

Chun Wo Construction &
Engineering Co Ltd

**Contract No HY/2005/06
Castle Peak Road
Improvement – West of
Tsing Lung Tau**

Quarterly Environmental
Monitoring and Audit
Summary Report for
Reclamation Works (EP
No EP-219/2005) – June
to August 2006

Second Issue

Chun Wo Construction &
Engineering Co Ltd

**Contract No HY/2005/06
Castle Peak Road
Improvement – West of
Tsing Lung Tau**

Quarterly Environmental
Monitoring and Audit
Summary Report for
Reclamation Works (EP
No EP-219/2005) – June
to August 2006

September 2006

This report takes into account the particular
instructions and requirements of our client.
It is not intended for and should not be relied
upon by any third party and no responsibility
is undertaken to any third party

Ove Arup & Partners Hong Kong Ltd

Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong, Kowloon, Hong Kong
Tel +852 2528 3031 Fax +852 2268
www.arup.com

Job number 24583

Maunsell Environmental Management Consultants Ltd

11/F Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, N.T., Hong Kong

茂盛環境管理顧問有限公司

香港新界沙田鄉事會路 138 號新城市中央廣場 2 座 11 樓

T +852 2893 1551 F +852 2891 0305 www.maunsell.aecom.com

Your Ref.: --

Our Ref.: S001-06/c/cwhy609222

By Fax (2417 0134) and PostMeinhardt Halcrow JV
4/F., Wah Ming Centre,
421 Queen's Road West,
Hong KongAttn : Mr. Michael S Harfoot

22 September 2006

Dear Sir,

Contract No. HY/2005/06**Castle Peak Road Improvement – West of Tsing Lung Tau****Quarterly EM&A Summary Report for Reclamation Works (EP No. EP-219/2005) – June to August 2006**

We refer to the Quarterly EM&A Summary Report for Reclamation Works (EP No. EP-219/2005) – June to August 2006 received via emails on 21 September 2006 from Ove Arup & Partners Hong Kong Ltd., the Environmental Team (ET) of Castle Peak Road Improvement – West of Tsing Lung Tau (Remaining Contract).

Having addressed the IEC's comment on 22 September 2006, the Quarterly EM&A Summary Report for Reclamation Works (EP No. EP-219/2005) – June to August 2006 is verified to be acceptable for onward submission to the Engineer, HyD, EPD and AFCD.

Should you have any inquiry or comment, please do not hesitate to contact the undersigned or our Miss Connie Wong at 3105 8530.

Yours faithfully

for and on behalf of

**Maunsell Environmental
Management Consultants Ltd**


Y T Tang

Independent Environmental Checker

cc	MHJV	-	Mr. Simon Illingworth	(Fax: 2559 1613)
	Arup	-	Mr. Sam Tsoi / Mr. Fredrick Leong	(Fax: 2268 3950)

Job title	Contract No HY/2005/06 Castle Peak Road Improvement – West of Tsing Lung Tau	Job number	24583
-----------	--	------------	-------

Document title	Quarterly Environmental Monitoring and Audit Summary Report for Reclamation Works (EP No EP-219/2005) – June to August 2006	File reference	
----------------	---	----------------	--

Document ref

Revision	Date	Filename	15-Jun06-Aug06(Reclamation).doc		
First Issue	20/09/06	Description	Submit to IEC for comments		
			Prepared by	Checked by	Approved by
		Name	Raymond Liu	Fredrick Leong	Sam Tsoi
		Signature			
Second Issue	22/09/06	Filename	15-Jun06-Aug06(Reclamation)-RevA.doc		
		Description	Submit to ER with IEC's verification letter		
			Prepared by	Checked by	Approved by
		Name	Raymond Liu	Fredrick Leong	Sam Tsoi
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			

Issue Document Verification with Document

Contents

	Page
Executive Summary	i
1 Introduction	1
1.1 Project Background	1
1.2 Project Organisation	1
1.3 Purpose of the Report	2
2 Scope of Construction Works	2
2.1 Construction Programme	2
2.2 Construction Activities of the Quarter	2
3 Summary of EM&A Requirements	2
3.1 Performance Limits and Event and Action Plan	2
3.2 Site Inspection and Environmental Complaint Handling	6
4 Noise Monitoring	7
4.1 Occupancy Status of Grand Bay Villa	7
5 Marine Water Quality Monitoring	7
5.1 Summary of Results	7
6 Implementation Status on Environmental Protection Requirements	8
7 Quarterly Summary, Environmental Complaint and Non-compliance Record	8
7.1 Summary of Waste Disposal	8
7.2 Complaint Record	8
7.3 Summary of Exceedance	8
7.4 Notification of Summons and Successful Prosecution	9
7.5 Environmental Licenses	10
8 Comments, Recommendation and Conclusion	10
8.1 Comments and Recommendations	10
8.2 Conclusion	10
9 References	11

Tables

- Table 1-1: Contact Information of Key Personnel
- Table 3-1: Action and Limit Levels of construction noise
- Table 3-2: Action and Limit Levels of marine water quality established in Baseline Monitoring Report #
- Table 3-3: Marine water quality data obtained in the baseline check on 27 February 2006
- Table 7-1: Waste disposal quantity during the reporting period
- Table 7-2: Summary of exceedances of marine water quality monitoring not related to construction works from June to August 2006.
- Table 7-4: Comparison of quarterly mean and 130% of the baseline mean
- Table 7-5: Summary of valid environmental licences during the reporting period

Appendices

Appendix A	Project Location Plan
Appendix B	Project Organisation Chart
Appendix C	Construction programme
Appendix D	Summary of EM&A Requirements
Appendix E	Event and Action Plan
Appendix F	Complaint Procedures
Appendix G	Graphical Presentation of marine Water Monitoring Results
Appendix H	Implementation Status on Environmental Protection Requirements
Appendix I	Investigation Summary on Marine Water Quality Exceedances
Appendix J	Statistical Analysis of SS Monitoring Data

Executive Summary

This is the second quarterly environmental monitoring and audit (EM&A) summary report presenting the progress of environmental monitoring and audit works for the reporting period between June and August 2006. Noise monitoring at Grand Bay Villa was temporarily suspended as the premises were vacant with no resident. Marine water monitoring and weekly environmental site audit were carried out during the reporting period.

Marine Water Quality

Impact marine water quality monitoring was conducted during mid-ebb and mid-flood tidal cycles at 10 designated locations including 5 impact and 5 control stations. A baseline check was conducted on 27 February 2006 prior to the commencement of marine works and a compliance checking mechanism was established in accordance with the criteria specified in Baseline Monitoring Report.

Summary of Mid-Ebb Tide

The lowest DO levels for surface & middle and bottom positions were 5.48 mg/L at WWFCZ1 on 28 June 2006 and 5.35 mg/L at WWA3 on 30 August 2006 respectively. There were no exceedances of DO levels during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level was 22.1 Nephelometric Turbidity Unit (NTU) at WWA3 on 9 June 2006. There were 14 exceedances of Tby levels during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level was 25.8 mg/L at WWA3 on 9 June 2006. There were 18 exceedances of SS levels during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

Summary of Mid-Flood Tide

The lowest DO levels for surface & middle and bottom positions were 5.53 mg/L at WWFCZ1 on 28 June 2006 and 5.32 mg/L at WWA3 on 18 August 2006 respectively. There were no exceedances of DO levels during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level was 11.9 NTU at WWA3 on 9 June 2006. There were 2 exceedances of Tby levels during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level was 23.2 mg/L at WWA2 on 18 August 2006. There were 4 exceedances of SS levels during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

Waste Disposal

A total of 35 tonnes of Construction & Demolition (C&D) waste and 5,585 tonnes (2,925 tonnes transported by truck and 2,660 tonnes transported by barge) of C&D materials (Public Fill) were disposed of at WENT Landfills and Public Filling Area in Tuen Mun respectively during the reporting period. The CT commenced to transport the dredged material by barge on 24 May 2006. No chemical waste was disposed of during the reporting period.

Complaint Records

No environmental complaint was received during the reporting period.

Exceedance

There were no exceedances for noise monitoring during the reporting period. However, there were 38 exceedances of marine water quality monitoring during the reporting period. After ET's investigation, all the exceedances were likely due to natural variation of ambient marine water and unlikely due to the construction activities of the Project.

Notification of Summons and Successful Prosecution

No notification of summon and prosecution was received during the reporting period.

Environmental Licences

Two Construction Noise Permits were granted during the reporting period.

1 Introduction

Ove Arup & Partners Hong Kong Limited (Arup) was appointed by the Contractor (CT) – Chun Wo Construction & Engineering Co. Ltd as the Environmental Team (ET) for *Contract No. HY/2005/06 Castle Peak Road Improvements – West of Tsing Lung Tau* (hereafter called the “Project”). The reclamation at west of Tsing Lung Tau is covered by an Environmental Permit (EP) No. EP-219/2005 issued in June 2005 with reference to Section 6 of the Technical Memorandum on Environmental Impact Assessment Ordinance (TM-EIAO). The EP was issued following the approval of the application to apply directly for an EP based upon the Project Profile. In accordance with the EM&A Manual, environmental monitoring for construction noise and marine water quality will be required during the construction and operational phases. The construction phase of the Project commenced on 28 February 2006.

1.1 Project Background

The Castle Peak Road (CPR) Improvement works consist of upgrading the existing CPR to provide a dual two-lane carriageway of “Rural Road A” classification between Area 2 (Tsuen Wan) and Ka Loon Tsuen. The CPR Improvement project is divided into three contracts, namely HY/99/18 (West Contract), HY/99/19 (Middle Contract) and HY/2000/02 (East Contract).

Prior to inviting tenders for Contract No. HY/99/18, a section of the proposed works, between Ch.1+800 and Ch.2+240, west of Tsing Lung Tau, was excised from the Project and entrusted to the Route 10 – North Lantau to Yuen Long Highway project. This 440m long section of CPR was located under the proposed Route 10 suspension bridge, and was to form part of the works area for the Route 10 project. The Route 10 project team revised the alignment of this section of CPR accordingly to suit the arrangement of the Route 10 suspension bridge.

Following subsequent developments, the Route 10 project was placed under review, and Government therefore decided to implement the excised section of CPR (the Remaining Project) under the original CPR Improvement project. The site location plan **Appendix A** is shown in **Appendix A**.

Additional reclamation (0.58 ha) at west of Tsing Lung Tau is required to support part of the remaining section of road improvement works and the additional reclamation works constitutes a material change to the reclamation works at Tsing Lung Tau.

The scope of the construction works covered by this Project is summarised as follows:

- The area of reclamation to the east of Grand Bay Villa is about 0.12 ha. The length of this part of the reclamation, measured parallel to the road, is about 107 m, and the maximum width, measured from the existing High Water Mark (HWM) to the proposed toe of the scour apron is about 16 m, of which about 13 m is sloping revetment;
- The area of reclamation west of Grand Bay Villa is about 0.46 ha. The length of this part of the reclamation, measured parallel to the road, is about 172 m, and the maximum width, measured from the existing High Water Mark (HWM) to the proposed toe of the scour apron is about 38 m, of which about 15 m is sloping revetment.

1.2 Project Organisation

The project organisation chart for environmental management is shown in **Appendix B**. The key personnel contact names and numbers are summarised in **Table 1-1**. The duties of respective parties are listed in Section 1.9 of the EM&A Manual.

Table 1-1: Contact Information of Key Personnel

Organisation	Name	Telephone
Highway Department	Mr WK Lee	Tel: 2762 3570
Environmental Protection Department	Mr Steve Li	Tel: 2835 1142
Engineer's Representative (MHJV)	Mr Jeff Yu	Tel: 2417 3820
Independent Environmental Checker (MEMCL)	Mr YT Tang	Tel: 3105 8537
Contractor (Chun Wo)	Mr Simon Wong	Tel: 2491 1214
ET Leader (Arup)	Mr Sam Tsoi	Tel: 2268 3211

1.3 Purpose of the Report

The purpose of the quarterly EM&A summary report is to provide the information on monitoring methodology, monitoring results, environmental permit status, site audit findings, recommendations and conclusions for the scope of impact EM&A specified under EP No. EP-219/2005.

This is the second quarterly EM&A summary report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the noise, marine water quality and environmental site audit from June to August 2006.

2 Scope of Construction Works

2.1 Construction Programme

The construction work was commenced on 28 February 2006. An up-to-date construction programme is attached in **Appendix C**.

2.2 Construction Activities of the Quarter

The major construction activities carried out by CT during the reporting period included:

- Placement of armour rock at Seawall A;
- Construction of lower RC retaining wall at Seawall A;
- Placement of rockfill at Seawall A;
- Construction of RC retaining wall at Seawall B; and
- Backfilling at Seawall B.

3 Summary of EM&A Requirements

The impact environmental monitoring and audit for the Project included noise, marine water quality and environmental site audit. The monitoring parameters, frequency and locations are shown in **Appendix D**.

3.1 Performance Limits and Event and Action Plan

The monitoring results will be checked against appropriate standards and requirements. A two-tier system performance limits have been established in the Project specific EM&A Manual. The "Action Level" and the "Limit Level" (A/L) are established according to the EPD

requirements. The ET, ER, IEC, and CT will take corresponding action in accordance with the Event-Action Plans if the monitoring results exceed the performance limits.

3.1.1 Construction Noise

The A/L Levels for the construction noise have been established during the baseline monitoring as summarised in **Table 3-1**.

Table 3-1: Action and Limit Levels of construction noise

Time Period	Action Level	Limit Level
0700 - 1900 hours on any day not being a Sunday or public holiday	When one documented complaint is received	75dB(A)

The action required to be taken by different parties in case of occurrence of exceedances of A/L Levels and summarised in the Event and Action Plan in **Appendix E**.

3.1.2 Marine Water Quality

Based on the baseline water quality monitoring data obtained. The A/L levels established using the baseline marine water quality monitoring data are shown in **Table 3-2**. If the water quality monitoring results at any impact stations exceeded the criteria, the actions in accordance with the Event-Action Plan in **Appendix E** should be carried out.

As the baseline monitoring was conducted in September to October 2005, the established A/L Levels will be more representative to the marine water quality during summer months. To cope with any potential variation of baseline levels due to change in weather conditions, baseline check will be conducted in bi-annual basis in order to update any variation of the baseline water quality at the monitoring locations.

The first baseline check was conducted on 27 February 2006 prior to the commencement of marine works and the updated marine water quality monitoring data were summarised in **Table 3-3**. Compliance assessment for future impact monitoring data will be made against the updated baseline check criteria as follows:

- Tier 1 - Comparison of water quality monitoring data at Impact Stations with the A/L Levels (**Table 3-2**) established in the Baseline Monitoring Report. If the data comply with A/L Levels, go to Tier 2. Otherwise, non-compliance will be reported and Event and Action Plan will be triggered.
- Tier 2 - Comparison of water quality monitoring data at Impact Stations with the Baseline Check Level (80% of average values of baseline check data collected at 10 monitoring locations for DO and 120% of average values of baseline check data collected at 10 monitoring locations for Tby and SS) (**Table 3-3**). If the impact water quality is better than Baseline Check Level, compliance will be reported. Otherwise, go to Tier 3.
- Tier 3 - Comparison of water quality monitoring data at Impact Stations with the respective Control Stations. If the impact water quality is better than the respective Control Station, compliance will be reported. Otherwise, non-compliance will be reported and Event and Action Plan will be triggered for implementation of action based on exceedance of Action Level.

