CONTRACT NO: KL/2009/01

SITE FORMATION FOR KAI TAK CRUISE TERMINAL DEVELOPMENT

QUARTERLY ENVIRONMENTAL MONITORING & AUDIT REPORT

- JUNE TO AUGUST 2010 -

CLIENT:

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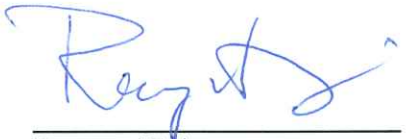

Raymond Dai
Environmental Team Leader

DATE:

6 November 2010

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Priority ☐ normal / ☐ urgent

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Subject	**Agreement No. CE 19/2009 (EP) Dredging Works for Proposed Cruise Terminal at Kai Tak – Quarterly Environmental Monitoring & Audit Report for June 2010 to August 2010**		

We refer to the revised Quarterly EM&A Report for June 2010 to August 2010 that we received through email on 12 November 2010 and are pleased to confirm we have no further comment on the report.

Should you require further information, please feel free to contact us.

Best regards,

pp

Joseph Poon
Independent Environmental Checker

JP/CY/by

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EXECUTIVE SUMMARY

i. This is the Quarterly Environmental Monitoring and Audit (EM&A) Report – June to August 2010 for Contract No. KL/2009/01 – Site Formation for Kai Tak Cruise Terminal Development. Dredging of marine sediment was commenced on 28 June 2010. This report presents the environmental monitoring findings and information recorded during the period from June 2010 to August 2010.

Construction Activities in the Reported Period

ii. During the reporting period, the principle work activities are summarized as below:

Table I Principle Work Activities in the Reporting Quarter

June 2010	July 2010	August 2010
• Prepare and installation of silt curtain; • Silt screen installation; and • Dredging at toe of existing seawall	• Maintenance of silt curtain and silt screens; and • Dredging at toe of existing seawall	• Dredging at toe of existing seawall; • Dredging at submarine outfall; and • Maintenance of silt curtain and silt screens

Noise Monitoring

iii. Due to the non-existence of planned NSRs during the reporting quarter, no noise monitoring was required to be conducted at the planned noise monitoring locations NM1 and NM2.

Water Quality Monitoring

iv. Water quality monitoring was conducted at 6 designated monitoring stations namely WSD9, WSD10, WSD15, WSD17, WSD19 and WSD21. Thirty-four number of SS exceedances were recorded in the reporting period. Investigation found that the exceedances were not related to the Project works.

Review of Action and Limit Levels for Suspended Solid (SS)

v. Owing to the frequent not project related exceedances in Suspended Solid (SS) caused by fluctuation in coastal water quality due to localised effect, it is considered the existing Action and Limit Levels for SS values were underestimated to the natural variation of water quality around the baseline range. It is recommended to review the existing Action and Limit Levels on water quality in order to take into the account of the coastal activities and potential variation of coastal water during wet season.

vi. Considerations for reviewing the existing Action and Limit Levels include but not limited to the followings:

- Establishment of a larger baseline database by referring to the approved baseline water quality monitoring database available under other designated projects within the Victoria Harbour;
- Comparison with more EPD marine quality data set to account for the seasonal variation;

- Making use of impact water quality monitoring results for period without marine works to account for the wet season variation.

Complaints, Notifications of Summons and Successful Prosecutions

vii. No complaint, notification of prosecutions or summons was received in the reporting quarter.

1. INTRODUCTION

1.1 Scope of the Report

1.1.1. Lam Environmental Services Limited (LES) has been appointed to work as the Environmental Team (ET) for dredging works to implement the Environmental Monitoring and Audit (EM&A) programme for Contract No. KL/2009/01 Site Formation for Kai Tak Cruise Terminal Development. Dredging of marine sediment was commenced on 28 June 2010.

1.1.2. This report presents the environmental monitoring and auditing work carried out in accordance to the Section 10.7 under Environmental Monitoring and Audit (EM&A) Manual.

1.1.3. This report documents the finding of EM&A works during the quarter from June 2010 to August 2010.

1.2 Structure of the Report

Section 1 ***Introduction*** – details the scope and structure of the report.

Section 2 ***Project Background*** – summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.

Section 3 ***Monitoring Requirements*** – summarizes all monitoring parameters, monitoring locations, monitoring frequency, duration and action plan.

Section 4 ***Monitoring Results*** – summarizes the monitoring results obtained in the reporting period.

Section 5 ***Compliance Audit, Review of the Reasons for and the Implication of Non-compliance*** – summarizes the auditing of monitoring results, all exceedances environmental parameters, review the reasons for and the implication of non-compliance.

Section 6 ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution

Section 7 ***Conclusion***

2. PROJECT BACKGROUND

2.1 Background

2.1.1. The former Kai Tak Airport located in the south-eastern part of Kowloon Peninsula was the international airport of Hong Kong. The Kai Tak Airport had come into operations since 1920s. The operation of the Kai Tak Airport was ceased and replaced by the new airport at Chek Lap Kok in July 1998. After closure, the disused airport site has been occupied by various temporary uses, including a golf driving range on the runway area.

2.1.2. In 2002, the Chief Executive in Council approved the Kai Tak Outline Zoning Plans (No. S/K19/3 and S/K21/3) to provide the statutory framework to proceed with the South East Kowloon Development at the former Kai Tak Airport. However, following the judgment of the Court of Final Appeal in January 2004 regarding the Harbour reclamation, the originally proposed development which involves reclamation has to be reviewed. The Kai Tak Planning Review (KTPR) has resulted with a Preliminary Outline Development Plan (PODP) for Kai Tak in October 2006. Subsequently, the Administration announced in October 2006 a plan to implement a cruise terminal at Kai Tak, as part of the development.

2.1.3. Development of the cruise terminal at Kai Tak would require dredging at the existing seawall at the southern tip of the former Kai Tak Airport runway for construction of a quay deck structure for two berths, and dredging the seabed fronting the new quay to provide necessary manoeuvring basin. The general layout of the proposed cruise terminal construction is shown in ***Figure 2.1***.

2.1.4. The current Project involves a dredging operation exceeding 500,000m^3 for construction and operation of the proposed cruise terminal at Kai Tak and is therefore classified as a Designated Project under Item C.12, Part I, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO). An Environmental Impact Assessment (EIA) Study for the Project has been undertaken in accordance with the EIA Study Brief (No. ESB-159/2006) and the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM).

2.2 Scope of the Project and Site Description

2.2.1. The scope of the Project comprises:

- Dredging of marine sediment of about 700,000m^3 from the existing seabed (Stage 1 dredging) in the Harbour area off the southern tip of the former Kai Tak Airport runway to provide the necessary water depth within the manoeuvring area for cruise vessels; and
- Removal of existing seawall of about 322,300m^3 by dredging at the southern tip of the former Kai Tak Airport runway for cruise berth construction.

2.3 Project Organization

2.3.1. Kowloon Development Office of Civil Engineering and Development Department is the overall project controller. For the construction phase of KL/2009/01, Project Engineer, Contractor,

Environmental Team and Independent Environmental Checker are appointed to manage and control environmental issues.

2.3.2. The proposed project organization and lines of communication with respect to environmental protection works are shown in ***Figure 2.2***. Key personnel and contact particulars are summarized in ***Table 2.2***:

Table 2.2 Contact Details of Key Personnel

Party	Role	Name	Post	Contact No.	Contact Fax
Civil Engineering and Development Department (Kowloon Development Office)	Project Proponent	Ir. KY Shin	Senior Engineer	2301 1461	2301 1277
URS / Scott Wilson Limited	Engineer's Representative	Mr. Stephen Cheng	Chief Resident Engineer	2148 7638	2148 7277
Penta-Ocean Construction Company Limited	Contractor	Mr. PL Yue	Project Manager	2148 7238	2148 7138
		Mr. Warren Tse	Site Agent		
		Mr. Perry Yam	Environmental Officer		
Fugro (HK) Limited	Independent Environmental Checker (IEC)	Mr. Joseph Poon	Independent Environmental Checker (IEC)	2450 8238	2450 6138
Lam Environmental Services Limited	Environmental Team Leader	Mr. Raymond Dai	Environmental Team Leader (ETL)	2882 3939	2882 3331

2.4 Principal Work and Activities

2.4.1. During this reporting quarter, the principal work activities are summarized in **Table2.4**.

Table 2.4 Principle Work Activities during the Reporting Quarter

June 2010	July 2010	August 2010
• Prepare and installation of silt curtain; • Silt screen installation; and • Dredging at toe of existing seawall	• Maintenance of silt curtain and silt screens; and • Dredging at toe of existing seawall	• Dredging at toe of existing seawall; • Dredging at submarine outfall; and • Maintenance of silt curtain and silt screens

2.4.2. Implementation status of the recommended mitigation measures during this reporting period is presented in ***Appendix 2.1***.

3. MONITORING REQUIREMENTS

3.1. Noise Monitoring

3.1.1. In accordance with the EIA Report and the approved EM&A Manual, it is anticipated that construction activities, if unmitigated, would not cause any adverse noise impact to the nearest NSRs in the vicinity of the work site. The predicted noise levels at the NSRs would comply with construction noise criteria. These nearest NSRs are designated for construction noise monitoring as listed in ***Table 3.1***.

Table 3.1 Noise Monitoring Stations

Station	Description
NM1	Planned Residential Development (R3 site)
NM2	Planned Residential Development (R3 site)

3.1.2. As per S.3.1.1 of the approved EM&A Manual states that "Noise levels shall be monitored to evaluate the construction noise impact if there is any planned noise sensitive receivers (NSRs) occupied within 300m from the works area of this Project during the proposed dredging works". Therefore, the impact monitoring for construction noise shall only be carried out when the planned residential development at the two identified monitoring stations are occupied at a later stage.

3.2. Water Quality Monitoring

3.2.1. The EIA Report has identified that suspended solids (SS) would be the most critical water quality parameter during the dredging operations. Water quality monitoring for SS and turbidity is therefore recommended to be carried out at selected WSD flushing water intakes. The impact monitoring should be carried out during the proposed dredging works for cruise terminal construction to ensure the compliance with the water quality standards.

3.2.2. It is proposed to monitor the water quality at six WSD flushing water intakes along the seafront of the Victoria Harbour. The proposed water quality monitoring stations are shown in ***Table 3.2*** and ***Figure 3.1***.

Table 3.2 Marine Water Quality Stations for Water Quality Monitoring

Station Ref.	WSD Flushing Water Intake	Easting	Northing
WSD9	Tai Wan	837921.0	818330.0
WSD10	Cha Kwo Ling	841900.9	817700.1
WSD15	Sai Wan Ho	841110.4	816450.1
WSD17	Quarry Bay	839790.3	817032.2
WSD21	Wan Chai	836220.8	815940.1
WSD19	Sheung Wan	833415.0	816771.0

WATER QUALITY PARAMETERS AND FREQUENCY

3.2.3. During the period of dredging, monitoring should be undertaken three days per week, at mid-flood and mid-ebb tides, with sampling / measurement at the designated monitoring stations as shown in ***Table 3.2***. The interval between two sets of monitoring should not be less than 36 hours except where there are exceedances of Action and/or Limit Levels, in which case the monitoring frequency will be increased. ***Table 3.3*** shows the proposed monitoring frequency and water quality parameters. Duplicate in-situ measurements and water sampling should be carried out in each sampling event. For selection of tides for in-situ measurement and water sampling, tidal range of individual flood and ebb tides should not be less than 0.5m.

3.2.4. Silt screens shall be deployed at these intakes during the dredging period. It is recommended to conduct the monitoring inside the silt screens at the seawater intake culvert at each seawater pumping station to collect information on the mitigated water quality condition.

Table 3.3 Water Quality Monitoring Frequency and Parameters

Activities	**Monitoring Frequency[1]**	**Parameters[2]**
During the 4-week baseline monitoring period	Three days per week, at mid-flood and mid-ebb tides	Turbidity (in NTU), Suspended Solids (SS in mg/L)
During dredging works for proposed cruise terminal at Kai Tak	Three days per week, at mid-flood and mid-ebb tides	Turbidity (in NTU), Suspended Solids (SS in mg/L)

Notes:
1. For selection of tides for in-situ measurement and water sampling, tidal range of individual flood and ebb tides should be not less than 0.5m.
2. Turbidity should be measured in situ whereas SS should be determined by laboratory.

3.2.5. The established Action and Limit levels according to the approved baseline monitoring report for monitoring works can be referred to ***Appendix 3.1***.

4. MONITORING RESULTS

4.1. Water Monitoring Results

4.1.1. The water quality monitoring was commenced concurrently with the commencement of dredging works on 28 June 2010. Water quality monitoring was conducted at 6 designated monitoring stations namely WSD9, WSD10, WSD15, WSD17, WSD19 and WSD21 during the reporting quarter.

4.1.2. Due to the adverse weather in the reporting quarter, the water quality being substantially affected by urban runoff did not represent the normal impact. Water quality monitoring scheduled on 28 June 2010 at mid-ebb tide, 21 and 28 July 2010 and 5 August 2010 at mid-flood tide were cancelled.

