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) – September to November 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) – September to November 2006

December 2006

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Job number 24583

MAUNSELL | AECOM

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Your Ref.: --
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By Fax (2492 6201) and Post

Meinhardt Halcrow JV
4/F., Wah Ming Centre,
421 Queen's Road West,
Hong Kong

Attn : Mr. Michael S Harfoot

29 December 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) – September to November 2006

We refer to the Quarterly EM&A Summary Report for Reclamation Works (EP No. EP-219/2005) – September to November 2006 received via emails on 22 December 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 28 December 2006, the Quarterly EM&A Summary Report for Reclamation Works (EP No. EP-219/2005) – September to November 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. Samuel Chan	(Fax: 2268 3950)

ARUP

Document Verification

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) – September to December 2006	File reference	
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		Name	Raymond Liu	Samuel Chan	Sam Tsoi
		Signature			
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		Name	Raymond Liu	Samuel Chan	Sam Tsoi
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			Prepared by	Checked by	Approved by
		Name			
		Signature			

Issue Document Verification with Document ✓

Contents

Appendices

Executive Summary

This is the third quarterly environmental monitoring and audit (EM&A) summary report presenting the progress of environmental monitoring and audit works for the reporting period between September and November 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 5.57 mg/L and 5.35 mg/L respectively at WWFCZ1 on 25 September 2006. 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 14.1 Nephelometric Turbidity Unit (NTU) at WWA1 on 09 October 2006. There were 15 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 31.0 mg/L at WWFCZ2 on 08 December 2006. There were 36 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 5.64 mg/L at WWA3 on 20 September 2006 and 5.37 mg/L at WWFCZ2 on 04 September 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 11.1 NTU at WWA3 on 09 October 2006. There were 9 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 43.8 mg/L at WWFCZ2 on 8 November 2006. There were 10 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 150 tonnes of Construction & Demolition (C&D) waste and 24,983 tonnes 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 air quality and noise monitoring during the reporting period. However, there were 70 exceedances of marine water quality monitoring during the reporting period. After ET's investigation, only 1 exceedance was likely due to the construction activities of the Project and the remaining exceedances were likely due to natural variation of marine water.

Notification of Summons and Successful Prosecution

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

Environmental Licences

One Construction Noise Permit was 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 showed 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 Thomas To	Tel: 2835 1103
Engineer's Representative (MHJV)	Mr Michael Harfoot	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 third 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 September to November 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:

- Construction of upper RC retaining wall and backfilling at Seawall A; and
- Backfilling and complete Rock Armour 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 undertaking 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 5.57 mg/L and 5.35 mg/L respectively at WWFCZ1 on 25 September 2006. 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 14.1 Nephelometric Turbidity Unit (NTU) at WWA1 on 09 October 2006. There were 15 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 31.0 mg/L at WWFCZ2 on 08 December 2006. There were 36 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 5.64 mg/L at WWA3 on 20 September 2006 and 5.37 mg/L at WWFCZ2 on 04 September 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 11.1 NTU at WWA3 on 09 October 2006. There were 9 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 43.8 mg/L at WWFCZ2 on 8 November 2006. There were 10 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	150 tonnes
C&D material	By truck	Public Filling Reception Facility in Tuen Mun Area 38	24,983 tonnes
	By barge		0 tonnes
Chemical waste		Collected by licensed collector	0

7.2 Complaint Record

There was no environmental complaint received during the reporting period.

7.3 Summary of Exceedance

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

However, there were 70 exceedances of marine water quality monitoring during the reporting period. After ET's investigation, only 1 exceedance of SS Baseline Check Criteria was likely due to the construction activities of the Project. The remaining exceedances were unlikely related to the Project and might be to due to natural variation of marine water. The exceedances are summarized in the **Tables 7-2 and 7-3.**

Table 7-2: Summary of exceedances of marine water quality monitoring related to construction works from September to November 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-flood	Sep	0	0	0	0	0	0	1	0	0	**1**
Total		**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**

Table 7-3: Summary of exceedances of marine water quality monitoring not related to construction works from September to November 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	Sep	0	0	0	2	0	2	10	0	0	**14**
	Oct	0	0	0	3	1	7	10	0	1	**22**
	Nov	0	0	0	0	0	0	14	0	1	**15**
Mid-flood	Sep	0	0	0	0	0	0	0	0	0	**0**
	Oct	0	0	0	2	3	4	5	1	1	**16**
	Nov	0	0	0	0	0	0	1	0	1	**2**
Total		**0**	**0**	**0**	**7**	**4**	**13**	**40**	**1**	**4**	**69**

The exceedance of SS level at WWA2 on 14 September 2006, which was related to the Project, was likely due to heavy rainstorm in preceding day (i.e. 13 September 2006). Muddy runoff was observed discharging into nearby gullies at Castle Peak Road from the site entrance of Slope A and muddy marine water was also observed near Seawall A and B during site inspection conducted by ET auditor on 14 September 2006. Although the exceedance of SS level was only marginal to the Baseline Check Criteria, the SS level at WWA2 was higher than that at control station, WRA2. The CT mobilised workers to clear the silt deposited in gullies and along Castle Peak Road immediately. The CT also paved the site entrance of Slope A, diverted the runoff to desilting tank and conducted regular clearing of the desiliting facility. The CT closely monitored the effectiveness of the temporary drainage system. With the remedial work implemented, the subsequent marine water quality monitoring data (16, 18 and 20 September 2006) indicated resumption to normal ambient conditions

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	10.5	20.9	11.1
	WWA2	24.8	9.8	21.6	10.9
	WWA3	22.5	10.6	22.6	10.7
	WWFCZ1	24.6	9.4	21.6	11.6
	WWFCZ2	22.7	10.2	22.8	12.4
Control Station	WRA1	22.2	9.9	23.1	9.9
	WRA2	22.5	9.4	23.2	9.7
	WRA3	22.8	9.6	21.2	9.9
	WFCZR1	23.4	9.6	22.5	12.9
	WFCZR2	26.0	9.6	24.2	12.3

7.4 Notification of Summons and Successful Prosecution

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

7.5 Environmental Licenses

One Construction Noise Permit (CNP) was 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
Construction Noise Permit	GW-RW0326-06	09 Jun 2006	08 Dec 2006
Construction Noise Permit	GW-RW0349-06	23 Jun 2006	22 Dec 2006
Construction Noise Permit	GW-RW 0654-06	14 Nov 2006	15 Mar 2007

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 driptray. The CT was reminded to provide driptray 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 discharging from Slope A into nearby gullies in September after a heavy rainfall. The CT mobilised workers to clear the muddy water and silt on public road immediately. The CT also paved the site entrance of Slope A, diverted the runoff to desilting tank and conducted regular clearing of the desiliting facility.

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

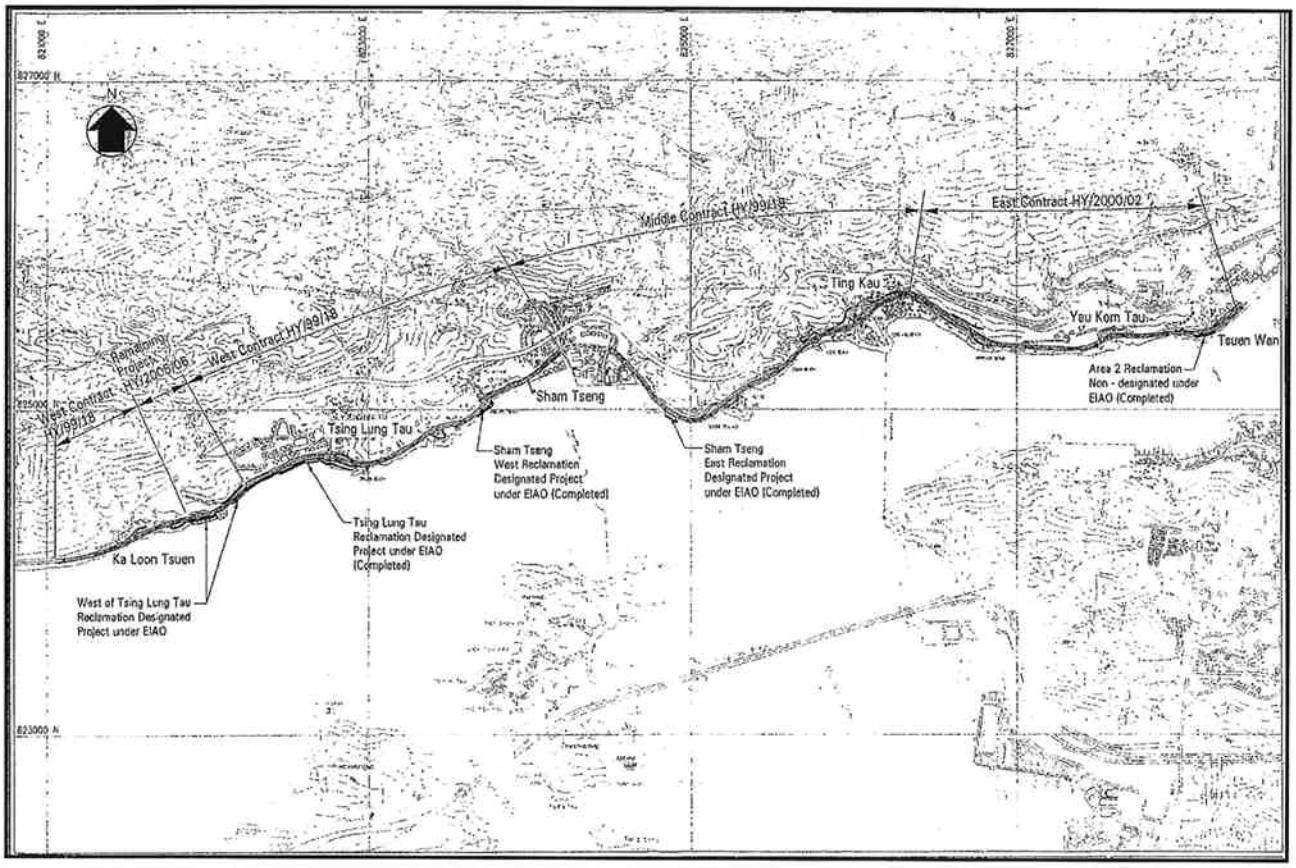
[1] Mouchel Halcrow Joint Venture. January 2006. Supplementary Agreement No.1 – Remaining Project EM&A Manual for Construction of Reclamation West of Tsing Lung Tau.

[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

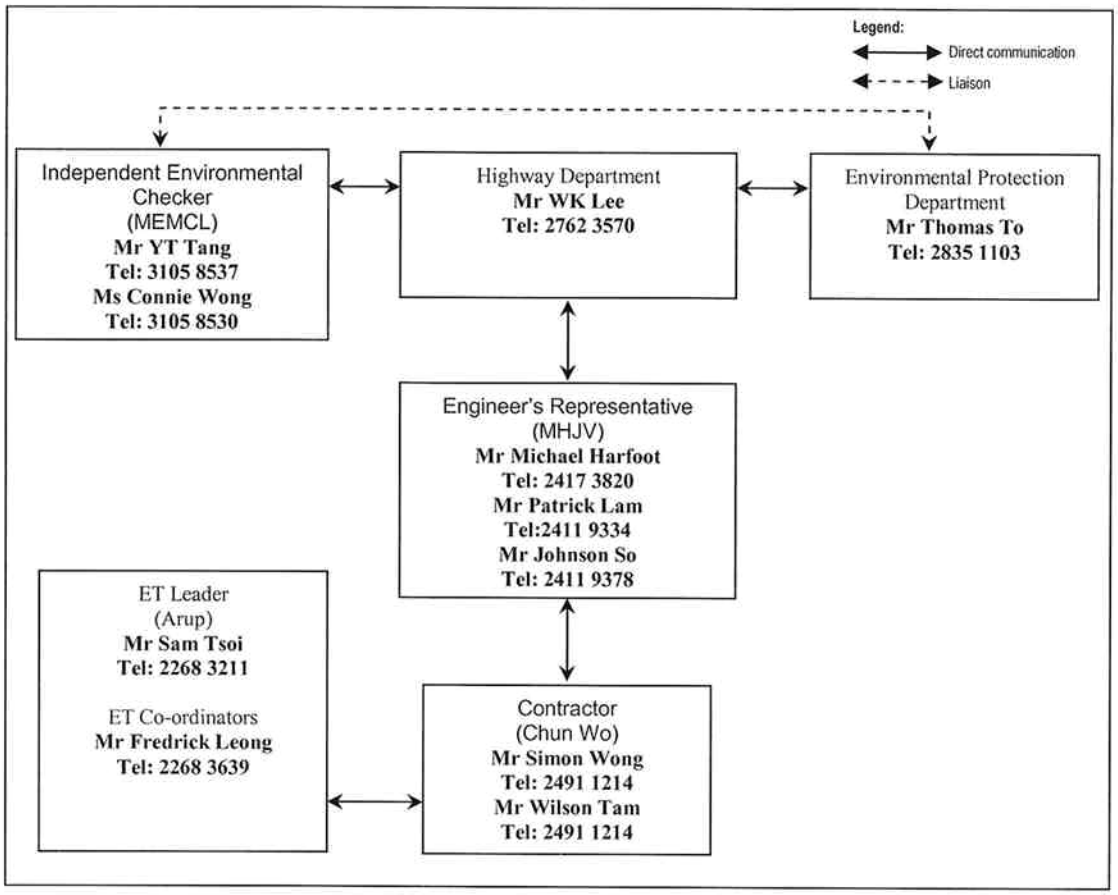
Project location plan



Appendix B

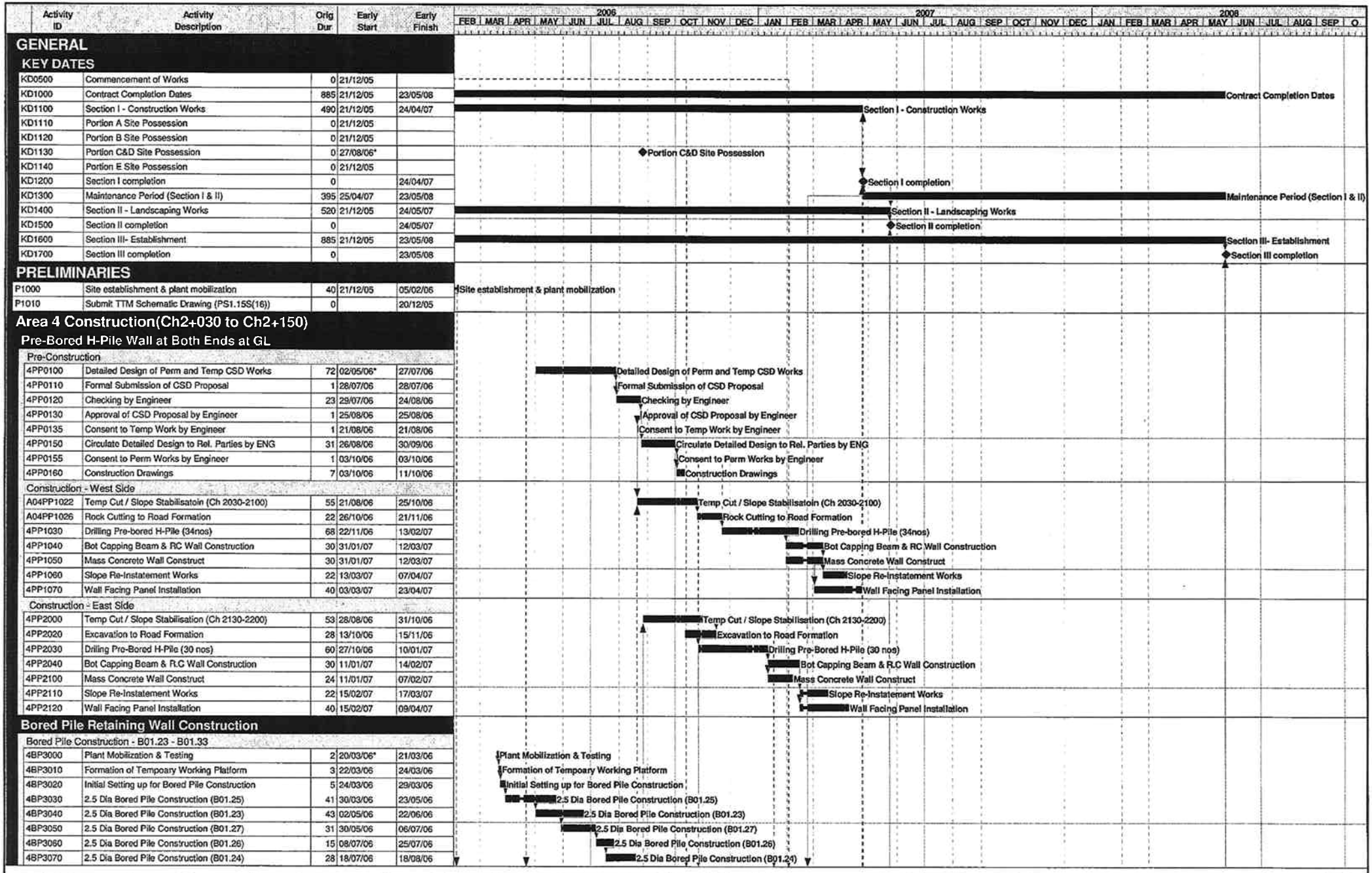
Project Organisation Chart

Project Organisation



Appendix C

Construction Programme



Start Date 21/12/05
Finish Date 23/05/08
Data Date 21/12/05
Run Date 22/08/06 15:00

?Primavera Systems, Inc.

