

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

ENVIRONMENTAL MONITORING AND AUDIT

MONTHLY EM&A REPORT for

November 2008

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APPROVAL SHEET

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	4
1. BASIC PROJECT INFORMATION	5
2. SUMMARY OF WORK ACTIVITIES AND CONSTRUCTION STATUS.....	7
3. STATUS OF ENVIRONMENTAL PROTECTION AND SITE INSPECTIONS...	9
4. SUMMARY OF ENVIRONMENTAL PERMIT AND LICENCES.....	13
5. CUMULATIVE LOG OF COMPLAINTS AND REMEDIAL ACTION.....	13
6. CUMULATIVE LOG OF NOTIFICATION OF SUMMONS AND PROSECUTIONS.....	13
7. CONCLUSION.....	13
APPENDIX 1 - SITE LAYOUT PLAN.....	15
APPENDIX 2 - THE CONTACT PERSONS, TELEPHONE NUMBERS OF KEY PERSONNEL FOR DEVELOPMENT OF ECOPARK IN TUEN MUN AREA 38	16
APPENDIX 3 – REVISED SITE LAYOUT PLAN FOR REFUSE COLLECTION POINTS.....	17
APPENDIX 4 - ORIGINAL LANDFILL GAS FIELD MEASUREMENT RECORDING SHEETS.....	18
APPENDIX 5 – CUMULATIVE LOG OF COMPLAINTS	18

EXECUTIVE SUMMARY

This is the twenty-ninth 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 November 2008.

The site activities in the reporting period mainly consisted of landscaping works and finishing works, fitting outs and building services installation for administration building.

Minor housekeeping issues such as piles of construction waste and accumulated water had been observed in passages inside administration building during our site inspection. Contractor was reminded to keep an eye on those housekeeping issues. Furthermore, contractor was reminded to accommodate chemicals containers, including diesel oil tank and the three plastic barrels located in the cooling tower of the administration building in a proper way. Outstanding items will be inspected in the following month.

The Contractor has used the temporary storage tank to store the effluent of aerobic wastewater treatment system and the stored effluent was pumped away regularly. As checked by the ET, there was no effluent discharge into the stormwater drain.

Landfill gas monitoring has been stopped since 23 July because the excavation works were completed. Monitoring works will resume when there are any excavation works carried out on site.

There were no notifications of summons or successful prosecution during November 2008.

The planned activities for December 2008 with regard to development of EcoPark

consist of:

- 1) Finishing Works, Fitting Outs and Building Services
- 2) Installation for Administration Building.
- 3) Landscaping Works

Furthermore, Phase II of the construction works will commence on 01 December 2008. Anticipated activities include excavation and site formation works.

1. BASIC PROJECT INFORMATION

1.1 Introduction

This is the twenty-ninth 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 November 2008. 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 has been completed in November 2008.

Phase 2 of the construction works will commence in December 2008 and is anticipated to be completed in December 2009.

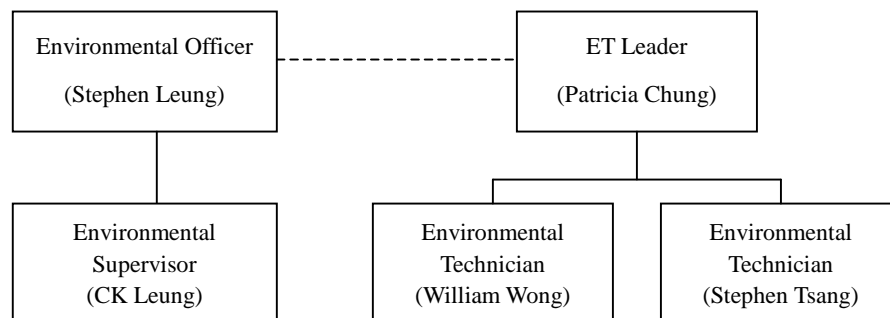
The contact person and telephone number of key personnel for the captioned project are shown in Appendix 2.

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.