4.1.3. Water monitoring results measured in this reporting period are reviewed and summarized. Details of graphical presentation can be referred in ***Appendix 4.1***. The details of exceedances are summarized in **Table 4.1.1**.

Table 4.1.1 Summary of Exceedances Recorded in the Reporting Quarter

Period		Level	WSD9		WSD10		WSD15		WSD17		WSD19		WSD21	
			Turb	SS	Turb	SS	Turb	SS	Turb	SS	Turb	SS	Turb	SS
			NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L
Mid-flood	Jun-10	AL	0	0	0	0	0	0	0	0	0	0	0	0
	Jul-10		0	0	0	0	0	2	0	1	0	0	0	0
	Aug-10		0	0	0	3	0	0	0	1	0	0	0	0
Mid-ebb	Jun-10	AL	0	0	0	0	0	0	0	0	0	0	0	0
	Jul-10		0	1	0	3	0	1	0	1	0	0	0	0
	Aug-10		0	0	0	2	0	0	0	1	0	0	0	0
Total of AL Exceedance:			**0**	**1**	**0**	**8**	**0**	**3**	**0**	**4**	**0**	**0**	**0**	**0**
Mid-flood	Jun-10	LL	0	0	0	0	0	0	0	0	0	0	0	0
	Jul-10		0	6	0	4	0	0	0	1	0	1	0	2
	Aug-10		0	0	0	2	0	0	0	0	0	0	0	0
Mid-ebb	Jun-10	LL	0	0	0	0	0	0	0	0	0	0	0	0
	Jul-10		0	1	0	1	0	0	0	0	0	0	0	0
	Aug-10		0	0	0	0	0	0	0	0	0	0	0	0
Total of LL Exceedance :			**0**	**7**	**0**	**7**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**2**
Total of Exceedance:			**8**		**15**		**3**		**5**		**1**		**2**	

4.1.4. Since the investigation found that the all exceedances recorded in the reporting quarter were not related to the Project, it was concluded that all necessary steps under Event and Action Plan had been taken. The details of Event and Action Plans and Notification of Exceedance summarizing the finding of investigation, possible causes can be referred to the Monthly EM&A Reports.

4.2. Dredging and Disposal

4.2.1. Implementation of mitigation measures for dredging work and the associated dredging records were checked and the findings are summarized in ***Table 4.2.1***.

Table 4.2.1 Compliance with EP Conditions in the Reporting Quarter

EP Condition	Compliance Status and/or Recommendation
2.6 Silt Curtain Deployment	In accordance with the EP requirement and Implementation Schedule for Water Quality Measure
2.7 Daily Dredging Rate $\leq$ 4,000m^3/d Hourly Dredging Rate $\leq$ 334m^3/hr	Complied with the EP requirement in reporting month: Daily Dredging Rate maintained at 5-600 m^3/day and Hourly Dredging Rate maintained at 7-81 m^3/hr.
2.8 Silt Screen Deployment	In accordance with the Silt Screen Deployment Plan for all 6 intakes

4.2.2. The daily and hourly dredging rates were checked and reviewed that were below the EP requirements. It was concluded that the dredging was conducted in compliance with the specific EP requirements.

4.2.3. There were no inert and non-C&D waste regarding to the dredging works were disposed of in the reporting quarter. Details of the marine sediment dumping are summarized in ***Table 4.2.2***.

Table 4.2.2 Waste Quantities Related To Dredging Works

Waste Type	Quantity this quarter, m^3, (Bulk Volume)	Cumulative Quantity-to-Date, m^3, (Bulk Volume)	Disposal / Dumping Grounds
Marine Sediment (Type 1 – Open Sea Disposal)	1,695	1,695	South Cheung Chau Spoil Disposal Area denoted "KTCT-1" and "KTCT -2"
Marine Sediment (Type 1 – Open Sea Disposal (Dedicated Sites) & Type 2 – Confined Marine Disposal)	7,849	7,849	East Sha Chau Contaminated Mud Disposal Site – Pit IVc

5. COMPLIANCE AUDIT, REVIEW OF THE REASONS FOR AND THE IMPLICATIONS OF NON-COMPLIANCE

5.0.1. The Event Action Plan for construction noise, air quality and water quality are presented in ***Appendix 5.1***.

5.1. Noise Monitoring

5.1.1. Noise monitoring was not necessary in the reporting period.

5.2. Water Quality Monitoring

5.2.1. For the suspended solid, the details of exceedances in the reporting period are as follows:

- One action level and seven limit level exceedances were recorded at WSD9;
- Eight action level and seven limit level exceedances were recorded at WSD10;
- Three action level exceedances were recorded at WSD15;
- Four action level and one limit level exceedances were recorded at WSD17;
- One limit level exceedances were recorded at WSD19; and
- Two limit level exceedances were recorded at WSD21

5.2.2. Occasional action and limit level exceedances of suspended solid were recorded. Silt curtain and silt screens were in proper condition during the water monitoring. Investigations found that the exceedances were caused by the natural variation. Most of occasional exceedances were caused by the source of impact at the upstream of the Project and occurred when no dredging work was being performed. The exceedances recorded in the reporting quarter are summarized in ***Table 5.2***.

Table 5.2 Summary of Exceedances recorded in the Reporting Quarter

Date	Tide	Parameter	Exceedance	Station
10 Jul 2010	Mid-flood	SS	Limit Level	WSD9, WSD10
	Mid-ebb	SS	Action Level	WSD 10
12 Jul 2010	Mid-flood	SS	Action Level	WSD17
		SS	Limit Level	WSD9, WSD10, WSD21
	Mid-ebb	SS	Action Level	WSD10
14 Jul 2010	Mid-flood	SS	Action Level	WSD15
		SS	Limit Level	WSD9, WSD10, WSD17, WSD21
	Mid-ebb	SS	Action Level	WSD10, WSD15, WSD17
		SS	Limit Level	WSD9
16 Jul 2010	Mid-flood	SS	Action Level	WSD15
		SS	Limit Level	WSD9, WSD10, WSD19
	Mid-ebb	SS	Action Level	WSD9
		SS	Limit Level	WSD10
18 Jul 2010	Mid-flood	SS	Limit Level	WSD9

Date	Tide	Parameter	Exceedance	Station
30 July 2010	Mid-flood	SS	Limit Level	WSD9
7-Aug-10	Mid-flood	SS (mg/L)	AL	WSD10
9-Aug-10	Mid-ebb	SS (mg/L)	AL	WSD17
11-Aug-10	Mid-flood	SS (mg/L)	LL	WSD10
13-Aug-10	Mid-flood	SS (mg/L)	AL	WSD10
13-Aug-10	Mid-flood	SS (mg/L)	AL	WSD17
25-Aug-10	Mid-flood	SS (mg/L)	AL	WSD10
27-Aug-10	Mid-ebb	SS (mg/L)	AL	WSD10
30-Aug-10	Mid-flood	SS (mg/L)	LL	WSD10
30-Aug-10	Mid-ebb	SS (mg/L)	AL	WSD10

5.3. Site Audit

5.3.1. There was no non-compliance from the site audits in the reporting period. During environmental site inspections conducted during the reporting quarter, no observation required to follow up related to the dredging works was identified during the reporting quarter.

5.4. Summary of action taken in the event of and follow-up on non-compliance

5.4.1. Since all exceedances recorded were not project-related, follow-up mitigation measures were therefore not required.

5.5. Review of Action and Limit Level for Suspended Solids

5.5.1 Existing Action and Limit Levels were derived based on the 4 weeks baseline water quality monitoring data obtained during the dry season in February and March 2010 prior to the commencement of construction. Action and Limit Levels for wet season were estimated based on a projected scenario calculated using the marine water quality data obtained at the closest EPD routine monitoring stations as per EM&A Manual Section 4.9.3.

5.5.2 However, it has already anticipated that the use of EPD baseline data cannot fully address the coastline water quality as per clause 5.6.82 of the EIA report which states,

> *It is considered that use of EPD routine monitoring results for establishing the background water quality cannot address the above potential water quality concern. In addition, most of the sensitive receivers (i.e. the seawater intakes) are located at the waterfront and are potentially affected by the pollutants discharged from the nearby storm outfalls. On the other hand, all the EPD routine monitoring stations are located further away from the waterfront in the main harbour channel which may not be representative of the local water quality characteristics at the seawater intake points.*

5.5.3 Owing to the frequent non-project-related exceedances in Suspended Solid (SS) caused by fluctuation in coastal water quality due to localised effect, it is considered the existing Action and Limit Levels for SS values were underestimated to the natural variation of water quality around the baseline range. It is recommended to review the existing Action and Limit Levels

on water quality in order to take into the account of the coastal activities and potential variation of coastal water during wet season.

5.5.4 Considerations for reviewing the existing Action and Limit Levels include but not limited to the followings:

- Establishment of a larger baseline database by referring to the approved baseline water quality monitoring database available under other designated projects within the Victoria Harbour;
- Comparison with more EPD marine quality data set to account for the seasonal variation;
- Making use of impact water quality monitoring results for period without marine works to account for the wet season variation.

6. COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION

6.0.1. In the reporting quarter, no complaints, notification of summons or prosecution was received in the reporting period. Cumulative statistic on complaints and successful prosecutions are summarized in ***Table 6.1***, ***Table 6.2*** and ***Table 6.3*** respectively.

Table 6.1 Environmental Complaints Log

Complaint Log No.	Date of Receipt	Received From and Received By	Nature of Complaint	Date Investigated	Outcome	Date of Reply
NIL	-	-	-	-	-	-

Table 6.2 Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative No. Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	**0**	**0**	**0**

Table 6.3 Cumulative Statistics on Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Successful Prosecutions this month (Offence Date)	Cumulative No. Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	**0**	**0**	**0**

7. CONCLUSION

7.0.1. The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.

7.0.2. Noise monitoring was not necessary in the reporting period.

7.0.3. The overall construction programmes are provided in ***Appendix 7.1***.

7.0.4. Occasional action and limit level exceedances of SS concentration were recorded in the reporting period. Investigations found that discharge from outfalls located near monitoring stations was the major influencing factor that adversely affected the water quality. It is concluded that all exceedances were influenced by either local discharge or ambient condition change and were not related to the dredging of the Project.

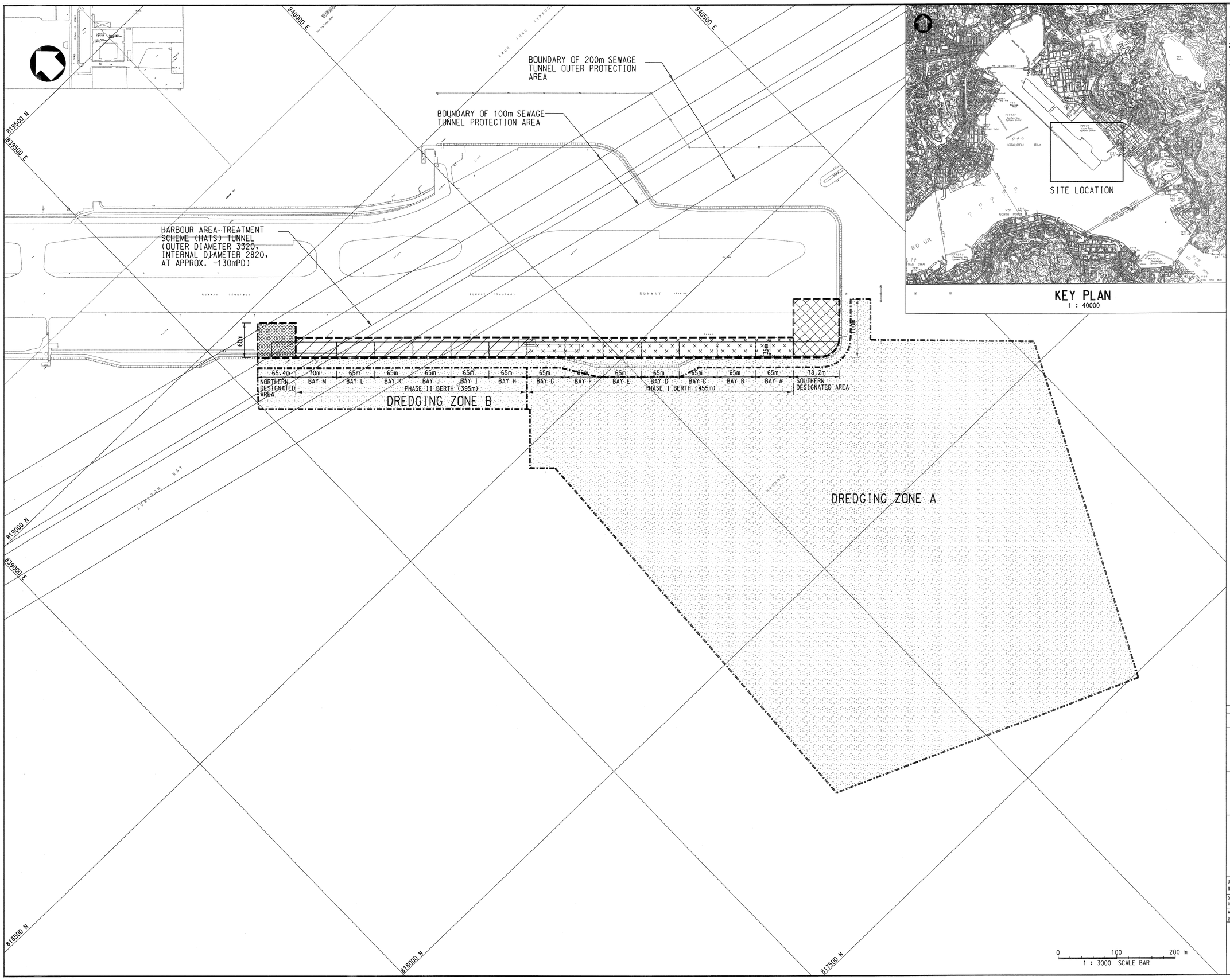
7.0.5. Owing to the frequent reported exceedances in Suspended Solid (SS) caused by fluctuation in coastal water quality due to localised effect, it is considered the existing Action and Limit Levels for SS values may be over-sensitive to the natural variation of water quality around the baseline range. It is recommended that there may be need to review the existing Action and Limit Levels on water quality in order to take into the account of the coastal activities and potential variation of coastal water during wet season.