Early Bar
Progress Bar
Critical Activity

CSD2

Sheet 1 of 5

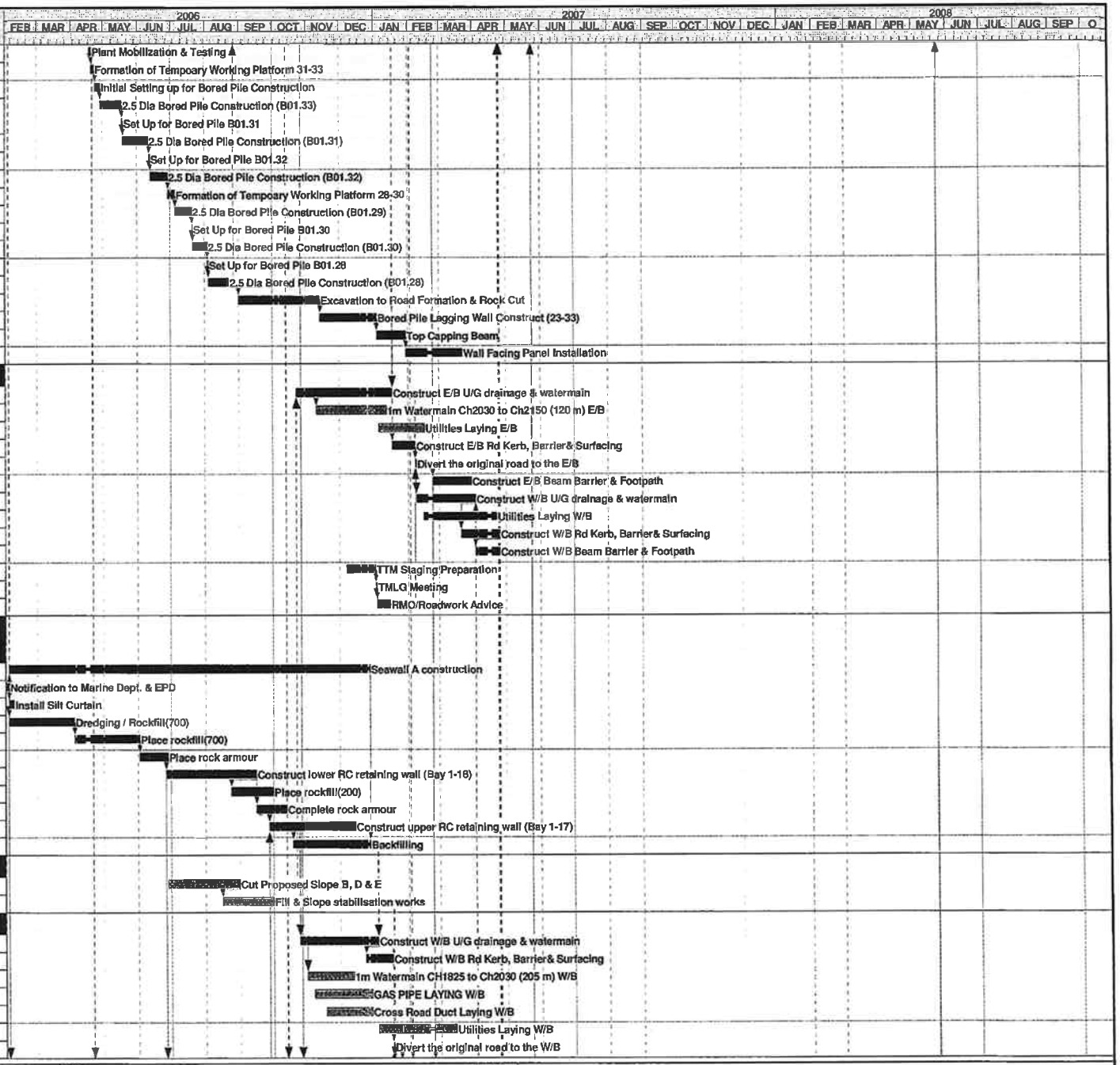
Chun Wo Construction & Eng. Co. Ltd

Contract No. HY/2005/06
Castle Peak Road Improvment West of Tsing Lung Tau

CSD Works Programme Rev 1

Date	Revision	Checked	Approved
02/08/06	0		
21/08/06	1		

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
4BP3080	Plant Mobilization & Testing	2	18/04/06*	19/04/06
4BP3090	Formation of Tempoary Working Platform 31-33	3	20/04/06	22/04/06
4BP3100	Initial Setting up for Bored Pile Construction	5	24/04/06	28/04/06
4BP3110	2.5 Dia Bored Pile Construction (B01.33)	15	29/04/06	18/05/06
4BP3115	Set Up for Bored Pile B01.31	1	19/05/06	19/05/06
4BP3120	2.5 Dia Bored Pile Construction (B01.31)	18	20/05/06	10/06/06
4BP3125	Set Up for Bored Pile B01.32	1	12/06/06	12/06/06
4BP3130	2.5 Dia Bored Pile Construction (B01.32)	14	13/06/06	28/06/06
4BP3131	Formation of Tempoary Working Platform 28-30	5	29/06/06	05/07/06
4BP3132	2.5 Dia Bored Pile Construction (B01.29)	13	06/07/06	20/07/06
4BP3133	Set Up for Bored Pile B01.30	1	21/07/06	21/07/06
4BP3134	2.5 Dia Bored Pile Construction (B01.30)	11	22/07/06	03/08/06
4BP3135	Set Up for Bored Pile B01.28	1	04/08/06	04/08/06
4BP3136	2.5 Dia Bored Pile Construction (B01.28)	16	05/08/06	23/08/06
4BP3150	Excavation to Road Formation & Rock Cut	60	01/09/06	13/11/06
4BP3160	Bored Pile Lagging Wall Construct (23-33)	40	14/11/06	03/01/07
4BP3170	Top Capping Beam	22	04/01/07	29/01/07
4BP3180	Wall Facing Panel Installation	40	30/01/07	22/03/07
Roadworks Construction				
4RW4100	Construct E/B U/G drainage & watermain	70	23/10/06	17/01/07
A0UU25900	1m Watermain Ch2030 to Ch2150 (120 m) E/B	50	10/11/06	11/01/07
A04RW4200	Utilities Laying E/B	35*	06/01/07	15/02/07
4RW4110	Construct E/B Rd Kerb, Barrior& Surfacing	18	18/01/07	07/02/07
4RW4500	Divert the original road to the E/B	1	08/02/07	08/02/07
4RW4505	Construct E/B Beam Barrier & Footpath	30	24/02/07	30/03/07
4RW4600	Construct W/B U/G drainage & watermain	40	09/02/07	02/04/07
A04RW4100	Utilities Laying W/B	48*	15/02/07	21/04/07
4RW4610	Construct W/B Rd Kerb, Barrier& Surfacing	26	21/03/07	24/04/07
4RW4615	Construct W/B Beam Barrier & Footpath	15	03/04/07	24/04/07
4RW4620	TTM Staging Preparation	19	07/12/06	02/01/07
4RW4630	TMLG Meeting	1	03/01/07	03/01/07
4RW4640	RMO/Roadwork Advice	10	04/01/07	15/01/07
Area 3 Construction(Ch1+825 to Ch2+030)				
Seawall A Construction				
3SWA0500	Seawall A construction	266*	04/02/06	27/12/06
3SWA0600	Notification to Marine Dept. & EPD	28	07/01/06	03/02/06
A03SWA100	Install Silt Curtain	4	04/02/06	08/02/06
3SWA1000	Dredging / Rockfill(700)	50	04/02/06	03/04/06
3SWA1100	Place rockfill(700)	45	04/04/06	02/06/06
3SWA1200	Place rock armour	21	03/05/06	27/06/06
3SWA1300	Construct lower RC retaining wall (Bay 1-18)	70	26/05/06	15/09/06
3SWA1400	Place rockfill(200)	32	25/08/06	30/09/06
3SWA1500	Complete rock armour	22	16/09/06	13/10/06
3SWA1600	Construct upper RC retaining wall (Bay 1-17)	64	28/09/06	14/12/06
3SWA1700	Backfilling	56	19/10/06	27/12/06
Slope Works				
3SW1000	Cut Proposed Slope B, D & E	55	28/06/06*	31/08/06
3SW2000	Fill & Slope stabilisation works	40	16/08/06	30/09/06
Roadworks Construction				
3RW2100	Construct W/B U/G drainage & watermain	56	25/10/06	03/01/07
3RW2110	Construct W/B Rd Kerb, Barrier& Surfacing	18	23/12/06	16/01/07
A0UU26200	1m Watermain CH1825 to Ch2030 (205 m) W/B	35	01/11/06	11/12/06
A03RW4200	GAS PIPE LAYING W/B	42	07/11/06	28/12/06
A03RW4100	Cross Road Duct Laying W/B	32*	18/11/06	28/12/06
A03RW4000	Utilities Laying W/B	56*	04/01/07	15/03/07
3RW2500	Divert the original road to the W/B	1	17/01/07	17/01/07



Start Date	21/12/05
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Date	Revision	Checked	Approved
02/08/06	0		
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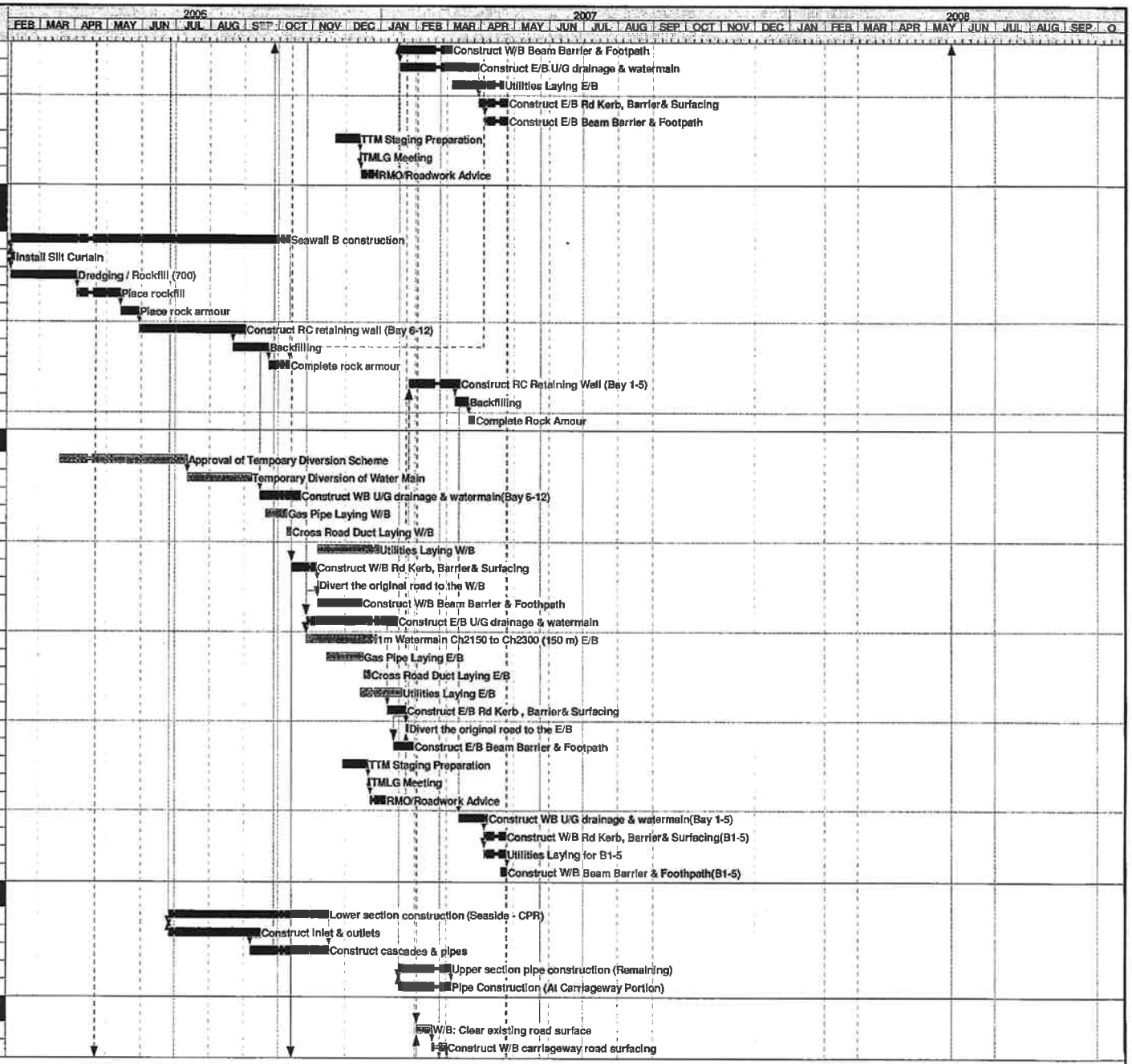
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
3RW2505	Construct W/B Beam Barrier & Footpath	35	18/01/07	05/03/07
3RW2600	Construct E/B U/G drainage & watermain	56	18/01/07	29/03/07
A03RW4500	Utilities Laying E/B	36*	06/03/07	20/04/07
3RW2605	Construct E/B Rd Kerb, Barrier& Surfacing	18	30/03/07	24/04/07
3RW2608	Construct E/B Beam Barrier & Footpath	14	04/04/07	24/04/07
3RW2610	TTM Staging Preparation	19	21/11/06	12/12/06
3RW2620	TMLG Meeting	1	13/12/06	13/12/06
3RW2630	RMO/Roadwork Advice	10	14/12/06	28/12/06
Area 5 Construction(Ch2+150 to Ch2+300)				
Seawall B Construction				
2SWB0500	Seawall B construction	204*	04/02/06	11/10/06
A02SWB100	Install Silt Curtain	3	04/02/06	07/02/06
2SWB1000	Dredging / Rockfill (700)	50	04/02/06	03/04/06
2SWB1100	Place rockfill	28	04/04/06	12/05/06
2SWB1200	Place rock armour	14	13/05/06	29/05/06
2SWB1300	Construct RC retaining wall (Bay 6-12)	80	30/05/06	01/09/06
2SWB1400	Backfilling	28	22/08/06	22/09/06
2SWB1500	Complete rock armour	14	23/09/06	11/10/06
A02SWB0500	Construct RC Retaining Wall (Bay 1-5)	35	26/01/07	13/03/07
A02SWB1000	Backfilling	10	09/03/07	20/03/07
A02SWB1100	Complete Rock Amour	5	21/03/07	26/03/07
Roadworks Construction				
A02RW0100	Approval of Tempoary Diversion Scheme	90	20/03/06*	11/07/06
A02RW0500	Temporary Diversion of Water Main	50	12/07/06	07/09/06
2RW3000	Construct WB U/G drainage & watermain(Bay 6-12)	30	15/09/06	21/10/06
A02RW1900	Gas Pipe Laying W/B	14	21/09/06	09/10/06
A02RW1800	Cross Road Duct Laying W/B	4*	10/10/06	13/10/06
A02RW1600	Utilities Laying W/B	45*	06/11/06	30/12/06
2RW3010	Construct W/B Rd Kerb, Barrier& Surfacing	18	14/10/06	04/11/06
2RW3501	Divert the original road to the W/B	1	06/11/06	06/11/06
2RW3510	Construct W/B Beam Barrier & Foothpath	35	06/11/06	15/12/06
2RW3600	Construct E/B U/G drainage & watermain	65	27/10/06	16/01/07
A0UU26000	1m Watermain Ch2150 to Ch2300 (150 m) E/B	50	27/10/06	28/12/06
A02RW2100	Gas Pipe Laying E/B	28	15/11/06	16/12/06
A02RW2000	Cross Road Duct Laying E/B	4*	18/12/06	22/12/06
A02RW1700	Utilities Laying E/B	28*	15/12/06	20/01/07
2RW3610	Construct E/B Rd Kerb , Barrier& Surfacing	15	08/01/07	24/01/07
2RW3500	Divert the original road to the E/B	1	25/01/07	25/01/07
2RW3620	Construct E/B Beam Barrier & Footpath	15	13/01/07	30/01/07
2RW3700	TTM Staging Preparation	19	29/11/06	21/12/06
2RW3710	TMLG Meeting	1	22/12/06	22/12/06
2RW3720	RMO/Roadwork Advice	10	23/12/06	06/01/07
A02RW1100	Construct WB U/G drainage & watermain(Bay 1-5)	22	13/03/07	07/04/07
A02RW1300	Construct W/B Rd Kerb, Barrier& Surfacing(B1-5)	13	04/04/07	23/04/07
A02RW1200	Utilities Laying for B1-5	13	04/04/07	23/04/07
A02RW1400	Construct W/B Beam Barrier & Foothpath(B1-5)	5	19/04/07	24/04/07
OUTFALL EA & EB CONSTRUCTION				
3OF1000	Lower section construction (Seaside - CPR)	120*	26/06/06	16/11/06
3OF1100	Construct Inlet & outlets	70	26/06/06	15/09/06
3OF1200	Construct cascades & pipes	58	07/09/06	16/11/06
3OF2000	Upper section pipe construction (Remaining)	35*	18/01/07	05/03/07
3OF2100	Pipe Construction (At Carriageway Portion)	35	18/01/07	05/03/07
Area 1 Construction (Ch1+600 to Ch1+705)				
5RW0500	W/B: Clear existing road surface	12	03/02/07	16/02/07
5RW1500	Construct W/B carriageway road surfacing	6	17/02/07	01/03/07



