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12 March 2012  
(Fax No: 2827 1823)

Mot MacDonald Hong Kong Limited  
20/F, Two Landmark East  
100, How Ming Street  
Kwun Tong, Kowloon

Attn.: Dr Anne F KERR

Dear Dr Kerr,

**Proposed Comprehensive Development at Wo Shang Wai, Yuen Long  
Condition 3.14 of Environmental Permit, EP-311/2008/B  
Submission of Remediation Report (RR)**

I refer to your letter dated 27 January 2012 enclosing the subject report for our record.

I understand that the subject submission is required as per the recommendations of the Contamination Assessment Report and Remediation Assessment Plan approved under Condition 3.14 of the relevant Environmental Permit (EP-311/2008/B). The RR was also prepared and approved by the Environmental Team Leader, Mott MacDonald Hong Kong Ltd, and verified by the Independent Environmental Checker, Environ Hong Kong Ltd. We consider the submission technically in order.

Please be reminded that no development works shall be carried out at the site prior to the full and proper implementation of the required decontamination works at the relevant site(s). Should you have any enquiry, please contact the undersigned.

Yours faithfully,

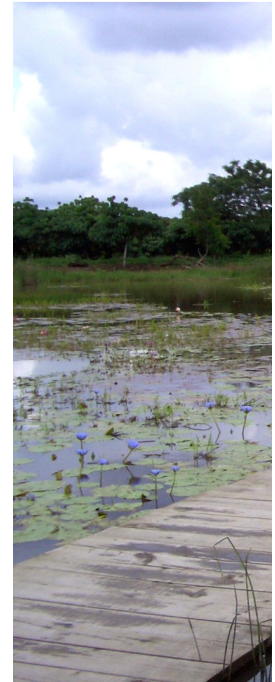


(Tom T H TAM)  
Senior Environmental Protection Officer  
for Director of Environmental Protection

c.c. Henderson Land Development Co. Ltd. (Attn: Ms Vicky CHUNG) Fax No: 2521 7913)

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# Proposed Comprehensive Development at Wo Shang Wai, Yuen Long

Remediation Report (RR)

January 2012  
Profit Point Enterprises Limited



# Proposed Comprehensive Development at Wo Shang Wai, Yuen Long

Remediation Report (RR)

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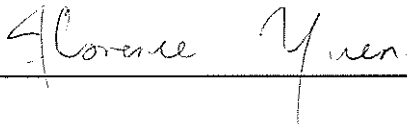
75/F, Two International Finance Centre, 8 Finance Street, Central, Hong Kong.





Pursuant to Condition 3.14 of Environmental Permit No. EP-311/2008/B, this Remediation Report (RR) has been reviewed, certified and verified by the following EM&A members as Conforming to the Information and Recommendations contained in the EIA Report.

Certified by:



**Florence Yuen**

Environmental Team (ET) Leader

Mott MacDonald Hong Kong Limited

Verified by:



**David Yeung**

Independent Environmental Checker (IEC)

Environ Hong Kong Limited

Date

26 January 2012



# Content

<b>Chapter</b>	<b>Title</b>	<b>Page</b>
1.	Introduction	1
1.1	Background	1
1.2	Objectives	2
2.	Estimated Extent and Quantity of Soil Contamination	3
3.	Confirmatory Testing	4
4.	Soil Remediation	5
4.1	Remediation Goal	5
4.2	Pilot Testing	5
4.3	Remediation Works Summary	6
4.4	The Decommissioning of Plants and Equipment	7
4.5	Arrangement after Completion of Remediation	8
5.	Conclusions	9

## Tables

Table 2.1:	Illustration of Excavation	3
Table 4.1:	Soil/Cement Mixing Ratio and Moisture Content for Pilot Testing Sampling	5
Table 4.2:	Summary Table for Pilot Testing Results	5
Table 4.3:	Test Results for Cement Solidification	6

## List of Figures

<a href="#">Figure 1.1</a>	<a href="#">Site Location Plan</a>
<a href="#">Figure 1.2</a>	<a href="#">Land Contamination Investigations Borehole Locations</a>
<a href="#">Figure 3.1</a>	<a href="#">Extent of Contaminated Soil Excavation</a>
<a href="#">Figure 4.1</a>	<a href="#">Proposed Backfill Location For Treated Soil</a>

## List of Appendices

<a href="#">Appendix A</a>	<a href="#">Photo Records of Confirmatory Soil Sampling</a>
<a href="#">Appendix B</a>	<a href="#">Laboratory Testing Results of Confirmatory Soil Sampling</a>
<a href="#">Appendix C</a>	<a href="#">Laboratory Testing Results of TCLP for Lead of Pilot Testing</a>
<a href="#">Appendix D</a>	<a href="#">Photographic Records of the Soil Remediation Process</a>
<a href="#">Appendix E</a>	<a href="#">Laboratory Testing Results of the Soil Remediation Work</a>
<a href="#">Appendix F</a>	<a href="#">Photographic Records of the Decommissioning of Plants and Equipment</a>



# 1. Introduction

## 1.1 Background

In March 2005, the Project Proponent, **Profit Point Enterprises Limited**, acquired a development site in Wo Shang Wai, Yuen Long, as shown in **Figure 1.1**. The Project involves a comprehensive residential development with a wetland restoration area. The residential units will have a maximum height of 4 storeys including car park. The layout of the development is currently being designed.

The Project site occupies about 20.7 ha site area. To the immediate south and west of the site there are existing residential developments (Royal Palms, Palm Springs and Wo Shang Wai village). Open storage exists to the immediate northeast with fishponds to the northwest and village development to the east of the Site.

An Environmental Impact Assessment (EIA) had been undertaken for the proposed comprehensive development in Wo Shang Wai, Yuen Long (hereinafter referred to “the Project”), under the EIA Ordinance (EIAO). The corresponding EIA report was approved by Environmental Protection Department (EPD) in July 2008 (Register No. AEIAR-120/2008) and an Environmental Permit (EP) No. EP-311/2008 was granted by the Director of Environmental Protection (DEP) on 9 September 2008. The EP was subsequently amended under application for Variation of Environmental Permit (VEP) and was replaced by EP-311/2008/A on 23 February 2010 and EP-311/2008/B on 29 July 2010.

As part of the EIA study, a Contamination Assessment Plan (CAP) was prepared by Mott MacDonald Hong Kong Limited (formerly known as Mott Connell Limited) and was endorsed by EPD in March 2006 (hereinafter referred as the endorsed CAP). Subsequent Ground Investigation (GI) works were carried out in 2006 in accordance with the endorsed CAP and the results were presented in the approved EIA report.

As the historical use of Dutch B levels of Netherlands is considered not entirely appropriate for the use in Hong Kong, a set of Hong Kong locally-derived contaminated land assessment standards, Risk Based Remediation Goals (RBRGs), based on risk-based approach has been introduced by EPD for land contamination assessment since August 2007 to replace Dutch B levels.

An updated CAP covering the whole WSW development was prepared in December 2009 incorporating the new land contamination assessment criteria (RBRGs) on the previous site investigation carried out during WSW EIA Study stage. Based on the field investigation results of fifteen boreholes (BH-LC1 to BH-LC15), it was noticed that there are certain hotspots within the Project Area which have the level of heavy metal (Lead) exceeds the respective RBRGs “Rural Residential” criteria (i.e. 275mg/kg at 1.25mbgl for BH-LC9 and 306mg/kg at 1.5mbgl for BH-LC14). The location is shown in **Figure 1.2**. Soil remediation and excavation of contaminated soil are therefore proposed for treating soils contaminated with heavy metals.

Pursuant to the EP Condition 3.14, a Contaminated Assessment Report (CAR) and Remediation Action Plan (RAP) shall be prepared and submitted to EPD for agreement. The combined CAR/RAP was submitted to EPD on 16 March 2010 supported with further site investigation fieldworks and soil sampling in November 2009 to review the extent of soil contamination at the two hotspots. The CAR/RAP was endorsed by EPD on 26 April 2010, and land remediation was arranged accordingly to the approved CAR/RAP. Based on the Approved CAR/RAP, excavation of contaminated soil at BH-LC9 and BH-LC14 is required at specified depths below ground level for cement solidification.

Mott MacDonald Hong Kong Ltd. ("MMHK") has been commissioned by Profit Point Enterprises Limited as the Decontamination Specialist to supervise the excavation, soil confirmatory sampling works, pilot testing for cement solidification and remediation works in accordance with the approved CAR/RAP, and to prepare this Remediation Report (RR).

## **1.2 Objectives**

The main objectives of the Remediation Report include:

- To confirm the extent of contamination based on the findings of excavation works conducted on site;
- To summarize the findings of soil confirmatory sampling (including fieldworks and laboratory analyses);
- To demonstrate the completion of the remediation works; and
- To submit this RR for EPD approval.