Table 3-2: Action and Limit Levels of marine water quality established in Baseline Monitoring Report #

Parameters		Monitoring locations									
		WWA1		WWA2		WWA3		WWFCZ1		WWFCZ2	
		Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
Mid-ebb											
DO (mg/L)	Surface & middle	3.5	3.5	3.5	3.4	3.4	3.3	5.0 *	5.0	5.0 *	5.0
	Bottom	3.4	3.4	3.4	3.3	3.4	3.2	3.7	2.0	3.6	2.0
Tby (NTU)		7.4	7.7	6.7	6.9	7.8	8.3	6.4	8.6	6.7	7.0
SS (mg/L)		25.3	26.0	22.2	23.1	24.6	25.2	26.3	30.3	22.6	22.9
Mid-flood											
DO (mg/L)	Surface & middle	3.3	3.3	3.4	3.3	3.5	3.3	5.0 *	5.0	5.0 *	5.0
	Bottom	3.2	3.2	3.2	3.2	3.2	3.2	3.3	2.0	3.5	2.0
Tby (NTU)		6.9	7.2	7.6	8.2	8.7	10.7	7.4	11.0	5.9	6.5
SS (mg/L)		24.1	24.3	23.5	23.6	22.3	23.5	24.4	25.8	27.4	28.0

Notes:

Action and Limit Level for marine water quality were extracted from Baseline Monitoring Report, January 2006.

* Based on the criteria in Table 4-6 of Baseline Monitoring Report, the originally established action levels of DO for fish culture zone at surface & middle level were all below the 5.0 mg/L.

Table 3-3: Marine water quality data obtained in the baseline check on 27 February 2006

Parameters		Monitoring locations				
		WWA1	WWA2	WWA3	WWFCZ1	WWFCZ2
Mid-ebb						
DO (mg/L)	Surface & middle	5.4	5.4	5.4	5.4	5.4
	Bottom	5.4	5.4	5.4	5.4	5.4
Tby (NTU)		6.5	6.5	6.5	6.5	6.5
SS (mg/L)		13.0	13.0	13.0	13.0	13.0
Mid-flood						
DO (mg/L)	Surface & middle	5.3	5.3	5.3	5.3	5.3
	Bottom	5.3	5.3	5.3	5.3	5.3
Tby (NTU)		6.6	6.6	6.6	6.6	6.6
SS (mg/L)		17.0	17.0	17.0	17.0	17.0

3.2 Site Inspection and Environmental Complaint Handling

3.2.1 Site Inspection Frequency and Areas Covered

Regular site inspections will be carried out on a weekly basis. The areas of inspection cover the different environmental impacts, such as air, noise, water and waste, and their pollution controls and mitigation measures for both within and outside the site area.

Ad hoc site inspection will be carried out if significant environmental non-compliance is identified. Inspections may also be carried out subsequent to receipt of any environmental complaints, or as part of the investigation work, as specified in the Event and Action Plans.

3.2.2 Environmental Complaints

A 24-hour complaint hotline at 6277 7465 has been established for the Project. In accordance with the EM&A Manual, environmental complaints will be referred to the ET for initiation of the complaint investigation procedures. The ET will undertake the following procedures upon receipt of complaints:

During the complaint investigation work undertaken by the ET, the CT and ER should cooperate with the ET on providing all the necessary information and assistance for completion of the investigation. If mitigation measures are identified as necessary after the investigation, the CT should promptly carry out the required mitigation to the satisfaction of ET. The ER should ensure that the CT has carried out such identified measures.

A flow chart of the complaint response procedures is shown in **Appendix F** for reference.

4 Noise Monitoring

4.1 Occupancy Status of Grand Bay Villa

In the reporting period, Grand Bay Villa (WN5) was vacant with no resident and noise monitoring was temporarily suspended.

5 Marine Water Quality Monitoring

5.1 Summary of Results

Impact marine water quality monitoring was undertaken during mid-ebb and mid-flood tidal cycles at 10 designated locations including 5 impact and 5 control stations. A baseline check was conducted on 27 February 2006 prior to the commencement of marine works and a compliance checking mechanism was established in accordance with the Baseline Monitoring Report. Graphical presentation of the monitoring results are illustrated in **Appendix G**.

5.1.1 Summary of Mid-Ebb Tide

The lowest DO levels for surface & middle and bottom positions were 5.48 mg/L at WWFCZ1 on 28 June 2006 and 5.35 mg/L at WWA3 on 30 August 2006 respectively. There were no exceedances of DO levels during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level was 22.1 Nephelometric Turbidity Unit (NTU) at WWA3 on 9 June 2006. There were 14 exceedances of Tby levels during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level was 25.8 mg/L at WWA3 on 9 June 2006. There were 18 exceedances of SS levels during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

5.1.2 Summary of Mid-Flood Tide

The lowest DO levels for surface & middle and bottom positions were 5.53 mg/L at WWFCZ1 on 28 June 2006 and 5.32 mg/L at WWA3 on 18 August 2006 respectively. There were no exceedances of DO levels during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level was 11.9 NTU at WWA3 on 9 June 2006. There were 2 exceedances of Tby levels during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level was 23.2 mg/L at WWA2 on 18 August 2006. There were 4 exceedances of SS levels during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

6 Implementation Status on Environmental Protection Requirements

The CT had implemented various environmental mitigation measures as stipulated in the EIA Report and EM&A Manual. The implementation status of environmental mitigation measures during the reporting period is summarized in **Appendix H**.

7 Quarterly Summary, Environmental Complaint and Non-compliance Record

7.1 Summary of Waste Disposal

Disposal of waste material during the reporting period generally complied with the corresponding waste disposal requirements. The waste disposal quantity during the reporting period is summarised in **Table 7-1**.

Table 7-1: Waste disposal quantity during the reporting period

Type of waste or material	Disposal at	No. of loads or quantities
C&D waste	WENT Landfill	35 tonnes
C&D material	By truck	2,925 tonnes
	By barge	2,660 tonnes
Chemical waste	Collected by licensed collector	0

In accordance with the Project Profile “Castle Peak Road Improvement between Area 2 and Ka Loon Tsuen, Tsuen Wan, Remaining Works Contract, Construction of Reclamation West of Tsing Lung Tau”, all dredged material will be transported by trucks to Public Fill Reception Facility (PFRF) at Tuen Mun Area 38 for ultimate reuse by alternative projects. As the depth of marine water near the reclamation site is found to be sufficient for barges to manoeuvre, the CT proposed to deliver the dredged material by barge to the PFRF. It will reduce the double handling of dredged material to the seashore and then to trucks by backhoe. EPD agreed with the CT’s proposal on 18 May 2006 via e-mail. The CT commenced to transport the dredged material by barge on 24 May 2006.

7.2 Complaint Record

There was no environmental complaint received during the reporting period.

7.3 Summary of Exceedance

There were no exceedances for noise monitoring during the reporting period.

However, there were 38 exceedances of marine water quality monitoring during the reporting period. After ET’s investigation, all the exceedances were likely due to natural variation of ambient marine water and unlikely due to the construction activities of the Project. The exceedances are summarized in the **Tables 7-2**.

Table 7-2: Summary of exceedances of marine water quality monitoring not related to construction works from June to August 2006.

Tide	Month	Number of exceedances									Total
		DO (mg/L)			Tby (NTU)			SS (mg/L)			
		Baseline Check	Action Level	Limit Level	Baseline Check	Action Level	Limit Level	Baseline Check	Action Level	Limit Level	
Mid-Ebb	Jun	0	0	0	0	1	4	4	0	1	10
	Jul	0	0	0	1	3	4	1	0	0	9
	Aug	0	0	0	0	0	1	12	0	0	13
Mid-flood	Jun	0	0	0	1	0	1	0	1	0	3
	Jul	0	0	0	0	0	0	0	0	0	0
	Aug	0	0	0	0	0	0	3	0	0	3
Total		0	0	0	2	4	10	20	1	1	38

Although the exceedances were not related to the construction works of the project, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.

A comparison between the quarterly mean of SS and the 1.3 times the baseline mean was conducted for each monitoring station and the results are shown in **Table 7-4**. The quarterly mean of SS monitoring data collected in the reporting period was lower than 1.3 times of the baseline mean at both mid-ebb and mid-flood tides. The statistical analysis results are given in **Appendix J**.

Table 7-4: Comparison of quarterly mean and 130% of the baseline mean

Monitoring Station		Mid-ebb		Mid-flood	
		130% Baseline Mean	Quarterly Mean	130% Baseline Mean	Quarterly Mean
Impact Station	WWA1	22.1	8.1	20.9	8.6
	WWA2	24.8	8.8	21.6	8.6
	WWA3	22.5	8.8	22.6	9.2
	WWFCZ1	24.6	7.7	21.6	8.4
	WWFCZ2	22.7	8.3	22.8	8.8
Control Station	WRA1	22.2	8.6	23.1	7.9
	WRA2	22.5	8.1	23.2	8.0
	WRA3	22.8	8.0	21.2	8.1
	WFCZR1	23.4	7.3	22.5	9.0
	WFCZR2	26.0	8.2	24.2	8.8

7.4 Notification of Summons and Successful Prosecution

No notification of summon and prosecution was received during the reporting period.

7.5 Environmental Licences

Two Construction Noise Permits (CNP) were granted during the reporting period. A summary of the valid environmental licences is given in **Table 7-5**.

Table 7-5: Summary of valid environmental licences during the reporting period

Type of Licence	Reference No.	Valid from	Valid to
Environmental Permit	EP-219/2005	20 Jun 2005	Not applicable
Registration of Chemical Waste Producer	5111-336-C2869-49	16 Feb 2006	Not applicable
Water Discharge Licence	EP-760/336/011348 I	31 Mar 2006	31 Mar 2011
Delivery of C&D Materials to PFRF at Tuen Mun Area 38 by Barge	Application No.: CEDD00087 Billing Account No.: 5005407	12 May 2006	15 Aug 2006
Construction Noise Permit	GW-RW0326-06	9 June 2006	8 December 2006
Construction Noise Permit	GW-RW0349-06	23 June 2006	22 December 2006

8 Comments, Recommendation and Conclusion

8.1 Comments and Recommendations

Regarding the air quality, haul roads within the site were observed dry and dusty and mud trails were observed on public road occasionally. The CT implemented mitigation measures upon requested by the ET. These included frequent watering of dry and dusty haul road and clearing of mud trails.

Accumulation of general refuse and C&D waste were occasionally observed by the ET. The CT cleared the waste upon requested by the ET. Oil drums were observed without drip tray. The CT was reminded to provide drip tray for oil drum and storage of oil in designated area.

Stagnant water was often observed within the construction site, but was cleared up immediately by the CT. The CT was also reminded to provide adequate drainage system for exposed/excavated areas prior to rainy season. Muddy water was observed occasionally discharged from bore piling site into nearby gullies. The CT mobilised workers to clear the muddy water and silt on public road immediately. The CT was also reminded to provide proper cover to exposed slope to prevent muddy water runoff.

The environmental monitoring methodologies and procedures were regularly reviewed by the ET. No modification to the existing EM&A programme was recommended.

8.2 Conclusion

The EM&A programme was implemented during the reporting period, including marine water quality monitoring and environmental site audits. The environmental performance of the Contractor during the reporting period was in general satisfactory. Upon advised by the ET, remedial measures had been taken to mitigate the environmental impacts caused by the construction activities. As a whole, EM&A programme had been well conducted in the reporting period.

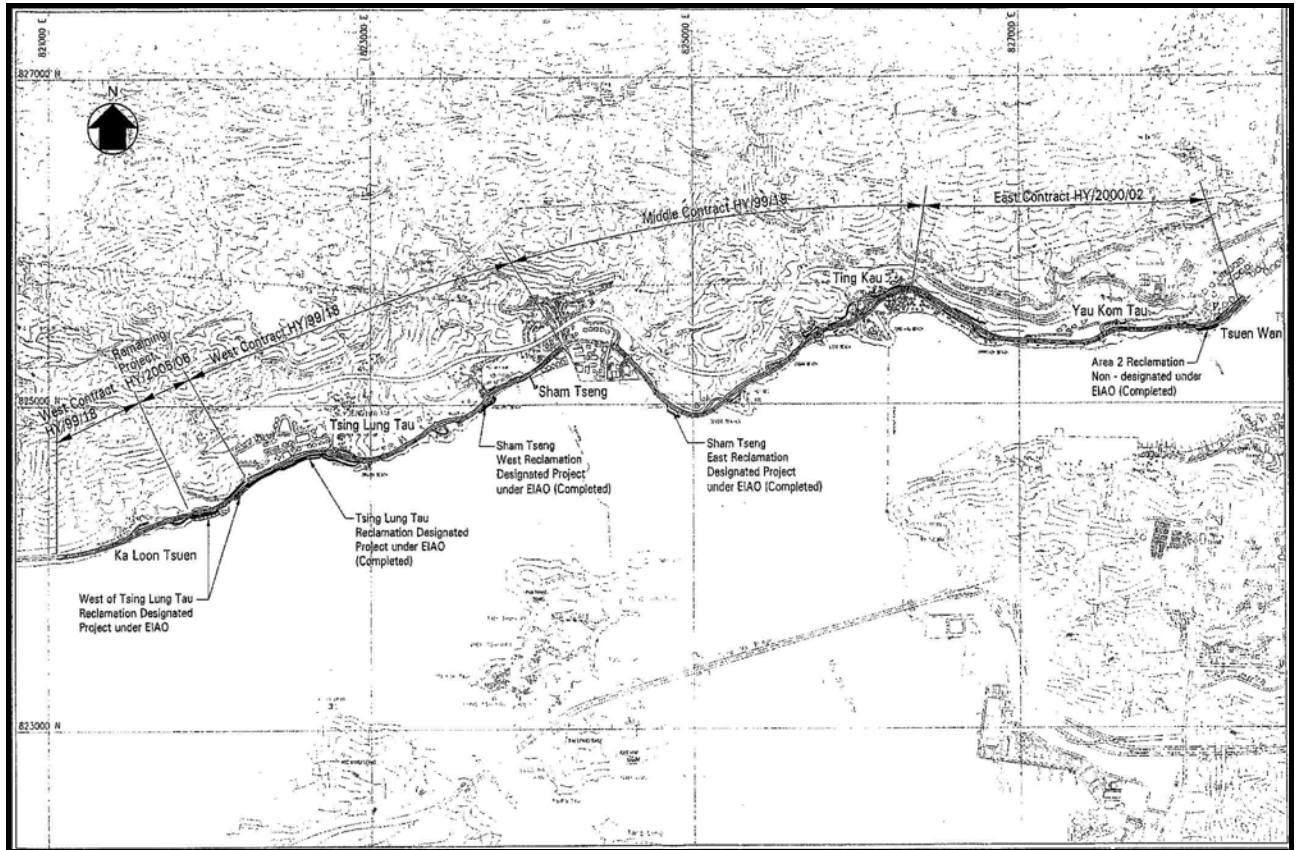
9 References

- [1] Mouchel Halcrow Joint Venture. January 2006. Supplementary Agreement No.1 – Remaining Project EM&A Manual for Construction of Reclamation West of Tsing Lung Tau.
- [2] Ove Arup & Partners Hong Kong Limited. January 2006. Castle Peak Road Improvement – West of Tsing Lung Tau. Contract No.HY2005/06.Environmental Baseline Monitoring Report (Second Issue)

