

AECOM

Ocean Park Master Redevelopment Project

Quarterly Environmental Monitoring & Audit Report – from April 2009 to June 2009





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EXECUTIVE SUMMARY

This is the eighth combined quarterly Environmental Monitoring and Audit (EM&A) report for the Project "Master Redevelopment Project of Ocean Park". This report summarizes the EM&A works performed in the period between 26 March 2009 and 25 June 2009.

Environmental Monitoring Works

Environmental Monitoring and Audit Progress

A summary of monitoring and audit activities conducted in the reporting quarter is listed below:

1-hour Total Suspended Particulates (TSP) monitoring	49 sessions for AM1 49 sessions for AM2 49 sessions for AM3A
24-hour TSP monitoring	16 sessions for AM1 16 sessions for AM2 16 sessions for AM3A
Daytime noise monitoring	13 sessions for all stations
Evening and night time noise monitoring	13 sessions for all stations
Holiday daytime noise monitoring	0 sessions for all stations
Terrestrial ecology monitoring	0 session
Coral monitoring	1 session for Site 1-5 and Control Station C
Environmental site inspection	14 sessions (include IEC audit)

Air Quality

All measured 1-hour TSP and 24-hour TSP concentrations in the reporting quarter were below the Action and Limit Levels.

Noise

One noise level (evening) was slightly exceeded at the open area adjacent to Police Training School (CN1) on 27 April 2009 and it was probably due to the traffic noise.

Terrestrial Ecology

Terrestrial ecology monitoring had ceased since September 2008. Hence, terrestrial ecology monitoring was not required in the reporting quarter. Please note that all the terrestrial ecology monitoring have been completed in August 2008 according to the requirement under the EM&A Manual.

Coral Monitoring

One session of coral monitoring was scheduled for Site 1-5 & Control Station in the reporting quarter. The results showed that there was no exceedance of Action and Limit Levels.

Environmental Complaints and Prosecutions

One complaint, no summon or prosecution related to environmental issues was made against the Project within the reporting quarter.

On 17/6/2009, a complaint was received from Police College through EPD regarding noise nuisance from CI07. Inspectors from EPD came on site on 30/6/2009 for investigation and no significant observation was made, hence, the complaint was closed.



1. INTRODUCTION

Background

- 1.1 The "Master Redevelopment Project of Ocean Park" (hereinafter known as the "Project") is implemented by the Ocean Park Corporation at its existing site of Ocean Park and Nam Long Shan, Aberdeen. The Project involves both reconstruction/modification of existing facilities and expansion of the Park, and therefore under Environmental Permit, EP-249/2006/A.
- 1.2 The construction works of the project consists of various contracts. Details of the contracts, which are required to perform the EM&A programme, are shown in **Table 1.1** below.

Contract No.	Contract Title	Contractor	Construction Commencement
CI-05	Site Formation, Funicular Tunnel and Miscellaneous Works	Dragages-Bouygues JV	12 March 2007
CS-01	Vet Hospital	Kaden – ATAL JV	26 March 2007
CW-02	Astounding Asia	W. Hing Construction Co. Ltd.	1 August 2007
CI-07	Entry Plaza, Aqua City and Grand Aquarium	Leighton Construction (Asia) Limited	15 August 2008
CS-02	Rainforest	W. Hing Construction Co. Ltd.	11 May 2009

Table 1.1Details of the Contracts

1.3 The contractors will conduct environmental monitoring and audits during the construction stage and produce contract specific monthly & quarterly EM&A reports. The RSS would prepare a combined quarterly EM&A for the whole project. This is the combined quarterly EM&A Report including the IEC audit findings, CI05, CW02, CI07 & CS02 EM&A Works. This report presents the results of EM&A works conducted in the reporting quarter from 26 March 2009 to 25 June 2009.

Project Organization and Contacts of Key Management

1.4 An organization structure and the line of communication were set up for the Project between the Project Proponent, Project Manager's Representative (PMR), Independent Environmental Checker (IEC), the Contractor and the Environmental Team (ET). The project organization and contact details of key management are shown in **Figure 1.1** and **Appendix A** respectively.

Construction Activities during the Reporting Quarter

1.5 The site activities during the reporting quarter are summarized in Table 1.2.

Table 1.2Summary of Works undertaken in the Reporting Quarter

Itom	Work Activity	Month				
nem	Work Activity	Apr 09 May 09 Jun	Jun 09			
Waterfront (CI-05)						
1.	Waterfront Terminus Construction (E&M and Finishing works)	✓	~			
Summit (CI-05)						
1.	Soil nail works at the North Haul Road	\checkmark	\checkmark			



ltam		Month		
Item	WORK ACTIVITY	Apr 09 May 09 J		Jun 09
2.	Summit Terminus & FS Tank Building (E&M works and Finishing Works)	\checkmark	✓	
3.	EVA road Construction	\checkmark	✓	
Tai Sh	ue Wan (CI-05)		•	•
1.	Site clearance works	✓		
Government Entrusted Works (CI05)				•
1.	Road surface reinstatement at Nam Long Shan Road	\checkmark		
2.	Road surface reinstatement at Wong Chuk Hang Road		✓	
Vet Ho	ospital (CS-01), Construction phase has cea	sed in mid-Oc	tober 2008:	
1.	N/A	-	-	-
Astou	nding Asia (CW-02)			
1.	Builder's and finishing work, E&M work at Astounding Asia Restaurant.	\checkmark	~	~
2.	R.C. works for MVAC culvert, superstructure works (RC works), E&M works, builder's & finishing works, building structure works for Artificial Rockworks and ETFE installation at the New Panda Habitat.	1	1	~
3.	Footing excavation, RC works for footing and superstructure at Bird Theatre	~	~	~
4.	External drainage, services pipelines and ducting works and road formation & surface paving.	~	~	~
Entry Plaza, Aqua City and Grand Aquarium (CI-07)				
1.	Beam & Slab (1/F), T20 water tank construction at Grand Aquarium		~	~
2.	Rock filling, sheet piling and post at Entry Plaza.	\checkmark	✓	~
3.	Footing, column and slab construction at Entry Plaza.		✓	✓
4.	Retaining wall construction.	\checkmark	✓	✓
5.	Road works at New Access Road.		✓	\checkmark
6.	U/G drainage, stone paving, sub base & concrete slab construction at Funicular Plaza.			~
Rainforest (CS-02)				
1.	Soil Nail Works, Diversion of Existing Utilities, U/G Utilities Installation and Finishing Works & Excavation works at the Funicular Plaza.			~
2.	R.C. Structure, U/G Utilities Installation at the Exhibition House			✓



ltom	Work Activity		Month	
		Apr 09	May 09	Jun 09
3.	Drainage Works & Retaining Wall Construction at the External Area			✓

- 1.6 A layout plan of the Project is provided in Figure 1.2 to Figure 1.3, Figure 1.4, Figure 1.5 and Figure 1.6. Figure 1.2 and 1.3 shows the layout plan of CI-05 waterfront work site and Cl05 Summit work site. Figure 1.4 shows the layout plan of CW-02 Astounding Asia. Figure 1.5 shows the layout plan of CI-07 Entry Plaza, Aqua City and Grand Aquarium. Figure 1.6 shows the layout plan of CS-02 Rainforest.
- 1.7 The status of submissions until 25 June 2009 as specified in the Environmental Permit No. EP-249/2006/A is presented in **Table 1.3**.

EP-249/2006/A Submission		Revision	Status		
Condition					
Contract CI05					
1.12	Notification of Commencement Date of construction stage	Dated 14 February 2007	Submitted to EPD on 15 February 2007		
2.3	Management Organization	Dated 15 December 2006	Submitted to the EPD on 29 December 2006.		
2.4	Construction Programme	2 Dated 14 February 2007	Submitted to the EPD on 15 February 2007		
2.13	Drainage Proposal	A2 Dated 26 April 2007	Placed in EIAO Register Office for public information on 30 May 2007		
2.14	Silt Curtain Proposal	B Dated 30 January 2007	Placed in EIAO Register Office for public information on 1 March 2007		
2.18	As-built Drawing for Enhancement Works for Pond 35	A Dated 17 July 2007	Placed in EIAO Register Office for public information on 7 August 2007		
2.20a	Transplantation Proposal for Uncommon Plant Species	D Dated 27 August 2007	Placed in EIAO Register Office for public information on 25 September 2007		
2.20b	Detailed Compensatory Planting As-built Drawing	A Dated 4 October 2007	Placed in EIAO Register Office for public information on 30 October 2007		
2.21	Waste Management Plan	D Dated 27 August 2007	Placed in EIAO Register Office for public information on 25 September 2007		
3.3	Baseline Air Quality and Noise Monitoring Report	B Dated 28 February 2007	Submitted to the EPD on 5 March 2007		
3.3	Baseline Coral Survey Report	A Dated 13 June 2007	Submitted to the EPD on 18 June 2007		
All Contract (inc	uding Cl05, CW02, Cl07 &	CS02)			
3.1 and under Section 13.14 of EM&A Manual	Quarterly EM&A Report for January to March 2009	A Dated 24 April 2009	Submitted to the EPD on 27 April 2009		

Table 1.3 Status of Environmental Submissions



EP-249/2006/A	Submission	Revision	Status		
Condition	Gubiniccion	Revision	otatus		
3.4	Monthly EM&A Report for April 2009	A Dated 14 May 2009	Submitted to the EPD on 18 May 2009		
3.4	.4 Monthly EM&A Report for May 2009		Submitted to the EPD on 24 June 2009		
3.4	Monthly EM&A Report for June 2009	A Dated 20 July 2009	Submitted to the EPD on 22 July 2009		
CityBus Limited			·		
2.5	Written Notice on Completion of Total Petroleum Hydrocarbon (TPH) Contaminated Soil Disposal	Dated 17 January 2007	Submitted to the EPD on 22 January 2007		
2.6	Written Notice on Completion of Solidification Treatment of Heavy Metals Contaminated Soil	Dated 17 January 2007	Submitted to the EPD on 22 January 2007.		
2.8	As-built Remediation Plan	3 Dated 14 March 2007	Submitted to the EPD on 16 March 2007		
Hong Kong School of Motoring Ltd.					
2.10	Confirmation letter to confirm that land contamination remediation works within HKSM has been completed	Dated 13 April 2007	Submitted to EPD on 13 April 2007.		



2. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters and Locations

2.1 The EM&A Manual designates locations for the CET to monitor environmental impacts in terms of air quality, noise and ecology from the Project. The locations of air quality, noise and ecology monitoring and their control station(s) if applicable; are depicted in **Figure 1.7** and **Figure 1.8**. **Appendix B** gives the details of the monitoring programme.

Monitoring Methodology and Calibration Details

2.2 All monitoring works were conducted and monitoring equipment was regularly calibrated in accordance with the EM&A Manual. The calibration certificates were provided in the Monthly EM&A report. Summary of calibration are attached in **Appendix C**.

Environmental Quality Performance Limits (Action and Limit Levels)

2.3 The environmental quality performance limits, i.e. Action and Limit levels (AL Levels) were derived from the baseline monitoring results and/or other approaches as detailed in the EM&A Manual. Should the measured environmental quality parameters exceed the AL Levels, the respective action plans would be implemented. The AL Levels for each environmental parameter are given in **Appendix D**.

Environmental Mitigation Measures

2.4 Relevant mitigation measures as recommended in the Project EIA Report had been stipulated in the EM&A Manual and EMIS for the Contractor to adopt. A list of mitigation measures is given in **Appendix G**.



3. MONITORING RESULTS

Air Quality

3.1 No exceedance of Action and Limit Level for 1-hour TSP and 24-hour TSP was recorded in the reporting quarter. Graphical presentations of the air quality monitoring results are provided in **Appendix E**.

Noise

- 3.2 Noise monitoring was carried out for daytime (0700-1900) and evening time (1900 -2300) at four stations in the reporting quarter. No Holiday-time noise monitoring, but Night time noise monitoring was scheduled in the reporting quarter. Graphical presentations of the noise monitoring results are provided in **Appendix F**.
- 3.3 All measured noise levels during daytime and evening time were below the AL levels except one exceedance on 27 April 2009 at CN1 in the reporting quarter.

One noise level (Evening-time) was slightly exceeded at the open area adjacent to Police Training School (CN1) on 27 April 2009 and it was probably due to the traffic noise.

Terrestrial Ecology

3.4 According to the requirement in the EM&A Manual, the monitoring of transplanted plants at the receptor has been completed in August 2008. No further monitoring is recommended and regular inspection would be carried out.

Marine Ecology

3.5 One subtidal monitoring was conducted in the reporting quarter and the results showed that there was no exceedance of Action and Limit Levels. Details of results are shown in **Appendix J**.



4. AUDIT RESULTS

Implementation Status of Environmental Mitigation Measures

- 4.1 This was the ninth quarter of Ocean Park Master Redevelopment Project including Contract Cl05, CW02, Cl07 & CS02. The major activities were summarized in Table 1.2. The Contractor and sub-Contractor had implemented most of the mitigation measures to minimize the environmental impacts due to construction activities. Regarding a few minor observations as noted during ET's site inspections, the Contractor and sub-Contractor rectified all the problems and no major environmental impact was induced.
- 4.2 IEC's audits were carried in monthly basis (i.e. on 17 April 2009, 22 May 2009 and 19 June 2009). No non-compliance was issued for CI05, CW02, CI07 & CS02. 2 observations were recorded for CI05 during the reporting quarter, 4, 6 and 6 observations were recorded for CW02, CI07 and CS02 respectively during the reporting quarter. Observations details were provided in the Monthly EM&A report.
- 4.3 The updated implementation status of environmental mitigation measures (EMIS) is given in **Appendix G**.

CI05

- 4.4 Haul roads and unpaved areas were dry and dusty.
- 4.5 An oil tank was observed placed on bare-ground at Summit.

CS01 (Construction phase had ceased in mid-October 2008)

CW02

- 4.6 Cement operation was still not covered by any means during mixing.
- 4.7 Oil drum were placed on bare-ground without drip trays.
- 4.8 Stagnant water was accumulated next to the building.
- 4.9 Water was accumulated on site due to heavy rain during the inspection. The Contractor shall remove them by pumps as soon as possible.

CI07

- 4.10 Stockpile of dusty construction material was not covered with tarpaulin sheets or other means.
- 4.11 Construction waste skip was accumulated with construction waste.
- 4.12 Unpaved areas were dry.
- 4.13 Stagnant water was observed.
- 4.14 Water was accumulated on site due to heavy rain.
- 4.15 Oil stain was observed.

CS02

- 4.16 The Contractor is reminded to post the EP at site entrance.
- 4.17 The Contractor is reminded to install sedimentation tanks for wastewater treatment before discharge.
- 4.18 Stockpile of construction material was not covered in any means.
- 4.19 Wheel washing facilities is yet to be installed.
- 4.20 Environmental Permit is yet to be posted at site entrance.
- 4.21 Wastewater treatment system is yet to be installed.



Status of Environmental Licensing and Permitting

4.22 Environmental licenses and permits including Environmental Permit for the Project, construction noise permits, chemical waste producer and effluent discharge license were in place and valid during the reporting quarter. A summary status of licences and permits is given in **Appendix H**.

Advice on Materials Management Status

- 4.23 **Table 4.1** summarises the estimated amounts of different types of materials generated from the Project during the reporting quarter. The materials were reused in other projects specified as below:
 - NW-SW (Swire Sita), the soil materials were reused as the topsoil of landfill. This would be delivered by barges. The delivery was started in September 2007 and excavated materials were delivered to the site within the reporting quarter.

Table 4.1 Estimated Amounts of Different Types of Materials Generation from April 2009 to June 2009.

Motoriala Tuno	Estimated Amount (tonnes)			Disposal Locations	
waterials type	Apr 09	May 09	Jun 09	Disposal Locations	
C&D waste	230.59 tonnes	86.33 tonnes	149.22 tonnes	SENT Landfill	
	561.40 tonnes	160.54 tonnes	269.83 tonnes	TKOSF	
			7.09 tonnes	TMSF	
Excavated Material (mainly soil)	48,950.62 tonnes	20,203.74 tonnes	14,586.39 tonnes	QBBP / CWPFBP	
	273.60 tonnes	200.85 tonnes	596.95 tonnes	ТКОГВ	
	562.33 tonnes			Swire Sita	
Chemical waste				Collected by licensed collector	
General waste	45.0 m ³			Collected by licensed collector	

Notes: All figures are in tonnes unless specific.



5. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)

Summary of Exceedances

5.1 In the reporting quarter, one noise level (evening) was slightly exceeded at the open area adjacent to Police Training School (CN1) on 27 April 2009 and it was probably due to the traffic noise.

Review of the Reasons for and the Implications of Non-compliance

5.2 As there was no non-compliance during the reporting quarter. Thus, no further action was required.

Summary of Actions Taken

5.3 The Contractor and sub-Contractor generally implemented all the required mitigation measures to suppress the environmental impacts. As one exceedance was recorded in the reporting quarter but no further action was required.



6. ENVIRONMENTAL COMPLAINTS

Complaints Log

- 6.1 During this quarter, one complaint was received.
- 6.2 With regards to the complaint, the details and action was taken as follows:

On 17/6/2009, a complaint was received from Police College through EPD regarding noise nuisance from CI07. Inspectors from EPD came on site on 30/6/2009 for investigation and no significant observation was made, hence, the complaint was closed.

Complaints Handling Procedure

6.3 All complaints will be handled in accordance with the EM&A Manual. The complaint handling procedure and the complaint log are provided in **Appendix I.**

7. NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

7.1 No summon or prosecution related to environmental issues was made against the Project within the reporting quarter.



8. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

- 8.1 The implemented EM&A programme ensured that any environmental impacts to the receivers would be readily detected and timely actions could be taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental acceptability of the Project. Weekly site inspections ensured that the EIA recommendations were effectively implemented.
- 8.2 The CET carried out air quality, noise monitoring, terrestrial ecology monitoring, coral monitoring and weekly site inspection in accordance with the EM&A Manual. One exceedance, no non-compliance was recorded during this quarter.
- 8.3 No exceedance of Action and Limit Level for 1-hour TSP, 24-hour TSP, daytime but 1 exceedance was recorded in evening time noise monitoring in the reporting quarter.
- 8.4 In the reporting quarter, no terrestrial ecology monitoring was conducted. According to the requirement in the EM&A Manual, the last two terrestrial ecology monitoring has been completed in August 2008. No further monitoring is recommended and regular inspection would be carried out.
- 8.5 In the reporting quarter, one subtidal monitoring was conducted and the results showed that there was no exceedance of Action and Limit Levels.
- 8.6 During this quarter, one complaint was received.
- 8.7 With regards to the complaint, the details and action was taken as follows:

On 17/6/2009, a complaint was received from Police College through EPD regarding noise nuisance from CI07. Inspectors from EPD came on site on 30/6/2009 for investigation and no significant observation was made, hence, the complaint was closed.