7.0.6. Considerations for reviewing the existing Action and Limit Levels include but not limited to the followings:

- Establishment of a larger baseline database by referring to the approved baseline water quality monitoring database available under other designated projects within the Victoria Harbour;
- Comparison with more EPD marine quality data set to account for the seasonal variation;
- Making use of impact water quality monitoring results for period without marine works to account for the wet season variation.

Figure 2.1

General Layout



KEY PLAN
1 : 40000

NOTES:

1. ALL COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
3. SETTING OUT REFER TO DRAWING NO.08290/1021.

LEGEND:

- SOUTHERN DESIGNATED AREA
- NORTHERN DESIGNATED AREA
- DREDGING ZONE / SEAWALL REMOVAL
- PHASE I BERTH AREA
- PHASE II BERTH AREA

Rev. 修訂	Date 日期	Description 內容摘要	Drawn 繪圖	Checked 核核
-	06/09	TENDER	LC	WCS

土木工程拓展署
CEDD Civil Engineering and Development Department

Contract No.KL/2009/01
Site Formation for Kai Tak Cruise Terminal Development

GENERAL LAYOUT PLAN

Drawing No. 圖則編號	08290/1011		
Designed 設計 BK	Drawn 繪圖 WHM	Checked 核核 WCS	Scale 比例 1:3000
Approved 批准		Date 日期 06/09	Status 現況 TENDER

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*ATE TIME

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Figure 2.2

Project Organization Chart

Project Organization Chart

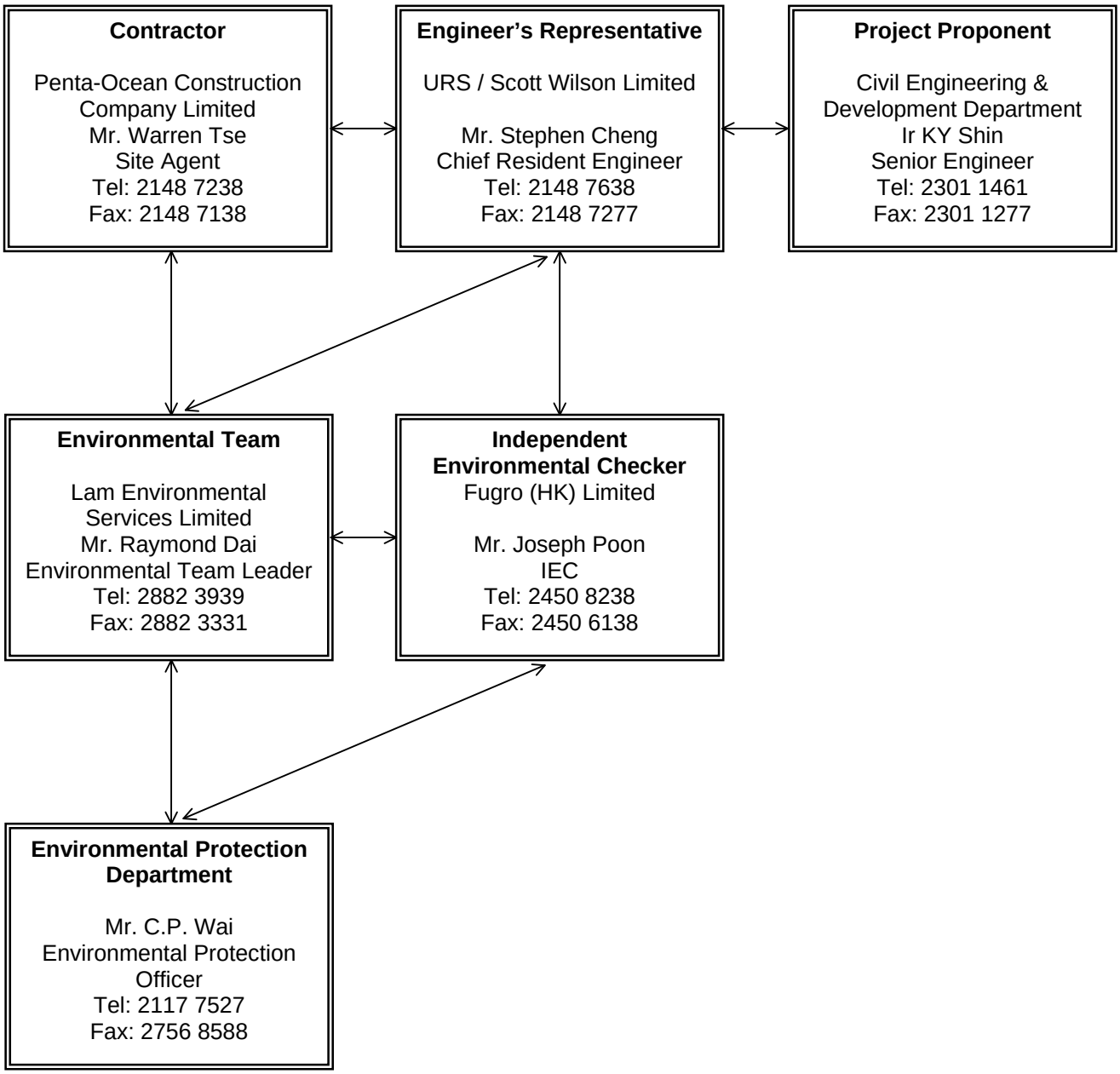
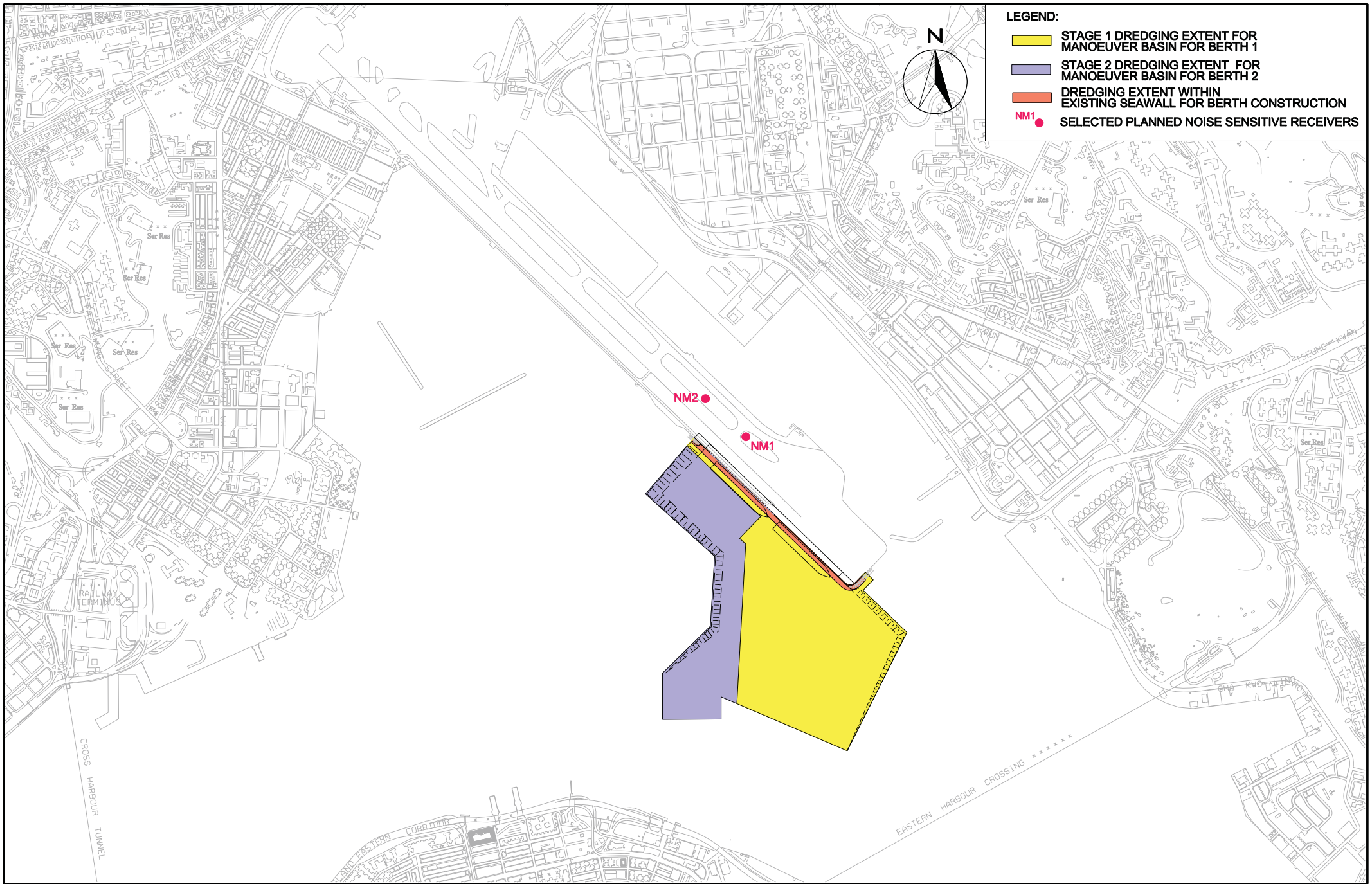
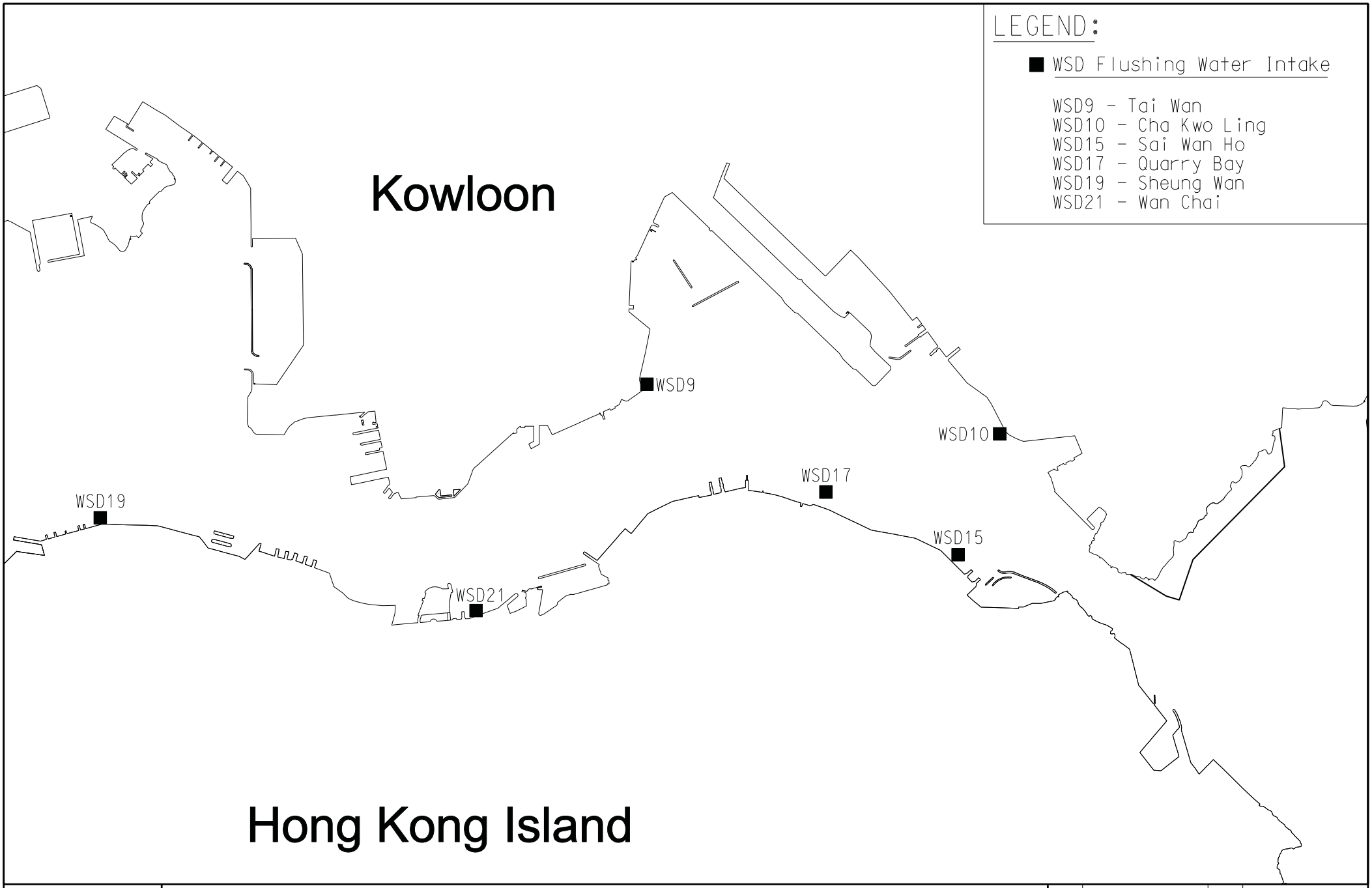


