
1,2,3,4,7,8,9-HpCDF	n.d.	0.0042	0.0084	0.01	0	
OCDF	n.d.	0.0077	0.015	0.001	0	
I-TEQ from quantifie	d 2,3,7,8-PCD	D/Fs [ng 2,3,7,8	B-TCDD/g dw]-"Lowerbot	ınd'	0.001	
I-TEQ from quantified					0.001	
I-TEQ from quantified	1 2,3,7,8-PCDFs	DD/g dw]	98545195251V	0		
I-TEQ from n.d. and non quantified 2,3,7,8-PCDD/Fs [775	0.0029	
Maximum possible I-	TEQ [ng 2,3,7,	8-TCDD/g dw]-	"Upperbound"	- 52	0.0039	
PCDDs	Content.	ng/g dw]	PCDFs	Content	[ng/g dw]	
Tetra-CDDs	n.d.				n.d.	
Penta-CDDs	n.d.		Penta-CDFs		n.d.	
Hexa-CDDs	n.d.		Hexa-CDFs		n.d.	
Hepta-CDDs	n.d.		Hepta-CDFs		n.d.	
OCDD	1		OCDF		n.d.	
Total PCDDs	1		Total PCDFs		n.d.	

¹I-TEF according to NATO.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

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Enuironmental 3

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.



Attachment no. 2 to the Certificate of Analysis for work order PR1449687

Sample: HK1429117-002 EH3B 6.0M

Measurement results:

Sample:	HK1429117-	002 EH3B 6.0M			
			Final extract [µl]:		75
Sample weight [g]:	7	1.542	Injection volume [µl]:		4
Dry matter [%]:		72.1	Acquisition date [d.m.	y h:m]:	16.9.14 4:18
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹ I-TEFs	I-TEQ
		Detection	Quantification		
	[ng/g dw]	[ng/g dw]	[ng/g dw]		[ng/g dw]
2,3,7,8-TCDD	n.d.	0.0004	0.00081	1	0
1,2,3,7,8-PeCDD	n.d.	0.00073	0.0015	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	0.0013	0.0027	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	0.0013	0.0027	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	0.0013	0.0027	0.1	0
1,2,3,4,6,7,8-HpCDD	n.d.	0.015	0.029	0.01	0
OCDD	1.3	0.022	0.045	0.001	0.0013
2,3,7,8-TCDF	n.d.	0.0004	0.0008	0.1	0
1,2,3,7,8-PeCDF	n.d.	0.00075	0.0015	0.05	0
2,3,4,7,8-PeCDF	n.d.	0.00075	0.0015	0.5	0
1,2,3,4,7,8-HxCDF	n.d.	0.0017	0.0034	0.1	0
1,2,3,6,7,8-HxCDF	n.d.	0.0017	0.0034	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	0.0017	0.0034	0.1	0
2,3,4,6,7,8-HxCDF	n.d.	0.0017	0.0034	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	0.012	0.023	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	0.012	0.023	0.01	0
OCDF	n.d.	0.018	0.036	0.001	0
-TEQ from quantifie	d2,3,7,8-PCD	D/Fs [ng 2,3,7,	8-TCDD/g dw]-"Lowerbou	ınd"	0.0013
-TEQ from quantified					0.0013
-TEQ from quantified	1 2,3,7,8-PCDFs	[ng 2,3,7,8-TC	DD/g dw]	vices soos	.0
			s [ng 2,3,7,8-TCDD/g dw]		0.0027
Maximum possible I-				2.79/202	0.004
PCDDs	Content [ng/g dw]	PCDFs	Content	[ng/g dw]
Tetra-CDDs	7	ı.d.	Tetra-CDFs		n.d.
Penta-CDDs	I	ı.d.	Penta-CDFs	nga 3 nashesia	n.d.
Hexa-CDDs	1	ı.d.	Hexa-CDFs		n.d.
Hepta-CDDs	(0.064	Hepta-CDFs		n.d.
OCDD		.3	OCDF		n.d.
Total PCDDs		1.4	Total PCDFs		n.d.

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

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Environmental 🌆



Attachment no. 3 to the Certificate of Analysis for work order PR1449687

Sample: HK1429117-003 EH3B 9.0M

Measurement results:

'	HK1429117-	003 EH3B 9.0M	Name and the same		
			Final extract [μl];		75
Sample weight [g]:]	4.20	Injection volume [µl]:		4
Dry matter [%]:		75.8	Acquisition date [d.m.	y h:m]:	16.9.14 16:00
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹ I-TEFs	I-TEQ
		Detection	Quantification		
	[ng/g dw]	[ng/g dw]	[ng/g dw]		[ng/g dw]
2,3,7,8-TCDD	n.d.	0.00047	0.00095	1	0
1,2,3,7,8-PeCDD	n.d.	0.00078	0.0016	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	0.0015	0.0031	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	0.0015	0.0031	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	0.0015	0.0031	0,1	0
1,2,3,4,6,7,8-HpCDD	n.d.	0.0062	0.012	0.01	0
OCDD	0.79	0.011	0.022	0.001	0.00079
2,3,7,8-TCDF	n.d.	0.0005	0.001	0.1	0
1,2,3,7,8-PeCDF	n.d.	0.00065	0.0013	0.05	0
2,3,4,7,8-PeCDF	n.d.	0.00065	0.0013	0.5	0
1,2,3,4,7,8-HxCDF	n.d.	0.0021	0.0041	0.1	0
1,2,3,6,7,8-HxCDF	n.d.	0.0021	0.0041	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	0.0021	0.0041	0.1	0
2,3,4,6,7,8-HxCDF	n.d.	0.0021	0.0041	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	0.0029	0.0058	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	0.0029	0.0058	0.01	0
OCDF	n.d.	0.0088	0.018	0.001	0
I-TEQ from quantifie	d 2,3,7,8-PCD	D/Fs [ng 2,3,7,8	B-TCDD/g dw]-"Lowerbou	ınd"	0.00079
I-TEQ from quantified	1 2,3,7,8-PCDDs	s [ng 2,3,7,8-TC	DD/g dw]		0.00079
I-TEQ from quantified	1 2,3,7,8-PCDFs	[ng 2,3,7,8-TC]	DD/g dw]		0
I-TEQ from n.d. and n	on quantified	2,3,7,8-PCDD/F	s [ng 2,3,7,8-TCDD/g dw]		0.0027
Maximum possible I-	TEQ [ng 2,3,7,	8-TCDD/g dw]-	"Upperbound"		0.0035
PCDDs	Content [ng/g dw]	PCDFs	Content	[ng/g dw]
Гetra-CDDs	ı	ı.d.	Tetra-CDFs		n.d.
Penta-CDDs	I	n.d.	Penta-CDFs		n.d.
Hexa-CDDs		ı.d.	Hexa-CDFs	21_1	n.d.
Hepta-CDDs	1	ı.d.	Hepta-CDFs		n.d.
OCDD);).79	OCDF		n.d.
Total PCDDs	().79	Total PCDFs		n.d.

