CONTRACT NO: KL/2009/01

SITE FORMATION FOR KAI TAK CRUISE TERMINAL DEVELOPMENT

ENVIRONMENTAL MONITORING & AUDIT MONTHLY REPORT

- DECEMBER 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 – Monthly Environmental Monitoring & Audit Report for December 2010**		

We refer to the revised Monthly EM&A Report for December 2010 that we received through email on 13 January 2011 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,

Joseph Poon
Independent Environmental Checker

JP/CY/by

(If you do not receive all pages, please fax response or phone +852-24508238.)

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EXECUTIVE SUMMARY

i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – December 2010 for Contract No. KL/2009/01 – Site Formation for Kai Tak Cruise Terminal Development. Dredging of marine sediment and removal and reconstruction of existing seawall were commenced on 28 June and 22 November 2010 respectively. This report presents the environmental monitoring findings and information recorded in December 2010.

Construction Activities for the Reporting Period

ii. During this reporting period, the principal work activities included:

- Dredging at Toe of Existing Seawall;
- Removal of Existing Seawall;
- Fabrication and installation of silt curtain for seawall removal;
- Maintenance of Silt Curtain and Silt Screens; and
- Sorting of inert C&D material from existing seawall

Water Quality Monitoring

iii. Water quality monitoring at 6 designated monitoring stations namely WSD9, WSD10, WSD15, WSD17, WSD19 and WSD21 were conducted during the reporting period. As per the EM&A Manual, water quality impact monitoring was conducted during the dredging works, which commenced on 28 June 2010. Suspended solid (SS) exceedances of water quality at various monitoring stations are summarized in ***Table I***. However, investigations indicated these exceedances were not related to the Project works.

Table I ***Summary of the Exceedances Recorded in Reporting Month***

Date	Tide	Station	Parameter	Exceedance	Value	Possible Cause of Exceedance
1/12/2010	Mid-flood	WSD15	SS (mg/L)	LL	9.5	Upstream of the Project
3/12/2010	Mid-flood	WSD9	SS (mg/L)	LL	8.0	Natural variation or change around station
3/12/2010	Mid-flood	WSD15	SS (mg/L)	LL	8.5	Upstream of the Project
3/12/2010	Mid-flood	WSD17	SS (mg/L)	LL	15.5	Upstream of the Project
8/12/2010	Mid-flood	WSD9	SS (mg/L)	AL	7.0	Natural variation or change around station
8/12/2010	Mid-flood	WSD10	SS (mg/L)	AL	8.0	Upstream of the Project
8/12/2010	Mid-flood	WSD15	SS (mg/L)	AL	11.0	Upstream of the Project
8/12/2010	Mid-flood	WSD17	SS (mg/L)	AL	13.5	Upstream of the Project
11/12/2010	Mid-flood	WSD17	SS (mg/L)	AL	10.0	Upstream of the Project
13/12/2010	Mid-flood	WSD15	SS (mg/L)	LL	9.5	Upstream of the Project
13/12/2010	Mid-flood	WSD17	SS (mg/L)	LL	12.0	Upstream of the Project
16/12/2010	Mid-ebb	WSD10	SS (mg/L)	LL	10.5	Natural variation or change around station

Date	Tide	Station	Parameter	Exceedance	Value	Possible Cause of Exceedance
16/12/2010	Mid-ebb	WSD15	SS (mg/L)	AL	8.0	Natural variation or change around station
20/12/2010	Mid-ebb	WSD9	SS (mg/L)	AL	7.0	Upstream of the Project
25/12/2010	Mid-flood	WSD9	SS (mg/L)	LL	10.0	Natural variation or change around station
25/12/2010	Mid-ebb	WSD9	SS (mg/L)	AL	7.5	Upstream of the Project
28/12/2010	Mid-flood	WSD17	SS (mg/L)	AL	12.5	Upstream of the Project
30/12/2010	Mid-flood	WSD17	SS (mg/L)	AL	10.0	Upstream of the Project

iv. Owing to the frequent reported exceedances caused by fluctuation in coastal water quality due to localised effect, so that the exceedances were considered as not related to the project.

v. A self water quality surveillance system was carried out by the contractor in this reporting period for the checking on any water quality impact arising from the dredging works to the WSD pumping stations. The monitoring results indicated that no significant rising trend of the turbidity and SS in the projection from the dredging area to the control point and the WSD pumping stations.

Noise Monitoring

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

Waste Management

vii. There were marine sediment (Type 1 – Open Sea Disposal and Type 1 – Open Sea Disposal (Dedicate Sites) and Type 2 – Confined Marine Disposal) disposed to South Cheung Chau Spoil Disposal Area denoted “KTCT-1” and “KTCT -2” and East Sha Chau Contaminated Mud Disposal Site – Pit IVc respectively. No inert C&D material and non-inert C&D material related to dredging works were disposed off site in the reporting month.

Complaints, Notifications of Summons and Successful Prosecutions

viii. No complaint, notification of prosecutions or summons was received in the reporting period.

Site Inspections and Audit

ix. The Environmental Team (ET) conducted four site inspections on 7, 17, 21 and 31 December 2010. Observation related to the dredging work during the audit sessions were listed in **Table 7.01**. Contractor was reminded to close the opening of silt curtain at all times except vessel movement.

Compliance with Specific EP Conditions

x. Implementation of contractor's mitigation for dredging work and the associated dredging records were checked. It was concluded that the dredging is conducted orderly in compliance with the EP requirements on site mitigation measures.

Construction Activities for the Coming Reporting Period

xi. In the coming reporting period, the principal work activities included:

- Dredging at Toe of Existing Seawall;
- Removal and Reconstruction of Existing Seawall;
- Fabrication and installation of silt curtain for seawall removal;
- Maintenance of Silt Curtain and Silt Screens; and
- Sorting of inert C&D material from existing seawall

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 and removal and reconstruction of existing seawall were commenced on 28 June and 22 November 2010 respectively.

1.1.2. This report presents the environmental monitoring and auditing work carried out in accordance to the Section 10.4 under Environmental Monitoring and Audit (EM&A) Manual.

1.1.3. This report documents the finding of EM&A works in December 2010. The cut-off date of reporting is at the end of each reporting month.

1.2 STRUCTURE OF THE REPORT

Section 1 ***Introduction*** – details of 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 ***Implementation Status*** – summarizes the status of valid Environmental Permits / Licenses during the reporting period.

Section 4 ***Monitoring Requirements*** – summarizes all monitoring parameters, monitoring methodology and equipment, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.

Section 5 ***Monitoring Results*** – summarizes the monitoring results obtained in the reporting period.

Section 6 ***Compliance Audit*** – summarizes the auditing of monitoring results and all exceedances environmental parameters.

Section 7 ***Site Inspection*** – summarizes the findings of weekly site inspections undertaken within the reporting period, with a review of any relevant follow-up actions within the reporting period.

Section 8 ***Complaints, Notification of Summons and Prosecution*** – summarizes the complaints, notification of summons and successful prosecution for breaches of environmental legislation and the actions taken within the reporting period.

Section 9 ***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 700,000 m^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 AND CONTACT PERSONNEL

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 CONSTRUCTION PROGRAMME AND WORKS

2.4.1. During this reporting period, the principal work activities included:

- Dredging at Toe of Existing Seawall;
- Removal of Existing Seawall;
- Fabrication and installation of silt curtain for seawall removal;
- Maintenance of Silt Curtain and Silt Screens; and

- Sorting of inert C&D material from existing seawall

3 IMPLEMENTATION REQUIREMENTS

3.1 STATUS OF REGULATORY COMPLIANCE

3.1.1. A summary of the current status on licences and/or permits on environmental protection pertinent to the Project is shown in ***Table 3.1***.

Table 3.1 Summary of Valid Licences and Permits

Permits and/or Licences	Reference No.	Issued Date	Valid Period	Status in Reporting Month
Environmental Permit	EP-328/2009/A	15 Jun 2009	N/A	Valid
Notification of Works Under APCO	KTCT/907/S/3.14/7.00/L/0060 (POC's REF. number) dated 9 December 2009	--	N/A	Valid
Construction Noise Permit (CNP)	GW-RE0442-10	10 Sep 2010	23 Sep 2010 (00:00) to 22 Mar 2011 (24:00)	Valid
Discharge Licence	WT00005933-2010	18 Mar 2010	Until 31 March 2015	Valid
Registration of Waste Producer	5213-247-P2984-01	14 Jan 2010	N/A	Valid
Dumping Permit (Type 1 – Open Sea Disposal)	EP/MD/11-085	1 Nov 2010	3 Nov 2010 to 2 May 2011	Valid
Dumping Permit (Type 1 – Open Sea Disposal (Dedicated Sites) & Type 2 – Confined Marine Disposal)	EP/MD/11-084	1 Nov 2010	3 Nov to 2 Dec 2010	Valid till 2 Dec 2010
	EP/MD/11-095	1 Dec 2010	3 Dec 2010 to 2 Jan 2011	Valid

3.1.2. Implementation status of the recommended mitigation measures during this reporting period is presented in ***Appendix 3.1***.

4 MONITORING REQUIREMENTS

4.1 NOISE MONITORING

4.1.1. 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 4.1***.

Table 4.1 Planned Noise Monitoring Stations

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

4.1.2. 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.

4.2 WATER QUALITY MONITORING

4.2.1. 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.

4.2.2. 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 4.2*** and ***Figure 4.1***.

Table 4.2 Water Quality Monitoring Stations for Baseline and Impact Monitoring

Station Ref.	WSD Flushing Water Intake	Easting	Northing
WSD9	Tai Wan	837921.0	818330.0

Station Ref.	WSD Flushing Water Intake	Easting	Northing
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

4.3 WATER QUALITY PARAMETERS

4.3.1. 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 4.2***. 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 4.3*** 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.

4.3.2. 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 4.3 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.

4.3.3. The established Action and Limit levels according to the approved baseline monitoring report for monitoring works can be referred to ***Appendix 4.1***.

4.3.4. Current calibration certificates of equipment are presented in ***Appendix 4.2.***

4.4 SAMPLING PROCEDURES AND MONITORING EQUIPMENT

4.4.1. In-situ measurements and water sampling shall be conducted at mid-depth. Duplicate *in-situ* measurements and water sampling have been conducted in each sampling event. Water samples for all monitoring parameters shall be collected, stored, preserved and analysed according to the Standard Methods, APHA 17 and/or agreed by IEC and EPD.

Dissolved Oxygen and Temperature Measuring Equipment

4.4.2. The instrument should be a portable, weatherproof dissolved oxygen measuring instrument complete with cable, sensor, comprehensive operation manuals, and use a DC power source. It should be capable of measuring:

- a dissolved oxygen level in the range of 0-20 mg/l and 0-200% saturation
- a temperature of 0-45 degree Celsius

4.4.3. It should have a membrane electrode with automatic temperature compensation complete with a cable. Sufficient stocks of spare electrodes and cables should be available for replacement where necessary. (e.g. YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument).

4.4.4. Should salinity compensation not be build-in in the DO equipment, in-situ salinity shall be measured to calibrate the DO equipment prior to each DO measurement.

Turbidity Measurement Instrument

4.4.5. The instrument should be a portable, weatherproof turbidity-measuring instrument complete with comprehensive operation manual. The equipment should use a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU and be complete with a cable (e.g. Hach model 2100P or an approved similar instrument).

Suspended Solids

4.4.6. A water sampler comprises a transparent PVC cylinder, with a capacity of not less than 2 litres, and can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth (e.g. Kahlsico Water Sampler or an approved similar instrument).

4.4.7. Water samples for suspended solids measurement should be collected in high-density polythene bottles, packed in ice (cooled to 4°C without being frozen), and delivered to ALS Technichem (HK) Pty Ltd. as soon as possible after collection for analysis.

Water Depth Detector

4.4.8. A portable, battery-operated echo sounder shall be used for the determination of water depth at each designated monitoring station. This unit can either be handheld or affixed to the bottom of the workboat, if the same vessel is to be used throughout the monitoring programme.

Salinity

4.4.9. A portable salinometer capable of measuring salinity in the range of 0-40 ppt shall be provided for measuring salinity of the water at each of monitoring location.

Locating the Monitoring Site

4.4.10. A hand-held or boat-fixed type digital Global Positioning System (GPS) with way point bearing indication or other equivalent instrument of similar accuracy shall be provided and used during monitoring to ensure the monitoring vessel is at the correct location before taking measurements.

Calibration and Accuracy of Instrument

4.4.11. All in-situ monitoring instruments shall be checked, calibrated and certified by a laboratory accredited under HOKLAS or equivalent before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.

4.4.12. For the on site calibration of field equipment by the ET, the BS 127:1993, "Guide to Field and on-site test methods for the analysis of waters" should be observed.

4.4.13. Sufficient stocks of spare parts should be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, etc.

4.4.14. The equipment used in the water quality monitoring in the reporting month are summarized in ***Table 4.4***. Current calibration certificates of the used equipment are presented in ***Appendix 4.2***

Table 4.4 Equipment Used in Water Quality Monitoring in the Reporting Month

Equipment	**Model**	**Qty.**
Multi-meter	YSI Sonde 600XL	1
	WTW Multi 3430	1
Turbidimeter	Hach 2100P	1

5 MONITORING RESULTS

5.1 WATER MONITORING RESULTS

5.1.1. The water monitoring schedule for the reporting month and coming three months are presented in ***Appendix 5.1***.

5.1.2. Water monitoring results measured in reporting month are reviewed and presented in ***Appendix 5.2***. SS exceedances were recorded on 1, 3, 8, 11, 13, 16, 20, 25, 28 and 30 December 2010. EPD was immediately notified the limit level exceedances via facsimile. Investigation found that the exceedances were due to the natural variation or change near monitoring station, it was concluded that exceedances were not related to the Project.

5.1.3. The exceedances recorded in the reporting month are concluded not related to the Project, no further steps under Event and Action Plan is needed. The details of Event and Action Plans and Notification of Exceedance summarizing the finding of investigation, possible causes and review of Contractor's mitigation measures can be referred to ***Appendix 5.3*** and ***Appendix 5.4***.

5.2 WASTE MONITORING RESULTS

5.2.1. No inert C&D material and non-inert C&D material related to dredging works were disposed off site in the reporting month.

6 COMPLIANCE AUDIT

6.1 NOISE MONITORING

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

6.2 WATER QUALITY MONITORING

6.2.1. SS exceedances were recorded on 1, 3, 8, 11, 13, 16, 20, 25, 28 and 30 December 2010 in the reporting month. ***Table 6.2*** summarize the details of SS exceedances recorded. Investigation indicated the exceedances were not related to the Project works.

Table 6.2 Summary of Exceedances recorded in the Reporting Month

Date	Tide	Station	Parameter	Exceedance	Value	Possible Cause of Exceedance
1/12/2010	Mid-flood	WSD15	SS (mg/L)	LL	9.5	Upstream of the Project
3/12/2010	Mid-flood	WSD9	SS (mg/L)	LL	8.0	Natural variation or change around station
3/12/2010	Mid-flood	WSD15	SS (mg/L)	LL	8.5	Upstream of the Project
3/12/2010	Mid-flood	WSD17	SS (mg/L)	LL	15.5	Upstream of the Project
8/12/2010	Mid-flood	WSD9	SS (mg/L)	AL	7.0	Natural variation or change around station
8/12/2010	Mid-flood	WSD10	SS (mg/L)	AL	8.0	Upstream of the Project
8/12/2010	Mid-flood	WSD15	SS (mg/L)	AL	11.0	Upstream of the Project
8/12/2010	Mid-flood	WSD17	SS (mg/L)	AL	13.5	Upstream of the Project
11/12/2010	Mid-flood	WSD17	SS (mg/L)	AL	10.0	Upstream of the Project
13/12/2010	Mid-flood	WSD15	SS (mg/L)	LL	9.5	Upstream of the Project
13/12/2010	Mid-flood	WSD17	SS (mg/L)	LL	12.0	Upstream of the Project
16/12/2010	Mid-ebb	WSD10	SS (mg/L)	LL	10.5	Natural variation or change around station
16/12/2010	Mid-ebb	WSD15	SS (mg/L)	AL	8.0	Natural variation or change around station
20/12/2010	Mid-ebb	WSD9	SS (mg/L)	AL	7.0	Upstream of the Project
25/12/2010	Mid-flood	WSD9	SS (mg/L)	LL	10.0	Natural variation or change around station
25/12/2010	Mid-ebb	WSD9	SS (mg/L)	AL	7.5	Upstream of the Project
28/12/2010	Mid-flood	WSD17	SS (mg/L)	AL	12.5	Upstream of the Project
30/12/2010	Mid-flood	WSD17	SS (mg/L)	AL	10.0	Upstream of the Project

6.3 WATER QUALITY SURVEILLANCE SYSTEM

6.3.1. A self water quality surveillance system was further carried out during the date of spring tides in the reporting month for checking of any water quality impact arising from the dredging works to the WSD pumping stations. The

turbidity and SS monitoring were conducted at the 12 locations are as follows and presented in **Figure 6.1.**

- One sampling point inside the silt curtain (SP1);
- Four sampling points at about 10m outside the silt curtain (MP1-MP4);
- Seven control points (C1-C7)

6.3.2. The trend of monitoring results from the location of dredging works to the nearest WSD pumping stations will be projected for the checking the water quality surveillance.

6.3.3. The monitoring results in the reporting period indicated that no significant rising trend of the SS in the projection from the dredging area to the control point and the WSD pumping stations. The summary of data and graphical presentation of the projection are shown in **Appendix 6.1.**

6.4 DREDGING AND DISPOSAL

6.4.1. Implementation of mitigation measures for dredging work and the associated dredging records were checked and the findings are summarized in ***Table 6.3.1***.

Table 6.4.1 Compliance with EP Conditions in the Reporting Month

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
2.6 For removal of the existing seawall and the seabed, Daily Dredging Rate ≤ 4,000m3/d Hourly Dredging Rate ≤ 334m3/hr	Complied with the EP requirement in reporting month: Daily Dredging Rate maintained at 400m^3/day and Hourly Dredging Rate maintained at 50m^3/hr.
2.7 For removal of marine sediment from seabed, Daily Dredging Rate ≤ 4,000m3/d Hourly Dredging Rate ≤ 334m3/hr	Complied with the EP requirement in reporting month: Daily Dredging Rate maintained at 3080m^3/day and Hourly Dredging Rate maintained at 182m^3/hr.
2.8 Silt Screen Deployment	In accordance with the Silt Screen Deployment Plan for all 6 intakes

6.4.2. 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.

6.4.3. There were marine sediment (Type 1 – Open Sea Disposal and Type 1 – Open Sea Disposal (Dedicate Sites) and Type 2 – Confined Marine Disposal) disposed to South Cheung Chau Spoil Disposal Area denoted

"KTCT-1" and "KTCT -2" and East Sha Chau Contaminated Mud Disposal Site – Pit IVc respectively. No inert C&D material and non-inert C&D material related to dredging works were disposed off site in the reporting month. The details can be referred to the ***Table 6.3.2***.