8.8 No summons and prosecutions related to environmental issues were made against the Project in the reporting quarter.



Appendix A



APPENDIX A – CONTACTS OF KEY ENVIRONMENTAL PERSONNEL

Company	Contact Person	Position	Telephone No.
Ocean Park Corporation	Arthur Wong	Project Director	29103106
Maunsell Consultants Asia Ltd	Ernest Torbet	Project Manager Representative (PMR)	28715888
	KC Chan	Safety and Environmental Manager	29103151
Mott MacDonald Hong Kong Ltd	Dr. Anne Kerr	Independent Environmental Checker	28285757
Dragages-Bouygues J.V. (for	YT So	Project QSE Manager	25554110
Contract CI05)	Schroeder Tam	Contractor's ETL	25554113
W. Hing Construction Co., Ltd. (for Contract CW02)	Billy Lee	Contractor's Project Manager	61934096
Cinotech Consultant Ltd. (for Contract CW02)	Dr. Priscilla Choy	Contractor's ETL	21512089
Leighton Contractors (Asia) Ltd (for Contract Cl07)	Thomas Lee	Contractor's Environmental Coordinator	36652609
W. Hing Construction Co., Ltd. (for Contract CS02)	Ken Chong	Environmental Officer	62761192

Appendix B



Time Schedule for Impact 1-hour TSP Monitoring (1-TSP), Impact 24-hour TSP Monitoring (24-TSP) and Impact Daytime Noise Monitoring (NM-Daytime)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 1-TSP	2	3 1-TSP 24-TSP	4 Holiday
5	6	7	8	9	10	11
	1-TSP NM - Daytime		1-TSP	1-TSP 24-TSP	Holiday	Holiday
12 12	13	. 14	15	16	17	18
	Holiday	1-TSP x 2	1-TSP 24-TSP NM - Daytime		1-TSP	
19	20	21	22	23	24	25
	1-TSP NM - Daytime	1-TSP 24-TSP	1-TSP		1-TSP	
26 Handle-Martin of the sound of	27	28	29	30		
	1-TSP 24-TSP NM - Daytime		1-TSP x 2	1-TSP 24-TSP		

April 2009



Preliminary Time Schedule for Impact Evening Noise Monitoring (NM- Evening)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4 Holidaÿ
5	6	7	8	9	10	11
	NM - Evening				Holiday	Holiday
12	13	14	15	16	17	18
	Holiday		NM - Evening			
19	20 NM - Evening	21	22	23	24	25
26	27 NM - Evening	28	29	30		

April 2009



Time Schedule for Impact 1-hour TSP Monitoring (1-TSP), Impact 24-hour TSP Monitoring (24-TSP) and Impact Daytime Noise Monitoring (NM-Daytime)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Holiday	2 Holiday
	4 1-TSP x 2 NM - Daytime	5	6 1-TSP 24-TSP	7	8 1-TSP	9
	11 1-TSP NM - Daytime	12 1-TSP 24-TSP	13 1-TSP	14	15 1-TSP	16
17	18 1-TSP 24-TSP NM - Daytime	19	20 1-TSP	21	22 1-TSP	23 1-TSP 24-TSP
24 / 31	25 1-TSP NM - Daytime	26	27 1-TSP	28 Holiday	29 1-TSP 24-TSP	30

May 2009



Preliminary Time Schedule for Impact Evening Noise Monitoring (NM- Evening)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	2	Ì			1	2
					Holiday	Holiday
3	4	5	6	7	8	9
		_			0	ľ
	NM - Evening					
10	11	12	12	11	4.5	10
		12	13	14	15	16
	NM - Evening					
17	18	19	20	21	22	23
	NM - Evening					
	Ū					
24/31	25	26	27	28	20	20
	20	20	21	20	29	30
	NM - Evening			Holiday		
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May 2009



Time Schedule for Impact 1-hour TSP Monitoring (1-TSP), Impact 24-hour TSP Monitoring (24-TSP) and Impact Daytime Noise Monitoring (NM-Daytime)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1/6	2	3	4	5	6
	1-TSP NM - Daytime		1-TSP	1-TSP 24-TSP	1-TSP	
7	8	9	10	11	12	13
	1-TSP NM - Daytime		1-TSP 24-TSP		1-TSP	
	15	40				
	15	16	17	18	19	20
	1-TSP NM - Daytime	1-TSP 24-TSP	1-TSP		1-TSP	
21	22	23	24	25	26	07
	1-TSP 24-TSP NM - Daytime	20	1-TSP	20	26 1-TSP	27 1-TSP 24-TSP
00						
20	1-TSP NM - Daytime	30 1-TSP	1/7 Holiday	2	3 1-TSP 24-TSP	4

June 2009



Preliminary Time Schedule for Impact Evening Noise Monitoring (NM- Evening)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
	NM - Evening					
	INN - Evening					
		Í			Í	
7	8	9	10	11		
		Ű	10		12	13
	NM - Evening	1				
14	15	16	17	18	19	20
	NM - Evening					
				i		
21	22	23	24	25	26	27
					20	21
	NM - Evening					
28 	29	30				
			15 17 1			
	INN - Evening		Holiday			
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			<u> </u>			

June 2009

Appendix C



Ocean Park Redevelopment Project Contract No. Cl07 – Entry Plaza, Aqua City and Grand Aquarium Monthly EM&A Report – April, May and June 2009

CALIBRATION DETAILS

Air Quality Monitoring Equipments

Monitoring Location	AM1	AM2	AM3/AM3A
High Volume Sample/Dust Trak Serial No.	1174	1177	9998
Sampler Identification	ET / EA / 003 / 08	ET / EA / 003 / 07	ET / EA / 003 / 12
Date of Calibration	05 March 2009	05 March 2009	05 March 2009
Calibration Due Date	04 May 2009	04 May 2009	04 May 2009
Result	Good	Good	Good

Monitoring Location	AM1	AM2	АМЗА
High Volume Sample/Dust Trak Serial No.	1174	1177	9998
Sampler Identification	ET / EA / 003 / 08	ET / EA / 003 / 07	ET / EA / 003 / 12
Date of Calibration	06 May 2009	06 May 2009	06 May 2009
Calibration Due Date	05 July 2009	05 July 2009	05 July 2009
Result	Good	Good	Good

Noise Monitoring Equipments

Monitoring Location	CN1, CN2, CN3 & CN4
Sound Level Meter Brand Name and Model	Rion NL-31
Serial No.	00773032
Date of Calibration	26 November 2007
Calibration Due Date	25 November 2009
Result	Good



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TEST REPORT

Calibration Report of <u>High Volume Air Sampler</u>

Manufacturer	:	Graseby GMW	Date of Calibration : 05 March 2009)	
Serial No.	:	1174 (ET / EA / 003 / 08)	Calibration Du	e Date	:	04 M	ay 2009	
Method	:	Based on Operations Manual for in ENVIROMENTAL Model Te-5025A	series calibratior calibration kit	n method	by ⁻	FISCH		
Results	:	Flow recorder reading (cfm)	61	54		48	38	29
		Qstd (Actual flow rate, m ³ /min)	1.73	1.56	Γ.	1.37	1.07	0.86

770.31 mm Hg



Temp. :

293

Κ



Acceptance Criteria :

Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies * / does not comply * with the specified requirements and is deemed acceptable */ unacceptable * for use.

Calibrated by :

Pressure :

CHOW, Hoi Tat (Asst. Environmental Officer)

1.0 Approved by : LAW, Sau, Yee

LAW, Sau, Yee (Senior Environmental Officer)



東業德勤測試顧問有限公司 ETS-TESTCONSULT LIMITED

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 Web site
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TEST REPORT

Calibration Report

of

High Volume Air Sampler

Manufacturer	:	Graseby GMW	Date of Calibration		:	05 March 2009)		
Serial No.	-	1177 (ET/EA/003/07)	Calibration D	ue Date	:	<u>04 N</u>	04 May 2009			
Method	:	Based on Operations Manual for the 5 manufactured by Tisch TE-5025 A	-point calibrat	tion using s	tan	dard	calibration ł	cit		
Results	:	Flow recorder reading (cfm)	51	45		39	30	22		
		Qstd (Actual flow rate, m ³ /min)	1.70	1.52		1.34	1.05	0.83		
		Pressure : 770.31 mm H	lg	Temp. :		293	К			





Acceptance Criteria :

Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies * / does not comply * with the specified requirements and is deemed acceptable */ unacceptable * for use.

Calibrated by :

CHOW, Hoi Tat (Asst. Environmental Officer)

LA Approved by

LAW, Sau Yee (Senior Environmental Officer)



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TEST REPORT

Calibration Report

of

High Volume Air Sampler

Manufacturer	:	Graseby GMW	Date of Calib	oration	:	<u>05</u> M	March 2009)
Serial No.	:	9998 (ET/EA/003/12)	Calibration D	ue Date	:	04 N	May 2009	
Method	:	Based on Operations Manual for the 5-point calibration using standard calibration kit manufactured by Tisch TE-5025 A						
Results	:	Flow recorder reading (cfm)	53	46		41	31	24
		Qstd (Actual flow rate, m ³ /min)	1.71	1.52		1.35	1.06	0.84
		Pressure : 770.31 mm H	la	Temp ·		293	ĸ	





Acceptance Criteria :

Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies * / does not comply * with the specified requirements and is deemed acceptable */ unacceptable * for use.

Calibrated by :

CHOW, Hoi Tat

(Asst. Environmental Officer)

Approved by : Las LAW, Sau Yee

LAW, Sau Yee (Senior Environmental Officer)



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TEST REPORT

Calibration Report

of

High Volume Air Sampler

Manufacturer	:	Graseby GMW	Date of Calibr	ation	:	06 M	ay 2009	
Serial No.	:	1174 (ET / EA / 003 / 08)	Calibration Du	ie Date	:	<u>05 Ju</u>	ıly 2009	
Method	:	Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual						erations
Results	:	Flow recorder reading (cfm)	61	54		47	34	26
		Qstd (Actual flow rate, m ³ /min)	1.72	1.52		1.34	1.07	0.84
		Pressure : 759 mm Hg		Temp. :		298	К	



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable* / unacceptable* for use.

Calibrated by : <u>Muke Jui Uui</u> MAK, Kei Wai (Senior Environmental Technician)

Approved by LAW, Sau, Yee

(Senior Environmental Officer)



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TEST REPORT

Calibration Report

of

High Volume Air Sampler

Manufacturer	:	Graseby GMW	Date of Calibra	ation	: _	06 M	ay 2009	
Serial No.	:	<u>1177 (ET/EA/003/07</u>)	Calibration Du	le Date	: -	05 Jι	uly 2009	
Method	:	Five-point calibration by using stand Manual	ard calibration k	kit Tisch TE	-502	25A re	efer to the C	perations
Results	:	Flow recorder reading (cfm)	50	44		37	28	20
		Qstd (Actual flow rate, m ³ /min)	1.62	1.45	1	.28	1.01	0.80
		Pressure : 760 mm Hg		Temp. :	2	298	К	



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable*/ unacceptable* for use.

