

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –
SHENZHEN – HONG KONG EXPRESS RAIL LINK
(No. EP-349/2009/G)

Remediation Report for
Shek Kong Stabling Sidings (Site Q)

Verified by:



Position:

Independent Environmental Checker

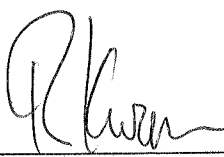
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10 August 2012

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Certified by: _____

Position: Environmental Team Leader

Date: 07 AUG 2012

Maeda-China State Joint Venture

Remediation Report for Site Q - XRL823A

August 2012

Reference 0125309

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Dr. Robin Kennish

Signed:



Position: Partner

Date: 6 August 2012

This report has been prepared by ERM-Hong Kong, Limited with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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1.1 INTRODUCTION TO THE LAND CONTAMINATION ASSESSMENT OF XRL

The Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) is an express rail link connecting Hong Kong, Shenzhen and Guangzhou. The terminal of the XRL will be West Kowloon in Hong Kong and Shibi in Guangzhou, with Futian and Longhua in Shenzhen and Humen in Dongguan as intermediate stations. The Hong Kong section of the XRL project will comprise a 26 km long underground rail line on a dedicated track from the proposed West Kowloon terminus to the border at Huanggang, where it will connect with the XRL Mainland section.

The Project is a Designated Project under the *Environmental Impact Assessment Ordinance (EIAO)*. An Environmental Impact Assessment (EIA) for the XRL Hong Kong section was conducted and approved under the EIAO on 28 September 2009 (Register No. AEIAR-143/2009). An Environmental Permit (EP-349/2009) for the Project was granted on 16 October 2009 and subsequently varied by the Director of Environmental Protection (DEP) with the latest Environmental Permit (EP349/2009/G) issued on 11 June 2012.

Maeda-China State Joint Venture (MCJV) was awarded the contract for the construction of the Express Rail Link Contract 823a (XRL 823a) for the Shek Kong Stabling Siding (SSS) Works Area I by MTRC (the Project). A total of six potential contaminated sites, namely Sites M, N, O, P, Q and R were identified within this Project. A Revised Contamination Assessment Plan (hereinafter referred as 'Revised CAP') of Works Area I was approved by the DEP on 11 August 2011. Further site appraisal and Stage 2 Site Investigation (SI) were carried out and a supplementary Contamination Assessment Report/Remediation Action Plan (hereinafter referred as 'Supplementary CAR/RAP') was approved by DEP on 14 June 2012.

1.2 BACKGROUND TO THIS REMEDIATION REPORT

Upon completion of the SI, borehole location Q-04 and Q-05 at Site Q were identified with elevated level of bis-(2-ethylhexyl)phthalate (DEHP) which exceeds the corresponding RBRGs for industrial land use (i.e. 91.8mg/kg). In accordance with the approved Supplementary CAR/RAP, biopiling was selected as the remediation method for the contaminated soil.

MCJV has commissioned ERM-Hong Kong, Limited (ERM) to provide remediation services at Site Q, including the confirmatory sampling to delineate the extent of contaminated zone, preparation of the biopiling method statement, the design and construction of the biopile, biopile progress monitoring, remediation closure assessment and to prepare this Remediation Report (RR) in accordance with the approved Supplementary CAR/RAP.

1.3

PURPOSE AND SCOPE

The purpose of this remediation report is to demonstrate that the remediation work was conducted in accordance with the requirement stipulated in the approved Supplementary CAR/RAP and the remediation of contaminated soil has been completed on site that the contaminant level in the excavated soil is able to meet the corresponding RBRGs before further use of the soil.

1.4

STRUCTURE OF THE REPORT

The remainder of this report is structured as follows:

<i>Section 2</i>	Summaries of soil contamination problem identified at Site Q of XRL823a
<i>Section3</i>	Summaries of the delineation of contamination extent
<i>Section4</i>	Summaries of contaminated soil excavation
<i>Section5</i>	Summaries of biopile formation and operation
<i>Section6</i>	Details of the Biopile Monitoring Programme
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<i>Annex E</i>	Site Photos
<i>Annex F</i>	Laboratory Testing Reports of Biopile Monitoring Programme

2.1 SOIL CONTAMINATION IDENTIFIED

SI of five sampling locations at Site Q (Q-01 to Q-05) were conducted by the Geotechnics & Concrete Engineering (HK) Ltd (GCE) in February 2009. Amongst the soil samples collected within Site Q, soil samples from Q-04 at depth 1.5 – 2.4m below base of concrete (bbc) and Q-05 at depth 4.95 – 5.85m bbc were detected with elevated level of bis-(2-Ethylhexyl)phthalate (DEHP), which exceeded the corresponding RBRGs for industrial land use (ie. 91.8 mg/kg). Annex A, Figure 1 shows the location of Q-04 and Q-05 (extracted from the EIA report of XRL, figure no: NOL/ERL/300/C/XRL/ENS/M57/105 Rev. C). Summary of the soil testing results and estimated contaminated extent for these two soil samples are summarized in Table 2.1 below.

Table 2.1 Summary of Soil Samples Exceeding RBRGs

SSS Works Areas	Site ID	Sampling Location ID	Depth with Contaminated Soil Found (m bbc)	CoCs	Estimated Contamination Extent		
					Vertical (m bbc)	Horizontal (m ²)	Volume (m ³)
I	Q	Q-04	1.50 - 2.40 m	DEHP	1.40 – 2.90 ^(a)	25	37.5
		Q-05	4.95 – 5.85m	DEHP	4.45 – 5.85 ^(b)	25	35.0
Total estimated volume (m ³)							72.5
Notes:							
(a) Soil sample at 0.50 - 1.40 m bbc indicated no exceedance of DEHP.							
(b) Soil sample at 5.85 - 6.75 m bbc indicated no exceedance of DEHP.							
(c) The above information is referenced from the Approved CAR/RAP of the EIA Report.							

It was estimated that approximately 72.5m³ of soil was at or near Q-04 and Q-05 with concentration in excess of the RBRGs for industrial land use and would therefore require remediation action to maintain the concentration of the contaminant below the RBRGs.

2.2 SELECTED SOIL REMEDIATION METHOD

Section 6.3.1 of the approved CAR/RAP discussed the potential soil remediation options applicable to the contaminated soil at Site Q. These include four ex-situ (biopileing, chemical methods, landfarming and landfilling) and two in-situ (natural attenuation and soil venting) remediation methods. Considering the soil quantity, the nature of the contaminant, the experience of application in Hong Kong and the options of selected remediation techniques in the approved Supplementary CAR/RAP, excavation followed by biopiling was identified as the most practical approach for soil remediation.

Biodegradation is a process which makes use of the biodegradation ability of naturally occurring or specifically added bacteria to break down the contaminants in the soil or to convert them into harmless substances. The chemical nature of DEHP renders this chemical suitable for biological

degradation and biopiling methods have a successful track record in Hong Kong, it has been implemented in former Kai Tak Airport, Choi Lee Shipyard and North Tsing Yi shipyard.

Since the future usage of Site Q will be for the operation of railway facilities, the remediation target for DEHP is proposed to be the RBRGs for Soil for industrial land use (91.8 mg kg^{-1}). After successful decontamination of the soil, it is suitable to be reused in other location if the Site is determined as geotechnical unsuitable. No importation of clean backfill is required if the treated soil can be reused within the site. Based on the quantity of contaminated soil identified and the existing contamination range ($356\text{-}2540 \text{ mg kg}^{-1}$), it is estimated that approximately six months is required for treatment using the biopiling method.

3.1 DELINEATION AND CONFIRMATORY SAMPLING

In order to determine the total volume of soil needed for remediation, a delineation and confirmatory sampling at Site Q was carried out. Two areas centered at Q-04 and Q-05 (25m², 5m x 5m each) were adopted as initial contaminated zones.

The horizontal extent of contamination zones were confirmed during the excavation through confirmatory sampling at the boundary of the excavated pits. The areas of the contaminated zones were extended for 1m at where DEHP exceedance of RBRGs (ie <91.8 mg/kg) were detected in the confirmatory samples, and further confirmatory sampling were taken until all confirmatory samples were below the RBRGs.

For the vertical extent, the depth of contamination zones were assumed to be 0.5m above and below the contaminated soil depths. The actual vertical extent was confirmed by taking confirmatory samples at the bottom of the excavated pits.

3.1.1 Confirmatory Sampling and Excavation at Q-04

For the determination of horizontal contamination extent, a total of five rounds of excavation and confirmatory sampling were conducted at Q-04 with 11 soil samples taken. *Table 3.1* below summarises the sampling details of the confirmatory sampling around Q-04. *Annex A, Figure 2* shows the locations of confirmatory sampling taken and the extent of contaminated zone identified at Q-04. Corresponding laboratory testing reports are attached in *Annex B*.

After the 1st round of confirmatory sampling, soil samples collected from the southeast boundary (ie CSII-01) and northwest boundary (ie CSII-03) of Q-04 were still detected with high concentration of DEHP exceeding the RBRGs. Therefore, additional soil was excavated in 1m increment horizontally from these two directions of the pit walls. Further excavation and confirmatory samplings were carried out until all confirmatory samples show no exceedance of the RBRGs to ensure all contaminated soils were excavated for treatment. The DEHP level peak at the sample collected from the 3rd round of excavation (ie 3,830 mg/kg) and gradually decreased at the 4th and 5th round of excavation (ie 115 mg/kg to 20 mg/kg).

After five rounds of excavation, it was found that the final horizontal extent of the contaminated zone became approximately 50m², which was twice larger than the original expected contaminated zone (ie. 25m²). In order to ensure all contaminated soil at the bottom of the pit would be excavated for remediation treatment, an additional confirmation sample was taken at the bottom of the extended contaminated zone (ie CSII-03f) to delineate the vertical extent of contamination.

Table 3.1 Results of Confirmatory Sampling at Q-04

Sample ID	Direction	Sampling Date	Excavation Date	Sampling Depth (m bbc)	DEHP Conc. (mg/kg)	Exceed RBRGs (Y/N)	Lab Report
1st Round							
CSII-01	SE	28-Feb-11	28-Feb-11	1.4-2.9	250	Y	HK1104763
CSII-02	SW	28-Feb-11	28-Feb-11	1.4-2.9	BDL	N	HK1104763
CSII-03	NW	28-Feb-11	28-Feb-11	1.4-2.9	1,570	Y	HK1104763
CSII-04	NE	28-Feb-11	28-Feb-11	1.4-2.9	90.3	N	HK1104763
CSII-05	-	28-Feb-11	28-Feb-11	2.9	BDL	N	HK1104763
2nd Round							
CSII-01a	SE	24-Aug-11	24-Aug-11	1.4-2.9	BDL	N	HK1119964
CSII-03a	NW	24-Aug-11	24-Aug-11	1.4-2.9	2,600	Y	HK1119964
3rd Round							
CSII-03b	NW	8-Sep-11	8-Sep-11	1.4-2.9	3,830	Y	HK1120938
4th Round							
CSII-03c	NW	8-Sep-11	8-Sep-11	1.4-2.9	115	Y	HK1120938
5th Round							
CSII-03d	NW	16-Sep-11	16-Sep-11	1.4-2.9	BDL	N	HK1121823
CSII-03f	-	8-Sep-11	8-Sep-11	3.0	20	N	HK1120938
Note:							
BDL – Below laboratory detection limit (5mg/kg)							
- denotes the sample was collected at the bottom of the excavation pit							

3.1.2 Confirmatory Sampling and Excavation at Q-05

In accordance with the approved Supplementary CAR/RAP, the confirmatory sampling at Q-05 was conducted by means of borehole drilling. Four boreholes were drilled at the four sides of the initial contaminated zone at Q-05 before excavation. One undisturbed sample was collected at the depth of 4.45 – 5.85m bbc at each of these boreholes to determine the horizontal extent of contamination. For the vertical extent, as during the SI in the EIA stage, soil sample depth at 5.85 – 6.75 m bbc were already taken and the results obtained indicated no exceedance of RBRGs, no confirmatory sampling at the bottom of the pit (ie at 5.85m bbc of Q-05) was deemed necessary.

After one round of excavation, no DEHP exceedances of RBRGs were detected in all four confirmatory samples collected. The contaminated zone at Q-05 was considered delineated. Table 3.2 below summarized the results of confirmatory sampling at Q-05. Annex A, Figure 2 shows the locations of confirmatory sampling and the extent of contaminated zone identified at Q-05. Corresponding laboratory testing reports are attached in Annex B.

Table 3.2 Results of Delineation Sampling at Q05

Sample ID	Direction	Sampling Date	Excavation Date	Sampling Depth (m bbc)	DEHP Conc. (mg/kg)	Exceed RBRGs (Y/N)	Lab Report
1st Round							
CSIII-01	NE	24-Aug-11	3-Oct-11	4.45-5.85	BDL	N	HK1119964
CSIII-02	SE	24-Aug-11	3-Oct-11	4.45-5.85	BDL	N	HK1119964
CSIII-03	SW	23-Aug-11	3-Oct-11	4.45-5.85	BDL	N	HK1119964
CSIII-04	NW	23-Aug-11	3-Oct-11	4.45-5.85	BDL	N	HK1119964
- *	Bottom	19-Feb-09	3-Oct-11	5.85-6.75	BDL	N	HK0903275

Sample ID	Direction	Sampling Date	Excavation Date	Sampling Depth (m bbc)	DEHP Conc. (mg/kg)	Exceed RBRGs (Y/N)	Lab Report
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Note:

BDL – Below laboratory detection limit (5mg/kg)

* This sample, 2018/XRL/EDH-Q05E was collected during the EIA Stage and the result was extracted as reference in this report.

The final horizontal extent of the contaminated zone was approximately 25m² with a vertical extend down to 5.85m bbc. Excavation was carried out at Q-05 to remove the contaminated soil for further treatment.

3.2

LABORATORY ANALYSIS

The chemical analysis of all confirmatory samples were conducted by ALS Technichem (HK) Pty Ltd (ALS). ALS conducts all analysis in accordance with the USEPA procedures and methods, including laboratory internal QA/QC procedures. The samples were analysed using the analytical method presented in *Table 3.2* below:

Table 3.2 *Methods of Analysis for Soil Samples*

Parameter	Referenced Analytical Method	Laboratory Reporting Limit
DEHP	USEPA 8270	5mg/kg

4.1 EXCAVATION OF CONTAMINATED SOIL

The excavation of contaminated soil and confirmatory sampling was conducted in October 2011 in accordance with the approved Supplementary CAR/RAP. A 10m X 5m contaminated zone at Q-04 (after five round of confirmatory sampling) and a 5m X 5m contaminated zone at Q-05 (after one round of confirmatory sampling) were excavated. The excavation was carried out with the use of earth removing equipments and under the supervision of a land contamination specialist from ERM.

During excavation, a demarcated no-works area was set at the contaminated zone and no construction activities were allowed until all contaminated soil was removed. Temporary fencing and warning signs were provided at the boundary of excavation. Exposed area was temporarily covered with impermeable sheeting during heavy rainstorm. In order to avoid dermal contact with contaminated soil, personnel who would be in contact with the contaminated soil were provided with latex gloves and personal protection equipments were worn by workers during the excavation work. No free products were observed at the contaminated zone during excavation.

After the excavation, the contaminated soil were immediately transferred to a concrete bunding and covered up with a tarpaulin sheets to prevent dust emission and excessive water ingress. Materials such as concrete blocks, rocks, boulders and bricks, were separated from the soil, as far as practicable, in order to facilitate the remediation progress.

The final volume of the stockpiled soil was surveyed as 81.5m³. The summary of contaminated soil excavation and its corresponding treatment method was presented in *Table 4.1* below.

Table 4.1 *Summary of excavation and remediation work*

Excavation Pit ID	Depth of Excavation (mBBC)	Estimated Volume of Excavated Soil (m ³)	Surveyed Volume of Stockpiled Soil (m ³)	Contaminants	Remediation Method
Q-04	1.40 - 2.90	67.5	67.5	DEHP	Biopiling
Q-05	4.45 - 5.85	35	14.0		
Total	-	102.5	81.5	-	-

Note:
Based on observation during excavation, 4.95m to 5.85m of Q-05 was mainly decomposed tuff mixed with clay and boulders.

5.1 *BIOPILING FORMATION*

5.1.1 *Biopile Location*

The biopile was located at Area 3.1 of the SSS Works Area I (northwest to Site Q). The indicative location of the biopile is attached in *Annex A, Figure 3* of this report.

5.1.2 *Structure of Biopile*

The main biopile structures consist of several components, a concrete base platform, a leachate collection system, and an aeration and blower system. Electricity and water supply, for the use of blowers and leachate sump pump were provided by a diesel-fired generator installed on-site.

Concrete Base Platform

The base platform of the biopile, with a dimension of 13m x 9m (area) x2m (height) was made of concrete and slightly slanted according to the general slope of the Area 3.1 so as to facilitate runoff collection (ie southeast). The base was constructed with reinforced concrete with a height of 220-250mm. The centre of the base was the thickest and approximately a 1 to 2 degree slope towards the periphery where leachate collection sumps and drains located.