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Early Bar
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Date	Revision	Checked	Approved
02/08/06	0		
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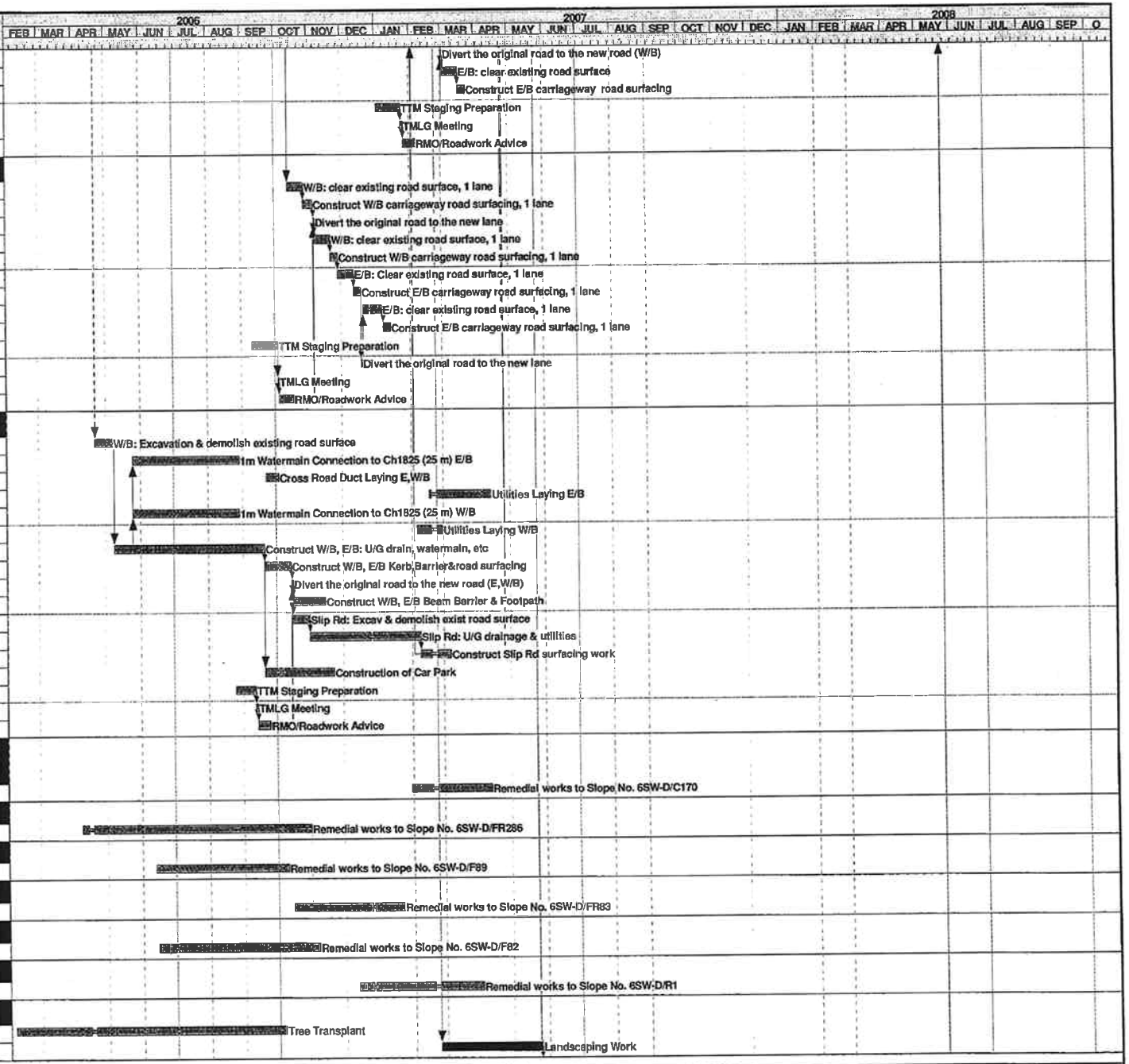
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
5RW2000	Divert the original road to the new road (W/B)	1	02/03/07	02/03/07
5RW2500	E/B: clear existing road surface	12	03/03/07	16/03/07
5RW3500	Construct E/B carriageway road surfacing	6	17/03/07	23/03/07
5RW3510	TTM Staging Preparation	19	03/01/07	24/01/07
5RW3520	TMLG Meeting	1	25/01/07	25/01/07
5RW3530	RMO/Roadwork Advice	10	26/01/07	06/02/07
Area 6 Construction(Ch2+300 to Ch2+400)				
6RW0500	W/B: clear existing road surface, 1 lane	12	14/10/06	27/10/06
6RW1500	Construct W/B carriageway road surfacing, 1 lane	6	28/10/06	04/11/06
6RW2000	Divert the original road to the new lane	1	06/11/06	06/11/06
6RW2100	W/B: clear existing road surface, 1 lane	12	07/11/06	20/11/06
6RW2200	Construct W/B carriageway road surfacing, 1 lane	6	21/11/06	27/11/06
6RW2500	E/B: Clear existing road surface, 1 lane	12	28/11/06	11/12/06
6RW3500	Construct E/B carriageway road surfacing, 1 lane	6	12/12/06	18/12/06
6RW3501	E/B: clear existing road surface, 1 lane	12	21/12/06	06/01/07
6RW3502	Construct E/B carriageway road surfacing, 1 lane	6	08/01/07	13/01/07
6RW3510	TTM Staging Preparation	19	11/09/06	03/10/06
6RW3511	Divert the original road to the new lane	1	19/12/06	19/12/06
6RW3520	TMLG Meeting	1	04/10/06	04/10/06
6RW3530	RMO/Roadwork Advice	10	05/10/06	17/10/06
Area 2 Construction(Ch1+705 to Ch1+825)				
1RW0500	W/B: Excavation & demolish existing road surface	12	21/04/06*	06/05/06
A0UU25700	1m Watermain Connection to Ch1825 (25 m) E/B	80	25/05/06	28/08/06
A01RW0800	Cross Road Duct Laying E,W/B	8	23/09/06	03/10/06
A01RW0600	Utilities Laying E/B	42*	17/02/07	13/04/07
A0UU26100	1m Watermain Connection to Ch1825 (25 m) W/B	80	25/05/06	28/08/06
A01RW0700	Utilities Laying W/B	14*	06/02/07	27/02/07
1RW1000	Construct W/B, E/B: U/G drain, watermain, etc	115	08/05/06	20/09/06
1RW1500	Construct W/B, E/B Kerb,Barrier&road surfacing	19	21/09/06	14/10/06
1RW2000	Divert the original road to the new road (E,W/B)	1	16/10/06	16/10/06
1RW2010	Construct W/B, E/B Beam Barrier & Footpath	24	17/10/06	14/11/06
1RW2500	Slip Rd: Excav & demolish exist road surface	12	17/10/06	31/10/06
1RW3000	Slip Rd: U/G drainage & utilities	82	01/11/06	08/02/07
1RW3500	Construct Slip Rd surfacing work	18	09/02/07	07/03/07
A01RW0500	Construction of Car Park	50	21/09/06	21/11/06
1RW3510	TTM Staging Preparation	15	26/08/06	12/09/06
1RW3520	TMLG Meeting	1	13/09/06	13/09/06
1RW3530	RMO/Roadwork Advice	10	14/09/06	25/09/06
Slope Remedial Works				
Remedial Work 6SW-D/C170				
SW3000	Remedial works to Slope No. 6SW-D/C170	57*	30/01/07	12/04/07
Remedial Work 6SW-D/FR286				
SW3500	Remedial works to Slope No. 6SW-D/FR286	167*	08/04/06	31/10/06
Remedial Work 6SW-D/F89				
SW4000	Remedial works to Slope No. 6SW-D/F89	100*	13/06/06	10/10/06
Remedial Work 6SW-D/FR83				
SW5000	Remedial works to Slope No. 6SW-D/FR83	80*	16/10/06	22/01/07
Remedial Work 6SW-D/F82				
SW5500	Remedial works to Slope No. 6SW-D/F82	120*	15/06/06	06/11/06
Remedial Work 6SW-D/R1				
SW6000	Remedial works to Slope No. 6SW-D/R1	87*	12/12/06	02/04/07
Section II - Landscaping Works				
A0LW1000	Tree Transplant	200	06/02/06*	06/10/06
LW1000	Landscaping Work	90	24/02/07	24/05/07



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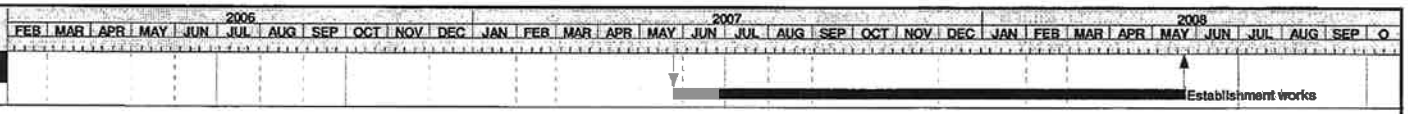
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
Section III - Establishment Period				
EP1000	Establishment works	365	25/05/07	23/05/08



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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

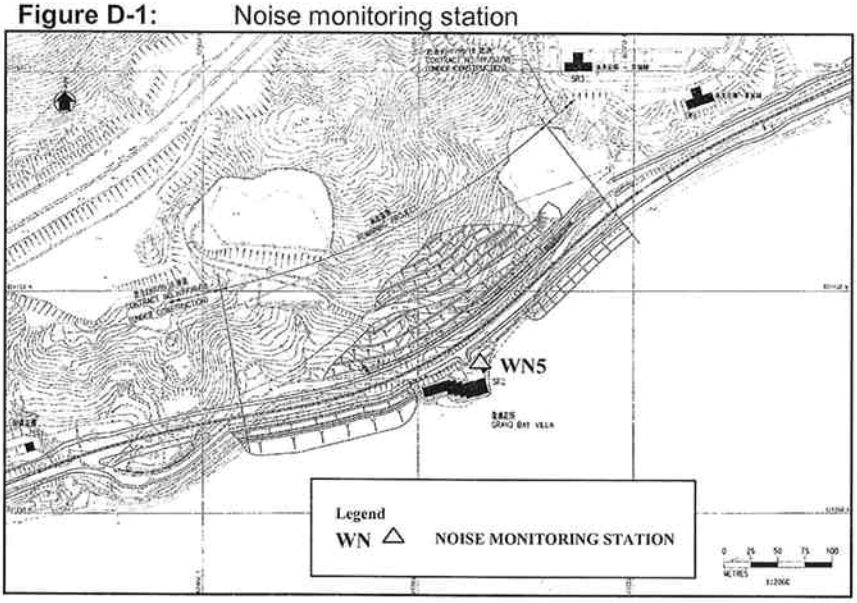
Noise monitoring will be conducted at one designated location as shown in **Figure D-1**. The details of the noise monitoring location are given in **Table D-2**. The measurements will be taken at a position 1m from the exterior of building façade and at a position of 1.2m above ground.

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.

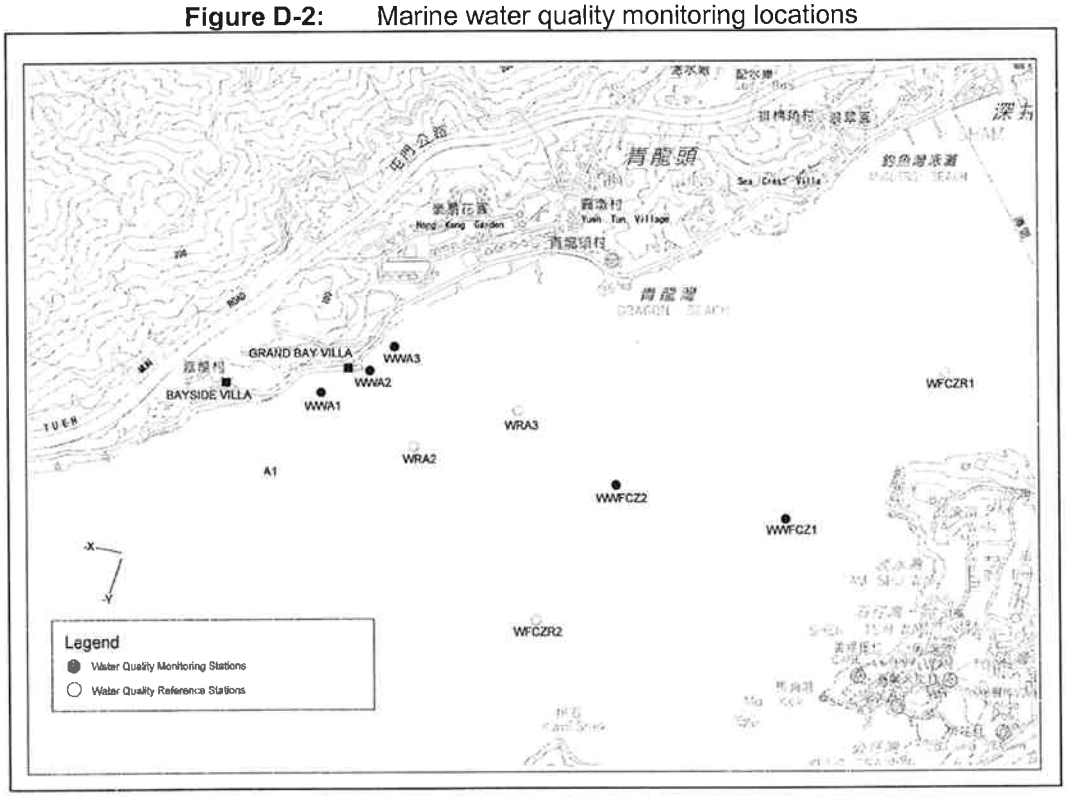
Monitoring Locations

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	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.	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.	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.	1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	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	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.	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.	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.