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

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Attachment no. 4 to the Certificate of Analysis for work order PR1449687

Sample: HK1429117-004 EH3B

Measurement results:

Sample:	HK14291	17-004 EH3B			
			Final extract [µl];		60
Sample volume [ml]:		900	Injection volume [µl]		4
			Acquisition date [d.r	n.y h:m]:	16.9.14 2:13
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹ I-TEFs	I-TEQ
		Detection	Quantification		
	[pg/l]	[pg/l]	[pg/l]		[pg/l]
2,3,7,8-TCDD	n.d.	0.61	1.2	1	0
1,2,3,7,8-PeCDD	n.d.	0.89	1.8	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	1.8	3.5	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	1.8	3.5	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	1.8	3.5	0.1	0
1,2,3,4,6,7,8-HpCDD	35	5.9	12	0.01	0.35
OCDD	2600	10	20	0.001	2.6
2,3,7,8-TCDF	n.d.	0.66	1.3	0.1	0
1,2,3,7,8-PeCDF	n.d.	0.72	1.4	0.05	0
2,3,4,7,8-PeCDF	n.d.	0.72	1.4	0.5	0
1,2,3,4,7,8-HxCDF	n.d.	1.7	3.5	0.1	0
1,2,3,6,7,8-HxCDF	n.d.	1.7	3.5	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	1.7	3.5	0.1	- 0
2,3,4,6,7,8-HxCDF	n.d.	1.7	3.5	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	11	22	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	11	22	0.01	0
OCDF	n.d.	8	16	0.001	0
I-TEQ from quantified	d 2,3,7,8-PCDI	D/Fs [pg 2,3,7,8-	TCDD/1]-"Lowerbound	,	3
I-TEQ from quantified					3
I-TEQ from quantified	2,3,7,8-PCDFs	[pg 2,3,7,8-TCD]	D/1]		0
I-TEQ from n.d. and n				11.11	3
Maximum possible I-	TEQ [pg 2,3,7,8	3-TCDD/1}-"Upp	erbound'		5.9
PCDDs	Content [pg/l]	PCDFs	Content	[pg/l]
Tetra-CDDs	I	ı.d.	Tetra-CDFs		n.d.
Penta-CDDs		1.d.	Penta-CDFs		n.d.
Hexa-CDDs	I	s.d.	Hexa-CDFs		n.d.
Hepta-CDDs	3	35	Hepta-CDFs	12	n.d.
OCDD	12	2600	OCDF		n.d.
Total PCDDs	7	2700	Total PCDFs	-	n.d.

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

ALS Czech Republic, s.r.o.

ADRESA V Ráji 906, 530 02 Pardubice, Czech republic



ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES





CERTIFICATE OF ANALYSIS

Client	: CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	Laboratory	ALS Technichem HK Pty Ltd	Page	: 1 of 8
Contact	HANNAH CHIU	Contact	: Fung Lim Chee, Richard	Work Order	HK1428873
Address	: 7/F, EMPIRE CENTRE, 68 MODY ROAD, TSIM SHA TSUI EAST, KOWLOON, HONG KONG	Address	: 1VF., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail		E-mail	: Richard Funo@alsolohal com		
Telephone		Telephone	+852 2610 1044		
Facsimile		Facsimile	+852 2610 2021		
Project	SITE INVESTIGATION FOR TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON	Quote number		Date Samples Received	: 04-SEP-2014
Order	(STAGE 2)				
Cidel Illumber	13539			Issue Date	19-SEP-2014
C-O-C number	: H029003			No. of samples received	<u>د.</u>
Site				No. of samples analysed	m

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Hong Kong Accreditation Service (HKAS) has accedited this laboratory (ALS Technichem (HK) Pty Ltd) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation.

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories Position
Chan Ka Yu, Karen Assist
Wong Wing, Kenneth

Assistant Manager - Organics Manager - Metals

Organics Inorganics

ALS Laboratory Group
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A Campbell Brothers Limited Company



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Client : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Work Order HK1428873

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 15-SEP-2014

Key: Lor = Limit of reporting; CAS Number = CAS registry rumber from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Specific comments for Work Order: HK1428873

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

Water sample(s) were filtered prior to dissolved metal analysis.

Dioxins was subcontracted to and analysed by ALS Czech Republic.



∴ 3 of 8 ∴ CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HK1428873

Page Number Client Work Order

Sub-Matrix: WATER		Client san	Client sample ID Client sampling date / time	EH1B 04-SEP-2014 12:30	FIELD BLANK 04-SEP-2014 12:30	EQUIPMENT BLANK 04-SFP-2014 12:30	
Compound	CAS Number	TOR	Unit	HK1428873-001	HK1428873-002	HK1428873-003	
EG: Metals and Major Cations - Filtered							
EG020: Antimony		+	hg/L	-	⊽	٧	
EG020: Arsenic	7440-38-2	10	hg/L	į	√10	- 7	
EG020: Barium	7440-39-3	-	hg/L		¹ ∇	? ⊽	
EG020: Cadmium	7440-43-9	0.2	ивЛ	PF AN	<0.2	<0>	
EG020: Cobalt	7440-48-4	-	иg/L	i	₹	; ₹	
EG020: Copper	7440-50-8	. -	µg/L	PHARMA	₹	. ∧	
EG020: Lead	7439-92-1	-	hg/L	No. of the latest and	⊽		
EG020: Manganese	7439-96-5	-	hg/L	I	₹	V	ar vi
EG020: Molybdenum	7439-98-7	-	hg/L	1	. ₹	- ₩	
EG020: Nickel	7440-02-0		hg/L	CAMEROL AND AN ADMINISTRAL PROPERTY.	V	V	2.31
EG020: Tin	7440-31-5	-	рg/L		₹		With stand of Committee of Comm
EG020: Zinc	7440-68-6	10	µg/L	TO PERSON OF THE	- 40		
EG036: Mercury	7439-97-6	0.5	µg/L	<0.5	25.0	, V	
EG049: Trivalent Chromium	16065-83-1	20	hg/L	*******	<20	0.5	
EG050: Hexavalent Chromium	18540-29-9	20	hg/L	-	200	330	that I
EP-066: Polychlorinated Biphenyls					i		
Total Polychlorinated biphenyls	1	-	µg/L	₹	₹	V	
EP-076A: Polycyclic Aromatic Hydrocarbons (PAHs)	rbons (PAHs)					The results of the second of t	
Naphthalene	91.20-3	2.0	hg/L	<2.0	00	0.00	
Acenaphthylene	208-96-8	2.0	µg/L	<2.0	<2.0	3::0	
Acenaphthene	83-32-9	2.0	µg/L	<2.0	<2.0		
Fluorene	86-73-7	2.0	μg/L	<2.0	<2.0	2 i >	
Phenanthrene	85-01-8	2.0	µg/L	<2.0	<2.0	000	
Anthracene	120-12-7	2.0	µg/L	<2.0	<2.0	<2.0	
Fluoranthene	206-44-0	2.0	hg/L	<2.0	<2.0	<2.0	
Pyrene	129-00-0	2.0	µg/L.	<2.0	<2.0	<2.0	
Benz(a)anthracene	56-55-3	5.0	μg/L	****	<2.0	<2.0	
Chrysene	218-019	1,0	hg/L	<1.0	<1.0	<1.0	
Benzo(b)fluoranthene	202-89-2	1.0	µg/L	<1.0	<1.0	<1.0	
Benzo(k)fluoranthene	207-08-9	1.0	hg/L	1	<1.0	<1.0	
Benzo(a)pyrene	50-32-8	0.2	нв∕Г	1	<0.2	<0.2	Language Constitution of the Constitution of t
Indeno(1.2.3.cd)pyrene	193-39-5	2.0	hg/L		<2.0	<2.0	
Dibenz(a.h)anthracene	53-70-3	2.0	hg/L	1	<2.0	<2.0	
Benzo(g.h.i)perylene	19124-2	2.0	hg/L	1	<2.0	<2.0	
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate	ind Bis(2-ethylhex	yl) Phtha	late		***************************************		
Phenol	108-95-2	2.0	hg/L	1	<2.0	<2.0	
Hexachlorobenzene (HCB)	118741	1.0	Hg/L	-4.0 -4.0	4.0) \	
Bis(2-ethylhexyl)phthalate	117-817	5.0	hg/L	-	0.00	***	
						t	



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CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
HK1428873 Page Number Client