Leachate Collection System

Leachate collection sump and open drains were constructed along the perimeter of the base to prevent leachate from contaminating the underlying soil/groundwater. A concrete bund with a height of 200mm above the concrete platform base was constructed to prevent migration of any surface runoff. In addition, at southeast of the concrete platform, a concrete collection sump was constructed (as of 1m³ volume) and equipped with a pump with automatic level sensor to recycle the runoff back to the biopile to maintain the moisture level of the soil.

Aeration and Blower System

The aeration system of the biopile included three aeration 1.5-2.5 inch PVC slotted pipings extending at the bottom layer of the biopile. The centre part of the aeration piping had a diameter of 2.5 inch while the front part and the end part had a diameter of 1.5 inch. The design ensured a stronger air circulation can be maintained at where the thickest layer of contaminated soil located at the biopile. A layer of gravel pack (150mm) and sand pack (50mm) were placed on top of the concrete platform to cover the aeration piping to avoid direct contact with the contaminated soil and minimize the chance of soil blockage of the aeration piping.

The three aeration piping were connected to a centrifugal blower (1 cmm/ 1500 mmAq) by manifold header pipe, which air was continuously drawn from the bottom of the biopile to facilitate air movement within the soil. The off-gas extracted from the blower was treated by activated carbon to remove any possible contaminants or unpleasant smell. Perforated aeration pipes with 1 inch diameter were inserted into the biopile from the top and the middle layer of stockpile. Schematic diagrams showing the structure of the biopile were attached in *Annex C*.

Stockpiling of Excavated Soil

The contaminated soil was thoroughly mixed and turned using mechanical excavator as far as practicable, without compacting the soil materials, to form a uniformed pile and to maximize air circulation and enhance aerobic conditions for optimal microbial growth during remediation. The biopile had a relatively smooth top and a slight grade from one side to the other to prevent pooling of rainwater on the pile cover. The biopile was covered by an impermeable sheeting to avoid dust emission to the atmosphere and to minimize any excessive runoff and fugitive emission in case of bad weather (strong wind, heavy rainfall, etc.). No more than 5m in length of the biopile was exposed to open air at a given time to minimise fugitive emissions of dust or any pollutants from the biopile from affecting the environment. The four corners of the impermeable sheeting were anchored to the four corners of the concrete bund with carabiners/hooks.

5.2

BIOPILE OPERATION

The biopile was sprayed with water and nutrients (NPK fertilizer) every week in order to maintain the moisture level of the soil and enhance the natural attenuation process.

Soil turning was performed by the use of excavator and water was added onto the biopile regularly throughout the monitoring process to maximize air circulation and to enhance aerobic conditions for optimal microbial growth during the biopile operation.

The biopile was maintained at aerobic conditions during normal operation. Temperature inside the biopile was maintained above 40°C to promote higher biodegradation rate. Oxygen concentration in soil gas was maintained at 19-21% and the pH of the soil was maintained at 6-8 for bacteria to survive.

6.1 MONITORING PROGRAMME

The biopile monitoring programme was designed to be conducted for at least six month period and was divided into three different stages, namely Biopile Baseline Monitoring, Biopile Progress Monitoring and Biopile Closure Assessment. *Table 6.1* below summarized the details of the biopile monitoring programme.

Table 6.1 *Summary of Biopile Monitoring Programme*

Monitoring Stage	Monitoring Period	No. of Samples Collected	Sampling Location	Monitoring Parameters
Biopile Baseline Monitoring	End of November 2011	Eight samples from eight quadrants of the biopile and one composite sample	Refers to Annex D, Fig. 1	Physical, chemical and biological parameters (Details refers to <i>Table 1.2</i>)
Biopile Cleanup Progress	December 2011 – May 2012	Four samples from four quadrants of the biopile and one composite sample	Refers to Annex D, Fig. 2	
Biopile Closure Assessment	Start of June 2012	Eight samples from eight quadrants of the biopile and one composite sample	Refers to Annex D, Fig. 1	Chemical parameters (Details refers to <i>Table 1.2</i>)

6.2 MONITORING PARAMETERS

Both chemical parameters, physical parameters and biological parameters of the contaminated soil were tested within the monitoring period. The list of monitoring parameters is summarized in *Table 6.2* below.

Table 6.2 *List of Monitoring Parameters*

Monitoring Stage	Relevant Monitoring Parameters		
	Physical	Chemical	Biological
Biopile Baseline Monitoring Biopile Cleanup Progress Monitoring	Moisture level, pH, and oxygen content of the gas inside aeration pipings	DEHP level and nitrogen: phosphorus: potassium value (NPK value)	Bacteria Count
Biopile Closure Assessment	-	DEHP level	-

Individual quadrat samples were collected by hand auger. The sampling depth was approximately at the center of the height of the biopile (0.8 – 1.0m from the top of the biopile). Composite samples were collected by taking equal contribution of soil from the quadrat samples collected. Quadrat samples were tested for moisture level and DEHP, while composite samples were tested for moisture value, pH, NPK value and bacteria count.

Table 6.3 below summarizes the testing methods employed by the laboratory for the analysis of soil samples collected throughout the biopile monitoring programme.

Table 6.3 *Methods of Analysis for Soil Samples Collected from Biopile*

Parameter to be analysed	Analytical Method	Laboratory Reporting Limit (mg/kg)
Chemical Parameters		
DEHP	USEPA 8270	5mg/kg
NPK value (Total N)	APHA 4500Norh: D/ APHA 4500No3: I	20mg/kg
NPK value (Total P)	APHA 4500P: B&H	20mg/kg
NPK value (Potassium)	APHA 3500K: B	5mg/kg
Biological Parameters		
Total Bacteria Count	APHA 9215 B	10cfu/g
Hydrocarbon Utilizing Bacteria	Appl. Env. Microbial. 43(2): 454-457 & 52(2): 290-296	10cfu/g
Physical Parameters		
pH value	APHA 4500H+: B	0.1 pH unit

Apart from laboratory testing, on-site monitoring of oxygen content of the gas present within the aeration pipings was measured by a portable soil gas analyzer (model: GA2000). Four random sampling locations were chosen from the inlets of the vertical perforated aeration pipings. An average oxygen content value was taken from the readings obtained. Relevant site photographs were attached in *Annex E*.

7.1 BIOPILE BASELINE MONITORING

The biopile baseline monitoring was conducted on 24 November 2011. The aim of the monitoring was to determine the baseline level of DEHP for comparison of results obtained from the progress monitoring to be conducted in the following months to evaluate the remediation progress. The number of samples collected in this stage and the relevant monitoring parameters are presented in *Table 7.1*. Relevant laboratory reports are attached in *Annex F*.

The results obtained indicated a general elevated level of DEHP was detected within the soil samples collected. Seven out of eight of the samples taken were detected with a DEHP level exceeding the RBRGs of industrial landuse.

In order to achieve better homogenization of DEHP level within the biopile as far as possible, soil mixing was conducted with the help of a mechanical excavator regularly. Nutrient was added to the biopile once per week to promote a better environment for bacteria growth. The baseline average oxygen level taken from four random sampling points was approximately 19.4% by volume of gas present, which was within the optimal range of oxygen content stipulated in the approved Supplementary CAR/RAP (15-20%).

Table 7.1 Biopile Initial Assessment Results Summary

Sample Date	Sample ID	Sample Type	DEHP Concentration (mg/kg)	Exceedance of RBRGs (Y/N)	pH	Moisture level	Total Bacteria Count (CFU/g)	Hydrocarbon Utilizing Bacteria Count (CFU/g)	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Oxygen Content (%V/V)
24 Nov 2011	XRL-823a 1101	Eight samples from eight quadrants of the biopile	166	Y	-	16.4	-	-	-	-	-	Average oxygen content of the soil was 19.4% V/V
	XRL-823a 1102		265	Y	-	18.0	-	-	-	-	-	
	XRL-823a 1103		180	Y	-	17.2	-	-	-	-	-	
	XRL-823a 1104		144	Y	-	15.5	-	-	-	-	-	
	XRL-823a 1105		151	Y	-	17.4	-	-	-	-	-	
	XRL-823a 1106		136	Y	-	17.3	-	-	-	-	-	
	XRL-823a 1107		57	N	-	17.0	-	-	-	-	-	
	XRL-823a 1108		106	Y	-	17.3	-	-	-	-	-	
	XRL-823a 1109	Composite sample	-	-	7.5	17.4	1,600,000	6,900	300	185	1,310	

Note:

- denotes such parameter was not tested in that sample.

After the completion of the biopile baseline monitoring, the biopile cleanup progress monitoring was subsequently commenced. A total of 30 soil samples (five per month) were collected during December 2011 to May 2012. The number of samples collected, the sampling methodology, relevant monitoring parameters and results obtained from the Biopile Cleanup Progress are summarized in *Table 7.2*. Relevant laboratory testing reports are attached in *Annex F*.

Throughout the cleanup progress, the DEHP level showed a declining trend compared with the results obtained in the baseline monitoring. The results obtained from March to May 2012 showed a relatively low level of DEHP content in all of the four samples collected. The bacteria count was significantly increased in December as compared to the relevant results obtained in the biopile baseline monitoring due to the addition of nutrients and active metabolism due to high level of contaminant. Some fluctuations of bacteria count was observed during the biopile cleanup progress monitoring and a steep decline was observed in May, which can be explained by the lowered concentration of hydrocarbon content inside the biopile and therefore less active bacteria metabolism. The average oxygen content of the gas within the aeration pipings was maintained between 15 to 20% and the nutrient value was maintained at similar level throughout the biopile cleanup progress monitoring to create a stable environment for bacteria growth. As the level of DEHP within the soil samples taken from March to May 2012 showed no exceedance of RBRGs for industrial landuse (ie 91.8 mg/kg) for these consecutive months, the cleanup target was therefore considered achieved in general and thus the biopile closure assessment was conducted in June 2012.

Table 7.2 Biopile Cleanup Progress Monitoring Results Summary

Sample Date	Sample ID	Sample Type	DEHP Concentration (mg/kg)	Exceedance of RBRGs (Y/N)	pH	Moisture level	Total Bacteria Count (CFU/g)	Hydrocarbon Utilizing Bacteria Count (CFU/g)	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Oxygen Content (%V/V)
7 Dec 2011	XRL-823a 1201	Four samples from four quadrants of the biopile	115	Y	-	17.5	-	-	-	-	-	Average oxygen content of the soil was 19.8% V/V
	XRL-823a 1202		104	Y	-	16.4	-	-	-	-	-	
	XRL-823a 1203		93	Y	-	17.4	-	-	-	-	-	
	XRL-823a 1204		185	Y	-	17.0	-	-	-	-	-	
	XRL-823a 1205	Composite sample	-	-	8.1	17.6	5,000,000	26,000	380	264	1830	
5 Jan 2012	XRL-823a 0101	Four samples from four quadrants of the biopile	83	N	-	16.8	-	-	-	-	-	Average oxygen content of the soil was 20.3% V/V
	XRL-823a 0102		70	N	-	16.6	-	-	-	-	-	
	XRL-823a 0103		89	N	-	16.5	-	-	-	-	-	
	XRL-823a 0104		81	N	-	16.7	-	-	-	-	-	
	XRL-823a 0105	Composite sample	-	-	8.1	16.1	2,200,000	72,000	200	162	1610	
10 Feb 2012	XRL-823a 0201	Four samples from four quadrants of the biopile	28	N	-	18.8	-	-	-	-	-	Average oxygen content of the soil was 20.2% V/V
	XRL-823a 0202		28	N	-	17.6	-	-	-	-	-	
	XRL-823a 0203		105	Y	-	15.0	-	-	-	-	-	
	XRL-823a 0204		34	N	-	17.6	-	-	-	-	-	
	XRL-823a 0205	Composite sample	-	-	7.8	17.5	3,000,000	12,000	270	164	1730	
12 Mar 2012	XRL-823a 0301	Four samples from four quadrants of the biopile	46	N	-	15.1	-	-	-	-	-	Average oxygen content of the soil was 20.5% V/V
	XRL-823a 0302		37	N	-	15.2	-	-	-	-	-	
	XRL-823a 0303		27	N	-	16.6	-	-	-	-	-	
	XRL-823a 0304		14	N	-	15.8	-	-	-	-	-	
	XRL-823a 0305	Composite sample	-	-	7.8	15.2	1,200,000	16,000	260	177	1820	
16 Apr 2012	XRL-823a 0401	Four samples from four quadrants of the biopile	49	N	-	15.9	-	-	-	-	-	Average oxygen content of the soil was 19.8% V/V
	XRL-823a 0402		14	N	-	15.9	-	-	-	-	-	
	XRL-823a 0403		16	N	-	15.7	-	-	-	-	-	
	XRL-823a 0404		21	N	-	15.1	-	-	-	-	-	
	XRL-823a 0405	Composite sample	-	-	7.7	15.8	2,000,000	110,000	230	178	1790	
15 May 2012	XRL-823a 0501	Four samples from four quadrants of the biopile	16	N	-	15.5	-	-	-	-	-	Average oxygen content of the soil was 20.0% V/V
	XRL-823a 0502		25	N	-	16.1	-	-	-	-	-	
	XRL-823a 0503		5	N	-	12.8	-	-	-	-	-	
	XRL-823a 0504		10	N	-	16.4	-	-	-	-	-	
	XRL-823a 0505	Composite sample	-	-	7.7	15.6	940,000	140,000	260	213	2030	

Sample Date	Sample ID	Sample Type	DEHP Concentration (mg/kg)	Exceedance of RBRGs (Y/N)	pH	Moisture level	Total Bacteria Count (CFU/g)	Hydrocarbon Utilizing Bacteria Count (CFU/g)	Total N (mg/kg)	Total P (mg/kg)	Total K (mg/kg)	Oxygen Content (%V/V)
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Note:

- denotes such parameter was not tested in that sample.

The biopile closure assessment was conducted on 1 June 2012. The closure assessment was performed to ensure the soil contaminant level has met the cleanup target. One sample per 10m³ of soil volume was taken from the biopile, ie, a total of eight samples from eight quadrates of the biopile with a total of 81.5m³ of soil in accordance to the approved Supplementary CAR/RAP. The samples taken were tested for DEHP. *Table 7.3* below summarizes the results obtained from the biopile closure assessment. Relevant laboratory testing reports are attached in *Annex F*.

Table 7.3 *Biopile Closure Assessment Results Summary*

Sample Date	Sample ID	Sample Type	DEHP Concentration (mg/kg)	Exceedance of RBRG (Y/N)
1 June 2012	XRL823a - 0601CA	Eight samples from eight quadrants of the biopile	45	N
	XRL823a - 0602CA		43	N
	XRL823a - 0603CA		22	N
	XRL823a - 0604CA		17	N
	XRL823a - 0605CA		19	N
	XRL823a - 0606CA		27	N
	XRL823a - 0607CA		31	N
	XRL823a - 0608CA		85	N

All eight samples taken from the biopile during the biopile closure assessment showed no DEHP exceedance of the corresponding RBRGs for industrial landuse. The cleanup target was considered met and the decontaminated soil would be used as fill material on or off site in accordance to the approved Supplementary CAR/RAP.

The SI for Site Q was conducted in February 2009 by MTRC. Out of the five sampling locations (Q-01 to Q-05), sampling locations Q-04 and Q-05 were found with elevated level of DEHP at the depth of 1.40-2.90m and 4.45-5.85m bbc respectively. ERM was commissioned by MCJV to perform remediation services including the confirmatory sampling to delineate the extent of contaminated zone, preparation of the biopiling method statement, the design and construction of the biopile, biopile progress monitoring, remediation closure assessment and to prepare this Remediation Report (RR) in accordance with the approved Supplementary CAR/RAP.

Confirmatory sampling was conducted to delineate the extent of contamination zones with a total of 11 samples collected around Q-04 and five samples around Q-05. Excavation was conducted at the contaminated zones. A total of 81.5m³ of contaminated soil was stockpiled and transferred to the Area 3.1 of the SSS Works Area I. A biopile consists of a base of concrete platform, leachate collection system, and aeration and blower system was constructed to remediate the contaminated soil from Nov 2011 to Jun 2012.

The biopile monitoring programme was divided into three different stages with a total of 47 soil samples collected (nine samples collected during the Biopile Baseline Monitoring stage, 30 samples collected during the Biopile Cleanup Progress Monitoring stage and 8 samples collected during the Biopile Closure Assessment stage) from December 2011 to May 2012. Soil samples collected from the biopile were delivered to the laboratory for analysis of DEHP level, physical parameters including moisture level, pH value, NPK value and biological parameters including bacteria count.

The DEHP level of the contaminated soil showed a decreasing trend throughout the Biopile Cleanup Progress Monitoring as compared to the results obtained in the Biopile Baseline Monitoring. No exceedance of RBRGs was detected at all of the samples collected during March to May 2012. The Biopile Closure Assessment was then conducted in June 2012 to confirm whether the cleanup target has been met.