Appendix A

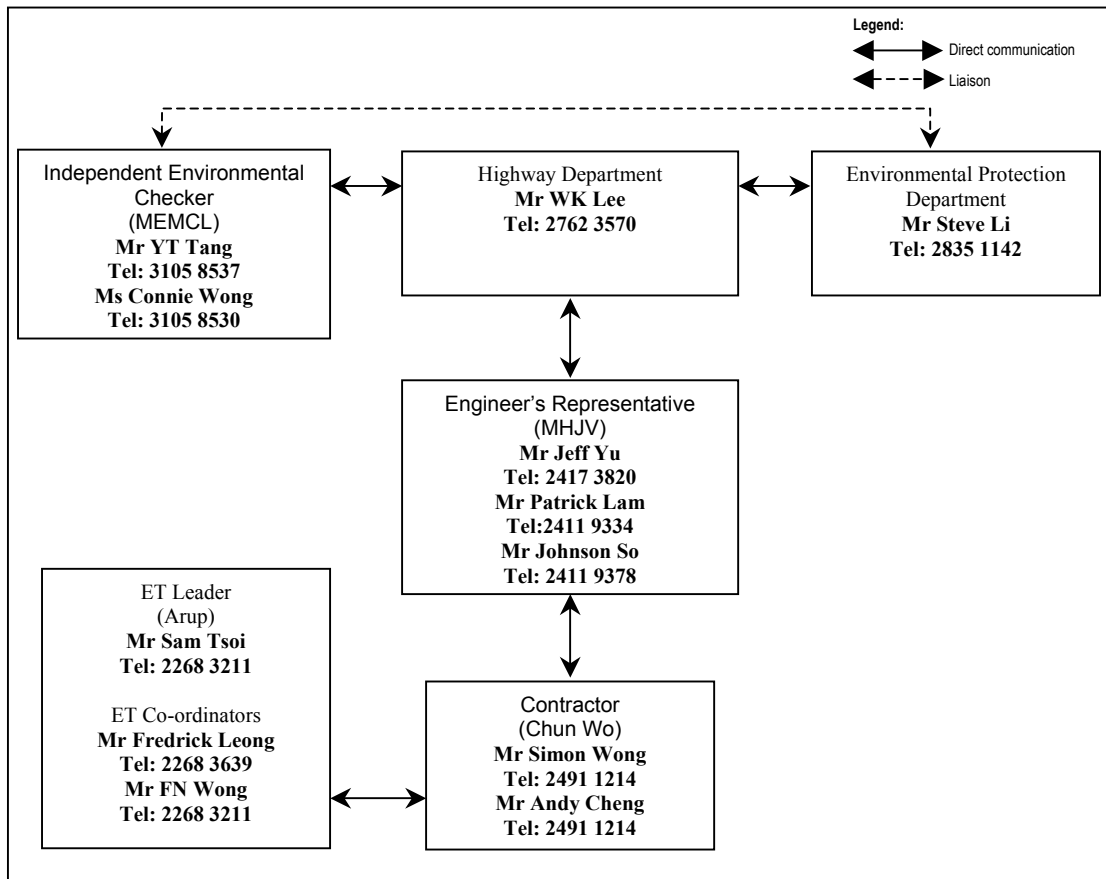
Project Location Plan

Project location plan



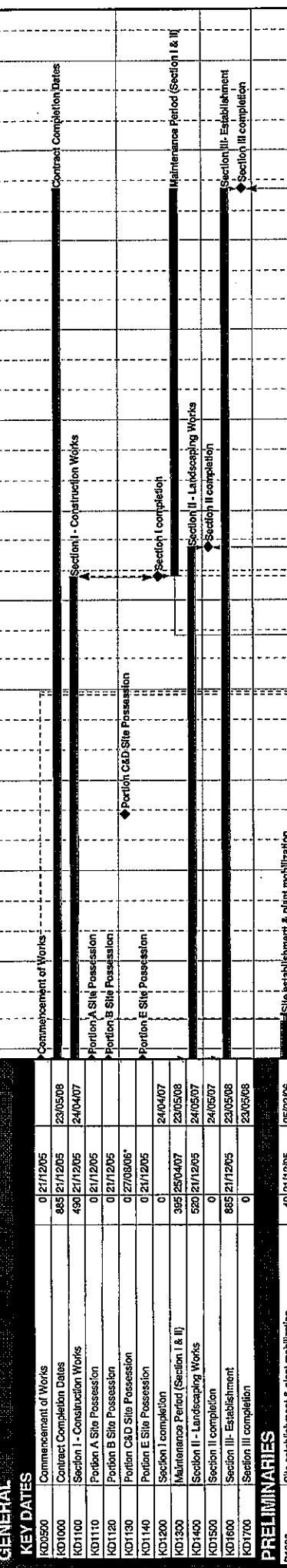
Appendix B
**Project Organisation
Chart**

Project Organisation



Appendix C
**Construction
Programme**

Activity ID	Activity Description	Orig. Dur.	Early Start	Early Finish
-------------	----------------------	------------	-------------	--------------



Activity ID	Activity Description	Orig. Dur.	Early Start	Early Finish
KD0500	Commencement of Works	0	2/12/05	2/30/05
KD1000	Contract Completion Dates	885	2/12/05	2/30/05
KD1100	Section I - Construction Works	490	2/12/05	2/24/07
KD1110	Portion A Site Possession	0	2/12/05	2/12/05
KD1120	Portion B Site Possession	0	2/12/05	2/12/05
KD1130	Portion C&D Site Possession	0	2/12/05	2/12/05
KD1140	Portion E Site Possession	0	2/12/05	2/12/05
KD1200	Section I completion	0	2/24/07	2/24/07
KD1300	Maintenance Period (Section I & II)	395	2/24/07	2/30/08
KD1400	Section II - Landscaping Works	520	2/12/05	2/24/07
KD1500	Section II completion	0	2/24/07	2/24/07
KD1600	Section III - Establishment	885	2/12/05	2/30/08
KD1700	Section III completion	0	2/30/08	2/30/08
P1000	Site establishment & plant mobilization	40	2/12/05	05/02/06
P1010	Submit TTM Schematic Drawing (PS1-15S(16))	0	3/10/06	3/10/06

PRELIMINARIES				
Activity ID	Activity Description	Orig. Dur.	Early Start	Early Finish
AP0010	Alternative Study and Discussion with Hyd	35	18/01/06*	04/03/06
AP0110	Preliminary Design	15	18/02/06	04/03/06
AP0210	Engineer's In-Principle Endorsement	25	08/03/06	03/04/06
AP0310	Circulation & AIP Approval	45	04/04/06	18/05/06
AP0410	Detailed Design	45	04/04/06	18/05/06
AP0510	Circulation, ICE Checking & DDA Approval	75	19/05/06	01/08/06
AP0610	Construction Drawings	11	02/08/06	14/08/06
AP0710	Purchasing of Steel Pipe for Socket H-Pile	60	15/08/06	25/10/06
Construction - West Side				
AP1000	Temporary Cut Slope (Ch 2025-2100)	50	29/05/06*	27/07/06
AP1010	Temp Slope Stabilisation (Soil Nails+ Spray conc)	50	15/07/06	11/09/06
AP1020	Excavation to Road Formation & Rock Cut	22	12/08/06	09/10/06
A04AP1024	Temporary Cut Slope (Ch 2075-2115)	30	28/09/06	04/11/06
A04AP1028	Excavation to Road Formation & Rock Cut	22	05/12/06	03/01/07
AP1100	Drilling Pre-Bored H-Pile (34nos) 2 Rigs	68	04/01/07	29/03/07
AP1140	Bot Capping Beam & RC Wall Construction	30	30/03/07	09/05/07
AP1150	Mass Concrete Wall Construct	30	30/03/07	09/05/07
AP1160	Slope Re-Installation Works & Top Capping Beam	22	10/05/07	01/06/07
AP1170	Wall Facing Panel Installation-U-Channel construc	40	22/05/07	06/07/07
Construction - East Side				
AP2000	Temporary Cut Slope (Ch 2125-2200)	50	22/05/06*	20/07/06
AP2010	Temp Slope Stabilisation (Soil Nails+ Spray conc)	50	08/07/06	04/09/06
AP2020	Excavation to Road Formation & Rock Cut	22	05/09/06	29/09/06
AP2030	Drilling Pre-Bored H-Pile (14 nos) 2 Rigs	28	30/09/06	04/11/06
AP2040	Bot Capping Beam & Bored Pile Wall Construct	30	05/11/06	09/12/06
AP2050	Temporary Cut Slope (Ch 2075-2125)	38	30/06/06	14/08/06
AP2060	Temp Slope Stabilisation (Soil Nails+ Spray conc)	50	15/08/06	13/10/06
AP2070	Excavation to Road Formation & Rock Cut	20	14/10/06	07/11/06
AP2080	Drilling Pre-Bored H-Pile (18 nos) 2 Rigs	32	06/11/06	14/12/06
AP2090	Bot Capping Beam & Bored Pile Wall Construct	30	15/12/06	23/01/07
AP2100	Mass Concrete Wall Construct	24	06/11/06	02/12/06
AP2110	Slope Re-Installation Works & Top Capping Beam	22	24/01/07	17/02/07
AP2120	Wall Facing Panel Installation-U-Channel construc	20	05/02/07	05/03/07

Start Date	3/11/2005
Finish Date	23/05/06
Data Date	21/12/05
Run Date	24/05/06 15:32

Early Bar	05/02/06 - 03/10/06
Progress Bar	04/03/06 - 27/07/06
Critical Activity	03/04/06 - 01/08/06

2005	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
2006	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
2007	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
2008	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Contract Completion Dates

Section I - Construction Works

Section II completion

Section III completion

Maintenance Period (Section I & II)

Section III Establishment

Section III completion

Site establishment & plant mobilization

Submit TTM Schematic Drawing (PS1-15S(16))

Alternative Study and Discussion with Hyd

Preliminary Design

Engineer's In-Principle Endorsement

Circulation & AIP Approval

Detailed Design

Circulation, ICE Checking & DDA Approval

Construction Drawings

Purchasing of Steel Pipe for Socket H-Pile

Temporary Cut Slope (Ch 2025-2100)

Temp Slope Stabilisation (Soil Nails+ Spray conc)

Excavation to Road Formation & Rock Cut

Temporary Cut Slope (Ch 2075-2115)

Temp Slope Stabilisation (Soil Nails+ Spray conc)

Excavation to Road Formation & Rock Cut

Drilling Pre-Bored H-Pile (34nos) 2 Rigs

Bot Capping Beam & RC Wall Construction

Mass Concrete Wall Construct

Slope Re-Installation Works & Top Capping Beam

Wall Facing Panel Installation-U-Channel construc

Temporary Cut Slope (Ch 2125-2200)

Temp Slope Stabilisation (Soil Nails+ Spray conc)

Excavation to Road Formation & Rock Cut

Drilling Pre-Bored H-Pile (14 nos) 2 Rigs

Bot Capping Beam & Bored Pile Wall Construct

Temporary Cut Slope (Ch 2075-2125)

Temp Slope Stabilisation (Soil Nails+ Spray conc)

Excavation to Road Formation & Rock Cut

Drilling Pre-Bored H-Pile (18 nos) 2 Rigs

Bot Capping Beam & Bored Pile Wall Construct

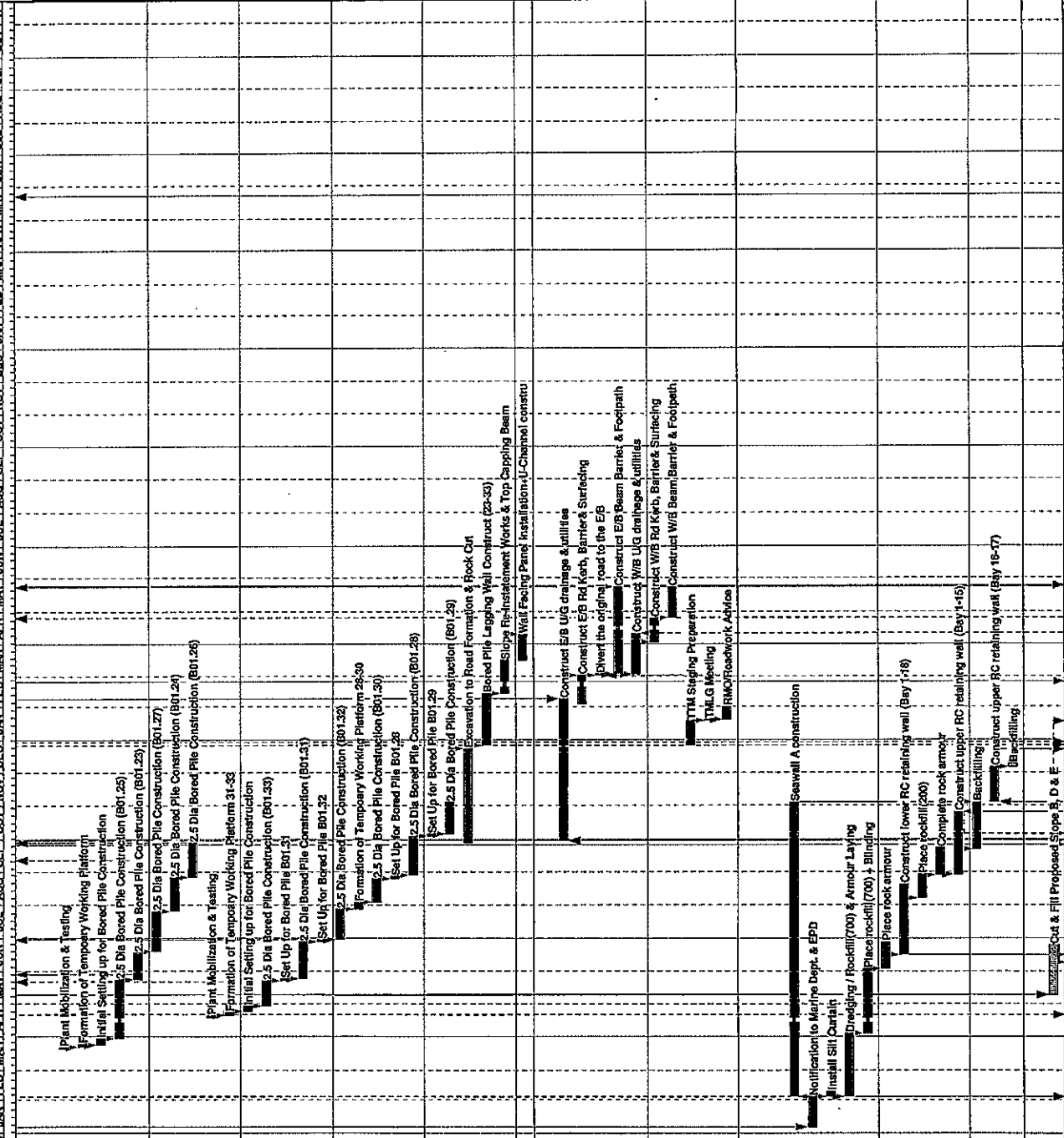
Mass Concrete Wall Construct

Slope Re-Installation Works & Top Capping Beam

Wall Facing Panel Installation-U-Channel construc

Chun Wo Construction & Eng. Co. Ltd	Contract No. HY2005/06	Casefile Peak Road Improvement West of Tsing Lung Tau
Initial Construction Prog Rev C	Sheet 1 of 4	