Table 6.4.2 Waste Quantities Related To Dredging Works

Waste Type	**Quantity this month, m^3 (Bulk volume)**	**Cumulative -to-Date. m^3 (Bulk volume)**	**Disposal / Dumping Ground**
Marine Sediment (Type 1 – Open Sea Disposal)	44,507	89,451	South Cheung Chau Spoil Disposal Area denoted "KTCT-1" and "KTCT -2"
Marine Sediment (Type 1 – Open Sea Disposal (Dedicated Sites) and Type 2 – Confined Marine Disposal)	29,711	72,165	East Sha Chau Contaminated Mud Disposal Site – Pit IVc

7 ENVIRONMENTAL SITE AUDIT

7.0.1. Site audits were carried out by ET on weekly basis to monitor the implementation of proper environmental management practices and mitigation measures in the Project site.

7.0.2. The joint site audits were conducted on 7, 17, 21 and 31 December 2010 by the representatives of IEC, ER, the Contractor and the ET. The observation related to the dredging work was summarized in the ***Table 7.0.1***. Contractor was reminded to close the opening of silt curtain at all times except vessel movement.

Table 7.0.1 Observation Identified during the Site Audit

Date	Observations	Action taken by Contractor	Outcome
7-Dec-10	Extension of the silt curtain system for seawall removal was on-going. The contractor was reminded to close the opening of the system at all times except vessel movement.	Opening of silt curtain was closed except the vessel movement.	Completion as observed during site audit on 17-Dec-2010.
17-Dec-10	The existing silt curtain at seawall removal area needed to be improved so as to keep a vertical position.	Keeping the silt curtain in proper position.	Completion as observed during site audit on 21-Dec-2010.

8 COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION

8.0.1. In this reporting period, no complaint, inspection notice, notification of summons or prosecution was received. Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in ***Tables 8.1***, ***8.2*** and ***8.3*** respectively.

Table 8.1 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 8.2 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 8.3 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**

9 CONCLUSION

9.0.1. Dredging of marine sediment and removal and reconstruction of existing seawall were commenced on 28 June and 22 November 2010 respectively. The EM&A programme was carried out in accordance with the EM&A Manual requirements. As per the EM&A Manual, water quality impact monitoring was conducted during the dredging work, which was commenced on 28 June 2010.

9.0.2. SS exceedances were recorded on 1, 3, 8, 11, 13, 16, 20, 25, 28 and 30 December 2010. Investigation indicated the exceedances were not related to the Project.

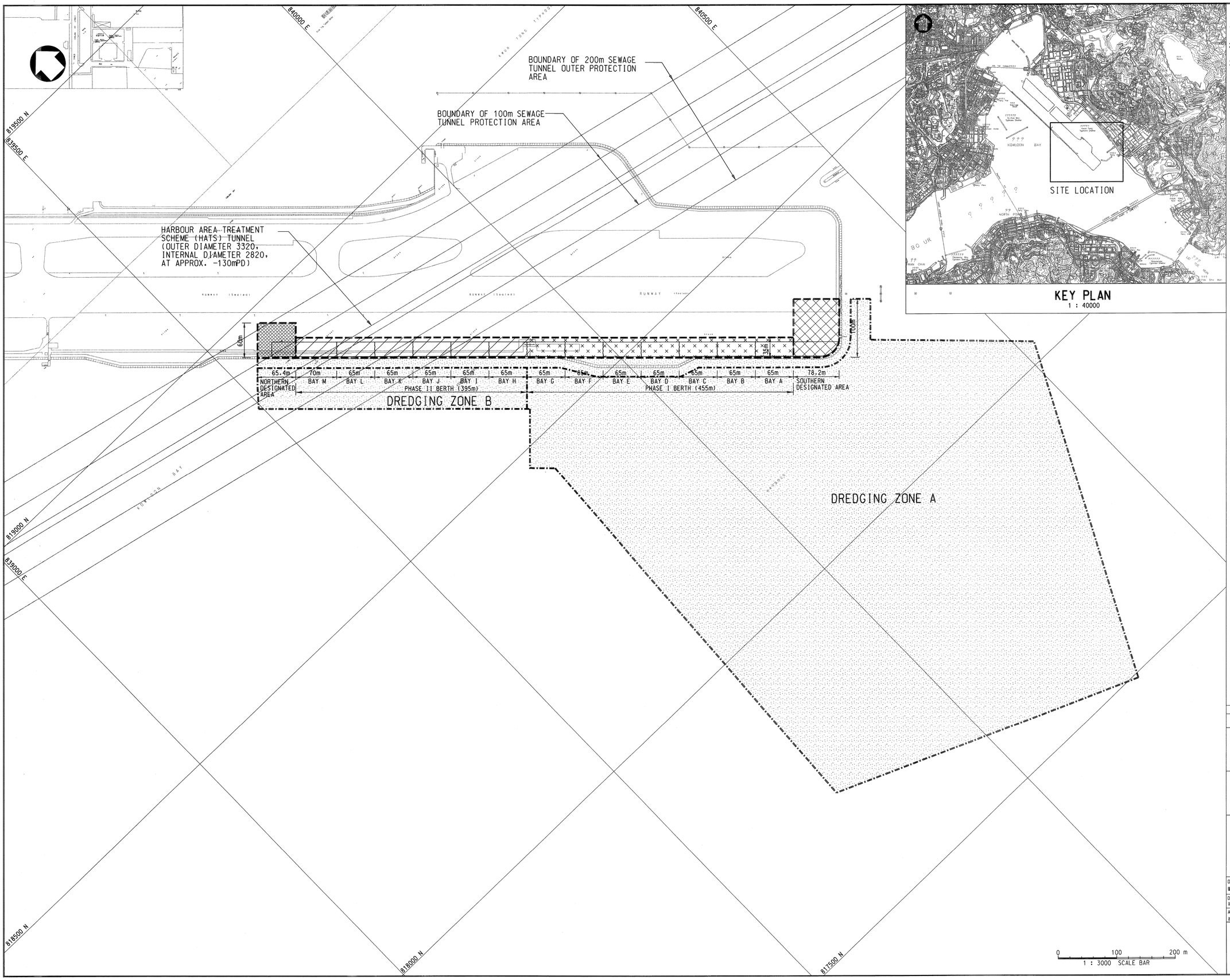
9.0.3. The scheduled construction activities and the recommended mitigation measures for the coming month are listed in ***Table 9.0***. The construction programme of the Project is provided in ***Appendix 9.0***.

Table 9.0 Construction Activities and Recommended Mitigation Measures in Coming Report Month

Location	Construction Works	Recommended Mitigation Measures
Marine work	• Dredging at Toe of Existing Seawall; • Removal and Reconstruction of Existing Seawall; • Fabrication and installation of silt curtain for seawall removal; • Maintenance of Silt Curtain and Silt Screens; and • Sorting of inert C&D material from existing seawall	• Collection and removal of floating refuse at regular intervals; • Regular inspection and maintenance of the silt screens and silt curtain; • Silt curtain shall be deployed around the closed grab dredgers used for seawall removal; • Covering the stockpile and watering the dust surface to suppress dust emission; • 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; • Opening of the silt curtain should be closed except for vessel movement.

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

Scott Wilson Ltd
偉信顧問集團有限公司

FILE
*ATE TIME

Figure 2.2

Project Organization Chart

Project Organization Chart

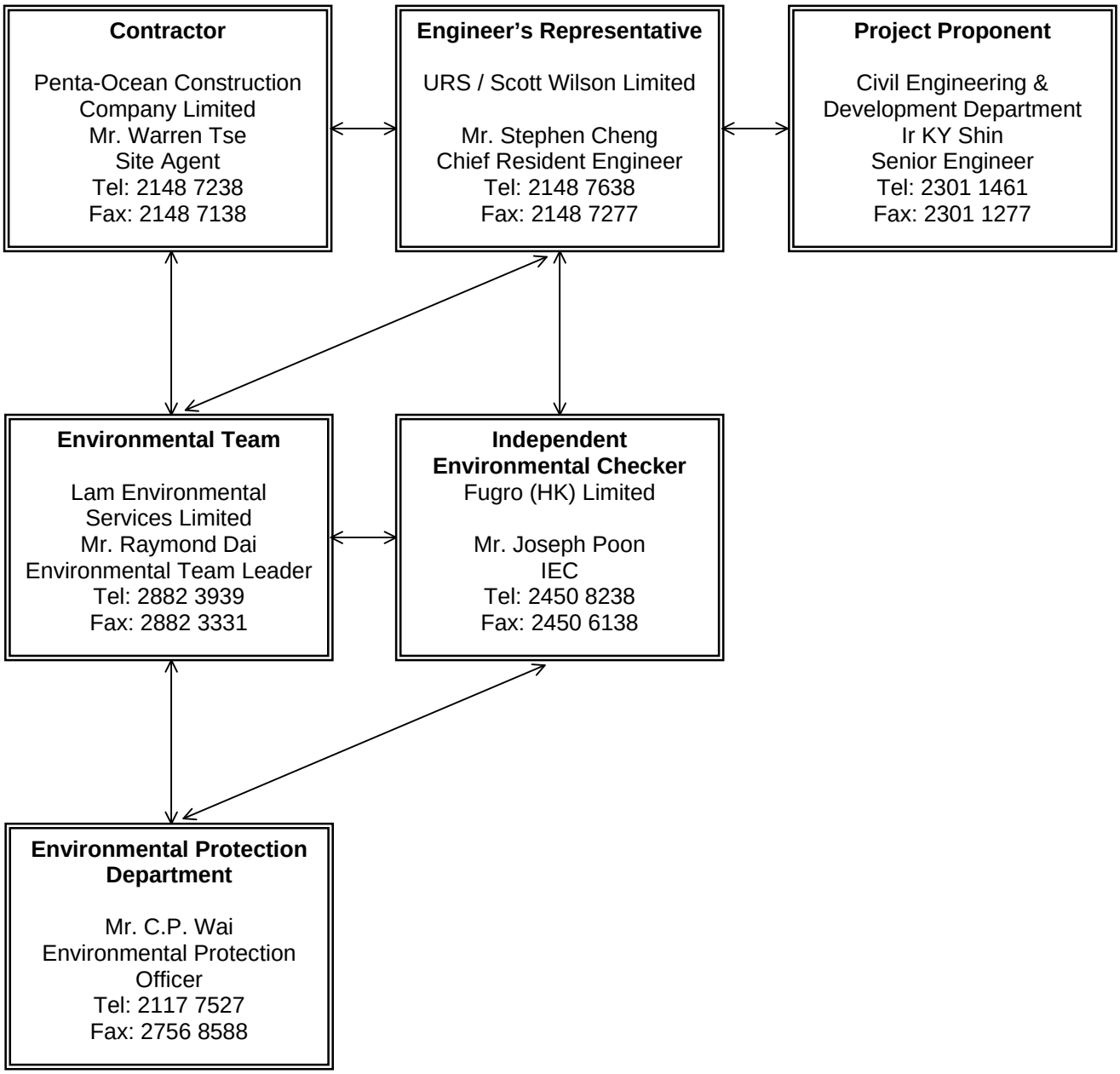
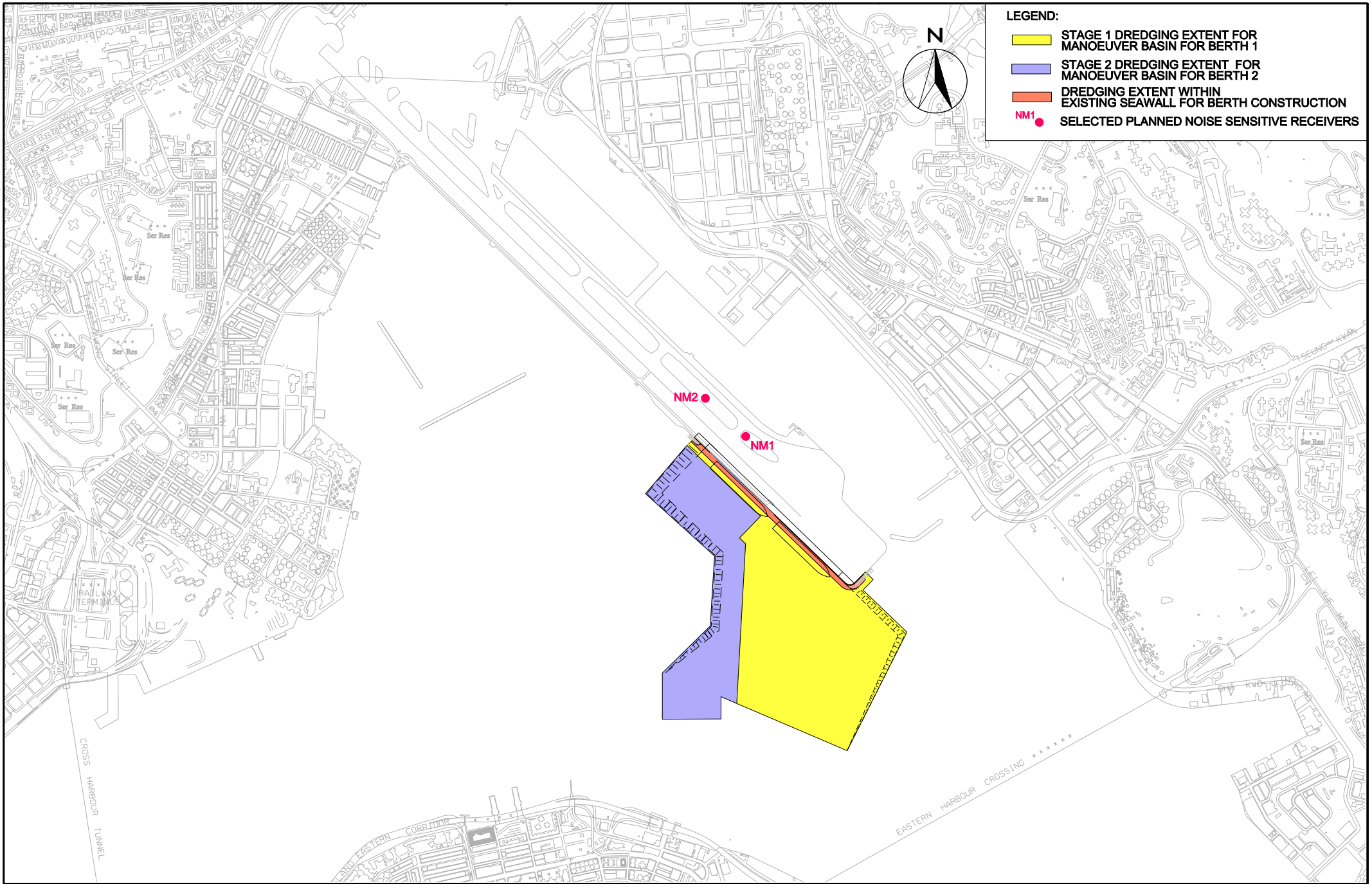


Figure 4.1

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 O

LEGEND:

■ WSD Flushing Water Intake

WSD9 - Tai Wan
WSD10 - Cha Kwo Ling
WSD15 - Sai Wan Ho
WSD17 - Quarry Bay
WSD19 - Sheung Wan
WSD21 - Wan Chai

Kowloon

WSD9

WSD10

WSD17

WSD19

WSD15

WSD21

Hong Kong Island

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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

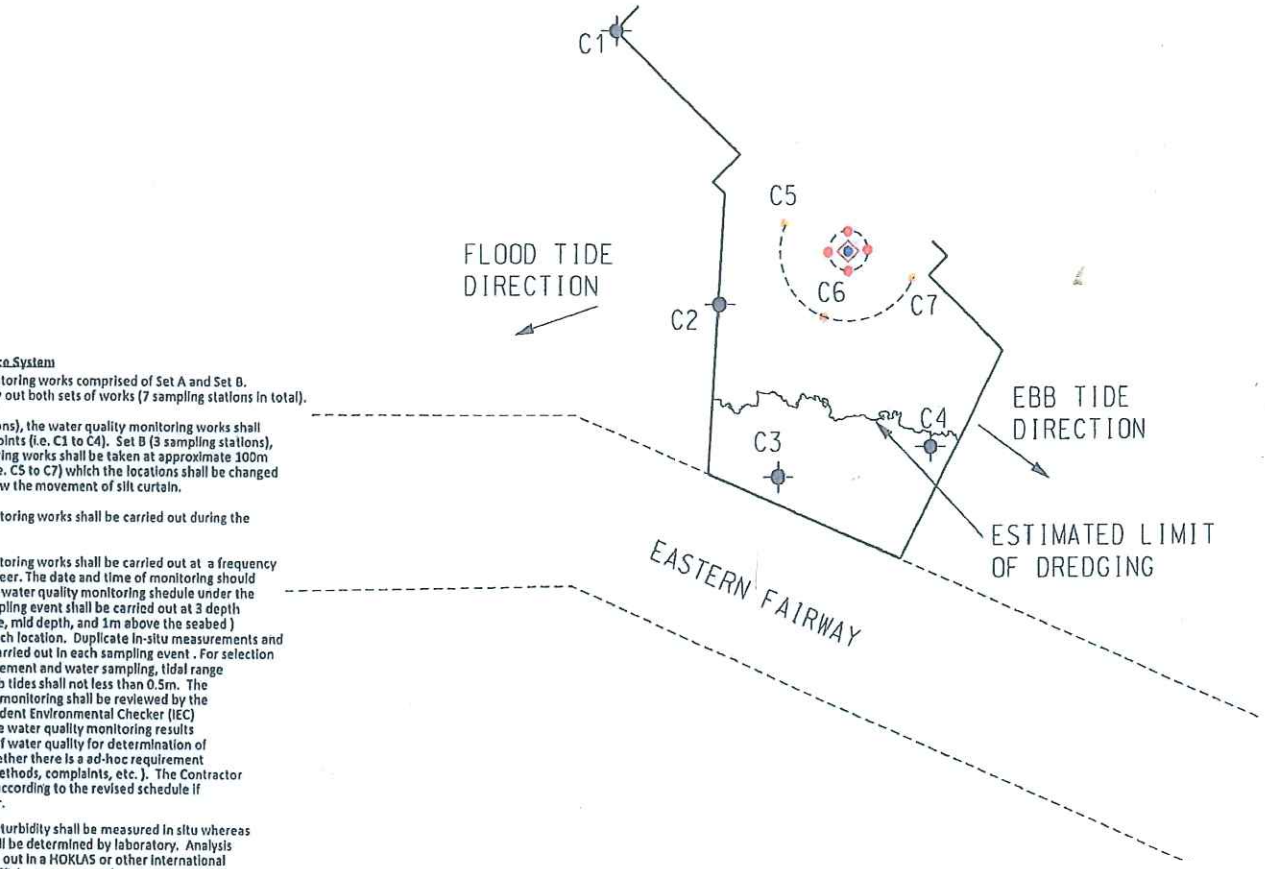
WATER QUALITY MONITORING STATIONS

SCALE	A3 1:35000	DATE	AUG 07
CHECK	AKYC	DRAWN	WCM
JOB No.	60022503	DRAWING No.	4.1
		REV	-

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

Figure 6.1

Layout of Monitoring Stations for Water Quality Surveillance System



LEGEND:

- SILT CURTAIN (20m x 20m)
- SAMPLING POINT INSIDE SILT CURTAIN (CONTRACTOR'S PROPOSED SAMPLING POINT TO MONITOR EFFECTIVENESS OF SILT CURTAINS)
- SAMPLING POINT AT ABOUT 10m OUTSIDE SILT CURTAIN (CONTRACTOR'S PROPOSED SAMPLING POINT TO MONITOR EFFECTIVENESS OF SILT CURTAINS)
- SAMPLING POINT AS CONTROL POINT (C1 TO C4) (ADDITIONAL)
- SAMPLING POINT AS CONTROL POINT (C5 TO C7) AT ABOUT 100m AWAY FROM SILT CURTAIN (ADDITIONAL)

ADDITIONAL WATER QUALITY MONITORING STATIONS

COORDINATE	NORTH	EAST
C1	818867.763	839495.740
C2	818152.875	839775.604
C3	817702.158	839931.601
C4	817780.765	840334.093
C5	POSITIONS CHANGE WITH SILT CURTAIN	
C6		
C7		

SITE BOUNDARY

Scope of Works for Water Quality Surveillance System

1. The water quality monitoring works comprised of Set A and Set B. The Contractor shall carry out both sets of works (7 sampling stations in total).