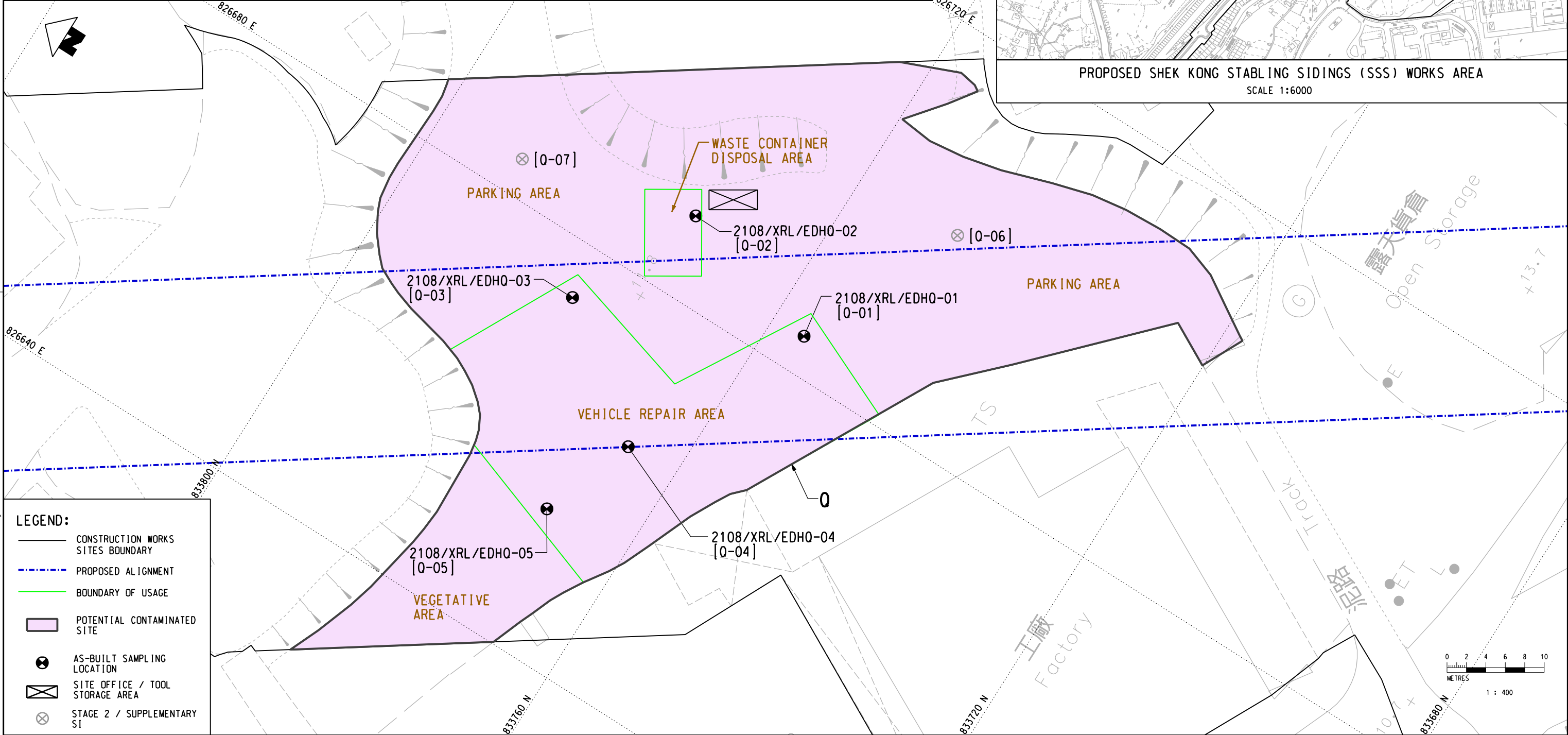
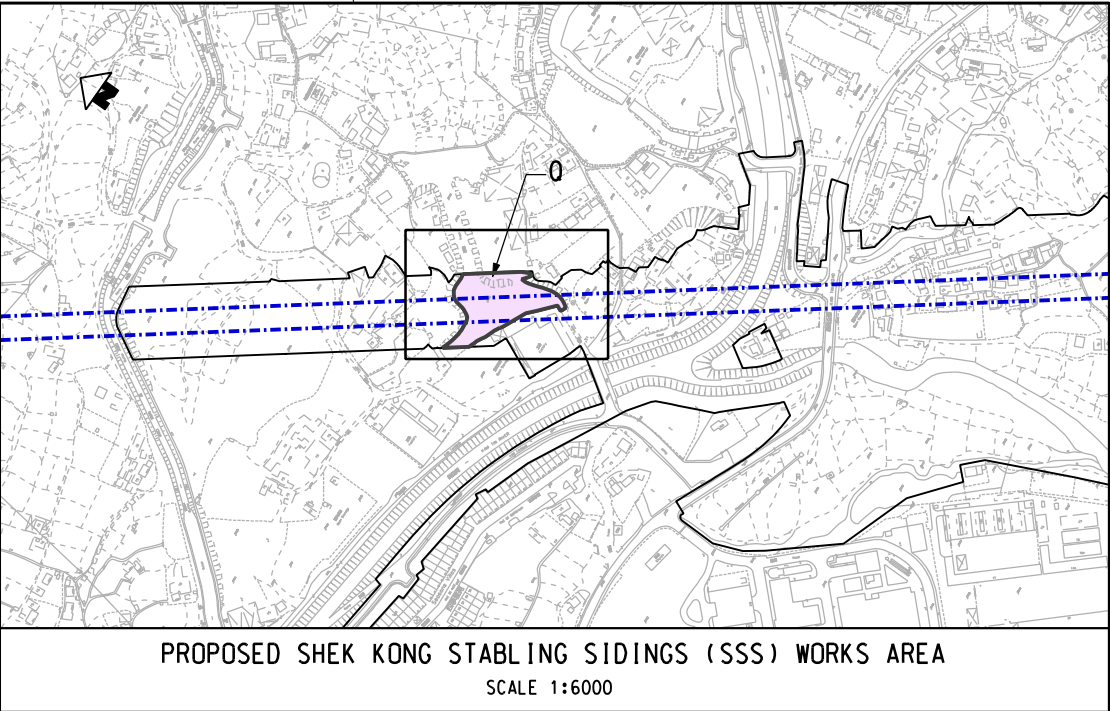
Based on the laboratory analysis results obtained from the biopile closure assessment, all samples collected indicated no exceedance of RBRGs for DEHP. The remediation of the DEHP contaminated soil was completed on 1 June 2012 and the treated soil is suitable for further re-use.

Annex A

Figures

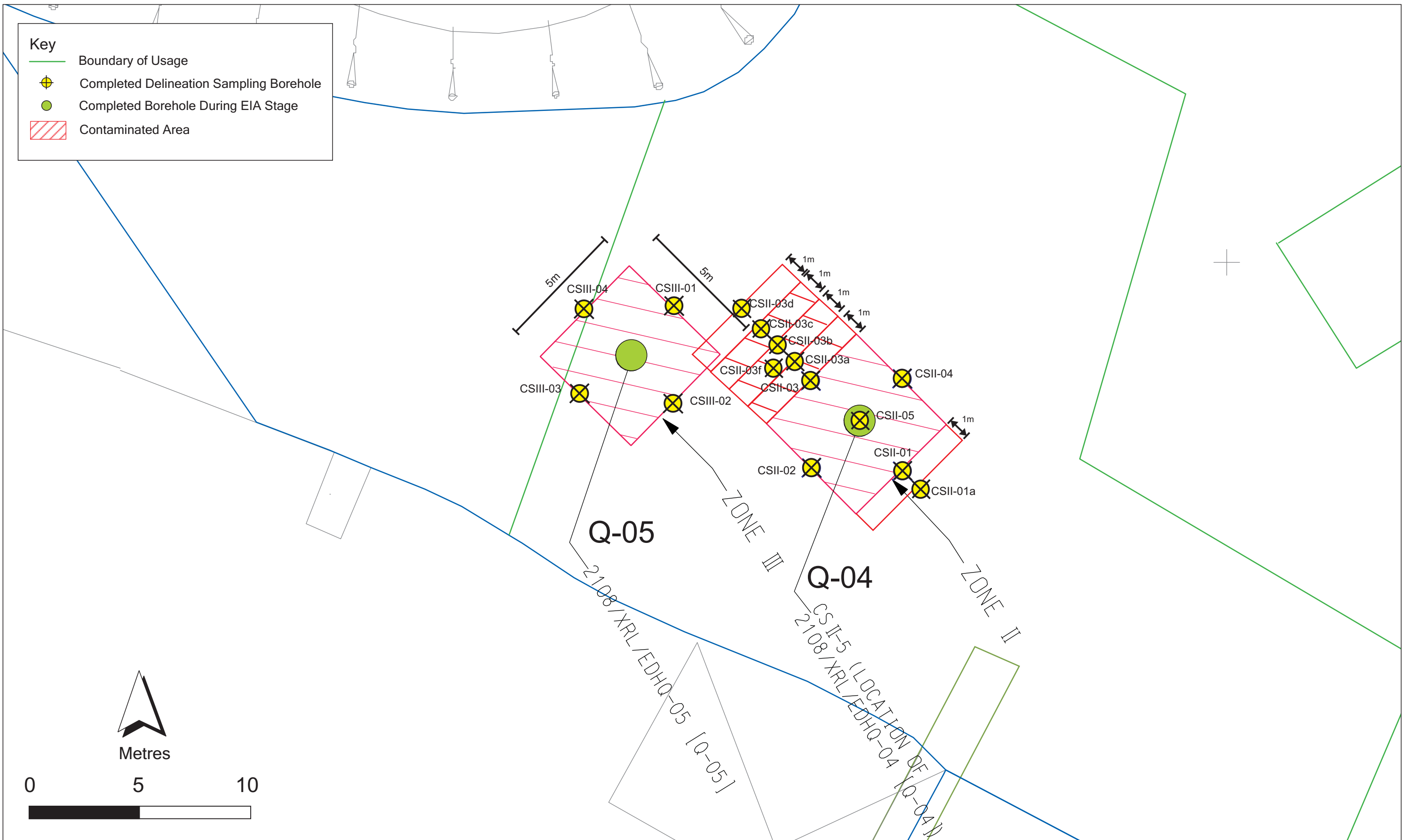
LOCATION	SITE ID	STAGE OF SI	SAMPLING LOCATION*	CO-ORDINATES		PARAMETERS TESTED	POST RESTORATION LAND USE	COMPLIANCE TO INDUSTRIAL RBRG LEVELS
				EASTING	NORTHING			
SSS	Q (PARKING AREA WITH MINOR VEHICLE REPAIR/ MAINTENANCE ACTIVITIES)	STAGE 1	2108/XRL/EDHQ-01 [0-01] (VEHICLE REPAIR AREA)	826683.81	833756.37	METALS****, PETROLEUM HYDROCARBONS, VOCs, SVOCs	RAILWAY FACILITIES	ALL SAMPLE RESULTS COMPLIED
			2108/XRL/EDHQ-02 [0-02] WASTE CONTAINER DISPOSAL AREA	826688.32	833772.4			ALL SAMPLE RESULTS COMPLIED
			2108/XRL/EDHQ-03 [0-03] (VEHICLE REPAIR AREA)	826674.48	833778.64			ALL SAMPLE RESULTS COMPLIED
			2108/XRL/EDHQ-04 [0-04] (VEHICLE REPAIR AREA)	826664.53	833765.61			1 SAMPLE EXCEEDED LIMIT FOR BIS-(2-ETHYLHEXYL)PHTHALATE
			2108/XRL/EDHQ-05 [0-05] (VEHICLE REPAIR AREA)	826654.64	833769.27			1 SAMPLE EXCEEDED LIMIT FOR BIS-(2-ETHYLHEXYL)PHTHALATE
		STAGE 2 (SUPPLEMENTARY SI)	[0-06 TO 0-07] GENERAL SITE CONDITION	AS PROPOSED IN CAP, STAGE 2 SI WILL BE CONDUCTED AFTER THE EIA STUDY AND PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORKS		NA		

NOTE:
THE LAYOUT ARE NOT TO SCALE
* SAMPLING LOCATIONS ARE LISTED BY A DIFFERENT NOMENCLATURE SYSTEM DURING SI. NAMING IN BRACKET INDICATES
*** METALS INCLUDE CrIII, CrVI, Cu, Pb, Zn



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Annex A Figure 2

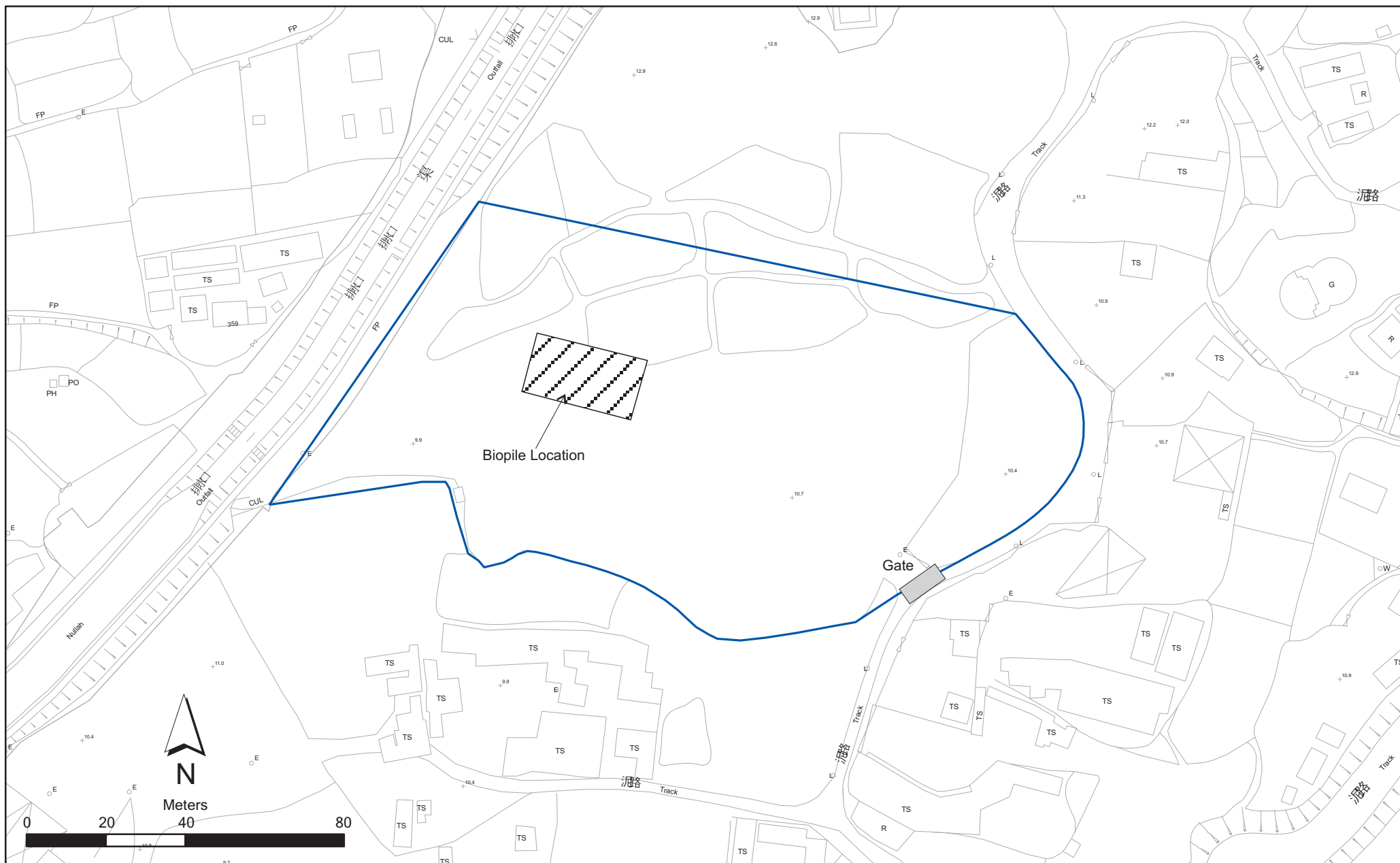
FILE: 0125309r
DATE: 21/06/2012

Location of Delineation Sampling at Site Q

The Express Rail Link Contract 823A –
Tai Kong Po to Tse Uk Tsuen Tunnels (XRL 823A)

Environmental
Resources
Management





Annex A Figure 3

Indicative Biopile Operation Area

The Express Rail Link Contract 823A-
Tai Kong Po to Tse Uk Tsuen Tunnels (XRL 823A)

File: 0125309p
Date: 21/06/2012

**Environmental
Resources
Management**



Annex B

Laboratory Testing Reports of Confirmatory Sampling



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MR ANGUS CHOI	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1104763
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: angus.choi@erm.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: XRL 823A 0125309	Quote number	: HK/1393a/2010	Date Samples Received	: 28-FEB-2011
Order number	: ----			Issue Date	: 12-MAR-2011
C-O-C number	: H020147			No. of samples received	: 6
Site	: XRL 823A SITE Q			No. of samples analysed	: 5

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: 02-MAR-2011

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: **HK1104763**

Sample(s) were received in a chilled condition.