## 2. Estimated Extent and Quantity of Soil Contamination

According to the Approved CAR/RAP, heavy metals concentration which has exceeded the respective RBRGs for "Rural Residential" criteria are found in boreholes BH-LC9 and BH-LC14 at 1.25mbgl and 1.50mbgl. It was proposed a section of bulk excavation of soil with radius 10m and 0.75m vertical depth above and below the sampling point be considered as contaminated. Based on the proposal, an estimated volume of 771.5m<sup>3</sup> were excavated for soil remediation.

The estimated quantity of contaminated soil which requires soil remediation is shown in **Table 2.1**.

Table 2.1: Illustration of Excavation

Borehole	Layer	Excavation Extent	Excavation Thickness, m	Corresponding Volume, m <sup>3</sup>
BH-LC9	1.25	0.5 – 2.0 m	1.5	471.3
BH-LC14*	1.50	0.75 – 2.25 m	1.5	300.2
<b>Total</b>				<b>771.5</b>

\* BH-LC14 is located close to the site boundary. The corresponding volume is therefore estimated to be less than 471 m<sup>3</sup>.



### 3. Confirmatory Testing

In accordance with Section 4.3.1 of the Approved CAR/RAP, confirmatory sampling is required to determine if excavation is being adequately carried out and all contaminated soil has been removed. Subsequent to the excavation of contaminated soil, two soil samples from each of the four sides as well as bottom of the excavation zone for both BH-LC9 and BH-LC14 were taken for the analysis of Lead (Pb) by ALS Technichem (HK) Pty Ltd., a Hong Kong Laboratory Accreditation Scheme (HOKLAS) laboratory (details of sampling locations and photo records are shown in **Figure 3.1** and **Appendix A**). All analytical results of soil samples have shown no exceedance of the respective RBRG “Rural Residential” criteria (**Appendix B**).

Based on the analytical results, all soil samples have Lead content not exceeding the relevant RBRGs for Lead (255 mg/kg). Therefore, it is certain that the excavation of contaminated soil, i.e. clean-up is adequately carried out and no further land contamination is evidenced. The contamination zones are therefore limited to the extent that has been documented in the Approved CAR/RAP and no migration of contaminants is therefore suggested.

## 4. Soil Remediation

### 4.1 Remediation Goal

Following the excavation of contaminated soil from the two respective hotspots (i.e. BH-LC9 and BH-LC14), excavated materials have been treated with cement solidification and will be reused on site as recommended in the Approved CAR/RAP.

### 4.2 Pilot Testing

According to the Remediation Action Plan (RAP), the contaminated soil should be treated by the cement stabilization/solidification technology before they can be reused for backfilling on site. A trial mixing for cement solidification has been undertaken in August 2010 as part of the land contamination remediation study to determine the most desirable soil/cement mix with a minimum Unconfined Compressive Strength (UCS) of 1.03 N/m<sup>2</sup> (150 psi or 1034 kPa). The pilot test for determination of soil/cement mixing ratio was conducted by the PolyU Technology and Consultancy Co. Ltd. and laboratory testing for Toxicity Characteristic Leaching Procedure (TCLP) for lead was undertaken by the HOKLAS laboratory – ALS Technichem (HK) Pty Ltd., both are the sub-consultant of MMHK for the land contamination remediation study. **Tables 4.1** and **4.2** summarised the soil/cement mixing ratio and pilot testing results. The laboratory testing results for TCLP is shown in **Appendix C**.

Table 4.1: Soil/Cement Mixing Ratio and Moisture Content for Pilot Testing Sampling

Notation	Soil	Cement (%)	Total water* (%)
C-05	1	5	18
C-10	1	10	18

Note: Appropriate adjustments of cement dosage may be necessary if the moisture content of the soil deviates significantly from the above value.

Table 4.2: Summary Table for Pilot Testing Results

Notation	Density (kg/m <sup>3</sup> )		Unconfined Compressive Strength (UCS) (MPa) Universal Treatment Standard (>1.03 MPa)		TCLP for Lead (mg/L) Universal Treatment Standard (<0.75 mg/L)	
	Individual	Mean	Individual	Mean	Individual	Mean
C-05-1	2072	2068	2.08	2.05	<0.5	<0.5
C-05-2	2073		2.19		<0.5	
C-05-3	2058		1.88		<0.5	
C-10-1	2104	2099	4.83	4.84	<0.5	<0.5
C-10-2	2089		4.66		<0.5	
C-10-3	2103		5.02		<0.5	

Notes: UCS was conducted following USEPA guideline for hazardous waste solidification; TCLP was conducted following USEPA 1331

The trial mixing, UCS testing and TCLP testing for lead showed that a dosage of 5% cement (by weight of soil) is sufficient to enable the heavy metal (lead) stabilized in the contaminated soil and comply with the stipulated treatment standards.

Based on the above findings, the following method statement for on-site treatment was proposed:

- Allow sufficient paved areas for placing concrete mixing plants and other necessary equipment;
- Allow sufficient paved area for temporary storage of the treated soil.
- Use excavators or other appropriate plants to loosen the contaminated soil.
- Pass the loosen soil through a 35 mm sieve.
- Determine the moisture content.
- Mix thoroughly the sieved soil with 5% Ordinary Portland cement (Green Island or equivalent) by weight of soil and added water if needed by an appropriate means. (Additional cement or water would be required if the moisture content is outside the range of 15-20%).
- Prepare appropriate number of concrete cubes (150 mm) for compressive strength testing after mixing (three number of test for every 100m<sup>3</sup> of treated soil). Demould after 1 day and place the cubes in a water curing tank. Transfer the cubes for UCS testing at 7th day.
- Place the treated soil at the temporary storage paved area (covered by appropriate materials to prevent uptake and loss of moisture) prior to the confirmation of laboratory testing result.

### 4.3 Remediation Works Summary

After the completion of pilot testing, the approximate volume of soil requiring for remediation is estimated to be 1,000 m<sup>3</sup>. Cement solidification works was carried out in October and November 2011 following the method statement proposed in the pilot testing study and under the supervision of the Land Decontamination Specialist. The photographic records of the soil remediation process are documented in **Appendix D**.

A total of 30 samples were obtained from 1,000 m<sup>3</sup> treated soil for the subsequent UCS and TCLP testing in accordance with the approved CAR/RAP for confirmation of the clean-up of contaminated soil is meeting the assessment criteria. The UCS and TCLP testing were undertaken by the PolyU Technology and Consultancy Co. Ltd. and ALS Technichem (HK) Pty. Ltd. respectively. The results of the UCS and TCLP testing are summarised in **Table 4.3**, the complete report with the associated chain-of custody, QA/QC results and certificates of analysis were presented in **Appendix E**.

Table 4.3: Test Results for Cement Solidification

Sample ID	Density (kg/m <sup>3</sup> )	Unconfined Compressive Strength (UCS) (MPa)	TCLP for lead (mg/L)
20111028S1	2060	2.23	<0.5
20111031S1	2005	2.06	<0.5
20111031S2	2000	2.04	<0.5
20111031S3	2004	2.07	<0.5
20111101S1	2025	2.22	<0.5
20111101S2	2019	2.83	<0.5
20111101S3	2005	3.12	<0.5
20111102S1	2074	3.31	<0.5
20111102S2	2051	2.67	<0.5
20111102S3	2009	2.55	<0.5
20111103S1	2011	1.96	<0.5
20111103S2	2053	2.68	<0.5
20111103S3	2064	2.90	<0.5
20111103S4	2043	2.29	<0.5

Sample ID	Density (kg/m <sup>3</sup> )	Unconfined Compressive Strength (UCS) (MPa)	TCLP for lead (mg/L)
20111103S5	2038	2.27	<0.5
20111104S1	2010	1.89	<0.5
20111104S2	2009	1.89	<0.5
20111104S3	2013	2.18	<0.5
20111105S1	2026	2.22	<0.5
20111105S2	2024	2.28	<0.5
20111105S3	2039	2.27	<0.5
20111107S1	2035	2.70	<0.5
20111107S2	2041	3.03	<0.5
20111107S3	2034	2.60	<0.5
20111116S1	2045	3.37	<0.5
20111116S2	2049	3.28	<0.5
20111116S3	2034	2.96	<0.5
20111117S1	2036	3.35	<0.5
20111117S2	2032	3.21	<0.5
20111117S3	2024	3.00	<0.5

Notes: UCS was conducted following USEPA guideline for hazardous waste solidification; TCLP was conducted following USEPA 1331

Analytical results indicate that all samples do not exceed the assessment criteria. Hence, further monitoring is not necessary and the remediation objectives have been met accordingly.

#### 4.4 The Decommissioning of Plants and Equipment

The plants and equipment used for excavation and soil mixing have been decommissioned after receiving the analytical result from the laboratory, photo records were presented in **Appendix F**. All the good site practices have been followed on-site, including the following:

- Dust screens, sheeting or netting to be provided to minimize the air emission from the decommissioning activities;
- All dusty materials to be sprayed with water prior to the decommissioning of plants and equipment;
- The decommissioning area should be sprayed with water immediately before, during and immediately after (as necessary) the operations so as to maintain the entire surface wet;
- All plants and equipment should be covered to limit potential dust emissions, and sealed to prevent any discharge during transport or during wet conditions; and
- Only reputable waste haulers should be used to collect and transport any contaminated material.