2. Set A (4 sampling stations), the water quality monitoring works shall be taken at the Control Points (i.e. C1 to C4). Set B (3 sampling stations), the water quality monitoring works shall be taken at approximate 100m outside the silt curtain (i.e. C5 to C7) which the locations shall be changed from time to time to follow the movement of silt curtain.

3. The water quality monitoring works shall be carried out during the dredging period.

4. The water quality monitoring works shall be carried out at a frequency to be agreed by the Engineer. The date and time of monitoring should be in line with the impact water quality monitoring shedule under the EM&A manual. Each sampling event shall be carried out at 3 depth (i.e. 1m below the surface, mid depth, and 1m above the seabed) of the water column at each location. Duplicate in-situ measurements and water sampling shall 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 shall not less than 0.5m. The schedule of water quality monitoring shall be reviewed by the Engineer and the Independent Environmental Checker (IEC) depending on whether the water quality monitoring results could indicate any trend of water quality for determination of trigger/action level or whether there is a ad-hoc requirement (e.g. change of working methods, complaints, etc.). The Contractor shall carry out the works according to the revised schedule if instructed by the Engineer.

5. As the key parameters, turbidity shall be measured in situ whereas Suspended Solids (SS) shall be determined by laboratory. Analysis of SS level shall be carried out in a HOKLAS or other international accredited laboratory. Sufficient water samples of not less than 1 liter shall be collected at the monitoring stations for carrying out the laboratory SS determinations.

6. Requirements on the monitoring equipments and calibration shall be referred to Paragraph 4.7 "Monitoring Equipment" of the Environmental Monitoring and Audit Manual for the Dredging Works for Proposed Cruise Terminal at Kai Tak.

7. Laboratory analysis of the sampling data shall be carried out in a HOKLAS or other international accredited laboratory and follow the requirements as stated in Paragraph 4.8 "Laboratory Measurement/Analysis" of the Environmental Monitoring and Audit Manual for the Dredging Works for Proposed Cruise Terminal at Kai Tak. Monitoring data together with the report shall be reported to the Engineer and the IEC on monthly basis.

8. Other relevant data shall also be recorded including monitoring location/position, time, water depth, sampling depth, water temperature, tidal stages, weather conditions and any special phenomena or work underway nearby.

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B	09/10	REVISION AS SHOWN		EW	
A	07/10	REVISION AS SHOWN		JY	SC
Scale	Date	Revision		Drawn	Checked

CEDD CONTRACT KL/2009/01
SITE FORMATION FOR KAI TAK CRUISE TERMINAL DEVELOPMENT

WATER QUALITY SURVEILLANCE SYSYEM

SKETCH NO.	(CEDDKL/200901)SK0067B				
DATE	0610	DRAWN	JY	SCALE	NTS
CHECKED	AT	APPROVED	SC		
AFFECTED DRG. NO.					

URS SCOTT WILSON LTD
Engineer for the Contract
ENGINEERS REPRESENTATIVES OFFICE

Appendix 3.1

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 4.1

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 the period from April to September.
Dry season is the period from October to March.

Appendix 4.2

Copies of Calibration Certificates

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ALS Technichem (HK) Pty Ltd
Environmental Division

CERTIFICATE OF ANALYSIS

CONTACT:	MS CHERRY MAK	**Batch:**	HK1022442
CLIENT:	LAM GEOTECHNICS LIMITED	**AMENDMENT NO:**	1
ADDRESS:	11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG.	**LABORATORY:**	HONG KONG
		DATE RECEIVED:	27/09/2010
		DATE OF ISSUE:	12/10/2010
PROJECT:		**SAMPLE TYPE:**	EQUIPMENT
		No. of SAMPLES:	1

COMMENTS

The calibration procedure used for the analysis has been applied for the calibration of the above instrument.

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd

11/F
Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsenviro.com

Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

Other ALS Environmental Laboratories

AUSTRALIA		*AMERICAS*
Brisbane	*Hong Kong*	*Vancouver*
Melbourne	*Singapore*	*Santiago*
Sydney	*Kuala Lumpur*	*Amtofagasta*
Newcastle	*Bogor*	*Lima*

Abbreviations: *% SPK REC denotes percentage spike recovery*
CHK denotes duplicate check sample
LOR denotes limit of reporting
LCS % REC denotes Laboratory Control Sample percentage recovery

CERTIFICATE OF ANALYSIS

Batch: HK1022442
Amendment No: 1
Date of Issue: 12/10/2010
Client: LAM GEOTECHNICS LIMITED
Client Reference:

Calibration of Multimeter

Item : Multimeter
ALS Lab ID: HK1022442-001
Date of Calibration: 28 September, 2010

Model No.: YSI Sonde 600XL
Equipment No.: EL424
Serial No.: 05C1607

Testing Results :

pH

Expected Reading	Recording Reading
4.00	3.98
7.00	7.10
10.0	9.93
Allowing Deviation	± 0.2 unit

Testing Method:

APHA (20th edition), 4500-H^+B

Conductivity

Expected Reading	Recording Reading
146.9 uS/cm	144.0 uS/cm
6667 uS/cm	6302 uS/cm
12890 uS/cm	12303 uS/cm
58670 uS/cm	55501 uS/cm
Allowing Deviation	± 10%

Testing Method:

APHA (20th edition), 2510B

Temperature

Expected Reading	Recording Reading
15.0 °C	14.8 °C
23.0 °C	22.7 °C
35.0 °C	34.5 °C
Allowing Deviation	±2.0^{0}C

Testing Method:

In-House Method

Salinity

Expected Reading	Recording Reading
0 g/L	0 g/L
10.0 g/L	9.84 g/L
20.0 g/L	20.1 g/L
30.0 g/L	30.9 g/L
Allowing Deviation	± 10%

Testing Method:

APHA (20th edition), 2520 A and B

DO

Expected Reading	Recording Reading
5.63 mg/L	5.55 mg/L
6.63 mg/L	6.60 mg/L
7.81 mg/L	7.92 mg/L
Allowing Deviation	± 0.2 mg/L

Testing Method:

APHA (20th edition), 4500-OC & G

Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

ALS Technichem (HK) Pty Ltd

CERTIFICATE OF ANALYSIS

CONTACT:	MS CHERRY MAK	**WORK ORDER:**	HK1027230
CLIENT:	LAM GEOTECHNICS LIMITED	**LABORATORY:**	HONG KONG
ADDRESS:	11/F., CENTRE POINT,	**DATE RECEIVED:**	17/11/2010
	181-185 GLOUCESTER ROAD,	**DATE OF ISSUE:**	18/11/2010
	WAN CHAI, HONG KONG.	**SAMPLE TYPE:**	EQUIPMENT
		No. of SAMPLES:	1

COMMENTS

The calibration procedure used for the analysis has been applied for the calibration of the above instrument.

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

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ALS Technichem (HK) Pty Ltd

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Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsenviro.com

Mr. Fung Lim Chee, Richard
General Manager

Abbreviations: *% SPK REC denotes percentage spike recovery*
CHK denotes duplicate check sample
LOR denotes limit of reporting
LCS % REC denotes Laboratory Control Sample percentage recovery

ADDRESS 11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong PHONE +852 2610 1044 FAX +852 2610 2021
ALS TECHNICHEM (HK) PTY LTD Part of the ALS Laboratory Group A Campbell Brothers Limited Company

CERTIFICATE OF ANALYSIS

Work Order: HK1027230
Date of Issue: 18/11/2010
Client: LAM GEOTECHNICS LIMITED
Client Reference:

Calibration of Multimeter

Item : Multimeter
ALS Lab ID: HK1027230-001
Date of Calibration: 18 November, 2010

Model No.: Multi 3430 Set G
Equipment No.: --
Serial No.: 10410294

Testing Results :

pH

Expected Reading	Recording Reading
4.00	4.12
7.00	7.09
10.0	9.98
Allowing Deviation	± 0.2 unit

Testing Method:

APHA (20th edition), 4500-H^+B

Temperature

Expected Reading	Recording Reading
13.5 °C	13.9 °C
22.0 °C	21.8 °C
33.0 °C	32.8 °C
Allowing Deviation	±2.0^{0}C

Testing Method:

In-House Method

Salinity

Expected Reading	Recording Reading
0 g/L	0 g/L
10.0 g/L	10.3 g/L
20.0 g/L	20.6 g/L
30.0 g/L	31.0 g/L
Allowing Deviation	± 10%

Testing Method:

APHA (20th edition), 2520 A and B

Dissolved Oxygen

Expected Reading	Recording Reading
5.56 mg/L	5.52 mg/L
6.69 mg/L	6.66 mg/L
8.39 mg/L	8.37 mg/L
Allowing Deviation	± 0.2 mg/L

Testing Method:

APHA (20th edition), 4500-OC & G

Mr. Fung Lim Chee, Richard
General Manager

ALS Technichem (HK) Pty Ltd
ALS Environmental

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
ALS Technichem (HK) Pty Ltd
Environmental Division

CERTIFICATE OF ANALYSIS

CONTACT:	MS CHERRY MAK	**WORK ORDER:**	HK1026497
CLIENT:	LAM GEOTECHNICS LIMITED	**LABORATORY:**	HONG KONG
ADDRESS:	11/F., CENTRE POINT,	**DATE RECEIVED:**	10/11/2010
	181-185 GLOUCESTER ROAD,	**DATE OF ISSUE:**	11/11/2010
	WAN CHAI, HONG KONG.	**SAMPLE TYPE:**	EQUIPMENT
		No. of SAMPLES:	1

COMMENTS

The calibration procedure used for the analysis has been applied for the calibration of the above instrument.

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

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Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsenviro.com

Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

Other ALS Environmental Laboratories

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Melbourne	*Singapore*	*Santiago*
Sydney	*Kuala Lumpur*	*Amtofagasta*
Newcastle	*Bogor*	*Lima*

Abbreviations: *% SPK REC denotes percentage spike recovery*
CHK denotes duplicate check sample
LOR denotes limit of reporting
LCS % REC denotes Laboratory Control Sample percentage recovery

CERTIFICATE OF ANALYSIS

Batch: HK1026497
Date of Issue: 11/11/2010
Client: LAM GEOTECHNICS LIMITED
Client Reference:

Calibration of Turbidimeter

Item : TURBIDIMETER
ALS Lab ID: HK1026497-001
Date of Calibration: 10 November, 2010

Model No.: 2100P
Equipment No.: EN06
Serial No.: 1000032935

Testing Results :

Turbidity

Expected Reading	Recording Reading
0.00 NTU	0.20 NTU
4.00 NTU	3.82 NTU
40.0 NTU	38.2 NTU
80.0 NTU	78.5 NTU
400 NTU	373 NTU
Allowing Deviation	± 10%

Testing Method:

APHA (19th edition), 2130B

Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

Appendix 5.1

Monitoring Schedule for the Reporting Month and Coming Three Months

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

Water Quality Monitoring Schedule

December 2010

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Dec Impact WQM Mid-ebb: 8:16 Mid-flood: 14:37	2-Dec	3-Dec Impact WQM Mid-flood: 15:57 Mid-ebb: 22:46	4-Dec
5-Dec Impact WQM Mid-flood:17:12	6-Dec Impact WQM Mid-ebb: 0:10	7-Dec	8-Dec Impact WQM Mid-flood: 8:58	9-Dec Impact WQM Mid-ebb: 2:13	10-Dec	11-Dec Impact WQM Mid-ebb: 3:19 Mid-flood: 11:06
12-Dec	13-Dec Impact WQM Mid-ebb: 4:20 Mid-flood: 12:35	14-Dec	15-Dec	16-Dec Impact WQM Mid-flood: 14:17 Mid-ebb: 21:47	17-Dec	18-Dec Impact WQM Mid-flood: 15:15 Mid-ebb: 22:42
19-Dec	20-Dec Impact WQM Mid-flood: 16:27 Mid-ebb: 23:49	21-Dec	22-Dec Impact WQM Mid-flood: 17:54	23-Dec Impact WQM Mid-ebb: 1:13	24-Dec	25-Dec Impact WQM Mid-ebb: 2:45 Mid-flood: 9:52
26-Dec	**27-Dec**	28-Dec Impact WQM Mid-flood: 12:09 Mid-ebb: 18:19	29-Dec	30-Dec Impact WQM Mid-flood: 13:43 Mid-ebb: 20:58	31-Dec	**1-Jan**

Notes:
1. Water Quality Monitoring for 6 water quality monitoring stations:WSD9, WSD10, WSD15, WSD17, WSD19 and WSD21
2.Actual monitoring will be subjected to change due to any safety concern or adverse weather condition.
3. Cut-off day is the end of day of each month.

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

Tentative Water Quality Monitoring Schedule

January 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26-Dec	**27-Dec**	28-Dec	29-Dec	30-Dec	31-Dec	**1-Jan** Impact WQM Mid-flood: 15:20 Mid-ebb: 22:45
2-Jan	3-Jan Impact WQM Mid-flood: 16:53	4-Jan Impact WQM Mid-ebb: 00:06	5-Jan Impact WQM Mid-flood: 18:17	6-Jan Impact WQM Mid-ebb: 01:20	7-Jan	8-Jan Impact WQM Mid-ebb: 2:22 Mid-flood: 9:37
9-Jan	10-Jan Impact WQM Mid-flood: 10:38	11-Jan Impact WQM Mid-ebb: 03:35	12-Jan	13-Jan Impact WQM Mid-flood: 12:09 Mid-ebb: 19:38	14-Jan	15-Jan Impact WQM Mid-flood: 13:11 Mid-ebb: 21:43
16-Jan	17-Jan Impact WQM Mid-flood: 15:11 Mid-ebb: 22:57	18-Jan	19-Jan Impact WQM Mid-flood: 17:08	20-Jan Impact WQM Mid-ebb: 00:22	21-Jan	22-Jan Impact WQM Mid-flood: 8:33 Mid-ebb: 14:09
23-Jan	24-Jan Impact WQM Mid-flood: 9:49 Mid-ebb: 15:44	25-Jan	26-Jan Impact WQM Mid-flood: 11:15 Mid-ebb: 17:46	27-Jan	28-Jan Impact WQM Mid-flood: 12:50 Mid-ebb: 21:28	29-Jan
30-Jan	31-Jan Impact WQM Mid-flood: 15:55 Mid-ebb: 23:18	1-Feb	2-Feb	**3-Feb**	**4-Feb**	**5-Feb**

Notes:

1. Water Quality Monitoring for 6 water quality monitoring stations: WSD9, WSD10, WSD15, WSD17, WSD21, WSD19

2. Actual monitoring will be subjected to change due to any safety concern or adverse weather condition.

3. Cut-off day is the end of day of each month.

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

Tentative Water Quality Monitoring Schedule

February 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30-Jan	31-Jan Impact WQM Mid-flood: 15:55 Mid-ebb: 23:18	1-Feb	2-Feb Impact WQM Mid-flood: 17:30	**3-Feb** Impact WQM Mid-ebb: 00:28	**4-Feb** Impact WQM Mid-ebb: 13:28 Mid-flood: 18:50	**5-Feb**
6-Feb	7-Feb Impact WQM Mid-flood: 9:01 Mid-ebb: 14:58	8-Feb	9-Feb Impact WQM Mid-flood: 9:50 Mid-ebb: 16:14	10-Feb	11-Feb Impact WQM Mid-flood: 10:46 Mid-ebb: 18:19	12-Feb
13-Feb	14-Feb Impact WQM Mid-flood: 9:35 Mid-ebb: 21:51	15-Feb	16-Feb Impact WQM Mid-flood: 16:10 Mid-ebb: 23:20	17-Feb	18-Feb Impact WQM Mid-ebb: 12:24 Mid-flood: 18:09	19-Feb
20-Feb	21-Feb Impact WQM Mid-flood: 8:26 Mid-ebb: 14:28	22-Feb	23-Feb Impact WQM Mid-flood: 9:38 Mid-ebb: 16:03	24-Feb	25-Feb Impact WQM Mid-flood: 11:02 Mid-ebb: 19:42	26-Feb
27-Feb	28-Feb Impact WQM Mid-flood: 14:41 Mid-ebb: 22:17	1-Mar	2-Mar Impact WQM Mid-flood: 16:41 Mid-ebb: 23:32	3-Mar	4-Mar Impact WQM Mid-ebb: 12:29 Mid-flood: 18:06	5-Mar

Notes:
1. Water Quality Monitoring for 6 water quality monitoring stations:WSD9, WSD10, WSD15, WSD17, WSD19 and WSD21
2.Actual monitoring will be subjected to change due to any safety concern or adverse weather condition.
3. Cut-off day is the end of day of each month.

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

Tentative Water Quality Monitoring Schedule

March 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27-Feb	28-Feb	1-Mar	2-Mar Impact WQM Mid-flood: 16:41 Mid-ebb: 23:32	3-Mar	4-Mar Impact WQM Mid-ebb: 12:29 Mid-flood: 18:06	5-Mar
6-Mar	7-Mar Impact WQM Mid-ebb: 13:53 Mid-flood: 19:58	8-Mar	9-Mar Impact WQM Mid-flood: 8:27 Mid-ebb: 14:53	10-Mar	11-Mar Impact WQM Mid-flood: 8:53 Mid-ebb: 15:58	12-Mar
13-Mar Impact WQM Mid-flood: 9:51 Mid-ebb: 18:31	14-Mar	15-Mar	16-Mar Impact WQM Mid-flood: 14:55 Mid-ebb: 22:05	17-Mar	18-Mar Impact WQM Mid-ebb: 11:20 Mid-flood: 17:11	19-Mar
20-Mar	21-Mar Impact WQM Mid-ebb: 13:22 Mid-flood: 19:48	22-Mar	23-Mar Impact WQM Mid-flood: 8:22 Mid-ebb: 14:50	24-Mar	25-Mar Impact WQM Mid-flood: 9:34 Mid-ebb: 16:48	26-Mar
27-Mar	28-Mar	29-Mar Impact WQM Mid-flood: 14:32 Mid-ebb: 21:36	30-Mar	31-Mar Impact WQM Mid-ebb: 11:00 Mid-flood: 16:32	1-Apr	2-Apr

Notes:
1. Water Quality Monitoring for 6 water quality monitoring stations:WSD9, WSD10, WSD15, WSD17, WSD19 and WSD21
2.Actual monitoring will be subjected to change due to any safety concern or adverse weather condition.
3. Cut-off day is the end of day of each month.