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

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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.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				Q-04 CS-II-01	Q-04 CS-II-02	Q-04 CS-II-03	Q-04 CS-II-04	Q-04 3.0M
				[28-FEB-2011]	[28-FEB-2011]	[28-FEB-2011]	[28-FEB-2011]	[28-FEB-2011]
Compound	CAS Number	LOR	Unit	HK1104763-001	HK1104763-002	HK1104763-003	HK1104763-004	HK1104763-005
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.9	7.9	16.8	17.0	11.4
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate								
Bis(2-ethylhexyl)phthalate	117-81-7	5.00	mg/kg	250	<5.00	1570	90.3	<5.00
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates				Surrogate control limits listed at end of this report.				
2-Fluorobiphenyl	321-60-8	0.1	%	82.6	83.6	85.4	77.9	83.9
4-Terphenyl-d14	1718-51-0	0.1	%	85.0	85.0	93.1	81.1	94.3



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1690405)								
HK1104763-001	Q-04 CS-II-01	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.9	15.4	9.2
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1685477)								
HK1104491-002	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	500	µg/kg	<500	<500	0.0
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1689227)								
HK1104763-002	Q-04 CS-II-02	Bis(2-ethylhexyl)phthalate	117-81-7	5000	µg/kg	<5000	<5000	0.0

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1685477)											
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	109	----	87	123	----	----
EP-076B: Phenol, Hexachlorobenzene and Bis(2-ethylhexyl) Phthalate (QC Lot: 1689227)											
Bis(2-ethylhexyl)phthalate	117-81-7	1000	µg/kg	<1000	250 µg/kg	121	----	87	123	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-076S: Polycyclic Aromatics Hydrocarbons (PAHs) Surrogates			
2-Fluorobiphenyl	321-60-8	50	130
4-Terphenyl-d14	1718-51-0	50	130



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 4
Contact	: MR ANGUS CHOI	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1119964
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: angus.choi@erm.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: XRL 823A	Quote number	: ----	Date Samples Received	: 24-AUG-2011
Order number	: ----			Issue Date	: 03-SEP-2011
C-O-C number	: H020491			No. of samples received	: 6
Site	: SITE Q			No. of samples analysed	: 6

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: 29-AUG-2011

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: **HK1119964**

Sample(s) were received in an ambient condition.

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

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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.

Signatories

Position

Authorised results for

Anh Ngoc Huynh

Senior Chemist

Organics

Fung Lim Chee, Richard

General Manager

Inorganics



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				CSII-01A	CSII-03A	CSIII-01	CSIII-02	CSIII-03
				[24-AUG-2011]	[24-AUG-2011]	[24-AUG-2011]	[24-AUG-2011]	[23-AUG-2011]
Compound	CAS Number	LOR	Unit	HK1119964-001	HK1119964-002	HK1119964-003	HK1119964-004	HK1119964-005
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.4	19.2	18.2	15.2	8.6
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	<5	2600	<5	<5	<5
EP-075S: Acid Extractable Surrogates								
							Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%	80.6	77.0	77.2	71.2	71.3
Phenol-d6	13127-88-3	0.1	%	71.4	78.4	76.3	73.3	75.0
2,4,6-Tribromophenol	118-79-6	0.1	%	39.4	85.4	65.7	72.1	51.0
EP-075T: Base/Neutral Extractable Surrogates								
							Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%	71.0	79.8	81.9	78.0	85.0
2-Fluorobiphenyl	321-60-8	0.1	%	73.0	76.6	77.3	76.5	76.4
4-Terphenyl-d14	1718-51-0	0.1	%	75.4	80.4	82.1	77.1	76.9



Sub-Matrix: SOIL				Client sample ID	CSIII-04				
				Client sampling date / time	[23-AUG-2011]				
Compound	CAS Number	LOR	Unit		HK1119964-006				
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	----	0.1	%		14.7				
EP-075C: Phthalate Esters									
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg		<5				
EP-075S: Acid Extractable Surrogates								Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%		66.5				
Phenol-d6	13127-88-3	0.1	%		68.9				
2,4,6-Tribromophenol	118-79-6	0.1	%		64.8				
EP-075T: Base/Neutral Extractable Surrogates								Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%		76.6				
2-Fluorobiphenyl	321-60-8	0.1	%		71.3				
4-Terphenyl-d14	1718-51-0	0.1	%		68.1				



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1932721)								
HK1119314-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	44.0	43.0	2.3
HK1119314-011	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	57.1	57.5	0.7
EP-075C: Phthalate Esters (QC Lot: 1931167)								
HK1119964-001	CSII-01A	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	<5	<5	0.0

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High	Value
EP-075C: Phthalate Esters (QC Lot: 1931167)												
Bis(2-ethylhexyl)phthalate		117-81-7	5.0	mg/kg	<5	0.25 mg/kg	89.3	----	56	120	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MR ANGUS CHOI	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1120938
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	Amendment	: 1
E-mail	: angus.choi@erm.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: XRL 823A	Quote number	: ----	Date Samples Received	: 07-SEP-2011
Order number	: ----			Issue Date	: 19-SEP-2011
C-O-C number	: H024595			No. of samples received	: 4
Site	: ----			No. of samples analysed	: 3

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: 09-SEP-2011

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: **HK1120938**

Sample(s) were received in an ambient condition.

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

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Signatories

Position

Authorised results for

Anh Ngoc Huynh

Senior Chemist

Organics

Fung Lim Chee, Richard

General Manager

Inorganics



Analytical Results

Sub-Matrix: SOIL

				Client sample ID				
				Client sampling date / time				
Compound	CAS Number	LOR	Unit		CSII-03B	CSII-03C	CSII-03F	
					[06-SEP-2011]	[07-SEP-2011]	[07-SEP-2011]	
					HK1120938-001	HK1120938-002	HK1120938-004	
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%		15.9	15.6	18.7	
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg		3830	115	20	
EP-075S: Acid Extractable Surrogates								
Surrogate control limits listed at end of this report.								
2-Fluorophenol	367-12-4	0.1	%		60.1	61.4	65.2	
Phenol-d6	13127-88-3	0.1	%		65.4	71.5	73.6	
2,4,6-Tribromophenol	118-79-6	0.1	%		51.9	62.1	54.2	
EP-075T: Base/Neutral Extractable Surrogates								
Surrogate control limits listed at end of this report.								
Nitrobenzene -d5	4165-60-0	0.1	%		86.4	95.3	96.1	
2-Fluorobiphenyl	321-60-8	0.1	%		72.2	75.6	74.8	
4-Terphenyl-d14	1718-51-0	0.1	%		72.2	75.7	75.8	



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1947321)								
HK1120860-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.2	17.0	1.0
EP-075C: Phthalate Esters (QC Lot: 1945467)								
HK1120860-001	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	<5	<5	0.0

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

Matrix: SOIL			Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
						Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)
Method: Compound	CAS Number	LOR	Unit	Result	LCS		DCS	Low	High	Value	Control Limit
EP-075C: Phthalate Esters (QC Lot: 1945467)											
Bis(2-ethylhexyl)phthalate	117-81-7	5.0	mg/kg	<5	0.25 mg/kg	104	----	57	121	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137



CERTIFICATE OF ANALYSIS

Client	: MAEDA - CHINA STATE JOINT VENTURE	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MS WENDY NG	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1121823
Address	: ROOM 1601-05, NEW EAST OCEAN CENTRE, 9 SCIENCE MUSEUM 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	: wendyng@maeda.com.hk	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2498 2033	Telephone	: +852 2610 1044		
Facsimile	: +852 2498 0021	Facsimile	: +852 2610 2021		
Project	: CONTRACT 823A	Quote number	: ----	Date Samples Received	: 16-SEP-2011
Order number	: ----			Issue Date	: 22-SEP-2011
C-O-C number	: ----			No. of samples received	: 3
Site	: ----			No. of samples analysed	: 1

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: 21-SEP-2011

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: **HK1121823**

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.

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Signatories

Position

Authorised results for

Anh Ngoc Huynh

Senior Chemist

Organics

Fung Lim Chee, Richard

General Manager

Inorganics



Analytical Results

Sub-Matrix: SOIL			Client sample ID	CSII-03D(1)				
			Client sampling date / time	16-SEP-2011 15:00				
Compound	CAS Number	LOR	Unit	HK1121823-001				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	20.0				
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	<5				
EP-075S: Acid Extractable Surrogates							Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%	30.7				
Phenol-d6	13127-88-3	0.1	%	67.9				
2,4,6-Tribromophenol	118-79-6	0.1	%	23.6				
EP-075T: Base/Neutral Extractable Surrogates							Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%	88.1				
2-Fluorobiphenyl	321-60-8	0.1	%	76.0				
4-Terphenyl-d14	1718-51-0	0.1	%	71.3				



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1961391)								
HK1121705-022	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	14.1	15.6	10.3
EP-075C: Phthalate Esters (QC Lot: 1959214)								
HK1121705-020	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	<5	<5	0.0

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP-075C: Phthalate Esters (QC Lot: 1959214)											
Bis(2-ethylhexyl)phthalate	117-81-7	5.0	mg/kg	<5	0.25 mg/kg	95.2	----	57	121	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137



CERTIFICATE OF ANALYSIS

Client	: MASS TRANSIT RAILWAY CORPORATION	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 8
Contact	: MR TOM LO	Contact	: Wong Wai Man, Alice	Work Order	: HK0903275
Address	: 6 KO SHAN ROAD, GROUND FLOOR, HUNG HOM, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: tom@gce.com.hk	E-mail	: Alice.Wong@alsenviro.com		
Telephone	: +852 2365 9123	Telephone	: +852 2610 1044		
Facsimile	: +852 2765 8034	Facsimile	: +852 2610 2021		
Project	: GROUND INVESTIGATION FOR EXPRESS RAIL LINK	Quote number	: ----	Date Samples Received	: 19-FEB-2009
Order number	: ----			Issue Date	: 06-MAR-2009
C-O-C number	: H004339			No. of samples received	: 4
Site	: ----			No. of samples analysed	: 3

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 date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client. The completion date of analysis is: 27-FEB-2009

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: **HK0903275**

Sample(s) were received 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 D3974-81 based on ASTM D3974-81, prior to the determination of metals.

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard

Position

Senior Chemist
General Manager

Authorised results for

Organics
Inorganics



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				2108/XRL/EDH-Q05E (3.0-3.90M)	2108/XRL/EDH-Q05E (4.95-5.85M)	2108/XRL/EDH-Q05E (5.85-6.75M)		
				19-FEB-2009 09:00	19-FEB-2009 10:20	19-FEB-2009 11:30		
Compound	CAS Number	LOR	Unit	HK0903275-001	HK0903275-002	HK0903275-003		
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	21.5	9.0	11.3		
EG: Metals and Major Cations								
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	<0.2		
EG020: Copper	7440-50-8	1	mg/kg	10	22	9		
EG020: Lead	7439-92-1	1	mg/kg	64	51	55		
EG020: Mercury	7439-97-6	0.2	mg/kg	<0.2	<0.2	<0.2		
EG020: Nickel	7440-02-0	1	mg/kg	5	4	2		
EG020: Zinc	7440-66-6	1	mg/kg	155	489	203		
EG049: Trivalent Chromium	16065-83-1	1	mg/kg	10	9	16		
EG3060: Hexavalent Chromium	18540-29-9	1	mg/kg	<1	<1	<1		
EP-071HK: Total Petroleum Hydrocarbons (TPH)								
C6 - C8 Fraction	----	5	mg/kg	<5	<5	<5		
C9 - C16 Fraction	----	200	mg/kg	<200	<200	<200		
C17 - C35 Fraction	----	500	mg/kg	<500	<500	<500		
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH)								
Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	<0.5		
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5		
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5		
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	<1.0	<1.0		
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	<0.5		
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	5	mg/kg	<5	<5	<5		
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	<5		
EP-074E: Halogenated Aliphatics								
Methylene chloride	75-09-2	5	mg/kg	<5	<5	<5		
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5		
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-074G: Trihalomethanes (THM)								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	<0.5		
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	<0.5		
EP-074L: Methyl-tert-butyl Ether								
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5.0	mg/kg	<5.0	<5.0	<5.0		
EP-075A: Phenols								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5		



Sub-Matrix: SOIL				Client sample ID	2108/XRL/EDH-Q05E (3.0-3.90M)	2108/XRL/EDH-Q05E (4.95-5.85M)	2108/XRL/EDH-Q05E (5.85-6.75M)		
Client sampling date / time					19-FEB-2009 09:00	19-FEB-2009 10:20	19-FEB-2009 11:30		
Compound	CAS Number	LOR	Unit		HK0903275-001	HK0903275-002	HK0903275-003		
EP-075B: Polyaromatic Hydrocarbons (PAHs)									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5		
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5		
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5		
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5		
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5		
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5		
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5		
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5		
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5		
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5		
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	1.0	mg/kg		<1.0	<1.0	<1.0		
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5		
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5		
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5		
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5		
EP-075C: Phthalate Esters									
Bis(2-ethylhexyl)phthalate	117-81-7	5.0	mg/kg		<5.0	356	<5.0		
EP-075G: Chlorinated Hydrocarbons									
Hexachlorobenzene (HCB)	118-74-1	0.2	mg/kg		<0.2	<0.2	<0.2		
EP-080S: TPH(Volatile)/BTEX Surrogate								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		95.2	96.0	95.5		
Toluene-D8	2037-26-5	0.1	%		100	98.6	99.7		
4-Bromofluorobenzene	460-00-4	0.1	%		103	104	104		
EP-074S: VOC Surrogates								Surrogate control limits listed at end of this report.	
Dibromofluoromethane	1868-53-7	0.1	%		95.2	96.0	95.5		
Toluene-D8	2037-26-5	0.1	%		100	98.6	99.7		
4-Bromofluorobenzene	460-00-4	0.1	%		103	104	104		
EP-075S: Acid Extractable Surrogates								Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%		49.7	65.9	52.7		
Phenol-d6	13127-88-3	0.1	%		43.8	84.9	49.9		
2,4,6-Tribromophenol	118-79-6	0.1	%		48.6	94.2	73.1		
EP-075T: Base/Neutral Extractable Surrogates								Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%		49.5	80.7	51.2		
2-Fluorobiphenyl	321-60-8	0.1	%		47.5	93.8	56.4		
4-Terphenyl-d14	1718-51-0	0.1	%		42.0	71.6	66.0		



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 902020)								
HK0903275-001	2108/XRL/EDH-Q05E (3.0-3.90M)	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	21.5	21.6	0.5
EG: Metals and Major Cations (QC Lot: 900985)								
HK0902960-002	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0
HK0903250-002	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0
EG: Metals and Major Cations (QC Lot: 903418)								
HK0903275-002	2108/XRL/EDH-Q05E (4.95-5.85M)	EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Mercury	7439-97-6	0.2	mg/kg	<0.2	<0.2	0.0
		EG020: Copper	7440-50-8	1	mg/kg	22	25	9.8
		EG020: Lead	7439-92-1	1	mg/kg	51	60	17.0
		EG020: Nickel	7440-02-0	1	mg/kg	4	4	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	489	408	18.1
HK0903434-001	Anonymous	EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	<0.05	0.0
		EG020: Cadmium	7440-43-9	0.2	mg/kg	0.3	0.3	0.0
		EG020: Copper	7440-50-8	1	mg/kg	10	10	0.0
		EG020: Lead	7439-92-1	1	mg/kg	33	31	5.2
		EG020: Nickel	7440-02-0	1	mg/kg	3	2	0.0
		EG020: Zinc	7440-66-6	1	mg/kg	144	131	9.7
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 900842)								
HK0902960-001	Anonymous	C9 - C16 Fraction	----	200	mg/kg	<200	<200	0.0
		C17 - C35 Fraction	----	500	mg/kg	<500	<500	0.0
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 900852)								
HK0902960-001	Anonymous	C6 - C8 Fraction	----	5	mg/kg	<5	<5	0.0
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 900851)								
HK0902960-001	Anonymous	Benzene	71-43-2	0.5	mg/kg	<0.5	<0.5	0.0
		Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0
		Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0
		Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0
		ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0
		meta- & para-Xylene	108-38-3	1.0	mg/kg	<1.0	<1.0	0.0
EP-074B: Oxygenated Compounds (QC Lot: 900851)								
HK0902960-001	Anonymous	2-Propanone (Acetone)	67-64-1	5	mg/kg	<5	<5	0.0
		2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0
EP-074E: Halogenated Aliphatics (QC Lot: 900851)								
HK0902960-001	Anonymous	Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0
		Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0



Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP-074E: Halogenated Aliphatics (QC Lot: 900851) - Continued								
HK0902960-001	Anonymous	Methylene chloride	75-09-2	5	mg/kg	<5	<5	0.0
EP-074G: Trihalomethanes (THM) (QC Lot: 900851)								
HK0902960-001	Anonymous	Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0
		Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0
EP-074L: Methyl-tert-butyl Ether (QC Lot: 900851)								
HK0902960-001	Anonymous	Methyl tert-Butyl Ether (MTBE)	1634-04-4	0.5	mg/kg	<0.5	<0.5	0.0
EP-075A: Phenols (QC Lot: 900841)								
HK0902960-001	Anonymous	Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 900841)								
HK0902960-001	Anonymous	Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0
		Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0
		Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0
		Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0
		Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0
		Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0
		Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0
		Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0
		Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0
		Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0
		Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0
		Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0
		Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0
		Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0
		Benzo(b) & Benzo(k)fluoranthene	205-99-2	1.0	mg/kg	<1.0	<1.0	0.0
			207-08-9					
EP-075C: Phthalate Esters (QC Lot: 900841)								
HK0902960-001	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	5.0	mg/kg	<5.0	<5.0	0.0
EP-075G: Chlorinated Hydrocarbons (QC Lot: 900841)								
HK0902960-001	Anonymous	Hexachlorobenzene (HCB)	118-74-1	0.2	mg/kg	<0.2	<0.2	0.0