Calibrated by :

<u>, Muk Ilu 11/14</u> MAK, Kei Wai (Senior Environmental Technician) Approved by :

LAW, Sau Yee (Senior Environmental Officer)



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TEST REPORT

Calibration Report

of

High Volume Air Sampler

Manufacturer	:	Graseby GMW	Date of Calibr	ration	:	06 M	ay 2009	
Serial No.	:	9998 (ET/EA/003/12)	Calibration D	ue Date	:	05 Ju	ly 2009	
Method	:	Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual						
Results	:	Flow recorder reading (cfm)	50	45		40	30	24
		Qstd (Actual flow rate, m ³ /min)	1.64	1.46		1.29	1.02	0.80
		Pressure : 760 mm Hg		Temp. :		298	к	



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable* / unacceptable* for use.

Calibrated by : <u>Mak 1/4 Uran</u> MAK, Kei Wai (Senior Environmental Technician)

Lic Approved by : LAW, Sau Yee

(Senior Environmental Officer)



Certificate No.	85826		Page	1 of 4	Pages	
Customer :	ETS-Testconsult Limited		a ⁶			
Address :	8/F., Block B, Veristrong Industri	al Centre, 34-36 Au	Pui Wan St., Fo	otan, Hong K	ong.	
Order No. :	Q82237		Date of receipt	t :	21-Nov-08	
Item Tested			20 ^{- 1}			
Description :	Precision Integrating Sound Leve	el Meter (ET/EN/00	3/12)			
Manufacturer :	Rion					
Model :	NL-31	e 19	Serial No.	: 007730	032	
Test Conditi	ons			0		
Date of Test :	26-Nov-08		Supply Voltage	e :		
Ambient Temp	erature : (23 ± 3)°C		Relative Humidity : (50 ± 25) %			
Test Specifi	cations					
Calibration chec	sk.					
Calibration proc	edure : Z01.					
8. P		2				
Test Results	5				6	
All results were	within the IEC 651 Type 1 & IEC	804 Type 1 specific	ation.			
The results are	shown in the attached page(s).					
Main Test equip	ment used:					
Equipment No.	Description	Cert. No.	Due Date	Traceable t	0	
S017A	Multi-Function Generator	75932	6-Dec-08	SCL-HKSA	- R	
S024	Sound Level Calibrator	82926	16-Jul-09	NIM-PRC 8	SCL-HKSAR	

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI). The test results apply to the above Unit-Under-Test only

In Calibrated by : Approved by : P.F. Wong **Dorothy Cheuk** Date: This Certificate is issued by: 28-Nov-08 Hong Kong Calibration Ltd. Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong. Tel: 2425 8801 Fax: 2425 8646

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Certificate No. 85826

Page 2 of 4 Pages

Results :

1. SPL Accuracy

UUT Setting				
Level Range (dB)	Weight	Response	Applied Value (dB)	UUT Reading (dB)
20 - 100	LA	Fast	94.03	94.0
	4 · · · ·	Slow	-et - ¹⁴	94.0
	L _C	Fast		94.0
	Lp	Fast		94.0
30-120	L _A	Fast	94.03	93.9
		Slow		93.9
	L _C	Fast		93.9
	Lp	Fast		93.9
30-120	LA	Fast	113.97	113.7
		Slow		113.7
, A	L _C	Fast		113.7
	Lp	Fast		113.7

IEC Type 1 Spec. : \pm 0.7 dB Uncertainty : \pm 0.1 dB

2. Level Stability : 0.0 dB IEC 651 Type 1 Spec. : \pm 0.3 dB Uncertainty : \pm 0.01 dB

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Certificate No. 85826

Page 3 of 4 Pages

3. Linearity

3.1 Level Linearity

UUT Range	Applied	UUT Reading	Variation	IEC 651 Type 1 Spec.
(dB)	Value (dB)	(dB)	(dB)	(Primary Indicator Range)
130	114.0	114.0	- 0.1	$\pm 0.7 \text{ dB}$
130	104.0	103.9	0.0	
120	94.0	93.9 (Ref.)		
110	84.0	84.0	- 0.1	
100	74.0	74.1	- 0.2	
90	64.0	64.1	- 0.2	
80	54.0	54.2	- 0.3	

Uncertainty : $\pm 0.1 \text{ dB}$

3.2 Differential level linearity

UUT Range	Applied	UUT Reading		
(dB)	Value (dB)	(dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	83.9	0.0	± 0.4 dB
	94.0	93.9 (Ref.)		
	95.0	94.9	0.0	$\pm 0.2 \text{ dB}$
	104.0	103.8	+ 0.1	± 0.3 dB
	105.0	104.8	+ 0.1	± 1.0 dB

Uncertainty : $\pm 0.1 \text{ dB}$

4. Frequency Weighting

A weighting	с.	*
Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 40.2	- 39.4 dB, ± 1.5 dB
63 Hz	- 26.8	- 26.2 dB, ± 1.5 dB
125 Hz	- 16.7	- 16.1 dB, ± 1 dB
250 Hz	- 9.2	- $8.6 \text{ dB}, \pm 1 \text{ dB}$
500 Hz	- 3.5	- $3.2 \text{ dB}, \pm 1 \text{ dB}$
1 kHz	0.0 (Ref.)	$0 \text{ dB}, \pm 1 \text{ dB}$
2 kHz	+ 1.5	$+ 1.2 \text{ dB}, \pm 1 \text{ dB}$
4 kHz	+ 1.4	+ 1.0 dB ,± 1 dB
8 kHz	- 0.7	- 1.1 dB , + 1.5 dB ~ - 3 dB
16 kHz	- 6.3	- 6.6 dB, $+ 3 dB \sim -\infty$

Uncertainty : $\pm 0.1 \text{ dB}$



Certificate No. 85826

Page 4 of 4 Pages

4. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	
1/10	40.0	40.1	± 0.5 dB
$1/10^{2}$	40.0	40.2	
$1/10^{3}$	40.0	40.4	± 1.0 dB
1/10 ⁴	40.0	40.5	

Uncertainty : $\pm 0.1 \text{ dB}$

Remark : 1. UUT : Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. Atmospheric Pressure : 1 010 hPa.

----- END -----
Appendix D

LLEIGHTON

Ocean Park Redevelopment Project Contract No. Cl07 – Entry Plaza, Aqua City and Grand Aquarium Monthly EM&A Report – April, May and June 2009

Table B.1Action and Limit Levels for 1-hour average TSP and 24-hour average TSPMonitoring

Monitoring	24-hr T	SP (µg/m³)	1-hr TSP (μg/m³)		
Location	Action Level	Limit Level	Action Level	Limit Level	
AM1	183	260	440	500	
AM2	181	260	500	500	
AM3/AM3A	194	260	500	500	

Table B.2 Action and Limit Levels for Daytime, Evening & Night-time Noise Monitoring

Time Period	Action	Limit		
0700-1900 hrs on normal weekdays	When one documented	75 dB(A) *		
1900-2300 hrs on normal weekdays; and 0700-1900 hrs on holidays	complaint is received from any one of the sensitive receivers	60/65/70 dB(A) **		
2300-0700 hrs of next day		45/50/55 dB(A) **		

reduce to 70dB(A) for school and 65dB(A) during school examination periods, if applicable
 to be selected based on the Area Sensitivity Rating of A/B/C, and the conditions of the CNP(s) must be

followed

Appendix E



Date of Monitoring



Figure C.2 1-hr TSP monitoring results of Monitoring Station AM2



Figure C.3 1-hr TSP monitoring results of Monitoring Station AM3A

Date of Monitoring



Figure C.4 24-hr TSP monitoring results of Monitoring Station AM1, AM2 & AM3A

Appendix F



Fig D.1 - Daytime Noise Monitoring Results of Monitoring Stations CN1, CN2, CN3 & CN4



Fig D.2 - Evening Noise Monitoring Results of Monitoring Stations CN1, CN2, CN3 & CN4

Appendix G



Environmental Mitigation Implementation Schedule - Air Emission

ID No 1	Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment)	Specifically Recommeded in Environmenta Impact Assessment? yes	Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements Use of regular watering, with complete coverage, to reduce dust emissions from	Action party(s) Superintendent/	Additional Control/monitoring and measurement procedures/ methods (if necessary) Weekly	Scheduled months 08/08 - 11/10	Status OK
			exposed site surfaces and unpaved roads, particularly during dry weather.	Supervisor/Foremen	Environmental Inspection Checklist		
2		yes	Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.	Superintendent/ Supervisor/Foremen	Weekly Environmental Inspection Checklist	08/08 - 11/10	OK
3		yes	Use of frequent watering for particularly dusty construction areas, temporary stockpiles and areas close to ASRs.	Superintendent/ Supervisor/Foremen	Weekly Environmental Inspection Checklist	08/08 - 11/10	ОК
4		yes	Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08 - 11/10	ОК
5		yes	Restricting heights from which materials are dropped, as far as practicable to minimise the fugitive dust arising from unloading/loading.	Superintendent/ Supervisor/Foremen Subcontractor		08/08 - 11/10	ОК
6		yes	Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08 - 11/10	ОК
7		yes	Use of vehicle wheel and body washing facilities at the exit points of the site.	Superintendent/ Supervisor/Foremen Project Environmental Co-ordinator Subcontractor	Weekly Environmental Inspection Checklist	08/08 - 11/10	OK
8		yes	Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit.	Superintendent/ Supervisor/Foremen Project Environmental Co-ordinator		08/08 - 11/10	OK



Environmental Mitigation Implementation Schedule - Air Emission

ID No	Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment)	Specifically Recommeded in Environmental Impact Assessment?	Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements	Action party(s)	Additional Control/monitoring and measurement procedures/ methods (if necessary)	Scheduled months	Status
9		yes	Dusty activities should be re-scheduled if high-wind conditions are encountered.	Superintendent/ Supervisor/Foremen Project Environmental Co-ordinator		08/08 - 11/10	OK
10		yes	Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.	Superintendent/ Supervisor/Foremen Project Environmental Co-ordinator		08/08 - 11/10	OK
11		yes	Implementation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	Project Environmental Co-ordinator		08/08 - 11/10	N.A.
12		yes	The works areas shall be fenced off with hoarding. The height of hoarding should not be less than 2.4 m from ground level	Superintendent/ Supervisor/Foremen	Weekly Environmental Inspection Checklist	08/08 - 11/10	OK



