

**Contract No. : EP/SP/52/06**  
**Development of EcoPark in Tuen Mun Area 38**

**ENVIRONMENTAL MONITORING AND AUDIT**

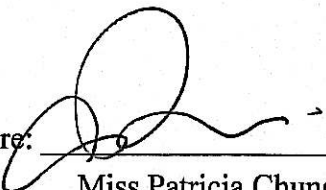
**MONTHLY EM&A REPORT for**

**JULY 2007**


**APPROVAL SHEET**

DOCUMENT DATE: 31 July 2007

Prepared and Certified by: ET Leader (Environmental Pioneers & Solutions Limited)

Signature:   
Miss Patricia Chung

Date: 29 AUG 2007

Verified by:   
IEC

Date: 30 AUG 2007

\* IEC – Independent Environmental Checker

**TABLE OF CONTENTS**

EXECUTIVE SUMMARY .....4

1. BASIC PROJECT INFORMATION .....6

2. SUMMARY OF WORK ACTIVITIES AND CONSTRUCTION STATUS .....8

3. STATUS OF ENVIRONMENTAL PROTECTION AND SITE INSPECTIONS .10

4. SUMMARY OF ENVIRONMENTAL PERMIT AND LICENCES .....15

5. CUMULATIVE LOG OF COMPLAINTS AND REMEDIAL ACTION .....16

6. CUMULATIVE LOG OF NOTIFICATION OF SUMMONS AND  
PROSECUTIONS .....16

7. CONCLUSION .....16

APPENDIX 1 - SITE LAYOUT PLAN .....17

APPENDIX 2 - THE CONTACT PERSONS, TELEPHONE NUMBERS OF KEY  
PERSONNEL FOR DEVELOPMENT OF ECOPARK IN TUEN MUN AREA 38 .....18

APPENDIX 3 – SITE LAYOUT PLAN FOR REFUSE COLLECTION POINTS .....19

APPENDIX 4 - ORIGINAL LANDFILL GAS FIELD MEASUREMENT  
RECORDING SHEETS .....20

APPENDIX 5 – CUMULATIVE LOG OF COMPLAINTS.....23

## EXECUTIVE SUMMARY

This is the thirteenth monthly Environmental Monitoring and Audit (EM&A) Report for the Environmental Protection Department Contract No. EP/SP/52/06 entitled "Development of EcoPark in Tuen Mun Area 38". (Environmental Permit No. EP-226/2005)

This report contains the results and findings of site inspection activities and EM&A works carried out by the Environmental Team (ET) of the Works Contractor as required in the contract during July 2007.

The site activities in the reporting period mainly consisted of site formation, excavation works, construction of administration building, marine front management office and drainage, sewerage and water mains and finishing works, fitting outs and building services installation for administration building and marine front management office.

Water spraying by water truck on site area for dust mitigation was observed. No substantial noise impact was noted by ET during weekly environmental site walks. Landfill gas monitoring was carried out at site; measurement results were within the Action and Limit Levels in accordance with the EM&A Manual.

The Contractor has removed stagnant water found at the end of Road A. Disposal of inert C&D material was recorded and properly filed.

Effluent of aerobic wastewater treatment system that does not comply with the requirements of water discharge licence should be stored and pumped away.

There were no notifications of summons or successful prosecution during July 2007.

The planned activities for August 2007 and September 2007 with regard to development of EcoPark consist of:

- 1) Excavation Works, Site Formation Works and Roadworks
- 2) Construction of Drainage, Sewerage and Water Mains
- 3) Construction of Administration Building

- 4) Construction of Marine Front Management Office
- 5) Finishing Works, Fitting Outs and Building Services Installation for Administration Building and Marine Front Management Office

## **1. BASIC PROJECT INFORMATION**

### **1.1 Introduction**

This is the thirteenth monthly Environmental Monitoring and Audit (EM&A) Report for the Environmental Protection Department Contract No. EP/SP/52/06 entitled "Development of EcoPark in Tuen Mun Area 38". The site layout plan is shown in Appendix 1. The report was prepared by the Environmental Team, Environmental Pioneers & Solutions Limited, of the Works Contractor, Kaden Construction Limited. The report is to be submitted to the Works Contractor, the Engineer and the Environmental Protection Department for the project.

This report presents the results of the environmental monitoring of the project activities conducted during the month of July 2007. This included regular site inspections once per week for verification of implementation of the mitigation measures as recommended in the EM&A Manual and the Contractor's Environmental Management Plan (EMP).