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High
EG: Metals and Major Cations (QC Lot: 900985)											
EG3060: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	103	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 903418)											
EG020: Cadmium	7440-43-9	0.2	mg/kg	<0.2	5 mg/kg	94.6	----	85	115	----	----
EG020: Copper	7440-50-8	1	mg/kg	<1	5 mg/kg	96.4	----	85	115	----	----



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentratio	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result	n	LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 903418) - Continued											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	90.2	----	85	115	----	----
EG020: Mercury	7439-97-6	0.05	mg/kg	<0.05	0.1 mg/kg	91.4	----	85	115	----	----
EG020: Nickel	7440-02-0	1	mg/kg	<1	5 mg/kg	95.0	----	85	115	----	----
EG020: Zinc	7440-66-6	1	mg/kg	<1	5 mg/kg	100	----	85	115	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 900842)											
C9 - C16 Fraction	----	200	mg/kg	<200	31 mg/kg	88.3	----	45	122	----	----
C17 - C35 Fraction	----	500	mg/kg	<500	75 mg/kg	95.2	----	50	111	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 900852)											
C6 - C8 Fraction	----	5	mg/kg	<5	3 mg/kg	91.4	----	57	141	----	----
EP-074A: Monocyclic Aromatic Hydrocarbons (MAH) (QC Lot: 900851)											
Benzene	71-43-2	0.5	mg/kg	<0.5	0.5 mg/kg	102	----	57	144	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	0.5 mg/kg	105	----	66	128	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5 mg/kg	97.3	----	76	134	----	----
meta- & para-Xylene	108-38-3 106-42-3	1.0	mg/kg	<1.0	1.0 mg/kg	98.8	----	69	142	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	0.5 mg/kg	96.0	----	69	126	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	0.5 mg/kg	97.3	----	72	139	----	----
EP-074B: Oxygenated Compounds (QC Lot: 900851)											
2-Butanone (MEK)	78-93-3	5.0	mg/kg	----	5.0 mg/kg	113	----	16	138	----	----
				<5	----	----	----	----	----	----	----
EP-074E: Halogenated Aliphatics (QC Lot: 900851)											
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	0.5 mg/kg	106	----	65	134	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	0.5 mg/kg	101	----	74	128	----	----
EP-074G: Trihalomethanes (THM) (QC Lot: 900851)											
Chloroform	67-66-3	0.5	mg/kg	<0.5	0.5 mg/kg	104	----	59	145	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	0.5 mg/kg	107	----	59	142	----	----
EP-075A: Phenols (QC Lot: 900841)											
Phenol	108-95-2	0.1	mg/kg	<0.1	0.25 mg/kg	73.9	----	50	103	----	----
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 900841)											
Naphthalene	91-20-3	0.1	mg/kg	<0.1	0.25 mg/kg	69.7	----	58	102	----	----
Acenaphthylene	208-96-8	0.1	mg/kg	<0.1	0.25 mg/kg	75.6	----	49	105	----	----
Acenaphthene	83-32-9	0.1	mg/kg	<0.1	0.25 mg/kg	82.6	----	59	105	----	----
Fluorene	86-73-7	0.1	mg/kg	<0.1	0.25 mg/kg	83.8	----	62	106	----	----
Phenanthrene	85-01-8	0.1	mg/kg	<0.1	0.25 mg/kg	85.8	----	58	111	----	----
Anthracene	120-12-7	0.1	mg/kg	<0.1	0.25 mg/kg	77.8	----	53	109	----	----
Fluoranthene	206-44-0	0.1	mg/kg	<0.1	0.25 mg/kg	78.8	----	60	114	----	----
Pyrene	129-00-0	0.1	mg/kg	<0.1	0.25 mg/kg	86.8	----	59	113	----	----
Benz(a)anthracene	56-55-3	0.1	mg/kg	<0.1	0.25 mg/kg	82.9	----	52	113	----	----
Chrysene	218-01-9	0.1	mg/kg	<0.1	0.25 mg/kg	84.8	----	57	115	----	----



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
Method: Compound	CAS Number	LOR	Unit	Result	n						
EP-075B: Polyaromatic Hydrocarbons (PAHs) (QC Lot: 900841) - Continued											
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.2	mg/kg	<0.2	0.50 mg/kg	83.5	----	63	117	----	----
Benzo(a)pyrene	50-32-8	0.1	mg/kg	<0.1	0.25 mg/kg	79.9	----	51	111	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	mg/kg	<0.1	0.25 mg/kg	74.5	----	72	111	----	----
Dibenz(a.h)anthracene	53-70-3	0.1	mg/kg	<0.1	0.25 mg/kg	82.3	----	67	114	----	----
Benzo(g.h.i)perylene	191-24-2	0.1	mg/kg	<0.1	0.25 mg/kg	76.3	----	68	111	----	----
EP-075G: Chlorinated Hydrocarbons (QC Lot: 900841)											
Hexachlorobenzene (HCB)	118-74-1	0.2	mg/kg	<0.2	0.25 mg/kg	81.9	----	61	105	----	----

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number							
EG: Metals and Major Cations (QC Lot: 900985)										
HK0902960-001	Anonymous	EG3060: Hexavalent Chromium	18540-29-9	40 mg/kg	102	----	75	125	----	----
EG: Metals and Major Cations (QC Lot: 903418)										
HK0903275-001	2108/XRL/EDH-Q05E (3.0-3.90M)	EG020: Cadmium	7440-43-9	5 mg/kg	93.3	----	75	125	----	----
		EG020: Copper	7440-50-8	5 mg/kg	79.7	----	75	125	----	----
		EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----
		EG020: Mercury	7439-97-6	0.1 mg/kg	114	----	75	125	----	----
		EG020: Nickel	7440-02-0	5 mg/kg	83.8	----	75	125	----	----
		EG020: Zinc	7440-66-6	5 mg/kg	# Not Determined	----	75	125	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 900842)										
HK0902960-002	Anonymous	C9 - C16 Fraction	----	31 mg/kg	78.6	----	50	130	----	----
		C17 - C35 Fraction	----	75 mg/kg	105	----	50	130	----	----
EP-071HK: Total Petroleum Hydrocarbons (TPH) (QC Lot: 900852)										
HK0902960-002	Anonymous	C6 - C8 Fraction	----	3 mg/kg	86.5	----	50	130	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-080S: TPH(Volatile)/BTEX Surrogate			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

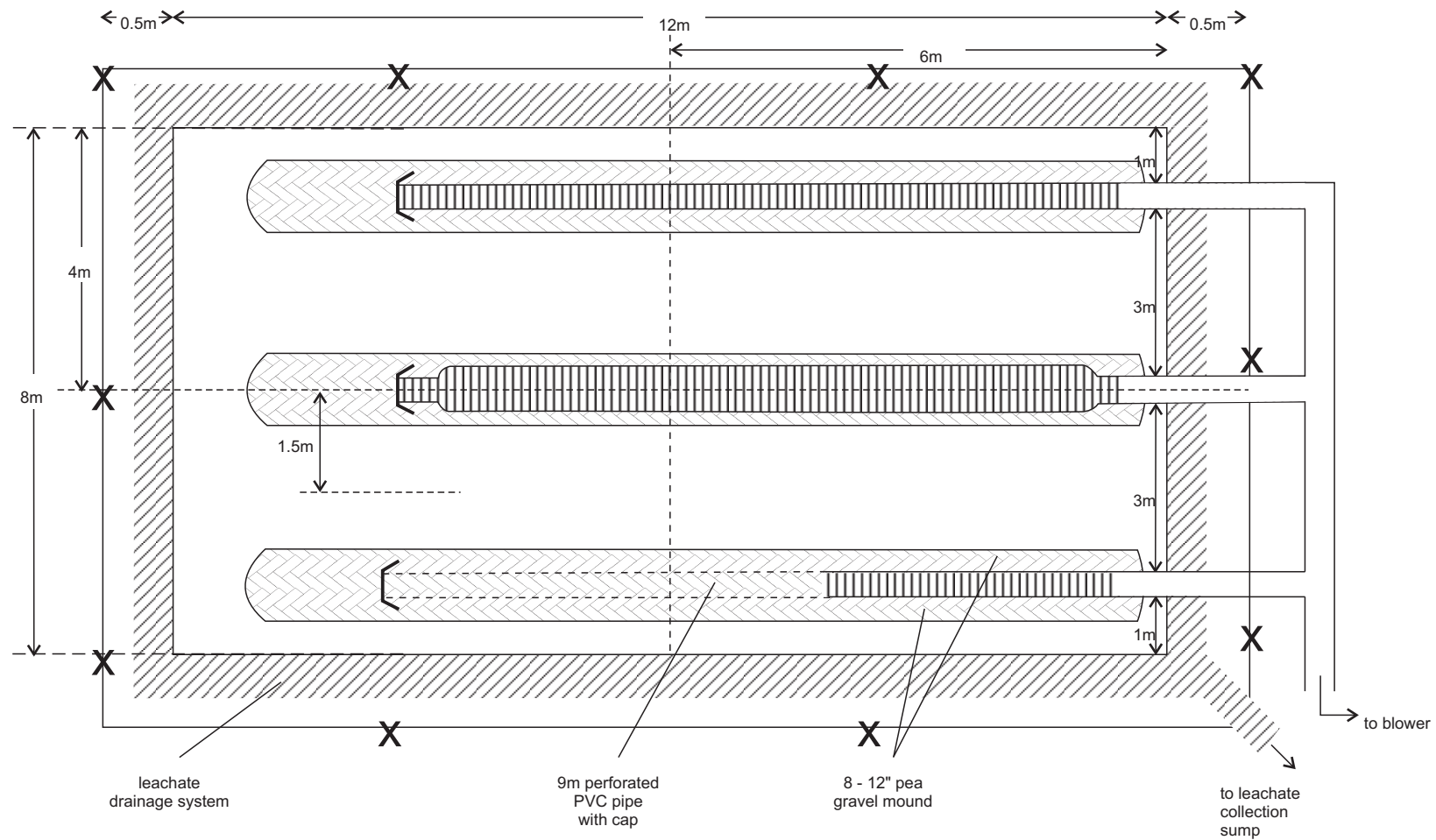


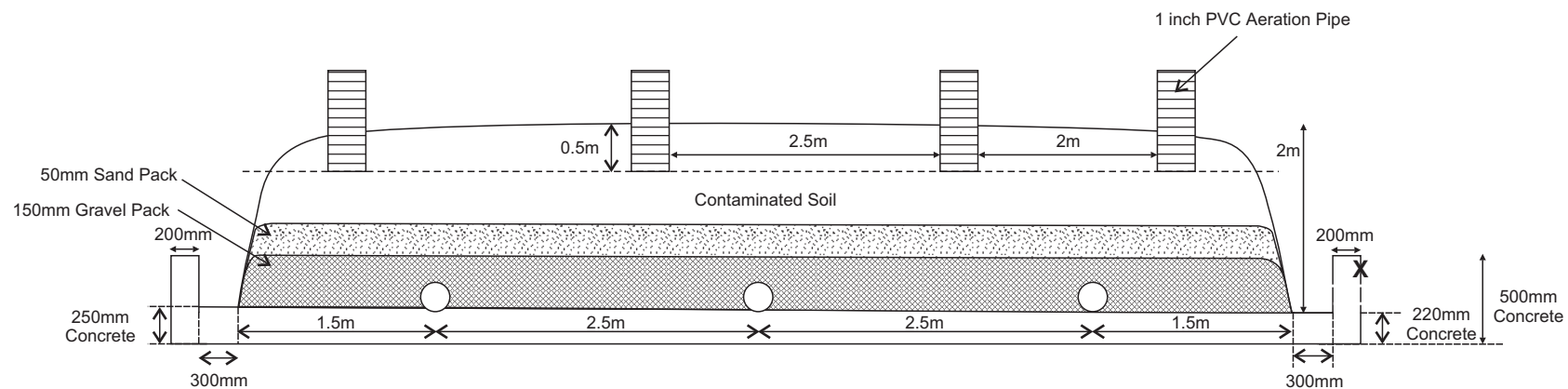
Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-074S: VOC Surrogates			
Dibromofluoromethane	1868-53-7	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137

Annex C

Biopile Design Schematic Diagrams

Biopile Design (Top View)





Key
 X Anchor Point at the corner

Not to Scale

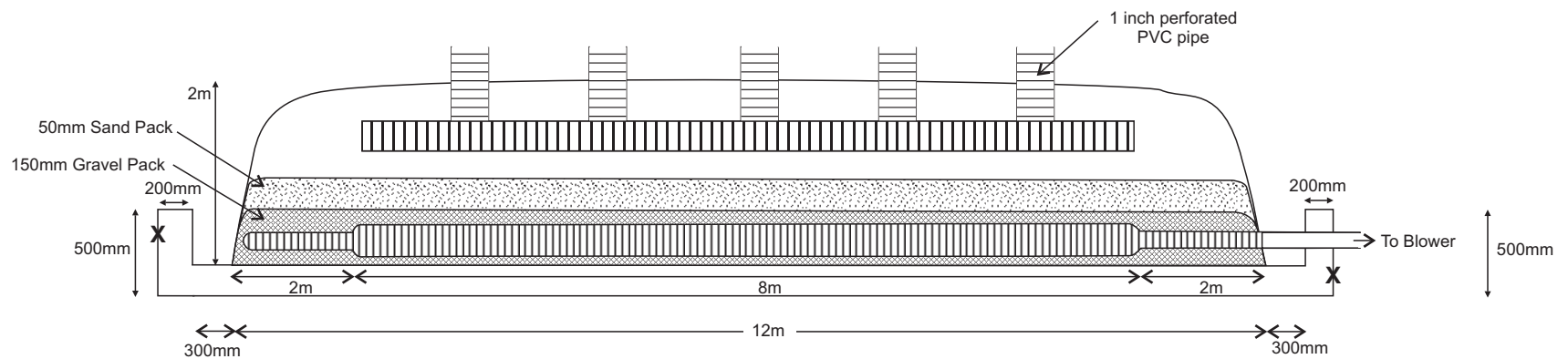
Annex C2

Biopile Design (Front View)