Drawn	Checked	Approved
21/12/05		
05/05/06	A. Khaled Popel	
04/05/06	B. Khalil Popel	
04/05/06	C. Khalil Popel	



Activity ID	Activity Description	Early Start	Early Finish
Bored Pile Retaining Wall Construction			
4BP3000	Bored Pile Construction - B01.23 - B01.33	2/20/03:06	21/03/06
4BP3001	Plant Mobilization & Testing	3/22/03:06	24/03/06
4BP3010	Formation of Temporary Working Platform	5/24/03:06	26/03/06
4BP3020	Initial Setting up for Bored Pile Construction	41/30/03:06	23/05/06
4BP3030	2.5 Dia Bored Pile Construction (B01.25)	21/24/05:06	17/08/08
4BP3040	2.5 Dia Bored Pile Construction (B01.23)	31/19/06:06	25/07/06
4BP3050	2.5 Dia Bored Pile Construction (B01.27)	27/26/07:06	27/09/06
4BP3060	2.5 Dia Bored Pile Construction (B01.26)	28/28/08:06	27/09/06
4BP3070	2.5 Dia Bored Pile Construction (B01.26)	2/18/04:06	22/04/06
4BP3080	Plant Mobilization & Testing	3/20/04:06	22/04/06
4BP3090	Formation of Temporary Working Platform 31-33	5/24/04:06	28/04/06
4BP3100	Initial Setting up for Bored Pile Construction	18/26/04:06	22/05/06
4BP3110	2.5 Dia Bored Pile Construction (B01.33)	2/23/05:06	24/05/06
4BP3115	Set Up for Bored Pile B01.31	28/25/05:06	27/06/06
4BP3120	2.5 Dia Bored Pile Construction (B01.31)	2/28/06:06	29/06/06
4BP3125	Set Up for Bored Pile B01.32	2/28/06:06	29/06/06
4BP3130	2.5 Dia Bored Pile Construction (B01.32)	5/30/06:06	27/07/06
4BP3131	Formation of Temporary Working Platform 28-30	5/28/07:06	02/09/06
4BP3132	2.5 Dia Bored Pile Construction (B01.30)	19/03/08:06	24/03/06
4BP3133	Set Up for Bored Pile B01.28	2/25/08:06	26/08/06
4BP3134	2.5 Dia Bored Pile Construction (B01.28)	31/28/08:06	03/10/06
4BP3135	Set Up for Bored Pile B01.29	2/04/10:06	05/10/06
4BP3136	2.5 Dia Bored Pile Construction (B01.29)	23/06/10:06	03/11/06
4BP3150	Excavation to Road Formation & Rock Cut	71/28/09:06	23/12/06
4BP3160	Bored Pile Lagging Wall Construct (23-33)	40/27/12:06	12/02/07
4BP3170	Slope Re-Installation Works & Top Capping Beam	22/13/02/07	15/03/07
4BP3180	Wall Facing Panel Installation-U-Channelled concrete	20/16/03/07	08/04/07
Roadworks Construction			
4RW4100	Construct E/B U/G drainage & utilities	105/30/09:06	07/09/07
4RW4110	Construct E/B Rd Kerb, Barrier & Surfacing	18/03/02/07	01/03/07
4RW4500	Divert the original road to the E/B	1/02/03/07	02/03/07
4RW4505	Construct E/B Beam Barrier & Footpath	85/03/03/07	22/03/07
4RW4600	Construct W/B U/G drainage & utilities	32/03/03/07	10/04/07
4RW4610	Construct W/B Rd Kerb, Barrier & Surfacing	15/03/04/07	24/04/07
4RW4615	Construct W/B Beam Barrier & Footpath	24/25/04/07	22/05/07
4RW4620	TTM Staging Preparation	19/27/12/06	18/01/07
4RW4630	TTM/G Meeting	1/18/01/07	19/01/07
4RW4640	RMO/Roadwork Advice	10/20/01/07	31/01/07
Area 3 Construction (Ch1-4825 to Ch2+050)			
Seawall A Construction			
3SWA0500	Seawall A construction	223/04/02/06	03/11/06
3SWA0600	Notification to Marine Dept. & EPD	28/07/01/06	03/02/06
AGS3WA100	Install Silt Curtain	4/04/02/06	08/02/06
3SWA1000	Dredging / Rockfill (700) & Armour Laying	50/04/02/06	03/04/06
3SWA1100	Place rockfill (700) & Blinding	45/04/04/06	02/06/06
3SWA1200	Place rock armour	21/03/06/06	27/06/06
3SWA1300	Construct lower RC retaining wall (Bay 1-18)	55/16/06/06	19/09/06
3SWA1400	Place rockfill (200)	20/07/08/06	29/08/06
3SWA1500	Complete rock armour	22/23/08/06	27/09/06
3SWA1600	Construct upper RC retaining wall (Bay 1-15)	47/30/08/06	25/10/06
3SWA1700	Backfilling	34/22/09/06	03/11/06
AGS3SWA0500	Construct upper RC retaining wall (Bay 16-17)	28/04/11/06	08/12/06
AGS3SWA0600	Backfilling	3/07/12/06	06/12/06
Slope Works			
3SW11000	Cut & Fill Proposed Slope B, D & E	40/08/05/06	24/06/06

Sheet 2 of 4

Chun Wo Construction & Eng. Co. Ltd
 Contract No. HY2005/06
 Castle Peak Road Improvement West of Tsing Lung Tau
 Initial Construction Prog Rev C

Start Date: 21/12/06
 Finish Date: 23/05/08
 Data Date: 21/12/06
 Run Date: 24/09/06 15:32

Scale Bar: 0 10 20 30 40 50 60 70 80 90 100
 Early Bar
 Progress Bar
 Critical Activity

Revision
 Date
 A. Initial Prog.
 B. Initial Prog.
 C. Final Prog.
 21/12/06
 23/05/08
 15/05/06

Checker
 Approved

Primavera Systems, Inc.

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
33W2000	Slope stabilisation works	40	09/06/06	28/07/06
Roadworks Construction				
3RW2100	Construct WB U/G drainage & utilities	64	06/10/06	22/12/06
3RW2110	Construct WB Rd Kerb, Barriers & Surfacing	18	23/12/06	16/01/07
3RW2500	Divert the original road to the WB	1	17/01/07	17/01/07
3RW2505	Construct WB Beam Barrier & Footpath	24	18/01/07	14/02/07
3RW2600	Construct E/B U/G drainage & utilities	56	18/01/07	29/03/07
3RW2605	Construct E/B Rd Kerb, Barriers & Surfacing	18	30/03/07	24/04/07
3RW2610	Construct E/B Beam Barrier & Footpath	24	25/04/07	23/05/07
3RW2620	T/M Staging Preparation	19	21/11/06	12/12/06
3RW2630	T/MLG Meeting	1	13/12/06	13/12/06
3RW2630	RMO/Roadwork Advice	10	14/12/06	28/12/06
A02RW0500	Construct Perm Drainage E/B for Temp Diversion	20	26/09/06	20/10/06
A03RW1000	Construct Temp Road (S-Turn) : Ch2-1000	10	21/10/06	02/11/06
A03RW2000	Divert the original road to the E/B	1	03/11/06	03/11/06
A03RW2500	T/M Staging Preparation	19	08/09/06	29/09/06
A03RW3000	T/MLG Meeting	1	30/09/06	30/09/06
A03RW3500	RMO/Roadwork Advice	10	03/10/06	14/10/06

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
Area 5 Construction (Ch2-150 to Ch2-300)				
Seawall B Construction				
25WB0500	Seawall B construction	182	04/02/06	13/09/06
A02SWB100	Install Silk Curtain	3	04/02/06	07/02/06
25WB1000	Dredging / Rockfill & Armour Laying (1st stage)	50	04/02/06	03/04/06
25WB1100	Place rockfill & Construct L-shaped Wall Footing	28	04/04/06	12/04/06
25WB1200	Place rock armour (2 stage)	14	13/05/06	26/05/06
25WB1300	Construct RC retaining wall (Bay 5-12)	54	30/05/06	02/09/06
25WB1400	Backfilling	28	27/07/06	28/09/06
25WB1500	Complete rock armour	14	28/08/06	13/09/06
A02SWB0500	Construct RC Retaining Wall (Bay 1-4)	28	09/11/06	11/12/06
A02SWB1000	Backfilling	10	12/12/06	23/12/06
A02SWB1100	Complete Rock Armour	5	27/12/06	02/01/07

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
Roadworks Construction				
2RW9000	Construct WB U/G drainage & utilities	63	21/10/06	08/01/07
2RW9010	Construct WB Rd Kerb, Barriers & Surfacing	18	30/12/06	20/01/07
2RW9500	Divert the original road to the WB	1	22/01/07	22/01/07
2RW9510	Construct WB Beam Barrier & Footpath	18	23/01/07	10/02/07
2RW9600	Construct E/B U/G drainage & utilities	62	23/01/07	11/04/07
2RW9610	Construct E/B Rd Kerb, Barriers & Surfacing	15	03/04/07	24/04/07
2RW9620	Construct E/B Beam Barrier & Footpath	18	25/04/07	16/05/07
2RW9700	T/M Staging Preparation	19	25/11/06	18/12/06
2RW9710	T/MLG Meeting	1	18/12/06	18/12/06
2RW9720	RMO/Roadwork Advice	10	15/12/06	03/01/07
A02RW0100	Approval of Temporary Diversion Scheme	50	06/02/06*	27/05/06
A02RW0500	Temporary Diversion of Water Main	30	29/05/06	04/07/06
A02RW1000	Construct Perm Drainage E/B for Temp Diversion	20	30/09/06	28/10/06
A02RW1100	Construct Temp Road (S-Turn) : Ch2-150	10	28/10/06	07/11/06
A02RW1200	Divert the original road to the E/B	1	08/11/06	08/11/06
A02RW1300	T/M Staging Preparation	18	13/09/06	08/10/06
A02RW1400	T/MLG Meeting	1	08/10/06	08/10/06
A02RW1500	RMO/Roadwork Advice	10	09/10/06	19/10/06

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
OUTFALL EA & EB CONSTRUCTION				
3OF1000	Lower section construction	95	16/06/06	06/10/06
3OF1100	Construct outlets	45	16/06/06*	03/08/06
3OF1200	Construct cascadés & pipes	58	31/07/06	06/10/06
3OF2000	Upper section construction	57	18/01/07	30/03/07
3OF2100	Reconstruct Inlets (At Carrisgway Portion)	35	18/01/07	05/03/07

Start Date: 24/12/05

Finish Date: 23/03/08

Date Date: 27/12/05

Run Date: 24/05/06 15:32

Early Bar

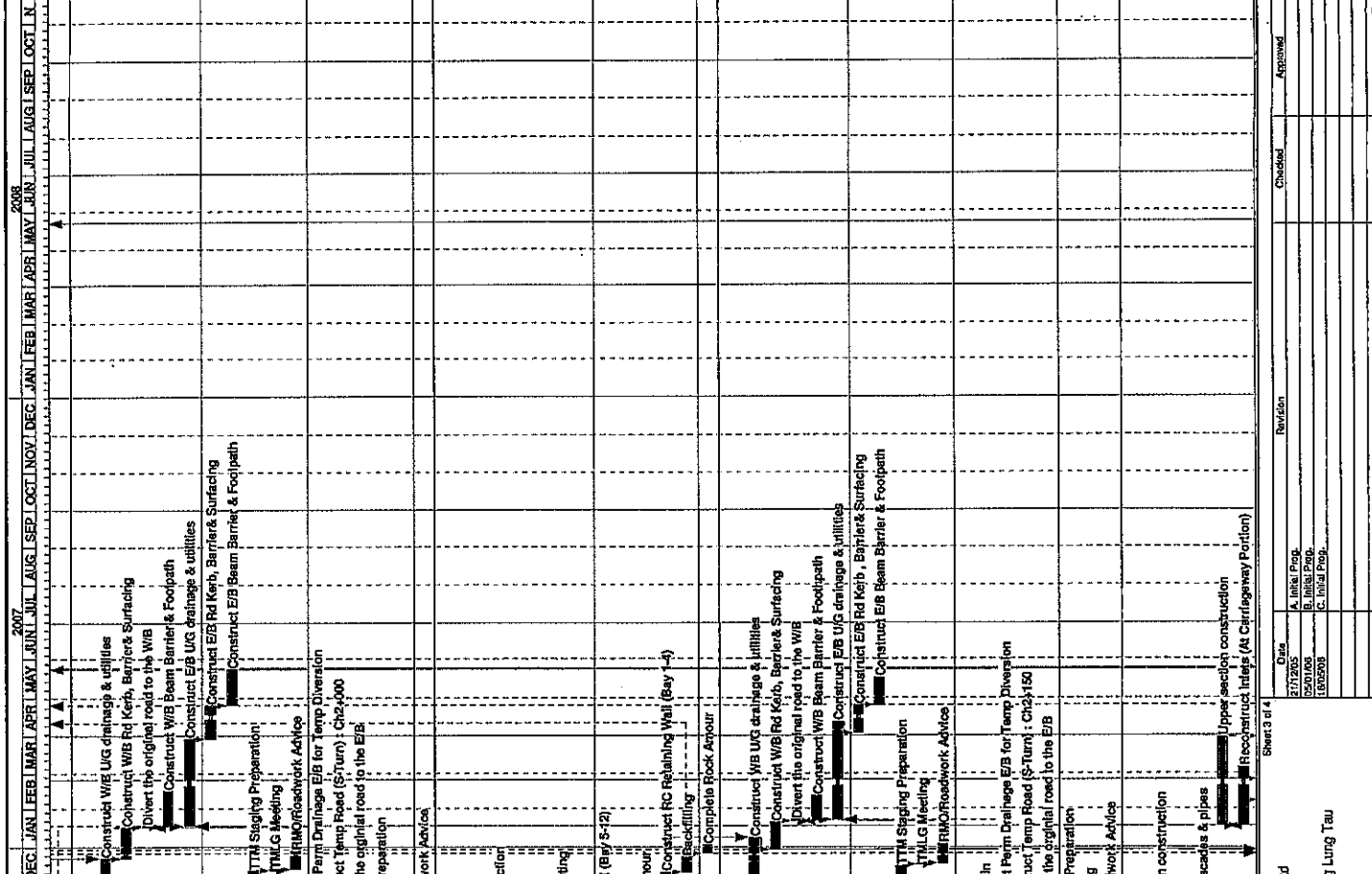
Program Bar

Critical Activity

Chun Wo Construction & Eng. Co. Ltd
Contract No. HY2005/06
Castle Peak Road Improvement West of Tsing Lung Tau
Initial Construction Prog Rev C

Sheet 3 of 4

Revision	Checked	Approved
A: Initial Prog.		
B: Initial Prog.		
C: Initial Prog.		