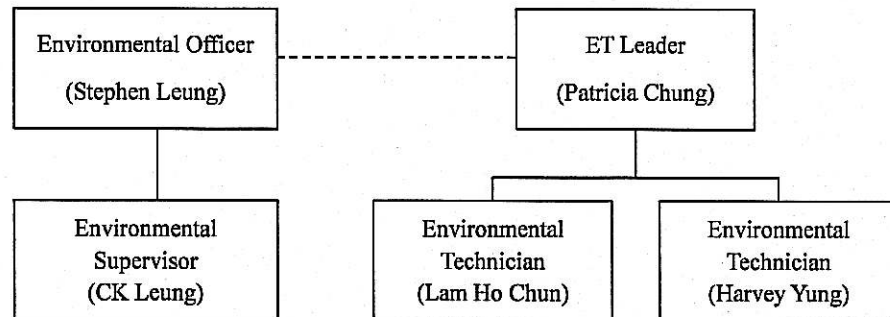
Phase 1 of the construction works has already commenced in July 2006 and is anticipated to complete in January 2008.

The contact person and telephone number of key personnel for the captioned project are shown in Appendix 2.

### **1.2 Project Organization and Management**

The Works Contractor has commissioned Environmental Pioneers & Solutions Limited as the Environmental Team, which comprises the environmental team leader and the environmental technicians to undertake the environmental monitoring and audit work for this project. The project Organization Chart of Environmental Team is shown in Figure 1.1.

Figure 1.1 Organization Chart of Environmental Team



## 2. SUMMARY OF WORK ACTIVITIES AND CONSTRUCTION STATUS

### 2.1 Works Undertaken during the Month

A summary of the site installation works in this month, with the information of locations, activities, equipment/materials and dates of occurrence, is provided by the Contractor, as shown in Table 2.1.

Item	Work Activities & Location	Date of Occurrence
1	Site formation works, excavation works & roadworks	1 July 2007 – 31 July 2007
2	Construction of administration building and marine front management office	1 July 2007 – 31 July 2007
3	Construction of drainage, sewerage & water mains	1 July 2007 – 31 July 2007
4	Finishing works, fitting outs & building services installation for administration building & marine front management office	1 July 2007 – 31 July 2007

Machineries		
	Equipment/ Plant	Quantity
1	Mobile Crane	2
2	Excavator	14
3	Generator	4
4	Air Compressor	2
5	Roller	4
6	Loader	1
7	Grab Lorry	1
8	Crane Lorry	2
9	Water Truck	1
10	Dump Truck	2

Remarks:

- As informed by the Contractor, most equipment are mobile at site subject to work progress.
- Refer to Appendix 1 – Site layout plan for location of construction activities.

### 2.2 Future Key Issues

The Contractor has provided an updated construction program in Table 2.2 to show the planned activities for the coming three months (August 2007 – October 2007). The anticipated environmental issues are summarized as follow:



Item	Works	Anticipated Environmental Issues
1	Site formation works, excavation works & roadworks	<ul style="list-style-type: none"> <li>- Generation of C&amp;D Waste; excavated material should be reused as much as practicable</li> <li>- Dust may be generated; the wheel washing machine should be in operation</li> <li>- Haul road should be sprayed regularly, by truck or sprinkler</li> <li>- Stagnant water should be removed</li> <li>- Mosquito mitigation measures should be implemented</li> </ul>
2	Construction of Administration Building and Marine Front Management Office	<ul style="list-style-type: none"> <li>- Generation of waste from packaging materials and C&amp;D wastes</li> </ul>
3	Construction of drainage, sewerage & water mains	<ul style="list-style-type: none"> <li>- Generation of C&amp;D Waste; excavated material should be reused as much as practicable</li> <li>- Dust may be generated; the wheel washing machine should be in operation</li> </ul>
4	Finishing works, fitting outs & building services installation for administration building & marine front management office	<ul style="list-style-type: none"> <li>- Generation of waste from packaging materials and C&amp;D wastes</li> </ul>

The site inspection schedule for the next month (August 2007) is designated on 1, 8, 15, 22 and 29 August 2007.

**3. STATUS OF ENVIRONMENTAL PROTECTION AND SITE INSPECTIONS****3.1 Environmental Site Inspections**

Environmental site inspections are required to inspect the construction activities of the Development of EcoPark in order to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented.

Site inspections were conducted on 4, 11, 18 and 25 July 2007.

A detailed checklist of each site inspection together with comments, relevant photos and maps have been filed and kept.

The findings and results of site inspections are provided in Table 3.1:

<b>Date</b>	<b>Observations</b>	<b>Advice from ET</b>	<b>Outcome</b>	<b>Closing Date</b>
28 June 07	Water was found accumulated at the bottom of oil and chemical waste storage cabinets	To remove water and use tarpaulin sheet to cover the top of cabinets in order to prevent the accumulation of water after heavy rainfall	Water was removed and tarpaulin sheet was used to cover the top of cabinets	04 July 07
04 July 07	Waste was in the roof of Administration Building	To remove waste for better house keeping	Waste was collected and removed	11 July 2007
18, 25 July 07	As urged by the Engineer's Representative, effluent of aerobic wastewater treatment system that does not comply with the water discharge license cannot be discharged into stormwater drain.	The Contractor has to cease effluent discharge and take immediate action by setting up a temporary storage tank to store and pump away effluent	The ET kept monitoring the work progress and inspected in the next reporting period	--
25 July 07	Stagnant water previously found at the end of Road A was being pumped away	To remove water and fill the flooded area to prevent mosquito breeding	To be observed and inspected in the next reporting period	--

### 3.2 Air Dust

Water spraying by water truck on site area such as Road A, Road C, Road D and unpaved site area beside marine front for dust mitigation was observed.