Environmental Mitigation Implementation Schedule - Noise

		Specifically			Additional		
		Recommeded			Control/monitoring		
		in			and measurement		
	Environmental Aspect	Environmenta	I Actions Required		procedures/		
	(not required for actions specifically recommended in Environmental Impact	Impact	These actions can be amended if necessary to suit particular needs unless they are in		methods	Scheduled	
ID No	Assessment)	Assessment?	response to a specified legal requirements	Action party(s)	(if necessary)	months	Status
1		yes	Only well-maintained plant should be operated on-site and plant should be	Superintendent/	Weekly	08/08-11/10	OK
			serviced regularly during the construction program	Supervisor/Foremen	Environmental		
				Project Environmental	Inspection		
				Coordinator	Checklist		
				Subcontractor			
2		yes	Silencers or mufflers on construction equipment should be utilized and should be	Superintendent/	Weekly	08/08-11/10	N.A.
			properly maintained during the construction program	Supervisor/Foremen	Environmental		
					Inspection		
				Subcontractor	Checklist		
3		yes	Mobile plant, if any, should be sited as far from NSRs as possible	Superintendent/	Weekly	08/08-11/10	OK
				Supervisor/Foremen	Environmental		
				Cubaantraatan	Inspection		
4		1/00	Machines and plant (such as trucks) that may be in intermittant use should be shut	Supcontractor	Checklist	00/00 11/10	OK
4		yes	down between work periods or should be threttled down to a minimum	Superintendent/	Environmontal	08/08-11/10	UK
				Supervisor/Foremen	Increation		
				Subcontractor	Chocklist		
5		VAS	Plant known to emit noise strongly in one direction should wherever possible be	Superintendent/	Wookly	08/08-11/10	OK
5		yc3	orientated so that the noise is directed away from the nearby NSRs	Supervisor/Foremen	Environmental	00/00-11/10	UK
			one filated so that the holse is directed away from the fical by NSRS	Supervisoin oremen	Inspection		
				Subcontractor	Checklist		
6		ves	Quiet Plant considered for at Entry Plaza construction for Site Clearance.	Superintendent/	Weekly	08/08-11/10	ОК
		J	Demolition, Realignment of Ocean Park Road, Drainage Diversion, Severage	Supervisor/Foremen	Environmental		
			Diversion, Site Formation & Excavation, Piling Works and Superstructure		Inspection		
			Construction where calculated noise levels exceed limits	Subcontractor	Checklist		
7		ves	United Plant considered for Aqua City construction during - Site Clearance	Superintendent/	Weekly	08/08-11/10	ОК
		J	Demolition, Slopeworks, Site Formation & Excavation, Piling Works and	Supervisor/Foremen	Environmental		
			Superstructure Construction where calculated noise levels exceed limits		Inspection		
				Subcontractor	Checklist		
8		yes	Moveable noise barriers considered for at Entry Plaza construction for Site	Superintendent/	Weekly	08/08-11/10	N.A.
		,	Clearance, Demolition, Realignment of Ocean Park Road, Drainage Diversion,	Supervisor/Foremen	Environmental		
			Sewerage Diversion, Site Formation & Excavation, Piling Works and		Inspection		
			Superstructure Construction where calculated noise levels exceed limits	Subcontractor	Checklist		
9		yes	Moveable barriers considered for Aqua City construction during - Site Clearance,	Superintendent/	Weekly	08/08-11/10	N.A.
			Demolition, Slopeworks, Site Formation & Excavation, Piling Works and	Supervisor/Foremen	Environmental		
			Superstructure Construction where calculated noise levels exceed limits		Inspection		
				Subcontractor	Checklist		



Environmental Mitigation Implementation Schedule - Water

		1			1	1	
ID No	Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment)	Specifically Recommeded in Environmenta Impact Assessment? Yes	Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements Before commencing any site formation work, all sewer and drainage connections	Action party(s)	Additional Control/monitoring and measurement procedures/ methods (if necessary) Weekly	Scheduled months 08/08 to 09/08	Status
			should be sealed to prevent debris, soil, sand etc. from entering public sewers/drains.	Supervisor/Foremen	Environmental Inspection		
2		Yes	Temporary ditches should be provided to facilitate run-off discharge into appropriate watercourses, via appropriately sized/ designed silt retention pond or similar structure. No site run-off should enter artificial ponds. Cut-off ditches should be provided for all major site clearance/ excavation works where soils would be exposed so that instances of uncontrolled run-off from exposed areas would be minimized. As well as channels, earth/ concrete bunds and/ or sand bags, as appropriate, should be deployed to direct surface run-off towards channels. Catchpits and perimeter channels should be constructed in advance of relevant site formation works.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08 to 11/10	ОК
3		Yes	Boundaries of earthworks should be marked and surrounded by dykes or embankments for flood protection, as necessary.	Superintendent/ Supervisor/Foremen land surveyor		08/08 to 11/10	OK
4		Yes	Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms.	Superintendent/ Supervisor/Foremen project environmental co-ordinator	Weekly Environmental Inspection Checklist	08/08 to 11/10	ОК
5		Yes	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08 to 11/10	ОК
6		Yes	Exposed soil surfaces should be covered,	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08 to 11/10	ОК
7		Yes	Water pumped out from foundation excavations should be discharged into silt removal facilities.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08 to 11/10	OK



Environmental Mitigation Implementation Schedule - Water

ID No	Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment)	Specifically Recommeded in Environmental Impact Assessment?	Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements	Action party(s)	Additional Control/monitoring and measurement procedures/ methods (if necessary)	Scheduled months	Status
8		Yes	If excavation cannot be avoided during rainy seasons, temporarily exposed slope/soil surfaces should be covered by a tarpaulin or other means, as far as practicable, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Interceptiong channels should be provided (e.g. along the crest/ edge of the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be inplace to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. Other measures that need to be implemented before, during and after rainstorms are summarized in ProPECC PN 1/94.	Superintendent/ Supervisor/Foremen project environmental co-ordiantor Subcontractor	Weekly Environmental Inspection Checklist	08/08 to 11/10	N.A.
9		Yes	Exposed soil areas should be minimized to reduce potential for increased siltation and contamination of runoff.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08 to 11/10	OK
10		Yes	Earthwork final surfaces should be well compacted and subsequent permanent work or surface protection should be immediately performed. Appropriate intercepting channels should be provided where necessary. Rainwater pumped out from trenches or excavations should be directed to silt removal facilities before discharge.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08 to 11/10	OK
11		Yes	Open stockpiles of construction materials or construction wastes on-site of more than 50m ³ should be covered with tarpaulin or similar fabric during rainstorms	Superintendent/ Supervisor/Foremen Subcontractor		08/08 to 11/10	OK
12		Yes	Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering any nearby water bodies and public drainage system. Stockpiles of cement and other construction materials should be kept covered when not being used.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08 to 11/10	OK
13		Yes	Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor would be responsible for appropriate disposal of waste matter and maintenance of these facilities.	Superintendent/ Supervisor/Foremen project environmental co-ordinator Subcontractor	Weekly Environmental Inspection Checklist	08/08 to 11/10	OK



Environmental Mitigation Implementation Schedule - Ecological Resources

		Specifically			Additional		
		Recommeded			Control/monitoring		
	Environmental Aspect	Environmenta	Actions Required		procedures/		
	(not required for actions specifically recommended in Environmental Impact	Impact	These actions can be amended if necessary to suit particular needs unless they are in		methods	Scheduled	
ID No	Assessment)	Assessment?	response to a specified legal requirements	Action party(s)	(if necessary)	months	Status
1		Yes	All excavation works carried out close to water bodies shall be carefully controlled	Superintendent/	Weekly	08/08-11/10	N.A.
			to avoid runoff entering watercourses, especially during periods of heavy rain.	Supervisor/Foremen	Environmental		
					Inspection		
				Subcontractor	Checklist		
2		Yes	Site runoff shall be directed towards regularly cleaned and maintained silt traps	Superintendent/	Weekly	08/08-11/10	OK
			and where appropriate, oil/grease separators to minimise risk of sedimentation	Supervisor/Foremen	Environmental		
			and pollution.		Inspection		
				Subcontractor	Checklist		
3		Yes	Suitable size / capacity silt traps and oil/grease interceptors shall be used.	Superintendent/	Weekly	08/08-11/10	N.A.
				Supervisor/Foremen	Environmental		
					Inspection		
				Subcontractor	Checklist		
4		Yes	Coral monitoring shall be implemented (by others)	Project Environmental		08/08-11/10	N.A.
				Coordinator			
5		Yes	Noise mitigation measures including the use of quiet excavation methods, quiet	Superintendent/	Weekly	08/08-11/10	OK
			construction plant and temporary noise barriers shall be implemented to minimise	Supervisor/Foremen	Environmental		
			disturbance to habitats adjacent to the works areas	Project Environmental	Inspection		
				Coordinator/ Engineer	Checklist		
				Subcontractor			
6		Yes	Vegetation survey and subsequent transplantation of locally uncommon or	Project Environmental		08/08-11/10	OK
			restricted species (i.e. Long Tentacle Orchid, Sword-leaved Orchid, Green-	Coordinator/ Engineer			
			flowered Rattlesnake-Plantain, Cycad-fern Balloon Flower and Chinese Lily) shall				
			be carried out to determine the feasibility and suitability of individual plants for				
			transplantation to protect plant species of conservation interest				
7		Yes	Receptor sites shall be identified.	Superintendent/		08/08-11/10	OK
				Supervisor/Foremen			
				Project Environmental			
				Coordinator			
8		Yes	Transplantation shall be supervised by a suitably qualified botanist/ horticulturist to	Project Environmental		08/08-11/10	OK
			protect plant species of conservation interest	Coordinator			
9		Yes	A detailed transplantation methodology shall be formulated during the detailed				N.A.
			design stage based on the information collected during the detailed vegetation				
			survey to protect plant species of conservation interest				