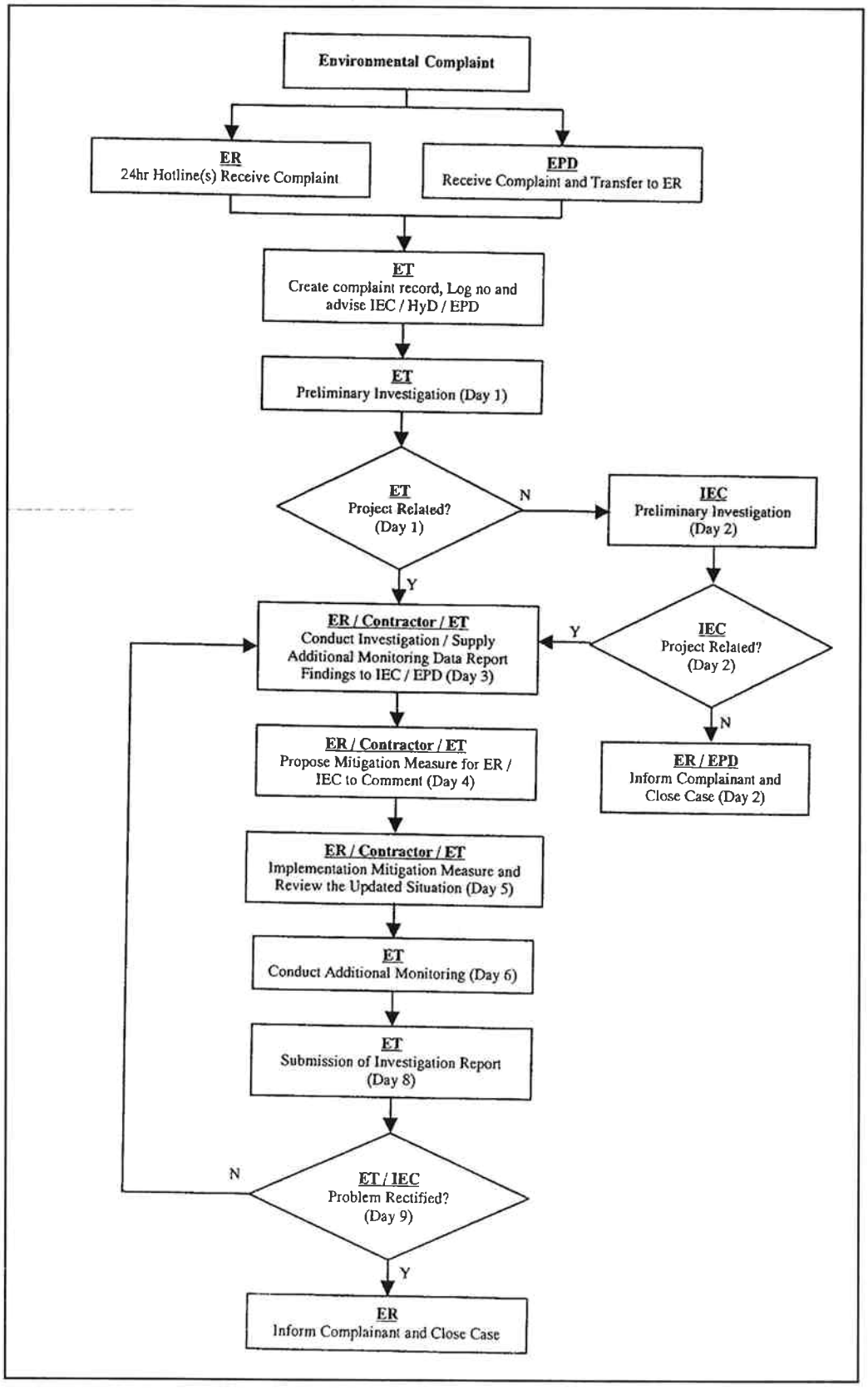
Marine Water Quality

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	1. Repeat in-situ measurement to confirm findings. 2. Identify source(s) of impact. 3. Inform the IEC and the Contractor. 4. Check monitoring data, all plant, equipment and the Contractor's working methods. 5. Discuss mitigation measures with the IEC and the Contractor. 6. Repeat measurement on next day of exceedance.	1. Discuss with the ET Leader and the Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly. 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with the IEC on the proposed mitigation measures. 2. Make agreement on the mitigation measures to be implemented.	1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plants and equipment. 4. Consider changes of working methods. 5. Discuss with the ET Leader and the IEC and propose mitigation measures to the IEC and the ER. 6. Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive days	1. Repeat in-situ measurement to confirm findings. 2. Identify source(s) of impact. 3. Inform the IEC and the Contractor. 4. Check monitoring data, all plant, equipment and the Contractor's working methods. 5. Discuss mitigation measures with the IEC and the Contractor. 6. Ensure mitigation measures are implemented. 7. Prepare to increase the monitoring frequency to daily. 8. Repeat measurement on next day of exceedance.	1. Discuss with the ET Leader and the Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly. 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures. 2. Make agreement on the mitigation measures to be implemented. 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plants and equipment. 4. Consider changes of working methods. 5. Discuss with the ET Leader and the IEC and propose mitigation measures to the IEC and the ER within 3 working days. 6. Implement the agreed mitigation measures.
Limit Level				
Limit level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings. 2. Identify source(s) of impact. 3. Inform the IEC, the Contractor and the DEP. 4. Check monitoring data, all plant, equipment and the Contractor's working methods. 5. Discuss mitigation measures with the IEC, the ER and the Contractor. 6. Ensure mitigation measures are implemented. 7. Increase the monitoring frequency to daily until no exceedance of the Limit Level.	1. Discuss with the ET Leader and the Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly. 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, the ET Leader and the Contractor on the proposed mitigation measures. 2. Request the Contractor to critically review the working methods. 3. Make agreement on the mitigation measures to be implemented. 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plants and equipment. 4. Consider changes of working methods. 5. Discuss with the ET Leader, the IEC and the ER, and propose mitigation measures to the IEC and the ER within 3 working days. 6. Implement the agreed mitigation measures.
Limit level being exceeded by more than one consecutive days	1. Repeat in-situ measurement to confirm findings. 2. Identify source(s) of impact. 3. Inform the IEC, the Contractor and the DEP. 4. Check monitoring data, all plant, equipment and the Contractor's working methods. 5. Discuss mitigation measures with the IEC, the ER and the Contractor. 6. Ensure mitigation measures are implemented. 7. Increase the monitoring frequency to daily until no exceedance of the Limit Level for two consecutive days.	1. Discuss with the ET Leader and the Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly. 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, the ET Leader and the Contractor on the proposed mitigation measures. 2. Request the Contractor to critically review the working methods. 3. Make agreement on the mitigation measures to be implemented. 4. Assess the effectiveness of the implemented mitigation measures. 5. 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.	1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plants and equipment. 4. Consider changes of working methods. 5. Discuss with the ET Leader, the IEC and the ER, and propose mitigation measures to the IEC and the ER within 3 working days. 6. Implement the agreed mitigation measures. 7. As directed by the ER, slow down or stop all or part of the construction activities.

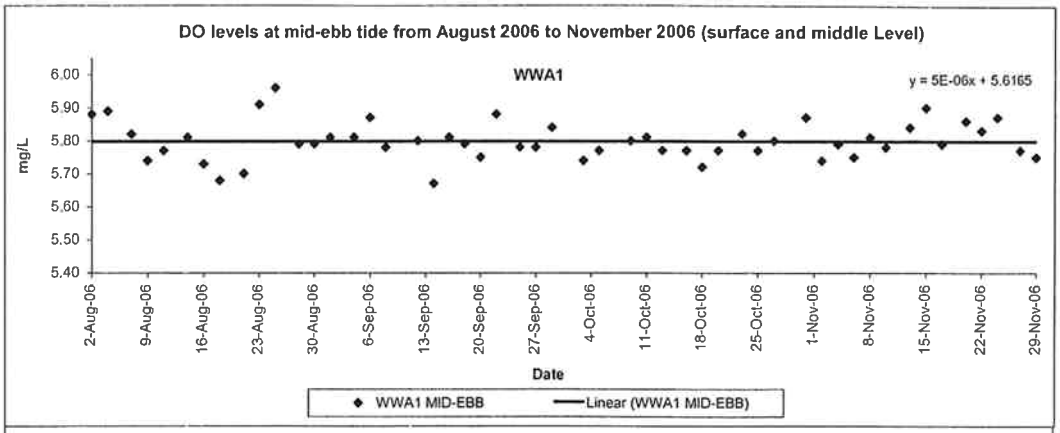
Appendix F

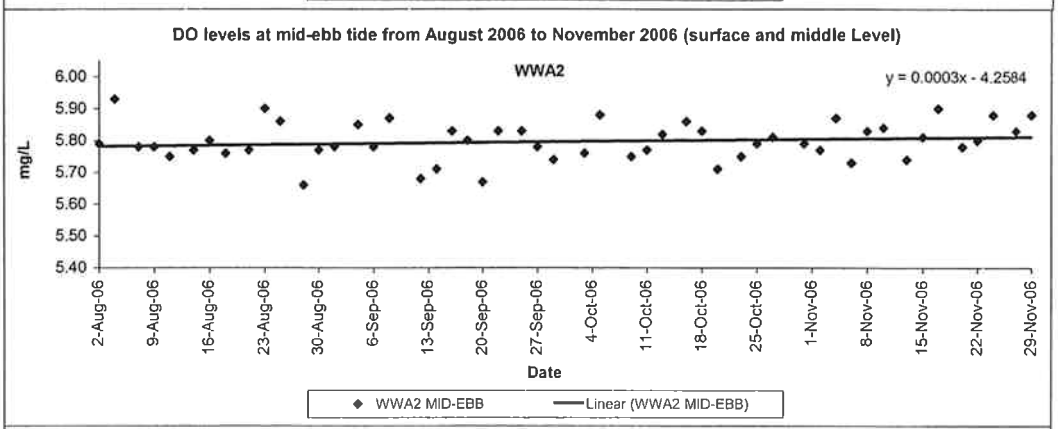
Complaint Procedures

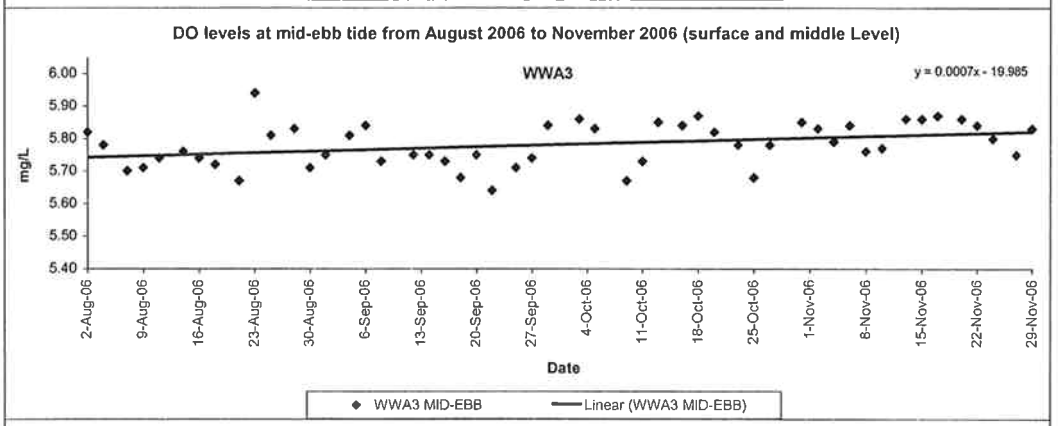

Environmental Complaint
ER
24hr Hotline(s) Receive Complaint
EPD
Receive Complaint and Transfer to ER
ET
Create complaint record, Log no and advise IEC / HyD / EPD
ET
Preliminary Investigation (Day 1)
ET
Project Related?
(Day 1)
N
IEC
Preliminary Investigation
(Day 2)
Y
ER / Contractor / ET
Conduct Investigation / Supply Additional Monitoring Data Report Findings to IEC / EPD (Day 3)
Y
IEC
Project Related?
(Day 2)
N
ER / EPD
Inform Complainant and Close Case (Day 2)
ER / Contractor / ET
Propose Mitigation Measure for ER / IEC to Comment (Day 4)
ER / Contractor / ET
Implementation Mitigation Measure and Review the Updated Situation (Day 5)
ET
Conduct Additional Monitoring (Day 6)
ET
Submission of Investigation Report
(Day 8)
N
ET / IEC
Problem Rectified?
(Day 9)
Y
ER
Inform Complainant and Close Case

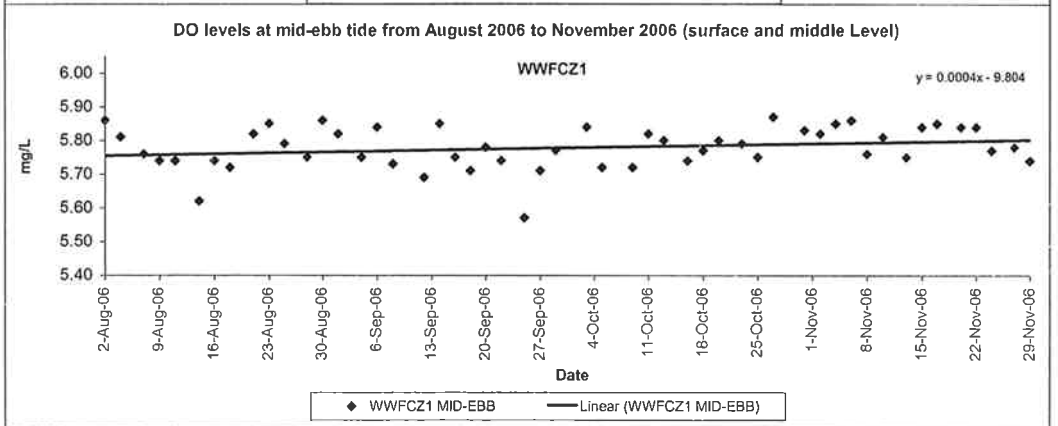
Appendix G

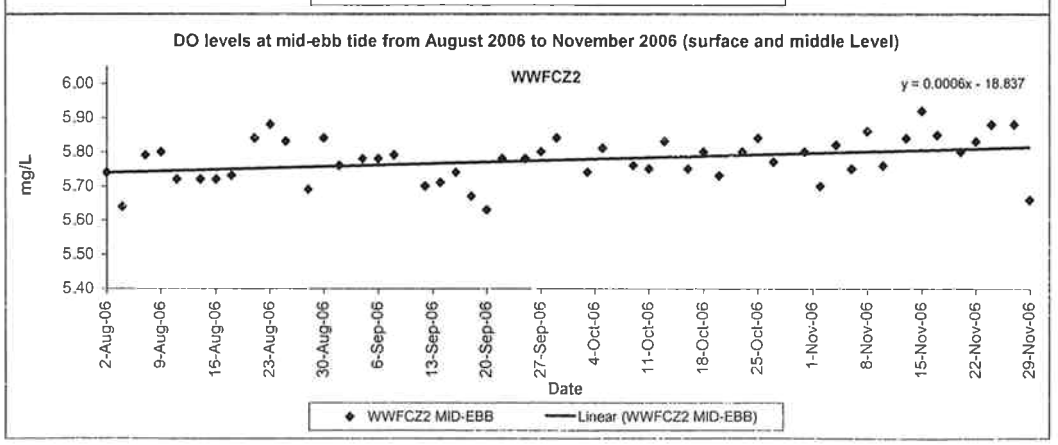
Graphical Presentation of Marine Water Monitoring Results

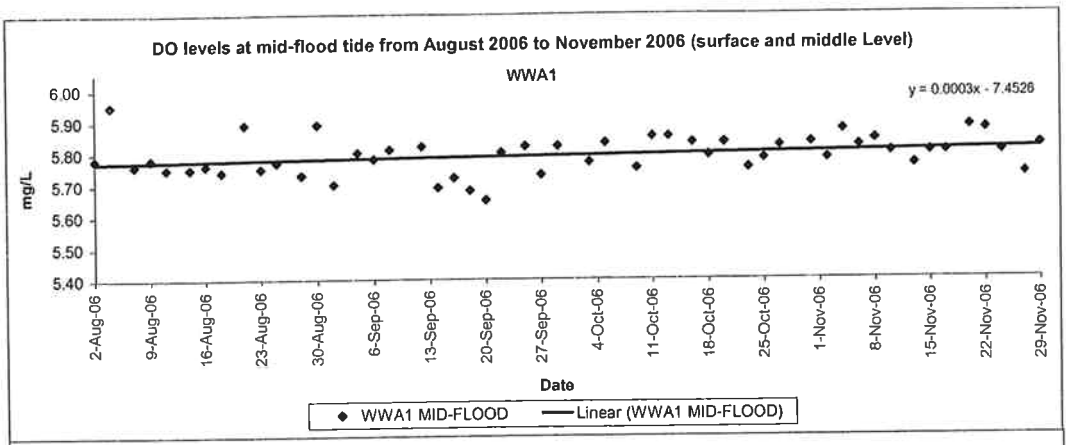

DO levels at mid-ebb tide from August 2006 to November 2006 (surface and middle Level)
WWA1
y = 5E-06x + 5.6165
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA1 MID-EBB
Linear (WWA1 MID-EBB)

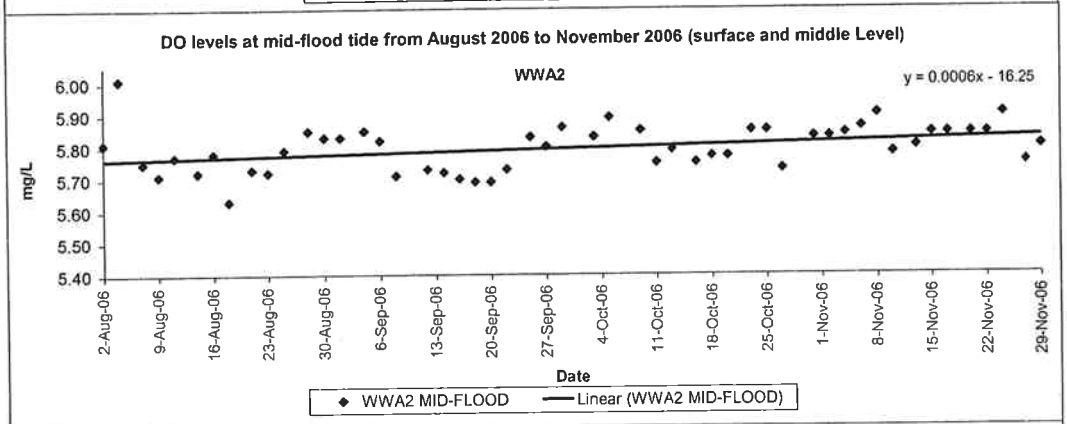

DO levels at mid-ebb tide from August 2006 to November 2006 (surface and middle Level)
WWA2
y = 0.0003x - 4.2584
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA2 MID-EBB
Linear (WWA2 MID-EBB)

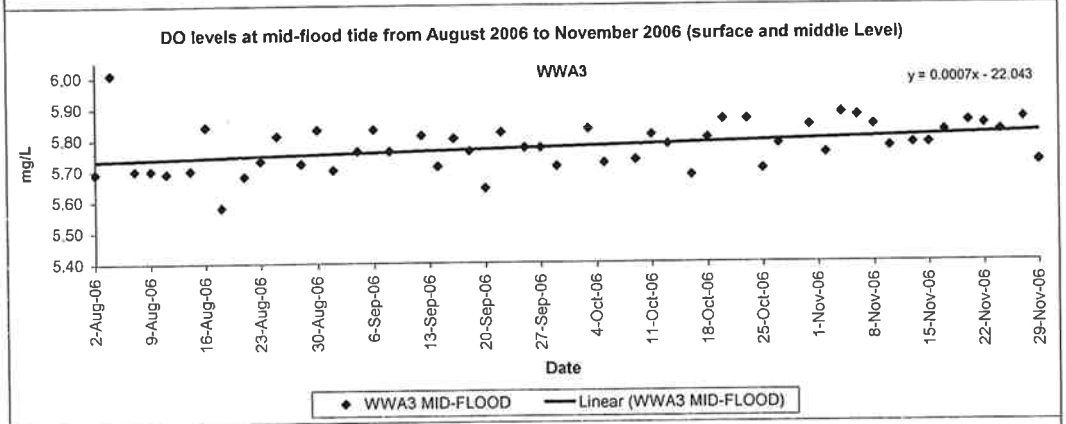

DO levels at mid-ebb tide from August 2006 to November 2006 (surface and middle Level)
WWA3
y = 0.0007x - 19.985
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA3 MID-EBB
Linear (WWA3 MID-EBB)