#### **4.5 Arrangement after Completion of Remediation**

All the treated materials will be reused on site for backfilling in the coming garden as shown in the location plan (**Figure 4.1**) with a minimum of 1m clean fill to be covered on top. The treated materials will be temporary stockpile on site with impervious sheet cover for future reuse.

## 5. Conclusions

Excavation and remediation of total 1,000 m<sup>3</sup> of contaminated soil have been carried out in accordance with the approved CAR/RAP. Samples obtained to monitor the adequacy of clean-up process were analysed and no exceedance was identified.

All analytical results of soil samples have shown no exceedance of the respective RBRG "Rural Residential" criteria thus demonstrating successful completion of the remedial objectives.

The treated materials will be temporary stockpile on site with proper cover and will be reused on site as backfilling.

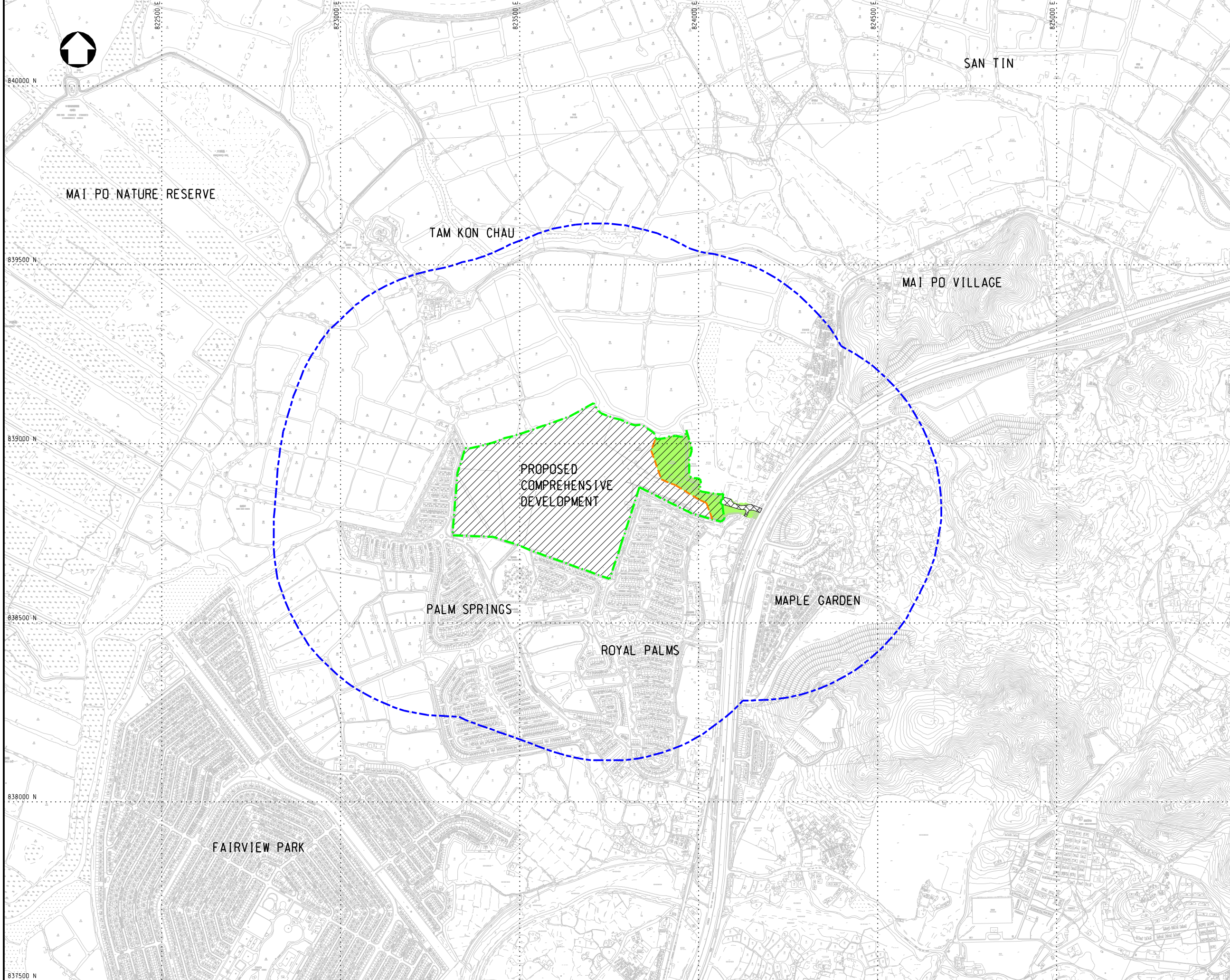


# Figures









- LEGEND:**
- SITE BOUNDARY
  - ASSESSMENT AREA (1500m FROM PROJECT AREA AND SITE OF CONSERVATION CONCERN)
  - WORKS AREA OF THE HONG KONG SECTION OF GUANGZHOU - SHENZHEN - HONG KONG EXPRESS RAIL LINK (XRL)
  - / / / / / PROPOSED COMPREHENSIVE DEVELOPMENT
  - X X X X X AREA PERMANENTLY RESUMED FOR XRL PROJECT
  - WSW AREA ENCOACHED BY XRL WORKS AREA (TOA)

840000 N  
839500 N  
839000 N  
838500 N  
838000 N  
837500 N

822500 E  
823000 E  
823500 E  
824000 E  
824500 E  
825000 E

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Client  
**PROFIT POINT ENTERPRISES LTD**

Project  
**PROPOSED COMPREHENSIVE DEVELOPMENT  
AT WO SHANG WAI, YUEN LONG**

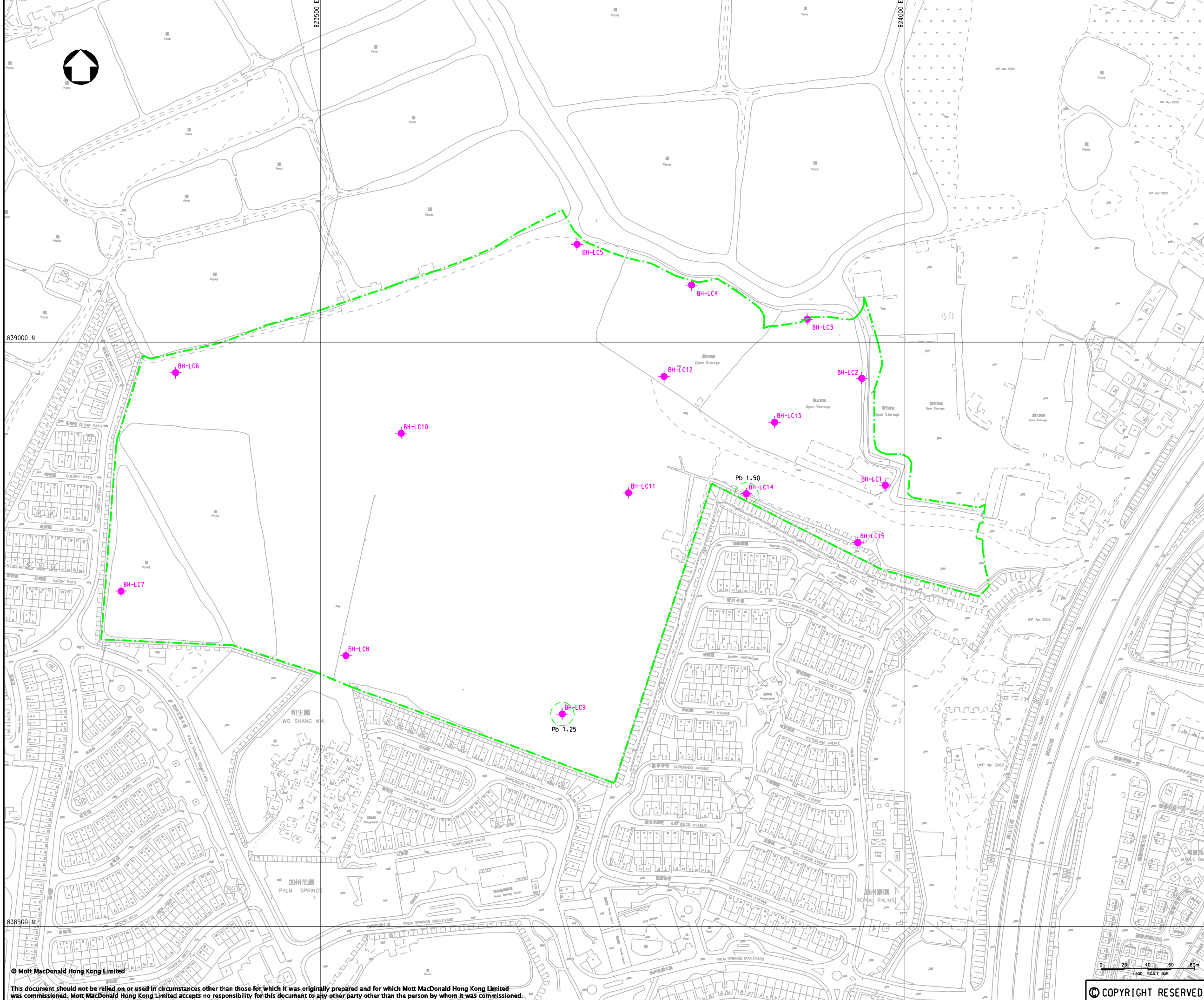
Title  
**SITE LOCATION PLAN**

Designed	JC	Eng.Chk.	JC
Drawn	MING	Coordination	JC
Dwg.Chk.	JC	Approved	AFK
Scale	1:5000@A1	Project	221005
Scale	1:5000	CAD File	J:\221005\report\env\rr\1816\FIG 1.dgn
Drawing No.	FIGURE 1.1	Status	Rev
			P1