FILE: 0125309n12b
 DATE: 21/06/2012

Environmental
 Resources
 Management

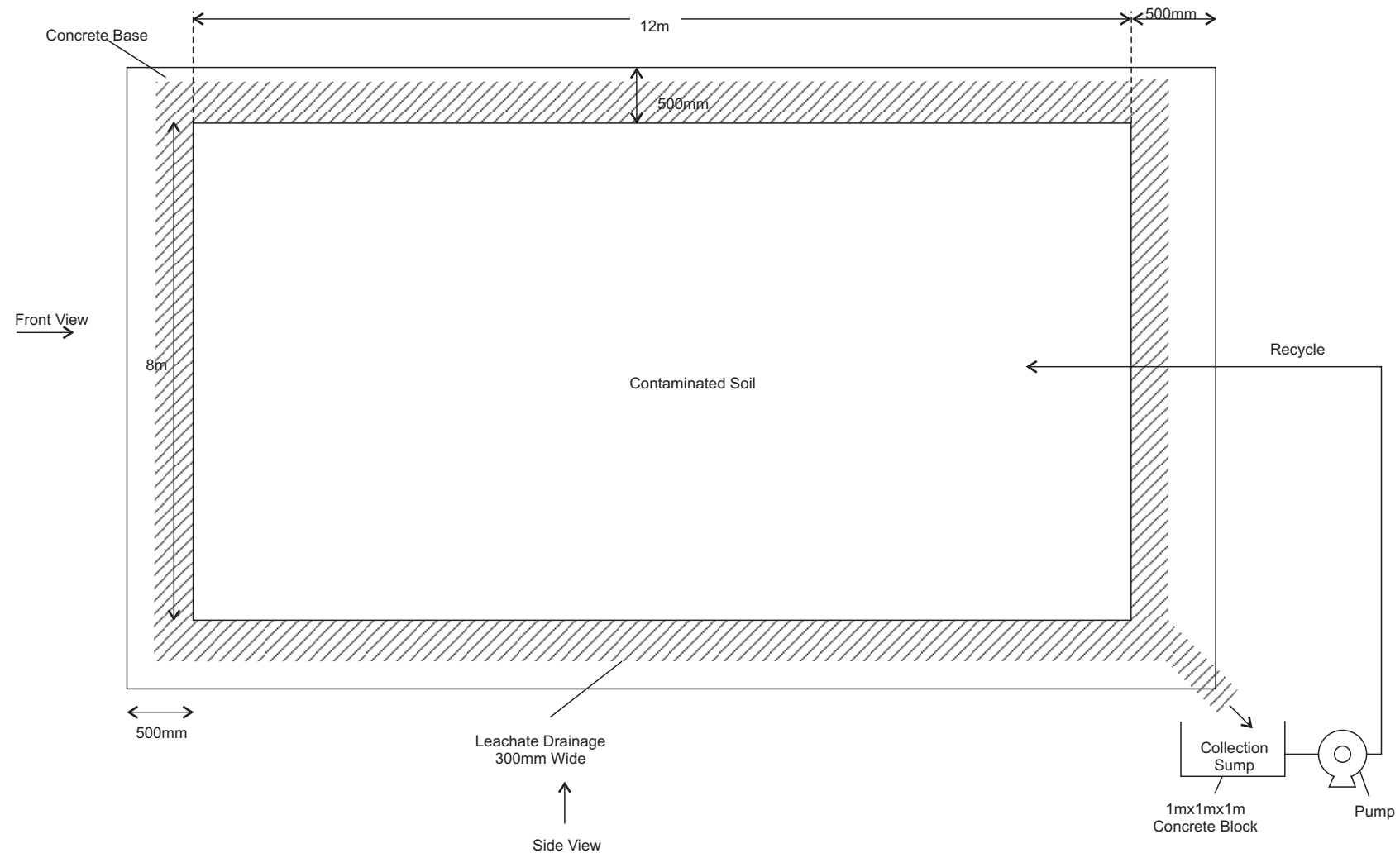




Key
 X Anchor Point at the corner

Not to Scale

Leachate Drainage / Recycle System



Not to Scale

Annex C4

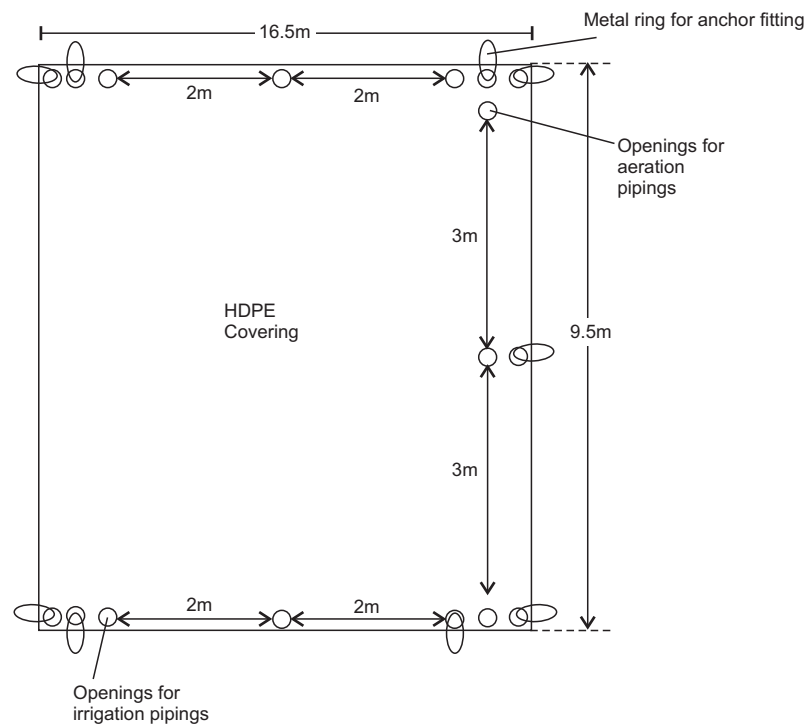
Leachate Drainage / Recycle System Design

FILE: 0125309n10
DATE: 21/06/2012

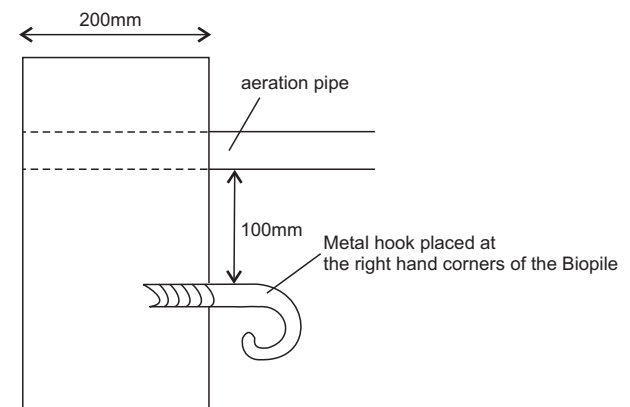
Environmental
Resources
Management



Impermeable Sheeting Design



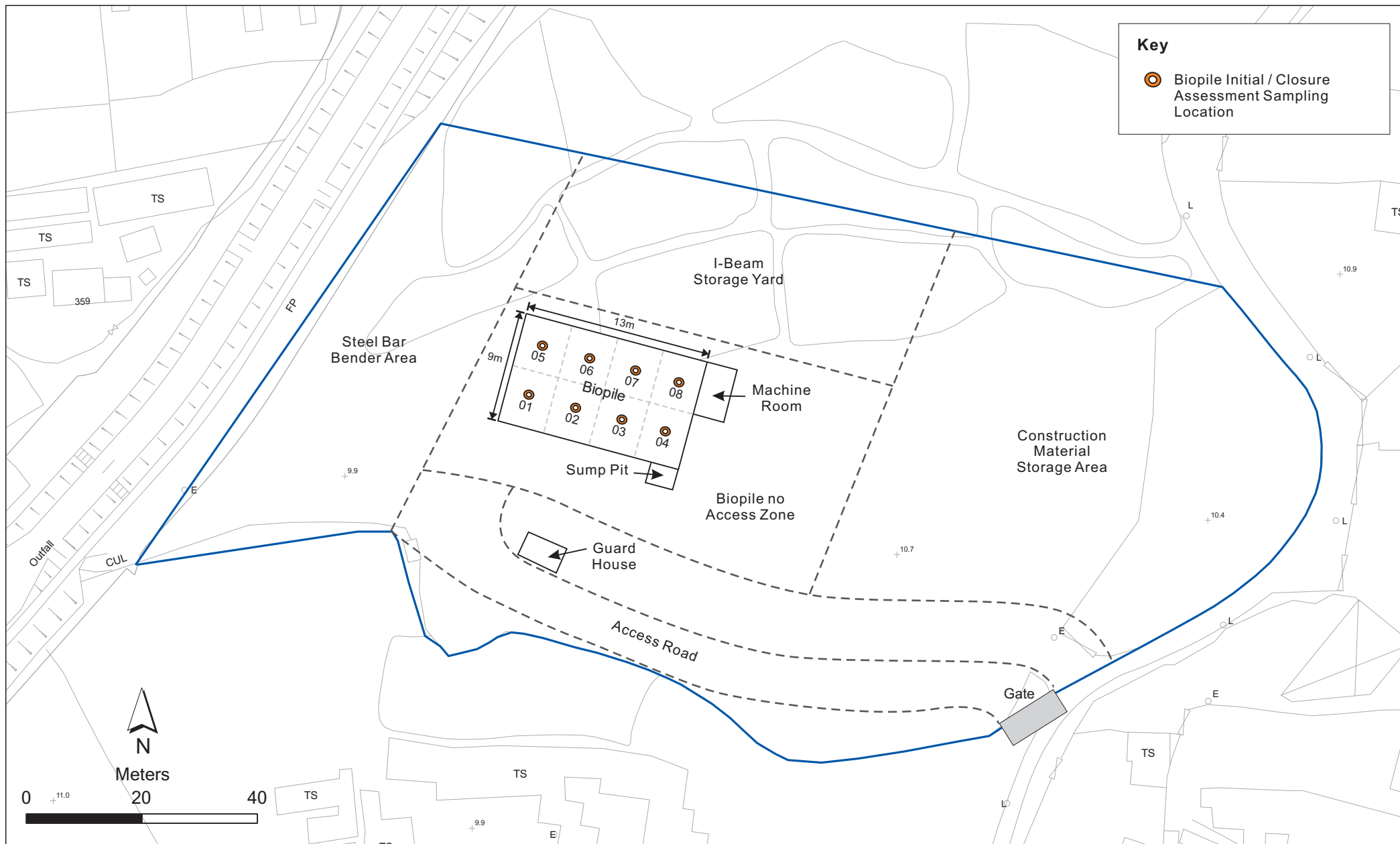
Anchor Point



Not to Scale

Annex D

Biopile Sampling Locations



Annex D1

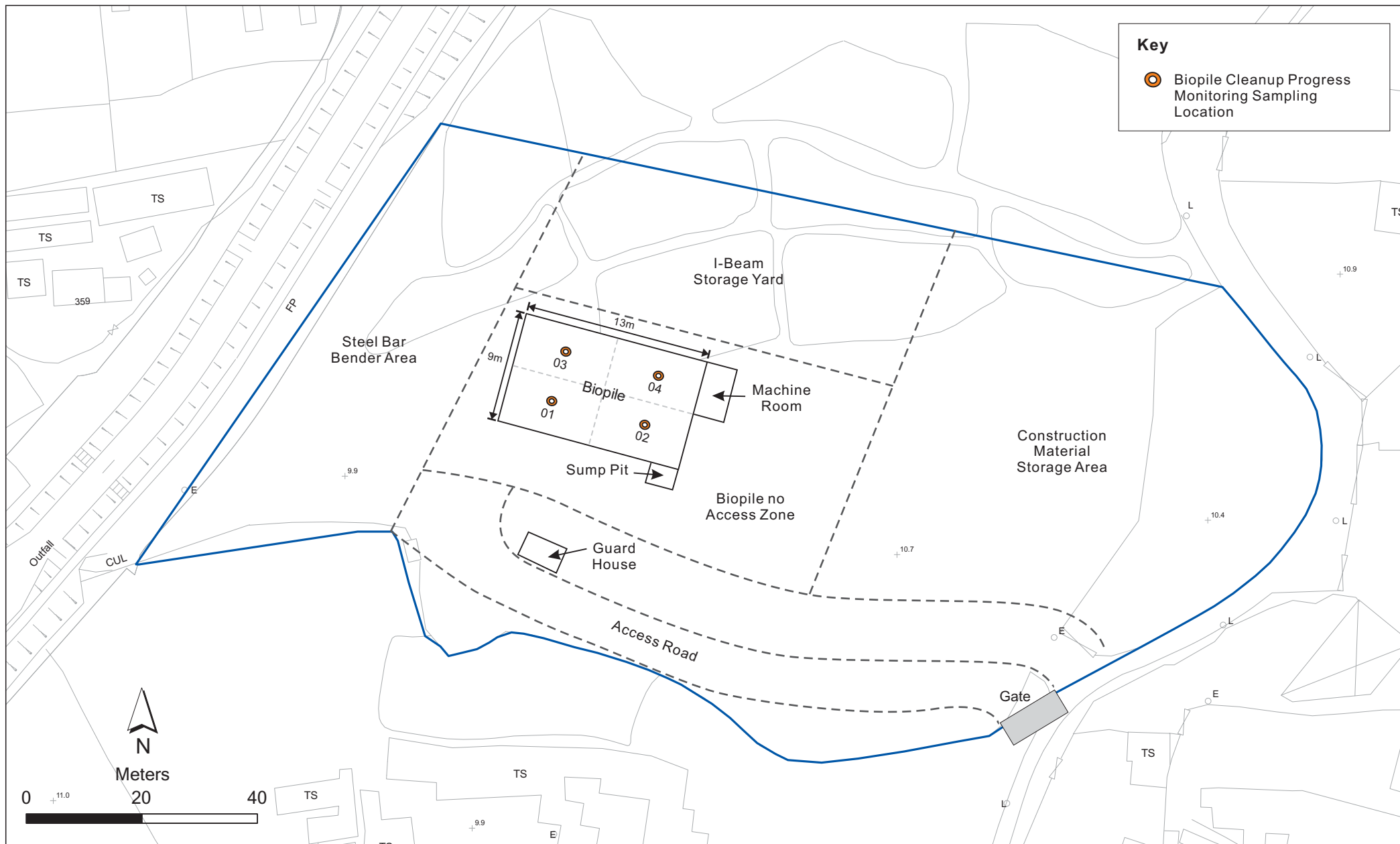
Biopile Initial / Closure Assessment Sampling Plan

The Express Rail Link Contract 823A-
Tai Kong Po to Tse Uk Tsuen Tunnels (XRL 823A)

File: 0125309p3
Date: 21/06/2012

Environmental
Resources
Management





Annex D2

Biopile Cleanup Progress Monitoring Sampling Plan

The Express Rail Link Contract 823A-
Tai Kong Po to Tse Uk Tsuen Tunnels (XRL 823A)

File: 0125309p4
Date: 21/06/2012

Environmental
Resources
Management



Annex E

Site Photos



Photo 1: Excavation Work with the use of mechanical machinery at Q-04



Photo 2: Confirmatory sampling at Q-04



Photo 3: Delineation sampling by rotary drilling at Q-05



Photo 4: Excavation work at Q-05 after delineation sampling



Photo 5: Confirmation of excavation depth



Photo 6: Construction of concrete bunding for temporary storage of contaminated soil



Photo 7: Concrete bunding structure for temporary storage of contaminated soil



Photo 8: Construction of the base of the biopile



Photo 9: Aeration piping placed at the bottom of the biopile.



Photo 10: Construction of reinforcing framework for the biopile



Photo 11: Biopile covered with tarpaulin sheeting



Photo 12: Tarpaulin sheeting affixed to the metal hook



Photo 13: Aeration piping connecting the biopile to the blower



Photo 14: Activated charcoal placed at the exhaust drum of the blower

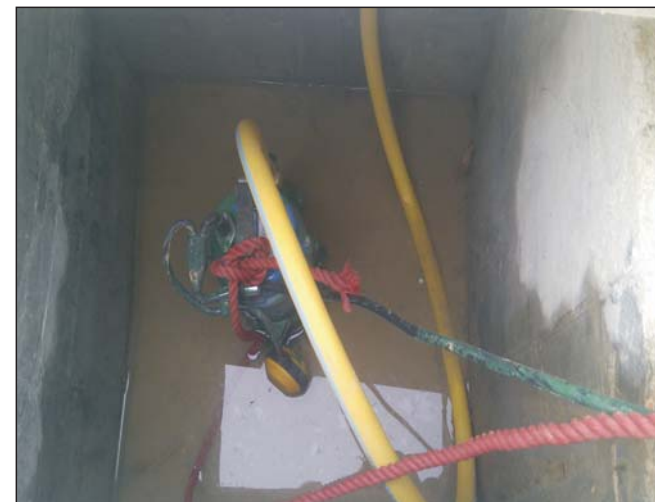


Photo 15: Leachate collection sump equipped with an automatic sensor pump.



Photo 16: Gas monitoring work during the biopile cleanup progress monitoring



Photo 17: Soil sampling with the use of hand auger



Photo 18: Soil turning with the help of mechanical excavator

Annex F

Laboratory Testing Reports of Biopile Monitoring Programme



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 6
Contact	: MR STEPHEN LAM	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1127650
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Stephen.lam@erm.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: XRL_823A	Quote number	: ----	Date Samples Received	: 24-NOV-2011
Order number	: ----			Issue Date	: 06-DEC-2011
C-O-C number	: H015745			No. of samples received	: 9
Site	: ----			No. of samples analysed	: 9

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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.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard
Leung Sai Ho, Ivan

Position

Senior Chemist
General Manager
Supervisor

Authorised results for

Organics
Inorganics
Microbiology



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: 29-NOV-2011

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: **HK1127650**

Sample(s) were received in a chilled condition.

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

pH determined and reported on a 1:5 soil / water extract.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.

Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.