Excavation work at Road F near site office was finished and the site exit at Road F was closed. The site exit at Road A remained and manual wheel washing was used.

The Contractor has provided manual wheel washing at Road C and Road D.

### 3.3 Noise

The major noise source was vehicle movement, machinery and rock excavation in the EcoPark. Since the nearby NSRs were remote, the noise impact was minimal. There was no specific observation noted regarding noise issue. The Construction Noise Permit was issued to the Contractor on 02 March 2007.

### 3.4 Surface Water Quality

Since there was no water discharge at manhole, the Contractor removed the silt curtain installed at discharge point on 4 April 2007, as agreed by the Engineer's Representative. No muddy water was observed at discharge point.

Chemical toilets (5 nos.) have been provided by a licensed contractor, of which sewage generated is collected every three to five days without causing contamination on surface water. The Effluent Discharge Licence was issued to the Contractor on 20 November 2006.

Stagnant water was found at the end of Road A. The Contractor removed the water for preventing mosquito breeding.

As urged by the Engineer's Representative, effluent of aerobic wastewater treatment system that does not comply with the water discharge license cannot be discharged into stormwater drain. The Contractor has to cease effluent discharge and take immediate

action by setting up a temporary storage tank to store and pump away effluent.

Stagnant water previously found at the end of Road A was pumped away. The Contractor should remove stagnant water at site to prevent mosquito breeding.

### 3.5 Visual and Landscape Impact

Hoarding was erected at the site egress and aligned along the site boundary along Lung Mun Road. Hoardings were specially designed to be movable for future re-use in other locations.

During site clearance, trees were relocated to be replanted for landscaping in the future in EcoPark.

### 3.6 Waste / Chemical Waste

Water was found accumulated at the bottom of oil and chemical waste storage cabinets due to heavy rainfall. The Contractor was reminded to remove the water and use tarpaulin sheet to cover the top of cabinets in order to prevent the accumulation of water.

The Contractor implemented visual inspection and distributed flyers/ notices to ensure all dump trucks have mechanical covers closed when leaving EcoPark site.

Separate waste collection bins were made available for collecting aluminum cans, waste paper and plastic bottles etc. The Contractor has provided the site layout plan for refuse collection points as shown in Appendix 3.

Two waste dumpers were used for the collection and storage of general waste. Temporary storage areas for waste metals and waste tyres were established.

The Contractor has provided sufficient drip trays for all (4 nos.) temporary electricity generators at site. These drip trays should be covered by tarpaulin sheet to minimize rainfall accumulation.

Excavated materials are reused as back-fill material to balance cut and fill and hence reduce the generation of materials. Surplus materials are returned to stock in centralized area with suitable protective measures. The Contractor was reminded to comply with the requirements and conditions for disposal at public fill facility and all oversized aggregates should be crushed to less than 250mm before delivering to the public fill.

Materials are recycled and re-used at site as much as practicable to minimize waste generation. Timbers are recycled to make temporary tools and access ladders etc. Excavated rocks, concrete and asphalts are stored for future re-use in land formation and structural construction etc.

Registered waste collectors will be arranged to collect and transport the wastes whenever necessary.

Table 3.4 provides a summary table of waste disposal in July 2007. The Contractor has been reminded to keep good record at site in order to have a clear presentation of waste disposal.

Type of Waste	Disposal Site	Quantity	Remarks
General Waste	WENT Landfill	33 m <sup>3</sup>	-
Inert C&D Material	Public Fill Facility	575 m <sup>3</sup>	-

## 3.7 Landfill Gas

Landfill gas (LFG) monitoring was carried out on site at six (6) locations, as instructed by the Engineer's Representative. LFG measurements on 4, 11 and 25 July 2007 are summarized in Table 3.5, and original field measurement sheets with measurement locations are appended in Appendix 4. Measurement results are within the Action / Limit Levels in accordance with the EM&A Manual, as shown in Table 3.6.