Figure 3.1

Layout of Environmental Monitoring Stations


LEGEND:
STAGE 1 DREDGING EXTENT FOR MANOEUVER BASIN FOR BERTH 1
STAGE 2 DREDGING EXTENT FOR MANOEUVER BASIN FOR BERTH 2
DREDGING EXTENT WITHIN EXISTING SEAWALL FOR BERTH CONSTRUCTION
NM1
SELECTED PLANNED NOISE SENSITIVE RECEIVERS
N
NM2
NM1
Ser Res
RAILWAY TERMINUS
CROSS HARBOUR TUNNEL
EASTERN HARBOUR CROSSING
TSEUNG KWAN



MAUNSELL | AECOM
Maunsell Consultants Asia Ltd

AGREEMENT NO. CE 35/2006 (CE)
KAI TAK DEVELOPMENT ENGINEERING STUDY CUM DESIGN AND
CONSTRUCTION OF ADVANCE WORKS-INVESTIGATION, DESIGN AND CONSTRUCTION

WATER QUALITY MONITORING STATIONS

SCALE	A3 1:35000	DATE	AUG 07
CHECK	AKYC	DRAWN	WCM
JOB No.	60022503	DRAWING No.	3.1
		REV	-

P:/60022503/Reports/CT Dredging/EM&A Manual/Formal submission/Figures/Drawings/4.1.dgn

Appendix 2.1

Implementation Schedule of Environmental Mitigation Measures

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S3.6	Requirements of the Air Pollution Control (Construction Dust) Regulation shall be adhered to during the construction period.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	Air Pollution Control (Construction Dust) Regulation
S3.6	In order to minimize the potential odour emissions, if any, the dredged sediment placed on barge should be properly covered as far as practicable to minimise the exposed area and hence the potential odour emissions during the transportation of the dredged sediment.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	EIAO-TM
S4.8	Good Site Practices: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. • Mobile plant, if any, should be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	NCO EIAO-TM

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S4.9	If there is any planned NSRs within 300m from the work area occupied during the dredging period, an EM&A programme is recommended to be established according to the predicted occurrence of noisy activities. All the recommended mitigation measures for daytime normal working activities should be incorporated into the EM&A programme for implementation during dredging.	Representative NSRs at the former Kai Tak Airport runway / Upon formal occupation	N/A	Not applicable	NCO EIAO-TM
S5.9	• Dredging will be carried out by closed grab dredger to minimize release of sediment and other contaminants during both capital and maintenance dredging. • The maximum production rate for dredging from the seabed to provide necessary manoeuvring area would not be more than 4,000m^3 per day (and no more than 2 closed grab dredgers) during capital dredging and 2,000m^3 per day (and no more than 1 closed grab dredger) during maintenance dredging. • The maximum production rate for dredging at or near the seawall area would not be more than 4,000m^3 per day for berth construction. No more than two closed grab dredger would be operated at the same time at or near the seawall for berth construction.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	EIAO-TM WPCO
S5.9	Silt curtains should be deployed around the closed grab dredgers used for dredging at and near the existing seawall of the former Kai Tak Airport runway for construction of the cruise berth structures.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	EIAO-TM, WPCO

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S5.9	Silt screens should be installed at the WSD flushing water intakes at Cha Kwo Ling, Sai Wan Ho, Quarry Bay, Sheung Wan, Wan Chai and Tai Wan for dredging in the manoeuvring basin of the first berth during the capital dredging.	Seawater intakes in Victoria Harbour/ During the construction of cruise terminal	Contractor for capital dredging	Implemented	EIAO-TM, WPCO
S5.9	Silt screens should be installed at the WSD flushing water intakes at Cha Kwo Ling, Quarry Bay and Tai Wan for dredging in the manoeuvring basin of the second berth during the capital dredging.	Seawater intakes in Victoria Harbour / During the construction of cruise terminal	Contractor for capital dredging	Implemented	EIAO-TM, WPCO
S5.9	If the opening has been introduced at the northern runway, silt screens should also be installed at the WSD flushing water intake at Sai Wan Ho, Sheung Wan and Wan Chai for dredging in the manoeuvring basin of the second berth during the capital dredging.	Seawater intake at Sai Wan Ho, Sheung Wan and Wan Chai / During the construction of cruise terminal	Contractor for capital dredging	Implemented	EIAO-TM, WPCO

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S5.9	Other good site practices that should be undertaken during dredging include: • all vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • all barges / dredgers should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; • barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation.	Work site and adjacent waters / During dredging in construction stage	Contractor for capital dredging	Implemented	EIAO, EIAO-TM, WPCO, WDO
S5.9	Appropriate numbers of portable chemical toilets shall be provided by a licensed contractor to serve the construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Work site and adjacent waters / During dredging in construction stage	Contractor for capital dredging	Implemented	EIAO-TM, WPCO, WDO

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S5.9	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish during the dredging works.	Work site and adjacent waters / During dredging in construction stage	Contractor for capital dredging	Implemented	EIAO-TM, WPCO, WDO
S5.9	An environmental monitoring and audit programme should be implemented to verify whether or not impact predictions are representative, and to ensure that all the recommended mitigation measures are implemented properly. If the water quality monitoring data indicate that the proposed dredging works result in unacceptable water quality impacts in the receiving water, appropriate actions should be taken to review the dredging operation and additional measures such as use of frame-type silt curtain, deployment of double silt curtains, slowing down, or rescheduling of works should be implemented as necessary.	6 selected WSD flushing water intakes in Victoria Harbour/ During dredging in construction stage	Environmental Team and verified by Independent Environmental Checker	Implemented	EIAO-TM, WPCO

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S5.9	Silt screens are recommended to be deployed at 6 selected WSD flushing water intakes during the capital dredging. The contractor for capital dredging shall demonstrate and ensure that the design of the silt screen will not affect the normal operation of flushing water intake. The contractor shall obtain consensus from all relevant parties, including WSD and Marine Department on the design of the silt screen at each of the six selected flushing water intake points before installation of the silt screen and commencement of the proposed dredging works. As a mitigation measure to avoid the pollutant and refuse entrapment problems and to ensure that the impact monitoring results are representative, regular maintenance of the silt screens and refuse collection should be performed at the monitoring stations at regular intervals on a daily basis. The Contractor should be responsible for keeping the water behind the silt screen free from floating rubbish and debris during the impact monitoring period.	6 selected WSD flushing water intakes in Victoria Harbour/ During dredging in construction stage	Contractor for capital dredging	Implemented	EIAO-TM, WPCO

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S6.7	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during the dredging activities include: • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. • Training of site personnel in proper waste management and chemical waste handling procedures. • Provision of sufficient waste disposal points and regular collection for disposal. • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites). • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	EIAO-TM

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S6.7 (cont.)	• Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the workforce. • Any unused chemicals or those with remaining functional capacity shall be recycled.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	EIAO-TM
S6.7	Marine Sediments The dredged marine sediments would be loaded onto barges and transported to the designated disposal sites allocated by the MFC depending on their level of contamination. Sediment classified as Category L would be suitable for Type 1 – Open Sea Disposal. Contaminated sediment would require either Type 1 – Open Sea Disposal (Dedicated Sites) or Type 2 - Confined Marine Disposal and must be dredged and transported with great care in accordance with ETWB TCW No. 34/2002. Subject to the final allocation of the disposal sites by MFC, the dredged contaminated sediment must be effectively isolated from the environment upon final disposal and shall be disposed of at the East Sha Chau Contaminated Mud Pits that are designated for the disposal of contaminated mud in Hong Kong.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	ETWB TCW No. 34/2002

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S6.7	It will be the responsibility of the Contractor to satisfy the appropriate authorities that the contamination levels of the marine sediment to be dredged have been analysed and recorded. According to the ETWB TCW No. 34/2002, this will involve the submission of a formal Sediment Quality Report to the DEP, prior to the dredging contract being tendered. The contractor for the dredging works shall apply for the allocation of marine sediment disposal sites from all relevant authorities.	Work site / During dredging in construction stage	Contractor for capital dredging	Dumping Permits were issued by EPD	ETWB TCW No. 34/2002
S6.7	During transportation and disposal of the dredged marine sediments requiring Type 1 and Type 2 disposal, the following measures shall be taken to minimise potential impacts on water quality: • Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. • Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. • Barges or hopper barges shall not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	WDO; WPCO

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S6.7	Chemical Wastes After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S6.7	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material.	Work site / During dredging in construction stage	Contractor for capital dredging	Implemented	WDO, WPCO

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S6.7	Construction and Demolition Material It is recommended that the extent of dredging of the existing seawall should be kept to a minimum in the detailed design of the new cruise terminal to minimize generation of C&D material. Mitigation measures and good site practices should be incorporated in the contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include: • Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible. • Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric. • Skip hoist for material transport should be totally enclosed by impervious sheeting. • Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site. • The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	Work site / During the construction period	Contractor for capital dredging	Implemented	ETWB TCW No. 33/2002, 31/2004, 19/2005

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S6.7 (cont.)	• The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle. • All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet. • The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading.	Work site / During the construction period	Contractor for capital dredging	Implemented	ETWB TCW No. 33/2002, 31/2004, 19/2005
S6.7	When delivering inert C&D material to public fill reception facilities, the material shall consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements and implemented by the Contractor under the Waste Management Plan certified by the Environmental Team and verified by the Independent Environmental Checker who should be responsible for auditing the results of the system.	Work site / During the construction period	Contractor for capital dredging, Engineer, Environmental Team and Independent Environmental Checker	Not applicable	ETWB TCW No. 31/2004

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S7.8	The dredging activities of the proposed cruise terminal should ensure that disturbance to the existing seawall masonry outside the Project boundary should be avoided as far as practicable.	Work site/ During construction of cruise terminal	Contractor for capital dredging as per CEDD's advice	Implemented	Antiquities and Monuments Ordinance EIAO, EIAO-TM Guidance Notes on Assessment of Impact on Sites of Cultural Heritage in Environmental Impact Assessment Studies (GN-CH) Hong Kong Planning Standards and Guidelines (HKPSG)
S7.10, App. 7.1	It is recommended that the dredged spoil should be monitored for the presence of archaeological material. Guidelines for the monitoring brief have been prepared in consultation with the AMO. A qualified marine archaeologist needs to be on standby to provide specialist advice, if required, but the monitoring can be carried out by a member of staff on the dredging barge.	Work site / during dredging in construction stage	Contractor for capital dredging, Environmental Team	Implemented	Antiquities and Monuments Ordinance EIAO, EIAO-TM GN-CH HKPSG Marine Archaeological Investigation Guidelines

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
8.7	Translocate those existing coral colonies attached on boulders that are manually movable by a diver underwater (possibly longest dimension of less than 50cm) located within the hard substrata sea area within the dredging site as far as practicable prior to the commencement of the capital dredging activities. The entire translocation exercise include the preparation of a detailed translocation plan, the pre-translocation coral survey, the coral translocation, and the quarterly post-translocation monitoring for one year. Pre-translocation survey would be focused on identifying and mapping of coral colonies that would be directly impacted by the proposed dredging and investigating the translocation feasibility of these coral colonies. A detailed translocation plan (including pre-translocation coral survey, translocation methodology and monitoring of transplanted corals) should be prepared during the detailed design stage of the Project which, together with the ecologist involved in coral translocation, should be approved by AFCD prior to commencement of the translocation exercises. The proposed relocation of the coral colonies should not affect any private/public marine rights at the recipient site.	Along the section of the former Kai Tak Airport runway that will be directed affected by the cruise terminal construction / During detailed design stage	Other ET specifically employed for coral translocation works	Final Detailed Coral Translocation Plan was approved by EPD in letter ref. (18) in EP2/K19/C/19 Pt.5 dated 5 June 2009. Form 5 was submitted under CEDD's memo ref. (6) in KD 2/31/4 Pt.3 dated 10 June 2009 regarding minor alteration of the position of the coral recipient site. Coral Translocation Report was submitted in Scott Wilson letter ref. 08290/325723 dated 2 July 2009. Post-translocation report shall be referred to the submissions by another ET specifically employed for coral translocation works.	EIAO-TM

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
S8.7	New seawalls at the berth structure of the cruise terminal shall be constructed in order to provide large area of hard substrata for settlement and recruitment of intertidal and subtidal assemblages similar to those previously recorded from existing habitats.	The section of the former Kai Tak Airport runway that will be directed affected by the cruise terminal construction / During detailed design stage	To be confirmed at later stage	To be confirmed at later stage	EIAO-TM
9.6	No fisheries-specific mitigation measures would be required.	-	Not applicable	Not applicable	-

Appendix 3.1

Action and Limit Levels

Action and Limit Levels

Action and Limit Levels for Noise Monitoring

Time Period	Action Level	Limit Level
07:00 – 19:00 hours on normal weekdays	When one documented complaint is received from any one of the sensitive receivers	75 dB(A)

Remarks: No noise monitoring was conducted due to no planned noise sensitive receivers (NSRs) occupied within 300m from the works area of this Project during the dredging works.