Appendix 5.2

Water Quality Monitoring Results and Graphical Presentation

Water Monitoring Result at WSD9 - Tai Wan
Mid-Flood Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	14:02	Fine	Middle	3	22.98	22.98	22.98	8.04	8.04	8.03	31.40	31.40	31.41	92.0	90.4	91.6	6.59	6.47	6.56	2.33	2.14	2.24	3	3.5
	14:05		Middle	3	22.98	22.98		8.02	8.02		31.41	31.41		92.2	91.6		6.60	6.56		2.23	2.24		4	
03/12/2010	14:58	Fine	Middle	3	22.40	22.40	22.60	8.27	8.27	8.26	31.93	31.93	31.92	87.2	86.5	84.7	6.25	6.20	6.25	3.37	3.21	3.17	9	**8.0**
	15:01		Middle	3	22.80	22.80		8.25	8.25		31.91	31.91		87.8	77.2		6.29	6.24		3.08	3.00		7	
05/12/2010	16:58	Cloudy	Middle	3	22.42	22.42	22.42	8.26	8.26	8.26	31.52	31.52	31.52	82.5	81.5	81.9	5.96	5.89	5.92	3.07	3.25	3.07	6	6.0
	17:04		Middle	3	22.42	22.42		8.26	8.26		31.52	31.52		81.6	81.9		5.90	5.91		2.97	3.00		6	
08/12/2010	07:47	Fine	Middle	3	20.10	20.10	20.15	8.14	8.14	8.19	31.90	31.90	31.95	81.1	80.5	80.7	6.08	6.04	6.05	3.05	3.33	3.20	6	**7.0**
	07:50		Middle	3	20.20	20.20		8.24	8.24		32.00	32.00		81.3	79.9		6.09	5.99		3.17	3.24		8	
11/12/2010	10:00	Cloudy	Middle	3	20.20	20.20	20.20	8.25	8.25	8.26	31.84	31.84	31.89	81.8	80.8	81.5	6.13	6.06	6.11	3.22	3.60	3.19	5	4.0
	10:03		Middle	3	20.20	20.20		8.27	8.27		31.94	31.94		82.4	80.9		6.18	6.07		3.08	2.86		3	
13/12/2010	14:45	Cloudy	Middle	3	21.50	21.50	21.60	8.29	8.29	8.29	32.18	32.18	32.18	87.3	86.8	87.4	6.33	6.29	6.33	3.08	3.05	3.10	4	4.5
	14:48		Middle	3	21.70	21.70		8.29	8.29		32.17	32.17		88.1	87.2		6.37	6.31		3.11	3.14		5	
16/12/2010	12:20	Cloudy	Middle	3	16.10	16.10	16.15	8.47	8.47	8.47	32.62	32.62	32.62	83.8	83.3	83.4	6.79	6.76	6.77	5.46	5.39	5.42	4	4.5
	12:23		Middle	3	16.20	16.20		8.47	8.47		32.62	32.62		83.5	82.9		6.78	6.73		5.63	5.20		5	
18/12/2010	14:47	Sunny	Middle	3	18.20	18.20	18.10	8.42	8.42	8.43	32.94	32.94	32.90	84.5	82.6	83.9	6.70	6.55	6.66	3.41	3.20	3.23	5	6.0
	14:50		Middle	3	18.00	18.00		8.43	8.43		32.86	32.86		84.8	83.7		6.74	6.66		3.24	3.05		7	
20/12/2010	17:10	Sunny	Middle	3	20.50	20.50	20.55	8.31	8.31	8.31	32.68	32.68	32.68	83.6	81.5	83.1	6.23	6.07	6.18	2.77	2.67	2.61	3	4.0
	17:13		Middle	3	20.60	20.60		8.31	8.31		32.68	32.68		84.1	83.0		6.26	6.17		2.58	2.43		5	
22/12/2010	17:55	Fine	Middle	3	19.00	19.00	19.00	8.33	8.33	8.33	32.72	32.72	32.72	60.1	59.5	61.7	4.68	4.63	4.81	2.56	3.52	2.99	4	4.0
	18:03		Middle	3	19.00	19.00		8.33	8.33		32.72	32.72		64.2	63.0		5.00	4.91		3.01	2.88		4	
25/12/2010	10:36	Fine	Middle	3	20.30	20.30	20.30	8.32	8.32	8.32	32.81	32.81	32.82	62.4	60.1	62.9	4.65	4.48	4.69	4.86	4.48	4.83	9	**10.0**
	10:42		Middle	3	20.30	20.30		8.32	8.32		32.82	32.82		61.8	67.3		4.60	5.02		5.31	4.66		11	
28/12/2010	10:33	Fine	Middle	3	19.28	19.28	19.27	7.95	7.95	7.97	32.13	32.13	32.13	94.7	94.1	94.2	7.24	7.19	7.20	5.11	4.69	4.65	7	6.5
	10:36		Middle	3	19.25	19.25		7.99	8.00		32.13	32.13		94.2	93.7		7.20	7.16		5.02	3.79		6	
30/12/2010	13:30	Fine	Middle	3	19.70	19.70	19.70	8.16	8.16	8.16	32.30	32.30	32.30	82.0	81.6	81.9	6.00	5.97	5.99	3.28	3.18	3.20	6	6.0
	13:33		Middle	3	19.70	19.70		8.16	8.16		32.30	32.30		82.3	81.5		6.01	5.97		3.12	3.20		6	

Water Monitoring Result at WSD10 - Cha Kwo Ling
Mid-Flood Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	14:40	Fine	Middle	3	22.98	22.98	23.00	8.18	8.18	8.18	31.51	31.51	31.51	96.4	95.5	95.8	6.90	6.83	6.85	3.03	2.48	2.76	7	6.5
	14:43		Middle	3	23.01	23.01		8.17	8.17		31.51	31.51		95.5	95.8		6.83	6.85		2.80	2.71		6	
03/12/2010	14:27	Fine	Middle	3	23.80	23.80	23.75	8.28	8.28	8.29	31.99	31.99	31.99	93.2	92.8	93.2	6.57	6.54	6.56	4.66	5.87	4.99	8	7.0
	14:30		Middle	3	23.70	23.70		8.29	8.29		31.99	31.99		93.7	93.0		6.60	6.54		4.52	4.90		6	
05/12/2010	16:30	Cloudy	Middle	3	22.39	22.39	22.39	8.35	8.35	8.35	31.55	31.55	31.55	83.6	79.2	80.6	6.01	5.72	5.82	3.73	3.89	3.72	6	7.0
	16:36		Middle	3	22.39	22.38		8.35	8.35		31.55	31.55		81.0	78.7		5.85	5.69		3.81	3.46		8	
08/12/2010	08:15	Fine	Middle	3	20.40	20.40	20.45	8.25	8.25	8.26	32.13	32.13	32.12	87.9	87.1	87.3	6.22	6.16	6.17	2.87	2.60	2.86	9	**8.0**
	08:18		Middle	3	20.50	20.50		8.26	8.26		32.10	32.10		87.7	86.5		6.20	6.11		2.94	3.03		7	
11/12/2010	11:01	Cloudy	Middle	3	20.60	20.60	20.65	8.31	8.31	8.31	32.17	32.17	32.17	85.5	84.7	85.0	6.36	6.29	6.32	3.41	3.40	3.36	6	6.0
	11:04		Middle	3	20.70	20.70		8.30	8.30		32.17	32.17		85.4	84.3		6.35	6.26		3.41	3.22		6	
13/12/2010	11:40	Cloudy	Middle	3	21.20	21.20	21.30	8.39	8.39	8.39	32.53	32.53	32.53	89.8	88.7	90.0	6.53	6.45	6.55	4.05	4.29	4.26	5	5.5
	11:44		Middle	3	21.40	21.40		8.39	8.39		32.52	32.52		91.0	90.4		6.62	6.58		4.34	4.37		6	
16/12/2010	12:56	Cloudy	Middle	3	17.10	17.10	16.75	8.51	8.51	8.51	32.83	32.83	32.83	88.2	87.1	87.8	7.04	6.93	7.01	3.67	3.66	3.66	5	5.0
	12:59		Middle	3	16.40	16.40		8.51	8.51		32.82	32.82		88.3	87.4		7.08	6.97		3.71	3.58		5	
18/12/2010	14:10	Sunny	Middle	3	18.40	18.40	18.40	8.48	8.48	8.48	32.95	32.95	32.96	91.1	90.6	91.0	7.03	6.99	7.03	3.93	4.05	4.03	7	6.0
	14:13		Middle	3	18.40	18.40		8.47	8.47		32.96	32.96		91.6	90.7		7.08	7.01		4.10	4.05		5	
20/12/2010	16:38	Sunny	Middle	3	20.40	20.40	20.45	8.37	8.37	8.37	32.80	32.81	32.80	87.8	86.5	87.7	6.52	6.42	6.51	2.89	2.73	2.85	6	5.0
	16:41		Middle	3	20.50	20.50		8.37	8.37		32.80	32.80		88.9	87.6		6.60	6.50		2.82	2.96		4	
22/12/2010	17:00	Fine	Middle	3	18.90	18.90	18.90	8.36	8.36	8.36	32.73	32.73	32.73	59.8	60.1	59.7	4.65	4.66	4.64	2.14	2.14	2.28	6	5.5
	17:07		Middle	3	18.90	18.90		8.36	8.36		32.73	32.73		58.1	60.7		4.53	4.73		2.47	2.36		5	
25/12/2010	11:25	Fine	Middle	3	20.10	20.10	20.10	8.36	8.36	8.36	32.93	32.93	32.93	63.8	62.1	62.0	4.74	4.64	4.63	2.78	2.77	2.95	4	4.0
	11:32		Middle	3	20.10	20.10		8.36	8.36		32.93	32.93		61.2	60.7		4.58	4.54		3.18	3.06		4	
28/12/2010	10:45	Fine	Middle	3	19.22	19.22	19.21	8.08	8.08	8.08	32.02	32.02	32.03	93.5	92.8	92.9	7.14	7.09	7.10	3.87	4.06	3.76	4	3.5
	10:48		Middle	3	19.20	19.20		8.08	8.08		32.03	32.03		93.0	92.4		7.10	7.05		3.66	3.45		3	
30/12/2010	13:52	Fine	Middle	3	20.00	20.00	20.00	8.24	8.24	8.25	32.70	32.70	32.75	89.9	89.4	89.6	6.75	6.72	6.73	4.35	4.02	4.15	7	6.5
	13:55		Middle	3	20.00	20.00		8.26	8.26		32.80	32.80		89.8	89.4		6.74	6.71		4.05	4.16		6	

Water Monitoring Result at WSD15 - Sai Wan Ho
Mid-Flood Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	15:18	Fine	Middle	3	22.30	22.30	22.31	8.24	8.24	8.24	31.79	31.79	31.78	90.6	88.6	69.2	6.55	6.40	6.47	4.36	4.02	4.15	10	**9.5**
	15:21		Middle	3	22.32	22.32		8.23	8.23		31.77	31.77		9.0	88.7		6.53	6.41		4.13	4.07		9	
03/12/2010	16:12	Fine	Middle	3	22.00	22.00	22.05	8.33	8.33	8.33	32.13	32.13	32.14	90.3	89.6	89.8	6.55	6.49	6.50	4.56	4.62	4.56	8	**8.5**
	16:15		Middle	3	22.10	22.10		8.33	8.33		32.14	32.14		90.1	89.1		6.53	6.41		4.47	4.59		9	
05/12/2010	19:05	Cloudy	Middle	4	22.26	22.26	22.26	8.35	8.35	8.36	31.62	31.62	31.62	78.2	80.5	80.1	5.66	5.83	5.80	2.42	2.33	2.44	6	6.0
	19:16		Middle	4	22.26	22.26		8.36	8.36		31.62	31.62		81.7	80.0		5.92	5.80		2.50	2.52		6	
08/12/2010	09:10	Fine	Middle	3	20.10	20.10	20.15	8.30	8.30	8.31	32.29	32.29	32.32	87.7	87.3	87.1	6.23	6.20	6.19	6.15	8.01	7.25	10	**11.0**
	09:13		Middle	3	20.20	20.20		8.31	8.31		32.35	32.35		87.4	86.0		6.21	6.11		7.62	7.20		12	
11/12/2010	11:26	Cloudy	Middle	3	20.90	20.90	20.90	8.18	8.18	8.18	31.91	31.91	31.92	74.7	73.5	74.4	5.47	5.38	5.44	3.75	2.89	3.17	6	6.0
	11:29		Middle	3	20.90	20.90		8.18	8.19		31.92	31.92		75.4	73.8		5.52	5.40		2.97	3.06		6	
13/12/2010	12:15	Cloudy	Middle	3	21.50	21.50	21.50	8.34	8.34	8.35	32.52	32.52	32.52	90.3	89.9	90.2	6.32	6.30	6.32	4.23	4.39	4.41	9	**9.5**
	12:18		Middle	3	21.50	21.50		8.35	8.35		32.52	32.52		90.8	89.7		6.36	6.28		4.70	4.32		10	
16/12/2010	15:46	Cloudy	Middle	3	16.70	16.70	16.65	8.49	8.49	8.49	32.89	32.89	32.89	88.8	88.2	88.3	7.09	7.04	7.05	5.51	5.23	5.36	6	6.0
	15:49		Middle	3	16.60	16.60		8.49	8.49		32.89	32.89		88.5	87.7		7.07	7.01		5.20	5.48		6	
18/12/2010	16:23	Sunny	Middle	3	18.40	18.40	18.35	8.46	8.46	8.46	33.04	33.04	33.04	91.7	90.5	91.5	7.08	6.99	7.07	4.57	4.72	4.48	5	6.0
	16:25		Middle	3	18.30	18.30		8.46	8.46		33.04	33.04		92.7	91.0		7.17	7.04		4.50	4.11		7	
20/12/2010	16:15	Sunny	Middle	3	20.40	20.40	20.45	8.37	8.37	8.37	32.74	32.74	32.74	85.4	82.7	83.9	6.34	6.14	6.23	2.83	2.85	2.89	7	6.0
	16:18		Middle	3	20.50	20.50		8.37	8.37		32.74	32.74		85.2	82.2		6.33	6.10		3.13	2.73		5	
22/12/2010	19:40	Fine	Middle	3	19.10	19.10	19.10	8.38	8.38	8.38	32.85	32.85	32.85	65.0	63.0	62.6	5.04	4.87	4.84	2.80	2.62	2.85	5	6.0
	19:48		Middle	3	19.10	19.10		8.38	8.38		32.85	32.83		61.8	60.5		4.79	4.67		3.07	2.90		7	
25/12/2010	09:37	Fine	Middle	3	20.00	20.00	20.00	8.36	8.36	8.36	32.95	32.95	32.95	62.1	62.8	65.5	4.62	4.70	4.89	2.32	2.21	2.59	5	4.5
	09:43		Middle	3	20.00	20.00		8.36	8.36		32.95	32.95		69.2	67.7		5.18	5.07		3.16	2.66		4	
28/12/2010	11:03	Fine	Middle	3	18.35	18.35	18.37	8.10	8.10	8.10	32.16	32.16	32.16	86.8	85.9	86.1	6.74	6.67	6.68	3.03	2.51	2.72	6	5.0
	11:06		Middle	3	18.38	18.39		8.09	8.09		32.16	32.16		86.2	85.4		6.68	6.62		2.65	2.70		4	
30/12/2010	14:10	Fine	Middle	3	19.20	19.20	19.25	8.27	8.27	8.27	32.60	32.60	32.60	89.7	89.5	89.3	6.85	6.84	6.82	2.71	2.73	2.67	6	5.5
	14:13		Middle	3	19.30	19.30		8.27	8.27		32.60	32.60		89.1	88.9		6.80	6.78		2.66	2.59		5	

Water Monitoring Result at WSD17 - Quarry Bay
Mid-Flood Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	15:41	Fine	Middle	3	22.13	22.14	22.14	8.19	8.19	8.19	31.76	31.76	31.77	82.2	82.8	82.6	5.96	6.00	6.00	4.46	4.21	4.36	8	8.5
	15:44		Middle	3	22.15	22.15		8.19	8.19		31.77	31.77		83.2	82.3		6.06	5.97		4.32	4.44		9	
03/12/2010	16:39	Fine	Middle	3	22.10	22.10	22.15	8.31	8.31	8.32	32.12	32.12	32.12	90.9	89.5	90.1	6.57	6.47	6.51	6.91	6.91	6.64	15	**15.5**
	16:42		Middle	3	22.20	22.20		8.32	8.32		32.13	32.12		90.6	89.3		6.55	6.46		6.49	6.23		16	
05/12/2010	18:47	Cloudy	Middle	3	22.24	22.24	22.24	8.29	8.29	8.29	31.45	31.45	31.46	74.8	76.2	76.4	5.40	5.53	5.54	3.73	3.09	3.60	6	5.5
	18:53		Middle	3	22.24	22.23		8.28	8.28		31.47	31.47		77.4	77.2		5.61	5.60		3.87	3.69		5	
08/12/2010	09:30	Fine	Middle	3	20.40	20.50	20.48	8.33	8.33	8.33	32.26	32.26	32.27	94.9	94.3	93.8	6.78	6.74	6.70	5.25	5.54	5.39	9	**13.5**
	09:33		Middle	3	20.50	20.50		8.33	8.33		32.27	32.27		94.4	91.6		6.73	6.53		5.47	5.28		18	
11/12/2010	11:40	Cloudy	Middle	3	21.10	21.10	21.15	8.34	8.34	8.34	32.33	32.33	32.33	87.9	86.2	88.1	6.47	6.34	6.45	4.28	3.95	4.10	9	**10.0**
	11:43		Middle	3	21.20	21.20		8.34	8.34		32.33	32.33		89.6	88.7		6.54	6.45		4.12	4.03		11	
13/12/2010	12:40	Cloudy	Middle	3	21.40	21.40	21.50	8.35	8.35	8.35	32.57	32.57	32.57	90.9	90.2	90.7	6.40	6.33	6.44	4.05	4.34	4.22	13	**12.0**
	12:42		Middle	3	21.60	21.60		8.34	8.34		32.58	32.57		91.3	90.5		6.65	6.37		4.26	4.22		11	
16/12/2010	16:02	Cloudy	Middle	3	16.50	16.50	16.50	8.45	8.45	8.45	32.80	32.80	32.81	88.1	88.0	87.7	7.15	7.14	7.13	5.62	5.55	5.63	6	6.5
	16:05		Middle	3	16.50	16.50		8.44	8.44		32.82	32.82		87.5	87.0		7.11	7.10		5.47	5.89		7	
18/12/2010	16:45	Sunny	Middle	3	18.30	18.30	18.30	8.45	8.45	8.45	33.00	33.00	33.00	89.4	89.0	89.1	6.91	6.88	6.89	5.71	6.39	6.11	7	7.5
	16:48		Middle	3	18.30	18.30		8.44	8.44		33.00	33.00		89.5	88.6		6.92	6.83		6.15	6.20		8	
20/12/2010	16:00	Sunny	Middle	3	20.00	20.00	20.00	8.36	8.36	8.36	32.77	32.77	32.77	84.0	83.3	83.7	6.29	6.22	6.26	3.39	3.74	3.68	6	7.0
	16:03		Middle	3	20.00	20.00		8.36	8.36		32.77	32.77		84.5	83.0		6.32	6.21		3.73	3.84		8	
22/12/2010	19:18	Fine	Middle	4	19.10	19.10	19.10	8.35	8.35	8.35	32.71	32.71	32.71	66.4	66.9	64.2	5.16	5.18	5.00	2.68	2.51	2.77	4	4.5
	19:25		Middle	4	19.10	19.10		8.35	8.35		32.71	32.71		61.3	62.0		4.77	4.89		2.75	3.15		5	
25/12/2010	09:16	Fine	Middle	3	20.00	20.00	20.00	8.36	8.36	8.36	32.94	32.94	32.94	68.4	66.0	65.4	5.13	4.99	4.91	2.30	2.90	2.86	4	4.5
	09:22		Middle	3	20.00	20.00		8.36	8.36		32.94	32.94		64.8	62.5		4.85	4.68		3.09	3.15		5	
28/12/2010	11:23	Fine	Middle	3	18.99	18.99	19.01	8.04	8.04	8.02	32.26	32.26	32.25	85.5	83.5	84.3	6.55	6.39	6.45	5.45	4.82	5.15	11	**12.5**
	11:25		Middle	3	19.02	19.02		8.00	8.00		32.23	32.23		85.3	82.9		6.52	6.34		5.08	5.24		14	
30/12/2010	14:40	Fine	Middle	3	19.60	19.60	19.60	8.21	8.21	8.22	32.70	32.70	32.70	91.6	91.0	90.9	6.93	6.88	6.88	4.35	4.40	4.31	11	**10.0**
	14:43		Middle	3	19.60	19.60		8.23	8.23		32.70	32.70		90.5	90.3		6.86	6.83		4.17	4.30		9	