Sampling Location	Date of Measurement	Sampling Time	Weather Condition	Methane (CH <sub>4</sub> ) %LEL	Carbon Dioxide (CO <sub>2</sub> ) %LEL	Oxygen (O <sub>2</sub> )
Point A	04 July 07	1627	Sunny	0.0%	0.0%	20.9%
Point B1	04 July 07	1609	Sunny	0.0%	0.0%	20.9%
Point C1	Repealed					
Point F	04 July 07	1617	Sunny	0.0%	0.0%	20.9%
Point G	04 July 07	1622	Sunny	0.0%	0.0%	20.9%
Point H	04 July 07	1620	Sunny	0.0%	0.0%	20.9%
Point I	04 July 07	1618	Sunny	0.0%	0.0%	20.9%
Point A	11 July 07	1333	Sunny	0.0%	0.0%	20.9%
Point B1	11 July 07	1344	Sunny	0.0%	0.0%	20.9%
Point C1	Repealed					
Point F	11 July 07	1340	Sunny	0.0%	0.0%	20.9%
Point G	11 July 07	1336	Sunny	0.0%	0.0%	20.9%
Point H	11 July 07	1338	Sunny	0.0%	0.0%	20.9%
Point I	11 July 07	1339	Sunny	0.0%	0.0%	20.9%
Point A	25 July 07	0850	Sunny	0.0%	0.0%	20.9%
Point B1	25 July 07	0906	Sunny	0.0%	0.0%	20.1%
Point C1	Repealed					
Point F	25 July 07	0856	Sunny	0.0%	0.0%	20.2%
Point G	25 July 07	0853	Sunny	0.0%	0.0%	20.9%
Point H	25 July 07	0858	Sunny	0.0%	0.0%	20.9%
Point I	25 July 07	0900	Sunny	0.1%	0.0%	20.2%
Remarks:						
1) The landfill gas measurements at Point C1 were repealed as there were no excavations of 1 meter depth or more.						
2) As agreed by the Engineer's Representative, the landfill gas measurements on July 2007 were carried out with two instruments : one for the measurements of methane and carbon dioxide, another for the measurement of oxygen.						
3) LFG monitoring was not carried out on 18 July 2007 due to site construction progress						

Parameter	Level	Action
Oxygen	Action Level < 19% O <sub>2</sub>	Ventilate trench/ void to restore O <sub>2</sub> to > 19%
	Limit Level < 18% O <sub>2</sub>	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore O <sub>2</sub> to > 19%
Methane (CH <sub>4</sub> )	Action Level >10% LEL	Post "No Smoking" signs Prohibit hot works Increase ventilation to restore CH <sub>4</sub> to <10% LEL
	Limit Level >20% LEL	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CH <sub>4</sub> to <10% LEL
Carbon Dioxide (CO <sub>2</sub> )	Action Level >0.5% CO <sub>2</sub>	Ventilate to restore CO <sub>2</sub> to < 0.5%
	Limit Level >1.5% CO <sub>2</sub>	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CO <sub>2</sub> to < 0.5%

#### 4. SUMMARY OF ENVIRONMENTAL PERMIT AND LICENCES

ET has checked with the Contractor for the status of all environmental permits and licenses for this project as at July 2007, which is summarized in Table 4.1. The Contractor is reminded to renew the Construction Noise Permit that will expire at the end of August 2007. ET will follow the application process of the outstanding permits / licenses and will provide suitable assistance whenever appropriate.

Description	License / Permit No.#	Date of Issue	Date of Expiry	Status/Remarks
Environmental Permit	EP-226/2005	9-Sept-2005	--	Issued
Registration of Waste Producer	5111-421-K2869-02	27-Jul-2006	--	Issued
Construction Noise Permit	GW-RW0080-07	02-Mar-2007	28-Aug-2007	Issued
Effluent Discharge Licence	EP760/421/011762/I	20-Nov-2006	1-Dec-2011	Issued



## **5. CUMULATIVE LOG OF COMPLAINTS AND REMEDIAL ACTION**

The cumulative log of complaints is referred in Appendix 5.

## **6. CUMULATIVE LOG OF NOTIFICATION OF SUMMONS AND PROSECUTIONS**

No notification of summons and no prosecutions occurred during July 2007.

## **7. CONCLUSION**

There is no summon nor prosecutions reported during July 2007.

Water spraying by water truck on site area was observed for dust mitigation. The Contractor has removed stagnant water found at the end of Road A. Water effluent, which does not comply with water discharge license requirements, should be stored and pumped away regularly.