Action and Limit Levels for Water Monitoring

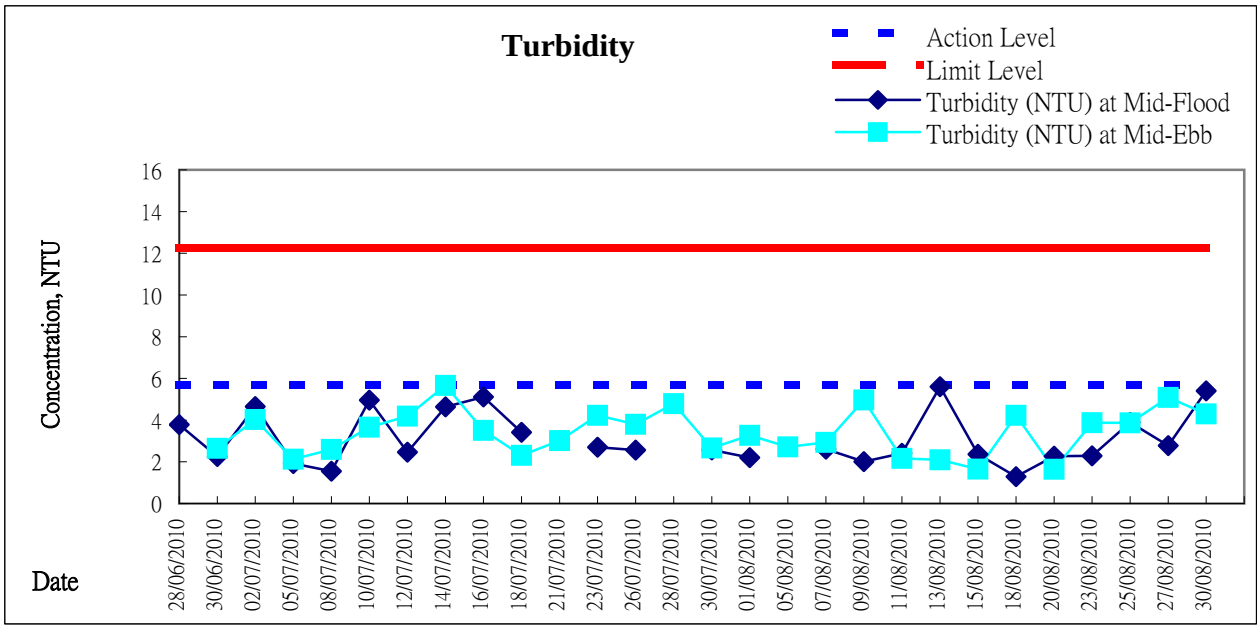
Parameters	Action Level			Limit Level		
Turbidity in NTU		All Season			All Season	
	WSD9	5.67		WSD9	12.27	
	WSD10	6.26		WSD10	10.47	
	WSD15	8.15		WSD15	14.41	
	WSD17	11.60		WSD17	16.91	
	WSD21	9.11		WSD21	15.38	
	WSD19	13.09		WSD19	15.34	
Suspended Solids (SS) in mg/L		Dry Season	Wet Season		Dry Season	Wet Season
	WSD9	6.9	9.7	WSD9	7.8	10.9
	WSD10	7.7	9.1	WSD10	10.3	12.2
	WSD15	7.8	13.5	WSD15	8.4	14.5
	WSD17	9.5	11.2	WSD17	13.7	16.2
	WSD21	13.3	17.1	WSD21	13.9	17.8
	WSD19	16.3	15.1	WSD19	17.0	15.7

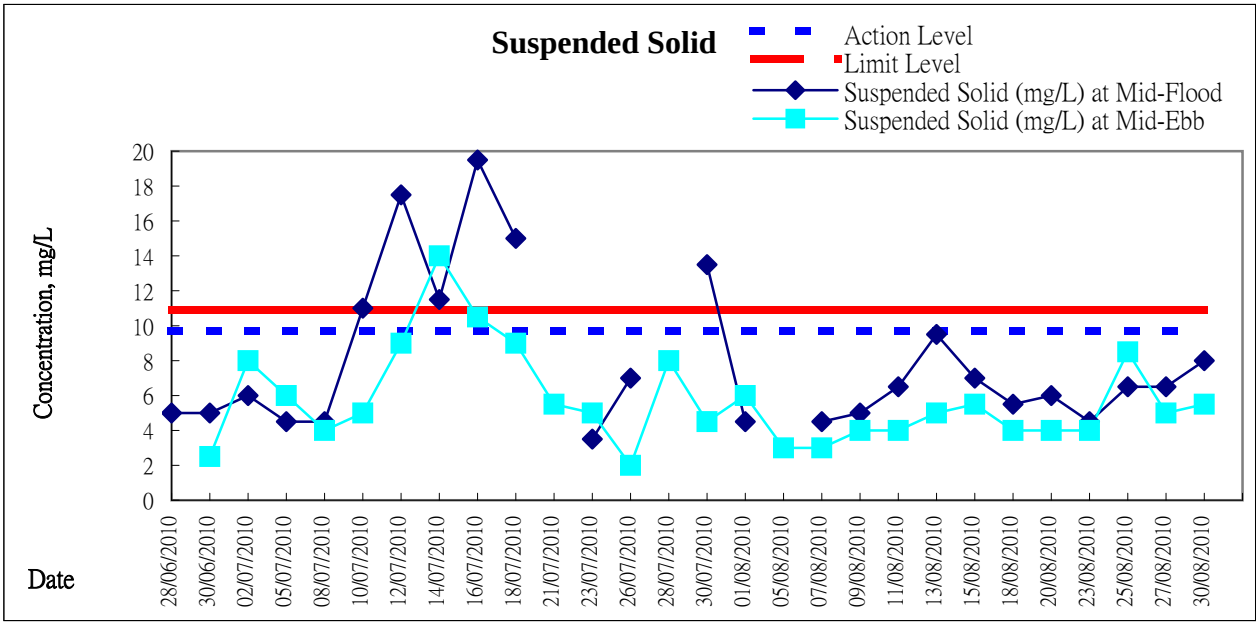
Remarks:
Wet season is from April to September.
Dry season is from October to April.

Appendix 4.1

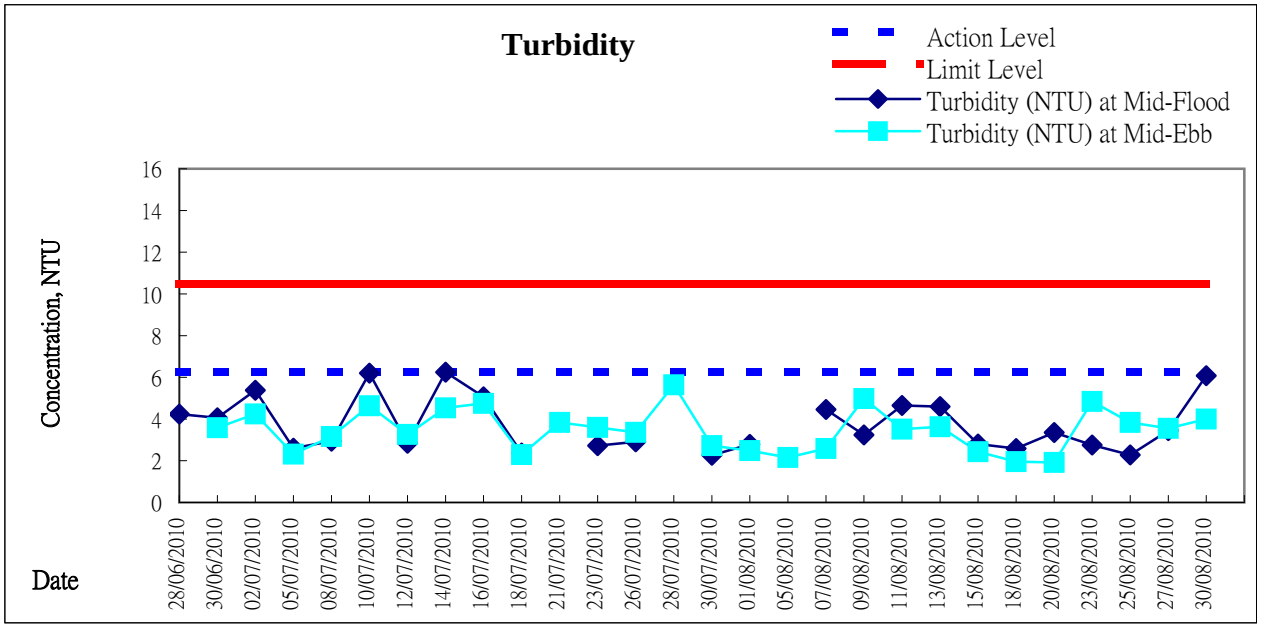
Graphical Presentation of Water Quality Monitoring Results

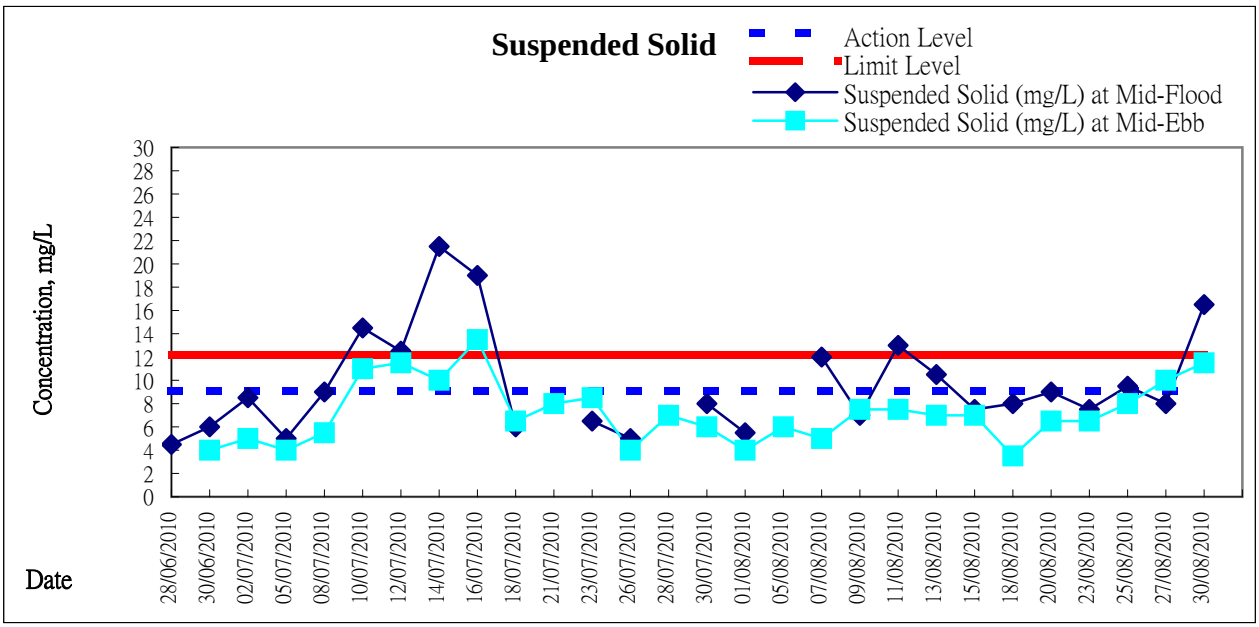
Graphic Presentation of Water Quality Result of WSD9 - Tai Wan