Table 2.1 Work Activities for November 2008		
Item	Work Activities & Location	Date of Occurrence
1	Landscaping works	1 Nov 2008 – 30 Nov 2008
2	Finishing works, fitting outs & building services installation for administration building	1 Nov 2008 – 30 Nov 2008

Machineries		
	Equipment/ Plant	Quantity
1	Mobile Crane	0
2	Excavator	1
3	Generator	0
4	Air Compressor	0
5	Roller	0
6	Loader	0
7	Grab Lorry	0
8	Crane Lorry	0
9	Water Truck	0
10	Dump Truck	0

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 month (December 2008). The anticipated environmental issues are summarized as follow:

Table 2.2 Construction Program and Anticipated Environmental Issues		
Item	Works	Anticipated Environmental Issues
1	Finishing works, fitting outs & building services installation for administration building	- Generation of waste from packaging materials and C&D wastes
2	Landscaping Works	- Dust may be generated; the wheel washing should be in operation - Stagnant water should be removed - Mosquito mitigation measures should be implemented - Stockpiles of excavated material should be covered with tarpaulin sheet
3	Excavation and site formation works	- Generation of C&D waste; excavated material should be reused as much as practicable. - Dust may be generated; the wheel washing machine should be in operation. - Haul road should be sprayed regularly, by truck or sprinkler. - Stagnant water should be removed. - Mosquito mitigation measures should be implemented. - Landfill gas monitoring shall be carried out.

The site inspection schedule for the next month (December 2008) is designated on 5, 12, 19, 24 and 29 of December 2008.

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 7, 14, 17 and 28 of November 2008.

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:

Date	Observations	Advice from ET	Action taken	Closing Date
07 Nov 08 14 Nov 08	A diesel oil tank placed on bare ground without a drip tray was found on a site along Road F.	Contractor was reminded to place the tank in a proper trip tray.	To be observed in the next reporting month	--
14 Nov 08	A pile of construction waste had been observed in one of the passage inside the administration building.	Contractor was reminded to clear up the wastes as soon as possible.	Action taken as advised.	17 Nov 08
14 Nov 08	Three plastic barrels with chemicals had been found in the cooling tower of the administration building.	Contractor was reminded to identify the chemicals inside the barrels and accommodate them in drip pans.	To be observed in the next reporting month	--
14 Nov 08	Labels posted on chemical storage cabin had been found discolored.	Contractor was reminded to replace discolored labels.	To be observed in the next reporting month	--
14 Nov 08	Refuse storage container at the end of Road F was full.	Contractor was reminded to clear them up when it is full	Refuse was cleared from site by licensed collector regularly.	17 Nov 08
17 Nov 08	Accumulated water had been observed in one of the passage in the administration building.	Contractor was reminded to clear up the water.	Action taken as advised.	17 Nov 08
28 Nov 08	A dead tree had been found at Road C	Contractor was reminded to inform the management office to remove the dead tree.	To be observed in the next reporting month	--

3.2 Air Dust

Excavation work at Road F near site office was finished and the site exit at Road F was closed. There was no specific dust impact observed on site.

3.3 Noise

The major noise source was vehicle movement, machinery in the EcoPark. Since the nearby NSRs were remote, the noise impact was minimal. There was no specific observation noted regarding noise issue. The Contractor has obtained the Construction Noise Permit on 07 August 2007 but it had been expired on 28 Feb 2008. The contractor should renew the permit as necessary.

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 (3 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 License was issued to the Contractor on 20 November 2006.

The temporary storage tank was used to store the effluent of aerobic wastewater treatment system and the stored effluent was pumped away regularly. As checked by the ET, there was no effluent discharge into the storm water drain. To avoid any sewage overflow, frequent checking is required after the commencement of Phase II construction works in December.

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 and to be replanted for landscaping in the future in EcoPark.

3.6 Waste / Chemical Waste

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 revised site layout plan for refuse collection points as shown in Appendix 3.

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 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 assess 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 November 2008. The Contractor has been reminded to keep good record at site in order to have a clear presentation of waste disposal.