Activity ID	Activity Description	Orig. Dur.	Early Start	Early Finish	2006	2007	2008
30F200	Construct casacades & pipe	40	07/02/07	30/03/07			
Area 1 Construction (Ch1+600 to Ch1+705)							
SRW6500	WB: Clear existing road surface	12	27/12/06	10/01/07			
SRW1500	Construct WB carriageway road surfacing	6	11/03/07	17/03/07			
SRW2000	Divert the original road to the new road (WB)	1	18/01/07	18/01/07			
SRW2500	EB: clear existing road surface	12	19/01/07	01/02/07			
SRW3500	Construct EB carriageway road surfacing	6	02/02/07	08/02/07			
SRW3510	TTM Staging Preparation	19	22/11/06	13/12/06			
SRW3520	TM/G Meeting	1	14/12/06	14/12/06			
SRW3530	RMO/Roadwork Advice	10	15/12/06	29/12/06			
Area 6 Construction (Ch2+300 to Ch2+400)							
SRW6500	WB: clear existing road surface	14	20/12/06	16/01/07			
SRW1500	Construct WB carriageway road surfacing	6	17/03/07	23/03/07			
SRW2000	Divert the original road to the new road (WB)	1	24/01/07	24/01/07			
SRW2500	EB: Clear existing road surface	12	25/01/07	07/02/07			
SRW3500	Construct EB carriageway road surfacing	6	08/02/07	14/02/07			
SRW3510	TTM Staging Preparation	19	28/11/06	14/12/06			
SRW3520	TM/G Meeting	1	21/12/06	21/12/06			
SRW3530	RMO/Roadwork Advice	10	22/12/06	09/01/07			
Area 2 Construction (Ch1+705 to Ch1+825)							
1RW6500	WB: Excavation & demolish existing road surface	12	21/04/06*	06/05/06			
1RW1000	Construct WB, EB: UG drain, watermain, etc	90	28/04/06	15/08/06			
1RW1500	Construct WB, EB Kerb/Barrier/road surfacing	18	16/08/06	05/09/06			
1RW2000	Divert the original road to the new road (W,EB)	1	05/09/06	06/09/06			
1RW2010	Construct WB, EB Beam Barrier & Footpath	24	07/09/06	05/10/06			
1RW2500	Slip Rd: Excav & demolish exist road surface	12	07/09/06	20/09/06			
1RW3000	Slip Rd: UG drainage & utilities	82	15/09/06	23/12/06			
1RW3500	Construct Slip Rd surfacing work	18	27/12/06	17/01/07			
A01RW0500	Construction of Car Park	50	18/01/07	22/03/07			
1RW3510	TTM Staging Preparation	19	15/07/06	05/08/06			
1RW3520	TM/G Meeting	1	07/08/06	07/08/06			
1RW3530	RMO/Roadwork Advice	10	08/08/06	18/08/06			
Slope Remedial Works							
Remedial Work 6SW-D/C170							
SW6500	Remedial works to Slope No. 6SW-D/C170	57	22/11/06	31/01/07			
Remedial Work 6SW-D/FR286							
SW6500	Remedial works to Slope No. 6SW-D/FR286	70	08/04/06	06/07/06			
Remedial Work 6SW-D/FR89							
SW6500	Remedial works to Slope No. 6SW-D/FR89	90	13/06/06	26/09/06			
Remedial Work 6SW-D/FR83							
SW6500	Remedial works to Slope No. 6SW-D/FR83	75	23/08/06	21/11/06			
Remedial Work 6SW-D/FR2							
SW6500	Remedial works to Slope No. 6SW-D/FR2	92	23/12/06	23/04/07			
Remedial Work 6SW-D/FR1							
SW6500	Remedial works to Slope No. 6SW-D/FR1	62	12/12/06	03/02/07			
Section II - Landscaping Works							
A01W1000	Tree Transplant	120	06/02/06*	04/07/06			
LW1000	Landscaping works	50	24/02/07	24/05/07			
Section III - Establishment Period							
EP1000	Establishment works	365	25/05/07	23/05/08			

Start Date: 21/12/05
 Finish Date: 23/05/08
 Date Date: 21/12/05
 Run Date: 24/05/06 15:32

Early Bar
 Process Bar
 Critical Activity

Sheet 4 of 4
 Chun Wo Construction & Eng. Co. Ltd
 Contract No. HY2005/06
 Castle Peak Road Improvement West of Tsing Lung Tau
 Initial Construction Prog Rev 0

21/12/05
 23/05/08
 21/12/05
 24/05/06 15:32

Date
 A. Initial Prog.
 U. User Post.
 G. Initial Prog.

Checked
 Approved

?Printavera Systems, Inc.

Appendix D

**Summary of EM&A
Requirements**

Construction Noise

Monitoring Parameters

Construction noise monitoring will be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} will also be recorded as supplementary reference information for data auditing.

Monitoring Frequency

Noise measurements will be conducted on a weekly basis. The monitoring time periods, monitoring parameters and frequency are summarised in **Table D-1**.

Table D-1: Construction noise monitoring parameters and frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency	No. of Measurements for Each Monitoring
Between 0700-1900 hours on normal weekdays	$L_{eq(30\ min)}$	Once per week	1
Between 1900-2300 hours on normal weekdays	$L_{eq(5\ min)}^*$		3 (consecutive)
Between 2300-0700 hours of next day			
Between 0700-1900 hours on holidays			

* The $L_{eq(5\ min)}$ will only be measured if construction activities are conducted in holidays and between the period of 1900 and 0700 hours during normal weekdays.

Monitoring Location

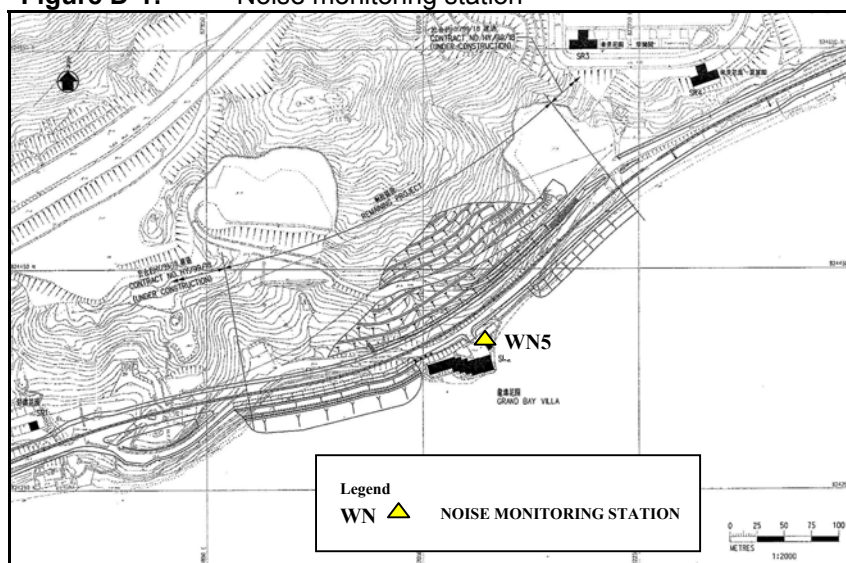
Noise monitoring will be conducted at one designated location as shown in **Figure D-1**. The details of the noise monitoring location are given in **Table D-2**. The measurements will be taken at a position 1m from the exterior of building façade and at a position of 1.2m above ground.

Table D-2: Construction noise monitoring locations

Noise Monitoring Station No.	Location	Monitoring Point	Remarks
WN5	Grand Bay Villa	G/F, House 1	Monitoring temporarily suspended *

* Grand Bay Villa is currently vacant with no resident. Construction noise monitoring at WN5 temporarily suspended until the premises are occupied.

Figure D-1: Noise monitoring station



Occupancy Status of Grand Bay Villa

The property management company of Grand Bay Villa (WN5) will be coordinated a monthly basis within 10 working days of each month to confirm the occupancy status of these premises. Once this location is confirmed occupied, noise monitoring will be resumed within 1 week.

Marine Water Quality

Monitoring Parameters

Marine water quality monitoring will include Turbidity (Tby) in the unit of NTU, Dissolved Oxygen (DO) in the unit of mg/L and Suspended Solids (SS) in the unit of mg/L. In addition to the water quality parameters, other relevant data such as monitoring location/position, time, water depth, water temperature, salinity, DO saturation, weather conditions, sea conditions, tidal stage will be recorded as far as practicable together with observations of any special phenomena, works underway at the construction site, etc.

Monitoring Frequency

Impact marine water quality monitoring will be conducted three times per week, at mid-flood and mid-ebb tides and at 10 designated monitoring locations. The interval between two sets of monitoring will not be less than 36 hours.

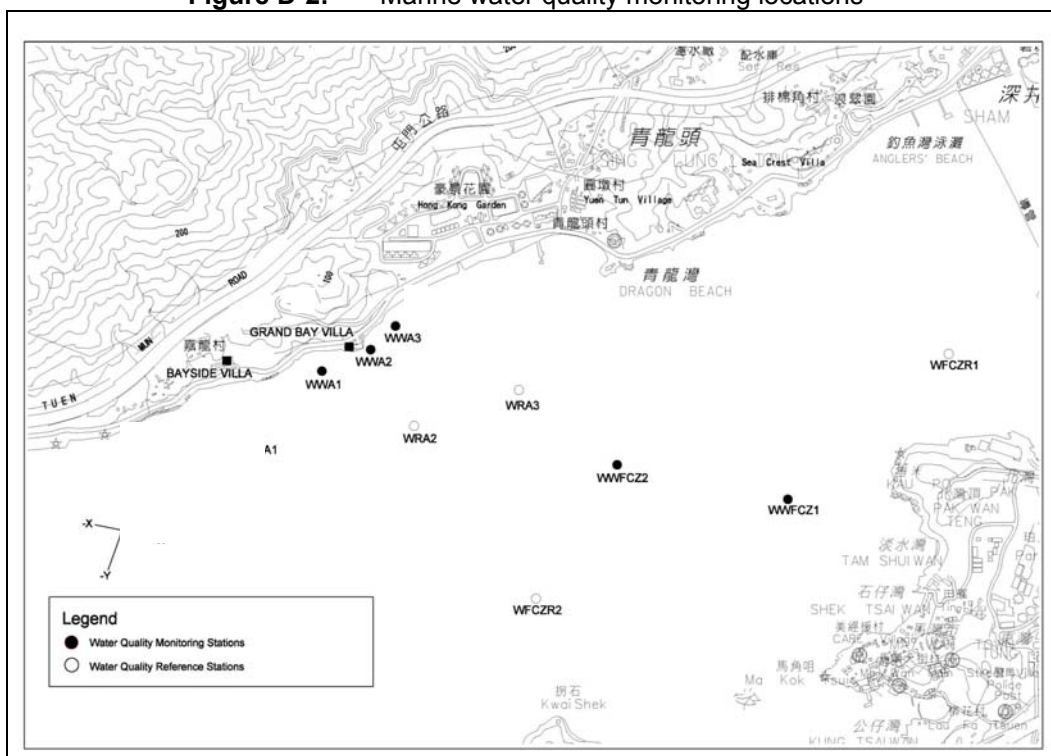
Monitoring Locations

A total of 10 locations, 5 for impact and 5 for control were specified for marine water quality monitoring in accordance with the EM&A Manual, which are summarised in **Table D-3** and shown in **Figure D-2**.

Table D-3: Marine water quality monitoring locations

Marine Water Quality Monitoring Location No.		Location	
		Eastings	Northings
West of Grand Bay Villa	WWA1 (Impact Location)	821981	824282
	WRA1 (Control Location)	821776	824078
Grand Bay Villa	WWA2 (Impact Location)	822141	824352
	WRA2 (Control Location)	822283	824107
East of Grand Bay Villa	WWA3 (Impact Location)	822222	824429
	WRA3 (Control Location)	822625	824222
Ma Wan Fish Culture Zone	WWFCZ1 (Impact Location)	823500	823870
	WWFCZ2 (Impact Location)	822943	823983
	WFCZR1 (Control Location)	824024	824333
	WFCZR2 (Control Location)	822677	823547

Figure D-2: Marine water quality monitoring locations



Appendix E

Event and Action Plan

Construction Noise

Table E-1: Event and Action Plan for construction noise

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify IEC and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and the Contractor. 4. Discuss with the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review with the analysed results submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. Notify the IEC, the ER, the DEP and the Contractor. 2. Identify the source. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Inform the IEC, the ER, and the DEP the causes & actions taken for the exceedances. 7. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and the ER informed of the results. 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Discuss amongst the ER, the ET Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