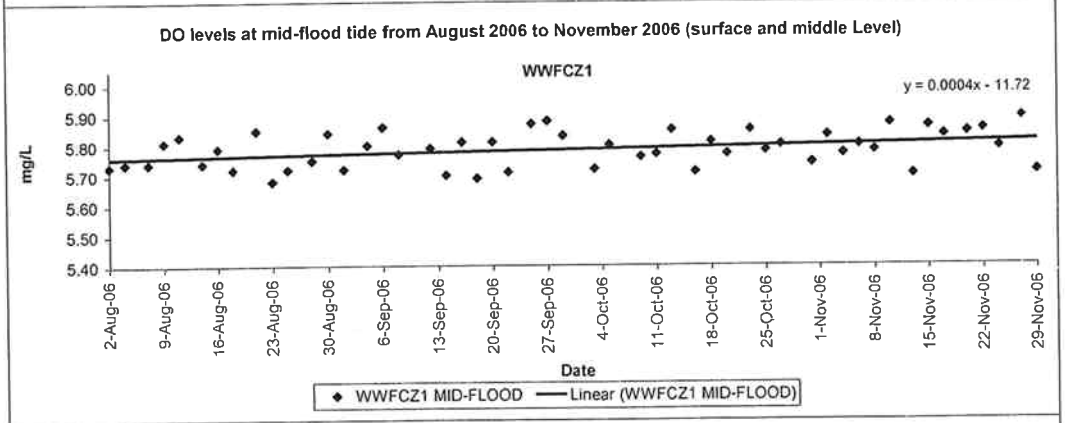

DO levels at mid-ebb tide from August 2006 to November 2006 (surface and middle Level)
WWFCZ1
y = 0.0004x - 9.804
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWFCZ1 MID-EBB
Linear (WWFCZ1 MID-EBB)

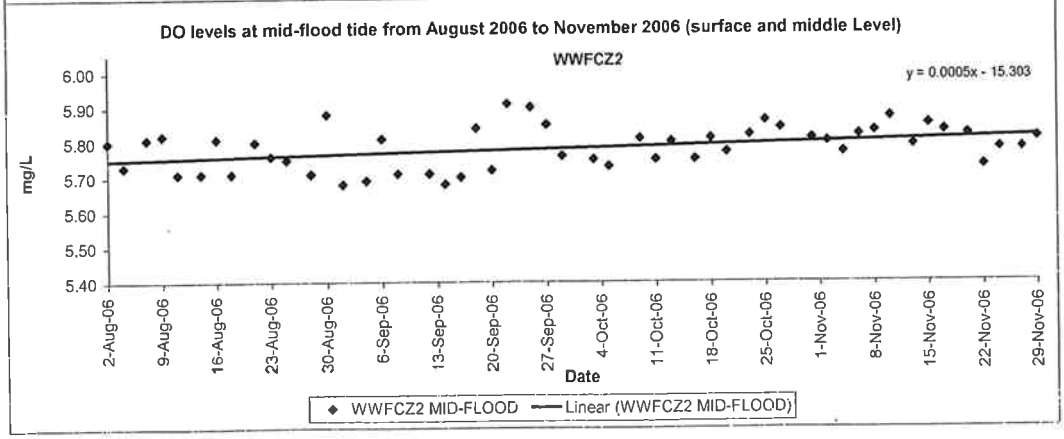

DO levels at mid-ebb tide from August 2006 to November 2006 (surface and middle Level)
WWFCZ2
y = 0.0006x - 18.837
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWFCZ2 MID-EBB
Linear (WWFCZ2 MID-EBB)

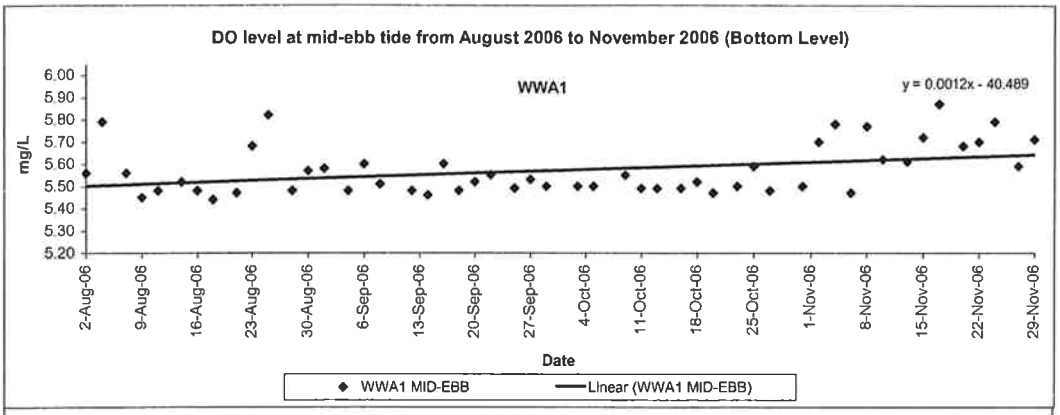

DO levels at mid-flood tide from August 2006 to November 2006 (surface and middle Level)
WWA1
y = 0.0003x - 7.4526
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA1 MID-FLOOD
Linear (WWA1 MID-FLOOD)

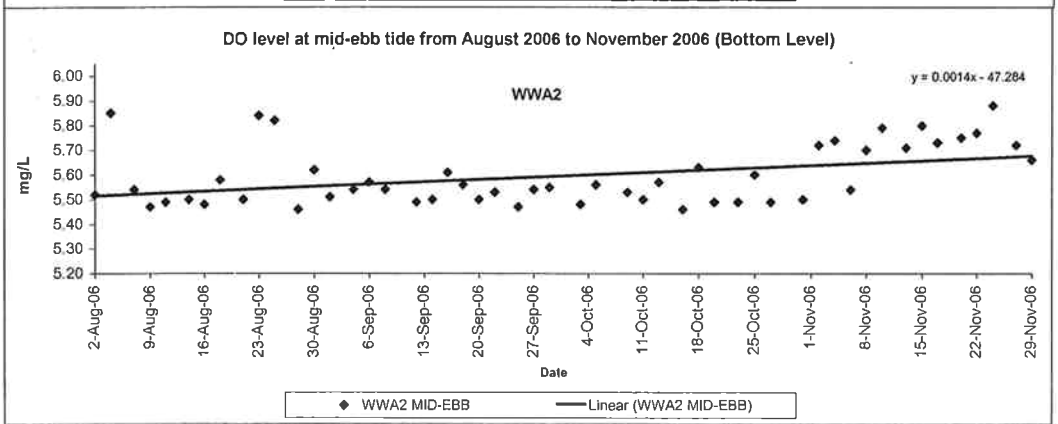

DO levels at mid-flood tide from August 2006 to November 2006 (surface and middle Level)
WWA2
y = 0.0006x - 16.25
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA2 MID-FLOOD
Linear (WWA2 MID-FLOOD)

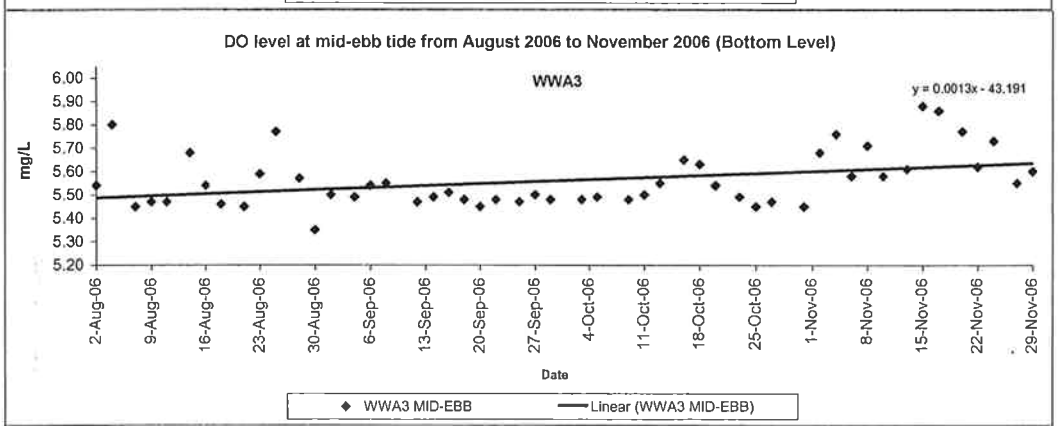

DO levels at mid-flood tide from August 2006 to November 2006 (surface and middle Level)
WWA3
y = 0.0007x - 22.043
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA3 MID-FLOOD
Linear (WWA3 MID-FLOOD)

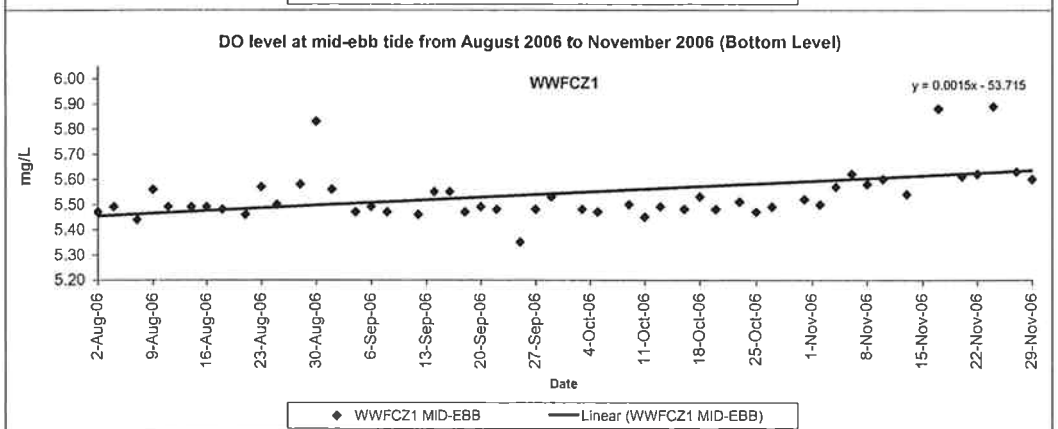

DO levels at mid-flood tide from August 2006 to November 2006 (surface and middle Level)
WWFCZ1
y = 0.0004x - 11.72
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWFCZ1 MID-FLOOD
Linear (WWFCZ1 MID-FLOOD)

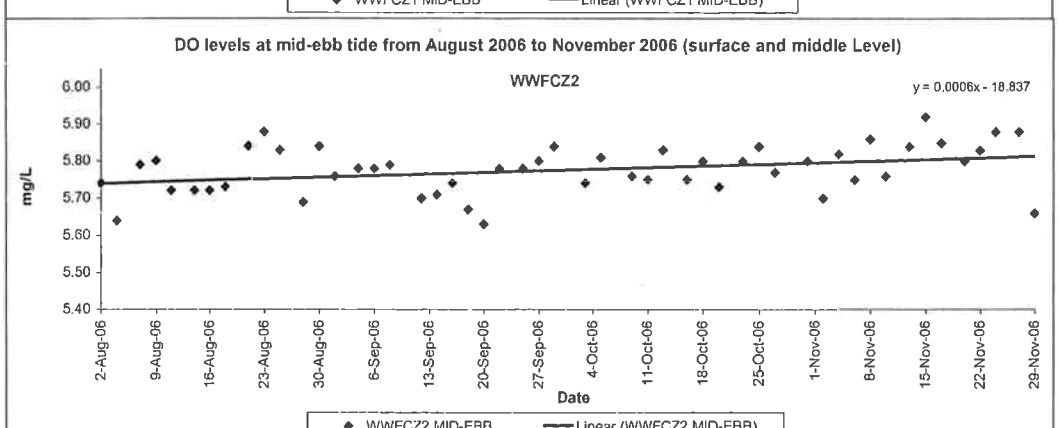

DO levels at mid-flood tide from August 2006 to November 2006 (surface and middle Level)
WWFCZ2
y = 0.0005x - 15.303
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWFCZ2 MID-FLOOD
Linear (WWFCZ2 MID-FLOOD)

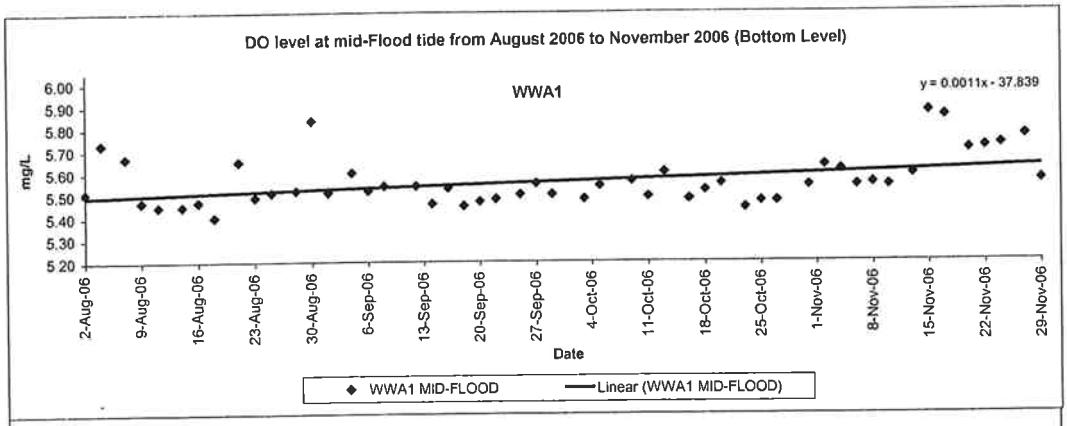

DO level at mid-ebb tide from August 2006 to November 2006 (Bottom Level)
WWA1
y = 0.0012x - 40.489
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
5.30
5.20
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA1 MID-EBB
Linear (WWA1 MID-EBB)

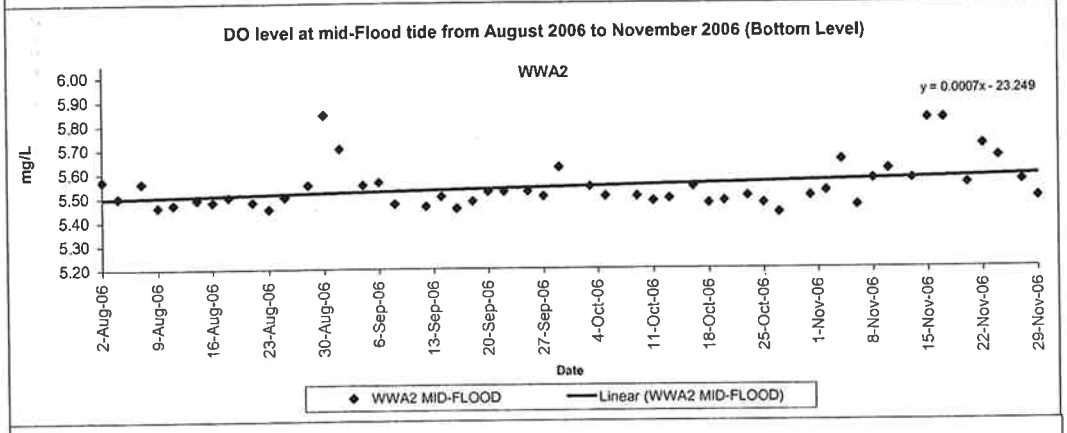

DO level at mid-ebb tide from August 2006 to November 2006 (Bottom Level)
WWA2
y = 0.0014x - 47.284
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
5.30
5.20
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA2 MID-EBB
Linear (WWA2 MID-EBB)

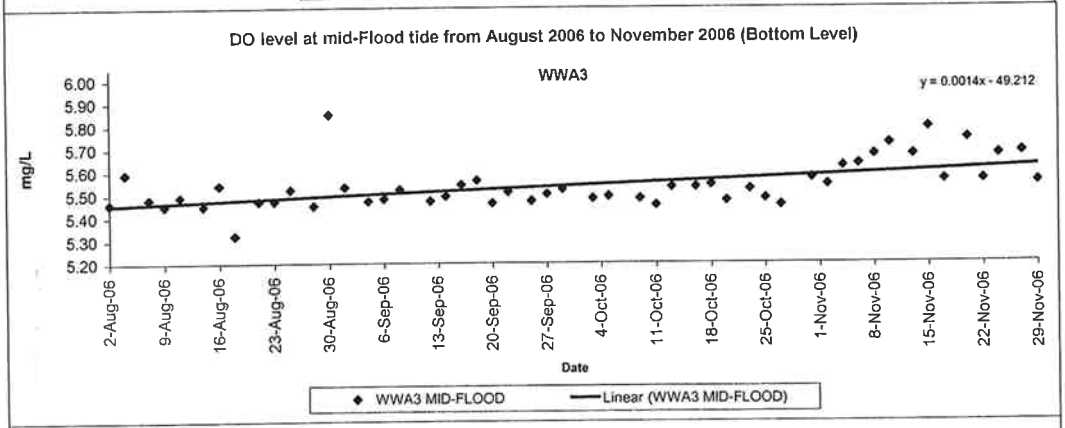

DO level at mid-ebb tide from August 2006 to November 2006 (Bottom Level)
WWA3
y = 0.0013x - 43.191
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
5.30
5.20
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA3 MID-EBB
Linear (WWA3 MID-EBB)