Table 3.4 Summary of Waste Disposal in November 2008			
Type of Waste	Disposal Site	Quantity	Remarks
General Waste	WENT Landfill	7.5 tonnes	-
Inert C&D Material	Public Fill Facility	0 tonnes	-

3.7 Landfill Gas

Landfill gas monitoring was stopped since 23 July due to excavation works completed. Measurement results are within the Action / Limit Levels in accordance with the EM&A Manual, as shown in Table 3.6. LFG monitoring would be conducted for any excavation of 1 m depth or more in the future. It is expected that LFG monitoring would be conducted in December when excavation works begin for Phase II construction.

Table 3.6 Action Levels, Limit Levels and Event and Action Plan for LFG (From EM&A Manual)		
Parameter	Level	Action
Oxygen	Action Level < 19% O ₂	Ventilate trench/ void to restore O ₂ to > 19%
	Limit Level < 18% O ₂	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore O ₂ to > 19%
Methane (CH ₄)	Action Level >10% LEL	Post “No Smoking” signs Prohibit hot works Increase ventilation to restore CH ₄ to <10% LEL
	Limit Level >20% LEL	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CH ₄ to <10% LEL
Carbon Dioxide (CO ₂)	Action Level >0.5% CO ₂	Ventilate to restore CO ₂ to < 0.5%
	Limit Level >1.5% CO ₂	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CO ₂ 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 November 2008, which is summarized in Table 4.1. ET will follow the application process of the outstanding permits / licenses and will provide suitable assistance whenever appropriate.

Table 4.1 Summary of Environmental Permits/ Licences				
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-RW0402-07	07-Aug-2007	28-Feb-2008	Expired
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 November 2008.

7. CONCLUSION

There is no summon nor prosecutions reported during November 2008.

Effluent of aerobic wastewater treatment system was temporarily stored in the storage tank and pumped away. As checked by the ET, there was no effluent discharge into the stormwater drain.

Minor housekeeping issues such as piles of construction waste and accumulated water had been observed in passages inside administration building during our site inspection. Contractor was reminded to keep an eye on those housekeeping issues. Furthermore, contractor was reminded to accommodate chemicals containers, including diesel oil tank and the three plastic barrels located in the cooling tower of the administration building in a proper way.

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.

Since the excavation works were completed, there was no landfill gas monitoring since 23 July. It is expected that LFG monitoring would be conducted in December when excavation works begin for Phase II construction.

Water accumulated in ditch, artificial ponds and manhole covers has to be drained away regularly to avoid mosquito breeding. Furthermore, regularly pest control measures are also needed to avoid mosquito and ant problems on site.