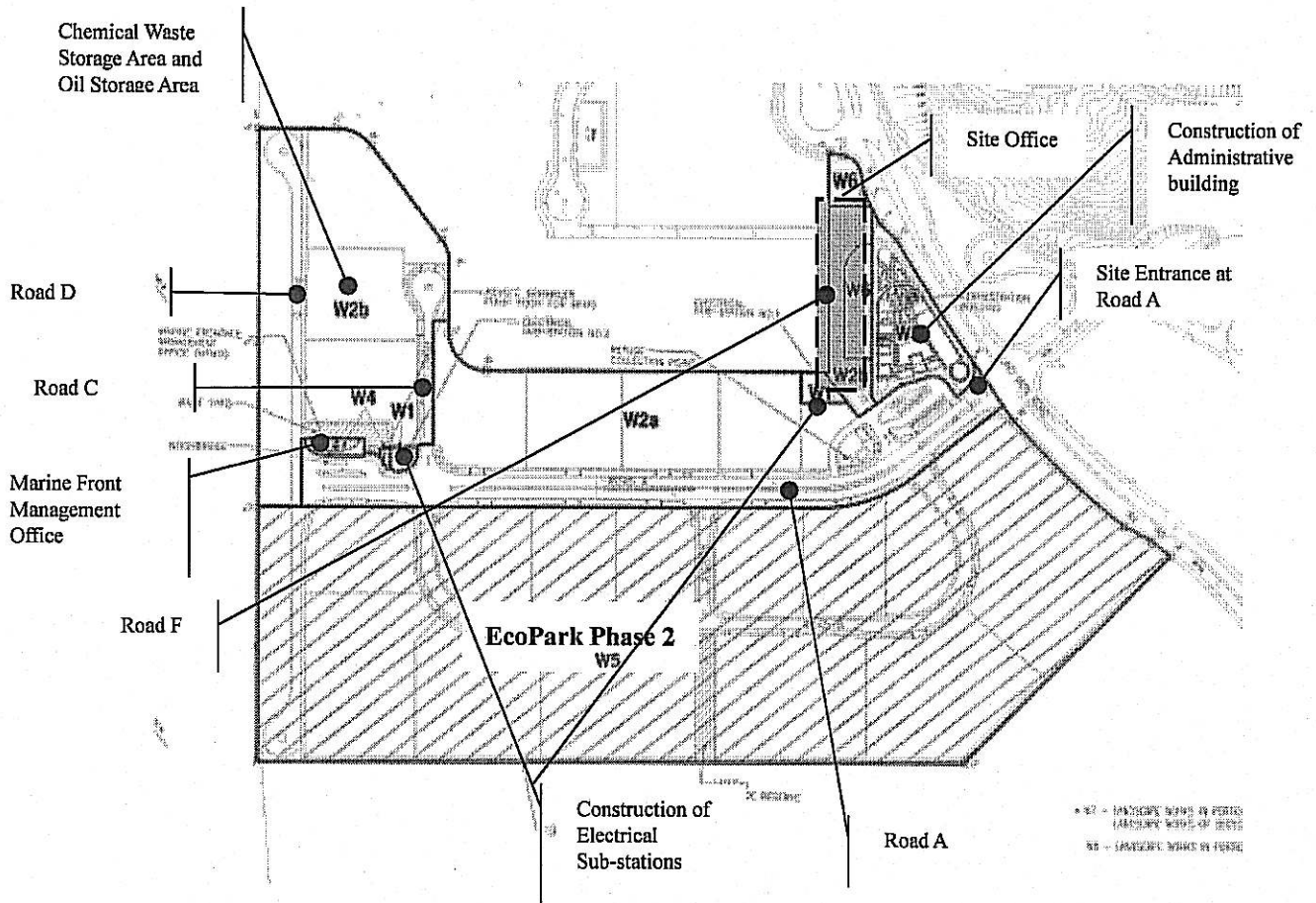
In addition to the daily landfill gas monitoring carried out by the Contractor on site, weekly landfill gas monitoring was also carried out by the ET on site. The measurement results from ET shown in Table 3.5 were within Action and Limit levels in accordance with EM&A Manual.

The Contractor has been using the waste management and record system including allocation of waste storage areas and the trip ticket system as proposed in the Environmental Management Plan.

The Contractor was advised to pay more efforts on environmental concerns and awareness such as site tidiness and mosquito hazard from stagnant water at site.