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- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRE UNLESS STATED OTHERWISE.
  2. GRID LINES ARE HONG KONG METRE GRID 1980.

- LEGEND:**
- BH-LC4 LAND CONTAMINATION BOREHOLE
  - - - PROJECT AREA BOUNDARY
  - Pb LEAD LEVEL EXCEEDING RBRGS 'RURAL RESIDENTIAL' LEVEL
  - 1.25 DEPTH (LEVEL) OF SAMPLE EXCEEDING RBRGS 'RURAL RESIDENTIAL' LEVEL
  - ADOPTED 20m WIDE DIAMETER ZONE OF CONTAMINATION

	PROPOSED EXCAVATION FOR CONTAMINATED SOIL
BH-LC9	0.5 - 2.0 mbgl
BH-LC14	0.75 - 2.25 mbgl

\* THE EXTENT OF EXCAVATION IS SUBJECT TO THE APPROVAL OF CONTAMINATION ASSESSMENT REPORT (CAR) BY EPD.  
 \* mbgl - METER BELOW GROUND LEVEL

TYPE	CO-ORDINATE	
	EASTING	NORTHING
BH-LC9	823706.712	838681.772
BH-LC14	823864.420	838870.299

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 ☎ +862 2827 1823  
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Client  
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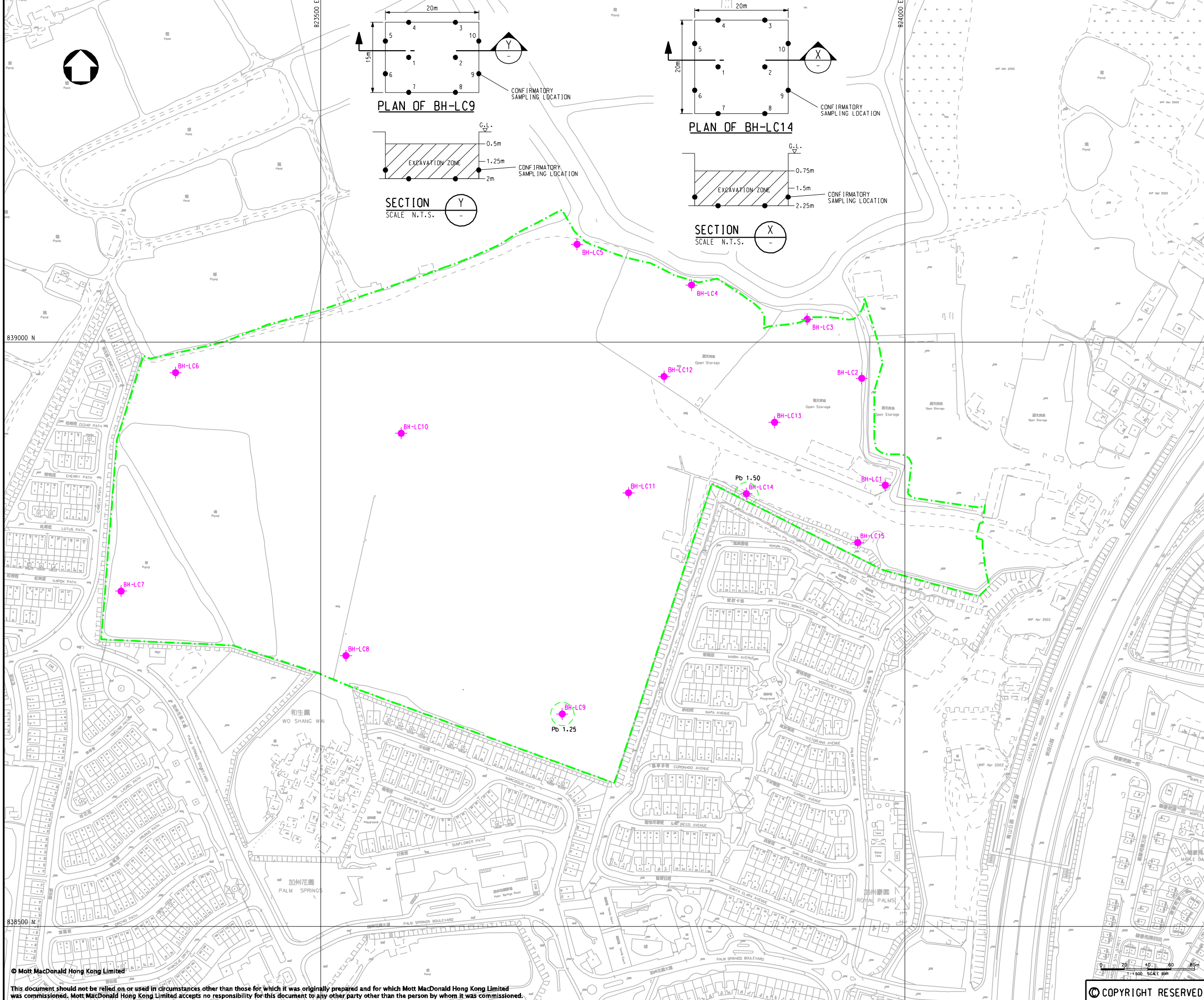
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**PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI, YUEN LONG**

Title  
**LAND CONTAMINATION INVESTIGATIONS BOREHOLE LOCATIONS**

Designed	JC	Eng.Chk.	JC
Drawn	MINC	Coordination	JC
Dwg.Chk.	JC	Approved	AFK

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Drawing No.		CAD File	J:\221005\report\env\rr\1816\FIG 1-2.dgn	Rev	P1





- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRE UNLESS STATED OTHERWISE.
  2. GRIDLINES ARE HONG KONG METRE GRID 1980.

- LEGEND:**
- BH-LC4 LAND CONTAMINATION BOREHOLE
  - PROJECT AREA BOUNDARY
  - LEAD LEVEL EXCEEDING RBRGS 'RURAL RESIDENTIAL' LEVEL
  - DEPTH (LEVEL) OF SAMPLE EXCEEDING RBRGS 'RURAL RESIDENTIAL' LEVEL
  - ADOPTED 20m WIDE DIAMETER ZONE OF CONTAMINATION

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BH-LC9	0.5 - 2.0 mbgl
BH-LC14	0.75 - 2.25 mbgl

\* THE EXTENT OF EXCAVATION IS SUBJECT TO THE APPROVAL OF CONTAMINATION ASSESSMENT REPORT (CAR) BY EPD.  
 \* mbgl - METER BELOW GROUND LEVEL