Sample(s) were arrived in the laboratory at 12:30. Microbiological sample(s), in glass bottles, were received in a chilled condition. Testing period : 24/11/2011 (14:00) - 01/12/2011.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				XRL-823A 1101	XRL-823A 1102	XRL-823A 1103	XRL-823A 1104	XRL-823A 1105
				24-NOV-2011 12:30	24-NOV-2011 12:30	24-NOV-2011 12:30	24-NOV-2011 12:30	24-NOV-2011 12:30
Compound	CAS Number	LOR	Unit	HK1127650-001	HK1127650-002	HK1127650-003	HK1127650-004	HK1127650-005
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.4	18.0	17.2	15.5	17.4
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	166	265	180	144	151
EP-075S: Acid Extractable Surrogates							Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%	94.7	91.8	92.7	85.9	90.1
Phenol-d6	13127-88-3	0.1	%	90.8	89.3	92.0	84.9	88.2
2,4,6-Tribromophenol	118-79-6	0.1	%	76.8	77.4	81.8	74.6	71.8
EP-075T: Base/Neutral Extractable Surrogates							Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%	88.0	87.0	90.8	85.4	86.4
2-Fluorobiphenyl	321-60-8	0.1	%	86.3	86.7	90.5	83.3	85.4
4-Terphenyl-d14	1718-51-0	0.1	%	51.6	102	103	98.3	98.2



Sub-Matrix: SOIL				Client sample ID	XRL-823A 1106	XRL-823A 1107	XRL-823A 1108	XRL-823A 1109 COMPOSITE SAMPLE (EQUAL PORTION FROM 1-8)	
				Client sampling date / time	24-NOV-2011 12:30	24-NOV-2011 12:30	24-NOV-2011 12:30	24-NOV-2011 12:30	
Compound	CAS Number	LOR	Unit		HK1127650-006	HK1127650-007	HK1127650-008	HK1127650-009	
EA/ED: Physical and Aggregate Properties									
EA002: pH Value	----	0.1	pH Unit		----	----	----	7.5	
EA055: Moisture Content (dried @ 103°C)	----	0.1	%		17.3	17.0	17.3	17.4	
ED/EK: Inorganic Nonmetallic Parameters									
EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		----	----	----	1.4	
EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg		----	----	----	300	
EK062A: Total Nitrogen as N	----	20	mg/kg		----	----	----	300	
EK067A: Total Phosphorus as P	----	20	mg/kg		----	----	----	185	
EG: Metals and Major Cations									
EG025: Potassium	7440-09-7	10	mg/kg		----	----	----	1310	
EP-075C: Phthalate Esters									
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg		136	57	206	----	
EM: Microbiological Testing									
EM001A: Total Bacteria Count (30°C)	----	10	CFU/g		----	----	----	1600000	
EM113: Hydrocarbon Utilising Bacteria	----	10	CFU/g		----	----	----	6900	
EP-075S: Acid Extractable Surrogates								Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%		91.6	87.7	83.1	----	
Phenol-d6	13127-88-3	0.1	%		87.4	83.8	81.9	----	
2,4,6-Tribromophenol	118-79-6	0.1	%		74.0	70.4	68.2	----	
EP-075T: Base/Neutral Extractable Surrogates								Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%		87.4	83.1	80.5	----	
2-Fluorobiphenyl	321-60-8	0.1	%		81.3	81.1	77.2	----	
4-Terphenyl-d14	1718-51-0	0.1	%		94.7	94.4	90.0	----	



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2065838)								
HK1127650-001	XRL-823A 1101	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.4	17.4	6.2
HK1127858-002	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	24.5	24.7	1.0
EA/ED: Physical and Aggregate Properties (QC Lot: 2075596)								
HK1127650-009	XRL-823A 1109 COMPOSITE SAMPLE (EQUAL PORTION FROM 1-8)	EA002: pH Value	----	0.1	pH Unit	7.5	7.6	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2075597)								
HK1127650-009	XRL-823A 1109 COMPOSITE SAMPLE (EQUAL PORTION FROM 1-8)	EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	1.4	1.2	12.2
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2075959)								
HK1127650-009	XRL-823A 1109 COMPOSITE SAMPLE (EQUAL PORTION FROM 1-8)	EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	300	310	3.4
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2075960)								
HK1127650-009	XRL-823A 1109 COMPOSITE SAMPLE (EQUAL PORTION FROM 1-8)	EK067A: Total Phosphorus as P	----	20	mg/kg	185	180	2.7
EG: Metals and Major Cations (QC Lot: 2066298)								
HK1127650-009	XRL-823A 1109 COMPOSITE SAMPLE (EQUAL PORTION FROM 1-8)	EG025: Potassium	7440-09-7	10	mg/kg	1310	1310	0.0
EP-075C: Phthalate Esters (QC Lot: 2065889)								
HK1127650-001	XRL-823A 1101	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	166	141	16.7

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High	Value
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2075597)												
EK059A: Nitrite + Nitrate as N (Sol.)		----	0.1	mg/kg	<0.1	2 mg/kg	105	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2075959)												
EK061A: Total Kjeldahl Nitrogen as N		----	20	mg/kg	<20	1000 mg/kg	115	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2075960)												



Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2075960) - Continued											
EK067A: Total Phosphorus as P	----	20	mg/kg	<20	695 mg/kg	99.3	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 2066298)											
EG025: Potassium	7440-09-7	10	mg/kg	<10	----	----	----	----	----	----	----
EP-075C: Phthalate Esters (QC Lot: 2065889)											
Bis(2-ethylhexyl)phthalate	117-81-7	5.0	mg/kg	<5	0.25 mg/kg	95.6	----	57	121	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MR ANGUS CHOI	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1128823
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: angus.choi@erm.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044	Date Samples Received	: 07-DEC-2011
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021	Issue Date	: 24-DEC-2011
Project	: XRL_823A	Quote number	: ----	No. of samples received	: 5
Order number	: ----			No. of samples analysed	: 5
C-O-C number	: H008521				
Site	: SITE Q				

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard
Leung Sai Ho, Ivan

Position

Senior Chemist
General Manager
Supervisor

Authorised results for

Organics
Inorganics
Microbiology



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: 20-DEC-2011

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: **HK1128823**

Sample(s) were received in an ambient condition.

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

pH determined and reported on a 1:5 soil / water extract.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.

Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.

Sample(s) were arrived in the laboratory at 17:00. Microbiological sample(s), in 250mL glass bottle that were received an ambient condition. Testing period : 19/12/2011 (17:00) - 24/12/2011.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				XRL823A1201	XRL823A1202	XRL823A1203	XRL823A1204	XRL823A1205
				[07-DEC-2011]	[07-DEC-2011]	[07-DEC-2011]	[07-DEC-2011]	[07-DEC-2011]
Compound	CAS Number	LOR	Unit	HK1128823-001	HK1128823-002	HK1128823-003	HK1128823-004	HK1128823-005
EA/ED: Physical and Aggregate Properties								
EA002: pH Value	----	0.1	pH Unit	----	----	----	----	8.1
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.5	16.4	17.4	17.0	17.6
ED/EK: Inorganic Nonmetallic Parameters								
EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	----	2.3
EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	----	----	380
EK062A: Total Nitrogen as N	----	20	mg/kg	----	----	----	----	380
EK067A: Total Phosphorus as P	----	20	mg/kg	----	----	----	----	264
EG: Metals and Major Cations								
EG025: Potassium	7440-09-7	5	mg/kg	----	----	----	----	1830
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	115	104	93	185	----
EM: Microbiological Testing								
EM001A: Total Bacteria Count (30°C)	----	10	CFU/g	----	----	----	----	5000000
EM113: Hydrocarbon Utilising Bacteria	----	10	CFU/g	----	----	----	----	26000
EP-075S: Acid Extractable Surrogates								
Surrogate control limits listed at end of this report.								
2-Fluorophenol	367-12-4	0.1	%	73.0	67.6	75.4	78.0	----
Phenol-d6	13127-88-3	0.1	%	65.1	62.7	71.0	74.4	----
2,4,6-Tribromophenol	118-79-6	0.1	%	91.7	86.5	95.2	94.5	----
EP-075T: Base/Neutral Extractable Surrogates								
Surrogate control limits listed at end of this report.								
Nitrobenzene -d5	4165-60-0	0.1	%	74.2	70.4	78.8	80.0	----
2-Fluorobiphenyl	321-60-8	0.1	%	80.2	72.4	85.6	84.8	----
4-Terphenyl-d14	1718-51-0	0.1	%	93.6	80.3	89.2	91.3	----



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2080774)								
HK1128815-002	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	12.5	12.0	3.8
HK1128829-002	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	20.6	20.3	1.3
EA/ED: Physical and Aggregate Properties (QC Lot: 2087132)								
HK1128776-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	12.7	12.7	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2087133)								
HK1128823-005	XRL823A1205	EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	2.3	2.2	5.4
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2096617)								
HK1128823-005	XRL823A1205	EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	380	420	12.6
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2096618)								
HK1128823-005	XRL823A1205	EK067A: Total Phosphorus as P	----	20	mg/kg	264	219	18.9
EG: Metals and Major Cations (QC Lot: 2082077)								
HK1128823-005	XRL823A1205	EG025: Potassium	7440-09-7	5	mg/kg	1830	1910	4.5
EP-075C: Phthalate Esters (QC Lot: 2082131)								
HK1128823-001	XRL823A1201	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	115	116	0.0

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2087133)												
EK059A: Nitrite + Nitrate as N (Sol.)		----	0.1	mg/kg	<0.1	2 mg/kg	87.8	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2096617)												
EK061A: Total Kjeldahl Nitrogen as N		----	20	mg/kg	<20	1000 mg/kg	111	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2096618)												
EK067A: Total Phosphorus as P		----	20	mg/kg	<20	695 mg/kg	106	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 2082077)												
EG025: Potassium		7440-09-7	10	mg/kg	<10	----	----	----	----	----	----	----
EP-075C: Phthalate Esters (QC Lot: 2082131)												
Bis(2-ethylhexyl)phthalate		117-81-7	5.0	mg/kg	<5	0.25 mg/kg	83.6	----	75	113	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			



Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates - Continued			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MR STEPHEN LAM	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1200403
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Stephen.lam@erm.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: XRL_823A	Quote number	: ----	Date Samples Received	: 05-JAN-2012
Order number	: ----			Issue Date	: 26-JAN-2012
C-O-C number	: H008524			No. of samples received	: 5
Site	: SITE Q			No. of samples analysed	: 5

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard
Leung Sai Ho, Ivan

Position

Senior Chemist
General Manager
Supervisor

Authorised results for

Organics
Inorganics
Microbiology



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-JAN-2012

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: **HK1200403**

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.

pH determined and reported on a 1:5 soil / water extract.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.

Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.

Sample(s) were arrived in the laboratory at 17:30. Microbiological sample(s), in 250mL glass bottle that were received an ambient condition. Testing period : 06/01/2012 (10:00) - 13/01/2012.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				XRL823A0101	XRL823A0102	XRL823A0103	XRL823A0104	XRL823A0105
				[04-JAN-2012]	[04-JAN-2012]	[04-JAN-2012]	[04-JAN-2012]	[04-JAN-2012]
Compound	CAS Number	LOR	Unit	HK1200403-001	HK1200403-002	HK1200403-003	HK1200403-004	HK1200403-005
EA/ED: Physical and Aggregate Properties								
EA002: pH Value	----	0.1	pH Unit	----	----	----	----	8.1
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.8	16.6	16.5	16.7	16.1
ED/EK: Inorganic Nonmetallic Parameters								
EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	----	<0.1
EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	----	----	200
EK062A: Total Nitrogen as N	----	20	mg/kg	----	----	----	----	200
EK067A: Total Phosphorus as P	----	20	mg/kg	----	----	----	----	162
EG: Metals and Major Cations								
EG025: Potassium	7440-09-7	5	mg/kg	----	----	----	----	1610
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	83	70	89	81	----
EM: Microbiological Testing								
EM001A: Total Bacteria Count (30°C)	----	10	CFU/g	----	----	----	----	2200000
EM113: Hydrocarbon Utilising Bacteria	----	10	CFU/g	----	----	----	----	72000
EP-075S: Acid Extractable Surrogates							Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%	74.3	76.4	78.9	72.1	----
Phenol-d6	13127-88-3	0.1	%	79.9	79.6	81.3	80.7	----
2,4,6-Tribromophenol	118-79-6	0.1	%	76.4	79.7	83.1	79.5	----
EP-075T: Base/Neutral Extractable Surrogates							Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%	82.6	79.2	84.0	79.6	----
2-Fluorobiphenyl	321-60-8	0.1	%	97.6	72.5	76.9	94.0	----
4-Terphenyl-d14	1718-51-0	0.1	%	89.9	83.4	88.5	87.4	----



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2120805)								
HK1200112-018	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	15.4	16.8	8.6
HK1200507-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	25.4	26.0	2.6
EA/ED: Physical and Aggregate Properties (QC Lot: 2123805)								
HK1200507-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.3	7.2	2.1
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2123806)								
HK1200507-001	Anonymous	EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.5	0.5	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2129915)								
HK1200403-005	XRL823A0105	EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	200	220	11.9
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2129916)								
HK1200403-005	XRL823A0105	EK067A: Total Phosphorus as P	----	20	mg/kg	162	148	8.9
EG: Metals and Major Cations (QC Lot: 2121139)								
HK1200403-005	XRL823A0105	EG025: Potassium	7440-09-7	5	mg/kg	1610	1610	0.0
EP-075C: Phthalate Esters (QC Lot: 2122190)								
HK1200403-001	XRL823A0101	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	83	84	1.9

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2123806)												
EK059A: Nitrite + Nitrate as N (Sol.)		----	0.1	mg/kg	<0.1	2 mg/kg	98.8	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2129915)												
EK061A: Total Kjeldahl Nitrogen as N		----	20	mg/kg	<20	1000 mg/kg	92.0	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2129916)												
EK067A: Total Phosphorus as P		----	20	mg/kg	<20	695 mg/kg	99.8	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 2121139)												
EG025: Potassium		7440-09-7	10	mg/kg	<10	----	----	----	----	----	----	----
EP-075C: Phthalate Esters (QC Lot: 2122190)												
Bis(2-ethylhexyl)phthalate		117-81-7	5.0	mg/kg	<5	0.25 mg/kg	75.4	----	75	113	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			



Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates - Continued			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MR ANGUS CHOI	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1203990
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: angus.choi@erm.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: XRL_823A	Quote number	: ----	Date Samples Received	: 10-FEB-2012
Order number	: ----			Issue Date	: 22-FEB-2012
C-O-C number	: H008532			No. of samples received	: 5
Site	: ----			No. of samples analysed	: 5

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard
Leung Sai Ho, Ivan

Position

Senior Chemist
General Manager
Supervisor

Authorised results for

Organics
Inorganics
Microbiology



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: 21-FEB-2012

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: **HK1203990**

Sample(s) were received 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 D3974-81 based on ASTM D3974-81, prior to the determination of metals.

pH determined and reported on a 1:5 soil / water extract.

Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.

Sample(s) were arrived in the laboratory at 12:10. Microbiological sample(s), in 250mL glass bottle that were received a chilled condition. Testing period : 13/02/2012 (10:00) - 18/02/2012.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				XRL-823A 0201	XRL-823A 0202	XRL-823A 0203	XRL-823A 0204	XRL-823A 0205
				[10-FEB-2012]	[10-FEB-2012]	[10-FEB-2012]	[10-FEB-2012]	[10-FEB-2012]
Compound	CAS Number	LOR	Unit	HK1203990-001	HK1203990-002	HK1203990-003	HK1203990-004	HK1203990-005
EA/ED: Physical and Aggregate Properties								
EA002: pH Value	----	0.1	pH Unit	----	----	----	----	7.8
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.8	17.6	15.0	17.6	17.5
ED/EK: Inorganic Nonmetallic Parameters								
EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	----	<0.1
EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	----	----	270
EK062A: Total Nitrogen as N	----	20	mg/kg	----	----	----	----	270
EK067A: Total Phosphorus as P	----	20	mg/kg	----	----	----	----	164
EG: Metals and Major Cations								
EG025: Potassium	7440-09-7	5	mg/kg	----	----	----	----	1730
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	28	28	105	34	----
EM: Microbiological Testing								
EM001A: Total Bacteria Count (30°C)	----	10	CFU/g	----	----	----	----	3000000
EM113: Hydrocarbon Utilising Bacteria	----	10	CFU/g	----	----	----	----	12000
EP-075S: Acid Extractable Surrogates								
Surrogate control limits listed at end of this report.								
2-Fluorophenol	367-12-4	0.1	%	60.0	83.2	79.1	79.3	----
Phenol-d6	13127-88-3	0.1	%	58.5	76.4	74.8	73.7	----
2,4,6-Tribromophenol	118-79-6	0.1	%	77.6	92.3	87.0	94.3	----
EP-075T: Base/Neutral Extractable Surrogates								
Surrogate control limits listed at end of this report.								
Nitrobenzene -d5	4165-60-0	0.1	%	65.7	86.6	84.6	82.2	----
2-Fluorobiphenyl	321-60-8	0.1	%	67.1	88.3	88.4	84.5	----
4-Terphenyl-d14	1718-51-0	0.1	%	86.0	98.6	98.3	92.3	----



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2165560)								
HK1203934-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	31.6	29.2	7.9
EA/ED: Physical and Aggregate Properties (QC Lot: 2169563)								
HK1203990-005	XRL-823A 0205	EA002: pH Value	----	0.1	pH Unit	7.8	7.7	1.3
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2169564)								
HK1203990-005	XRL-823A 0205	EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	0.1	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2170544)								
HK1203005-001	Anonymous	EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	38900	43600	11.4
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2170545)								
HK1203005-001	Anonymous	EK067A: Total Phosphorus as P	----	20	mg/kg	6120	7170	15.7
EG: Metals and Major Cations (QC Lot: 2165539)								
HK1203894-001	Anonymous	EG025: Potassium	7440-09-7	5	mg/kg	16700	16800	0.5
EP-075C: Phthalate Esters (QC Lot: 2165533)								
HK1203990-001	XRL-823A 0201	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	28	28	0.0

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result			LCS	DCS	Low	High	Value
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2169564)											
EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2 mg/kg	106	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2170544)											
EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	1000 mg/kg	99.6	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2170545)											
EK067A: Total Phosphorus as P	----	20	mg/kg	<20	695 mg/kg	100	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 2165539)											
EG025: Potassium	7440-09-7	10	mg/kg	<10	----	----	----	----	----	----	----
EP-075C: Phthalate Esters (QC Lot: 2165533)											
Bis(2-ethylhexyl)phthalate	117-81-7	5.0	mg/kg	<5	0.25 mg/kg	81.4	----	75	113	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121



Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates - Continued			
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MR ANGUS CHOI	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1206788
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: angus.choi@erm.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: XRL 823A	Quote number	: ----	Date Samples Received	: 12-MAR-2012
Order number	: ----			Issue Date	: 23-MAR-2012
C-O-C number	: H008534			No. of samples received	: 5
Site	: ----			No. of samples analysed	: 5

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard
Leung Sai Ho, Ivan

Position

Senior Chemist
General Manager
Supervisor

Authorised results for

Organics
Inorganics
Microbiology



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: 20-MAR-2012

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: **HK1206788**

Sample(s) were received in an ambient condition.