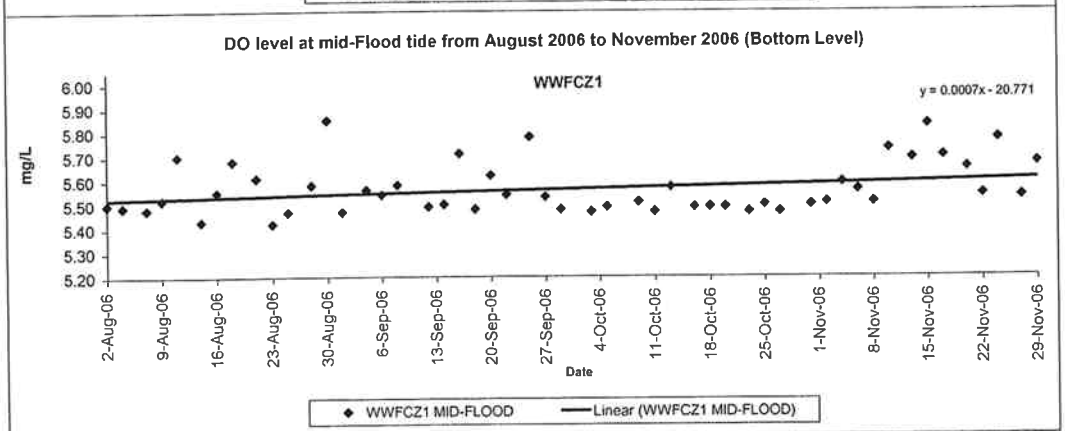

DO level at mid-ebb tide from August 2006 to November 2006 (Bottom Level)
WWFCZ1
y = 0.0015x - 53.715
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
5.30
5.20
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWFCZ1 MID-EBB
Linear (WWFCZ1 MID-EBB)

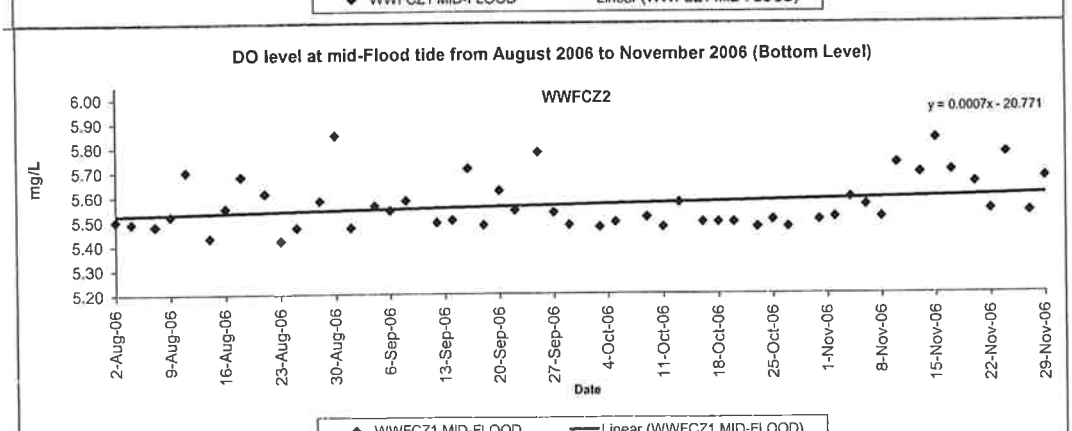

DO levels at mid-ebb tide from August 2006 to November 2006 (surface and middle Level)
WWFCZ2
y = 0.0006x - 18.837
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWFCZ2 MID-EBB
Linear (WWFCZ2 MID-EBB)

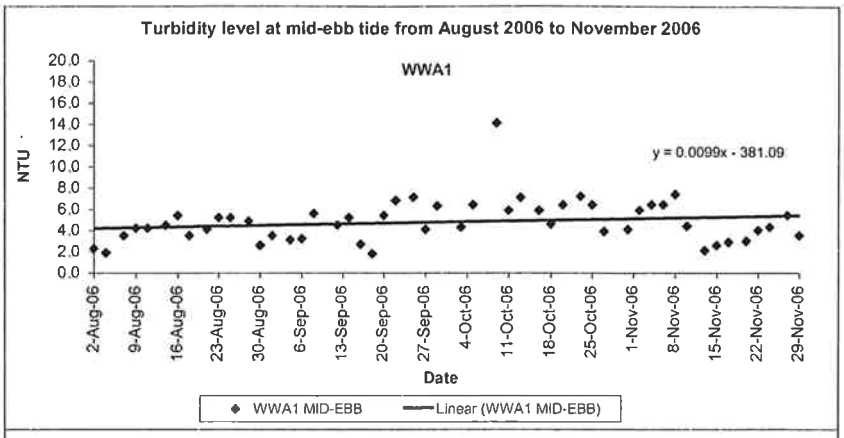

DO level at mid-Flood tide from August 2006 to November 2006 (Bottom Level)
WWA1
y = 0.0011x - 37.839
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
5.30
5.20
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA1 MID-FLOOD
Linear (WWA1 MID-FLOOD)

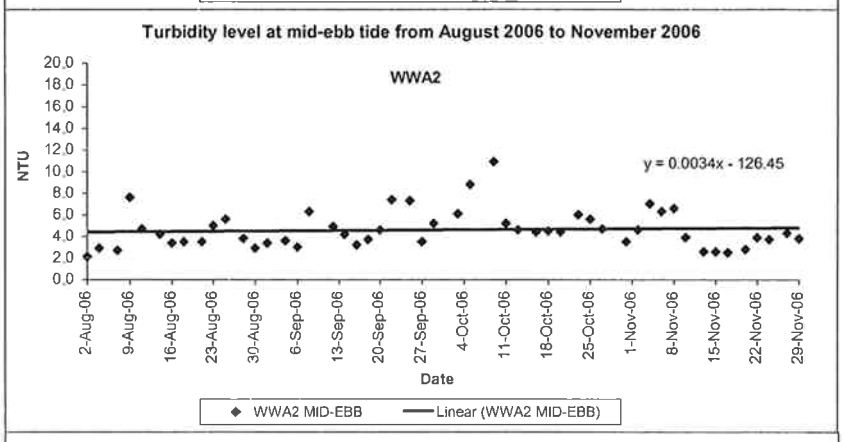

DO level at mid-Flood tide from August 2006 to November 2006 (Bottom Level)
WWA2
y = 0.0007x - 23.249
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
5.30
5.20
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA2 MID-FLOOD
Linear (WWA2 MID-FLOOD)

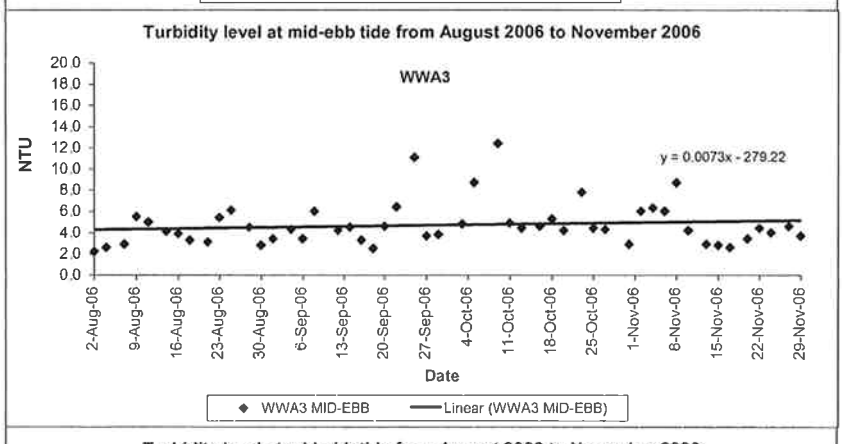

DO level at mid-Flood tide from August 2006 to November 2006 (Bottom Level)
WWA3
y = 0.0014x - 49.212
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
5.30
5.20
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA3 MID-FLOOD
Linear (WWA3 MID-FLOOD)

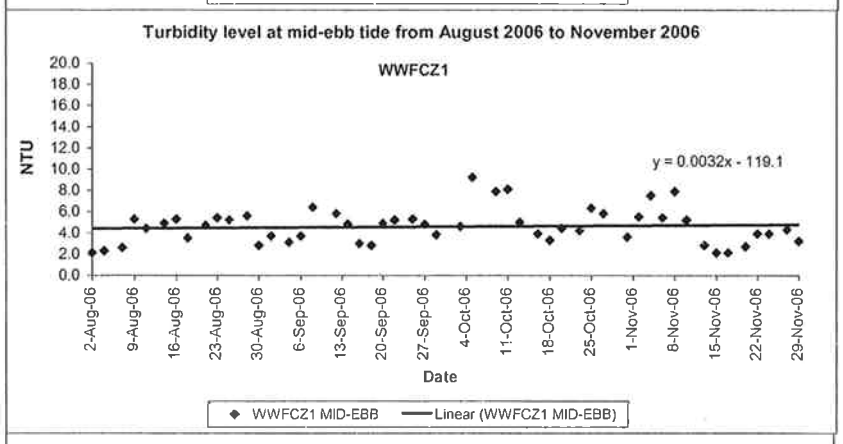

DO level at mid-Flood tide from August 2006 to November 2006 (Bottom Level)
WWFCZ1
y = 0.0007x - 20.771
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
5.30
5.20
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWFCZ1 MID-FLOOD
Linear (WWFCZ1 MID-FLOOD)

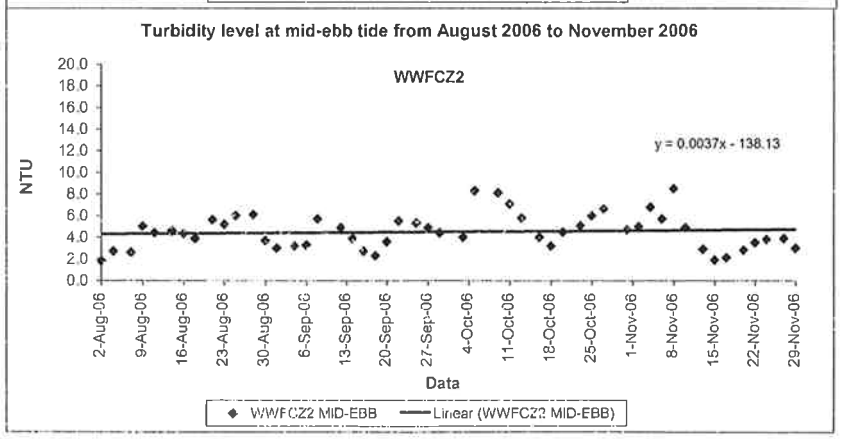

DO level at mid-Flood tide from August 2006 to November 2006 (Bottom Level)
WWFCZ2
y = 0.0007x - 20.771
mg/L
6.00
5.90
5.80
5.70
5.60
5.50
5.40
5.30
5.20
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWFCZ1 MID-FLOOD
Linear (WWFCZ1 MID-FLOOD)

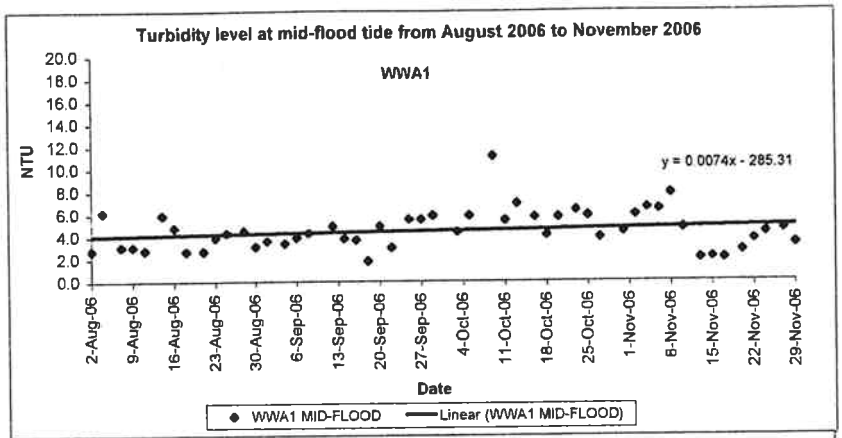

Turbidity level at mid-ebb tide from August 2006 to November 2006
WWA1
y = 0.0099x - 381.09
NTU
Date
WWA1 MID-EBB
Linear (WWA1 MID-EBB)

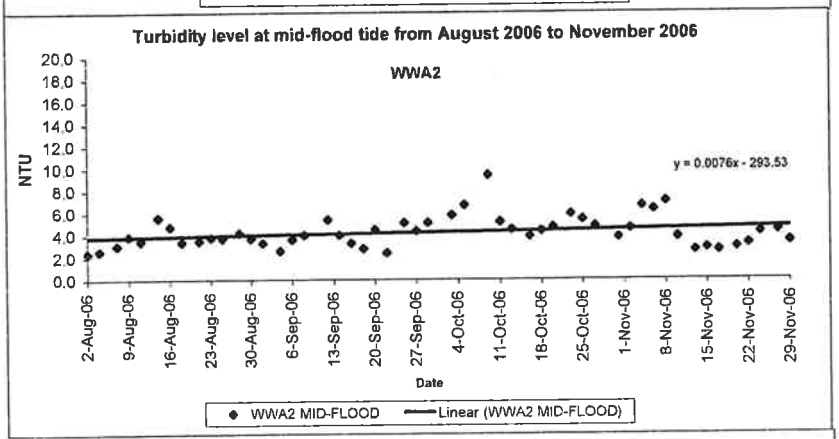

Turbidity level at mid-ebb tide from August 2006 to November 2006
WWA2
y = 0.0034x - 126.45
NTU
Date
WWA2 MID-EBB
Linear (WWA2 MID-EBB)

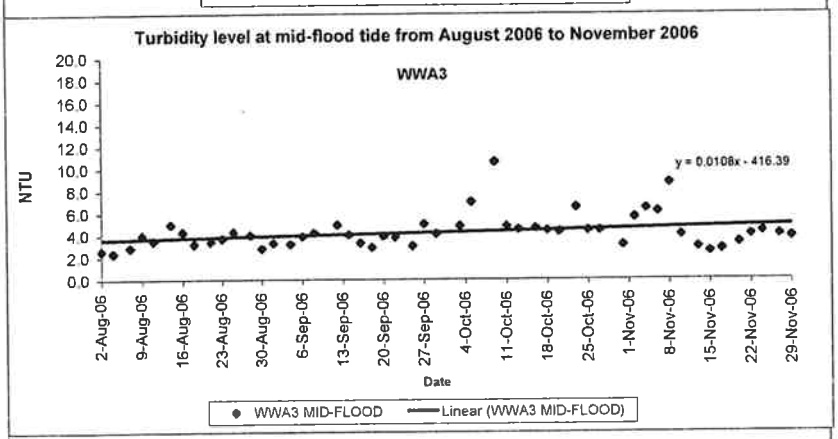

Turbidity level at mid-ebb tide from August 2006 to November 2006
WWA3
y = 0.0073x - 279.22
NTU
Date
WWA3 MID-EBB
Linear (WWA3 MID-EBB)

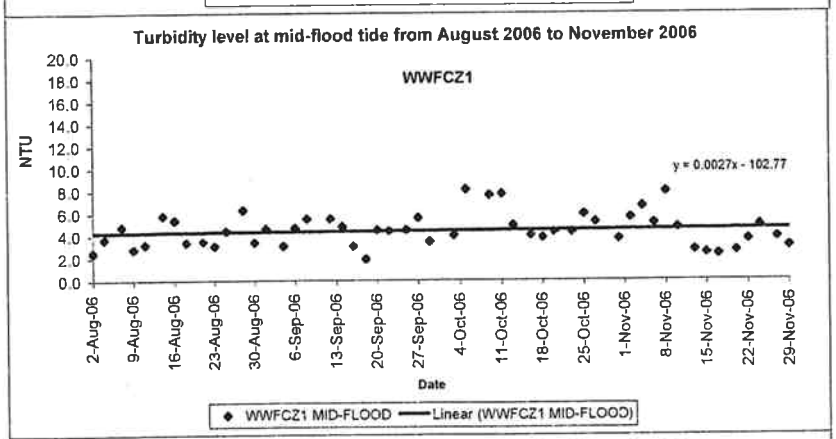

Turbidity level at mid-ebb tide from August 2006 to November 2006
WWFCZ1
y = 0.0032x - 119.1
NTU
Date
WWFCZ1 MID-EBB
Linear (WWFCZ1 MID-EBB)

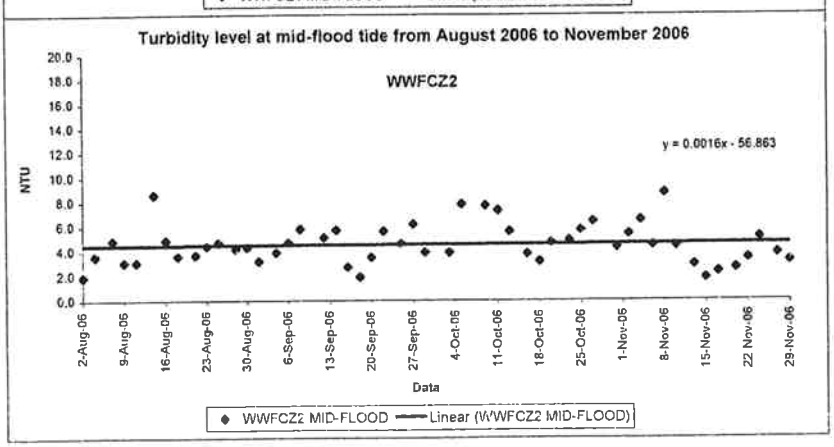

Turbidity level at mid-ebb tide from August 2006 to November 2006
WWFCZ2
y = 0.0037x - 138.13
NTU
Data
WWFCZ2 MID-EBB
Linear (WWFCZ2 MID-EBB)