Work Order

EP-071HK_SR: Total Petroleum Hydrocarbons (TPH) - Continued C6 - C8 Fraction C9 - C16 Fraction C17 - C35 Fraction EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) Benzene Toluene			origin sombling date / time	04-SEP-2014 12:30	04-SEP-2014 12:30	04-SEP-2014 12:30	
EP-071HK_SR: Total Petroleum Hydrocart C6 - C8 Fraction C9 - C16 Fraction C17 - C35 Fraction EP-074_SR-A: Monocyclic Aromatic Hydroc Benzene	CASNumber	LOR ROJ	Unit	HK1428873-001	HK1428873-002	HK1428873-003	
C6 - C8 Fraction C9 - C16 Fraction C17 - C35 Fraction EP-074_SR-A: Monocyclic Aromatic Hydroc	bons (TPH) - Co	ontinued					
C9 - C16 Fraction C17 - C35 Fraction EP-074_SR-A: Monocyclic Aromatic Hydroc Benzene Toluene		20	hg/L	<20	<20	000	v
C17 - C35 Fraction EP-074_SR-A: Monocyclic Aromatic Hydroc Benzene Toluene		200	hg/L	<500	<500	\$23. \$500	
EP-074_SR-A: Monocyclic Aromatic Hydroc Benzene Toluene	l	200	нgЛ	<500	<500	<500	
Benzene Toluene	carbons (MAH						
Toluene	7143-2	5.0	hg/L	<5.0	<5.0	<5.0	- 100
	108-88-3	5.0	µg/L	<5.0	<5.0	<5.0	
Ethylbenzene	100-41-4	2.0	Hg/L	<5.0	<5.0	<5.0	
meta- & para-Xylene	108-38-3	10	hg/L	<10	<10	<10	
Styrene	100-42-5	5.0	hg/L	<5.0	<5.0	A55.0	
ortho-Xylene	95-47-6	5.0	hg/L	<5.0	<5.0	25.0	
Xylenes (Total)	1	20	нgЛ	<20	<20	<20	
EP-074_SR-B: Oxygenated Compounds							
2-Propanone (Acetone)	67-84-1	200	hg/L	<500	<500	<500	
2-Butanone (MEK)	78-93-3	20	µg/L	<50	<50	\$20 \$20	
EP-074_SR-E: Halogenated Aliphatics	•						
Methylene chloride	75-09-2	20	µg/L	<20	220	<50	
Trichloroethene	79-01-6	5.0	hg/L	<5.0	<5.0	\$50	
Tetrachloroethene	127-18-4	5.0	µg/L	<5.0	<5.0	0.00	
EP-074_SR-G: Trihalomethanes (THM)							
Chloroform	67-66-3	5.0	hg/L	13.0	<5.0	<5.0	
Bromodichloromethane	75-27-4	5.0	hg/L	<5.0	<5.0	0.50	
EP-074_SR-I: Methyl-tert-butyl Ether	A section of the sect	i			· · · ·	and the same and t	
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5.0	hg/L	<5.0	<5.0	<5.0	
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates	ons (PAHs) Sur	rogates			1 1 1		Surrogate control limits listed at end of this report.
2-Fluorobiphenyl	32160-8	0.1	%	81.5	58.9	53.7	
4-Terphenyl-d14	1718-51-0	0.1	%	87.4	63.5	101	
EP-066S: PCB Surrogate							Surrogate control limits listed at end of this report
Tetrachlorometaxylene	8-60-22	0.1	%	108	55.8	61.8	
DibutyIchlorendate	1770-80-5	0.1	%	117	88.4	122	
EP-080_SRS: TPH(Volatile)/BTEX Surrogate	0						Surrogate control limits listed at end of this report
Dibromofluoromethane	1868-53-7	0.1	%	106	101	103	
Toluene-D8	2037-26-5	0.1	%	102	102	101	
4-Bromofluorobenzene	460-00-4	. 1.0	%	101	102	101	
EP-074_SR-S: VOC Surrogates			2				Surrogate control limits listed at end of this report.
Dibromofluoromethane	1868-53-7	0.1	%	106	101	103	
Toluene-D8	2037-26-5	0.1	%	102	102	101	
4-Bromofluorobenzene	460-00-4	0.1	%	5	102	101	



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Client : CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
Work Order HK1428873

Laboratory Duplicate (DUP) Report

1						reported buying the port report	TOMOS.	
Laboratory sample ID Clier	Client sample ID	Method: Compound	CAS Number	10K	Unit	Original Result	Duplicate Result	RPD (%)
Maj	Cations - Filtered	(QC Lot: 3622541)						
HK1428873-003 EQI	EQUIPMENT BLANK	EG036: Mercury	7439-97-6	0.5	110/1	\$ US	۲ ۲	C
Ma Ma	Cations - Filtered	(QC Lot: 3622542)			i L		Ĉ,	3
HK1428873-003 EQI	EQUIPMENT BLANK	EG020: Cadmium	7440-43-9	0.2	ng/L	<0.2	<0.2	c
		EG020: Antimony	7440-36-0	-	ng/L	₹	₹	0.0
		EG020: Barium	7440-39-3	-	ng/L	⊽	₹	0.0
		EG020: Cobalt	7440-48-4	-	ug/L	₹	₽	0.0
		EG020: Copper	7440-50-8	-	ng/L	₹	⊽	0.0
		EG020: Lead	7439-92-1	•	ng/L	₹	₹	0.0
		EG020: Manganese	7439-96-5	-	hg/L	₹	⊽	0.0
		EG020: Molybdenum	7439-98-7	-	ng/L	₹	₹	0.0
		EG020: Nickel	7440-02-0	-	ng/L	⊽	⊽	0.0
		EG020: Tin	7440-31-5	-	ug/L	₹	₽	0.0
		EG020: Arsenic	7440-38-2	10	ng/L	<10	~10	0.0
		EG020: Zinc	7440-66-6	10	na/L	<10	<10	00
Ξ	Cations - Filtered	(QC Lot: 3622543)			2			?
HK1428873-003 EQI	EQUIPMENT BLANK	EG050: Hexavalent Chromium	18540-29-9	20	ng/L	<20	000	C

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report
Method Blank (MB) Report
Laboratory C

Matrix: WATER			Method Blank (MB) Report) Report		Laboratory Contro	Laboratory Control Salke (LCS) and Laboratory Control Salka Dunitinate (DCS) Beaned	harstory Control	Spiles Ountinate	(DCE) Beans	
			•		. 1		and a contract of the contract	Composition of the composition o	June Jupinesis	under (com	
		:			Spike	Spike Re	Spike Recovery (%)	Recovery	Recovery Limits (%).	2	RPD (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	SOT	DCS	row	High	Value	Control Limit
EG: Metals and Major Cations - Filtered (QC Lot: 3622541)	ered (QC Lot: 3622	541)									
EG036: Mercury	7439-97-6	0.05	hg/L	<0.05	2 µg/L	106	i	11	117	1	
EG: Metals and Major Cations - Filtered (QC Lot: 3622542)	ered (QC Lot: 3622)	542)									
EG020: Antimony	7440-36-0	-	ng/L	₹	100 µg/L	90.2		77	105	(Section)	
EG020: Arsenic	7440-38-2	10	ng/L	<10	100 µg/L	104	1	26	116	1	1
EG020: Barium	7440-39-3	-	hg/L	₹	100 µg/L	87.2	B BAA	82	108	i	1 1 1 1
EG020: Cadmium	7440-43-9	0.2	hg/L	<0.2	100 µg/L	93.5		.00	107	.1	
EG020: Cobalt	7440-48-4	:-	hg/L	۰⊽	100 µg/L	98.8	1	83	106	1	***************************************
EG020: Copper	7440-50-8	-	hg/L	₹	100 µg/L	99.4	į	7.9	113	e la company	1
EG020: Lead	7439-92-1	_	hg/L	₹	100 µg/L	102	1	82	108	1	1
EG020: Manganese	7439-96-5	_	hg/L	₹	100 µg/L	104	100	80	112		
EG020: Molybdenum	7439-98-7	-	µg/L	₹	100 µg/L	97.6	1	83	109	1	1
EG020: Nickel	7440-02-0	-	hg/L	₹	100 µg/L	98.1	ACC www	11	5.5	****	j
EG020: Tin	7440-31-5	9	hg/L	<10	100 µg/L	94.1	And the Research	92	108	1	1
EG020: Zinc	7440-66-6	10	ng/L	<10	100 µg/L	105		11	115	1	-
EG: Metals and Major Cations - Filtered (QC Lot: 3622543)	ered (QC Lot: 3622)	543)									
EG050: Hexavalent Chromium	18540-29-9	20	hg/L	<20	100 µg/L	102	-	80	106	ì	I
EP-076: Polycyclic Aromatics Hydrocarbons (PAHs) (QC Lot: 3626645)	carbons (PAHs) (C	C Lot: 36	326645)						:		
Naphthalene	91-20-3	0.2	hg/L	<0.2	0.5 µg/L	53.3	7	20	800	1	
Acenaphthylene	208-96-8	0.2	ng/L	<0.2	0.5 ug/L	58.1	A STATE OF THE STA	47	26	ļ	