Water Monitoring Result at WSD21 - Wan Chai
Mid-Flood Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	14:58	Fine	Middle	3	23.10	23.10	23.10	8.08	8.08	8.08	31.98	31.98	31.99	84.6	84.0	84.1	7.41	7.36	7.44	4.13	4.53	4.35	9	9.0
	15:01		Middle	3	23.10	23.10		8.08	8.08		31.99	31.99		85.1	82.8		7.47	7.53		4.29	4.43		9	
03/12/2010	15:07	Fine	Middle	2	21.90	21.90	21.90	8.10	8.10	8.10	31.75	31.75	31.75	86.9	86.6	86.5	6.42	6.40	6.41	3.44	3.28	3.44	4	4.0
	15:10		Middle	2	21.90	21.90		8.10	8.10		31.75	31.75		86.6	86.0		6.41	6.39		3.54	3.49		4	
05/12/2010	16:49	Cloudy	Middle	3	22.70	22.70	22.70	8.11	8.12	8.13	31.70	31.80	31.78	84.6	84.5	84.7	5.94	5.95	6.02	3.99	3.87	4.00	5	4.5
	16:57		Middle	3	22.70	22.70		8.12	8.16		31.80	31.80		84.7	84.8		6.08	6.09		3.94	4.18		4	
08/12/2010	10:24	Fine	Middle	3	20.60	20.60	20.65	8.14	8.14	8.14	31.90	31.90	31.90	87.4	88.5	88.0	6.53	6.55	6.56	4.15	4.00	4.11	8	9.0
	10:28		Middle	3	20.70	20.70		8.14	8.15		31.90	31.90		88.2	88.0		6.58	6.57		4.06	4.21		10	
11/12/2010	10:22	Cloudy	Middle	2	21.00	21.00	21.00	8.18	8.18	8.19	32.00	32.00	32.00	85.8	85.3	85.3	6.41	6.40	6.38	3.40	3.48	3.48	9	8.0
	10:25		Middle	2	21.00	21.00		8.20	8.20		32.00	32.00		85.2	85.0		6.38	6.32		3.43	3.62		7	
13/12/2010	11:20	Cloudy	Middle	2	21.70	21.70	21.70	8.21	8.21	8.21	32.00	32.00	32.00	86.6	86.4	86.3	6.14	6.11	6.09	6.98	7.46	6.99	8	7.5
	11:23		Middle	2	21.70	21.70		8.21	8.21		32.00	32.00		86.2	85.9		6.07	6.02		6.73	6.80		7	
16/12/2010	14:03	Cloudy	Middle	2	14.50	14.50	14.40	8.40	8.41	8.41	33.50	33.50	33.55	89.4	90.0	88.8	7.42	7.45	7.34	6.22	6.53	6.36	10	12.0
	14:06		Middle	2	14.30	14.30		8.42	8.42		33.60	33.60		87.3	88.5		7.10	7.39		6.26	6.44		14	
18/12/2010	14:50	Sunny	Middle	3	20.00	20.00	20.00	8.30	8.30	8.30	32.60	32.60	32.60	89.1	88.9	88.8	6.70	6.67	6.66	2.62	2.64	2.74	10	9.0
	14:53		Middle	3	20.00	20.00		8.30	8.30		32.60	32.60		88.7	88.6		6.64	6.64		2.82	2.88		8	
20/12/2010	16:20	Sunny	Middle	2	20.40	20.40	20.40	8.26	8.26	8.26	32.50	32.50	32.50	89.7	89.8	89.5	6.70	6.68	6.65	3.48	3.88	3.48	8	8.0
	16:23		Middle	2	20.40	20.40		8.26	8.26		32.50	32.50		89.2	89.3		6.60	6.62		3.24	3.30		8	
22/12/2010	18:13	Fine	Middle	3	19.10	19.00	19.03	8.26	8.26	8.26	32.51	32.52	32.51	57.3	58.6	57.9	4.43	4.56	4.58	3.73	4.02	3.97	7	7.5
	18:20		Middle	3	19.00	19.00		8.26	8.26		32.51	32.51		56.6	59.0		4.45	4.87		3.90	4.24		8	
25/12/2010	09:45	Fine	Middle	3	20.70	20.70	20.70	8.22	8.22	8.22	32.46	32.46	32.46	58.5	60.2	61.5	4.32	4.46	4.55	2.16	1.88	2.24	5	5.0
	09:51		Middle	3	20.70	20.70		8.22	8.22		32.46	32.46		64.4	62.7		4.77	4.65		2.27	2.64		5	
28/12/2010	12:11	Fine	Middle	2	19.90	19.90	19.90	8.16	8.16	8.17	32.50	32.50	32.50	85.6	85.3	85.3	6.46	6.44	6.44	7.82	8.21	7.85	7	8.0
	12:14		Middle	2	19.90	19.90		8.17	8.17		32.50	32.50		85.2	85.0		6.42	6.42		7.74	7.63		9	
30/12/2010	15:13	Fine	Middle	2	19.52	19.52	19.52	7.89	7.89	7.90	31.80	31.80	31.75	81.3	80.2	81.4	6.19	6.11	6.21	4.12	4.36	4.24	7	8.0
	15:16		Middle	2	19.51	19.51		7.90	7.90		31.70	31.70		82.4	81.5		6.30	6.23		4.25	4.22		9	

Water Monitoring Result at WSD19 - Sheung Wan
Mid-Flood Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	13:08	Fine	Middle	2	23.20	23.20	23.20	7.71	7.71	7.72	31.15	31.15	31.16	89.2	88.9	89.2	6.37	6.35	6.37	6.40	5.69	5.89	10	9.5
	13:11		Middle	2	23.20	23.20		7.72	7.72		31.16	31.16		89.6	89.1		6.40	6.36		5.60	5.88		9	
03/12/2010	15:49	Fine	Middle	2	22.40	22.40	22.40	8.12	8.12	8.12	31.77	31.77	31.77	81.4	80.9	81.0	5.87	5.84	5.85	6.46	6.21	6.43	16	14.5
	15:52		Middle	2	22.40	22.40		8.12	8.12		31.76	31.76		81.2	80.6		5.86	5.81		6.54	6.50		13	
05/12/2010	19:43	Cloudy	Middle	2	22.12	22.12	22.13	8.23	8.23	8.23	31.01	31.01	31.01	75.9	78.2	76.7	5.53	5.70	5.59	4.82	4.60	4.56	7	6.0
	19:52		Middle	2	22.13	22.13		8.23	8.23		31.01	31.01		77.3	75.3		5.63	5.48		4.29	4.52		5	
08/12/2010	09:55	Fine	Middle	2	22.00	22.00	21.95	8.22	8.22	8.21	31.87	31.87	31.87	87.7	86.7	87.4	6.26	6.15	6.22	4.64	4.81	4.71	8	8.5
	09:58		Middle	2	21.90	21.90		8.19	8.19		31.86	31.86		88.1	86.9		6.28	6.19		4.76	4.62		9	
11/12/2010	12:35	Cloudy	Middle	2	20.70	20.70	20.70	8.21	8.21	8.21	31.96	31.96	31.97	76.2	75.7	76.3	5.67	5.63	5.68	5.67	4.98	5.10	11	10.0
	12:38		Middle	2	20.70	20.70		8.21	8.21		31.97	31.97		77.0	76.4		5.73	5.68		4.86	4.88		9	
13/12/2010	15:22	Cloudy	Middle	2	22.20	22.20	22.25	8.20	8.20	8.19	32.14	32.14	32.13	79.0	78.2	78.5	5.68	5.61	5.64	7.77	7.67	7.65	14	15.5
	15:25		Middle	2	22.30	22.30		8.18	8.18		32.12	32.13		78.8	78.0		5.67	5.60		7.24	7.93		17	
16/12/2010	14:10	Cloudy	Middle	2	16.00	16.00	15.95	8.44	8.44	8.44	32.64	32.64	32.63	83.1	82.8	82.8	6.73	6.71	6.71	7.19	6.84	6.83	9	9.0
	14:13		Middle	2	15.90	15.90		8.43	8.43		32.62	32.62		82.9	82.2		6.72	6.67		6.62	6.67		9	
18/12/2010	15:21	Sunny	Middle	2	19.30	19.30	19.28	8.34	8.34	8.34	32.55	32.55	32.55	83.2	82.1	83.2	6.33	6.24	6.33	3.99	3.66	3.77	6	6.5
	15:24		Middle	2	19.30	19.20		8.34	8.34		32.55	32.55		84.0	83.3		6.39	6.34		3.69	3.74		7	
20/12/2010	17:45	Sunny	Middle	2	20.90	20.90	20.95	8.28	8.28	8.28	32.45	32.45	32.46	82.0	81.1	81.9	5.97	5.91	5.97	5.01	5.43	5.06	9	11.0
	17:48		Middle	2	21.00	21.00		8.28	8.28		32.46	32.46		83.2	81.3		6.06	5.92		4.61	5.19		13	
22/12/2010	20:25	Fine	Middle	2	19.00	19.00	19.00	8.33	8.33	8.33	32.78	32.78	32.78	68.7	65.5	65.3	5.35	5.10	4.84	3.83	4.05	4.00	10	9.0
	20:35		Middle	2	19.00	19.00		8.33	8.33		32.78	32.78		64.2	62.8		4.06	4.85		4.22	3.89		8	
25/12/2010	10:25	Fine	Middle	2	20.50	20.50	20.50	8.24	8.24	8.24	32.53	32.53	32.53	62.6	60.3	63.3	4.66	4.49	4.72	3.13	3.02	2.84	4	5.0
	10:31		Middle	2	20.50	20.50		8.24	8.24		32.53	32.53		64.4	66.0		4.80	4.91		2.65	2.56		6	
28/12/2010	12:30	Fine	Middle	2	18.68	18.67	18.69	8.10	8.10	8.07	32.26	32.26	32.29	89.5	88.8	89.6	6.90	6.84	6.91	4.19	3.95	3.84	8	7.5
	12:33		Middle	2	18.70	18.70		8.04	8.04		32.31	32.31		90.9	89.1		7.01	6.87		3.73	3.48		7	
30/12/2010	13:03	Fine	Middle	2	20.30	20.30	20.30	8.18	8.18	8.18	32.50	32.50	32.53	94.4	94.3	94.2	7.07	7.05	7.05	3.60	3.87	3.64	8	7.0
	13:06		Middle	2	20.30	20.30		8.18	8.18		32.60	32.50		94.1	94.0		7.04	7.04		3.56	3.52		6	

Water Monitoring Result at WSD9 - Tai Wan
Mid-Ebb Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	08:15	Fine	Middle	3	22.14	22.14	22.18	7.27	7.27	7.27	31.43	31.43	31.41	83.4	82.3	82.8	6.02	5.94	5.98	2.18	2.20	2.09	5	5.0
	09:18		Middle	3	22.22	22.22		7.26	7.26		31.39	31.39		83.1	82.5		5.99	5.96		1.93	2.06		5	
03/12/2010	21:45	Cloudy	Middle	3	20.38	20.38	20.38	8.33	8.33	8.33	30.74	30.73	30.74	88.8	87.8	88.2	6.68	6.62	6.65	2.64	2.88	2.54	5	5.0
	21:50		Middle	3	20.38	20.38		8.33	8.33		30.74	30.74		88.7	87.6		6.68	6.60		2.20	2.42		5	
06/12/2010	02:23	Cloudy	Middle	2	21.73	21.74	21.76	8.21	8.21	8.21	31.41	31.41	31.41	77.9	78.2	77.9	5.70	5.72	5.69	2.37	2.35	2.57	4	3.5
	02:32		Middle	2	21.78	21.78		8.21	8.21		31.41	31.41		78.4	76.9		5.73	5.62		2.58	2.96		3	
09/12/2010	01:33	Cloudy	Middle	2	17.70	17.70	17.70	8.32	8.32	8.32	30.99	30.99	30.99	83.9	82.7	83.4	6.64	6.54	6.60	4.16	4.39	4.07	4	4.5
	01:40		Middle	2	17.69	17.69		8.32	8.32		30.99	30.99		83.6	83.3		6.61	6.59		3.80	3.94		5	
11/12/2010	02:10	Cloudy	Middle	3	21.89	21.89	21.89	8.28	8.28	8.28	31.51	31.51	31.51	83.0	84.1	81.5	6.06	6.14	6.09	2.53	2.49	2.34	3	3.5
	02:16		Middle	3	21.89	21.88		8.28	8.28		31.51	31.51		77.9	81.1		5.68	6.46		2.09	2.25		4	
13/12/2010	03:31	Cloudy	Middle	3	23.83	23.83	23.83	8.33	8.33	8.33	31.36	31.36	31.36	81.4	82.3	81.9	5.74	5.81	5.78	2.38	2.59	2.36	4	4.0
	03:38		Middle	3	23.83	23.83		8.33	8.33		31.36	31.36		82.9	80.9		5.85	5.71		2.08	2.40		4	
16/12/2010	21:05	Cloudy	Middle	2	15.35	15.35	15.35	8.83	8.83	8.83	32.22	32.22	32.23	70.3	70.4	69.9	5.79	5.79	5.75	3.93	3.97	3.79	6	5.0
	21:14		Middle	2	15.35	15.35		8.83	8.83		32.23	32.23		68.4	70.5		5.60	5.80		3.76	3.49		4	
18/12/2010	22:03	Cloudy	Middle	2	19.51	19.51	19.51	8.31	8.31	8.31	31.34	31.34	31.34	68.4	68.7	68.5	5.21	5.24	5.22	3.63	3.56	3.37	6	6.0
	22:10		Middle	2	19.51	19.51		8.30	8.30		31.34	31.34		68.5	68.3		5.22	5.20		3.06	3.24		6	
20/12/2010	23:07	Cloudy	Middle	2	20.80	20.80	20.80	8.27	8.27	8.27	32.56	32.56	32.56	63.2	60.0	64.3	4.67	4.43	4.75	1.94	1.96	1.94	7	**7.0**
	23:13		Middle	2	20.80	20.80		8.27	8.27		32.56	32.56		66.7	67.2		4.92	4.96		1.95	1.91		7	
23/12/2010	02:34	Fine	Middle	2	18.90	18.90	18.90	8.21	8.21	8.21	32.73	32.73	32.73	60.5	59.1	62.1	4.62	4.53	4.75	3.08	3.42	3.11	7	6.0
	02:40		Middle	2	18.90	18.90		8.21	8.21		32.73	32.73		65.4	63.2		5.01	4.84		3.01	2.94		5	
25/12/2010	02:21	Fine	Middle	2	20.50	20.50	20.50	8.30	8.30	8.30	32.84	32.84	32.84	68.9	65.0	64.8	5.08	4.83	4.81	4.90	4.98	5.08	7	**7.5**
	02:28		Middle	2	20.50	20.50		8.30	8.30		32.84	32.84		63.5	61.7		4.74	4.58		5.50	4.95		8	
28/12/2010	18:10	Fine	Middle	2	19.70	19.10	19.25	8.52	8.52	8.52	32.76	32.76	32.76	68.1	64.8	63.9	5.19	4.49	4.77	2.64	2.60	2.85	4	5.0
	18:16		Middle	2	19.10	19.10		8.52	8.52		32.76	32.76		62.4	60.4		4.76	4.62		3.06	3.11		6	
30/12/2010	20:22	Fine	Middle	2	19.30	19.30	19.30	8.23	8.23	8.23	32.59	32.59	32.59	59.0	63.5	60.8	5.09	4.81	4.78	2.88	3.16	2.76	4	3.5
	20:29		Middle	2	19.30	19.30		8.23	8.23		32.59	32.59		61.1	59.5		4.65	4.56		2.41	2.60		3	

Water Monitoring Result at WSD10 - Cha Kwo Ling
Mid-Ebb Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	07:45	Fine	Middle	3	22.08	22.08	22.10	7.05	7.05	7.05	31.32	31.32	31.33	86.1	85.5	85.2	6.26	6.22	6.20	1.70	1.62	1.77	5	6.0
	07:48		Middle	3	22.11	22.11		7.04	7.04		31.34	31.34		85.4	83.8		6.21	6.09		1.94	1.83		7	
03/12/2010	21:15	Cloudy	Middle	3	20.43	20.42	20.42	8.39	8.39	8.39	31.55	31.58	31.57	86.4	88.5	88.4	6.48	6.63	6.64	2.21	2.24	2.23	4	4.0
	21:20		Middle	3	20.42	20.42		8.39	8.38		31.58	31.58		88.9	89.6		6.66	6.77		2.17	2.31		4	
06/12/2010	01:53	Cloudy	Middle	2	21.99	21.99	21.97	8.24	8.24	8.24	31.49	31.50	31.51	81.4	80.0	81.2	5.93	5.87	5.92	2.46	2.32	2.30	4	3.5
	02:00		Middle	2	21.94	21.94		8.24	8.24		31.51	31.52		79.9	83.3		5.82	6.07		2.19	2.23		3	
09/12/2010	00:45	Cloudy	Middle	2	17.97	17.97	17.97	8.42	8.43	8.43	31.49	31.49	31.49	87.5	86.5	87.6	6.86	6.79	6.86	2.44	2.21	2.25	4	4.0
	00:52		Middle	2	17.97	17.97		8.43	8.43		31.49	31.49		88.1	88.1		6.88	6.91		2.20	2.15		4	
11/12/2010	01:45	Cloudy	Middle	3	21.73	21.73	21.73	8.35	8.35	8.35	31.61	31.61	31.61	85.0	83.0	84.1	6.18	6.03	6.11	2.09	2.17	2.13	5	4.5
	01:50		Middle	3	21.73	21.73		8.35	8.35		31.61	31.61		85.5	83.0		6.21	6.03		2.21	2.04		4	
13/12/2010	02:45	Cloudy	Middle	3	23.01	23.01	23.01	8.40	8.40	8.40	31.76	31.76	31.76	86.1	84.9	83.8	6.04	5.96	5.88	3.68	3.30	3.30	5	4.5
	02:51		Middle	3	23.01	23.01		8.40	8.40		31.76	31.76		83.7	80.4		5.87	5.64		3.05	3.18		4	
16/12/2010	20:15	Cloudy	Middle	2	14.38	14.38	14.38	8.76	8.76	8.76	31.84	31.84	31.84	70.0	68.8	69.2	5.83	5.78	5.81	6.03	5.76	5.94	11	**10.5**
	20:21		Middle	2	14.38	14.37		8.76	8.76		31.84	31.84		68.2	69.8		5.74	5.87		5.93	6.05		10	
18/12/2010	21:15	Cloudy	Middle	2	20.19	20.19	20.19	8.34	8.34	8.35	32.02	32.03	32.03	67.1	66.9	67.0	5.03	5.02	5.02	3.40	3.39	3.54	6	6.5
	21:20		Middle	2	20.19	20.19		8.35	8.35		32.02	32.04		67.3	66.5		5.05	4.99		3.93	3.45		7	
20/12/2010	22:15	Cloudy	Middle	2	21.00	21.00	21.00	8.32	8.32	8.32	32.75	32.75	32.75	65.6	63.4	65.4	4.83	4.67	4.81	2.12	2.05	2.07	7	6.0
	22:20		Middle	2	21.00	21.00		8.32	8.32		32.75	32.75		67.5	65.1		4.96	4.79		2.01	2.08		5	
23/12/2010	02:55	Fine	Middle	2	18.90	18.90	18.90	8.33	8.33	8.33	32.72	32.72	32.72	66.5	64.9	65.6	5.09	4.88	4.99	3.31	2.71	2.89	6	6.0
	03:01		Middle	2	18.90	18.90		8.33	8.33		32.72	32.72		62.5	68.6		4.78	5.19		2.61	2.94		6	
25/12/2010	01:15	Fine	Middle	2	20.00	20.00	20.00	8.34	8.34	8.34	32.97	32.97	32.97	62.2	61.0	63.0	4.66	4.57	4.82	3.65	3.85	3.45	6	5.5
	01:21		Middle	2	20.00	20.00		8.34	8.34		32.97	32.97		59.1	69.7		4.89	5.15		3.20	3.08		5	
28/12/2010	17:00	Fine	Middle	2	19.20	19.20	19.20	8.30	8.30	8.30	32.57	32.57	32.57	69.8	65.6	65.7	5.25	4.99	4.97	3.40	3.39	3.44	6	7.0
	17:06		Middle	2	19.20	19.20		8.30	8.30		32.57	32.57		64.3	62.9		4.85	4.78		3.08	3.88		8	
30/12/2010	19:30	Fine	Middle	2	19.50	19.50	19.50	8.31	8.31	8.31	32.80	32.80	32.80	59.9	64.8	62.5	4.56	4.91	4.73	3.73	3.36	3.30	7	7.5
	19:36		Middle	2	19.50	19.50		8.31	8.31		32.80	32.80		63.7	61.7		4.80	4.66		3.09	3.02		8	