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

pH determined and reported on a 1:5 soil / water extract.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.

Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.

Sample(s) were arrived in the laboratory at 11:20. Microbiological sample(s), in 250mL glass bottles, were received in an ambient condition. Testing period : 14/03/2012 (14:00) - 19/03/2012.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				XRL-823A 0301	XRL-823A 0302	XRL-823A 0303	XRL-823A 0304	XRL-823A 0305
				[12-MAR-2012]	[12-MAR-2012]	[12-MAR-2012]	[12-MAR-2012]	[12-MAR-2012]
Compound	CAS Number	LOR	Unit	HK1206788-001	HK1206788-002	HK1206788-003	HK1206788-004	HK1206788-005
EA/ED: Physical and Aggregate Properties								
EA002: pH Value	----	0.1	pH Unit	----	----	----	----	7.8
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	15.1	15.2	16.6	15.8	15.2
ED/EK: Inorganic Nonmetallic Parameters								
EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	----	<0.1
EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	----	----	260
EK062A: Total Nitrogen as N	----	20	mg/kg	----	----	----	----	260
EK067A: Total Phosphorus as P	----	20	mg/kg	----	----	----	----	177
EG: Metals and Major Cations								
EG025: Potassium	7440-09-7	5	mg/kg	----	----	----	----	1820
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	46	37	27	14	----
EM: Microbiological Testing								
EM001A: Total Bacteria Count (30°C)	----	10	CFU/g	----	----	----	----	12000000
EM113: Hydrocarbon Utilising Bacteria	----	10	CFU/g	----	----	----	----	16000
EP-075S: Acid Extractable Surrogates								
Surrogate control limits listed at end of this report.								
2-Fluorophenol	367-12-4	0.1	%	72.9	75.7	78.2	72.7	----
Phenol-d6	13127-88-3	0.1	%	54.7	62.1	59.7	56.3	----
2,4,6-Tribromophenol	118-79-6	0.1	%	79.0	78.8	86.4	80.1	----
EP-075T: Base/Neutral Extractable Surrogates								
Surrogate control limits listed at end of this report.								
Nitrobenzene -d5	4165-60-0	0.1	%	74.3	73.6	78.8	73.3	----
2-Fluorobiphenyl	321-60-8	0.1	%	68.2	71.3	78.0	67.8	----
4-Terphenyl-d14	1718-51-0	0.1	%	68.3	74.0	80.2	75.9	----



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2214239)								
HK1205680-007	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	58.0	58.8	1.4
HK1205680-008	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	58.7	58.3	0.8
EA/ED: Physical and Aggregate Properties (QC Lot: 2218738)								
HK1206788-005	XRL-823A 0305	EA002: pH Value	----	0.1	pH Unit	7.8	7.8	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2215537)								
HK1206788-005	XRL-823A 0305	EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	260	270	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2215538)								
HK1206788-005	XRL-823A 0305	EK067A: Total Phosphorus as P	----	20	mg/kg	177	181	2.2
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2218739)								
HK1206788-005	XRL-823A 0305	EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	0.0
EG: Metals and Major Cations (QC Lot: 2216165)								
HK1206788-005	XRL-823A 0305	EG025: Potassium	7440-09-7	5	mg/kg	1820	1760	3.3
EP-075C: Phthalate Esters (QC Lot: 2210164)								
HK1206788-001	XRL-823A 0301	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	46	44	4.9

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2215537)												
EK061A: Total Kjeldahl Nitrogen as N		----	20	mg/kg	<20	1000 mg/kg	102	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2215538)												
EK067A: Total Phosphorus as P		----	20	mg/kg	<20	695 mg/kg	103	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2218739)												
EK059A: Nitrite + Nitrate as N (Sol.)		----	0.1	mg/kg	<0.1	2 mg/kg	97.4	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 2216165)												
EG025: Potassium		7440-09-7	10	mg/kg	<10	----	----	----	----	----	----	----
EP-075C: Phthalate Esters (QC Lot: 2210164)												
Bis(2-ethylhexyl)phthalate		117-81-7	5.0	mg/kg	<5	0.25 mg/kg	102	----	75	113	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			



Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates - Continued			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MR STEPHEN LAM	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1209902
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Stephen.lam@erm.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: XRL_823A	Quote number	: ----	Date Samples Received	: 16-APR-2012
Order number	: ----			Issue Date	: 27-APR-2012
C-O-C number	: H008537			No. of samples received	: 5
Site	: ----			No. of samples analysed	: 5

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Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard
Leung Sai Ho, Ivan

Position

Senior Chemist
General Manager
Supervisor

Authorised results for

Organics
Inorganics
Microbiology



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: 25-APR-2012

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: **HK1209902**

Sample(s) were received in an ambient condition.

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

pH determined and reported on a 1:5 soil / water extract

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.

Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.

Sample(s) were arrived in the laboratory at 11:20. Microbiological sample(s), in glass bottles, were received in an ambient condition. Testing period : 16/04/2012 (16:30) - 22/04/2012.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				XRL-823A 0401	XRL-823A 0402	XRL-823A 0403	XRL-823A 0404	XRL-823A 0405
				[16-APR-2012]	[16-APR-2012]	[16-APR-2012]	[16-APR-2012]	[16-APR-2012]
Compound	CAS Number	LOR	Unit	HK1209902-001	HK1209902-002	HK1209902-003	HK1209902-004	HK1209902-005
EA/ED: Physical and Aggregate Properties								
EA002: pH Value	----	0.1	pH Unit	----	----	----	----	7.7
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	15.9	15.9	15.7	15.1	15.8
ED/EK: Inorganic Nonmetallic Parameters								
EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	----	0.2
EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	----	----	230
EK062A: Total Nitrogen as N	----	20	mg/kg	----	----	----	----	230
EK067A: Total Phosphorus as P	----	20	mg/kg	----	----	----	----	178
EG: Metals and Major Cations								
EG025: Potassium	7440-09-7	5	mg/kg	----	----	----	----	1790
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	49	14	16	21	----
EM: Microbiological Testing								
EM001A: Total Bacteria Count (30°C)	----	10	CFU/g	----	----	----	----	2000000
EM113: Hydrocarbon Utilising Bacteria	----	10	CFU/g	----	----	----	----	110000
EP-075S: Acid Extractable Surrogates							Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%	61.9	56.7	60.9	60.0	----
Phenol-d6	13127-88-3	0.1	%	43.4	39.3	45.5	42.8	----
2,4,6-Tribromophenol	118-79-6	0.1	%	96.4	89.6	96.0	95.3	----
EP-075T: Base/Neutral Extractable Surrogates							Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%	59.6	56.9	65.8	62.4	----
2-Fluorobiphenyl	321-60-8	0.1	%	57.6	65.4	72.5	64.5	----
4-Terphenyl-d14	1718-51-0	0.1	%	72.5	84.1	104	98.1	----



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2261235)								
HK1209589-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	43.7	43.2	1.2
HK1209753-008	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	20.0	20.2	1.0
EA/ED: Physical and Aggregate Properties (QC Lot: 2272565)								
HK1209902-005	XRL-823A 0405	EA002: pH Value	----	0.1	pH Unit	7.7	7.6	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2272566)								
HK1209902-005	XRL-823A 0405	EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.2	0.2	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2273238)								
HK1209902-005	XRL-823A 0405	EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	230	250	10.2
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2273239)								
HK1210213-001	Anonymous	EK067A: Total Phosphorus as P	----	20	mg/kg	205	191	6.8
EG: Metals and Major Cations (QC Lot: 2264864)								
HK1210162-001	Anonymous	EG025: Potassium	7440-09-7	10	mg/kg	13900	14200	2.5
EP-075C: Phthalate Esters (QC Lot: 2261204)								
HK1209902-001	XRL-823A 0401	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	49	55	11.2

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

Matrix: SOIL				Method Blank (MB) Report							
								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
								Spike Recovery (%)		Recovery Limits (%)	
								Spike Concentration		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2272566)											
EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2 mg/kg	108	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2273238)											
EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	1000 mg/kg	98.6	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2273239)											
EK067A: Total Phosphorus as P	----	20	mg/kg	<20	695 mg/kg	102	----	85	115	----	----
EG: Metals and Major Cations (QC Lot: 2264864)											
EG025: Potassium	7440-09-7	10	mg/kg	<10	----	----	----	----	----	----	----
EP-075C: Phthalate Esters (QC Lot: 2261204)											
Bis(2-ethylhexyl)phthalate	117-81-7	5.0	mg/kg	<5	0.25 mg/kg	105	----	75	113	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			



Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates - Continued			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: MR STEPHEN LAM	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1212656
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Stephen.lam@erm.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: XRL - 823A	Quote number	: ----	Date Samples Received	: 15-MAY-2012
Order number	: ----			Issue Date	: 30-MAY-2012
C-O-C number	: H028128			No. of samples received	: 5
Site	: ----			No. of samples analysed	: 5

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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.

Signatories

Anh Ngoc Huynh
Fung Lim Chee, Richard
Leung Sai Ho, Ivan

Position

Senior Chemist
General Manager
Supervisor

Authorised results for

Organics
Inorganics
Microbiology



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: 24-MAY-2012

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: **HK1212656**

Sample(s) were received in an ambient condition.

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

pH determined and reported on a 1:5 soil / water extract.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.

Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.

Sample(s) were arrived in the laboratory at 11:40. Microbiological sample(s), in glass bottles, were received in an ambient condition. Testing period : 17/05/2012 (16:00) - 23/05/2012.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				XRL-823A 0501	XRL-823A 0502	XRL-823A 0503	XRL-823A 0504	XRL-823A 0505
				[15-MAY-2012]	[15-MAY-2012]	[15-MAY-2012]	[15-MAY-2012]	[15-MAY-2012]
Compound	CAS Number	LOR	Unit	HK1212656-001	HK1212656-002	HK1212656-003	HK1212656-004	HK1212656-005
EA/ED: Physical and Aggregate Properties								
EA002: pH Value	----	0.1	pH Unit	----	----	----	----	7.7
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	15.5	16.1	12.8	16.4	15.6
ED/EK: Inorganic Nonmetallic Parameters								
EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	----	0.3
EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	----	----	260
EK062A: Total Nitrogen as N	----	20	mg/kg	----	----	----	----	260
EK067A: Total Phosphorus as P	----	20	mg/kg	----	----	----	----	213
EG: Metals and Major Cations								
EG025: Potassium	7440-09-7	5	mg/kg	----	----	----	----	2030
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	16	25	5	10	----
EM: Microbiological Testing								
EM001A: Total Bacteria Count (30°C)	----	10	CFU/g	----	----	----	----	940000
EM113: Hydrocarbon Utilising Bacteria	----	10	CFU/g	----	----	----	----	140000
EP-075S: Acid Extractable Surrogates							Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%	78.3	79.2	68.2	78.5	----
Phenol-d6	13127-88-3	0.1	%	74.5	79.2	66.7	76.5	----
2,4,6-Tribromophenol	118-79-6	0.1	%	62.8	68.1	60.3	60.5	----
EP-075T: Base/Neutral Extractable Surrogates							Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%	74.0	78.2	67.5	75.1	----
2-Fluorobiphenyl	321-60-8	0.1	%	69.8	72.2	63.0	71.0	----
4-Terphenyl-d14	1718-51-0	0.1	%	73.9	81.4	71.1	74.3	----



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2305234)								
HK1212550-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	27.1	27.1	0.0
HK1212632-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.3	18.8	3.0
EA/ED: Physical and Aggregate Properties (QC Lot: 2305235)								
HK1212656-004	XRL-823A 0504	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.4	16.4	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 2316259)								
HK1212656-005	XRL-823A 0505	EA002: pH Value	----	0.1	pH Unit	7.7	7.8	Not Determined
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2313625)								
HK1211798-001	Anonymous	EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	720	730	2.2
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2313626)								
HK1211798-016	Anonymous	EK067A: Total Phosphorus as P	----	20	mg/kg	262	243	7.6
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2316260)								
HK1212656-005	XRL-823A 0505	EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.3	0.2	0.0
EG: Metals and Major Cations (QC Lot: 2313534)								
HK1212656-005	XRL-823A 0505	EG025: Potassium	7440-09-7	5	mg/kg	2030	2040	0.6
EP-075C: Phthalate Esters (QC Lot: 2293747)								
HK1211783-001	Anonymous	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	<5	<5	0.0

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
Method: Compound	CAS Number	LOR	Unit	Result			LCS	DCS	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2313625)												
EK061A: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	1000 mg/kg	99.3	----	85	115	----	----	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2313626)												
EK067A: Total Phosphorus as P	----	20	mg/kg	<20	695 mg/kg	99.8	----	85	115	----	----	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 2316260)												
EK059A: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2 mg/kg	106	----	85	115	----	----	
EG: Metals and Major Cations (QC Lot: 2313534)												
EG025: Potassium	7440-09-7	10	mg/kg	<10	----	----	----	----	----	----	----	
EP-075C: Phthalate Esters (QC Lot: 2293747)												
Bis(2-ethylhexyl)phthalate	117-81-7	5.0	mg/kg	<5	0.25 mg/kg	89.0	----	75	113	----	----	

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL	Recovery Limits (%)
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Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137



CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 4
Contact	: MR STEPHEN LAM	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1214276
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Stephen.lam@erm.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044		
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021		
Project	: XRL 823A	Quote number	: ----	Date Samples Received	: 01-JUN-2012
Order number	: ----			Issue Date	: 15-JUN-2012
C-O-C number	: H024597			No. of samples received	: 8
Site	: ----			No. of samples analysed	: 8

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: 05-JUN-2012

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: **HK1214276**

Sample(s) were received in an ambient condition.

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

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Signatories

Position

Authorised results for

Anh Ngoc Huynh
Fung Lim Chee, Richard

Senior Chemist
General Manager

Organics
Inorganics



Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

				XRL 823A-0601CA	XRL 823A-0602CA	XRL 823A-0603CA	XRL 823A-0604CA	XRL 823A-0605CA
				[01-JUN-2012]	[01-JUN-2012]	[01-JUN-2012]	[01-JUN-2012]	[01-JUN-2012]
Compound	CAS Number	LOR	Unit	HK1214276-001	HK1214276-002	HK1214276-003	HK1214276-004	HK1214276-005
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	15.8	15.9	17.1	14.6	14.8
EP-075C: Phthalate Esters								
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	45	43	22	17	19
EP-075S: Acid Extractable Surrogates							Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%	88.9	97.2	87.7	101	99.7
Phenol-d6	13127-88-3	0.1	%	88.0	86.2	85.4	89.9	94.6
2,4,6-Tribromophenol	118-79-6	0.1	%	96.0	90.7	92.2	94.8	90.7
EP-075T: Base/Neutral Extractable Surrogates							Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%	106	103	101	105	104
2-Fluorobiphenyl	321-60-8	0.1	%	87.1	84.3	84.7	88.4	86.9
4-Terphenyl-d14	1718-51-0	0.1	%	97.3	91.4	95.4	96.8	94.8



Sub-Matrix: SOIL				Client sample ID	XRL 823A-0606CA	XRL 823A-0607CA	XRL 823A-0608CA		
				Client sampling date / time	[01-JUN-2012]	[01-JUN-2012]	[01-JUN-2012]		
Compound	CAS Number	LOR	Unit		HK1214276-006	HK1214276-007	HK1214276-008		
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	----	0.1	%		15.0	15.3	15.6		
EP-075C: Phthalate Esters									
Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg		27	31	85		
EP-075S: Acid Extractable Surrogates								Surrogate control limits listed at end of this report.	
2-Fluorophenol	367-12-4	0.1	%		90.1	92.0	93.3		
Phenol-d6	13127-88-3	0.1	%		86.5	87.8	89.0		
2,4,6-Tribromophenol	118-79-6	0.1	%		88.9	93.4	91.4		
EP-075T: Base/Neutral Extractable Surrogates								Surrogate control limits listed at end of this report.	
Nitrobenzene -d5	4165-60-0	0.1	%		93.0	98.1	101		
2-Fluorobiphenyl	321-60-8	0.1	%		85.7	80.8	88.0		
4-Terphenyl-d14	1718-51-0	0.1	%		94.8	100	98.2		



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2337615)								
HK1214252-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	46.6	46.6	0.0
HK1214276-002	XRL 823A-0602CA	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	15.9	16.2	1.6
EP-075C: Phthalate Esters (QC Lot: 2338295)								
HK1214276-001	XRL 823A-0601CA	Bis(2-ethylhexyl)phthalate	117-81-7	5	mg/kg	45	36	21.0

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

Matrix: SOIL		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report							
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
		Method: Compound	CAS Number	LOR		Unit	Result	LCS	DCS	Low	High	Value
EP-075C: Phthalate Esters (QC Lot: 2338295)												
Bis(2-ethylhexyl)phthalate		117-81-7	5.0	mg/kg	<5	0.25 mg/kg	100	----	75	113	----	----

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

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP-075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	24	113
2,4,6-Tribromophenol	118-79-6	20	122
EP-075T: Base/Neutral Extractable Surrogates			
Nitrobenzene -d5	4165-60-0	23	120
2-Fluorobiphenyl	321-60-8	30	115
4-Terphenyl-d14	1718-51-0	20	137