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Page Number Client Work Order

						Spike	Spikel	Spike Recovery (%)	Recover	Recovery limits (%)	Q	WDD /%)
Method: Compound	CAS Number	LOR	Unit		Result	Concentration	SO7	DCS	Low	High	Vaiue	Control limit
EP-076: Polycyclic Aromatics Hydrocarbons (PAHs) (QC Lot: 3626645) - Continued	Irocarbons (PAHs) (ac Lot: 3	626645)	- Continu	per							
Acenaphthene	83-32-9	0.2	hg/L	:	<0.2	0.5 ua/L	50.6		40	80		
Fluorene	86-73-7	0.2	ng/L		<0.2	0.5 ug/l	53.8		2	8 8		Abrest broken
Phenanthrene	82-01-8	0.2	ng/L		<0.2	0.5 ug/L	60.3	PAI TO	7 2	92		-
Anthracene	120-12-7	0.2	na/L		<0.2	0.5 uo/l	63.0		- 8	- u	1	-
Fluoranthene	206-44-0	0.2	J/pn		×0.2	0.5 0.0/1	70.7		1 0	200	ŧ	1
Pyrene	129-00-0	0.2	l /on		50.5 20.5	194 CO	- C0		8 8	57.	1	
Benz(a)anthracene	56-55-3	0.0)))	-	50.5	0.0 µg/L	00.0	Milmon	000		No. of Concession, Name of Street, or other Persons, Name of Street, or ot	***************************************
Chasene	210 01 0	100) 1		, ç	0.3 µg/L	0 i	-14	20	118		İ
an years	8-10-01Z	2.0	hg/L		×0.2	0.5 µg/L	87.8	I	20	124	}	Ī
penzo(b)nuorantnene	202-88-2	0.2	hg/L		<0.2	0.5 µg/L	97.9	į	72	124	t	į
Benzo(k)fluoranthene	207-08-9	0.2	hg/L		<0.2	0.5 µg/l.	85.7		54	130	i	1
Benzo(a)pyrene	50-32-8	0.2	hg/L		<0.2	0.5 µg/L	91.6	1	09	120	1	11
Indeno(1.2.3.cd)pyrene	193-39-5	0.2	hg/L		<0.2	0.5 µg/L	95.4	P1.65	09	119		
Dibenz(a.h)anthracene	53-70-3	0.2	µg/L		<0.2	0.5 µg/L	89.1	***************************************	84	120	İ	
Benzo(g.h.i)perylene	191-24-2	0.2	hg/L		<0.2	0.5 µg/L	92.4	Berland	22	125	at was	
EP-066: Polychlorinated Biphenyls (QC Lot; 3626644)	s (QC Lot: 3626644)								;			
Total Polychlorinated biphenyls		-	na/l		⊽	10 un/l	04.2		r.	100		
EP-0768: Phenol Hexachlorobenzens and Ris(2 othylboxyl) Bhtholista (OC et. 2626645)	Indto Collaboration	Dhy	C) ctclock	2 1 04: 2	13000	i b i	7.	ľ	S	27	Ė	1
Dhonol	TO GO OF O	EAN) FI	nalate L	S LOC	020040)							
nenoi Secoplomenta (100)	7-08-801	ត រ	hg/L		<5.0 - ±	0.5 µg/L	56.9	down	39	98	İ	1
Discontinuosenzene (PCB)	118-74-1	ဂ ္	hg/L		<5.0	0.5 µg/l.	54.8	ĺ	51	96	And the last of th	
bis(z-etnyinexyi)pnthalate	11/-81-7	9:	hg/L		<10.0	0.5 µg/L	110	1	78	123	Ann an extraor	1
EP-071HK_SR: Total Petroleum Hydrocarbons (TPH)	drocarbons (TPH) ((QC Lot: 3616637)	616637)									
C6 - C8 Fraction	1	0.02	mg/L		<0.02	0.03 mg/L	95.4	777	62	131		1
EP-07*HK_SR: Total Petroleum Hydrocarbons (TPH) (QC Lot: 3626646)	/drocarbons (TPH) (QC Lot: 3	626646)									
C9 - C16 Fraction		0.5	mg/L		<0.5	0.21 ma/l.	74.7	Table	12	140		
C17 - C35 Fraction	The real of the same of the sa	0.5	mg/L	H	<0.5	0.45 mg/L	100	j	Į m	116		
EP-074 SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3612911)	ic Hydrocarbons (M	AH) (OC	Lot: 36129	911		•			,	2		
Benzene	71-43-2	0.5	na/l		<0.5	2 un/l	101	į	20	105		
Toluene	108-88-3	0.5	na/L		<0.55 50.55	2 no/[97.3	9	8 8	12.1		I.
Ethylbenzene	100-41-4	0.5	ng/L		<0.5	2 ua/L	94.4		9	120	4	
meta- & para-Xylene	108-38-3		hg/L		⊽	4 µg/L	10	and the second	76	119	1	
Styrene	100-42-5	0.5	na/L		<0.5	2 110/1	92.3		S	۳ ۲		
ortho-Xylene	95-47-6	0.5	na/L		<0.5	2 no/!	9.5.0 8.7.0 8.7.0	1	2 8	133		
Xylenes (Total)	1	7	na/L		5	6 uo/l	99.5		77.	126		
EP-074 SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot:	ic Hydrocarbons (M/	M) (OC		544)						}		2160
Benzene	71-43-2	0.5			<0.5	2 un/l	414		ŭ Oŭ	AC.		
Toluene	108-88-3	0.5	l'an	-	<0.5	2 mg/l	† +		8.0	121	ļ	I
Ethylbenzene	100-41-4	0.5	na/l.		<0.5	2 ua/l	109		5 8	120		
meta- & para-Xylene	108-38-3	,	l'on		} ₹	4 Ind/	103		92	7 7 7		
	106-42-3		r D		-	j L	3		9	2		
Styrene	100-42-5	0.5	hg/L		<0.5	2 µg/L	114	1	80	116		lo maria
ortho-Xvlene	95-47-B	0.00	/DI		<0.5	2 110/	106		77	123		



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Client CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
Work Order HK1428873