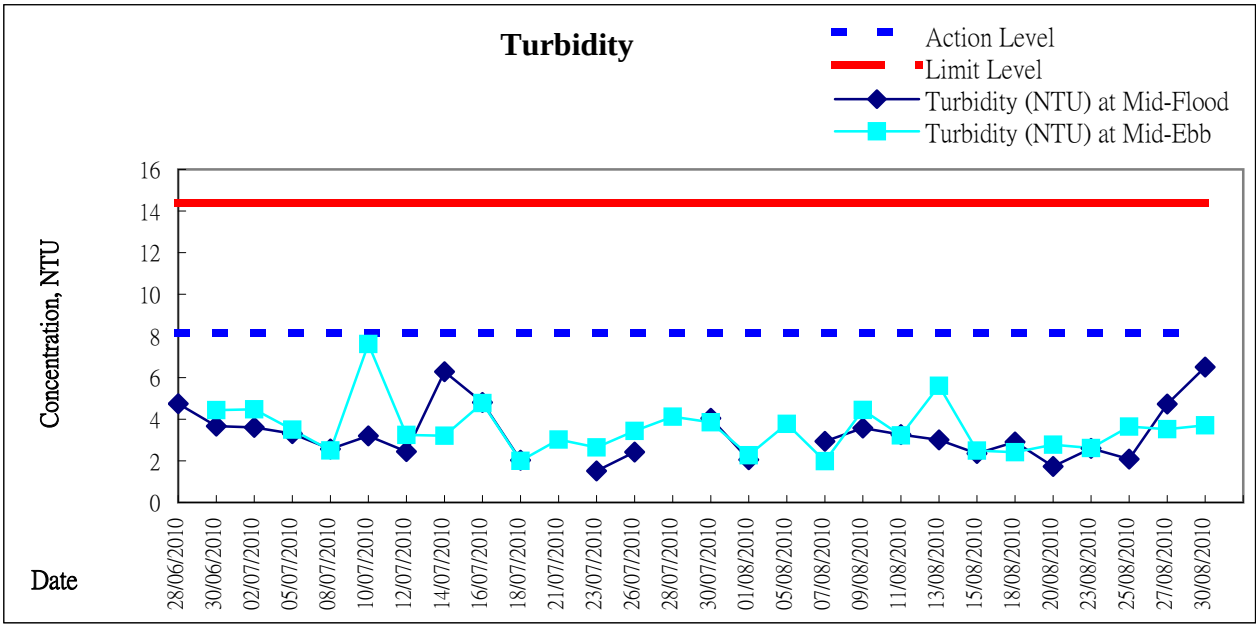


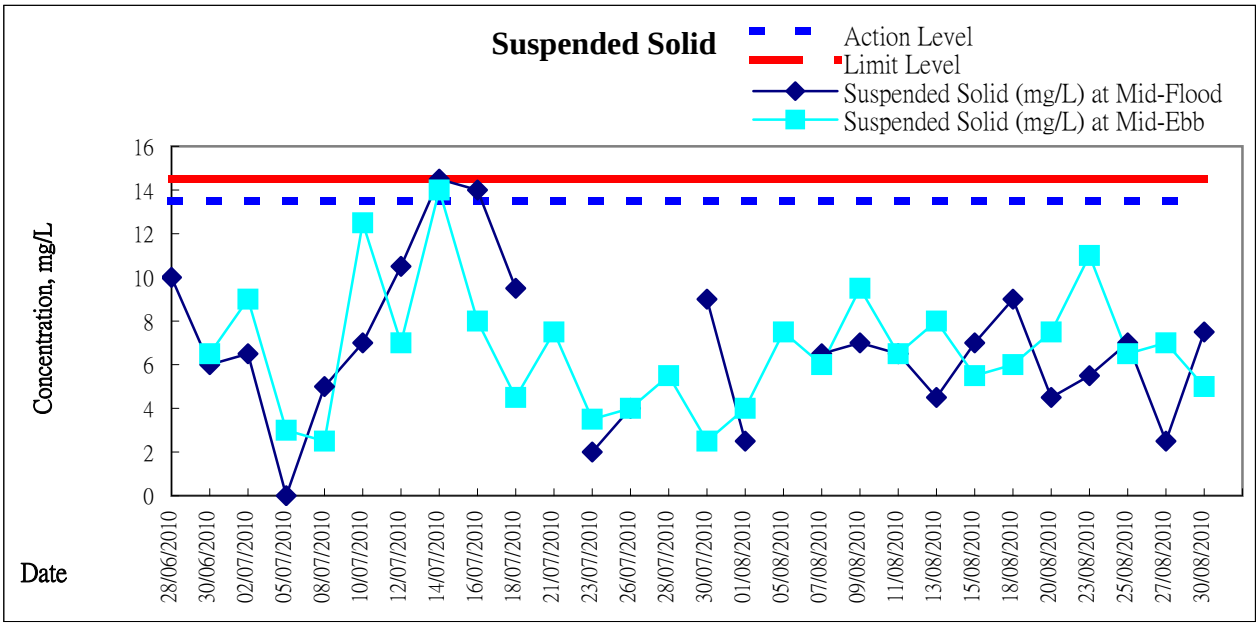
Graphic Presentation of Water Quality Result of WSD10 - Cha Kwo Ling



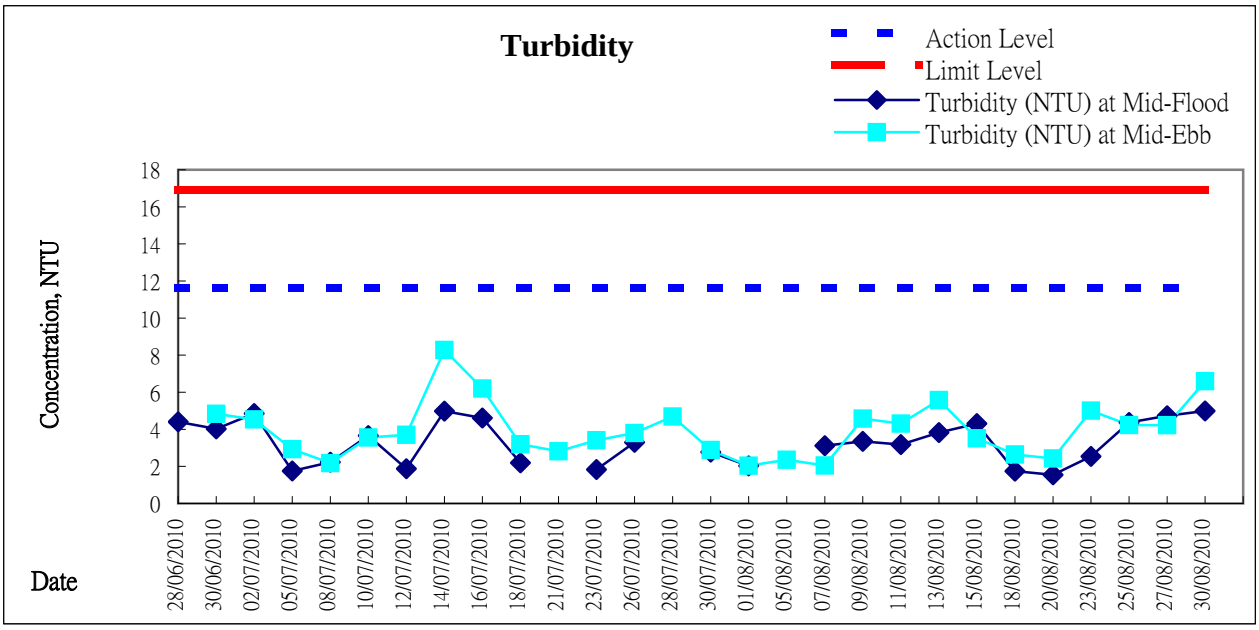


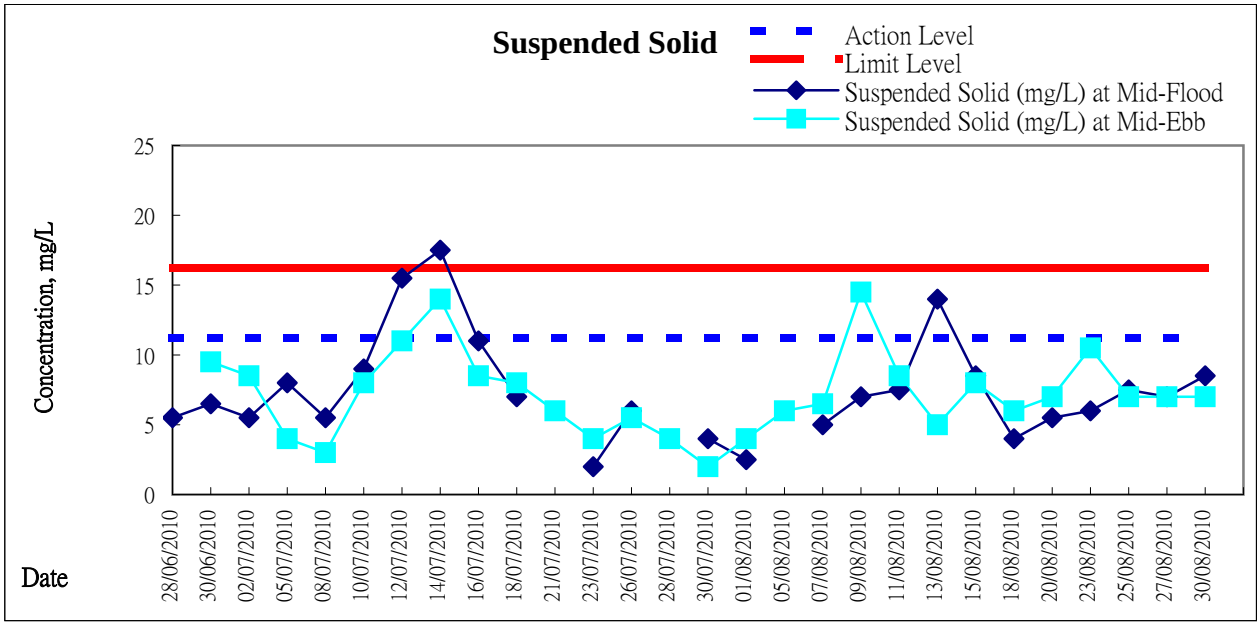
Graphic Presentation of Water Quality Result of WSD15 - Sai Wan Ho



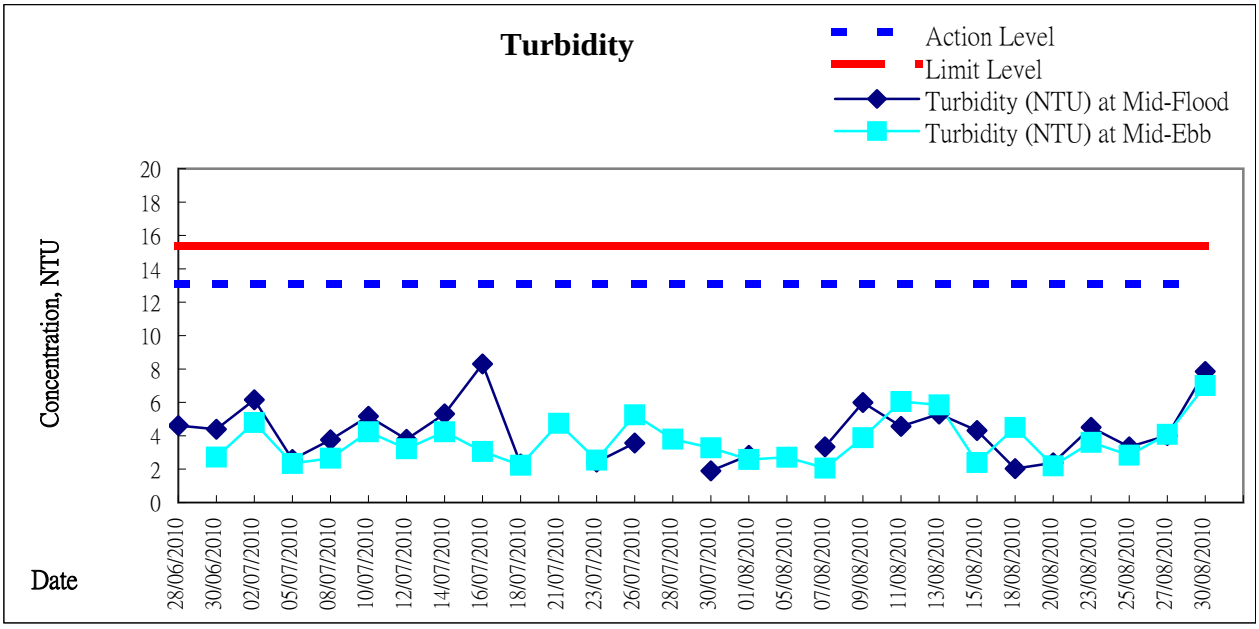


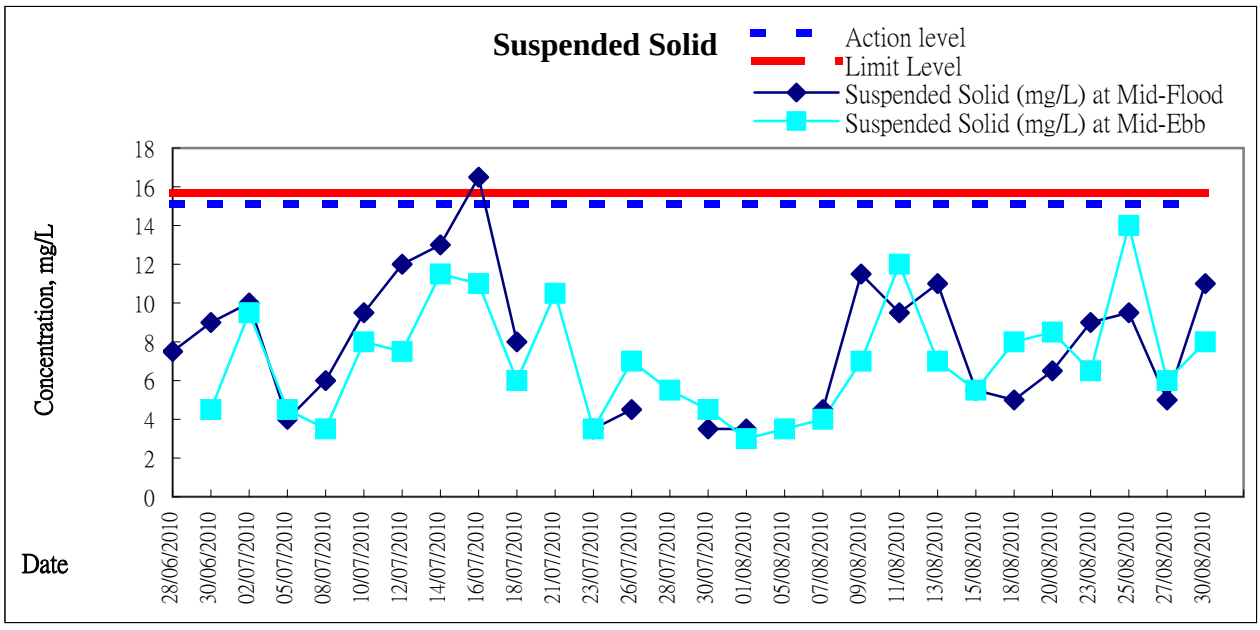
Graphic Presentation of Water Quality Result of WSD17 - Quarry Bay