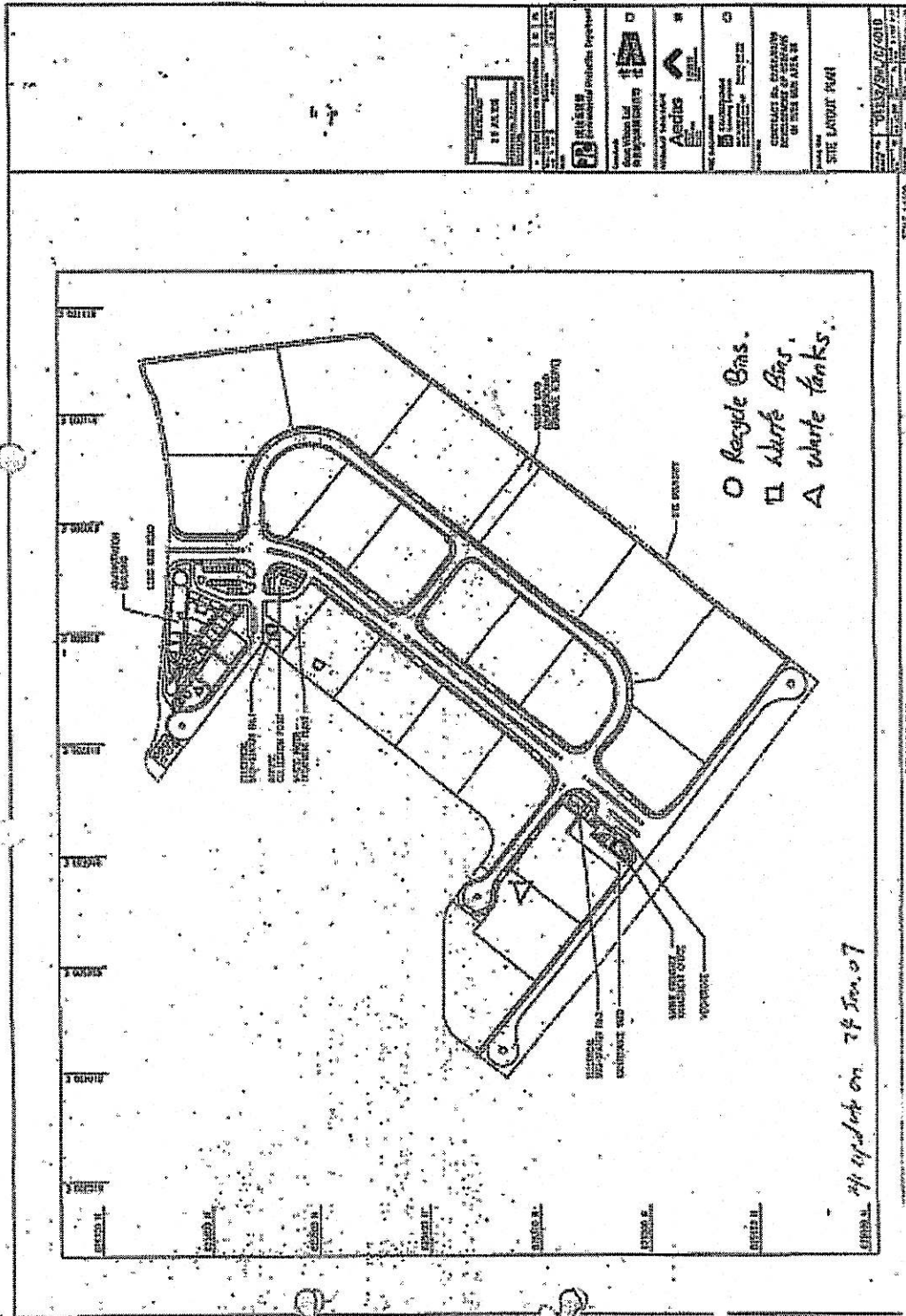
**APPENDIX 1 - SITE LAYOUT PLAN**



**APPENDIX 2 - THE CONTACT PERSONS, TELEPHONE NUMBERS OF KEY PERSONNEL FOR DEVELOPMENT OF ECOPARK IN TUEN MUN AREA 38**


<b>Company/Department</b>	<b>Name</b>	<b>Position</b>	<b>Telephone</b>
Scott Wilson Ltd.	Mike Bains	Independent Environmental Checker	--
Scott Wilson Ltd.	Mr. Michael Lo	Senior Resident Engineer	6290 8860
Scott Wilson Ltd.	Mr. Andy Cheung	Resident Engineer	6111 9703
Scott Wilson Ltd.	Mr. C S Lam	Senior Inspector of Works	9861 8011
Kaden Construction Limited	Mr. K M Book	Project Manager	9193 8680
Kaden Construction Limited	Mr. Stephen Leung	Section Agent	9071 7657
Environmental Pioneers & Solutions Limited	Miss. Patricia Chung	Environmental Team Leader	2185 0123
Environmental Pioneers & Solutions Limited	Mr. Harvey Yung	Environmental Technician	2185 0172
Environmental Pioneers & Solutions Limited	Mr. Lam Ho Chun	Environmental Technician	2185 0154