Water Monitoring Result at WSD15 - Sai Wan Ho
Mid-Ebb Tide

Date	Time	Weater Condition	Sampling Depth (m)		Water Temperature (°C)			pH (-)			Salinity (ppt)			DO Saturation (%)			DO (mg/L)			Turbidity (NTU)			Suspended Solids (mg/L)	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	09:42	Fine	Middle	3	22.41	22.41	22.42	7.49	7.49	7.49	31.34	31.34	31.36	84.5	83.0	84.0	6.11	6.01	6.07	2.69	2.77	2.84	7	7.5
	09:45		Middle	3	22.42	22.42		7.49	7.49		31.37	31.37		86.0	82.5		6.21	5.96		3.05	2.84		8	
03/12/2010	23:38	Cloudy	Middle	3	20.09	20.09	20.09	8.21	8.21	8.21	31.40	31.41	31.41	80.4	80.4	81.6	6.18	6.10	6.20	2.62	2.78	2.52	3	4.0
	23:44		Middle	3	20.09	20.09		8.21	8.21		31.41	31.41		83.1	82.6		6.27	6.23		2.30	2.36		5	
06/12/2010	00:23	Cloudy	Middle	3	22.16	22.16	22.16	8.21	8.21	8.21	31.68	31.68	31.68	74.1	77.3	75.7	5.37	5.61	5.49	3.07	3.14	3.18	6	5.0
	00:30		Middle	3	22.16	22.16		8.21	8.21		31.68	31.68		73.5	78.0		5.33	5.66		3.15	3.36		4	
09/12/2010	03:15	Cloudy	Middle	3	17.81	17.80	17.81	8.45	8.45	8.45	31.66	31.66	31.66	90.9	90.8	89.6	7.21	7.04	7.03	3.17	3.46	3.19	5	4.5
	03:22		Middle	3	17.81	17.80		8.45	8.45		31.66	31.66		88.1	88.4		6.93	6.95		3.06	3.08		4	
11/12/2010	04:15	Cloudy	Middle	3	21.68	21.68	21.68	8.30	8.30	8.30	31.57	31.58	31.58	81.8	86.1	85.8	5.99	6.31	6.29	1.77	1.73	1.75	2	2.0
	04:20		Middle	3	21.68	21.67		8.30	8.30		31.58	31.58		87.6	87.7		6.42	6.42		1.69	1.79		<2	
13/12/2010	05:13	Cloudy	Middle	3	22.89	22.89	22.89	8.03	8.03	8.03	31.77	31.77	31.77	87.6	86.8	86.7	6.21	6.15	6.14	3.72	3.38	3.34	5	4.5
	05:19		Middle	3	22.89	22.88		8.03	8.03		31.77	31.77		85.1	87.2		6.03	6.18		3.15	3.10		4	
16/12/2010	22:40	Cloudy	Middle	3	14.10	14.10	14.10	8.49	8.49	8.49	32.06	32.06	32.06	75.9	75.3	75.9	6.40	6.35	6.40	2.34	2.18	2.14	9	**8.0**
	22:46		Middle	3	14.10	14.10		8.49	8.50		32.06	32.06		76.5	75.9		6.45	6.40		1.99	2.04		7	
18/12/2010	23:46	Cloudy	Middle	3	19.54	19.54	19.54	8.30	8.30	8.30	32.20	32.20	32.20	66.0	66.9	64.5	5.06	5.10	5.01	3.08	3.05	3.10	4	5.0
	23:52		Middle	3	19.54	19.54		8.30	8.30		32.20	32.20		62.0	63.2		5.01	4.87		3.13	3.12		6	
20/12/2010	00:58	Cloudy	Middle	3	20.50	20.50	20.50	8.36	8.36	8.36	32.85	32.85	32.85	65.1	68.9	66.4	4.83	5.08	4.85	2.06	2.11	2.11	4	4.5
	01:05		Middle	3	20.50	20.50		8.36	8.36		32.85	32.85		67.0	64.6		4.89	4.60		2.19	2.06		5	
23/12/2010	01:05	Fine	Middle	3	17.90	17.90	17.90	8.38	8.38	8.38	32.80	32.80	32.80	64.9	72.7	69.3	5.02	5.66	5.41	2.47	2.89	2.48	6	5.0
	01:13		Middle	3	17.90	17.90		8.38	8.38		32.80	32.80		70.8	68.8		5.50	5.45		2.38	2.19		4	
25/12/2010	04:26	Fine	Middle	3	20.10	20.00	20.08	8.35	8.35	8.35	32.95	32.95	32.95	59.1	66.0	63.9	4.87	4.94	4.89	2.48	2.51	2.85	7	6.5
	04:32		Middle	3	20.10	20.10		8.35	8.35		32.95	32.95		63.8	66.8		4.80	4.96		3.16	3.24		6	
28/12/2010	19:49	Fine	Middle	3	18.90	18.90	18.90	8.29	8.29	8.29	32.73	32.73	32.73	65.4	65.7	64.1	5.01	5.01	4.90	2.11	1.66	1.72	<2	2.0
	19:55		Middle	3	18.90	18.90		8.29	8.29		32.73	32.73		63.4	62.0		4.82	4.75		1.60	1.52		2	
30/12/2010	22:15	Fine	Middle	3	19.60	19.60	19.60	8.22	8.22	8.22	32.54	32.54	32.54	60.2	61.1	59.0	4.56	4.61	4.46	2.61	2.47	2.83	7	6.0
	22:21		Middle	3	19.60	19.60		8.22	8.22		32.54	32.54		58.0	56.6		4.40	4.26		3.20	3.05		5	

Water Monitoring Result at WSD17 - Quarry Bay
Mid-Ebb Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	10:02	Fine	Middle	3	22.94	22.94	22.96	7.90	7.90	7.89	31.13	31.13	31.13	83.9	83.4	83.3	6.02	5.99	5.98	2.26	2.31	2.27	7	8.0
	10:05		Middle	3	22.97	22.97		7.87	7.87		31.13	31.13		83.4	82.6		5.99	5.92		2.22	2.27		9	
03/12/2010	23:20	Cloudy	Middle	3	20.34	20.34	20.34	8.19	8.19	8.19	31.26	31.26	31.26	78.6	78.8	79.4	5.91	5.92	5.97	3.00	3.19	3.01	5	4.5
	23:26		Middle	3	20.34	20.34		8.19	8.19		31.26	31.27		80.4	79.9		6.05	6.01		2.97	2.86		4	
06/12/2010	00:08	Cloudy	Middle	2	22.15	22.15	22.13	8.17	8.17	8.17	31.51	31.52	31.52	76.3	76.3	76.0	5.51	5.54	5.51	3.20	2.90	2.95	6	5.0
	00:14		Middle	2	22.13	22.10		8.17	8.17		31.54	31.52		76.4	74.9		5.55	5.44		2.82	2.87		4	
09/12/2010	02:56	Cloudy	Middle	4	18.01	18.00	18.00	8.44	8.45	8.45	31.40	31.41	31.41	87.8	88.9	88.3	6.93	6.98	6.94	4.92	5.17	4.64	5	5.0
	03:04		Middle	4	17.99	17.99		8.45	8.45		31.41	31.42		88.8	87.6		6.98	6.87		4.26	4.21		5	
11/12/2010	03:49	Cloudy	Middle	3	21.86	21.86	21.86	8.31	8.31	8.31	31.51	31.51	31.52	87.3	85.6	85.3	6.37	6.25	6.22	2.43	2.13	2.60	6	5.0
	03:55		Middle	3	21.86	21.86		8.31	8.31		31.53	31.53		83.8	84.3		6.12	6.15		3.02	2.83		4	
13/12/2010	04:50	Cloudy	Middle	3	23.56	23.56	23.56	8.34	8.34	8.34	31.46	31.46	31.46	84.7	84.3	85.4	6.00	6.01	6.04	2.34	2.34	2.20	4	4.0
	04:57		Middle	3	23.56	23.56		8.34	8.34		31.46	31.46		87.0	85.4		6.07	6.06		2.08	2.03		4	
16/12/2010	22:23	Cloudy	Middle	4	13.66	13.66	13.66	8.44	8.44	8.44	32.00	31.99	31.99	72.0	72.8	72.0	6.13	6.19	6.13	3.21	3.14	3.12	3	3.5
	22:30		Middle	4	13.66	13.66		8.44	8.44		31.98	31.98		71.3	71.9		6.07	6.11		3.04	3.08		4	
18/12/2010	23:27	Cloudy	Middle	3	19.08	19.09	19.09	8.34	8.34	8.34	31.69	31.69	31.69	68.5	61.7	65.8	5.23	4.71	5.03	5.02	5.06	4.94	8	7.0
	23:33		Middle	3	19.10	19.10		8.34	8.34		31.69	31.69		66.4	66.7		5.07	5.09		5.15	4.53		6	
20/12/2010	00:35	Cloudy	Middle	3	20.70	20.70	20.70	8.34	8.34	8.34	32.79	32.79	32.79	64.4	63.9	64.6	4.77	4.81	4.80	3.32	3.04	3.27	6	6.5
	00:42		Middle	3	20.70	20.70		8.34	8.34		32.79	32.79		62.1	68.0		4.59	5.03		3.47	3.25		7	
23/12/2010	00:39	Fine	Middle	3	18.10	18.10	18.13	8.34	8.34	8.34	32.61	32.61	32.60	71.6	68.2	68.6	5.65	5.29	5.35	3.25	2.81	2.96	8	7.0
	00:47		Middle	3	18.10	18.20		8.34	8.34		32.59	32.59		65.4	69.0		5.08	5.36		2.96	2.80		6	
25/12/2010	04:05	Fine	Middle	3	20.40	20.40	20.40	8.35	8.35	8.35	32.92	32.92	32.92	60.2	68.8	64.9	4.49	5.11	4.83	3.33	2.93	2.95	7	6.0
	04:14		Middle	3	20.40	20.40		8.35	8.35		32.92	32.92		66.1	64.6		4.91	4.80		2.78	2.75		5	
28/12/2010	19:28	Fine	Middle	3	18.90	18.90	18.90	8.25	8.25	8.25	32.63	32.63	32.64	62.5	62.3	62.8	4.78	4.76	4.78	2.88	3.11	3.09	5	5.0
	19:34		Middle	3	18.90	18.90		8.25	8.25		32.64	32.64		64.4	61.9		4.83	4.74		3.38	2.98		5	
30/12/2010	21:53	Fine	Middle	3	19.60	19.60	19.60	8.10	8.10	8.10	31.86	31.86	31.86	53.0	53.3	52.9	4.10	4.11	4.06	3.49	3.47	3.60	5	5.5
	21:59		Middle	3	19.60	19.60		8.10	8.10		31.86	31.86		52.7	52.4		4.01	4.02		3.81	3.62		6	

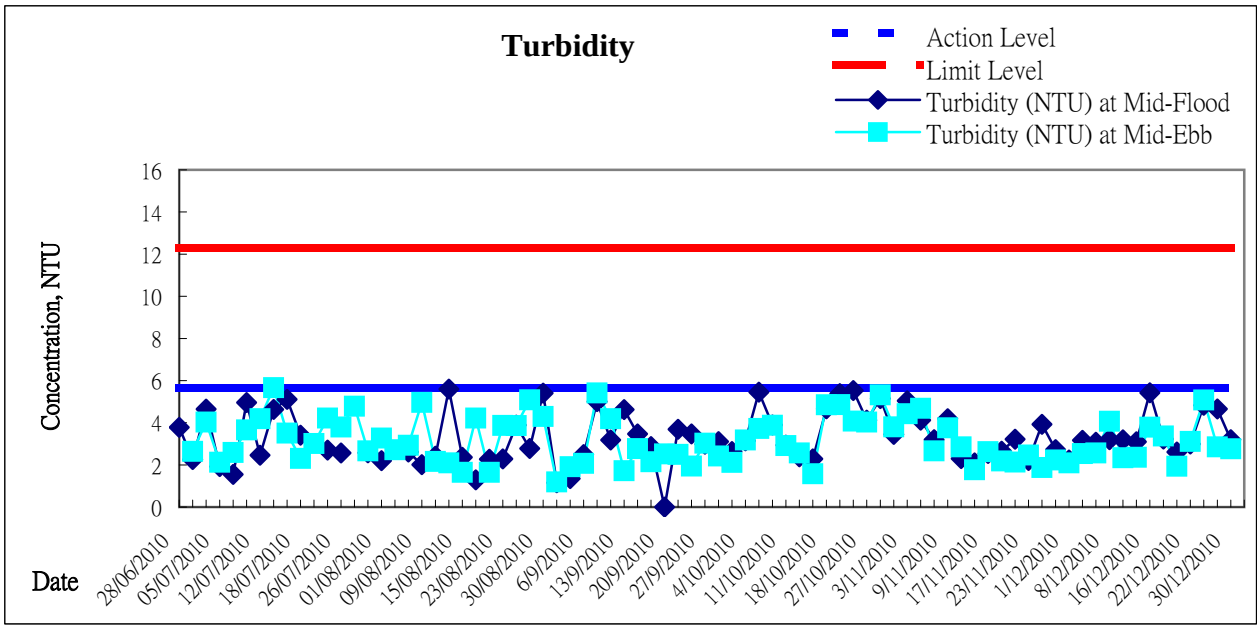
Water Monitoring Result at WSD21 - Wan Chai
Mid-Ebb Tide