TYPE	CO-ORDINATE	
	EASTING	NORTHING
BH-LC9	823706.712	838681.772
BH-LC14	823864.420	838870.299

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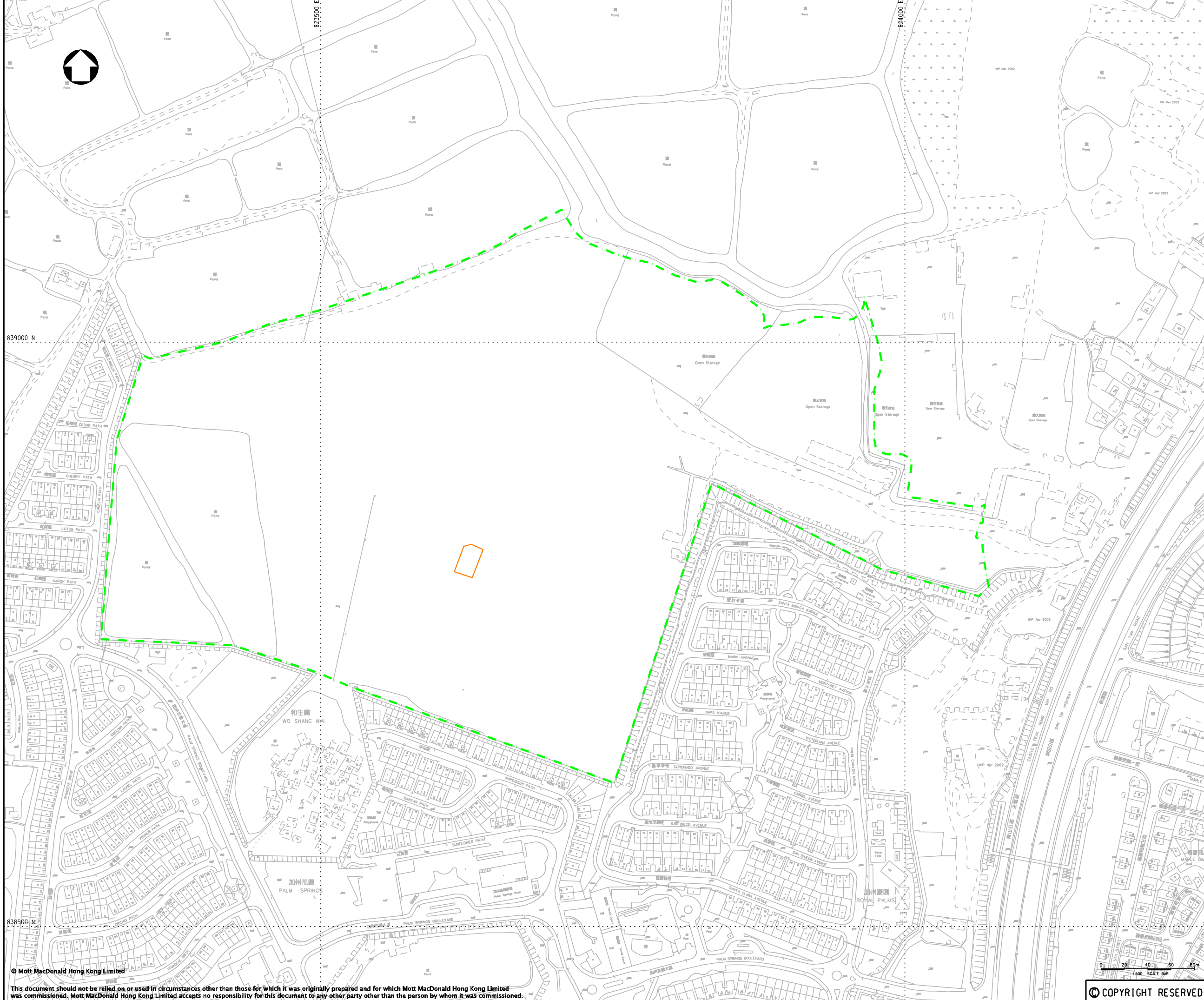
Client  
**PROFIT POINT ENTERPRISES LTD**

Project  
**PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI, YUEN LONG**

Title  
**EXTENT OF CONTAMINATED SOIL EXCAVATION**

Designed	JC	Eng.Chk.	JC	Status <b>PRE</b>
Drawn	MING	Coordination	JC	
Dwg.Chk.	JC	Approved	AFK	Rev <b>P1</b>
Scale	1:1500@A1	Project	221005	
Drawing No.		CAD File	J:\22005\report\env\rr\1816\FIG 3-1.dgn	





- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRE UNLESS STATED OTHERWISE.
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- LEGEND:**
- PROJECT AREA BOUNDARY
  - PROPOSED BACKFILL LOCATION

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**Client**  
PROFIT POINT ENTERPRISES LTD

**Project**  
PROPOSED COMPREHENSIVE DEVELOPMENT  
AT WO SHANG WAI, YUEN LONG

**Title**  
PROPOSED BACKFILL LOCATION FOR  
TREATED SOIL

Designed	JC	Eng.Chk.	JC
Drawn	MINC	Coordination	JC
Dwg.Chk.	JC	Approved	AFK
Scale	1:1500@A1	Project	221005
Drawing No.	FIGURE 4.1	CAD File	J:\221005\REPORT\ENV\RRV\2020\FIG 4-1.dgn
Status	PRE	Rev	P1

# Appendix A. Photo Records of Confirmatory Soil Sampling





BH-LC9 – Confirmatory Sampling Locations



BH-LC9-1



BH-LC9-2



BH-LC9-3



BH-LC9-4



BH-LC9-5

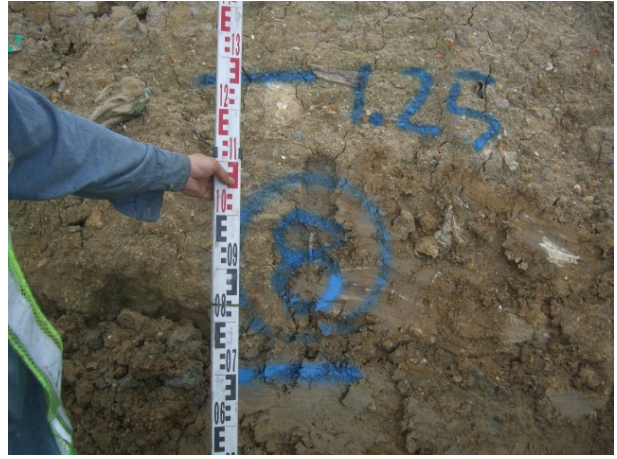


BH-LC9-6





BH-LC9-7



BH-LC9-8



BH-LC9-9



BH-LC9-10



BH-LC14 – Confirmatory Sampling Locations



BH-LC14-1



BH-LC14-2



BH-LC14-3



BH-LC14-4



BH-LC14-5



BH-LC14-6





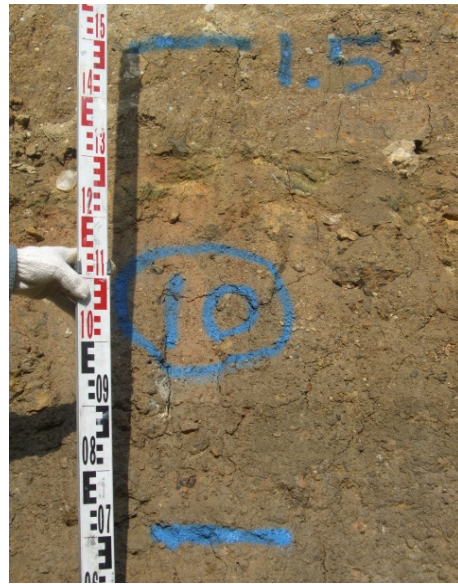
BH-LC14-7



BH-LC14-8



BH-LC14-9



BH-LC14-10

## Appendix B. Laboratory Testing Results of Confirmatory Soil Sampling





## CERTIFICATE OF ANALYSIS

<i>Client</i>	: LANGHILL CONSTRUCTION ENGINEERING LIMITED	<i>Laboratory</i>	: ALS Technichem HK Pty Ltd	<i>Page</i>	: 1 of 3
<i>Contact</i>	: MR CHI KONG YUEN	<i>Contact</i>	: Chan Kwok Fai, Godfrey	<i>Work Order</i>	: <b>HK1002694</b>
<i>Address</i>	: ROOM 1704 TELFORD HOUSE, 16 WANG HOI ROAD, KOWLOON BAY, KOWLOON HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
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<i>Telephone</i>	: +852 2305 2303	<i>Telephone</i>	: +852 2610 1044		
<i>Facsimile</i>	: +852 2756 3361	<i>Facsimile</i>	: +852 2610 2021		
<i>Project</i>	: WO SHANG WAI YUEN LONG	<i>Quote number</i>	: ---	<i>Date received</i>	: 04-FEB-2010
<i>Order number</i>	: ---			<i>Date of issue</i>	: 11-FEB-2010
<i>C-O-C number</i>	: ---			<i>No. of samples</i>	- <i>Received</i> : 10
<i>Site</i>	: ---				- <i>Analysed</i> : 10

### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1002694 supersedes any previous reports with this reference. The completion date of analysis is 09-FEB-2010. Results apply to 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 process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK1002694 :

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

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

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

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
Fung Lim Chee, Richard	General Manager	Inorganics

### ALS Laboratory Group

Trading Name: **ALS Technichem (HK) Pty Ltd**

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong  
Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com

A Campbell Brothers Limited Company



**Analytical Results**

Sub-Matrix: SOIL

			Compound	EA055: Moisture Content (dried @ 103° C)	EG020: Lead			
			LOR Unit	0.1 %	1 mg/kg			
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EG: Metals and Major Cations				
BH-LC9-1	[04-FEB-2010]	HK1002694-001	6.7	47				
BH-LC9-2	[04-FEB-2010]	HK1002694-002	13.1	60				
BH-LC9-3	[04-FEB-2010]	HK1002694-003	7.9	58				
BH-LC9-4	[04-FEB-2010]	HK1002694-004	10.1	54				
BH-LC9-5	[04-FEB-2010]	HK1002694-005	12.2	74				
BH-LC9-6	[04-FEB-2010]	HK1002694-006	8.0	61				
BH-LC9-7	[04-FEB-2010]	HK1002694-007	8.6	61				
BH-LC9-8	[04-FEB-2010]	HK1002694-008	7.9	49				
BH-LC9-9	[04-FEB-2010]	HK1002694-009	10.8	76				
BH-LC9-10	[04-FEB-2010]	HK1002694-010	7.3	65				