Environmental Mitigation Implementation Schedule - Ecological Resources

ID No	Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment)	Specifically Recommeded in Environmenta Impact Assessment?	Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements	Action party(s)	Additional Control/monitoring and measurement procedures/ methods (if necessary)	Scheduled	Status
10		Yes	Equipment or stockpile shall only be in designated works areas wherever practicable.	Superintendent/ Supervisor/Foremen		08/08-11/10	OK
11		Yes	Access routes shall be selected as far as practicable on existing disturbed land.	Superintendent/ Supervisor/Foremen Project Environmental Coordinator Subcontractor		08/08-11/10	N.A.
12		Yes	Construction activities shall be restricted to designated works areas.	Superintendent/ Supervisor/Foremen	Weekly Environmental Inspection Checklist	08/08-11/10	OK
13		Yes	The works areas shall be reinstated immediately after completion of works.	Superintendent/ Supervisor/Foremen Subcontractor		08/08-11/10	ОК
14		Yes	Waste skips shall be provided to collect general refuse and construction wastes.	Superintendent/ Supervisor/Foremen Project Environmental Coordinator	Weekly Environmental Inspection Checklist	08/08-11/10	OK
15		Yes	The wastes shall be disposed of timely and properly off-site.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08-11/10	OK
16		Yes	Drainage arrangements shall include sediment traps to collect and control construction run-off	Superintendent/ Supervisor/Foremen Engineer	Weekly Environmental Inspection Checklist	08/08-11/10	OK
17		Yes	Open burning on works sites is illegal, and shall be strictly enforced.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08-11/10	OK



Environmental Mitigation Implementation Schedule - Archaeological and Historical Resources

		C ! C !!			A 1.191 1		
		Specifically			Additional		
		Recommeded			Control/monitoring		
		in			and measurement		
	Environmental Aspect	Environmental	Actions Required		procedures/		
	(not required for actions specifically recommended in Environmental Impact	Impact	These actions can be amended if necessary to suit particular needs unless they are in		methods	Scheduled	
ID N	o Assessment)	Assessment?	response to a specified legal requirements	Action party(s)	(if necessary)	months	Status
1		Yes	If any works are planned within one metre of the grave, a one metre buffer zone	Superintendent/		08/08-11/10	N.A.
			will be provided around the grave, demarcated by a temporary fence.	Supervisor/Foremen			



Environmental Mitigation Implementation Schedule - Waste Management

ID No	Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment)	Specifically Recommeded in Environmenta Impact Assessment?	Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements	Action party(s)	Additional Control/monitoring and measurement procedures/ methods (if necessary)	Scheduled months	Status
1		Yes	Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site (Good site practices)	Superintendent/ project environmental coordinator		08/08-11/10	ОК
2		Yes	Training of site personnel in proper waste management and chemical handling procedures	project environmental coordinator		08/08-11/10	ОК
3		Yes	Provision of sufficient waste disposal points and regular collection of waste	Site supervisor	Weekly Environmental Inspection Checklist	08/08-11/10	ОК
4		Yes	Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08-11/10	OK
5		Yes	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	project environmental coordinator	EMP	08/08-11/10	OK
6		Yes	Waste reduction measures: Sort C&D waste from demolition and decommissioning of the existing facilities to recover recyclable portions such as metals	Superintendent/ Supervisor/Foremen project environmental coordinator Subcontractor	Weekly Environmental Inspection Checklist	08/08-11/10	OK
7		Yes	Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08-11/10	ОК
8		Yes	Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force	Superintendent/ Supervisor/Foremen project environmental coordinator Subcontractor		08/08-11/10	ОК
9		Yes	Proper storage and site practices to minimise the potential for damage or contamination of construction materials	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08-11/10	OK
10		Yes	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	Superintendent/ Supervisor/Foremen Subcontractor		08/08-11/10	OK



Environmental Mitigation Implementation Schedule - Waste Management

					•		
ID No	Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment)	Specifically Recommeded in Environmenta Impact Assessment?	Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements	Action party(s)	Additional Control/monitoring and measurement procedures/ methods (if necessary)	Scheduled months	Status
11		Yes	General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material	Superintendent/ Supervisor/Foremen project environmental coordinator Subcontractor		08/08-11/10	OK
12		Yes	In order to minimise impacts resulting from collection and transportation of C&D material for off-site disposal, the excavated materials arising from site formation should be reused on-site as backfilling material and for landscaping works as far as practicable. In addition, volcanic rock generated from the tunnelling works should be subject to beneficial re-use. Other mitigation requirements are listed below: - A Waste Management Plan should be prepared - A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used - In order to monitor the disposal of C&D and solid wastes at public filling facilities and landfills, and to control fly-tipping, trip ticket systems will be adopted.	Engineer project environmental coordinator	Weekly Environmental Inspection Checklist	08/08-11/10	ОК
13		Yes	Chemical waste: Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i> .	project environmental coordinator	Weekly Environmental Inspection Checklist	08/08-11/10	OK
14		Yes	Chemical waste: Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc.	Superintendent/ Supervisor/Foremen Subcontractor	Weekly Environmental Inspection Checklist	08/08-11/10	ОК
15		Yes	Chemical waste: The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, either to the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation	Superintendent/ Supervisor/Foremen		08/08-11/10	OK

Types of Impacts	Mitigation Measures Sta							
Construction Dust	• Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.	*						
	• Use of frequent watering for particularly dusty construction areas, temporary stockpiles and areas close to ASRs.	*						
	• Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.	N/A						
	• Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.	*						
	• Restricting heights from which materials are dropped, as far as practicable to minimise the fugitive dust arising from unloading/ loading.							
	Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.	^						
	• Use of vehicle wheel and body washing facilities at the exit points of the site.							
 Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading pouse of water sprinklers at the loading area where dust generation is likely during the loading process material, particularly in dry seasons/ periods. 								
	Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit.							
• Dusty activities should be re-scheduled if high-wind conditions are encountered.								
	• Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.	N/A						
	• Suitable buffer zone should be provided and the works areas should be fenced off with hoarding. The height of hoarding should not be less than 2.4m from ground level.	N/A						
	Crushing Plant							
	• Water sprays on the crusher.	N/A						
	• Fabric filters installed for the crushing plant.	N/A						
	• When transferring materials from crusher to the conveyors, chutes or dust curtains would be used for controlling dust.	N/A						

Appendix C - Summary of Environmental Mitigation Implementation Schedule

Types of Impacts	Mitigation Measures	Status
	Barging Point & Conveyor Belt System	
	• The conveyors would be placed within a totally enclosed structure	N/A
	 Profiled steel cladding would be provided at two sides of loading point. 	N/A
	• Dust suppression sprays would be installed and operated in strategic locations at the feeding inlet and outlet.	N/A
	• The barging point would be placed within a totally enclosed structure incorporating an enclosed chute for material transfer to the barge. Flexible curtain would be hanged on the enclosed chute prevent dust emission when excavated materials/rocks transported into the barge.	N/A
	• Some areas of the Park would remain open for visitors during the construction period. Therefore, suitable buffer zones from major construction activities should be provided where practical and the works areas should be fenced off with hoarding during the construction phase. It is recommended to erect hoarding of a height not less than 2.4m from ground level.	N/A
Construction	Construction Phase	
Noise	• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme	^
	• Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction programme	N/A
	• Mobile plant, if any, should be sited as far from NSRs as possible.	N/A
	• Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum	^
	• Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs	^
	• Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities	N/A
	Adoption of Quieter Plant	
	• In order to reduce the excessive noise impacts at the affected NSRs at the Waterfront during normal daytime working hours, quieter plants are recommended. The Contractors do not have to use specific items of quiet plant adopted in this assessment. The Contractors may use other type of quiet plant, which have the same total SWL, to meet their needs	^

Types of Impacts	Mitigation Measures	Status
	Use of Movable Noise Barrier	
	• The use of movable barrier for certain PME could further alleviate the construction noise impacts. In general, 5dB (A) reduction for movable PME and 10dB (A) for stationary PME can be achieved depending on the actual design of movable noise barrier.	N/A
	• The Contractor should be responsible for designing of the movable noise barrier with due consideration given to the size of the PME and the requirement of intercepting the line of sight between the NSRs and PME. Barrier material of surface mass in excess of 7kg/m2 is recommended to achieve the predicted screening effect.	N/A
	• Exceedance of up to 5dB (A) would be predicted at the Police Training School (NSR PTS) during the examination periods. Early liaison with the principal of this impacted school is recommended to plan for the construction programme. Noisy construction activities should be avoided during the examination period as far as practicable so as to reduce the potential noise impact at the school to comply with the noise criterion of 65dB(A).	N/A
	Construction Phase	
	• All excavation works carried out close to water bodies shall be carefully controlled to avoid runoff entering watercourses, especially during periods of heavy rain.	^
	• Site runoff shall be directed towards regularly cleaned and maintained silt traps and where appropriate, oil/grease separators to minimize risk of sedimentation and pollution.	N/A
	 Suitable size / capacity silt traps and oil/grease interceptors shall be used. 	N/A
	• Noise mitigation measures including the use of quiet construction plant and movable noise barriers shall be implemented to minimize disturbance to habitats adjacent to the work areas.	N/A
	• Trees located within the works areas shall be preserved as far as practicable.	*
Ecology	• Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats	^
	Construction activities shall be restricted to the work areas that would be clearly demarcated	^
	• The work areas shall be reinstated immediately after completion of the works	^
	• Waste skips shall be provided to collect general refuse and construction wastes. The wastes would be disposed of timely and properly off-site.	N/A
	Drainage arrangements shall include sediment traps to collect and control construction run-off	^
	• Open burning on works sites is illegal, and shall be strictly enforced	^
	• Landscaping works on newly formed land shall as far as possible make use of native plant species	^