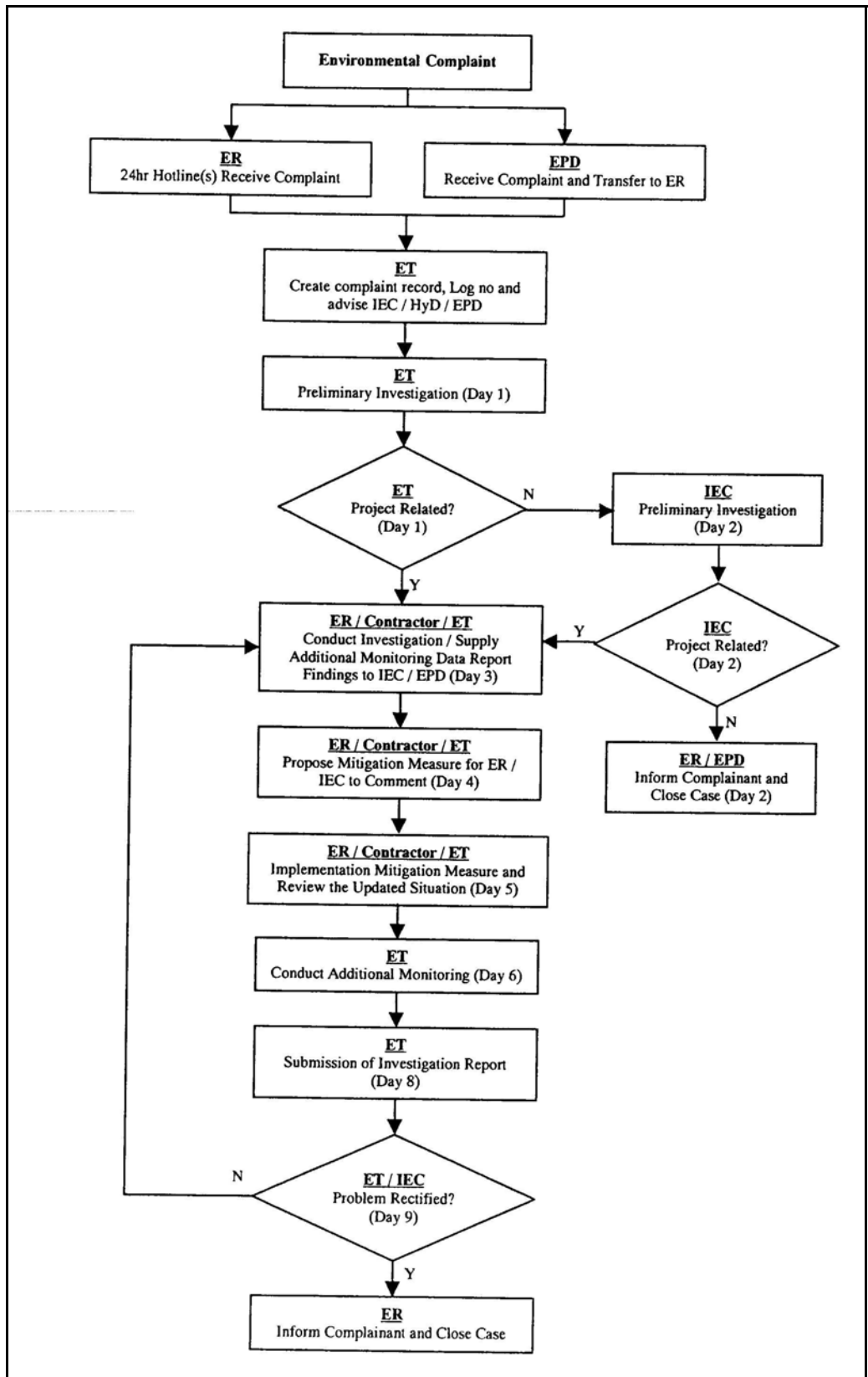
Marine Water Quality

Table E-2: Event and Action plan for marine water quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level				
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings. Identify source(s) of impact. Inform the IEC and the Contractor. Check monitoring data, all plant, equipment and the Contractor's working methods. Discuss mitigation measures with the IEC and the Contractor. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> Discuss with the ET Leader and the Contractor on the mitigation measures. Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with the IEC on the proposed mitigation measures. Make agreement on the mitigation measures to be implemented. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing. Rectify unacceptable practice. Check all plants and equipment. Consider changes of working methods. Discuss with the ET Leader and the IEC and propose mitigation measures to the IEC and the ER. Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive days	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings. Identify source(s) of impact. Inform the IEC and the Contractor. Check monitoring data, all plant, equipment and the Contractor's working methods. Discuss mitigation measures with the IEC and the Contractor. Ensure mitigation measures are implemented. Prepare to increase the monitoring frequency to daily. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> Discuss with the ET Leader and the Contractor on the mitigation measures. Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures. Make agreement on the mitigation measures to be implemented. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing. Rectify unacceptable practice. Check all plants and equipment. Consider changes of working methods. Discuss with the ET Leader and the IEC and propose mitigation measures to the IEC and the ER within 3 working days. Implement the agreed mitigation measures.
Limit Level				
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings. Identify source(s) of impact. Inform the IEC, the Contractor and the DEP. Check monitoring data, all plant, equipment and the Contractor's working methods. Discuss mitigation measures with the IEC, the ER and the Contractor. Ensure mitigation measures are implemented. Increase the monitoring frequency to daily until no exceedance of the Limit Level. 	<ol style="list-style-type: none"> Discuss with the ET Leader and the Contractor on the mitigation measures. Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with IEC, the ET Leader and the Contractor on the proposed mitigation measures. Request the Contractor to critically review the working methods. Make agreement on the mitigation measures to be implemented. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing. Rectify unacceptable practice. Check all plants and equipment. Consider changes of working methods. Discuss with the ET Leader, the IEC and the ER, and propose mitigation measures to the IEC and the ER within 3 working days. Implement the agreed mitigation measures.
Limit level being exceeded by more than one consecutive days	<ol style="list-style-type: none"> Repeat in-situ measurement to confirm findings. Identify source(s) of impact. Inform the IEC, the Contractor and the DEP. Check monitoring data, all plant, equipment and the Contractor's working methods. Discuss mitigation measures with the IEC, the ER and the Contractor. Ensure mitigation measures are implemented. Increase the monitoring frequency to daily until no exceedance of the Limit Level for two consecutive days. 	<ol style="list-style-type: none"> Discuss with the ET Leader and the Contractor on the mitigation measures. Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Discuss with IEC, the ET Leader and the Contractor on the proposed mitigation measures. Request the Contractor to critically review the working methods. Make agreement on the mitigation measures to be implemented. Assess the effectiveness of the implemented mitigation measures. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level. 	<ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing. Rectify unacceptable practice. Check all plants and equipment. Consider changes of working methods. Discuss with the ET Leader, the IEC and the ER, and propose mitigation measures to the IEC and the ER within 3 working days. Implement the agreed mitigation measures. As directed by the ER, slow down or stop all or part of the construction activities.

Appendix F

Complaint Procedures



Appendix G

**Graphical Presentation
of Marine Water
Monitoring Results**

Figure G-1: Trend of DO levels (surface and middle) at mid-ebb tide from May to August 2006

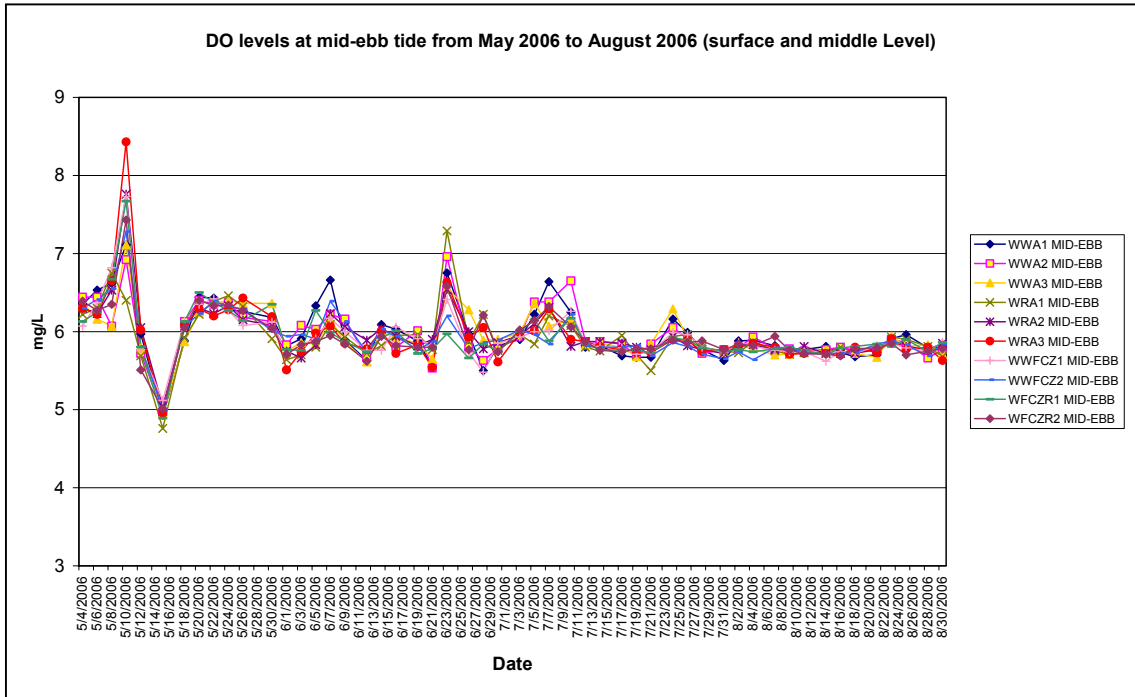


Figure G-2: Trend of DO levels (bottom) at mid-ebb tide from May to August 2006

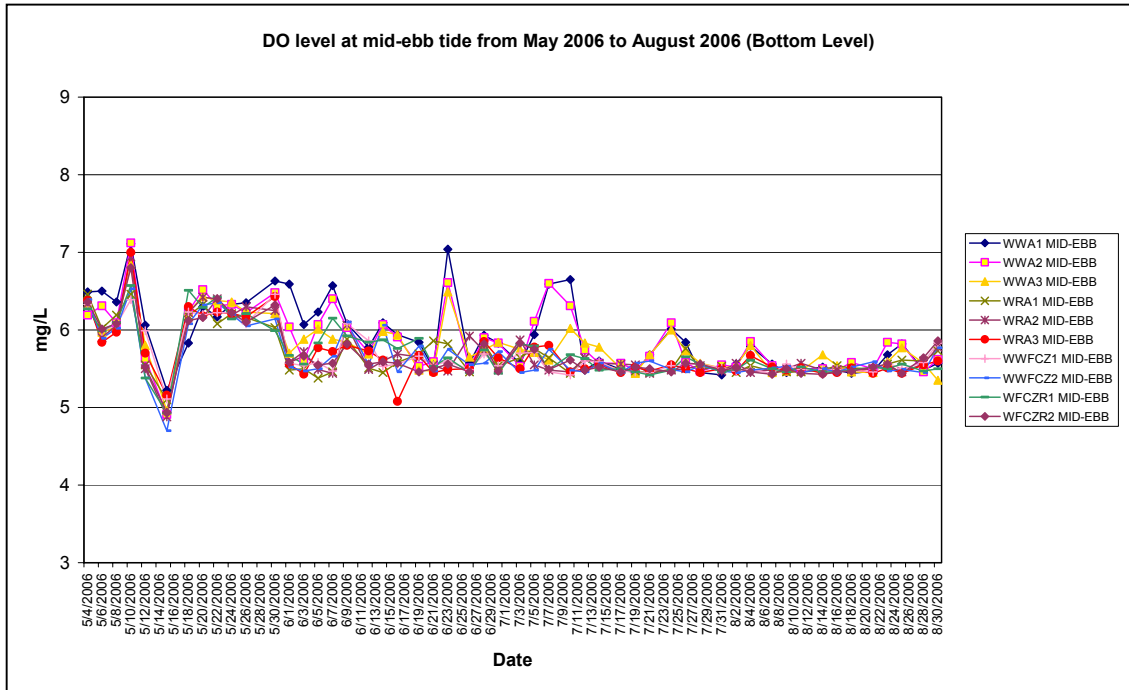


Figure G-3: Trend of DO levels (surface and mid-depth) at mid-flood tide from May to August 2006

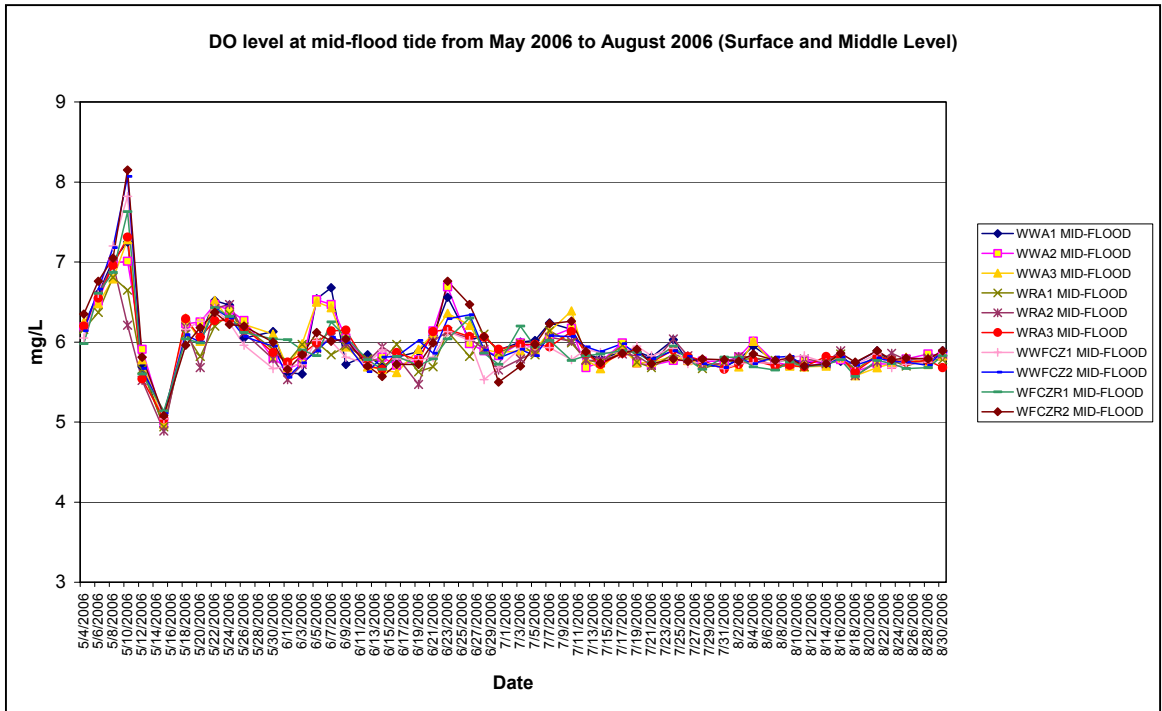


Figure G-4: Trend of DO levels (bottom) at mid-flood tide from May to August 2006