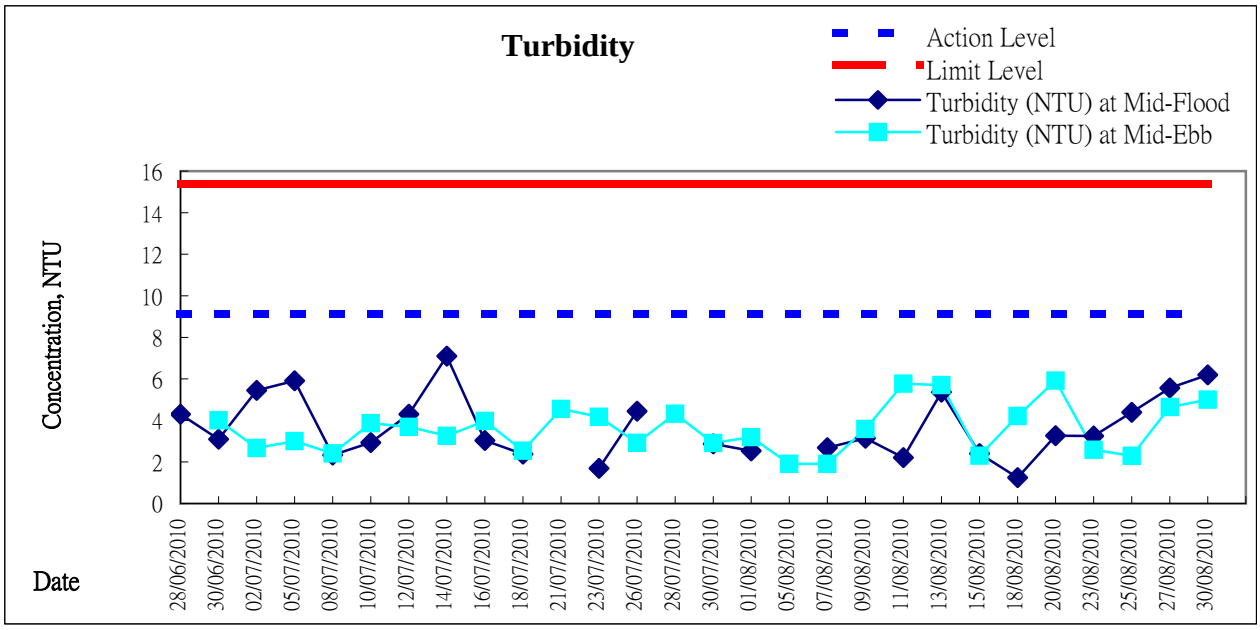


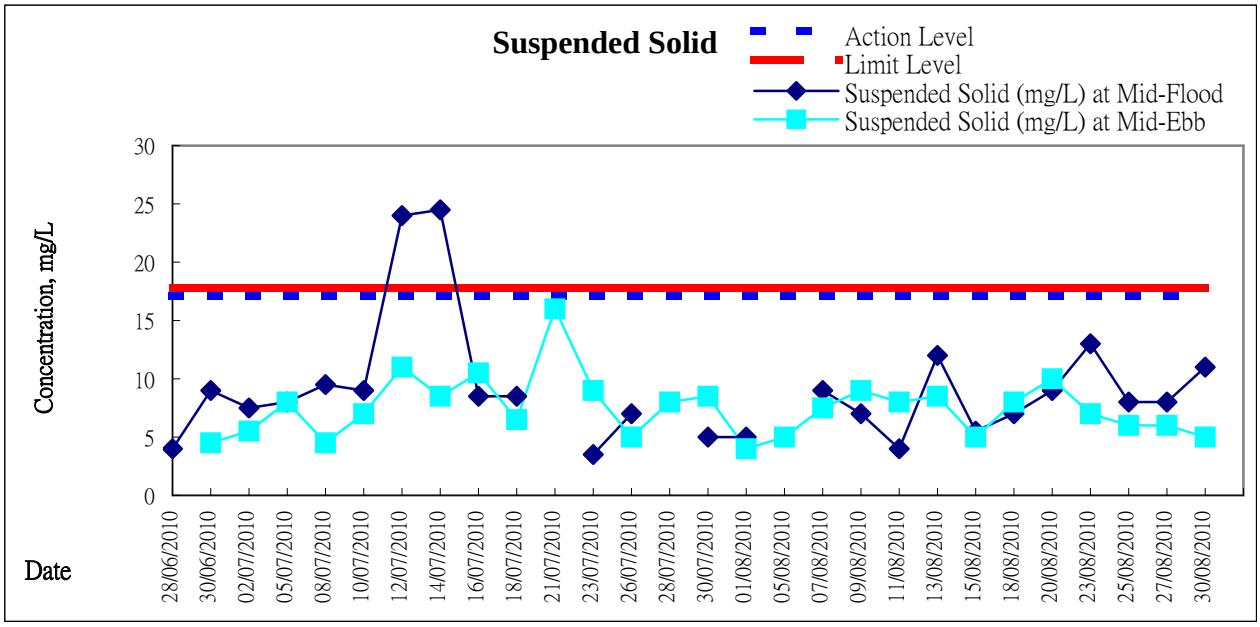
Graphic Presentation of Water Quality Result of WSD19 - Sheung Wan





Graphic Presentation of Water Quality Result of WSD21 - Wan Chai





Appendix 5.1

Event and Action Plan

Event and Action Plan for Construction Noise

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
Action Level	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require 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. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements 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 IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review 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 failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion 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. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

Event and Action Plan for Marine Water Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. (The above actions should be taken within 1 working day after the exceedance is identified) 7. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 4. (The above actions should be taken within 1 working day after the exceedance is identified)	1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented. 3. (The above actions should be taken within 1 working day after the exceedance is identified)	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Review the working methods and consider additional measures such as use of frame-type silt curtain, deployment of double silt curtains, slowing down, or rescheduling of works; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER; 6. Implement the agreed mitigation measures. 7. (The above actions should be taken within 1 working day after the exceedance is identified)
Action level being exceeded by more than one consecutive sampling days	1. Identify source(s) of impact; 2. Inform IEC and Contractor; 3. Check monitoring data, all plant, equipment and Contractor's working methods; 4. Discuss mitigation measures with IEC and Contractor;	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER	1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness	1. Inform the Engineer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	5. Ensure mitigation measures are implemented; 6. Prepare to increase the monitoring frequency to daily; 7. (The above actions should be taken within 1 working day after the exceedance is identified) 8. Repeat measurement on next working day of exceedance.	accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 4. (The above actions should be taken within 1 working day after the exceedance is identified)	of the implemented mitigation measures. 4. (The above actions should be taken within 1 working day after the exceedance is identified)	equipment; 4. Review the working methods and consider additional measures such as use of frame-type silt curtain, deployment of double silt curtains, slowing down, or rescheduling of works; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures. 7. (The above actions should be taken within 1 working day after the exceedance is identified)

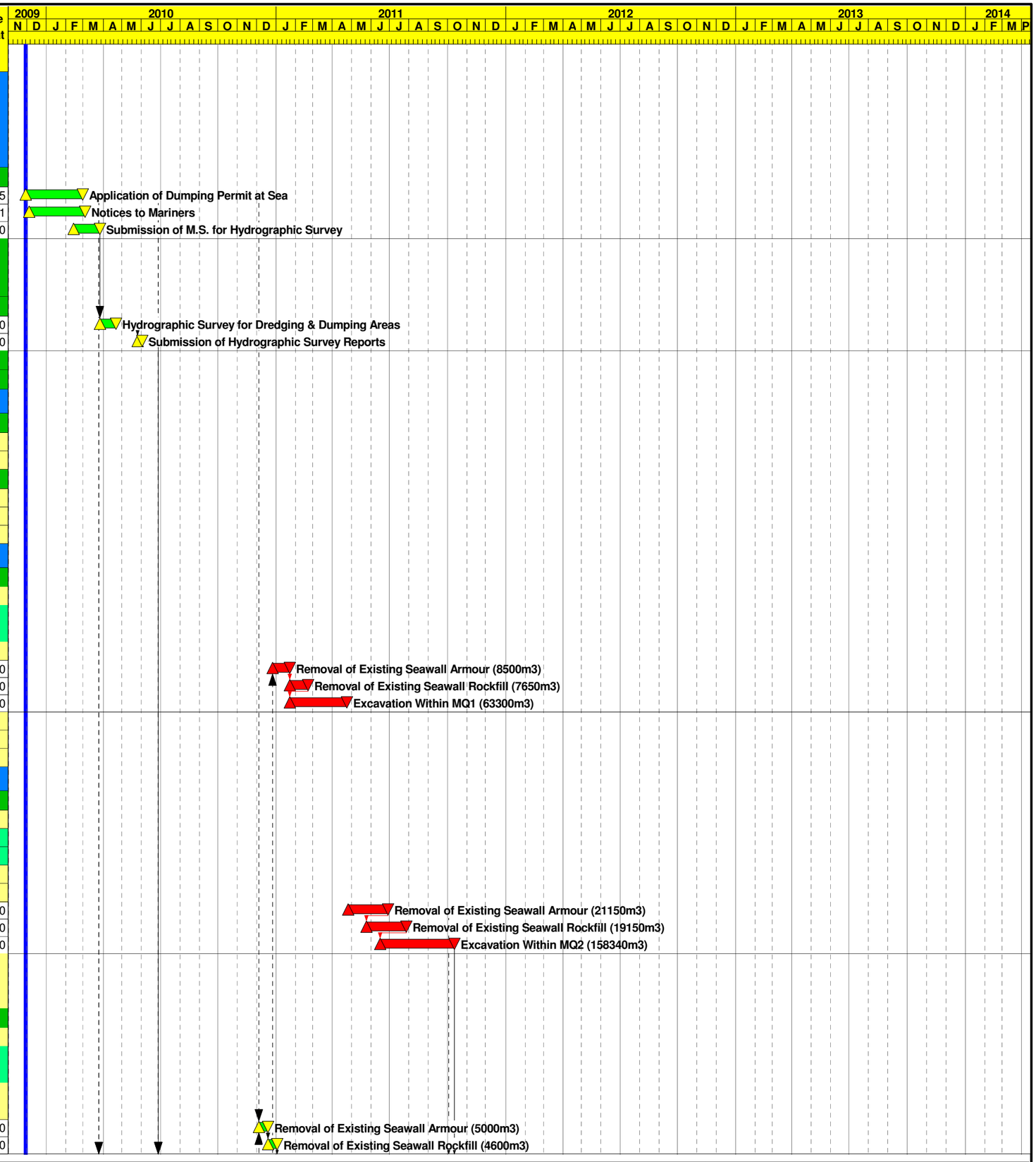
EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Limit level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level. 8. (The above actions should be taken within 1 working day after the exceedance is identified)	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 4. (The above actions should be taken within 1 working day after the exceedance is identified)	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request 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. (The above actions should be taken within 1 working day after the exceedance is identified)	1. Inform the Engineer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Review the working methods and consider additional measures such as use of frame-type silt curtain, deployment of double silt curtains, slowing down, or rescheduling of works; 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures. 7. (The above actions should be taken within 1 working day after the exceedance is identified)

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Limit level being exceeded by more than one consecutive sampling days	1. Identify source(s) of impact; 2. Inform IEC, Contractor and EPD; 3. Check monitoring data, all plant, equipment and Contractor's working methods; 4. Discuss mitigation measures with IEC, ER and Contractor; 5. Ensure mitigation measures are implemented; 6. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. 7. (The above actions should be taken within 1 working day after the exceedance is identified)	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 4. (The above actions should be taken within 1 working day after the exceedance is identified)	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request 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. 6. (The above actions should be taken within 1 working day after the exceedance is identified)	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Review the working methods and consider additional measures such as use of frame-type silt curtain, deployment of double silt curtains, slowing down, or rescheduling of works; 5. Discuss with ET , IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures; 7. As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities. 8. (The above actions should be taken within 1 working day after the exceedance is identified)