Types of	Mitigation Measures	Status
Impacts		Status
Water Quality	Construction Runoff and Drainage	
	• Before commencing any site formation work, all sewer and drainage connections should be sealed to prevent	^
	debris, soil, sand etc. from entering public sewers/drains.	
	• Temporary ditches should be provided to facilitate run-off discharge into appropriate watercourses, via	
	Cut-off ditches should be provided for all major site clearance/ excavation works where soils would be exposed so that instances of uncontrolled run-off from exposed areas would be minimized. As well as channels, earth/ concrete bunds and/ or sand bags, as appropriate, should be deployed to direct surface run-off towards channels.	^
	Catchpits and perimeter channels should be constructed in advance of relevant site formation works.	
	• Boundaries of earthworks should be marked and surrounded by dykes or embankments for flood protection, as necessary.	٨
	• Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt	
	particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution	
	Control Ordinance. The design of silt removal facilities should be based on the guidelines provided in ProPECC	^
	PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected monthly and	
	maintained to ensure proper and efficient operation at all times and particularly during rainstorms.	
	• Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be	
	regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	^
	• Exposed soil surfaces should be covered.	^
	• Water pumped out from foundation excavations should be discharged into silt removal facilities.	^
	• If excavation cannot be avoided during rainy seasons, temporarily exposed slope/soil surfaces should be covered by a tarpaulin or other means, as far as practicable, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Interceptiong channels should be provided (e.g. along the crest/ edge of	
	the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm Other measures that need to be implemented before, during and after rainstorms are summarized in DECC DN 1/04	۸
	Funds and soil areas should be minimized to reduce notantial for increased siltation and contamination of runoff	^
	• Exposed son areas should be minimized to reduce potential for increased situation and contamination of runoff.	
	• Earthwork final surfaces should be well compacted and subsequent permanent work or surface protection should be immediately performed. Appropriate interpenting should be used at a protection should be immediately performed.	^
	be immediately performed. Appropriate intercepting channels should be provided where necessary. Rainwater	Λ
	pumped out from trenches or excavations should be directed to silt removal facilities before discharge.	

Types of	Mitigation Measures						
Impacts							
	• Open stockpiles of construction materials or construction wastes on-site of more than 50m ^o should be covered	N/A					
	with tarpaulin or similar fabric during rainstorms						
	General Construction Activities	1 .					
	• Debris and refuse generated on-site should be collected	~					
	• Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to nearby water bodies and public drains	^					
	Sewage from Construction Workforce						
	• Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor would be responsible for appropriate disposal of waste matter and maintenance of these facilities	^					
Waste /	Good Site Practice						
Chemical	• nomination of an approved personnel, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site	*					
	 regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	N/A					
	training of site personnel in proper waste management and chemical handling procedures	^					
	provision of sufficient waste disposal points and regular collection for disposal						
	• appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers	^					
	Waste Reduction Measures						
	• sort C&D waste from demolition and decommissioning of the existing facilities to recover recyclable portions such as metals	^					
	• segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.	^					
	• proper storage and site practices to minimise the potential for damage or contamination of construction materials	*					
	• to encourage collection of aluminium cans by individual collectors, separate labelled bins shall be provided to segregate this waste from other general refuse generated by the work force.	^					
	• plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	^					

Types of	Mitigation Measures	Status						
Impacts		Status						
	 General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material. 							
	Construction and Demolition Material							
	A Waste Management Plan should be prepared.	^						
	• In order to monitor the disposal of C&D and solid wastes at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be included. One may make reference to ETWB TCW No.31/2004 for details							
	• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed							
	Chemical Waste							
	 If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation 							
Remarks:	Compliance of mitigation measure: X Non-compliance of mitigation measure:							
	N/A Not Applicable; • Non-compliance but rectified by the contractor;							
	* Recommendation was made during site audit but improved/rectified by the contractor.							

Appendix H

Appendix H Licenses and Permits

CNP

Permit number	Starting Date	Expired Date	Valid Time	Location	Contract No.	Status
CI05 - DBJV			<u> </u>		-	L
GW-RS0682-08	15-Oct-08	14-Apr-09	Concrete lorry mixer; Poker, vibrating, hand-held (electric); and Crane, tower	Summit Terminus	C105	Expired
GW-RS0750-08	1-Nov-08	30-Apr-09	Crane, mobile (500 tones); Crane mobile (300 tones); Crane mobile (90 tones); Crane mobile (50 tones); and Lorry, with crane, 5.5 tones < gross vehicle weight < 38 tones	Nam Long Shan Road	C105	Expired
GW-RS0752-08	1-Nov-08	30-Apr-09	Crane, mobile (500 tones); Crane mobile (300 tones); Crane mobile (90 tones); Crane mobile (50 tones); and Lorry, with crane, 5.5 tones < gross vehicle weight < 38 tones	Waterfront	C105	Expired
GW-RS0001-09	2-Jan-09	1-Jun-09	Light Tower, Excavator, tracked; Dump truck, 5.5 tones < gross vehicle weight < 38 tones	Summit	C105	Expired
GW-RS0103-09	28-Feb-09	27-Aug-09	Breaker, mini-robot mounted; Excavator, tracked; Light goods vehicle, gross vehicle weight < 5.5 tones; Breaker, hand-held, mass > 10 kg and < 20 kg; Road miller; Asphalt paver; Road roller; Dump truck, 5.5 tones < gross vehicle weight < 38 tones	Nam Long Shan Road	C105	Valid
CW-02 (W. Hing)						
GW-RS0163-09	1-Mar-09	31-Aug-09	19:00 - 23:00 hours (Not being a general holidays) 07:00 - 19:00 hours (General holidays)	Ocean Park, Wong Chuk Hang	CW-02	Valid
CI07 (LCAL)						
GW-RS0791-08	10-Nov-08	9-Apr-09	For water pumps, generator and wastewater treatment plant operation from 19:00 to 23:00 (any day not being a general holiday and 07:00 to 23:00 (general holiday including Sunday)	Ocean Park, Wong Chuk Hang	C107	Expired
GW-RS0906-08	17-Dec-08	14-Jun-09	 Fro water pump and wastewater treatment Plant operation for any day 23:00 to 07:00 Wong Chuk On next day 		C107	Valid
PP-RS0035-08	12-Dec-08	11-Jun-08	For drop hammer driving steel sheet pile Ocean Park, from 07:00 to 19:00 hours on all days Wong Chuk expect general holidays (including Hang Sundays)			Valid
GW-RS0422-09	15-Jun-09	14-Dec-09	For water pump and wastewater treatment plant operation for any day 23:00 to 07:00 on next day	Ocean Park, Wong Chuk Hang	CI-07	Valid

Appendix H Licenses and Permits

Other Permits & Licenses

<u>CI05</u>

Permit /Ref/ No	Valid Period		Section	Status		
Notification of Construction Work under APCO						
001017998	-	-	Waterfront	Notified		
001018054	-	-	Summit	Notified		
Effluent Discharge Licer	ise					
EP820/W9/XW232	20 Jun 07	30 Jun 12	Summit	Valid		
EP820/W9/XW234	13 Jul 07	31 Jul 12	Waterfront	Valid		
Specific Process Licens	e					
L-11-044 (1)	20-Sep-07	19-Sep-12	Conduct Specified Process in the premises at Ocean Park MRP Contract CI-05 (at top of Nam Long Shan Road)	Valid		
Registration as Chemica	al Waste Produc	er				
WPN5213-199-D2373- 01	7-May-07	-	For disposal of chemical wastes, mainly spent lubricants	Registered		
Construction Waste Disposal Charging Scheme						
7004888	-	-	Waterfront + Summit	Issued		

<u>CW02</u>

Permit/Ref/No	Valid Period		Section	Status				
Notification of Cons	Notification of Construction Work under APCO							
001022480	11 July 07	-	Astounding Asia	Notified				
Effluent Discharge I	License							
EP820/W9/XW240	12 Oct 07	31 Oct 12	Astounding Asia	Valid				
Registration as Che	mical Waste Produce	er						
5213-199-W2894-	20 Aug 07	-	Form Oil, Lubricant oil, paint,	Registered				
18			solvent and diesel.					
Construction Waste Disposal Charging Scheme								
7005864	-	-	Astounding Asia	Issued				

<u>CI07</u>

Permit/Ref/No	Valid Period		Section	Status			
Notification of Cons	Notification of Construction Work under APCO						
001032366	-	-	Entry Plaza	Notified			
Effluent Discharge I	License						
EP820/W2/XW246	5 Sep 08	30 Sep 13	Entry Plaza	Valid			
Registration as Che	mical Waste Produce	er					
5213-199-L2174-	22 Sep 08	-	Form Oil, Lubricant oil, paint,	Registered			
28			solvent and diesel.	_			
Construction Waste Disposal Charging Scheme							
7007576	-	-	Entry Plaza	Issued			

Appendix H Licenses and Permits

Permit/Ref/No	Valid Period		Section	Status	
Notification of Cons	struction Work under	APCO			
305349	N/A	N/A	Rainforest	Notified	
Effluent Discharge I	License				
WT00004136-2009	12-Oct-07	30-Jun-14	Rainforest	Valid	
Registration as Che	mical Waste Produce	er			
WPN5214-176-	13-May-09	N/A	Form Oil, Lubricant oil, paint,	Registered	
W1150-03	-		solvent and diesel.	_	
Construction Waste Disposal Billing Account with EPD					
WFG07578	N/A	N/A	Rainforest	Issued	

Appendix I



LEIGHTON

Ocean Park Redevelopment Project Contract No. Cl07 – Entry Plaza, Aqua City and Grand Aquarium Quarterly EM&A Report – April, May and June 2009

Complaint Record Register

Record ID	Data Received	Type (PMR / EPD / Public / Others)	Description	Project	Justified compliant?	Status (Open / Closed)
EC/CI07/001	17-Jun-09	Public thru EPD	Police Training School claimed that noise nuisance from CI07	C107	N/A	The inspector of EPD came to the site and no significant observation was made, hence the complaint was closed.

Appendix J

Appendix J Coral Monitoring Results for the Reporting Quarter

Results for April 2009

No impact coral monitoring was conducted within April 2009. It was because the monitoring frequency was changed to quarterly until the end of construction works as recommended in approved EM&A Manual.