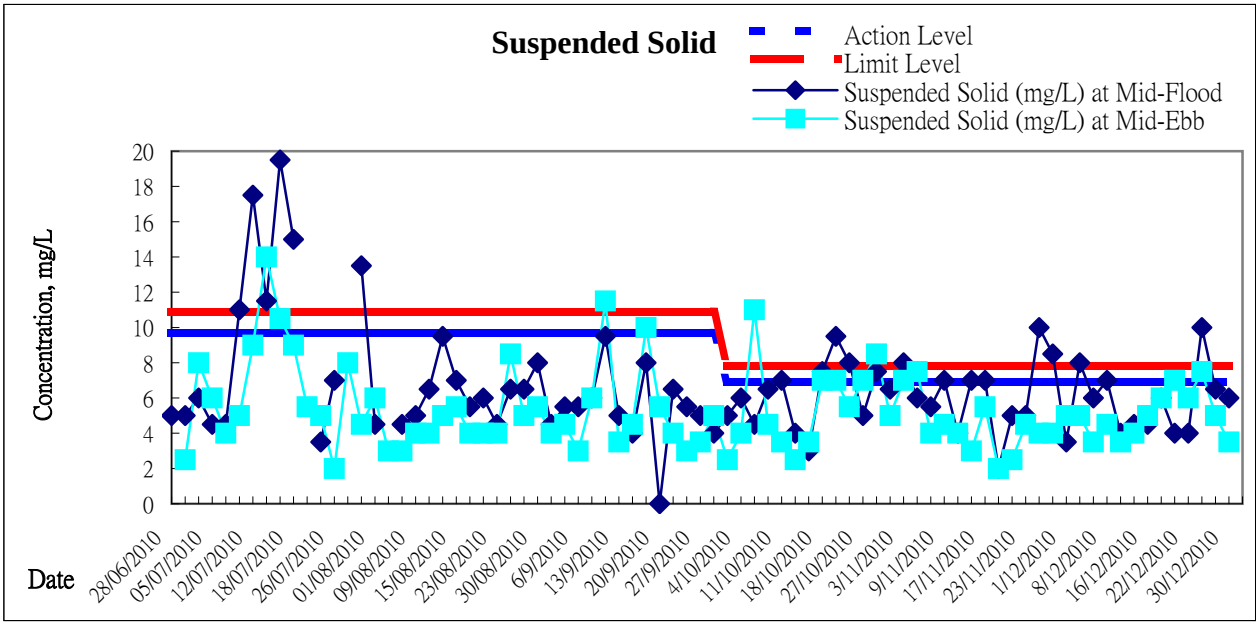
Date	Time	Weater Condition	Sampling Depth		Water Temperature °C			pH -			Salinity ppt			DO Saturation %			DO mg/L			Turbidity NTU			Suspended Solids mg/L	
			m		Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	09:25	Fine	Middle	3	22.80	22.80	22.75	8.06	8.06	8.07	32.00	32.00	176.95	89.8	89.4	87.0	7.90	7.88	7.67	3.66	3.87	3.65	7	8.0
	09:28		Middle	3	22.70	22.70		8.07	8.07		321.90	321.90		84.0	84.6		7.43	7.45		3.42	3.65		9	
03/12/2010	22:45	Cloudy	Middle	2	19.69	19.69	19.69	8.07	8.07	8.07	31.14	31.14	31.14	63.8	65.7	64.9	4.86	5.00	4.94	2.19	2.21	2.29	5	5.5
	22:52		Middle	2	19.68	19.68		8.07	8.07		31.13	31.13		63.6	66.3		4.84	5.05		2.21	2.56		6	
06/12/2010	23:23	Cloudy	Middle	2	21.70	21.70	21.70	8.15	8.15	8.15	31.70	31.70	31.75	87.5	87.4	87.6	6.38	6.37	6.40	2.83	2.61	2.87	5	5.5
	23:31		Middle	2	21.70	21.70		8.15	8.15		31.80	31.80		87.7	87.6		6.42	6.41		3.11	2.92		6	
09/12/2010	02:09	Cloudy	Middle	2	17.20	17.20	17.20	8.20	8.21	8.20	30.51	30.51	30.51	80.0	77.2	78.3	6.21	6.30	6.25	5.57	5.64	5.53	10	10.5
	02:16		Middle	2	17.20	17.20		8.20	8.20		30.51	30.51		77.3	78.5		6.20	6.29		5.34	5.58		11	
11/12/2010	02:21	Cloudy	Middle	2	20.30	20.30	20.30	8.14	8.14	8.15	31.80	31.80	31.80	84.5	84.3	84.9	6.30	6.29	6.34	3.41	3.02	3.00	4	4.0
	02:30		Middle	2	20.30	20.30		8.16	8.16		31.80	31.80		85.4	85.3		6.39	6.38		2.80	2.77		4	
13/12/2010	03:35	Cloudy	Middle	2	22.12	22.11	22.11	8.14	8.14	8.14	31.10	31.10	31.10	71.0	69.5	70.4	5.17	5.06	5.11	2.13	2.58	2.32	4	4.0
	03:42		Middle	2	22.11	22.11		8.14	8.14		31.10	31.10		70.8	70.1		5.16	5.03		2.52	2.06		4	
16/12/2010	21:25	Cloudy	Middle	2	12.64	12.64	12.64	8.30	8.28	8.29	31.53	31.54	31.54	56.5	56.9	54.9	4.93	4.96	4.79	2.67	2.65	2.48	3	3.0
	21:31		Middle	2	12.64	12.64		8.28	8.28		31.54	31.54		53.3	53.0		4.65	4.62		2.29	2.31		3	
18/12/2010	22:42	Cloudy	Middle	2	17.95	17.75	17.81	8.37	8.37	8.38	31.47	31.47	31.47	58.1	58.3	58.1	4.58	4.59	4.58	2.06	2.31	2.33	6	7.0
	22:49		Middle	2	17.76	17.76		8.38	8.38		31.47	31.48		58.6	57.5		4.61	4.53		2.56	2.38		8	
20/12/2010	22:16	Cloudy	Middle	2	20.60	20.30	20.38	8.24	8.24	8.24	32.45	32.44	32.45	60.0	57.8	59.6	4.48	4.36	4.43	2.02	2.03	2.02	5	4.0
	22:24		Middle	2	20.30	20.30		8.24	8.24		32.45	32.45		59.7	60.8		4.41	4.45		2.07	1.96		3	
23/12/2010	01:12	Fine	Middle	2	19.90	19.80	19.83	8.22	8.22	8.22	32.59	32.59	32.59	64.7	63.5	63.9	4.93	4.78	4.83	3.64	3.11	3.44	7	7.5
	01:19		Middle	2	19.80	19.80		8.22	8.22		32.59	32.59		61.0	66.4		4.59	5.00		3.36	3.64		8	
25/12/2010	02:45	Fine	Middle	2	21.90	21.90	21.90	8.16	8.16	8.16	32.27	32.27	32.27	60.3	64.4	62.0	4.96	4.69	4.65	2.67	2.41	2.87	5	5.0
	02:55		Middle	2	21.90	21.90		8.16	8.16		32.27	32.27		60.6	62.5		4.40	4.54		3.12	3.26		5	
28/12/2010	18:30	Fine	Middle	2	18.10	18.10	18.10	8.16	8.16	8.16	32.57	32.57	32.57	57.9	54.0	56.0	4.57	4.26	4.42	1.45	1.53	1.58	2	2.0
	18:36		Middle	2	18.10	18.10		8.16	8.16		32.57	32.57		53.7	58.3		4.23	4.60		1.79	1.54		2	
30/12/2010	20:14	Fine	Middle	2	19.00	19.00	19.00	8.06	8.06	8.06	32.41	32.41	32.41	53.6	55.4	54.3	4.17	4.24	4.21	3.46	3.05	3.12	5	4.5
	20:24		Middle	2	19.00	19.00		8.06	8.06		32.41	32.41		55.5	52.8		4.32	4.09		3.00	2.95		4	

Water Monitoring Result at WSD19 - Sheung Wan
Mid-Ebb Tide

Date	Time	Weater Condition	Sampling Depth		Water Temperature			pH			Salinity			DO Saturation			DO			Turbidity			Suspended Solids	
			m		°C			-			ppt			%			mg/L			NTU			mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
01/12/2010	09:14	Fine	Middle	3	22.96	22.96	23.07	7.22	7.22	7.23	31.22	31.22	31.21	77.3	76.7	76.9	5.53	5.48	5.49	4.18	3.65	3.94	13	11.5
	09:17		Middle	3	23.18	23.18		7.23	7.23		31.19	31.19		77.6	75.9		5.54	5.42		4.04	3.87		10	
03/12/2010	00:17	Cloudy	Middle	2	20.36	20.36	20.36	8.10	8.10	8.10	30.70	30.70	30.70	82.9	83.5	82.0	6.25	6.29	6.18	3.45	3.73	3.47	6	5.5
	00:24		Middle	2	20.35	20.35		8.09	8.09		30.70	30.71		80.4	81.0		6.06	6.11		3.51	3.18		5	
06/12/2010	01:07	Cloudy	Middle	2	22.26	22.26	22.27	8.07	8.07	8.07	31.44	31.44	31.45	74.1	76.4	73.6	5.45	5.63	5.38	3.71	4.18	4.24	9	9.5
	01:14		Middle	2	22.27	22.27		8.07	8.07		31.45	31.45		71.9	72.1		5.21	5.22		4.74	4.34		10	
09/12/2010	03:45	Cloudy	Middle	2	17.70	17.69	17.69	8.32	8.32	8.32	30.99	30.99	31.00	88.5	88.2	87.3	6.97	7.00	6.92	3.93	4.35	3.78	7	6.5
	03:53		Middle	2	17.68	17.68		8.31	8.31		30.99	31.04		86.6	85.9		6.89	6.82		3.41	3.44		6	
11/12/2010	04:54	Cloudy	Middle	2	21.82	21.82	21.82	8.22	8.22	8.22	31.28	31.28	31.28	83.6	81.0	82.1	6.12	5.93	5.95	2.49	2.24	2.74	5	4.5
	04:59		Middle	2	21.82	21.82		8.22	8.22		31.28	31.28		79.8	83.8		5.63	6.13		3.09	3.13		4	
13/12/2010	05:54	Cloudy	Middle	2	22.66	22.66	22.66	8.15	8.15	8.15	31.05	31.05	31.05	73.7	74.5	74.2	5.32	5.38	5.36	3.61	3.66	3.65	6	5.5
	05:59		Middle	2	22.66	22.66		8.15	8.15		31.05	31.06		73.8	74.6		5.33	5.39		3.93	3.41		5	
16/12/2010	23:22	Cloudy	Middle	3	13.66	13.66	13.66	8.35	8.35	8.35	31.82	31.82	31.82	68.0	62.2	65.9	5.79	5.29	5.61	4.21	3.95	4.25	5	5.5
	23:29		Middle	3	13.66	13.66		8.35	8.35		31.82	31.82		66.0	67.2		5.62	5.72		4.53	4.30		6	
18/12/2010	00:26	Cloudy	Middle	2	19.26	19.26	19.25	8.47	8.47	8.47	31.67	31.67	31.67	71.9	69.0	67.3	5.31	5.28	5.09	4.34	4.02	4.49	7	8.0
	00:32		Middle	2	19.24	19.24		8.47	8.47		31.67	31.67		68.3	60.0		5.23	4.52		4.89	4.71		9	
20/12/2010	02:13	Cloudy	Middle	2	20.40	20.40	20.40	8.33	8.33	8.33	32.96	32.96	32.96	62.3	62.6	64.1	4.60	4.65	4.75	4.53	4.99	4.96	11	11.5
	02:22		Middle	2	20.40	20.40		8.33	8.33		32.96	32.96		67.3	64.3		4.99	4.77		5.28	5.05		12	
23/12/2010	01:50	Fine	Middle	2	17.40	17.40	17.40	8.32	8.32	8.32	32.78	32.78	32.78	67.1	64.4	64.8	5.28	5.05	5.09	3.64	3.87	3.86	10	10.5
	01:58		Middle	2	17.40	17.40		8.32	8.32		32.78	32.78		62.4	65.2		4.91	5.10		3.82	4.10		11	
25/12/2010	05:07	Fine	Middle	2	20.60	20.60	20.60	8.26	8.26	8.26	32.50	32.50	32.50	65.2	66.9	64.7	4.85	4.98	4.81	2.53	2.37	2.36	3	3.5
	05:14		Middle	2	20.60	20.60		8.26	8.26		32.50	32.50		64.5	62.1		4.79	4.61		2.35	2.17		4	
28/12/2010	20:10	Fine	Middle	2	18.70	18.70	18.70	8.30	8.30	8.30	32.66	32.66	32.66	66.5	65.4	66.3	5.11	5.03	5.08	3.45	3.36	3.52	5	5.5
	20:16		Middle	2	18.70	18.70		8.30	8.30		32.66	32.66		63.5	69.7		4.85	5.31		3.86	3.42		6	
30/12/2010	22:54	Fine	Middle	2	19.30	19.30	19.30	8.18	8.18	8.18	32.57	32.57	32.57	63.0	66.0	62.9	4.80	5.00	4.78	4.45	4.58	4.63	8	8.0
	22:59		Middle	2	19.30	19.30		8.18	8.18		32.57	32.57		61.9	60.8		4.71	4.62		4.79	4.70		8	

Graphic Presentation of Water Quality Result of WSD9 - Tai Wan

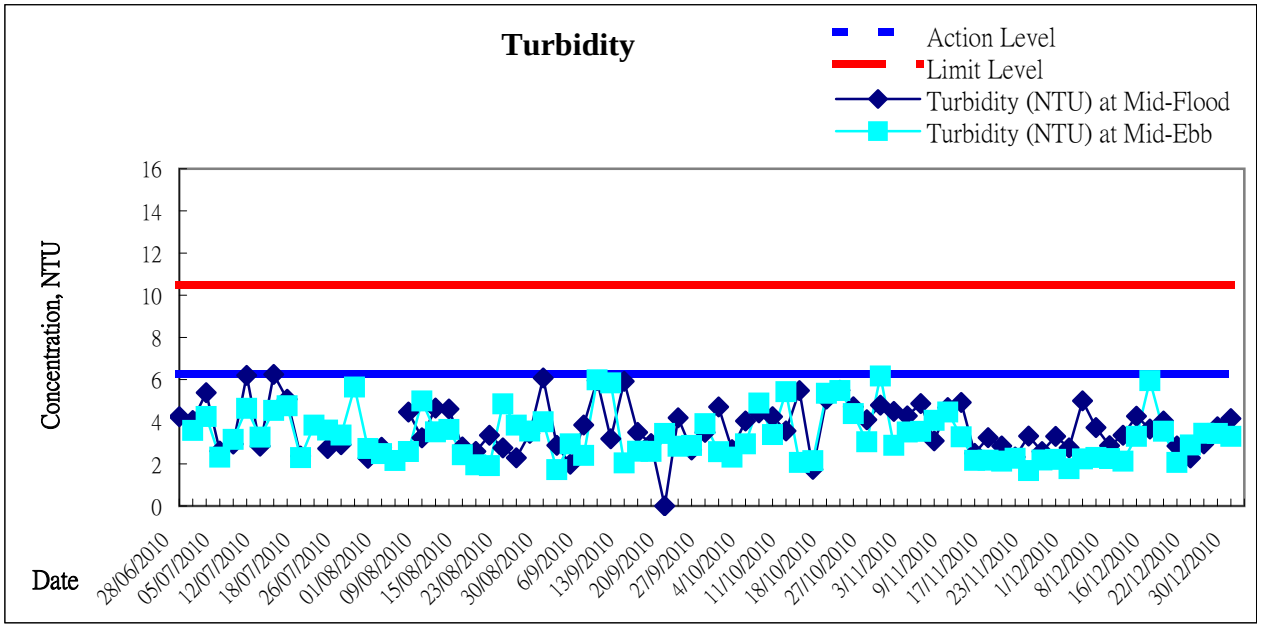


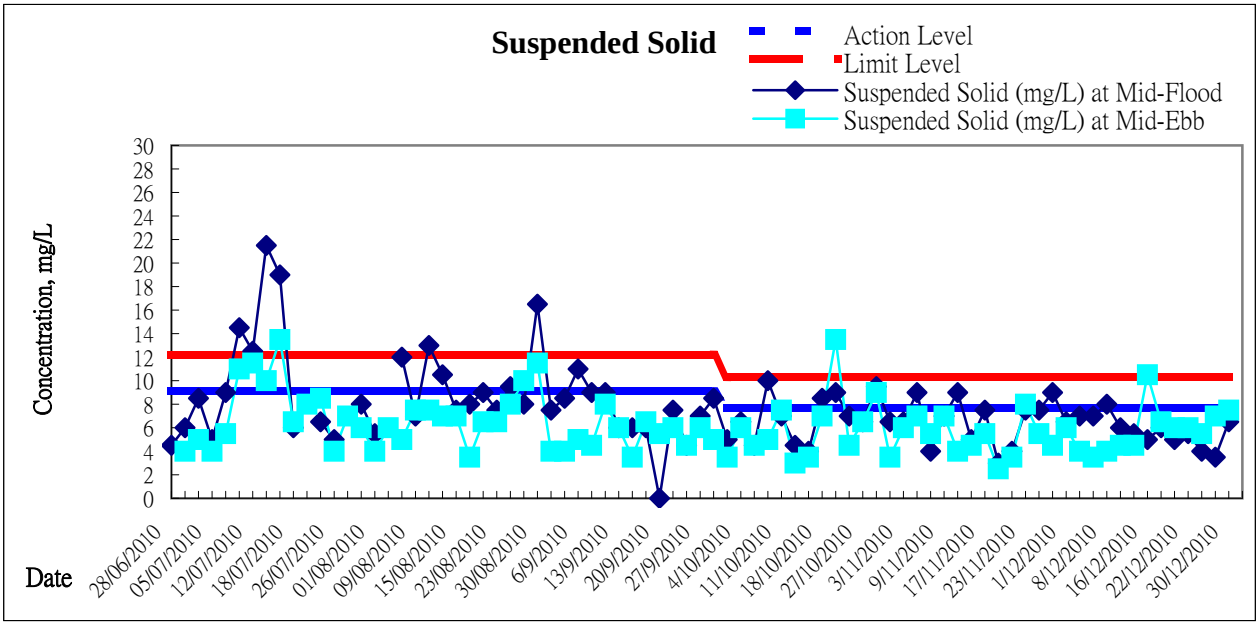


Remarks:

- Two sets of Suspended Solid Action and Limit levels for the dry season (the period from October to March) and wet season (the period from April to September).

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

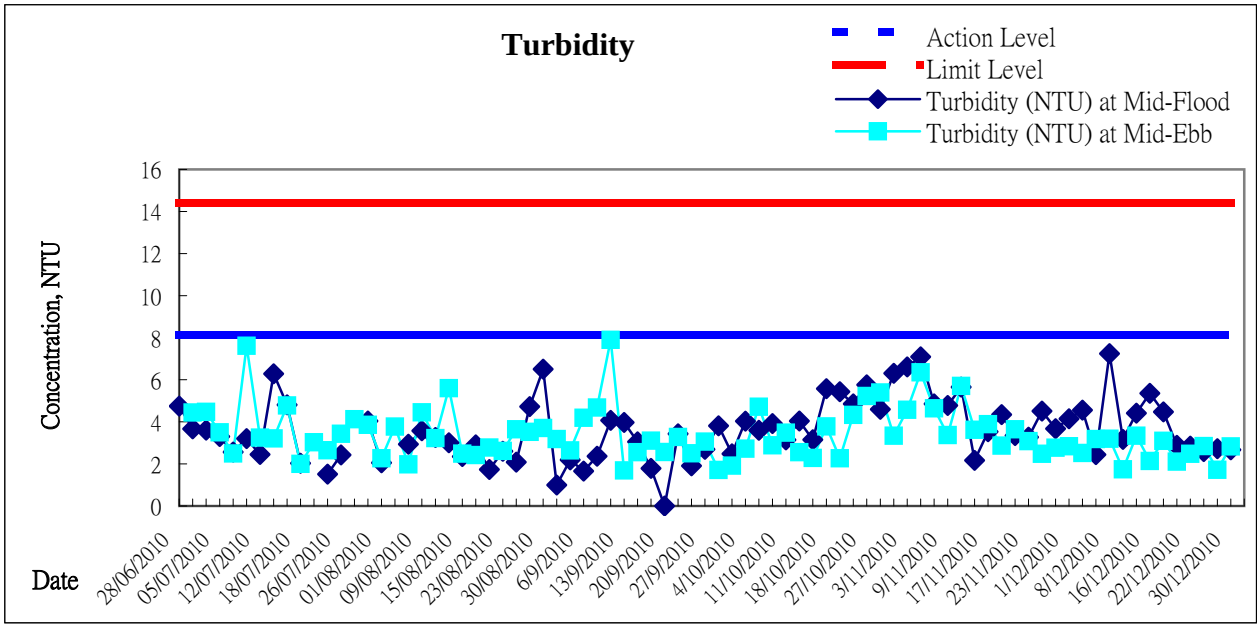


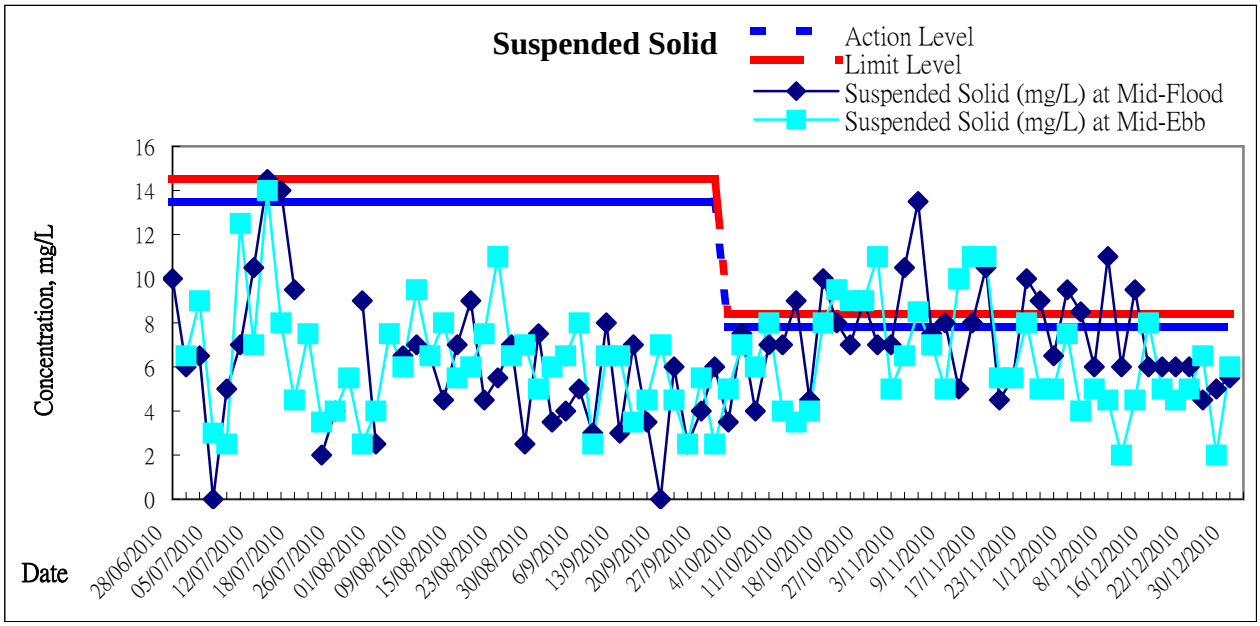


Remarks:

- Two sets of Suspended Solid Action and Limit levels for the dry season (the period from October to March) and wet season (the period from April to September).