Matrix: WATER			Method Blank (MB) Report	Report		Laboratory Control	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report	oratory Control	Spike Duplicate	(DCS) Report	
E Company					Spike	Spike Rec	Spike Recovery (%)	Recovery	Recovery Limits (%)	DX.	RPD (%)
Method: Compound	CAS Number LOR	TOR	Cnit	Result	Concentration	SO7	DCS	Tow	Hiah	Value	Control Limit
EP-074_SR-A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 3622544) -	c Hydrocarbons (M.	AH) (QC	Lot: 3622544)	- Continued					,		
Xylenes (Total)		5	hg/L	8	6 µg/L	104	1	75	120	1	-
EP-074_SR-B: Oxygenated Compounds (QC Lot: 3612911)	unds (QC Lot: 3612	2911)	1						2		
2-Propanone (Acetone)	67-64-1	· rv	ng/L		20 ua/L	111		8	130	1000	
2-Butanone (MEK)	78-93-3	5	hg/L	\$	20 µg/L	110		63	127	1	
EP-074_SR-B: Oxygenated Compounds (QC Lot: 3622544)	unds (QC Lot: 3622	2544)									
2-Propanone (Acetone)	67-64-1	, rto	hg/L	\ \ \ \	20 µg/L	111	1	60	130	1	9
2-Butanone (MEK)	78-93-3	Ŋ	hg/L	<2>	20 µg/L	106	ſ	63	127	1	
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 3612911)	ics (QC Lot: 36129	11									
Methylene chloride	75-09-2	က	ng/L	2	2 ua/L	296.2	***************************************	OK OK	126	2	
Trichloroethene	79-01-6	0.5	hg/L	<0.5	2 µg/L	88.0	1	22	114	11	
Tetrachloroethene	127-18-4	0.5	hg/L	<0.5	2 µg/L	88.4	1	82	113	1	Ì
EP-074_SR-E: Halogenated Aliphatics (QC Lot: 3622544)	ics (QC Lot: 36225	<u>\$</u>									
Methylene chloride	75-09-2	S	hg/L	^	2 µg/L	112	1	80	126	1	
Trichloroethene	79-01-6	0.5	hg/L	<0.5	2 µg/L	105		11	114	1	I
Tetrachloroethene	127-18-4	0.5	hg/L	<0.5	2 µg/L	111	1	82	113	-	1
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 3612911)	HM) (QC Lot: 36129	11									Ø1 16.
Chloroform	67-66-3	0.5	hg/L	<0.5	2 µg/L	96.1	777	22	118	Minut do min	1
Bromodichloromethane	75-27-4	0.5	hg/L	<0.5	2 µg/L	84.3	1	74	115	Ţ	1
EP-074_SR-G: Trihalomethanes (THM) (QC Lot: 3622544)	1M) (QC Lot: 36225	44)				:					
Chloroform	87-66-3	0.5	hg/L	<0.5	2 µg/l.	117	1	22	118	1	THE STATE OF THE S
Bromodichloromethane	75-27-4	0.5	µg/L	<0.5	2 µg/L	105	1	74	115	İ	-
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3612911)	r (QC Lot: 3612911								-		
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	97.8	1	49	119	j	1
EP-074_SR-I: Methyl-tert-butyl Ether (QC Lot: 3622544)	ir (QC Lot: 3622544					Annual control					
Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	µg/L	<0.5	2 µg/L	110	riverence	2	119		di membe
								7.00			



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Work Order

Matrix: WATER	Matrix: WATER			Matrix Spike (Matrix Spike (MS) and Matrix Spike Dunicate (MSD) Report	r Snike Dunli	Cato (MSD)	Ponort	
			Spike	Spike Recovery (%)	overy (%)	Recovery Limits (%)	imits (%)		RPD (%)
Laboratory Client sample ID sample ID	Method: Compound	CAS	Concentration	MS	MSD	Low	High	Value	Control
EG: Metals and Major Cations - Filtered (QC Lot: 3622541)	ed (QC Lot: 3622541)							:	
HK1428873-002 FIELD BLANK	EG036: Mercury	7439-97-6	2 µg/L	103	Province	75	125	ļ	1
EG: Metals and Major Cations - Filtered (QC Lot: 3622542)	id (QC Lot: 3622542)								
HK1428873-002 FIELD BLANK	EG020: Antimony	7440-36-0	100 µg/L	94.3	1	75	125	40000	all trains
	EG020: Arsenic	7440-38-2	100 µg/L	106	1	75	125	-	
	EG020: Barium	7440-39-3	100 µg/L	91.9	1	75	125	*******	-
	EG020: Cadmium	7440-43-9	100 µg/L	7.76	1	75	125	1	İ
	EG020: Cobalt	7440-48-4	100 µg/L	104	ŧ	75	125		į
	EG020: Copper	7440-50-8	100 µg/L	101	***************************************	75	125	ļ	1
	EG020: Lead	7439-92-1	100 µg/L	99.5	-	75	125		
	EG020: Manganese	7439-96-5	100 µg/L	107	1	75	125	į	į
	EG020: Molybdenum	7439-98-7	100 µg/L	102	1	75	125		1
	EG020: Nickel	7440-02-0	100 µg/L	101	1	75	125		1
	EG020: Tin	7440-31-5	100 µg/L	96.5	7	75	125	I	1
	EG020: Zinc	7440-66-6	100 µg/L	109	I	75	125	-	Milleria
EG: Metals and Major Cations - Filtered (QC Lot: 3622543)	id (QC Lot: 3622543)						and the second		
HK1428873-002 FIELD BLANK	EG050: Hexavalent Chromium	18540-29-9	100 ua/I	95.6		75	125		

Surrogate Control Limits

Sub-Matrix: WATER	.6.4	Recovery	Recovery Limits (%)
Compound	CAS Number	Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates	rbons (PAHs) Surrogates		
2-Fluorobiphenyl	321-60-8	20	130
4-Terphenyl-d14	1718-51-0	20	130
EP-066S: PCB Surrogate			
Tetrachlorometaxylene	877-09-8	20	130
Dibutylchlorendate	1770-80-5	50	130
EP-080_SRS: TPH(Volatile)/BTEX Surrogate	gate		
Dibromofluoromethane	1868-53-7	98	118
Foluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	88	115
EP-074_SR-S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	98	118
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	98	115

ALS Technichem (HK) Pty Ltd



ANALYTICAL CHEMISTRY & TESTING SERVICES



SUB-CONTRACTING REPORT

CONTACT : HANNAH CHIU **WORK ORDER** HK1428873

CLIENT **CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

ADDRESS 7/F, EMPIRE CENTRE, SUB-BATCH DATE RECEIVED DATE OF ISSUE 68 MODY ROAD.

TSIM SHA TSUI EAST. KOWLOON, HONG KONG

PROJECT SITE INVESTIGATION FOR TRUNK ROAD T2 AND NO. OF SAMPLES 3 J3539

INFRASTRUCTURE AT SOUTH APRON (STAGE 2) **CLIENT ORDER**

General Comments

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

Water sample(s) were filtered prior to dissolved metal analysis.

Dioxins was subcontracted to and analysed by ALS Czech Republic.

Signatories

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Position

Richard Fung

General Manager

WORK ORDER

HK1428873

SUB-BATCH

: 1

CLIENT PROJECT CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SITE INVESTIGATION FOR TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH

APRON (STAGE 2)



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1428873-001	EH1B	WATER	04-SEP-2014 12:30	PR1449688001
HK1428873-002	FIELD BLANK	WATER	04-SEP-2014 12:30	PR1449688002
HK1428873-003	EQUIPMENT BLANK	WATER	04-SEP-2014 12:30	PR1449688003



CERTIFICATE OF ANALYSIS

Work Order	: PR1449688	Issue Date	18-SEP-2014
Client	ALS Technichem (HK) Pty Ltd.	Laboratory	ALS Czech Republic, s.r.o.
Contact	Mr. Richard Fung	Contact	Client Service
Address	11/F, Chung Shun Knitting Centre	Address	Na Harfe 336/9 Prague 9 - Vysocany
	1-3 Wing Yip Street Kwai Chung Hong Kong		Czech Republic 190 00
E-mail	richard.fung@alsglobal.com	E-mail	customer.support@alsglobal.com
Telephone	+852 26101044	Telephone	+420 226 226 228
Facsimile	+852 26102021	Facsimile	+420 284 081 635
Project	-	Page	1 of 2
Order number		Date Samples Received	11-SEP-2014
C-O-C number	10 -110	Quote number	: PR2011ALSTE-HK0268
Site	(T. +	Date of test	12-SEP-2014 - 18-SEP-2014
Sampled by	client	QC Level	ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory. The laboratory declares that the test results relate only to the listed samples.

Responsible for accuracy

<u>Signatories</u> Zdenek Jirak



Position
Environmental Business Unit
Manager



Testing Laboratory Accredited by CAI





Issue Date

18-SEP-2014

Page Work Order

2 of 2 PR1449688

Client

ALS Technichem (HK) Pty Ltd.