Appendix 7.1

Construction Programme

Activity ID	Activity Description	Orig Dur	Early Start	Late Start	Early Finish	Late Finish	Total Float	Free Float
Site Formation KT Cruise Terminal Development								
Contract Period								
Completion Date								
Portion Access/Vacate Date								
Preliminaries & General Requirements								
Initial Submissions								
SU1020	Application of Dumping Permit at Sea	90	30/11/09	17/06/10	27/02/10	14/09/10	199	25
SU1040	Notices to Mariners	90	04/12/09	17/06/10	03/03/10	14/09/10	195	21
SU1170	Submission of M.S. for Hydrographic Survey	42	13/02/10	10/07/10	26/03/10	20/08/10	147	0
Temporary Accommodation								
Environmental and Site Safety Monitoring								
Mobilization & Site Clearance								
Initial Survey								
SR1010	Hydrographic Survey for Dredging & Dumping Areas	25	27/03/10	21/08/10	20/04/10	14/09/10	147	0
SR1020	Submission of Hydrographic Survey Reports	8	26/05/10	20/10/10	02/06/10	27/10/10	147	0
Ground Investigation								
Technical Submission & Queries								
Preparatory Works								
Procurement of Material								
Procurement of Material for Temporary Work								
Procurement of Material for Permanent Work								
Production of Precast Units								
Precast Front Panel (PFP) along PipePile Wall								
Precast Concrete Block (PCB) for Seawall								
Precast Planks for Decking								
Section 1 - Portion MQ1								
Portion MQ1 (Bays A - B)								
Piling Work								
Pipe Piles for Quay Structure								
Temp. Piling Bracing								
Dredging Work & Removal of Existing Seawall								
SW.1.3000	Removal of Existing Seawall Armour (8500m3)	28	27/12/10	27/12/10	23/01/11	23/01/11	0	0
SW.1.3010	Removal of Existing Seawall Rockfill (7650m3)	28	24/01/11	24/01/11	20/02/11	20/02/11	0	0
SW.1.3020	Excavation Within MQ1 (63300m3)	91	24/01/11	24/01/11	24/04/11	24/04/11	0	0
New Seawall Construction								
RC Deck Construction								
Miscellaneous Work								
Section 2 - Portions MQ2, LS1, LS2, SDA & DZA								
Portion MQ2 (Bays C - G)								
Piling Work (Bays C - G, LS1 & LS2)								
Pipe Pile for Quay Structure								
Pipe Pile Wall								
Precast Front Panel (PFP) & Temp. Piling Bracing								
Dredging Work & Removal of Existing Seawall								
SW.2.3000	Removal of Existing Seawall Armour (21150m3)	63	26/04/11	26/04/11	27/06/11	27/06/11	0	0
SW.2.3010	Removal of Existing Seawall Rockfill (19150m3)	63	25/05/11	25/05/11	26/07/11	26/07/11	0	0
SW.2.3020	Excavation Within MQ2 (158340m3)	119	15/06/11	15/06/11	11/10/11	11/10/11	0	0
New Seawall Construction								
RC Deck Construction								
Miscellaneous Work								
Portion SDA (Bay SDA)								
Piling Work								
Pipe Pile for Quay Structure								
Pipe Pile Wall								
Precast Front Panel (PFP) & Temp. Piling Bracing								
Dredging Work & Removal of Existing Seawall								
SW.21.3000	Removal of Existing Seawall Armour (5000m3)	14	06/12/10	20/06/11	19/12/10	03/07/11	196	0
SW.21.3010	Removal of Existing Seawall Rockfill (4600m3)	14	20/12/10	04/07/11	02/01/11	17/07/11	196	0



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Early Bar
Progress Bar
Critical Activity

KTWP

Sheet 1 of 3

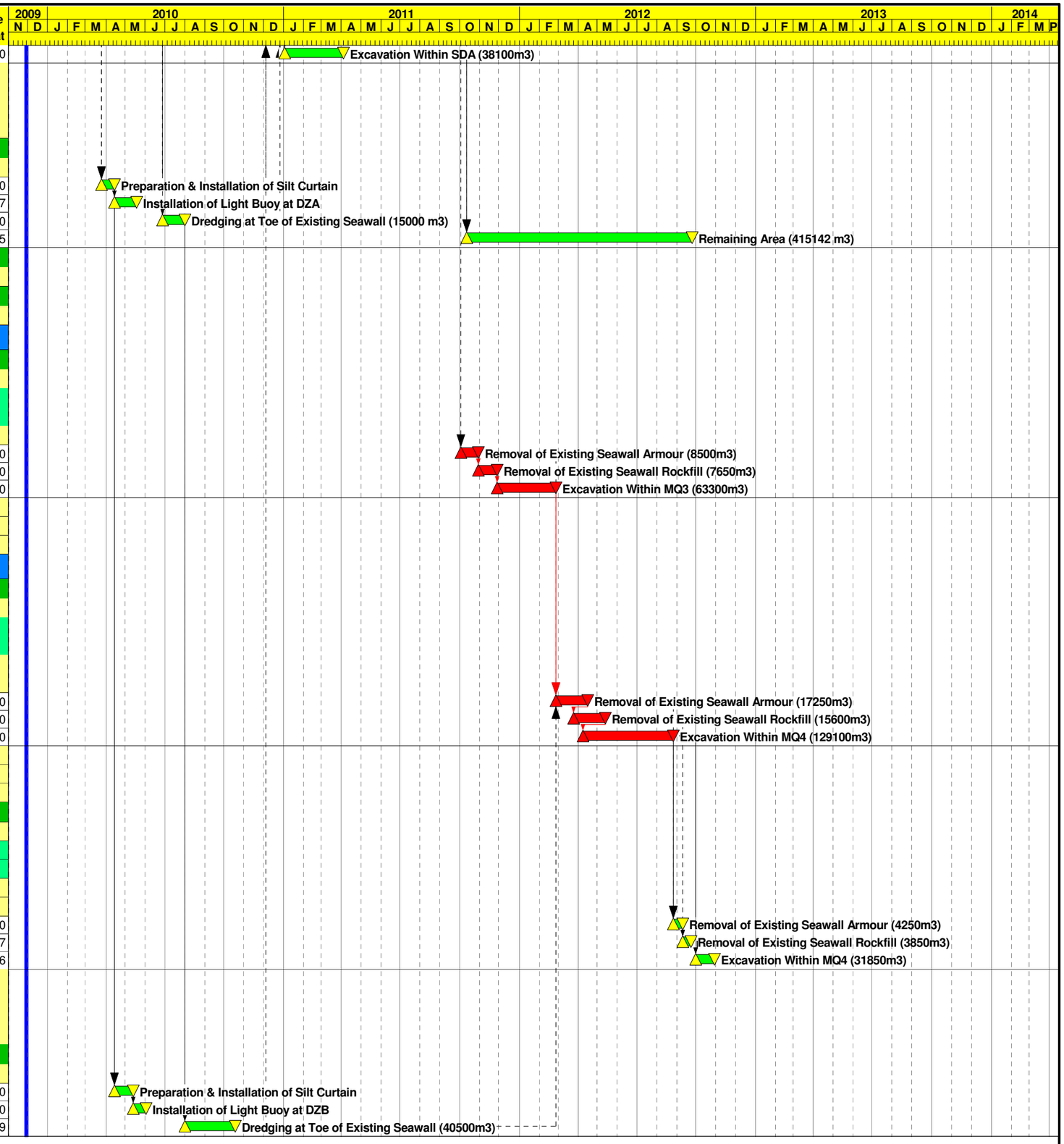
Penta-Ocean Construction Co., Ltd.

CEDD Contract No. KL/2009/01
Site Formation for Kai Tak Cruise Terminal Development
General Dredging and Removal of Existing Seawall

Start Date	30/11/09
Finish Date	24/12/13
Data Date	30/11/09
Run Date	13/07/10 11:02

Date	Revision	Checked	Approved
13/07/10	E	TM	DK

Activity ID	Activity Description	Orig Dur	Early Start	Late Start	Early Finish	Late Finish	Total Float	Free Float
SW.21.3020	Excavation Within SDA (38100m3)	91	03/01/11	18/07/11	03/04/11	16/10/11	196	0
New Seawall Construction								
RC Deck Construction								
Miscellaneous Work								
Concrete Block Seawall								
Portion DZA								
Dredging Work								
SW.22.1000	Preparation & Installation of Silt Curtain	21	25/03/10	15/09/10	14/04/10	05/10/10	174	0
SW.22.1010	Installation of Light Buoy at DZA	35	15/04/10	06/10/10	19/05/10	09/11/10	174	27
SW.22.1020	Dredging at Toe of Existing Seawall (15000 m3)	35	28/06/10	22/11/10	01/08/10	26/12/10	147	0
SW.22.1030	Remaining Area (415142 m3)	350	12/10/11	17/10/11	25/09/12	30/09/12	5	5
Portion LS1								
Road & Drainage Works								
Portion LS2								
Road & Drainage Works								
Section 3 - Portion MQ3								
Portion MQ3 (Bays H - I)								
Piling Work								
Pipe Pile for Quay Structure								
Temp. Bracing for Piles								
Dredging Work & Removal of Existing Seawall								
SW.3.3000	Removal of Existing Seawall Armour (8500m3)	28	03/10/11	03/10/11	30/10/11	30/10/11	0	0
SW.3.3010	Removal of Existing Seawall Rockfill (7650m3)	28	31/10/11	31/10/11	27/11/11	27/11/11	0	0
SW.3.3020	Excavation Within MQ3 (63300m3)	91	28/11/11	28/11/11	26/02/12	26/02/12	0	0
New Seawall Construction								
RC Deck Construction								
Miscellaneous Work								
Section 4 - Portions MQ4, LS3, NDA & DZB								
Portion MQ4 (Bays J - M)								
Piling Work (Bays J-M & LS3)								
Pipe Pile for Quay Structure								
Pipe Pile Wall								
Precast Front Panel (PFP) & Temp. Piling Bracing								
Dredging Work & Removal of Existing Seawall								
SW.4.3000	Removal of Existing Seawall Armour (17250m3)	49	27/02/12	27/02/12	15/04/12	15/04/12	0	0
SW.4.3010	Removal of Existing Seawall Rockfill (15600m3)	49	26/03/12	26/03/12	13/05/12	13/05/12	0	0
SW.4.3020	Excavation Within MQ4 (129100m3)	140	09/04/12	09/04/12	26/08/12	26/08/12	0	0
New Seawall Construction								
RC Deck Construction								
Miscellaneous Work								
Portion NDA (Bay NDA)								
Piling Work								
Pipe Pile for Quay Structure								
Pipe Pile Wall								
Precast Front Panel (PFP) & Temp. Piling Bracing								
Dredging Work & Removal of Existign Seawall								
SW.41.3000	Removal of Existing Seawall Armour (4250m3)	14	27/08/12	18/03/13	09/09/12	31/03/13	203	0
SW.41.3010	Removal of Existing Seawall Rockfill (3850m3)	14	10/09/12	01/04/13	23/09/12	14/04/13	203	7
SW.41.3020	Excavation Within MQ4 (31850m3)	28	01/10/12	15/04/13	28/10/12	12/05/13	196	196
New Seawall Construction								
RC Deck Construction								
Miscellaneous Work								
Concrete Block Seawall								
Portion DZB								
Dredging Work								
SW.42.1000	Preparation & Installation of Silt Curtain	28	15/04/10	14/02/11	12/05/10	13/03/11	305	0
SW.42.1010	Installation of Light Buoy at DZB	21	13/05/10	14/03/11	02/06/10	03/04/11	305	60
SW.42.1020	Dredging at Toe of Existing Seawall (40500m3)	77	02/08/10	04/04/11	17/10/10	19/06/11	245	49



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Early Bar
Progress Bar
Critical Activity

Penta-Ocean Construction Co., Ltd.

CEDD Contract No. KL/2009/01
Site Formation for Kai Tak Cruise Terminal Development
General Dredging and Removal of Existing Seawall

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Finish Date	24/12/13
Data Date	30/11/09
Run Date	13/07/10 11:02

Date	Revision	Checked	Approved
13/07/10	E	TM	DK

Activity ID	Activity Description	Orig Dur	Early Start	Late Start	Early Finish	Late Finish	Total Float	Free Float
Portion LS3								
Roadworks								
Section 5								
Transplanting and Tree Preservation								

2009 N D | 2010 J F M A M J J A S O N D | 2011 J F M A M J J A S O N D | 2012 J F M A M J J A S O N D | 2013 J F M A M J J A S O N D | 2014 J F M P

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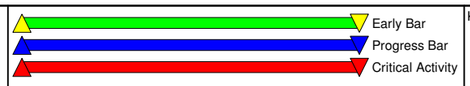

KTWP

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