Results for May 2009

Site 1	-														
			Sedimentation (%, mm)				Bleaching (%)				Mortality (%)				
Code	Coral Species	Area (cm²)	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	
A01	Platygyra carnosus	1000	0,0	0,0	0,0	0,0	0	0	0	0	0	6 🛦	6 🛦	6 🛦	
A02	Platygyra carnosus	2000	0,0	0,0	0,0	0,0	0	0	0	0	0	1 🔺	1 🛦	1 🛦	
A03	Favites pentagona	200	0,0	3,1 🛦	1,1 🛦	2,1	0	0	0	0	0	3 🛦	3 🛦	3 🛦	
A04	Leptastrea pruinosa	400	5,1	3,1▼	5,1	2,1 🗸	0	0	0	0	0	0	0	0	
A05	Platygyra carnosus	1200	0,0	4,1▲	2,1 🛦	4,1▲	0	0	0	0	5	5	5	5	
A06	Platygyra carnosus	1600	0,0	1, 1 🛦	0,0	0,0	0	0	0	0	0	0	0	0	
A07	Favia rotumana	800	5,1	4,1▼	4,1▼	5,1	0	0	0	0	0	0	0	0	
A08	Platygyra carnosus	1000	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0	
A09	Platygyra carnosus	350	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0	
A10	Platygyra carnosus	700	0,0	2, 1 🛦	1, 1 🛦	2, 1 🛦	0	0	0	0	0	0	0	0	

Site 2

Code		Area (cm²)	Sedimentation (%, mm)				Bleaching (%)				Mortality (%)				
	Coral Species		Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	
B01	Platygyra carnosus	450	0,0	1,1 🛦	0,0	0,0	0	0	0	0	0	0	0	0	
B02	Plesiastrea versipora	300	0,0	0,0	0,0	0,0	0	0	0	0	0	1 🛦	1 🔺	1 🔺	
B03	Psammocora superficialis	1000	5, 1	5, 1	3,1▼	5,1	0	0	0	0	0	2 🔺	2 🔺	2 🔺	
B04	Favia speciosa	300	4, 1	4, 1	4, 1	4,1	0	0	0	0	0	0	0	0	
B05	Plesiastrea versipora	900	3, 1	2,1 ¥	1,1▼	1,1▼	0	0	0	0	0	0	0	0	
B06	Platygyra carnosus	600	0,0	5,1 🛦	2,1 🛦	3,1 🛦	0	0	0	0	0	0	0	0	
B07	Cyphastrea serailia	700	0,0	4,1 🛦	5,1 🛦	3,1 🛦	0	0	0	0	0	0	0	0	
B08	Plesiastrea versipora	1200	0,0	3, 1 🛦	1,1 🛦	3,1 🛦	0	0	0	0	0	0	0	0	
B09	Favites pentagona	600	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0	
B10	Favites pentagona	400	0,0	0,0	0,0	0,0	0	0	0	0	0	2 🔺	2 🔺	2 🔺	

Site 3															
		Area (cm²)	Sedimentation (%, mm)					Bleach	ing (%)		Mortality (%)				
Code	Coral Species		Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	
C01	Platygyra acuta	2000	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0	
C02	Platygyra carnosus	1000	0,0	0,0	0.0	0,0	0	0	0	0	0	2 🛦	2 🔺	2 🛦	
C03	Porites sp.	400	5,1	4,1▼	5,1	5,1	0	0	0	0	1	5 🔺	5 🔺	5 🔺	
C04	Cyphastrea serailia	600	4, 1	4, 1	4, 1	4,1	0	0	0	0	0	0	0	0	
C05	Pavona decussata	600	0,0	4,1▲	2, 1 🛦	2,1	0	0	0	0	0	0	0	0	
C06	Pavona decussata	1200	0,0	1,1 🛦	3, 1 🛦	2, 1 🛦	0	0	0	0	0	0	0	0	
C07	Montipora cf. turgescens	200	2, 1	2.1	2, 1	2,1	0	0	0	0	0	0	0	0	
C08	Favia favus	600	4, 1	2,1▼	4, 1	4, 1	0	0	0	0	4	4	4	4	
C09	Favites pentagona	150	1,1	2, 1 🛦	2, 1 🛦	1,1	0	0	0	0	0	5 🛦	5 🛦	5 🔺	
C10	Montipora peltiformis	300	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0	

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		Area (cm²)	Sedimentation (%, mm)				Bleach	ing (%)		Mortality (%)				
Code	Coral Species		Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09
E01	Goniopora stutchburyi	300	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0
E02	Goniopora stutchburyi	200	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0
E03	Goniopora stutchburyi	150	0,0	1, 1 🛦	2, 1 🛦	2,1 🛦	0	0	0	0	0	0	0	0
E04	Porites sp.	400	5,1	3,17	1,1▼	5,1	0	0	0	0	0	5 🔺	5 🛦	5 🛦
E05	Goniopora stutchburyi	300	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0
E06	Goniopora stutchburyi	450	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0
E07	Favia speciosa	600	10, 1	5,1▼	3,1▼	5,1▼	0	0	0	0	0	0	0	0
E08	Porites sp.	150	0,0	0,0	0,0	0,0	0	0	0	0	4	4	4	4
E09	Porites sp.	200	8, 1	5,1▼	3, 1 🔻	3,1▼	0	0	0	0	4	8 🔺	8 🛦	8 🛦
E10	Porites sp.	500	0,0	0,0	0,0	0,0	3	0	0	0	0	4 ▲	4 ▲	4 🛦
Site 5														
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	Coral Species	Area (cm²)	Sedimentation (%, mm)				Bleaching (%)				Mortality (%)			
Code			Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09
D01	Psammocora sp.	600	10, 1	3,1▼	4,1▼	5,1▼	0	0	0	0	0	2 🔺	2 🔺	2 🔺
D02	Montipora cf. turgescens	100	6, 1	4,1▼	2, 1▼	4,1▼	0	0	0	0	0	0	0	0
D03	Goniopora stutchburyi	400	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0
D04	Leptastrea pruinosa	500	4, 1	3,1 ¥	2,1 ▼	4,1	0	0	0	0	0	5 🔺	5 🔺	5 🔺
D05	Porites sp.	400	5,1	5,1	5,1	5,1	1	0	0	0	4	4	4	4
D06	Plesiastrea versipora	1000	0,0	7,1 🛦	5,1 🛦	5,1 🛦	0	0	0	0	5	5	5	5
D07	Leptastrea pruinosa	800	0,0	2,1 🛦	0,0	0,0	0	0	0	0	0	0	0	0
D08	Plesiastrea versipora	100	0,0	4,1 🛦	2, 1 🛦	5,1 🛦	0	0	0	0	0	0	0	0
D09	Lentastrea pruinosa	150	5,1	5,1	5,1	5,1	0	0	0	0	0	0	0	0
D10	Montinova of Jurgescens	200	0.0	514	0.0	0.0	0	0	0	0	0	0	0	0

Control Site C

			Sedimentation (%, mm)				Bleaching (%)				Mortality (%)			
Code	Coral Species	Area (cm²)	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09	Apr 07 (baseline)	10 Nov 08	08 Feb 09	09 May 09
F01	Favia speciosa	900	0,0	5,1 🛦	3,1 🛦	5,1 🛦	0	0	0	0	0	0	0	0
F02	Favites pentagona	1000	4, 1	6, 1 🛦	2, 1▼	3,1▼	0	0	0	0	0	3 🔺	3 🛦	3 🛦
F03	Favites pentagona	800	0,0	4,1 🛦	2, 1 🔺	2,1 🛦	0	0	0	0	0	2 🔺	8 🛦	8 🔺
F04	Porites sp.	800	5,1	7,1 🛦	5,1	5,1	4	0 🗸	0 🗸	0▼	4	5 🔺	5 🔺	5 🛦
F05	Cyphastrea serailia	800	4,1	3,1▼	3,1♥	4, 1	0	0	0	0	1	1	6 🛦	6 🔺
F06	Psammocora sp.	1800	0,0	5,1 🛦	5,1 🔺	7,1 🛦	0	0	0	0	0	5 🛦	5 🛦	5 🔺
F07	Plesiastrea versipora	3000	0,0	0,0	0,0	0,0	0	0	0	0	0	2 🛦	2▲	2 🛦
F08a	Favia speciosa	150	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0
F08b	Goniastrea favulus	300	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0
F09	Favites pentagona	1800	10, 1	5,1 ▼	6,1 🔻	5,1 ▼	0	0	0	0	0	3 🛦	12 🔺	12 🔺
F10	Platygyra carnosus	2800	0,0	0,0	0,0	0,0	0	0	0	0	0	0	0	0

In the monitoring surveys conducted in May 2009, sedimentation on the tagged colonies from all the 5 Monitoring Sites 1 to 5 and the Control Site C increased by 2 to 7% (total 14 colonies with 3 from the Control Site C) and deceased by 1 to 5% (total 8 colonies with 2 from the Control Site C) when compared with the Initial Survey conducted on 7 to 12 April 2007. There was no blenching in all the 5 monitoring Sites and the Control Site C. Partial mortality increased in 21 colonies by 1 to 12% with 7 from the Control Site C.

In all the 5 Monitoring Sites and 1 control site, level of sedimentation on the tagged corals varied within a small range (\leq 10%) without an observable trend. The variation was believed to be resulted from combined environmental factors such as monsoonal wind, tidal current, peripheral transports, substratum type, etc. The low level of increment in bleaching and partial mortality suggested minor adverse effect was caused by the observed sedimentation.

The data from this monitoring survey showed no significant enhancement in sedimentation, bleached or mortality in all the 5 monitoring sites 1 to 5 when compared with the Control Site C. Hence, no adverse impact by the construction activity on the coral community was evidenced.

Results for June 2009

No impact coral monitoring was conducted within June 2009. It was because the monitoring frequency was changed to quarterly until the end of construction works as recommended in approved EM&A Manual. The next scheduled monitoring should be in August 2009.

Figure 1.1 Management Organization