Analytical Results

Sub-Matrix: WATER		Clie	ent sample ID	HK1428873 EH18		HK1428873 FIELD BL		HK1428873	
		Laborato	ry sample ID	PR144968	8001	PR144958	8002	PR144968	8003
		Client samplir	ng date / time	04-SEP-2014	4 00:00	04-SEP-2014	00:00	04-SEP-2014	00:00
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
PCDDs and PCDFs (Dioxins and Fura	ınsi								
2378-TCDD	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	
12378-PeCDD	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	_
123478-HxCDD	W-DFHMS01	-	pg/L	n.d.]	n.d.		n.d.	
123678-HxCDD	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	
123789-HxCDD	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	
1234678-HpCDD	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	
OCDD	W-DFHMS01	-	pg/L	860	±30.0 %	n.d.		n.d.	
2378-TCDF	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	
12378-PeCDF	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	
23478-PeCDF	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	
123478-HxCDF	W-DFHMS01	-	pg/L	л.d.		n.d.		n.d.	
123678-HxCDF	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	
123789-HxCDF	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	
234678-HxCDF	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	_
1234678-HpCDF	W-DFHMS01	- 1	pg/L	n.d.		n.d.		n.d.	
1234789-HpCDF	W-DFHMS01	-	pg/L	n.d.		n.d.		n.d.	
OCDF	W-DFHMS01	- 1	pg/L	n.d.		n.d.		n.d.	
TEQ-Lowerbound	W-DFHMS01	1 - 1	pg/L	0.86		0		0	
TEQ-Upperbound	W-DFHMS01	-	pg/L	4.5		4.6		4.3	

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance	v: V Raji 906 Pardubice - Zelene Predmesti Czech Republic 530 02
W-DFHMS01	CZ_SOP_D08_06_175 - except chap. 8.2.1.1 B, 8.2.1.3 B, 8.2.1.5 B,C,D, 11.2.3.2- 11.2.3.7, 11.2.4, 11.2.5 (US EPA 1613):
	Determination of tetra- to octa-chlorinated dioxins and furanes by isotope dilution method using HRGC-HRMS and calculation
	of TEQ parameters from measured values.
	The samples were stored in laboratory in the darkness and under temperature <4°C.
	Actual LOQ are noticed in the annex.

A '*' symbol preceeding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.



Attachment no. 1 to the Certificate of Analysis for work order PR1449688

Sample: HK1428873-001 EH1B

Measurement results:

Sample:	HK14288	373-001 EH1B			
			Final extract [µl]:		60
Sample volume [ml]:		960	Injection volume [µl]		4
			Acquisition date [d.n	ny h:m]:	15.9.14 22:03
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹ I-TEFs	I-TEQ
		Detection	Quantification		
	[pg/l]	[pg/l]	[pg/l]		[pg/l]
2,3,7,8-TCDD	n.d.	0.94	1.9	1	0
1,2,3,7,8-PeCDD	n.d.	1.3	2.6	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	1.6	3.2	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	1.6	3.2	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	1.6	3.2	0.1	0
1,2,3,4,6,7,8-HpCDD	n.d.	2.4	4.7	0.01	0
OCDD	860	3.8	7.6	0.001	0.86
2,3,7,8-TCDF	n.d.	0.76	1.5	0.1	0
1,2,3,7,8-PeCDF	n.d.	1.2	2.3	0.05	0
2,3,4,7,8-PeCDF	n.d.	1.2	2.3	0.5	. 0
1,2,3,4,7,8-HxCDF	n.d.	1.9	3.9	0.1	0
1,2,3,6,7,8-HxCDF	n.d.	1.9	3.9	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	1.9	3.9	0.1	0
2,3,4,6,7,8-HxCDF	n.d.	1.9	3.9	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	1.5	3	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	1.5] 3	0.01	0
OCDF	n.d.	3	6	0.001	0
I-TEQ from quantifie	d2,3,7,8-PCD	D/Fs [pg 2,3,7,8-	TCDD/1]-"Lowerbound		0.86
I-TEQ from quantified					0.86
I-TEQ from quantified				19305a	0
I-TEQ from n.d. and n					3.6
Maximum possible I-				E	4.5
PCDDs	Content	[pg/l]	PCDFs	Content	[pg/l]
Tetra-CDDs	•	n.d.	Tetra-CDFs	94.75	n.d.
Penta-CDDs		n.d.	Penta-CDFs		n.d.
Hexa-CDDs		n.d.	Hexa-CDFs		n.d.
Hepta-CDDs		n.d.	Hepta-CDFs		n.d.
OCDD		860	OCDF		n.d.
Total PCDDs		860	Total PCDFs	i i	n.d.

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

ALS Czech Republic, s.f.o.

ADRESA V Ráji 906, 530 02 Pardubice, Czech republic





Attachment no. 2 to the Certificate of Analysis for work order PR1449688

Sample: HK1428873-002 FIELD BLANK

Measurement results:

Sample:	HK1428873-0	02 FIELD BLANK			
			Final extract [µl]:		60
Sample volume [ml]:		890	Injection volume [µl]		4
			Acquisition date [d.r	n.y h:m]:	15.9.14 23:05
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹I-TEFs	I-TEQ
		Detection	Quantification		
	[pg/l]	[pg/l]	[pg/l]		[pg/l]
2,3,7,8-TCDD	n.d.	1.3	2.6	1	0
1,2,3,7,8-PeCDD	n.d.	1.9	3.7	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	2.1	4.3	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	2.1	4.3	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	2.1	4.3	0.1	0
1,2,3,4,6,7,8-HpCDD	n.d.	2.3	4.6	0.01	0
OCDD	n.d.	3.2	6.4	0.001	0
2,3,7,8-TCDF	n.d.	0.98	2	0.1	0
1,2,3,7,8-PeCDF	n.d.	1.6	3.2	0.05	0
2,3,4,7,8-PeCDF	n.d.	1.6	3.2	0.5	0
1,2,3,4,7,8-HxCDF	n.d.	1.8	3.5	0.1	0
1,2,3,6,7,8-HxCDF	n.d.	1.8	3.5	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	1.8	3.5	0.1	0
2,3,4,6,7,8-HxCDF	n.d.	1.8	3.5	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	2.2	4.3	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	2.2	4.3	0.01	0
OCDF	n.d.	3.4	6.8	0.001	0
I-TEQ from quantifie	d 2,3,7,8-PCD	D/Fs [pg 2,3,7,8-	TCDD/1]-"Lowerbound	9	0
I-TEQ from quantified					0
I-TEQ from quantified	1 2,3,7,8-PCDF	s [pg 2,3,7,8-TCD]	D/l]		0
I-TEQ from n.d. and r	on quantified	2,3,7,8-PCDD/Fs	[pg 2,3,7,8-TCDD/l]		4.6
Maximum possible I-	TEQ [pg 2,3,7.	8-TCDD/1}-"Upp	erbound'		4.6
PCDDs	Content	[pg/l]	PCDFs	Content	[pg/l]
Tetra-CDDs		n.d.	Tetra-CDFs		n.d.
Penta-CDDs		n.d.	Penta-CDFs		n.d.
Hexa-CDDs	==	n.d.	Hexa-CDFs		n.d.
Hepta-CDDs		n.d.	Hepta-CDFs		n.d.
OCDD		n.d.	OCDF	Ų.	n.d.
Total PCDDs		n.d.	Total PCDFs		n.d.

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

ALS Czech Republic, s.r.o.