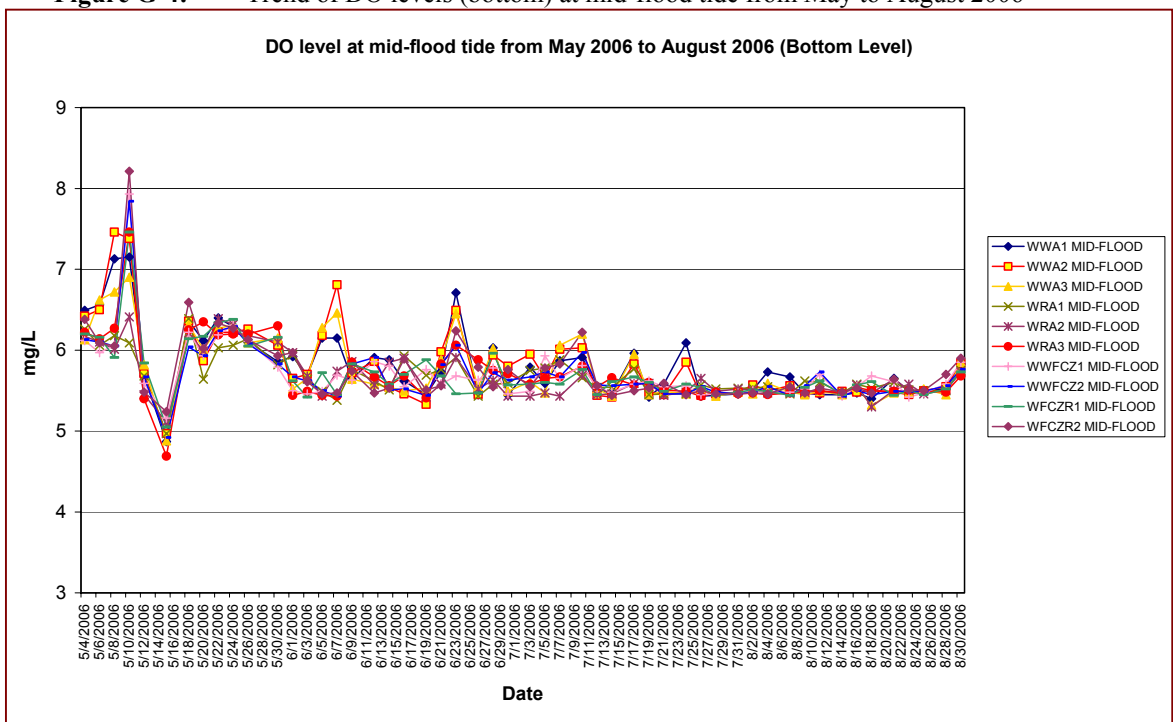


Figure G-5: Trend of turbidity levels at mid-ebb from May to August 2006

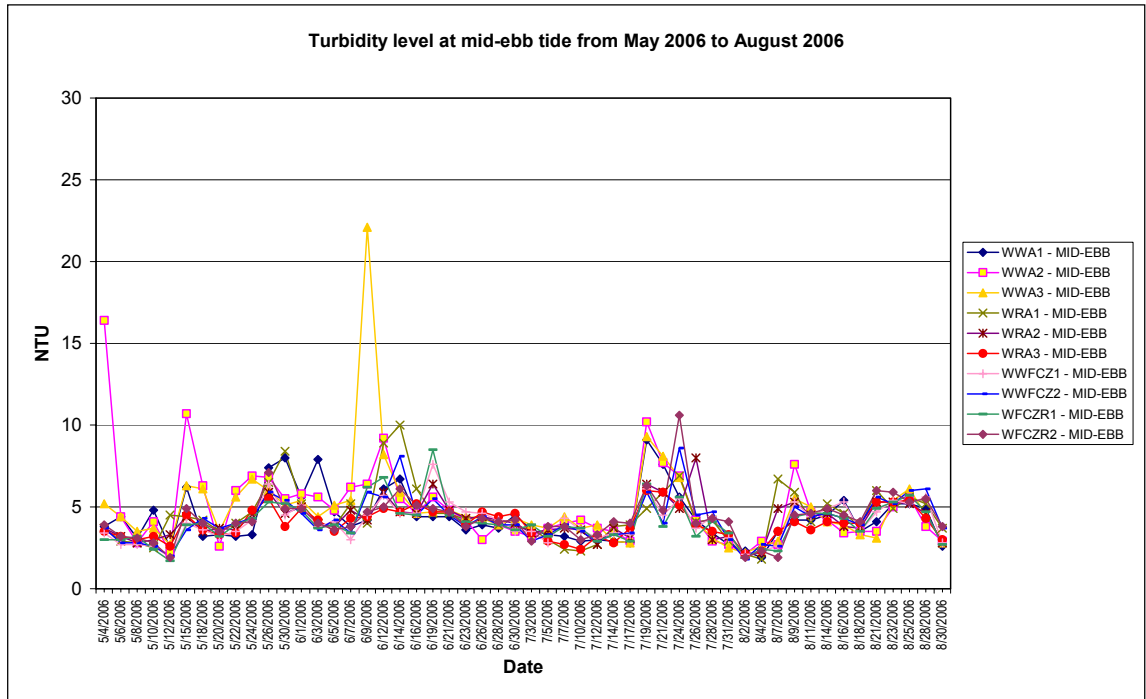


Figure G-6: Trend of turbidity levels at mid-flood tide from May to August 2006

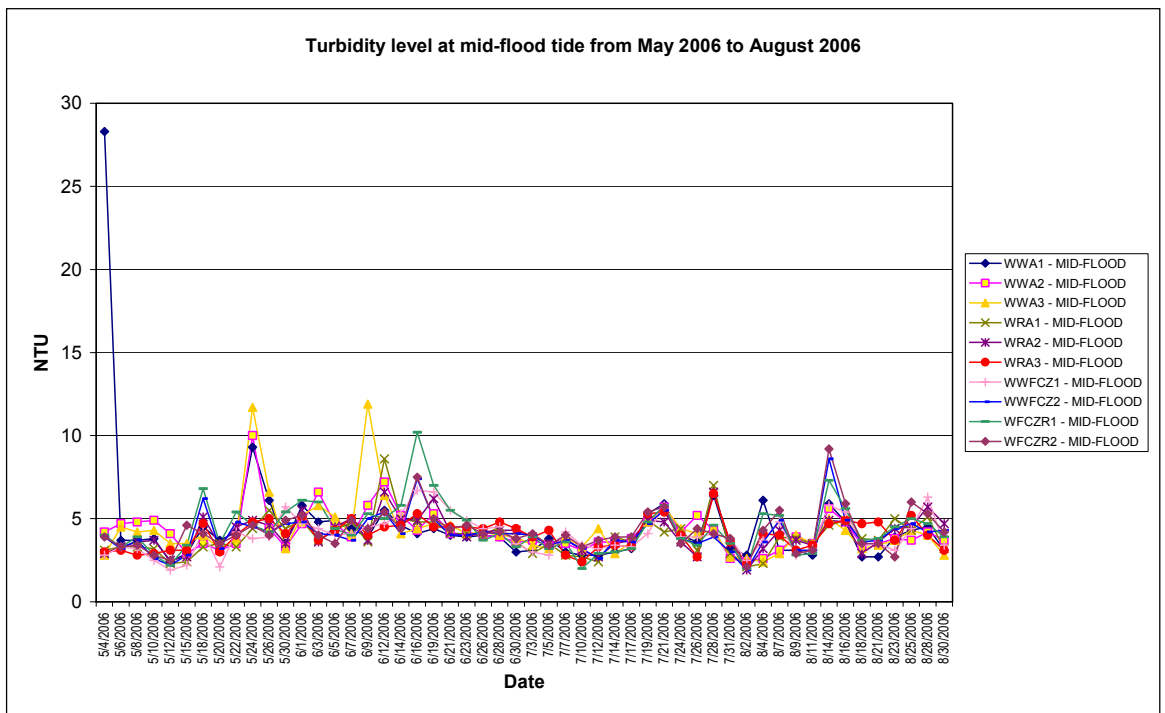


Figure G-7: Trend of SS levels at mid-ebb tide from May to August 2006

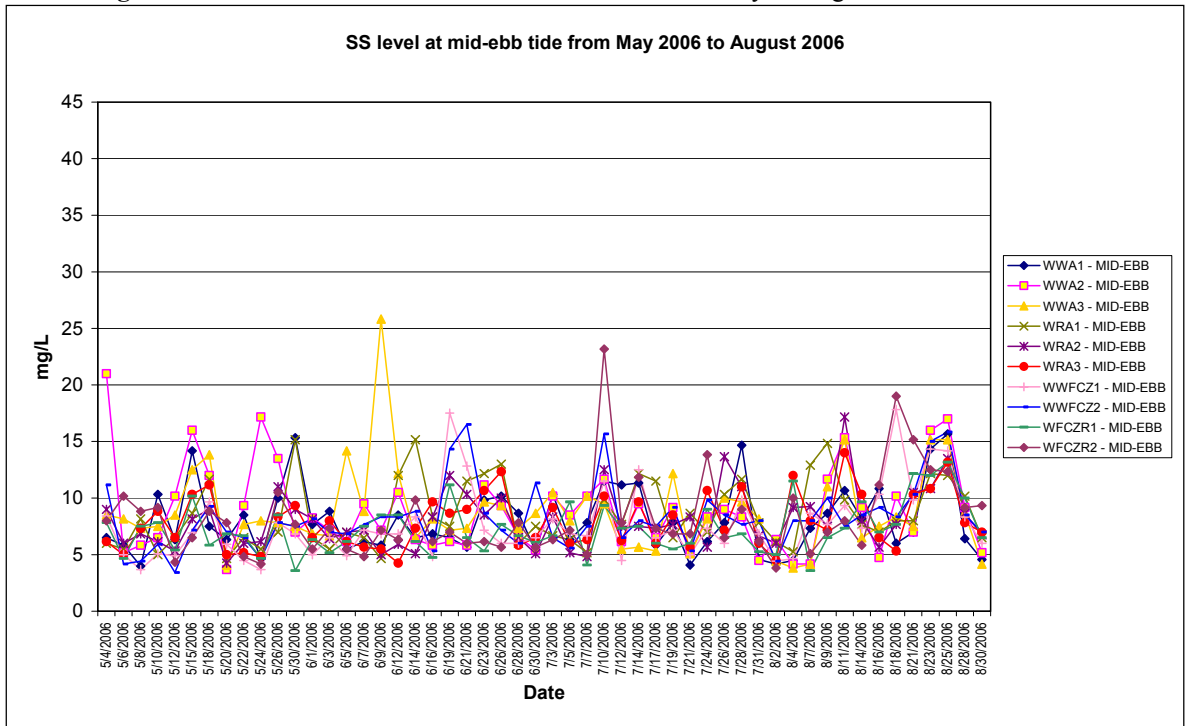
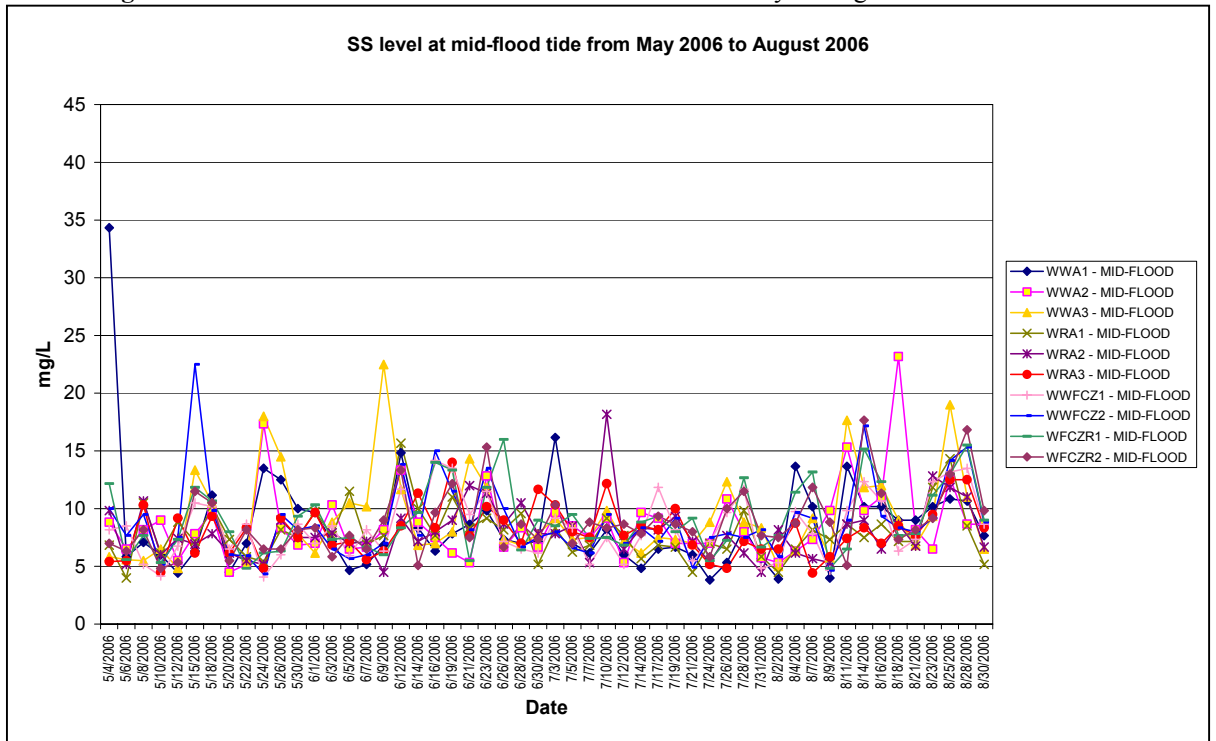


Figure G-8: Trend of SS levels at mid-flood tide from May to August 2006



Appendix H

**Implementation Status
on Environmental
Protection
Requirements**

**HY/2005/06 Castle Peak Road Improvement – West of Tsing Lung Tau (EP No. EP219/2005)
Environmental Mitigation Implementation Schedule**

Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages				Implementation Status
				Design	Construction	Operation	Decommission	
Construction Noise								
Noisy equipment and activities should be sited by the Contractor as far away from sensitive receivers as is practical	All areas	Contractor	TMEIA and Project Profile		✓			Implemented
Replace noisy plant with quieter alternatives	All areas	Contractor	TMEIA and Project Profile		✓			Implemented
Schedule noisy activities to reduce duration and severity of noise exposure	All areas	Contractor	TMEIA and Project Profile		✓			Implemented
In the event that Grand Bay Villa becomes occupied during the construction: <ul style="list-style-type: none"> • 5m high temporary noise barriers with a material surface density of at least 7 kg/m² shall be erected to screen the façade of along Castle Peak Road and the Western end façade. • Whenever the grab dredger is operating within 50 the reclamation west of Grand Bay Villa, the land based power mechanical equipment • No more than a total of 2 derrick lighters shall be used for marine dredging works at the same time. 	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.11		✓			To be implemented when Grand Bay Villa becomes occupied

Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages				Implementation Status
				Design	Construction	Operation	Decommission	
Construction Water Quality								
Dredging of marine sediment shall be limited to the scour apron.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.1		✓			Implemented
No more than a total of 2 derrick lighter shall be used for marine dredger works. The maximum dredging rate shall not be more than 1,000 and 2,000 cum per day at the reclamation east and west of Grand Bay Villa respectively.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.2		✓			Implemented
All filling activities shall be carried behind rockfill and rock armour.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.3		✓			Implemented
Tightly closing grabs shall be used to restrict the loss of fine sediment to suspension.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.4		✓			Implemented
Silt curtain shall be installed along the reclamation area during construction to control sediment suspension within the work area.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.5		✓			Implemented
Marine water quality monitoring and audit programme shall be carried out.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.6		✓			Implemented
The construction method specified in Section 2.1 of the Project Profile (Register No. PP-245/2005) shall be followed during construction.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.7		✓			Implemented
Wastewater collected from canteen kitchens, including from basins, sinks and floor drains shall be discharged into public sewers via grease traps. Drainage system provided at car parking areas shall be equipped with oil interceptors in addition to sand or silt removal facilities.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.10		✓			Not Applicable

Appendix I

**Investigation Summary
on Marine Water
Quality Exceedances**

Date	Tide	Location	Exceedance of Monitoring Data										ET's investigation	CT's action	Closing Date	Remark
			DO (mg/L)				Tby (NTU)			SS (mg/L)						
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station				
3-Jun-06	mid-ebb	WWA1	-	-	-	-	6.5	4.0	7.9	-	-	-	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA1 on 3 June 2006 by ET's field staff. The exceedance of Tby was only marginal to the Baseline Check Criteria at this monitoring location. In addition, there was no exceedance of SS level, which was relatively low (8.8 mg/L). Hence, the exceedance was unlikely due to the construction works of the Project. Nevertheless, the Contractor has been reminded to monitor the effectiveness of silt curtain and maintain the performance to ensure normal functioning.	No action	13-Jun-06	Refer to ET's field record, photos & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data										ET's investigation	CT's action	Closing Date	Remark
			DO (mg/L)				Tby (NTU)			SS (mg/L)						
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station				
5-Jun-06	mid-ebb	WWA3	-	-	-	-	-	-	-	13	6.2	14.2	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA3 on 5 June 2006 by ET's field staff. The exceedance of SS was only marginal to the Baseline Check Criteria at this monitoring location. In addition, there was no exceedance of Tby level, which was relatively low (5.1 NTU). Hence, the exceedance was unlikely due to the construction works of the Project. Nevertheless, the Contractor has been reminded to monitor the effectiveness of silt curtain and maintain the performance to ensure normal functioning.	No action	13-Jun-06	Refer to ET's field record, photos & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data										ET's investigation	CT's action	Closing Date	Remark
			DO (mg/L)				Tby (NTU)			SS (mg/L)						
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station				
9-Jun-06	mid-ebb	WWA3	-	-	-	-	6.5	4.4	22.1	13	5.5	25.8	On 9 June 2006, it rained heavily and Black Rainstorm Warning was issued. Soil and dirt were washed down from shore to the sea. The exceedances of marine water quality were unlikely due to the construction activities. The Contractor has been advised to check the integrity and normal functioning of the construction methods and mitigation measures especially the silt curtains. In addition, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains	The CT mobilised workers to check the integrity of silt curtain and clear the silt in drainage channel. The CT also closely monitored the effectiveness of silt curtain and maintained the performance to ensure normal functioning. With the remedial work implemented, the subsequent marine water quality monitoring data (14 June 2006) indicated resumption to normal ambient conditions.	28-Jun-06	Refer to ET's field record, photos & CT's daily records.
9-Jun-06	mid-flood	WWA3	-	-	-	-	6.6	4.0	11.9	17	6.3	22.5	Ditto	Ditto	Ditto	Ditto