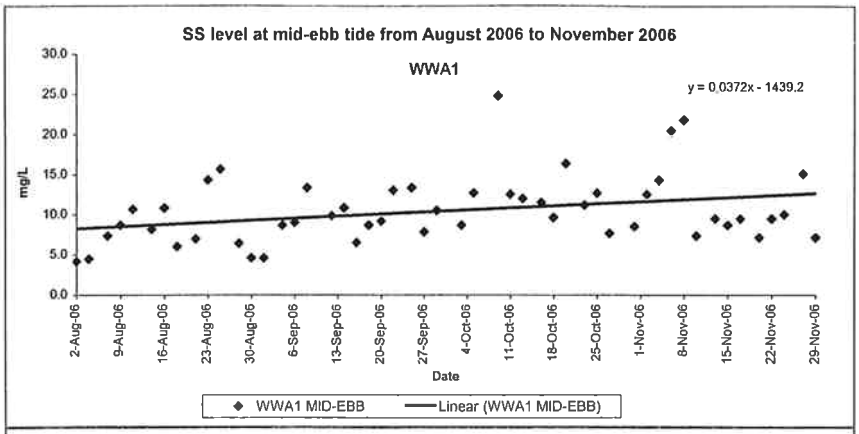

Turbidity level at mid-flood tide from August 2006 to November 2006
WWA1
y = 0.0074x - 285.31
NTU
Date
WWA1 MID-FLOOD
Linear (WWA1 MID-FLOOD)

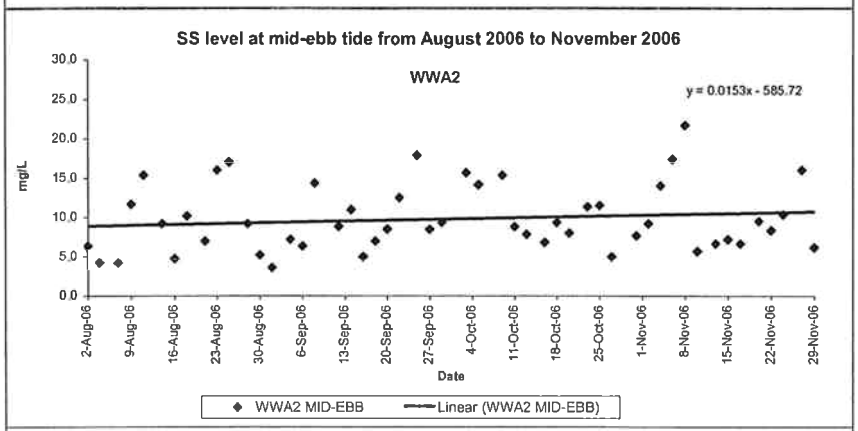

Turbidity level at mid-flood tide from August 2006 to November 2006
WWA2
y = 0.0076x - 293.53
NTU
Date
WWA2 MID-FLOOD
Linear (WWA2 MID-FLOOD)

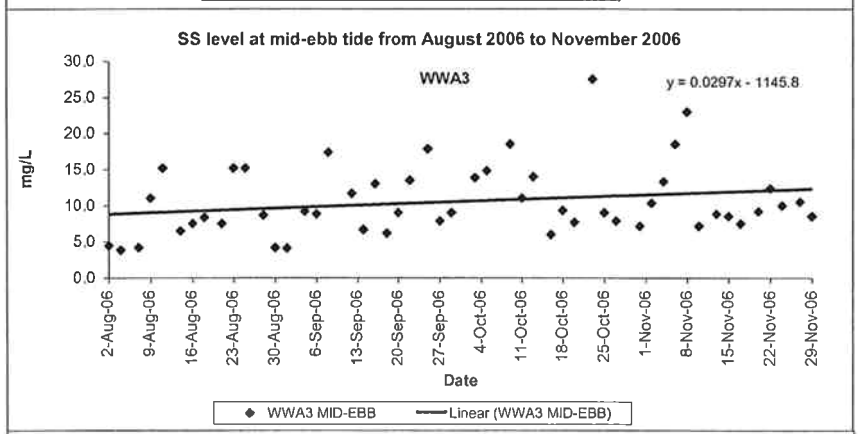

Turbidity level at mid-flood tide from August 2006 to November 2006
WWA3
y = 0.0108x - 416.39
NTU
Date
WWA3 MID-FLOOD
Linear (WWA3 MID-FLOOD)

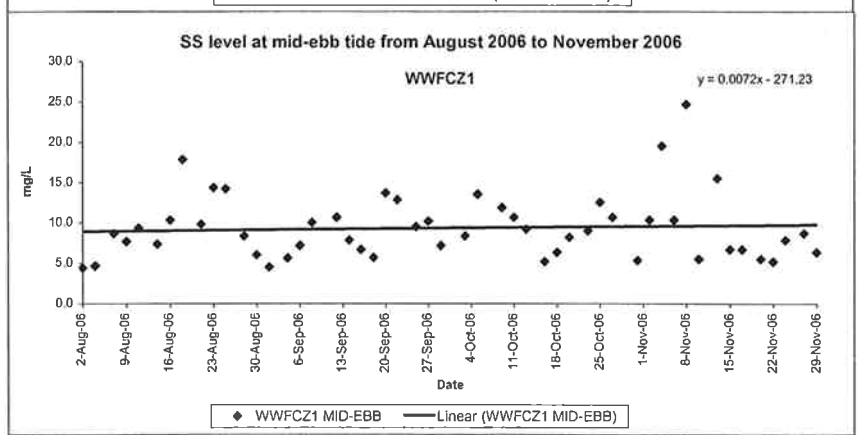

Turbidity level at mid-flood tide from August 2006 to November 2006
WWFCZ1
y = 0.0027x - 102.77
NTU
Date
WWFCZ1 MID-FLOOD
Linear (WWFCZ1 MID-FLOOD)

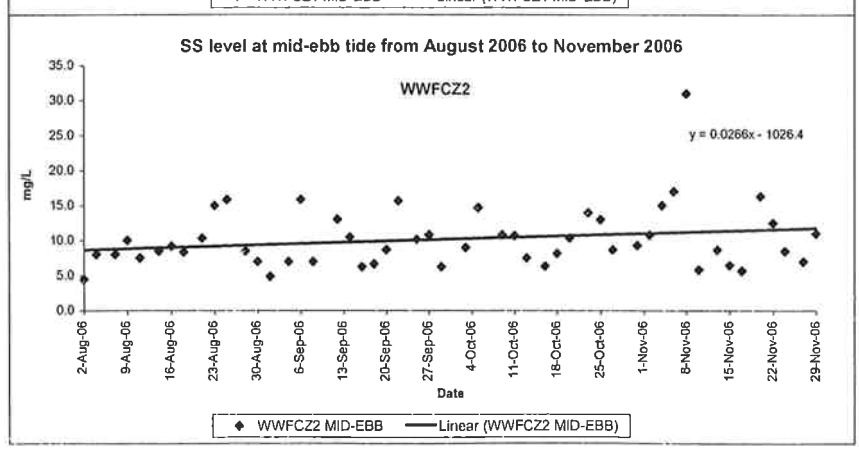

Turbidity level at mid-flood tide from August 2006 to November 2006
WWFCZ2
y = 0.0016x - 56.863
NTU
Date
WWFCZ2 MID-FLOOD
Linear (WWFCZ2 MID-FLOOD)

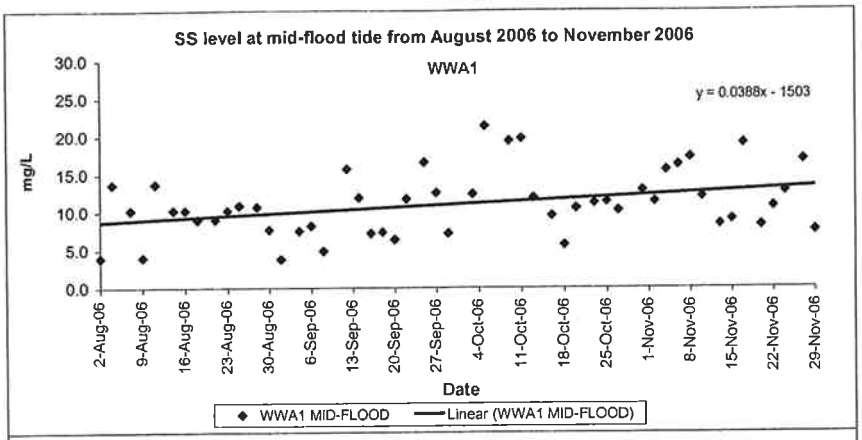

SS level at mid-ebb tide from August 2006 to November 2006
WWA1
y = 0.0372x - 1439.2
mg/L
Date
WWA1 MID-EBB
Linear (WWA1 MID-EBB)

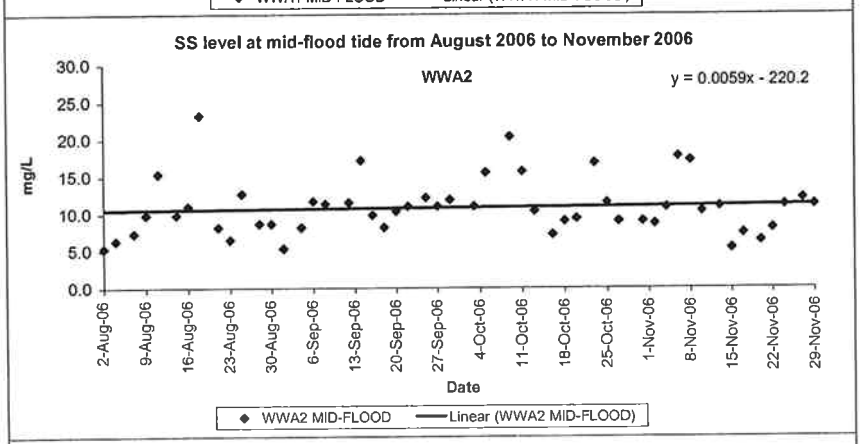

SS level at mid-ebb tide from August 2006 to November 2006
WWA2
y = 0.0153x - 585.72
mg/L
Date
WWA2 MID-EBB
Linear (WWA2 MID-EBB)

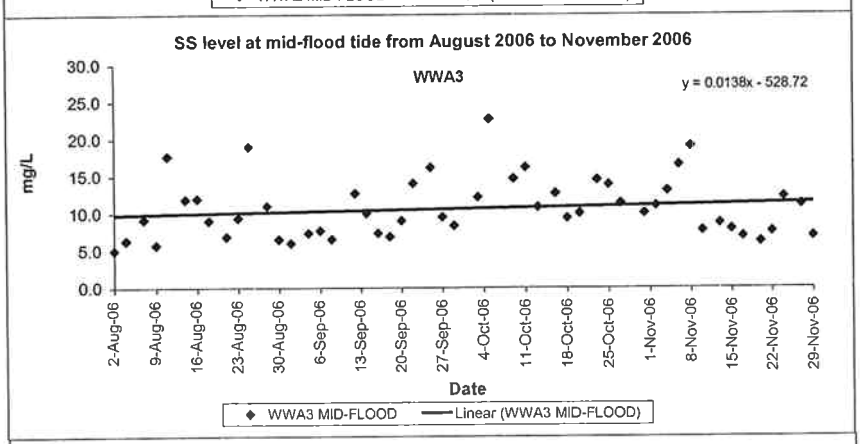

SS level at mid-ebb tide from August 2006 to November 2006
WWA3
y = 0.0297x - 1145.8
mg/L
Date
WWA3 MID-EBB
Linear (WWA3 MID-EBB)

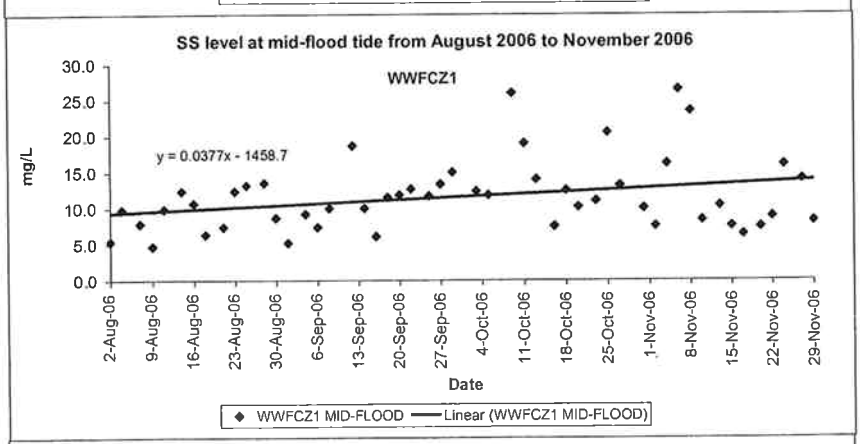

SS level at mid-ebb tide from August 2006 to November 2006
WWFCZ1
y = 0.0072x - 271.23
mg/L
Date
WWFCZ1 MID-EBB
Linear (WWFCZ1 MID-EBB)

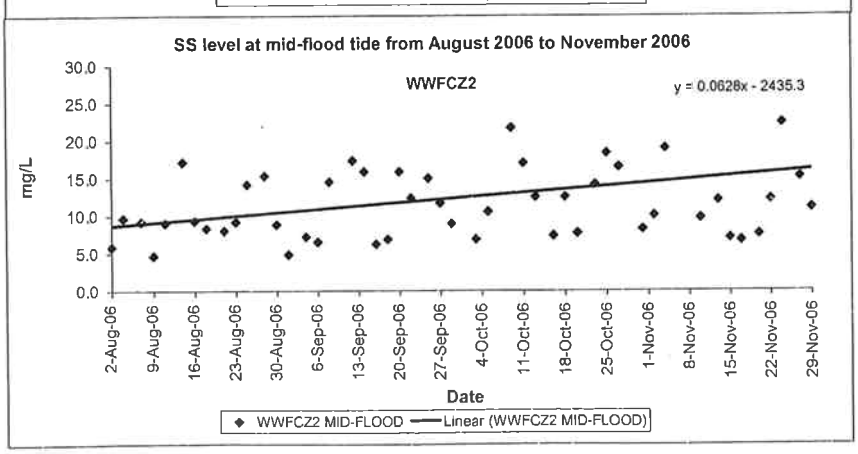

SS level at mid-ebb tide from August 2006 to November 2006
WWFCZ2
y = 0.0266x - 1026.4
mg/L
Date
WWFCZ2 MID-EBB
Linear (WWFCZ2 MID-EBB)


SS level at mid-flood tide from August 2006 to November 2006
WWA1
y = 0.0388x - 1503
mg/L
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA1 MID-FLOOD
Linear (WWA1 MID-FLOOD)


SS level at mid-flood tide from August 2006 to November 2006
WWA2
y = 0.0059x - 220.2
mg/L
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA2 MID-FLOOD
Linear (WWA2 MID-FLOOD)


SS level at mid-flood tide from August 2006 to November 2006
WWA3
y = 0.0138x - 528.72
mg/L
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWA3 MID-FLOOD
Linear (WWA3 MID-FLOOD)


SS level at mid-flood tide from August 2006 to November 2006
WWFCZ1
y = 0.0377x - 1458.7
mg/L
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWFCZ1 MID-FLOOD
Linear (WWFCZ1 MID-FLOOD)


SS level at mid-flood tide from August 2006 to November 2006
WWFCZ2
y = 0.0628x - 2435.3
mg/L
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2-Aug-06
9-Aug-06
16-Aug-06
23-Aug-06
30-Aug-06
6-Sep-06
13-Sep-06
20-Sep-06
27-Sep-06
4-Oct-06
11-Oct-06
18-Oct-06
25-Oct-06
1-Nov-06
8-Nov-06
15-Nov-06
22-Nov-06
29-Nov-06
Date
WWFCZ2 MID-FLOOD
Linear (WWFCZ2 MID-FLOOD)