ADRESA V Ráji 906, 530 02 Pardubice, Czech republic



Attachment no. 3 to the Certificate of Analysis for work order PR1449688

Sample: HK1428873-003 EQUIPMENT BLANK

Measurement results

Sample:		HK1428	87 <u>3-003 EQUIPMENT B</u>	LANK	
			Final extract [µl]:		60
Sample volume [ml]:		890	Injection volume [µl]		4
			Acquisition date [d.n	n.y h :m]:	16.9.14 0:08
2,3,7,8-PCDD/Fs	Content	Limit of	Limit of	¹ I-TEFs	I-TEQ
		Detection	Quantification		
	[pg/l]	[pg/l]	[pg/1]		[pg/l]
2,3,7,8-TCDD	n.d.	1.3	2.6	1	0
1,2,3,7,8-PeCDD	n.d.	1.3	2.6	0.5	0
1,2,3,4,7,8-HxCDD	n.d.	2.2	4.4	0.1	0
1,2,3,6,7,8-HxCDD	n.d.	2.2	4.4	0.1	0
1,2,3,7,8,9-HxCDD	n.d.	2.2	4.4	0.1	0
1,2,3,4,6,7,8-HpCDD	n.d.	2,7	5.5	0.01	0
OCDD	n.d.	3.1	6.3	0.001	0
2,3,7,8-TCDF	n.d.	1.1	2.1	0.1	0
1,2,3,7,8-PeCDF	n.d.	1.2	2.3	0.05	0
2,3,4,7,8-PeCDF	n.d.	1.2	2.3	0.5	0
1,2,3,4,7,8-HxCDF	n.d.	2.2	4.4	0.1	0
1,2,3,6,7,8-HxCDF	n.d.	2.2	4.4	0.1	0
1,2,3,7,8,9-HxCDF	n.d.	2.2	4.4	0.1	0
2,3,4,6,7,8-HxCDF	n.d.	2.2	4.4	0.1	0
1,2,3,4,6,7,8-HpCDF	n.d.	2.8	5.6	0.01	0
1,2,3,4,7,8,9-HpCDF	n.d.	2.8	5.6	0.01	0
OCDF	n.d.	3.3	6.7	0.001	0
I-TEQ from quantifie	d 2,3,7,8-PCD	D/Fs [pg 2,3,7,8-	TCDD/1]-"Lowerbound	,	0
I-TEQ from quantified	1 2,3,7,8-PCDD	s [pg 2,3,7,8-TCD	D/l]		0
I-TEQ from quantified					0
I-TEQ from n.d. and n					4.3
Maximum possible I-				j •	4.3
PCDDs	Content		PCDFs	Content	[pg/l]
Tetra-CDDs	7	n.d.	Tetra-CDFs		n.d.
Penta-CDDs		n.d.	Penta-CDFs		n.d.
Hexa-CDDs		n.d.	Hexa-CDFs		n.d.
Hepta-CDDs		n.d.	Hepta-CDFs	154	n.d.
OCDD		n.d.	OCDF		n.d.
Total PCDDs	•	n.d.	Total PCDFs		n.d.

¹I-TEF according to NATO.

The limits of quantification are defined as the double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% interval of reliability.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total TEQ is 20%.

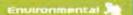
These values were ensured by analyses of certified reference material under conditions of internal reproducibility. Results marked "<" are situated in the interval of the limit of detection and the limit of quantification and are not quantified.

Results marked "n.d." are lower than the limit of detection.

"Lowerbound" and "Upperbound" are levels defined in Regulation 589/2014 and EN 1948-4.

ALS Czech Republic, s.r.o.

AGRESA V Ráji 906, 530 02 Pardubice, Czech republic



Section 3 Summary of Sample Receipt Condition, Analysis Date and Method Reference



Summary of Sample Receipt Condition, Analysis Date and Method Reference

04/11/2014 Date of Issue: Client:

Civil Engineering and Development Department
Site Investigation for Trunk Road T2 and Infrastructure at South Apron (Stage 2)
Infrastructure at South Apron (Stage 2) Project:

ALC 1.4k ID				Re	eceipt Details	100	Storage			Testin	Testing Date		
רביז רמיז ווס	Cilient Sample ID	Sampling Date / 11me	Matrix	Date	Time	Condition	Condition*	Moisture	Metals	TPHs	PCB	VOCs	SVOC
HK1428586001	EH1B 3.0M	03/09/2014 10:30	Soil	03/09/2014	17:30	Chilled	4°C	15/09/2014	17/09/2014	10/9/2014	10/09/2014	10/09/2014	10/06/2014
HK1428586002	EH1B 6.0M	03/09/2014 14:15	Soil	03/09/2014	17:30	Chilled	4°C	15/09/2014	17/09/2014	10/9/2014	10/09/2014	10/09/2014	10/09/2014
HK1428586003	EH18 9.0M	03/09/2014 15:20	Soil	03/09/2014	17:30	Chilled	4°C	15/09/2014	17/09/2014	10/9/2014	10/09/2014	10/09/2014	10/09/2014
HK1428555001	EH1B 0.5M	01/09/2014 14:00	Soil	01/09/2014	18:15	Chilled	4°C	15/09/2014	13/09/2014	10/9/2014	10/09/2014	10/9/2014	10/09/2014
HK1428555002	EH3B 0.5M	01/09/2014 14:00	Soil	01/09/2014	18:15	Chilled	4°C	15/09/2014	13/09/2014	10/9/2014	10/09/2014	10/9/2014	10/09/2014
HK1429117001	EH3B 3.0M	08/09/2014 09:00	Soil	08/09/2014	16:05	Chilled	4°C	15/09/2014	22/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
HK1429117002	EH3B 6.0M	08/09/2014 10:30	Soil	08/09/2014	16:05	Chilled	4°C	15/09/2014	22/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
HK1429117003	EH3B 9.0M	08/09/2014 12:00	Soil	08/09/2014	16:05	Chilled	4°C	15/09/2014	22/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
HK1428873001	EH1B	04/09/2014 12:30 Groundwater	Groundwater	04/09/2014	17:25	Chilled	4°C	N/A	11/09/2014	10/09/2014	15/09/2014	10/09/2014	15/09/2014
HK1429117004	EH3B	08/09/2014 14:30	Groundwater	08/09/2014	16:05	Chilled	4°C	N/A	18/09/2014	17/09/2014	16/09/2014	17/09/2014	16/09/2014
HK1428873002	FIELD BLANK	04/09/2014 12:30	Blank	04/09/2014	17:25	Chilled	4°C	N/A	11/09/2014	10/09/2014	15/09/2014	10/09/2014	15/09/2014
HK1428873003	EQUIPMENT BLANK	HK1428873003 EQUIPMENT BLANK 04/09/2014 12:30	Blank	04/09/2014	17:25	Chilled	4°C	N/A	11/09/2014	10/09/2014	15/09/2014	10/09/2014	15/09/2014

Section 4 Chain of Custody (COC) Form

EMAIL REPORT TO: jason lan @ gammon construction. Com/ Samuel. la: @gammon Contactor. Co. Notes: e.g. Highly contaminated samples Extra volume for QC or trace LORs etc. TCLP WIll be ALS Lationatory Group METHOD OF SHIPMENT e.g. "High PAHs expected" Carried ont 28 wired Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Con' Note No: Transport Co: * ANALYSIS REQUIRED Including SUITES (note - suite codes must be listed to attract sulte prices) 029001 Date: Time: Date: Тіте: RECEIVED BY Z 775277 EMAIL INVOICE TO: (if different to report) James J. > SAMPLER > /WO GET, MOBILE: PHONE . Name: Matols ö ö Total bottles COMMENTS / SPECIAL HANDLING / STORAGE OR DIPOSAL CONTAINER INFORMATION Date: \$1/04/2014 QUOTE NO. 4K/15970/13 Date: 01 / 09 / > ADDRESS/OFFICE: M/K, 03-25, CHUN MANG ST, ISSUNG, FAMM D Time: (\$7.20 3 Type / Code Bothe Bottle Time: CHAIN OF CUSTODY DOCUMENTATION P.O. NO 44/17 14-00 1/4/14 //200 Filme Jason LAU Common Construction RELINQUISHED BY MATRIX DATE 100 SAMPLE INFORMATION (note: S = Soil, W=Water) SHIMMEL Constraiter 5 (E) J3539 SITE: Ul for Trunk Rd. Te Dook 8.5m 0.5 N. COOLER SEAL (circle appropriate) SAMPLE ID T. AMMER AMMY V FOR LABORATORY USE ONLY RESULTS REQUIRED (Date): **BCILIA** E G PROJECT MANAGER (PM): SAMPLE TEMPERATURE 即 (8 EH38 (g) Yes PROJECT ID: CHILLED Name: ALS ID ö ö

ALS Laboratory Group

Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soll; B = Unpreserved Bag.