**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 (%)
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1242176)</b>								
HK1002577-011	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	48.4	48.1	0.6
HK1002694-008	BH-LC9-8	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	7.9	7.8	0.0
<b>EG: Metals and Major Cations (QC Lot: 1242142)</b>								
HK1002694-002	BH-LC9-2	EG020: Lead	7439-92-1	1	mg/kg	60	76	23.9

**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					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
						LCS	DCS	Low	High	Value	Control Limit	
<b>EG: Metals and Major Cations (QCLot: 1242142)</b>												
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	97.6	----	85	115	----	----	

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations (QCLot: 1242142)</b>										
HK1002694-001	BH-LC9-1	EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----





## CERTIFICATE OF ANALYSIS

<i>Client</i>	: LANGHILL CONSTRUCTION ENGINEERING LIMITED	<i>Laboratory</i>	: ALS Technichem HK Pty Ltd	<i>Page</i>	: 1 of 3
<i>Contact</i>	: MR CHI KONG YUEN	<i>Contact</i>	: Chan Kwok Fai, Godfrey	<i>Work Order</i>	: <b>HK1002024</b>
<i>Address</i>	: ROOM 1704 TELFORD HOUSE, 16 WANG HOI ROAD, KOWLOON BAY, KOWLOON HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	<i>Amendment No.</i>	: 1
<i>E-mail</i>	: lhcel@netvigator.com	<i>E-mail</i>	: Godfrey.Chan@alsenviro.com	<i>Date received</i>	: 26-JAN-2010
<i>Telephone</i>	: +852 2305 2303	<i>Telephone</i>	: +852 2610 1044	<i>Date of issue</i>	: 12-FEB-2010
<i>Facsimile</i>	: +852 2756 3361	<i>Facsimile</i>	: +852 2610 2021	<i>No. of samples</i>	- Received : 10
<i>Project</i>	: WO SHANG WAI YUEN LONG	<i>Quote number</i>	: ---		- Analysed : 10
<i>Order number</i>	: ---				
<i>C-O-C number</i>	: ---				
<i>Site</i>	: ---				

### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1002024\_1.00 supersedes any previous reports with this reference. The completion date of analysis is 30-JAN-2010. Results apply to 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 process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK1002024 :

**The sample #5 (HK1002024005) was resubmitted at 6 Feb. for Lead (Pb) analysis.**

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

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

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

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*Signatory*

**Fung Lim Chee, Richard**

*Position*

**General Manager**

*Authorised results for:-*

**Inorganics**

**ALS Laboratory Group**

Trading Name: **ALS Technichem (HK) Pty Ltd**

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Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com

A Campbell Brothers Limited Company



**Analytical Results**

Sub-Matrix: SOIL

			Compound	EA055: Moisture Content (dried @ 103° C)	EG020: Lead			
			LOR Unit	0.1 %	1 mg/kg			
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EG: Metals and Major Cations				
BHL-C14 1	[25-JAN-2010]	HK1002024-001	9.5	80				
BHL-C14 2	[25-JAN-2010]	HK1002024-002	9.9	187				
BHL-C14 3	[25-JAN-2010]	HK1002024-003	10.2	194				
BHL-C14 4	[25-JAN-2010]	HK1002024-004	8.2	134				
BHL-C14 5	[25-JAN-2010]	HK1002024-005	10.5	22				
BHL-C14 6	[25-JAN-2010]	HK1002024-006	10.3	220				
BHL-C14 7	[25-JAN-2010]	HK1002024-007	8.7	94				
BHL-C14 8	[25-JAN-2010]	HK1002024-008	10.7	136				
BHL-C14 9	[25-JAN-2010]	HK1002024-009	10.9	127				
BHL-C14 10	[25-JAN-2010]	HK1002024-010	10.7	93				



**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 (%)	
<b>EA/ED: Physical and Aggregate Properties (QC Lot: 1234919)</b>									
HK1002024-001	BHL-C14 1	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	9.5	9.6	0.0	
HK1002046-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	13.0	12.8	1.3	
<b>EG: Metals and Major Cations (QC Lot: 1233417)</b>									
HK1002024-002	BHL-C14 2	EG020: Lead	7439-92-1	1	mg/kg	187	158	16.5	
HK1002026-001	Anonymous	EG020: Lead	7439-92-1	1	mg/kg	2	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					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations (QCLot: 1233417)</b>											
EG020: Lead	7439-92-1	1	mg/kg	<1	5 mg/kg	100	----	85	115	----	----

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

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations (QCLot: 1233417)</b>										
HK1002024-001	BHL-C14 1	EG020: Lead	7439-92-1	5 mg/kg	# Not Determined	----	75	125	----	----

## Appendix C. Laboratory Testing Results of TCLP for Lead of Pilot Testing





### CERTIFICATE OF ANALYSIS

Client : MOTT MACDONALD HONG KONG LIMITED  
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Telephone : +852 2828 5769  
Facsimile : +852 2827 1823  
Project : 221005 COMPREHENSIVE DEVELOPMENT AT  
WO SHANG WAI YUEN LONG  
Order number : ----  
C-O-C number : ----  
Site : WO SHANG WAI

Laboratory : ALS Technichem HK Pty Ltd  
Contact : Chan Kwok Fai, Godfrey  
Address : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing  
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E-mail : Godfrey.Chan@alsglobal.com  
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Facsimile : +852 2610 2021  
Quote number : ----

Page : 1 of 4  
Work Order : HK1120210  
Date Samples Received : 29-AUG-2011  
Issue Date : 09-SEP-2011  
No. of samples received : 3  
No. of samples analysed : 3

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*Signatories*

*Position*

*Authorised results for*

**Fung Lim Chee, Richard**

**General Manager**

**Inorganics**



### 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: **HK1120210**

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

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

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

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.



**Analytical Results**

Sub-Matrix: TCLP LEACHATE

				Client sample ID	20110819S1_1	20110819S1_2	20110819S1_3		
				Client sampling date / time	[19-AUG-2011]	[19-AUG-2011]	[19-AUG-2011]		
Compound	CAS Number	LOR	Unit	HK1120210-001	HK1120210-002	HK1120210-003			
<b>EG: Metals and Major Cations - Filtered</b>									
EG020: Lead	7439-92-1	0.5	mg/L	<0.5	<0.5	<0.5			
<b>Sample Preparation Method</b>									
E-TCLP: Extraction Fluid Number	----	-	--	1	1	1			





**Laboratory Duplicate (DUP) Report**

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1949458)</b>								
HK1120210-002	20110819S1_2	EG020: Lead	7439-92-1	0.5	mg/L	<0.5	<0.5	0.0

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

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1949458)</b>															
EG020: Lead	7439-92-1	0.001	mg/L	<0.5	1 mg/L	98.5	----	85	115	----	----				

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

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QC Lot: 1949458)</b>										
HK1120210-001	20110819S1_1	EG020: Lead	7439-92-1	1 mg/L	98.7	102	75	125	2.9	----

## Appendix D. Photographic Records of the Soil Remediation Process



## Photographic Records of the Soil Remediation Process



Photo 01 – The soil was screened by passing through a 35 mm sieve screening platform prior to the cement solidification process.



Photo 02 – Excavator was used to loosen the contaminated soil.



Photo 03 – Excavator and lorry mixer were utilized for handling and mixing the contaminated soil.



Photo 04 – Cement was added to the lorry mixer for the solidification process.



Photo 05 – Mixing in progress.



Photo 06 – Unloading of treated soil from lorry mixer.





Photo 07 – The treated soil was weighed.



Photo 08 – Preparation of concrete cube.



Photo 09 – Preparation of concrete cube.



Photo 10 – Preparation of concrete cube.



Photo 11 – Curing of concrete cube.



Photo 12 – The treated soil was covered with tarpaulin sheet and placed at a paved area for temporary storage.