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: • 5m high temporary noise barriers with a material surface density of at least 7 kg/m^2 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				
6-Sep-06	mid-ebb	WWFCZ2	-	-	-	-	-	-	-	13.0	14.2	15.8	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWFCZ2 on 6 September 2006 by ET's field staff. The exceednace contributed by the nearby stations WRA1, WRA2 and WRA3 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	15-Sep-06	Refer to ET's field record & CT's daily records.
8-Sep-06	mid-ebb	WWA1	-	-	-	-	-	-	-	13.0	13.0	13.3	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA1, WWA2 and WWA3 on 8 September 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	15-Sep-06	Refer to ET's field record & CT's daily records.
8-Sep-06	mid-ebb	WWA2	-	-	-	-	-	-	-	13.0	8.8	14.3	Ditto	Ditto	Ditto	Ditto
8-Sep-06	mid-ebb	WWA3	-	-	-	-	-	-	-	13.0	12.7	17.3	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-Sep-06	mid-flood	WWA2	-	-	-	-	-	-	-	17.0	5.7	17.2	Muddy runoff was observed discharging into nearby gullies at Castle Peak Road from the site entrance of Slope A and muddy marine water was also observed near Seawall A and B during site inspection conducted by ET auditor on 14 September 2006. This might due to heavy rainstorm in preceding day (i.e. 13 September 2006). Although the exceedance of SS level was only marginal to the Baseline Check Criteria, the SS level at WWA2 was higher than that at control station, WRA2. The exceedance was unlikely due to the construction of the Seawalls, but still related to the Project. The Contractor was reminded to intercept stormwater entering the site, provide cover to exposed slopes and divert all runoff to desilting facilities before discharging.	The CT mobilised workers to clear the silt deposited in gullies and along Castle Peak Road immediately. The CT also paved the site entrance of Slope A, diverted the runoff to desilting tank and conducted regular clearing of the desiliting facility. The CT closely monitored the effectiveness of the temporary drainage system. With the remedial work implemented, the subsequent marine water quality monitoring data (16, 18 and 20 September 2006) indicated resumption to normal ambient conditions	29-Sep-06	Refer to ET's field record & CT's daily records.
20-Sep-06	mid-ebb	WWFCZ1	-	-	-	-	-	-	-	13.0	12.2	13.7	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWFCZ1 on 20 September 2006 by ET's field staff and no exceedances were recrded at other impact monitoring stations. The exceednace 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 and might be due to natural variation.	No action	29-Sep-06	Refer to ET's field record & 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				
22-Sep-06	mid-ebb	WWA2	-	-	-	-	6.5	6.8	7.4	-	-	-	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA2, WWA3 and WWFCZ2 on 22 September 2006 by ET's field staff. The exceedance levels were comparable to the levels recored at the control stations and the exceedances were marginal to the Baseline Check Criteria. Hence the exceedance would be unlikely caused by the construction works of the Project and might be due to natural variation of marine water. The Contractor was reminded to intercept stormwater entering the site, provide cover to exposed slopes and divert all runoff to desilting facilities before discharging.	No action	3-Oct-06	Refer to ET's field record & CT's daily records.
22-Sep-06	mid-ebb	WWA3	-	-	-	-	-	-	-	13.0	9.3	13.5	Ditto	Ditto	Ditto	Ditto
22-Sep-06	mid-ebb	WWFCZ2	-	-	-	-	-	-	-	13.0	13.5	15.7	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-Sep-06	mid-ebb	WWA1	-	-	-	-	6.5	4.4	7.1	13.0	10.0	13.3	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA1, WWA2 and WWA3 on 25 September 2006 by ET's field staff. The exceedances were marginal to the Baseline Check Criteria. During monitoring period, rock fill was being unloaded from the barge at Seawall A and no reclmation works was conducted. Hence the exceedances would be unlikely caused by the construction works of the Project and might be due to natural variation of marine water. The Contractor was reminded to intercept stormwater entering the site, provide cover to exposed slopes and divert all runoff to desilting facilities before discharging.	No action	3-Oct-06	Refer to ET's field record & CT's daily records.
25-Sep-06	mid-ebb	WWA2	-	-	-	-	6.5	4.6	7.3	13.0	8.2	17.8	Ditto	Ditto	Ditto	Ditto
25-Sep-06	mid-ebb	WWA3	-	-	-	-	6.5	4.7	11.1	13.0	12.0	17.8	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				
3-Oct-06	mid-ebb	WWA2	-	-	-	-	-	-	-	13.0	7.2	15.7	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA2 and WWA3 on 3 October 2006 by ET's field staff. The weather was sunny and fine during monitoirng period. 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 and might be due to natural variation of marine water. 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	13-Oct-06	Refer to ET's field record, photos & CT's daily records.
3-Oct-06	mid-ebb	WWA3	-	-	-	-	-	-	-	13.0	9.5	13.8	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				
5-Oct-06	mid-ebb	WWA2	-	-	-	-	6.5	7.4	8.8	13.0	11.2	14.2	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 5 October 2006 by ET's field staff. The weather was sunny and fine during monitoring period. There were no filling activities conducted on the same day. In general, the exceedance levels were comparable to the levels recorded at control stations. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	13-Oct-06	Refer to ET's field record, photos & CT's daily records.
5-Oct-06	mid-ebb	WWA3	-	-	-	-	6.5	6.5	8.7	13.0	12.7	14.8	Ditto	Ditto	Ditto	Ditto
5-Oct-06	mid-ebb	WWFCZ1	-	-	-	-	6.5	7.0	9.2	13.0	11.0	13.5	Ditto	Ditto	Ditto	Ditto
5-Oct-06	mid-flood	WWA1	-	-	-	-	-	-	-	17.0	14.8	21.3	Ditto	Ditto	Ditto	Ditto
5-Oct-06	mid-flood	WWA3	-	-	-	-	6.6	6.2	7.0	17.0	8.3	22.7	Ditto	Ditto	Ditto	Ditto
5-Oct-06	mid-flood	WWFCZ1	-	-	-	-	6.6	7.1	8.1	-	-	-	Ditto	Ditto	Ditto	Ditto
5-Oct-06	mid-flood	WWFCZ2	-	-	-	-	6.6	7.7	7.8	-	-	-	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				
9-Oct-06	mid-ebb	WWA1	-	-	-	-	6.5	11.1	14.1	13.0	18.3	24.7	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 9 October 2006 by ET's field staff. No marine works were being conducted on the same day. In general, the exceedance levels were comparable to the levels recorded at control stations. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	20-Oct-06	Refer to ET's field record, photos & CT's daily records.
9-Oct-06	mid-ebb	WWA2	-	-	-	-	6.5	9.5	10.9	-	-	-	Ditto	Ditto	Ditto	Ditto
9-Oct-06	mid-ebb	WWA3	-	-	-	-	6.5	11.1	12.4	13.0	16.8	18.5	Ditto	Ditto	Ditto	Ditto
9-Oct-06	mid-ebb	WWFCZ2	-	-	-	-	6.5	7.0	8.1	-	-	-	Ditto	Ditto	Ditto	Ditto
9-Oct-06	mid-flood	WWA1	-	-	-	-	6.6	10.1	11.1	17.0	15.8	19.3	Ditto	Ditto	Ditto	Ditto
9-Oct-06	mid-flood	WWA2	-	-	-	-	-	-	-	17.0	14.8	20.3	Ditto	Ditto	Ditto	Ditto
9-Oct-06	mid-flood	WWA3	-	-	-	-	6.6	10.2	10.6	-	-	-	Ditto	Ditto	Ditto	Ditto
9-Oct-06	mid-flood	WWFCZ1	-	-	-	-	-	-	-	17.0	25.5	26.0	Ditto	Ditto	Ditto	Ditto
9-Oct-06	mid-flood	WWFCZ2	-	-	-	-	6.6	6.8	7.7	-	-	-	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				
11-Oct-06	mid-ebb	WWFCZ1	-	-	-	-	6.5	6.8	8.1	-	-	-	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 11 October 2006 by ET's field staff. No marine works were being conducted on the same day. In general, the exceedance levels were comparable to the levels recorded at control stations. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	26-Oct-06	Refer to ET's field record, photos & CT's daily records.
11-Oct-06	mid-flood	WWA1	-	-	-	-	-	-	-	17.0	11.2	19.7	Ditto	Ditto	Ditto	Ditto
11-Oct-06	mid-flood	WWFCZ1	-	-	-	-	6.6	5.9	7.7	-	-	-	Ditto	Ditto	Ditto	Ditto
11-Oct-06	mid-flood	WWFCZ2	-	-	-	-	6.6	6.8	7.3	-	-	-	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				
13-Oct-06	mid-ebb	WWA1	-	-	-	-	6.5	3.6	7.1	-	-	-	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 13 October 2006 by ET's field staff. No marine works were being conducted on the same day. The exceedance levels were marginal to the baseline check criteria. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	26-Oct-06	Refer to ET's field record, photos & CT's daily records.
13-Oct-06	mid-ebb	WWA3	-	-	-	-	-	-	-	13.0	7.5	14.0	Ditto	Ditto	Ditto	Ditto
13-Oct-06	mid-flood	WWA1	-	-	-	-	6.6	3.6	6.9	-	-	-	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				
20-Oct-06	mid-ebb	WWA1	-	-	-	-	-	-	-	13.0	11.5	16.3	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 20 October 2006 by ET's field staff. No marine works were being conducted on the same day. The weather was sunny and fine during monitoring and the exceedance levels were marginal to the baseline check criteria. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	28-Oct-06	Refer to ET's field record & 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-Oct-06	Mid-ebb	WWA3	-	-	-	-	6.5	5.0	7.8	13.0	18.8	27.5	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 23 October 2006 by ET's field staff. No marine works were being conducted on the same day. The weather was sunny and fine during monitoring and the exceedance levels were marginal to the baseline check criteria. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	8-Nov-06	Refer to ET's field record & CT's daily records.
23-Oct-06	Mid-ebb	WWFCZ2	-	-	-	-	-	-	-	13.0	10.2	14.0	Ditto	Ditto	Ditto	Ditto
23-Oct-06	Mid-ebb	WWA1	-	-	-	-	6.5	5.0	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				
25-Oct-06	mid-flood	WWFCZ1	-	-	-	-	-	-	-	17.0	18.3	20.5	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 25 October 2006 by ET's field staff. No marine works were being conducted on the same day. The weather was sunny and fine during monitoring and the exceedance levels were marginal to the baseline check criteria. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	8-Nov-06	Refer to ET's field record & 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				
4-Nov-06	Mid-ebb	WWFCZ1	-	-	-	-	-	-	-	13.0	18.8	19.5	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 4 Nov 2006 by ET's field staff. No marine works were being conducted on the same day. The SS level at WWFCZ1 was comparable to that at control station WFCR1, where high SS level was also recorded. In addition, the location of WWFCZ1 is far away from the construction site and no exceedances were recorded at other impact stations. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	24-Nov-06	Refer to ET's field record & 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				
6-Nov-06	Mid-ebb	WWA1	-	-	-	-	-	-	-	13.0	10.5	20.3	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA1, WWA2, WWA3 and WWFCZ2 on 6 Nov 2006 by ET's field staff. No marine works were being conducted on the same day. High SS levels were also recorded at control stations, WRA1, WRA2, WRA3 and WFCR2. In addition, the location of WWFCZ2 is far away from the construction site. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	24-Nov-06	Refer to ET's field record & CT's daily records.
6-Nov-06	Mid-ebb	WWA2	-	-	-	-	-	-	-	13.0	11.5	17.3	Ditto	Ditto	Ditto	Ditto
6-Nov-06	Mid-ebb	WWA3	-	-	-	-	-	-	-	13.0	13.3	18.5	Ditto	Ditto	Ditto	Ditto
6-Nov-06	Mid-ebb	WWFCZ2	-	-	-	-	-	-	-	13.0	12.3	17.0	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				
8-Nov-06	Mid-ebb	WWA1	-	-	-	-	-	-	-	13.0	16.5	21.7	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 8 Nov 2006 by ET's field staff. No marine works were being conducted on the same day. High SS levels were also recorded at control stations. In addition, the locations of WWFCZ1 and WWFCZ2 are far away from the construction site. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	24-Nov-06	Refer to ET's field record & CT's daily records.
8-Nov-06	Mid-ebb	WWA2	-	-	-	-	-	-	-	13.0	13.5	21.7	Ditto	Ditto	Ditto	Ditto
8-Nov-06	Mid-ebb	WWA3	-	-	-	-	-	-	-	13.0	16.2	23.0	Ditto	Ditto	Ditto	Ditto
8-Nov-06	Mid-ebb	WWFCZ1	-	-	-	-	-	-	-	13.0	22.2	24.7	Ditto	Ditto	Ditto	Ditto
8-Nov-06	Mid-ebb	WWFCZ2	-	-	-	-	-	-	-	13.0	19.2	31.0	Ditto	Ditto	Ditto	Ditto
8-Nov-06	Mid-flood	WWFCZ2	-	-	-	-	-	-	-	17.0	29.8	43.8	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				
13-Nov-06	Mid-ebb	WWFCZ1	-	-	-	-	-	-	-	13.0	5.5	15.5	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 13 Nov 2006 by ET's field staff. No marine works were being conducted on the same day. The location of WWFCZ1 is far away from the construction site and no exceedances were recorded at WWA1, WWA2 and WWA3, which are closer to the construction site. Hence, the exceedance was unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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-Dec-06	Refer to ET's field record & 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				
17-Nov-06	Mid-flood	WWA1	-	-	-	-	-	-	-	17.0	9.0	19.0	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 17 Nov 2006 by ET's field staff. No marine works were being conducted on the same day. It was the only one exceedance recorded on that day and the weather condition is sunny and fine during marine water quality monitoring. Hence, the exceedance was unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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-Dec-06	Refer to ET's field record & 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				
20-Nov-06	Mid-ebb	WWFCZ2	-	-	-	-	-	-	-	13.0	9.5	16.3	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 20 Nov 2006 by ET's field staff. No marine works were being conducted on the same day. The location of WWFCZ2 is far away from the construction site and no exceedances were recorded at WWA1, WWA2 and WWA3, which are closer to the construction site. Hence, the exceedance was unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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-Dec-06	Refer to ET's field record & 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				
24-Nov-06	Mid-ebb	WWFCZ1	-	-	-	-	-	-	-	13.0	14.3	22.3	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 24 Nov 2006 by ET's field staff. No marine works were being conducted on the same day. The location of WWFCZ1 is far away from the construction site and no exceedances were recorded at WWA1, WWA2 and WWA3, which are closer to the construction site. In addition, high SS level (14.3 mg/L) was recorded at WFCZR1. Hence, the exceedance was unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	7-Dec-06	Refer to ET's field record & 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				
27-Nov-06	Mid-ebb	WWA1	-	-	-	-	-	-	-	13.0	10.2	15.0	No muddy water and abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 27 November 2006 by ET's field staff. No marine works were being conducted on the same day. The exceedances were marginal to the Baseline Check Criteria and high SS levels were also recorded at the control stations, WRA1 and WRA2. Hence, the exceedances were unlikely due to the construction works of the Project and might be due to natural variation of marine water. 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	7-Dec-06	Refer to ET's field record & CT's daily records.
27-Nov-06	Mid-ebb	WWA2	-	-	-	-	-	-	-	13.0	8.3	16.0	Ditto	Ditto	Ditto	Ditto

Appendix J

Statistical Analysis of SS Monitoring Data

Statistical Analysis for Mid-Ebb Tide

Station WWA1

t-test

Normality Test: Passed (P = 0.137)
Equal Variance Test: Passed (P = 0.181)

Group Name	N	Missing	Mean	Std Dev	SEM
130% Baseline Mean	16	0	17.001	5.396	1.349
Quarterly Mean	51	0	10.472	4.191	0.587
Difference 6.529					

Results:
t = 5.066 with 65 degrees of freedom. (P = <0.001)

There is a statistically significant difference between two groups. (P = <0.001).

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	51	0	8.833	6.708	12.292

n(small)= 16 n(big)= 51 (P = <0.001)

Results:
T = 907.500

There is a statistically significant difference between two groups. (P = <0.001)

Station WWA3

Mann-Whitney Rank Sum Test

Normality Test: Failed (P < 0.050)

Group	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.667	13.750	21.167
Quarterly Mean	51	0	9.000	7.500	13.458

n(small)= 16 n(big)= 51 (P = <0.001)

Results
T = 836.500

There is a statistically significant difference between two groups (P = <0.001).

WWFCZ1

Mann-Whitney Rank Sum Test

Normality Test: Failed (P < 0.050)

Group	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	18.250	14.892	21.917
Quarter Mean	51	0	8.667	6.417	10.667

n(small)= 16 n(big)= 51 (P = <0.001)

Results:
T = 903.500

There is a statistically significant difference between two groups (P = <0.001).

WWFCZ2

Mann-Whitney Rank Sum Test

Normality Test: Failed (P < 0.050)

Group	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.692	14.167	20.917
Quarter Mean	51	0	9.000	7.125	12.125

n(small)= 16 n(big)= 51 (P = <0.001)

Results:
T = 866.500

There is a statistically significant difference (P = <0.001).

Statistical Analysis for Mid-Flood Tide

WWA1

t-test

Normality Test: Passed (P = 0.435)
Equal Variance Test: Passed (P = 0.211)

Group Name	N	Missing	Mean	Std Dev	SEM
130% Baseline Mean	16	0	16.047	5.198	1.300
Quarterly Mean	51	0	11.049	4.180	0.585
Difference 4.998					

Results:
t = 3.932 with 65 degrees of freedom. (P = <0.001)

There is a statistically significant difference between the input groups (P = <0.001).

WWA2

Mann-Whitney Rank Sum Test

Normality Test: Failed (P < 0.050)

Group	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.750	13.558	21.000
Quarterly Mean	51	0	10.333	8.292	11.792

n(small)= 16 n(big)= 51 (P = <0.001)

Results:
T = 814.500

There is a statistically significant difference (P = <0.001).

WWA3

t-test

Normality Test: Passed (P = 0.099)
Equal Variance Test: Passed (P = 0.625)

Group Name	N	Missing	Mean	Std Dev	SEM
130% Baseline Mean	16	0	17.386	4.337	1.084
Quarterly Mean	51	0	10.652	3.982	0.558
Difference 6.734					

Results:
t = 5.780 with 65 degrees of freedom. (P = <0.001)

There is a statistically significant difference between the input groups (P = <0.001).

WWFCZ1

t-test

Normality Test: Passed (P = 0.056)
Equal Variance Test: Passed (P = 0.628)

Group Name	N	Missing	Mean	Std Dev	SEM
130% Baseline Mean	16	0	16.593	4.957	1.239
Quarter Mean	51	0	11.621	4.962	0.695

Difference 4.972

Results:
t = 3.498 with 65 degrees of freedom. (P = <0.001)

There is a statistically significant difference between the input groups (P = <0.001).

WWFCZ2

Mann-Whitney Rank Sum Test

Normality Test: Failed (P < 0.050)

Group	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.833	14.000	20.417
Quarter Mean	51	0	10.500	7.750	15.292

n(small)= 16 n(big)= 51 (P = <0.001)

Results:
T = 783.000

There is a statistically significant difference (P = <0.001)