Date	Tide	Location	Exceedance of Monitoring Data										ET's investigation	CT's action	Closing Date	Remark
			DO (mg/L)				Tby (NTU)			SS (mg/L)						
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station				
12-Jun-06	mid-ebb	WWA2	-	-	-	-	6.5	5.9	9.2	-	-	-	Heavy rain was observed occasionally on 12 June 2006. Soil and dirt were washed down from shore to the sea. Hence, the exceedances of Tby at WWA2 and WWA3 were unlikely related to Construction activities of the Project. The Contractor has been advised to check the integrity and normal functioning of the construction methods and mitigation measures especially the silt curtains. In addition, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains	The CT mobilised workers to check the integrity of silt curtain and clear the silt in drainage channel. The CT also closely monitored the effectiveness of silt curtain and maintained the performance to ensure normal functioning. With the remedial work implemented, the subsequent marine water quality monitoring data (16 June 2006) indicated resumption to normal ambient conditions.	28-Jun-06	Refer to ET's field record, photos & CT's daily records.
12-Jun-06	mid-ebb	WWA3	-	-	-	-	6.5	4.9	8.2	-	-	-	Ditto	Ditto	Ditto	Ditto
12-Jun-06	mid-flood	WWA2	-	-	-	-	6.6	6.6	7.2	-	-	-	Ditto	Ditto	Ditto	Ditto

Date	Tide	Location	Exceedance of Monitoring Data										ET's investigation	CT's action	Closing Date	Remark
			DO (mg/L)				Tby (NTU)			SS (mg/L)						
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station				
14-Jun-06	mid-ebb	WWFCZ2	-	-	-	-	6.5	6.1	8.1	-	-	-	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at monitoring stations on 14 June 2006 by ET's field staff. As the exceedance was only marginal to the Control Station WWFCZ2, the exceedance contributed by the nearby stations WRA1, WRA2, WRA3 and WWFCZ1 would be unlikely due to their normal Tby levels, hence the exceedance would be unlikely caused by the construction works of the Project.	No action	28-Jun-06	Refer to ET's field record, photos & CT's daily records.
19-Jun-06	mid-ebb	WWFCZ1	-	-	-	-	-	-	-	13	11.2	17.5	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at monitoring stations on 19 and 21 June 2006 by ET's field staff. The exceedances contributed by the nearby stations WRA1, WRA2, WRA3, WFCZ1 and WFCZ2 would be unlikely due to their normal SS levels, hence the exceedances would be unlikely caused by the construction works of the Project.	No action	29-Jun-06	Refer to ET's field record, photos & CT's daily records.
19-Jun-06	mid-ebb	WWFCZ2	-	-	-	-	-	-	-	13	7.0	14.3	Ditto	Ditto	Ditto	Ditto
21-Jun-06	mid-ebb	WWFCZ2	-	-	-	-	-	-	-	13	6	16.5	Ditto	Ditto	Ditto	Ditto

Date	Tide	Location	Exceedance of Monitoring Data										ET's investigation	CT's action	Closing Date	Remark
			DO (mg/L)				Tby (NTU)			SS (mg/L)						
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station				
19-Jul-06	mid-ebb	WWA1	-	-	-	-	6.5	4.9	9.1	-	-	-	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at monitoring stations on 19, 21 and 24 July 2006 by ET's field staff. The exceedances of Tby were only marginal to the Baseline Check Criteria, Action and Limit Levels at WWA1, WWA2 and WWA3. In addition, there were no exceedances of SS levels, which were relatively low (4.1 - 12.2 mg/L). Hence, the exceedances were unlikely due to the construction works of the Project. Nevertheless, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	1-Aug-06	Refer to ET's field record, photos & CT's daily records.
19-Jul-06	mid-ebb	WWA2	-	-	-	-	6.5	6.4	10.2	-	-	-	Ditto	Ditto	Ditto	Ditto
19-Jul-06	mid-ebb	WWA3	-	-	-	-	6.5	6.0	9.3	-	-	-	Ditto	Ditto	Ditto	Ditto
21-Jul-06	mid-ebb	WWA1	-	-	-	-	6.5	5.9	7.6	-	-	-	Ditto	Ditto	Ditto	Ditto
21-Jul-06	mid-ebb	WWA2	-	-	-	-	6.5	5.9	7.7	-	-	-	Ditto	Ditto	Ditto	Ditto
21-Jul-06	mid-ebb	WWA3	-	-	-	-	6.5	5.9	8.1	-	-	-	Ditto	Ditto	Ditto	Ditto
24-Jul-06	mid-ebb	WWA2	-	-	-	-	6.5	4.9	6.9	-	-	-	Ditto	Ditto	Ditto	Ditto
24-Jul-06	mid-ebb	WWA3	-	-	-	-	6.5	5.1	6.8	-	-	-	Ditto	Ditto	Ditto	Ditto

Date	Tide	Location	Exceedance of Monitoring Data									ET's investigation	CT's action	Closing Date	Remark	
			DO (mg/L)			Tby (NTU)			SS (mg/L)							
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station					Level at Impact Station
28-Jul-06	mid-ebb	WWA1	-	-	-	-	-	-	-	13.0	11.7	14.7	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA1 on 28 July 2006 by ET's field staff. The exceedance of SS was only marginal to the Baseline Check Criteria. In addition, there was no exceedance of Tby level, which was relatively low (3.4 NTU). Hence, the exceedance was unlikely due to the construction works of the Project. Nevertheless, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	4-Aug-06	Refer to ET's field record, photos & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data									ET's investigation	CT's action	Closing Date	Remark	
			DO (mg/L)				Tby (NTU)			SS (mg/L)						
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station					Level at Impact Station
9-Aug-06	mid-ebb	WWA2	-	-	-	-	6.5	5.3	7.6	-	-	-	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA2 on 9 August 2006 by ET's field staff. The exceedance of Tby was only marginal to the Baseline Check Criteria, Action and Limit Level. In addition, there was no exceedance of SS level on the same tide and same day at this station. Hence, the exceedance was unlikely due to the construction works of the Project. Nevertheless, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	15-Aug-06	Refer to ET's field record, photos & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data										ET's investigation	CT's action	Closing Date	Remark	
			DO (mg/L)				Tby (NTU)			SS (mg/L)							
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station					
11-Aug-06	mid-ebb	WWA3	-	-	-	-	-	-	-	-	13.0	14.0	15.2	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA3 on 11 August 2006 by ET's field staff. The exceedances of SS were only marginal to the Baseline Check Criteria. In addition, there were no exceedances of Tby levels on the same station and the same day. During the monitoring period, formwork and reinforcement works were being conducted at Seawall B and no reclamation works were being carried out. Hence, the exceedances were unlikely due to the construction works of the Project. Nevertheless, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	18-Aug-06	Refer to ET's field record, photos & CT's daily records.
11-Aug-06	mid-flood	WWA3	-	-	-	-	-	-	-	-	17.0	7.4	17.7	Ditto	Ditto	Ditto	Ditto
18-Aug-06	Mid-ebb	WWFCZ1	-	-	-	-	-	-	-	-	13.0	7.7	17.8	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWFCZ1 on 18 August 2006 by ET's field staff. The exceedance contributed by the nearby stations WRA1, WRA2, WRA3 and WWFCZ2 would be unlikely due to their normal SS levels, hence the exceedance would be unlikely caused by the construction works of the Project.	No action	29-Aug-06	Refer to ET's field record, photos & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data									ET's investigation	CT's action	Closing Date	Remark	
			DO (mg/L)				Tby (NTU)			SS (mg/L)						
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station					Level at Impact Station
18-Aug-06	Mid-flood	WWA2	-	-	-	-	-	-	-	17.0	8.7	23.2	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA2 on 18 August 2006 by ET's field staff. The exceedance of SS was only marginal to the Baseline Check Criteria. In addition, there was no exceedance of Tby level on the same station on the same day. Hence, the exceedance was unlikely due to the construction works of the Project. Nevertheless, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	29-Aug-06	Refer to ET's field record, photos & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data										ET's investigation	CT's action	Closing Date	Remark	
			DO (mg/L)				Tby (NTU)			SS (mg/L)							
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station					
23-Aug-06	Mid-ebb	WWA1	-	-	-	-	-	-	-	-	13.0	12.2	14.3	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA1, WWA2, WWA3, WWFCZ1 and WWFCZ2 on 23 August 2006 by ET's field staff. The exceedances of SS levels were only marginal to the Baseline Check Criteria. In addition, there were no exceedances of Tby levels on the same stations on the same day. Hence, the exceedances were unlikely due to the construction works of the Project. Nevertheless, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No Action	29-Aug-06	Refer to ET's field record, photos & CT's daily records.
23-Aug-06	Mid-ebb	WWA2	-	-	-	-	-	-	-	-	13.0	10.8	16.0	Ditto	Ditto	Ditto	Ditto
23-Aug-06	Mid-ebb	WWA3	-	-	-	-	-	-	-	-	13.0	10.8	15.2	Ditto	Ditto	Ditto	Ditto
23-Aug-06	Mid-ebb	WWFCZ1	-	-	-	-	-	-	-	-	13.0	12.0	14.3	Ditto	Ditto	Ditto	Ditto
23-Aug-06	Mid-ebb	WWFCZ2	-	-	-	-	-	-	-	-	13.0	12.5	15.0	Ditto	Ditto	Ditto	Ditto

Date	Tide	Location	Exceedance of Monitoring Data										ET's investigation	CT's action	Closing Date	Remark	
			DO (mg/L)				Tby (NTU)			SS (mg/L)							
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station					
25-Aug-06	mid-ebb	WWA1	-	-	-	-	-	-	-	-	13.0	12.0	15.7	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA1, WWA2, WWA3, WWFCZ1 and WWFCZ2 on 25 August 2006 by ET's field staff. The exceedances of SS levels were only marginal to the Baseline Check Criteria. In addition, there were no exceedances of Tby levels on the same stations on the same day. Hence, the exceedances were unlikely due to the construction works of the Project. Nevertheless, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	5-Sep-06	Refer to ET's field record, photos & CT's daily records.
25-Aug-06	mid-ebb	WWA2	-	-	-	-	-	-	-	-	13.0	13.5	17.0	Ditto	Ditto	Ditto	Ditto
25-Aug-06	mid-ebb	WWA3	-	-	-	-	-	-	-	-	13.0	13.2	15.2	Ditto	Ditto	Ditto	Ditto
25-Aug-06	mid-ebb	WWFCZ1	-	-	-	-	-	-	-	-	13.0	13.2	14.2	Ditto	Ditto	Ditto	Ditto
25-Aug-06	mid-ebb	WWFCZ2	-	-	-	-	-	-	-	-	13.0	12.3	15.8	Ditto	Ditto	Ditto	Ditto
25-Aug-06	mid-flood	WWA3	-	-	-	-	-	-	-	-	17.0	12.5	19.0	Ditto	Ditto	Ditto	Ditto

Appendix J
**Statistical Analysis of
SS Monitoring Data**

Statistical Analysis for Mid-Ebb-Tide

Station WWA1

Mann-Whitney Rank Sum Test

Normality Test	Passed (P = 0.076)				
Equal Variance Test	Failed (P < 0.050)				
Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.917	13.417	21.083
Quarterly Mean	52	0	7.417	5.917	10.083
n(small) = 16	n(big) = 52				

Results:

T = 908.500

(P<0.001)

Conclusion:

There is a statistically significant difference between two groups.

Station WWA2

Mann-Whitney Rank Sum Test

Normality Test	Failed (P < 0.050)				
Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	19.250	16.417	21.833
Quarterly Mean	52	0	8.333	6.167	10.167
n(small) = 16	n(big) = 52				

Results:

T = 941.500

(P<0.001)

Conclusion:

There is a statistically significant difference between two groups.

Station WWA3

Mann-Whitney Rank Sum Test

Normality Test	Failed (P < 0.050)				
Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.667	13.750	21.167
Quarterly Mean	52	0	8.167	7.000	9.833
n(small) = 16	n(big) = 52				

Results:

T = 913.500

(P<0.001)

Conclusion:

There is a statistically significant difference between two groups.

Station WWFCZ1

Mann-Whitney Rank Sum Test

Normality Test	Failed (P < 0.050)				
Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	18.250	14.892	21.917
Quarterly Mean	52	0	6.833	5.500	8.542
n(small) = 16	n(big) = 52				

Results:

T = 945.000
(P<0.001)

Conclusion:

There is a statistically significant difference between two groups.

Station WWFCZ2

Mann-Whitney Rank Sum Test

Normality Test	Failed (P < 0.050)				
Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.692	14.167	20.917
Quarterly Mean	52	0	7.917	6.667	9.000
n(small) = 16	n(big) = 52				

Results:

T = 934.000
(P<0.001)

Conclusion:

There is a statistically significant difference between two groups.

Statistical Analysis for Mid-Flood Tide

Station WWA1

Mann-Whitney Rank Sum Test

Normality Test	Failed (P < 0.050)				
Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	15.333	12.433	19.750
Quarterly Mean	52	0	7.250	6.000	10.167
n(small) = 16	n(big) = 52				

Results:

T = 847.500

(P<0.001)

Conclusion:

There is a statistically significant difference between two groups.

Station WWA2

Mann-Whitney Rank Sum Test

Normality Test	Failed (P < 0.050)				
Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.750	13.558	21.000
Quarterly Mean	52	0	8.167	6.667	9.667
n(small) = 16	n(big) = 52				

Results:

T = 910.500

(P<0.001)

Conclusion:

There is a statistically significant difference between two groups.

Station WWA3

Mann-Whitney Rank Sum Test

Normality Test	Failed (P < 0.050)				
Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	17.917	13.667	21.250
Quarterly Mean	52	0	7.917	6.667	10.750
n(small) = 16	n(big) = 52				

Results:

T = 900.500

(P<0.001)

Conclusion:

There is a statistically significant difference between two groups.

Station WWFCZ1

Mann-Whitney Rank Sum Test

Normality Test	Failed (P < 0.050)				
Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	15.367	12.642	21.250
Quarterly Mean	52	0	8.167	6.333	10.000
n(small) = 16	n(big) = 52				

Results:

T = 921.000

(P<0.001)

Conclusion:

There is a statistically significant difference between two groups.

Station WWFCZ2

Mann-Whitney Rank Sum Test

Normality Test	Failed (P < 0.050)				
Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.833	14.000	20.417
Quarterly Mean	52	0	8.167	6.833	9.500
n(small) = 16	n(big) = 52				

Results:

T = 919.000

(P<0.001)

Conclusion:

There is a statistically significant difference between two groups.