## Appendix E. Laboratory Testing Results of the Soil Remediation Works





## CERTIFICATE OF ANALYSIS

<i>Client</i>	: MOTT MACDONALD HONG KONG LIMITED	<i>Laboratory</i>	: ALS Technichem HK Pty Ltd	<i>Page</i>	: 1 of 3
<i>Contact</i>	: MS JULIA CHAN	<i>Contact</i>	: Chan Kwok Fai, Godfrey	<i>Work Order</i>	: <b>HK1127280</b>
<i>Address</i>	: 20/F., TWO LANDMARK EAST, 100 HOW MING STREET, KWUN TONG, KOWLOON HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
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<i>Telephone</i>	: +852 2828 5769	<i>Telephone</i>	: +852 2610 1044		
<i>Facsimile</i>	: +852 2827 1823	<i>Facsimile</i>	: +852 2610 2021		
<i>Project</i>	: 221005 COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	<i>Quote number</i>	: ---	<i>Date received</i>	: 18-NOV-2011
<i>Order number</i>	: ---			<i>Date of issue</i>	: 29-NOV-2011
<i>C-O-C number</i>	: ---			<i>No. of samples</i>	- Received : 7
<i>Site</i>	: WO SHANG WAI				- Analysed : 7

### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1127280 supersedes any previous reports with this reference. The completion date of analysis is 29-NOV-2011. Results apply to 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 process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK1127280 :  
Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.  
Sample(s) analysed and reported on an as received basis.  
The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.  
TCLP leachate sample(s) were filtered prior to dissolved metal analysis.

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
<b>Fung Lim Chee, Richard</b>	<b>General Manager</b>	<b>Inorganics</b>





**Analytical Results**

Sub-Matrix: TCLP LEACHATE

			Compound	EG020: Lead	E-TCLP: Extraction Fluid Number		
			LOR Unit	0.5 mg/L	--		
Client sample ID	Client sampling date / time	Laboratory sample ID	EG: Metals and Major Cations - Filtered	Sample Preparation Method			
20111028S1	[28-OCT-2011]	HK1127280-001	<0.5	1			
20111031S1	[31-OCT-2011]	HK1127280-002	<0.5	1			
20111031S2	[31-OCT-2011]	HK1127280-003	<0.5	1			
20111031S3	[31-OCT-2011]	HK1127280-004	<0.5	1			
20111101S1	[01-NOV-2011]	HK1127280-005	<0.5	1			
20111101S2	[01-NOV-2011]	HK1127280-006	<0.5	1			
20111101S3	[01-NOV-2011]	HK1127280-007	<0.5	1			



**Laboratory Duplicate (DUP) Report**

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 2065781)</b>								
HK1127287-002	Anonymous	EG020: Lead	7439-92-1	0.5	mg/L	<0.5	<0.5	0.0
HK1127288-002	Anonymous	EG020: Lead	7439-92-1	0.5	mg/L	<0.5	<0.5	0.0

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

Matrix: WATER				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
						LCS	DCS	Low	High	Value	Control Limit	
<b>EG: Metals and Major Cations - Filtered (QCLot: 2065781)</b>												
EG020: Lead	7439-92-1	0.001	mg/L	<0.5	1 mg/L	93.0	----	84	108	----	----	

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

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QCLot: 2065781)</b>										
HK1127280-001	20111028S1	EG020: Lead	7439-92-1	1 mg/L	94.8	93.1	75	125	1.8	----



## CERTIFICATE OF ANALYSIS

<i>Client</i>	: MOTT MACDONALD HONG KONG LIMITED	<i>Laboratory</i>	: ALS Technichem HK Pty Ltd	<i>Page</i>	: 1 of 3
<i>Contact</i>	: MS JULIA CHAN	<i>Contact</i>	: Chan Kwok Fai, Godfrey	<i>Work Order</i>	: <b>HK1127288</b>
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<i>E-mail</i>	: julia.chan@mottmac.com.hk	<i>E-mail</i>	: Godfrey.Chan@alsglobal.com		
<i>Telephone</i>	: +852 2828 5769	<i>Telephone</i>	: +852 2610 1044		
<i>Facsimile</i>	: +852 2827 1823	<i>Facsimile</i>	: +852 2610 2021		
<i>Project</i>	: 221005 COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	<i>Quote number</i>	: ---	<i>Date received</i>	: 18-NOV-2011
<i>Order number</i>	: ---			<i>Date of issue</i>	: 29-NOV-2011
<i>C-O-C number</i>	: ---			<i>No. of samples</i>	- Received : 8
<i>Site</i>	: WO SHANG WAI				- Analysed : 8

### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1127288 supersedes any previous reports with this reference. The completion date of analysis is 29-NOV-2011. Results apply to 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 process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK1127288 :  
Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.  
Sample(s) analysed and reported on an as received basis.  
The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.  
TCLP leachate sample(s) were filtered prior to dissolved metal analysis.

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
Fung Lim Chee, Richard	General Manager	Inorganics



**Analytical Results**

Sub-Matrix: TCLP LEACHATE

			Compound	EG020: Lead	E-TCLP: Extraction Fluid Number		
			LOR Unit	0.5 mg/L	--		
Client sample ID	Client sampling date / time	Laboratory sample ID	EG: Metals and Major Cations - Filtered	Sample Preparation Method			
20111102S1	[02-NOV-2011]	HK1127288-001	<0.5	1			
20111102S2	[02-NOV-2011]	HK1127288-002	<0.5	1			
20111102S3	[02-NOV-2011]	HK1127288-003	<0.5	1			
20111103S1	[03-NOV-2011]	HK1127288-004	<0.5	1			
20111103S2	[03-NOV-2011]	HK1127288-005	<0.5	1			
20111103S3	[03-NOV-2011]	HK1127288-006	<0.5	1			
20111103S4	[03-NOV-2011]	HK1127288-007	<0.5	1			
20111103S5	[03-NOV-2011]	HK1127288-008	<0.5	1			



**Laboratory Duplicate (DUP) Report**

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 2065781)</b>								
HK1127287-002	Anonymous	EG020: Lead	7439-92-1	0.5	mg/L	<0.5	<0.5	0.0
HK1127288-002	20111102S2	EG020: Lead	7439-92-1	0.5	mg/L	<0.5	<0.5	0.0

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

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QCLot: 2065781)</b>											
EG020: Lead	7439-92-1	0.001	mg/L	<0.5	1 mg/L	93.0	----	84	108	----	----
<b>EG: Metals and Major Cations - Filtered (QCLot: 2065782)</b>											
EG020: Lead	7439-92-1	0.001	mg/L	<0.5	1 mg/L	93.8	----	84	108	----	----

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

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QCLot: 2065781)</b>										
HK1127280-001	Anonymous	EG020: Lead	7439-92-1	1 mg/L	94.8	93.1	75	125	1.8	----
<b>EG: Metals and Major Cations - Filtered (QCLot: 2065782)</b>										
HK1127288-008	20111103S5	EG020: Lead	7439-92-1	1 mg/L	95.5	96.0	75	125	0.5	----



## CERTIFICATE OF ANALYSIS

<i>Client</i>	: MOTT MACDONALD HONG KONG LIMITED	<i>Laboratory</i>	: ALS Technichem HK Pty Ltd	<i>Page</i>	: 1 of 3
<i>Contact</i>	: MS JULIA CHAN	<i>Contact</i>	: Chan Kwok Fai, Godfrey	<i>Work Order</i>	: <b>HK1127287</b>
<i>Address</i>	: 20/F., TWO LANDMARK EAST, 100 HOW MING STREET, KWUN TONG, KOWLOON HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: julia.chan@mottmac.com.hk	<i>E-mail</i>	: Godfrey.Chan@alsglobal.com		
<i>Telephone</i>	: +852 2828 5769	<i>Telephone</i>	: +852 2610 1044		
<i>Facsimile</i>	: +852 2827 1823	<i>Facsimile</i>	: +852 2610 2021		
<i>Project</i>	: 221005 COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	<i>Quote number</i>	: ---	<i>Date received</i>	: 18-NOV-2011
<i>Order number</i>	: ---			<i>Date of issue</i>	: 29-NOV-2011
<i>C-O-C number</i>	: ---			<i>No. of samples</i>	- Received : 6
<i>Site</i>	: WO SHANG WAI				- Analysed : 6

### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1127287 supersedes any previous reports with this reference. The completion date of analysis is 29-NOV-2011. Results apply to 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 process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK1127287 :  
Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.  
Sample(s) analysed and reported on an as received basis.  
The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.  
TCLP leachate sample(s) were filtered prior to dissolved metal analysis.