**APPENDIX 3 – SITE LAYOUT PLAN FOR REFUSE COLLECTION POINTS**



SCALE 1:1000

**APPENDIX 4 - ORIGINAL LANDFILL GAS FIELD MEASUREMENT RECORDING SHEETS**



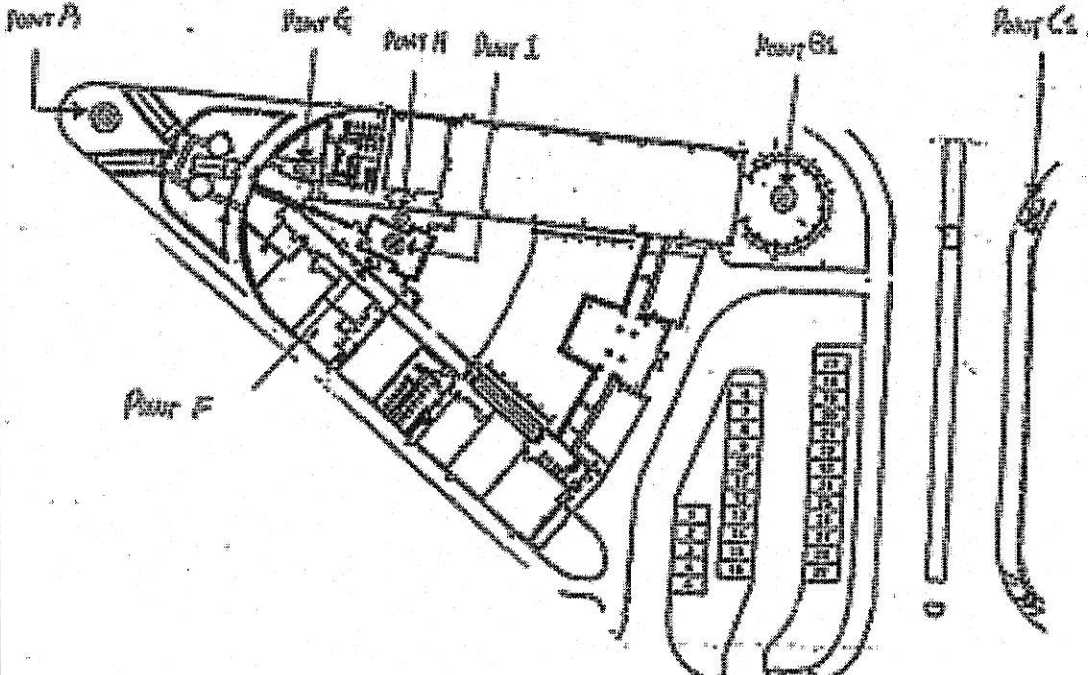
Kaden Construction Limited  
EPO Contract No. EP/SP/52/06 Job No: K0603  
Development of EcoPark in Tuen Mun Area 38

**Daily Air Monitoring 每日空氣監測記錄**

Detector: Model 型號: GEM 2000	Last calibration 上次檢測: 03 Apr 07
S/N 編號: GM-08793	Next calibration 下次檢測: 02 Apr 08
Date of Monitor 監測日期: 4-7-2007	Performed by: Henry Lam

Location 位置	Time 時間 (hr)	Result 結果				
		CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Bal. Gas (%)	Baro. Pressure (Pa)
Point A	16:27	0	0	20.9	84.2	30.0
Point B1 (Production Gallery)	16:09	0	0	20.9	83.9	30.0
Point C1 (RM1049)	<b>REPEALED</b>					
Point F (E&M room)	16:17	0	0	20.9	84.0	30.0
Point G (PS room)	16:22	0	0	20.9	84.1	30.0
Point H (E&M room)	16:20	0	0	20.9	84.2	30.0
Point I (E&M room)	16:18	0	0	20.9	84.0	30.0

Site Incentri Instrument for O<sub>2</sub> measurement: Gas Alert Microchip GATSC-4-PL2  
Serial No.: 5103-13348





Kaden Construction Limited

EPD Contract No. EP/SP/52/06

Job No. K0603

Development of EcoPark in Tuen Mun Area 38

Daily Air Monitoring 每日空氣監測記錄

Detector: Model 型號: GEM 2000	Last calibration 上次檢測: 03 Apr 07
測試器 SN 編號: GM-08793	Next calibration 下次檢測: 02 Apr 08