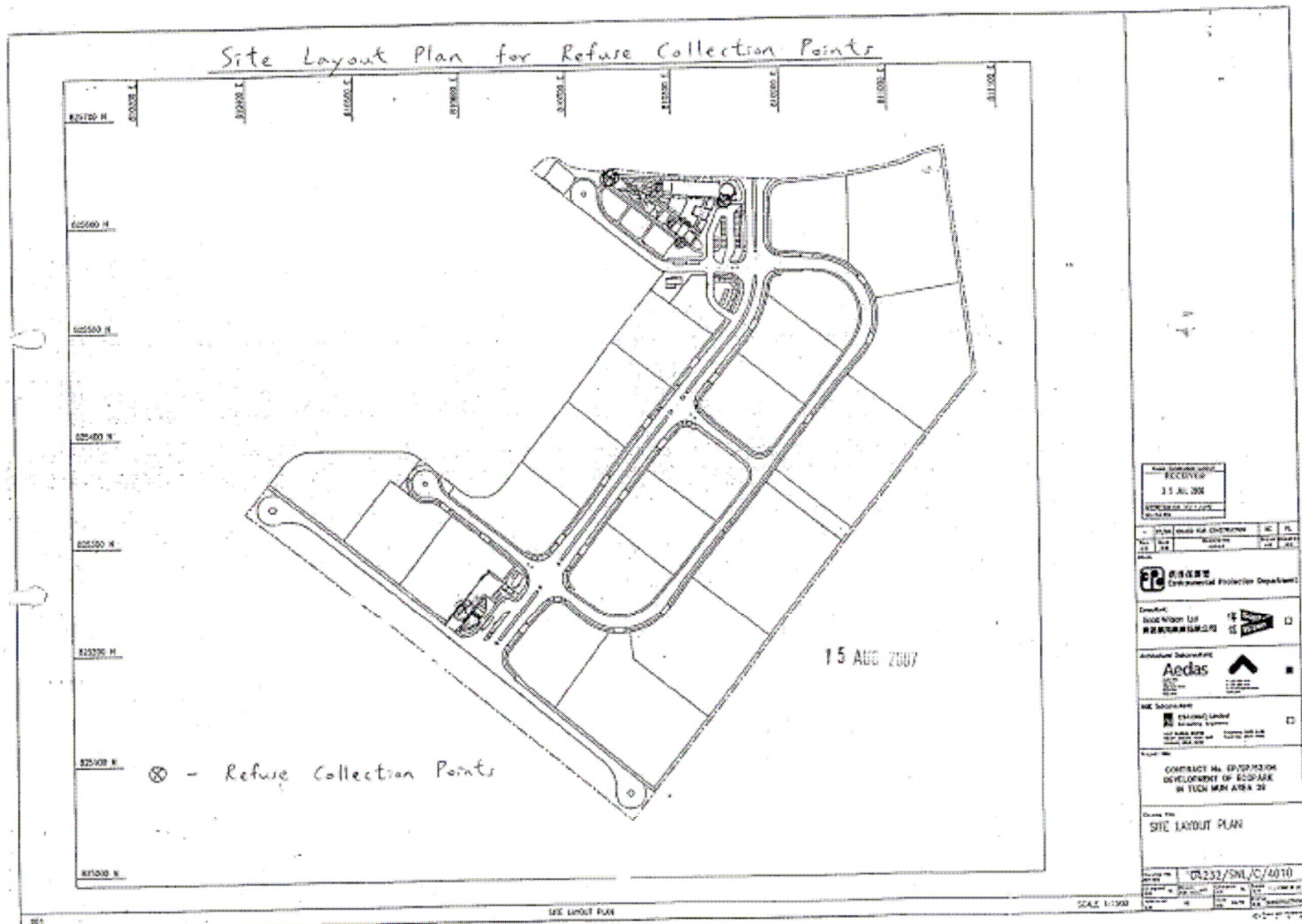
The site plan for EcoPark Phase 2 includes the following labeled areas and features:

- Administrative Building**: Located at the top right of the plan.
- Site Office**: Located near the Administrative Building.
- Site Entrance at Road A**: Located on the right side of the plan.
- Oil and Chemical Waste Storage Area**: Located at the bottom right of the plan.
- Road A**: A road running horizontally across the middle of the plan.
- Road F**: A road running vertically on the left side of the plan.
- Construction of Electrical Sub-stations**: Indicated by a hatched area in the bottom center.
- Buildings and Structures**: Labeled with codes W1, W2a, W2b, W3, W4, and W5.
- Other Labels**: "EcoPark Phase 2" is written in the center. "Road A" and "Road F" are also labeled on the roads themselves.

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

Company/Department	Name	Position	Telephone
Scott Wilson Ltd.	Harold Insley	Independent Environmental Checker	2410 3858
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. William Wong	Environmental Technician	2185 0154
Environmental Pioneers & Solutions Limited	Mr. Stephen Tsang	Environmental Technician	2185 0172

APPENDIX 3 – REVISED SITE LAYOUT PLAN FOR REFUSE COLLECTION POINTS



APPENDIX 4 - ORIGINAL LANDFILL GAS FIELD MEASUREMENT RECORDING SHEETS

No landfill gas monitoring works was carried out during the reporting period.

APPENDIX 5 – CUMULATIVE LOG OF COMPLAINTS**CUMULATIVE LOG OF COMPLAINTS**

Environmental Parameters	No. of Outstanding Complaints	No. of complaints received in November 2008	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 Compliant received	Location	Complainant /Date	Details of Complaint	Investigation /Mitigation Action	Investigated by/ Date
-	-	-	-	-	-	-