V = VOA VIAI HOI Preserved; VS = VOA VIAI Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HOI Preserved Plastic; HS = HOI Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;

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Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soll; B = Unpreserved Bag.

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CHZ	CHAIN OF CUSTODY DOCUMENTATION	Y DO	CUME	NTAT	NO							Į	129	029003	< 	
CLIENT	GAMMON	Cons	Ons TRUTTON	all No	i o		SAMPLER	ľ	Some	۱,	3					
ADDRES	ADDRESS/OFFICE: MIF. of SX. Chun WIDING ST	- عد. (Hien 6	Jans		TKO /NO. 25.T.	MOBILE		967	24	7				(ALS	<u> </u>
PROJEC	PROJECT MANAGER (PM):	Jason Lau.	La is.	5			PHONE	1,1							ALS Leboratory Group	4 Group
PROJEC	PROJECTID: J-3539 /	K	KL/2013/02	3/02			EMAIL	EMAIL REPORT TO:	ö							
SITE:	J.J. for Think Rd	4	72.	P.O. NO.:	١		EMAIL	INVOICE T	EMAIL INVOICE TO: (if different to report)	of to report)						
RESULT	RESULTS REQUIRED (Date): 754			QUOTEN	QUOTE NO.: HK/GT/2/	113	ANAL	SIS REQU	RED inclu	IIng SUITE	S(note - s	uite codes	must be li	ANALYSIS REQUIRED including SUITES(note - suite codes must be listed to attract suite prices)	prices)	
FORLA	FOR LABORATORY USE ONLY	NOO	MENTS/S	PECIAL HAN	COMMENTS / SPECIAL HANDLING / STORAGE OR DIPO	SE OR DIPOSAL:			5	2					Notes: e.g. Highly contaminated samples	nated samples
COOLER	COOLER SEAL (pircle appropriate)						1		>8 _{<}	*					e.g. "High PAHs expected"	
Intact	Ne sex						5	2	1/	ر پ			<u> </u>		Extra volume for QC or trace LORs etc.	e LORs etc.
CHILLED	FMPERATURE No						ter	26	2 46×	د از از مروس	1-0-					
		te: S = Soll,	W=Water)		CONTAINER	CONTAINER INFORMATION	か	1/	5/(2/(91						
ALS ID	SAMPLE ID	MATRIX	X DATE	Time	Type / Code	Total bottles	/		7	2					*4	
)	EH18	<u> </u>	6/3 /	12:30			>	7	>	> >					151P to	A 60
٨	Field Clank		6/4	7//26		3	>	7	>	>			-		Conted o. t	7
3	Grapment Blank	X	4/2	1230		5	>	>	>	>			_		Marined.	7
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		RELIN	RELINQUISHED BY:) 							RECEIVED BY	βķ			METHOD OF SHIPMENT	MENT
Name:	Temps Car				Date: 🔗	3116B	Name:					П	Date:	\	Con' Note No:	
ö	Gramman Construct	mater	(Ha	ان	Time:	12.00	ģ				8	Ē	Time:	410		
Name:	CECILLA PON				Date: 10	3/18	Name:					De	Date:		Transport Co:	
ö	HMTV				Time: / 1⁄2	14:00	ō.			•		Ĕ	Time:	イナング		
Water C	Water Container Codes: P = Unpreserved Plastic: N = Nitric Preserved Plastic: ORC = Nitric Preserved ORC: SH = Sodium Hydroxide/Cd Preserved	erved Plastic	N = Nitric	Preserved P	lastic: ORC = Niti	ic Preserved DRC	SH = Sc	dium Hydro	xlde/Cd Pre		= Sodium	Hydroxide	Presenter	1 Pleatic: AG ≅ Am	S = Sodium Hydroxide Preserved Plastic: AG = Amher Glass Unpreserved	

V = VOA Vial HCI Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCI Preserved Plastic; HS = HCI Preserved Speciation Bottle; SP = Sulfuric Preserved Flastic; F = Formaldehyde Preserved Glass; Z * Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soil; B * Unpreserved Bag. **ALS Laboratory Group**

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CHA	CHAIN OF CUSTODY DOCUMENTATION	DO YC	CUN	IENT.	ATIC	NC							; 	H 029004	025	300	4	<	
CLIENT	Grammon (pretruction	do		Sta 1			SAMPLER:	LER:	3	zonec (6	107	A					
ADDRES	1	23-25.0	Chun	ZZ.	87.	. Tseume Kwan	wan Ola	MOBILE	ü	9	5.26	257						(ALS)	
PROJEC	PROJECT MANAGER (PM): Ja. Sp. M		lan	כ	•		657.	PHONE	Ш									ALS Laboratory Group	
PROJECT ID:	TID: \$4/2013/01	J	5250	39)				EMAII	REPOR	TTO: 7	Taro	EMAIL REPORT TO: Jacon, Land	12	Ţ	Rammon	1	nd m 22	0	Π
SITE:	S.l. For Townk	K Ra.	1. 12		P.O. NO.:			EMAI	INVOIC	EMAIL INVOICE TO: (if different to report)	different t	o report)						The second secon	
RESULT	RESULTS REQUIRED (Date): AS	A		QUC	OTE NO.	QUOTE NO.: HR/KT32/13	£/3	ANAL	YSIS RE	QUIRED	Includin	g SUITE	S(note -	suite cod	es must t	e listed t	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	prices)	П
FOR LAB	FOR LABORATORY USE ONLY	S S	MMENTS	SPECIA	LHANDI	COMMENTS / SPECIAL HANDLING / STORAGE OR DIPOSAL:	OR DIPOSAL:			_	2	_			-	-		Notes: e.g. Highly contaminated samples	Ι.,
COOLER	COOLER SEAL (drafe appropriate)							1		_	26	720						e o "High DAHs expected"	
Intact	- 1	AMP.						-2	2,	5 5	141	*						Extra volume for QC or trace LORs etc.	
SAMPLE	SAMPLE TEMPERATURE CHILLED: //www.	\.						79	20)Q,	711	y w							
	INFORM	ote: S = Soil,	W=Wate			CONTAINER II	CONTAINER INFORMATION	9%	2/	15	704 XQ	12 191	_				_		
ALS ID	SAMPLEID	MATRIX	XIX DATE		Time	Type / Code	Total bottles	2/	1	2	3/ P	<u>(</u>						0	
1.	EH3B 3.0m	3	_	9	9200		2	>	>	5	>	, ,						1 To Tolp tot	7
2.	EH38 6.0m	h	_	819 10	a5:0)		2	>	>	>	>	*			-	-		to coursed or	1
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ح	FH38	2		37	14:30		2	>	>	,	>	*							
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	, , ,	RELIN	RELINQUISHED BY:	D BY:			, ,					뀖	RECEIVED BY	回				METHOD OF SHIPMENT	
Name:	Symmel LAI				O	Date: 8/9/	4/6	Name:		Ket	/< u			П	Date:	3-50	101-0	Con' Note No:	
ö	Gammon				-	Time: //	الن	ö		A	. F	K	İ	-	Time:	16	18		
Name:	Cacilla foon	-		i		Date: 6/9	311	Мате.						_	Date:			Transport Co:	
Ö	AMJ V				Ľ	Time: A	(F.O.)	ö							Time:				
WaterC	Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved;	served Plastic	N=N	itric Presei	rved Plas	stic; ORC = Nitrix	Preserved OR	SH=S	odium Hy	/droxide/	d Preser	rved; S:	- Sodium	Hydroxic	de Prese	ved Pias	lic; AG = Amb	ser Glass Unpreserved;	

(

V = VOA Vial HCI Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCI Preserved Plastic; HS = HCI Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soil; B = Unpreserved Bag, ALS Laboratory Group

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