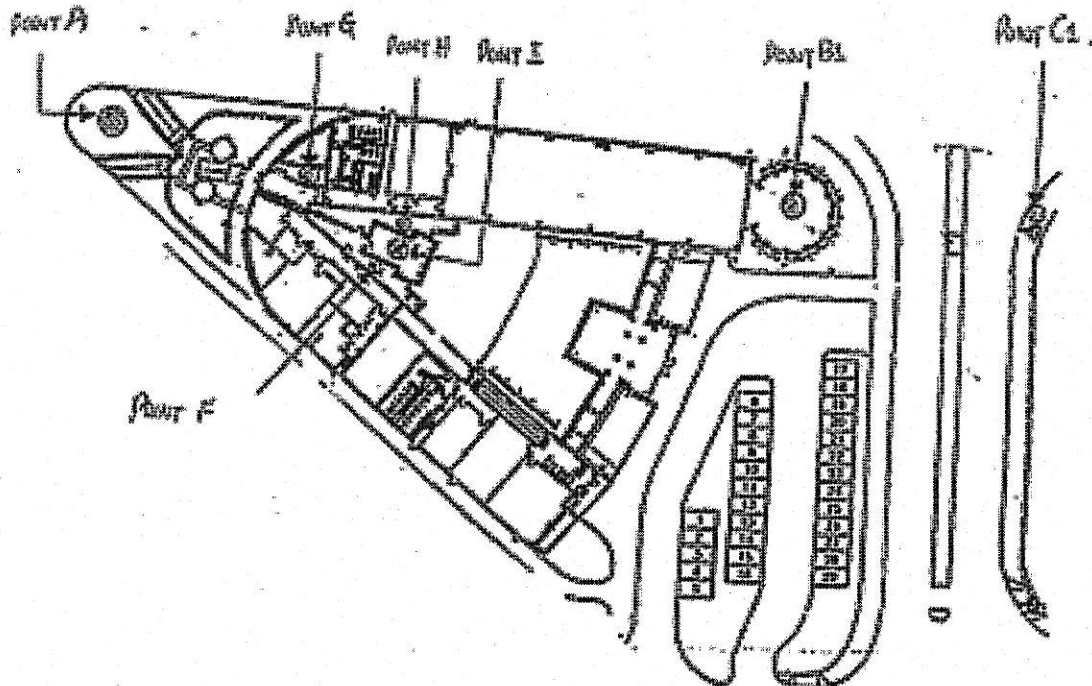
Date of Monitor 監測日期: 11 Jul 2007

Performed by: Henry Lam

Location 位置	Time 時間 (hrs)	Result 結果				
		CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Rel. Gas (%)	Baro. Pressure (mmHg)
Point A	1313	0	0	20.9	83.9	29.56
Point B1 (Production Gallery)	1344	0	0	20.9	84.1	29.56
Point C1 (FMH049)	REPEALED					
Point F (E&M room)	1340	0	0	20.9	84	29.56
Point G (FS room)	1316	0	0	20.9	83.9	29.56
Point H (E&M room)	1338	0	0	20.9	84	29.56
Point I (E&M room)	1337	0	0	20.9	84.1	29.56

Site layout

Instrument for O<sub>2</sub> measurement: Gas Alert Microtop GANUC-6-PL3  
Serial No.: 2103-13348







Kaden Construction Limited

EPD Contract No. EP/SP/52/06

Job No. K0603

Development of EcoPark in Tuen Mun Area 38

Daily Air Monitoring 每日空氣監測記錄

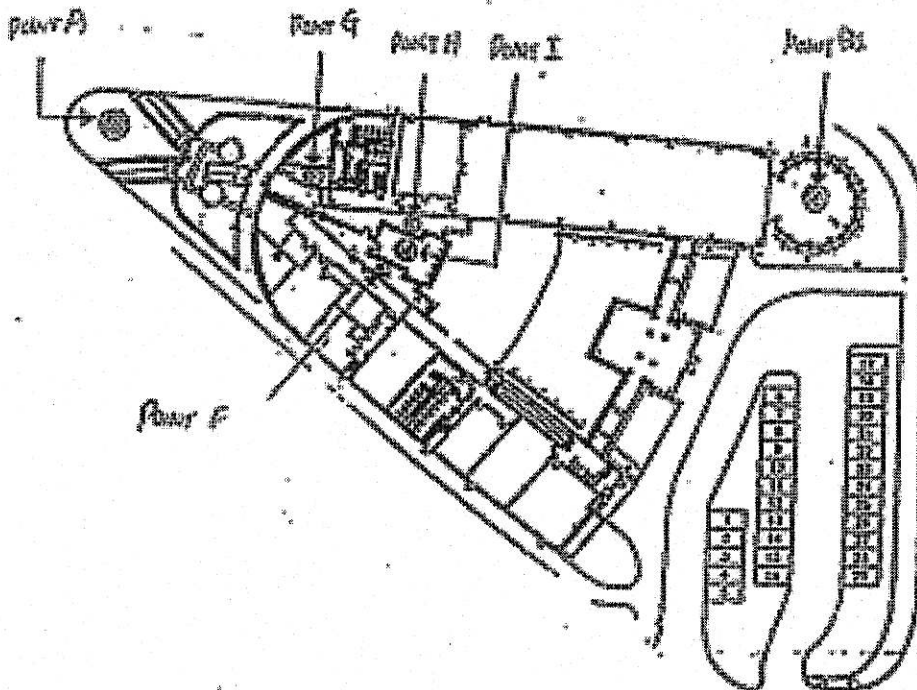
Detector: Model 型號: GEM 2000	Last calibration 上次校測: 03 Apr. 07
S/N 編號: GM-08790	Next calibration 下次校測: 02 Apr. 08

Location 位置	Time 時間 (hr)	Result 結果				
		CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Rel. Hum. (%)	Baro. Pressure (kPa)
Point A	8:50	0	0	20.7	85.7	27.86
Point B1 (Production Gallery)	9:06	0	0	20.1	85.1	27.86
Point F (E&M room)	8:56	0	0	20.1	85.1	27.86
Point G (ES room)	8:53	0	0	20.7	85.7	27.86
Point H (E&M room)	8:58	0	0	20.7	85.0	27.87
Point I (E&M room)	9:00	0	0	20.1	85.0	27.86

Instrument for O<sub>2</sub> measurement: GasAlert MicroClip OAMIC-4-012 Serial no: 6103-03143

Site layout

Calibration valid until 07 Sep. 2008



**APPENDIX 5 – CUMULATIVE LOG OF COMPLAINTS**

**CUMULATIVE LOG OF COMPLAINTS**

Environmental Parameters	No. of Outstanding Complaints	No. of complaints received in July 2007	Cumulative no. of complaints received since the commencement of project
Air	0	0	2
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	2

**DETAILS OF COMPLAINTS AND REMEDIAL ACTIONS**

Log Ref.	Date of Complaint received	Location	Complainant /Date	Details of Complaint	Investigation /Mitigation Action	Investigated by/ Date
-	-	-	-	-	-	-