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
<b>Fung Lim Chee, Richard</b>	<b>General Manager</b>	<b>Inorganics</b>



**Analytical Results**

Sub-Matrix: TCLP LEACHATE

			Compound	EG020: Lead	E-TCLP: Extraction Fluid Number			
			LOR Unit	0.5 mg/L	--			
Client sample ID	Client sampling date / time	Laboratory sample ID	EG: Metals and Major Cations - Filtered	Sample Preparation Method				
20111104S1	[04-NOV-2011]	HK1127287-001	<0.5	1				
20111104S2	[04-NOV-2011]	HK1127287-002	<0.5	1				
20111104S3	[04-NOV-2011]	HK1127287-003	<0.5	1				
20111105S1	[05-NOV-2011]	HK1127287-004	<0.5	1				
20111105S2	[05-NOV-2011]	HK1127287-005	<0.5	1				
20111105S3	[05-NOV-2011]	HK1127287-006	<0.5	1				



**Laboratory Duplicate (DUP) Report**

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 2065781)</b>								
HK1127287-002	20111104S2	EG020: Lead	7439-92-1	0.5	mg/L	<0.5	<0.5	0.0
HK1127288-002	Anonymous	EG020: Lead	7439-92-1	0.5	mg/L	<0.5	<0.5	0.0

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

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QCLot: 2065781)</b>											
EG020: Lead	7439-92-1	0.001	mg/L	<0.5	1 mg/L	93.0	----	84	108	----	----

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

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QCLot: 2065781)</b>										
HK1127280-001	Anonymous	EG020: Lead	7439-92-1	1 mg/L	94.8	93.1	75	125	1.8	----





## CERTIFICATE OF ANALYSIS

<i>Client</i>	: MOTT MACDONALD HONG KONG LIMITED	<i>Laboratory</i>	: ALS Technichem HK Pty Ltd	<i>Page</i>	: 1 of 3
<i>Contact</i>	: MS JULIA CHAN	<i>Contact</i>	: Chan Kwok Fai, Godfrey	<i>Work Order</i>	: <b>HK1128102</b>
<i>Address</i>	: 20/F., TWO LANDMARK EAST, 100 HOW MING STREET, KWUN TONG, KOWLOON HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: julia.chan@mottmac.com.hk	<i>E-mail</i>	: Godfrey.Chan@alsglobal.com		
<i>Telephone</i>	: +852 2828 5769	<i>Telephone</i>	: +852 2610 1044		
<i>Facsimile</i>	: +852 2827 1823	<i>Facsimile</i>	: +852 2610 2021		
<i>Project</i>	: 221005 COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	<i>Quote number</i>	: ---	<i>Date received</i>	: 30-NOV-2011
<i>Order number</i>	: ---			<i>Date of issue</i>	: 09-DEC-2011
<i>C-O-C number</i>	: ---			<i>No. of samples</i>	- Received : 6
<i>Site</i>	: WO SHANG WAI				- Analysed : 6

### Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1128102 supersedes any previous reports with this reference. The completion date of analysis is 05-DEC-2011. Results apply to 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 process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK1128102 :

- Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.
- Sample(s) analysed and reported on an as received basis.
- TCLP leachate sample(s) were filtered prior to dissolved metal analysis.
- The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
<b>Fung Lim Chee, Richard</b>	<b>General Manager</b>	<b>Inorganics</b>



**Analytical Results**

Sub-Matrix: TCLP LEACHATE

			Compound	EG020: Lead	E-TCLP: Extraction Fluid Number			
			LOR Unit	0.5 mg/L	--			
Client sample ID	Client sampling date / time	Laboratory sample ID	EG: Metals and Major Cations - Filtered	Sample Preparation Method				
20111107S1	[07-NOV-2011]	HK1128102-001	<0.5	1				
20111107S2	[07-NOV-2011]	HK1128102-002	<0.5	1				
20111107S3	[07-NOV-2011]	HK1128102-003	<0.5	1				
20111116S1	[16-NOV-2011]	HK1128102-004	<0.5	1				
20111116S2	[16-NOV-2011]	HK1128102-005	<0.5	1				
20111116S3	[16-NOV-2011]	HK1128102-006	<0.5	1				



**Laboratory Duplicate (DUP) Report**

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 2072787)</b>								
HK1127503-002	Anonymous	EG020: Lead	7439-92-1	0.1	mg/L	0.6	0.6	0.0
HK1128102-006	20111116S3	EG020: Lead	7439-92-1	0.5	mg/L	<0.5	<0.5	0.0

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

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						LCS	DCS	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QCLot: 2072787)</b>											
EG020: Lead	7439-92-1	0.001	mg/L	<0.1	1 mg/L	96.5	----	84	108	----	----

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

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QCLot: 2072787)</b>										
HK1127503-001	Anonymous	EG020: Lead	7439-92-1	1 mg/L	98.3	98.5	75	125	0.2	----



### CERTIFICATE OF ANALYSIS

Client : MOTT MACDONALD HONG KONG LIMITED  
Contact : MS JULIA CHAN  
Address : 20/F., TWO LANDMARK EAST,  
100 HOW MING STREET,  
KWUN TONG,  
KOWLOON HONG KONG  
E-mail : julia.chan@mottmac.com.hk  
Telephone : +852 2828 5769  
Facsimile : +852 2827 1823  
Project : 221005 COMPREHENSIVE DEVELOPMENT AT  
WO SHANG WAI YUEN LONG  
Order number : ----  
C-O-C number : ----  
Site : WO SHANG WAI

Laboratory : ALS Technichem HK Pty Ltd  
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E-mail : Godfrey.Chan@alsglobal.com  
Telephone : +852 2610 1044  
Facsimile : +852 2610 2021  
Quote number : ----

Page : 1 of 4  
Work Order : HK1128104  
Date Samples Received : 30-NOV-2011  
Issue Date : 09-DEC-2011  
No. of samples received : 3  
No. of samples analysed : 3

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics



### 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-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: **HK1128104**

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

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

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

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.





**Analytical Results**

Sub-Matrix: TCLP LEACHATE

				Client sample ID	20111117S1	20111117S2	20111117S3		
				Client sampling date / time	[17-NOV-2011]	[17-NOV-2011]	[17-NOV-2011]		
Compound	CAS Number	LOR	Unit	Client sample ID	20111117S1	20111117S2	20111117S3		
				HK1128104-001	HK1128104-002	HK1128104-003			
<b>EG: Metals and Major Cations - Filtered</b>									
EG020: Lead	7439-92-1	0.5	mg/L		<0.5	<0.5	<0.5		
<b>Sample Preparation Method</b>									
E-TCLP: Extraction Fluid Number	----	-	--		1	1	1		



**Laboratory Duplicate (DUP) Report**

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
<b>EG: Metals and Major Cations - Filtered (QC Lot: 2072787)</b>								
HK1127503-002	Anonymous	EG020: Lead	7439-92-1	0.1	mg/L	0.6	0.6	0.0
HK1128102-006	Anonymous	EG020: Lead	7439-92-1	0.5	mg/L	<0.5	<0.5	0.0

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

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
<b>EG: Metals and Major Cations - Filtered (QC Lot: 2072787)</b>															
EG020: Lead	7439-92-1	0.001	mg/L	<0.1	1 mg/L	96.5	----	84	108	----	----				

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

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG: Metals and Major Cations - Filtered (QC Lot: 2072787)</b>										
HK1127503-001	Anonymous	EG020: Lead	7439-92-1	1 mg/L	98.3	98.5	75	125	0.2	----





# CHAIN OF CUSTODY DOCUMENTATION

H 028007



ALS Laboratory Group

CLIENT: MOTT MACDONALD HON & KONG LIMITED  
 ADDRESS/OFFICE: 2077 (1st) Landmark East 100 How Murray Street, Kowloon  
 PROJECT MANAGER (PM): MS - JULIA CHAN  
 PROJECT ID: 221005  
 SITE: Wai Shing Wai, Yuenlong P.O. NO.:

SAMPLER:  
 MOBILE:  
 PHONE: 28285769  
 EMAIL REPORT TO: julia.chan@mottmac.com.hk  
 EMAIL INVOICE TO: (if different to report)

RESULTS REQUIRED (Date): QUOTE NO.:

**FOR LABORATORY USE ONLY:**  
 COOLER SEAL: (circle appropriate)  
 Intact: Yes No N/A  
 SAMPLE TEMPERATURE  
 CHILLED: Yes No

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

Notes: e.g. Highly contaminated samples  
 e.g. "High PAHs expected"  
 Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		TCLP, lead													
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
1	20111104S1		4-Nov-2011		Plastic bag		✓													
2	20111104S2		6-Nov-2011		Plastic bag		✓													
3	20111104S3		4-Nov-2011		Plastic bag		✓													
4	20111105S1		5-Nov-2011		Plastic bag		✓													
5	20111105S2		5-Nov-2011		Plastic bag		✓													
6	20111105S3		5-Nov-2011		Plastic bag		✓													

RELINQUISHED BY:  
 Name: Kou  
 Of: The Polytechnic University of Hong Kong  
 Date: 18/11/2011  
 Time: 17:30

RECEIVED BY:  
 Name: Hung  
 Of: ALS  
 Date: 18/11/2011  
 Time: 17:30

METHOD OF SHIPMENT  
 Con' Note No:  
 Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved;  
 V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soil; B = Unpreserved Bag.









## Appendix F. Photographic Records of Decommissioning of Plants and Equipment



## Photographic Records of Decommissioning of Plants and Equipment



Photo 01 – The treated soil was covered with tarpaulin sheet and placed at a paved area for temporary storage.



Photo 02 – The treated soil was started to backfill to the proposed location.



Photo 03 – All the treated soil was backfilled to the area.



Photo 04 – The treated soil was covered by ordinary soil.