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

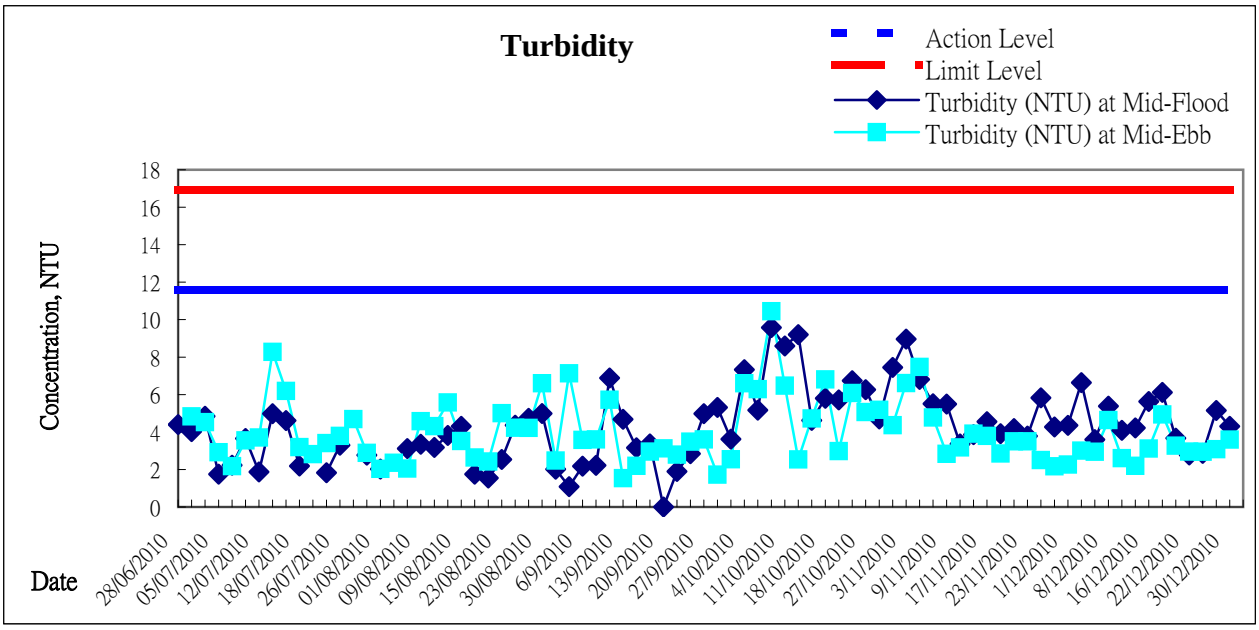


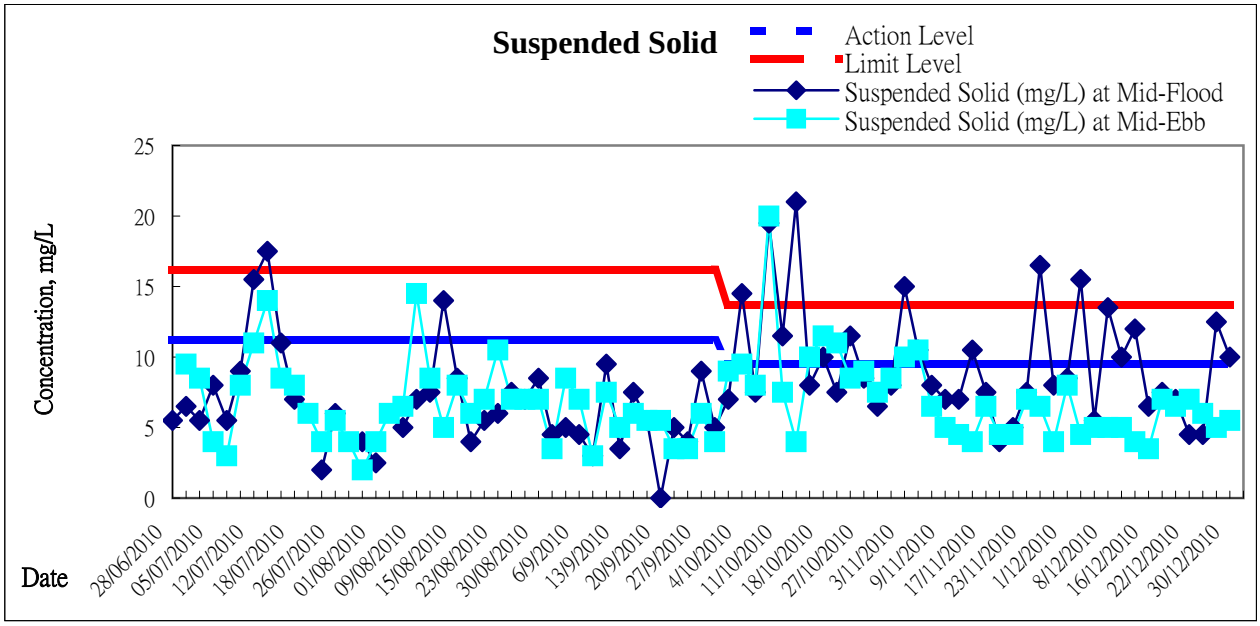


Remarks:

- Two sets of Suspended Solid Action and Limit levels for the dry season (the period from October to March) and wet season (the period from April to September).

Graphic Presentation of Water Quality Result of WSD17 - Quarry Bay

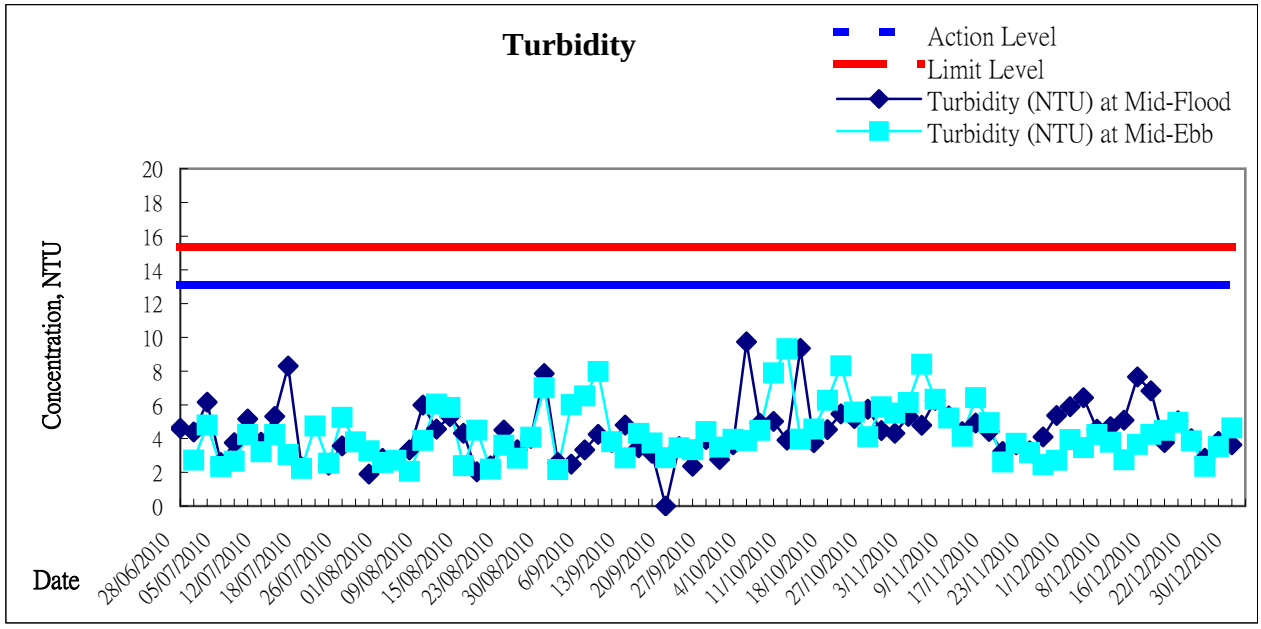


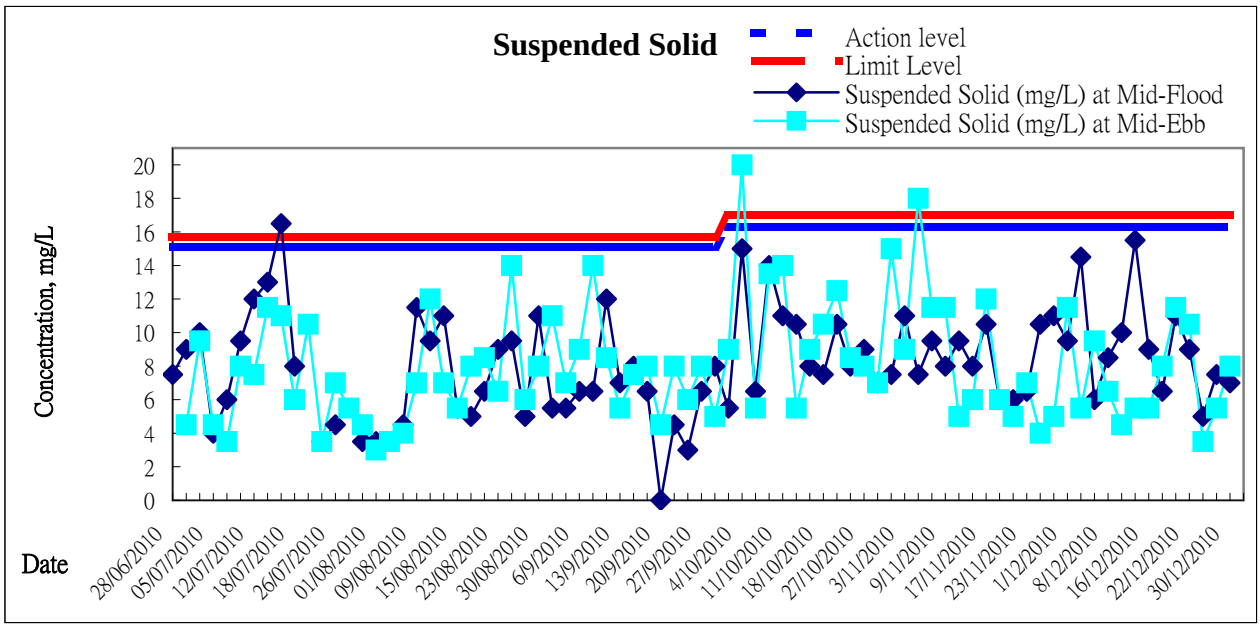


Remarks:

- Two sets of Suspended Solid Action and Limit levels for the dry season (the period from October to March) and wet season (the period from April to September).

Graphic Presentation of Water Quality Result of WSD19 - Sheung Wan

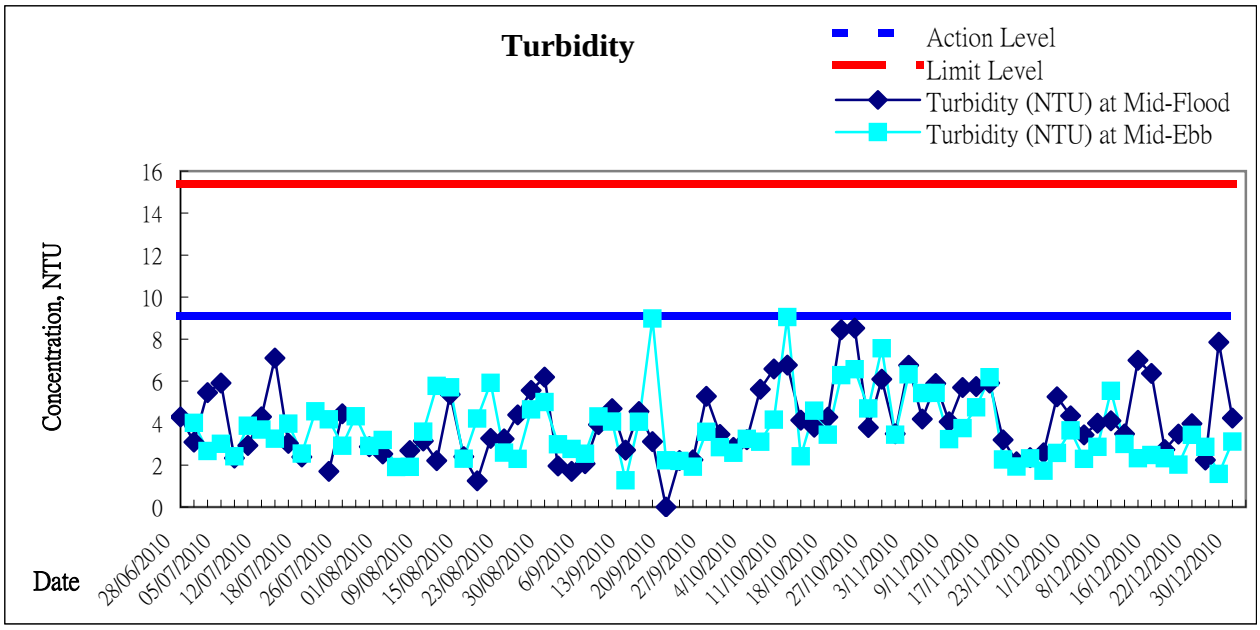


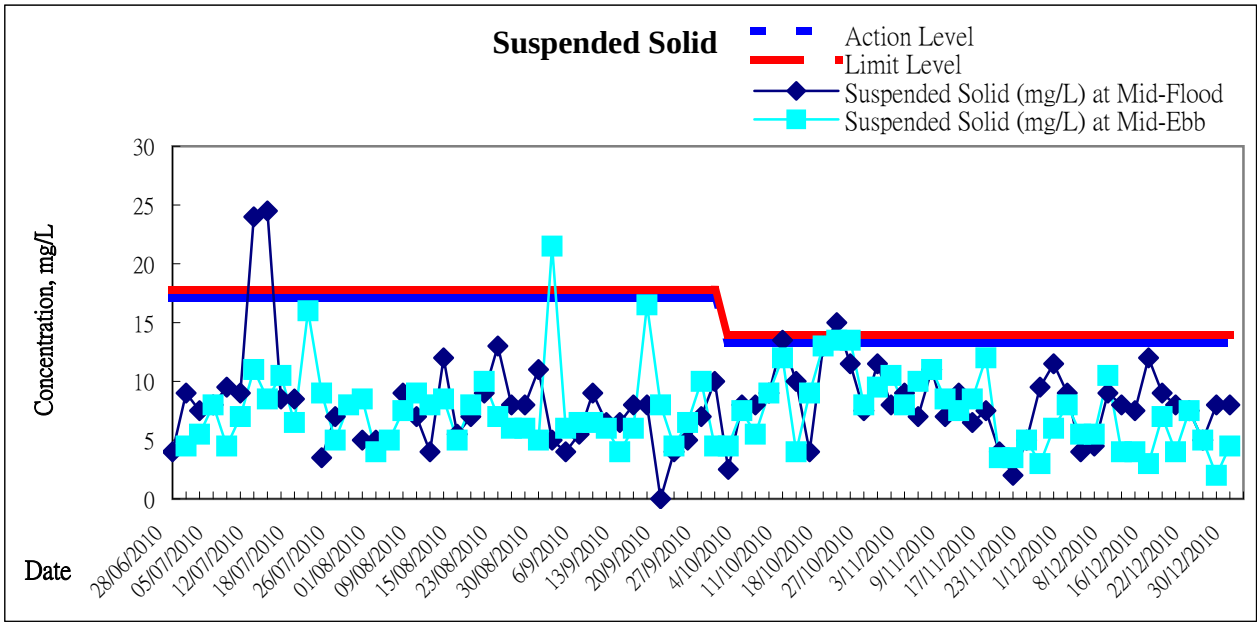


Remarks:

- Two sets of Suspended Solid Action and Limit levels for the dry season (the period from October to March) and wet season (the period from April to September).

Graphic Presentation of Water Quality Result of WSD21 - Wan Chai





Remarks:

- Two sets of Suspended Solid Action and Limit levels for the dry season (the period from October to March) and wet season (the period from April to September).

Appendix 5.3

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 5.4

Summary of Notification of Exceedances

Summary for Notification of Exceedance

Ref no.	Date	Tidal	Location	Parameters (Unit)	Average	Action Level	Limit Level	Level of Exceedance	Follow-up action	
X111	1-Dec-10	Mid-flood	WSD15	SS (mg/L)	**9.5**	7.8	8.4	Limit Level	Action taken / to be taken:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition
									Possible reason:	Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD15 and not related to the project work.
									Remarks / Other Obs:	Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X112	3-Dec-10	Mid-flood	WSD9	SS (mg/L)	**8.0**	6.9	7.8	Limit Level	Action taken / to be taken:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition
									Possible reason:	It is concluded that the source of impact was due to natural variation or change around WSD9 and not related to the project work.
									Remarks / Other Obs:	Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X113	3-Dec-10	Mid-flood	WSD15	SS (mg/L)	**8.5**	7.8	8.4	Limit Level	Action taken / to be taken:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition
									Possible reason:	Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD15 and not related to the project work.
									Remarks / Other Obs:	Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X114	3-Dec-10	Mid-flood	WSD17	SS (mg/L)	**15.5**	9.5	13.7	Limit Level	Action taken / to be taken:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition
									Possible reason:	Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD17 and not related to the project work.
									Remarks / Other Obs:	Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.

Summary for Notification of Exceedance

Ref no.	Date	Tidal	Location	Parameters (Unit)	Average	Action Level	Limit Level	Level of Exceedance	Follow-up action	
X115	8-Dec-10	Mid-flood	WSD9	SS (mg/L)	**7.0**	6.9	7.8	Action Level	Action taken / to be taken:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; The SS level is within the tolerance of baseline water monitoring results; Contractor's dredging rate was complied with EP's condition
									Possible reason:	It is concluded that the source of impact was due to natural variation or change around WSD9 and not related to the project work.
									Remarks / Other Obs:	Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X116	8-Dec-10	Mid-flood	WSD10	SS (mg/L)	**8.0**	7.7	10.3	Action Level	Action taken / to be taken:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; The SS level is within the tolerance of baseline water monitoring results; Contractor's dredging rate was complied with EP's condition
									Possible reason:	Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD10 and not related to the project work.
									Remarks / Other Obs:	Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X117	8-Dec-10	Mid-flood	WSD15	SS (mg/L)	**11.0**	7.8	8.4	Limit Level	Action taken / to be taken:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition
									Possible reason:	Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD15 and not related to the project work.
									Remarks / Other Obs:	Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X118	8-Dec-10	Mid-flood	WSD17	SS (mg/L)	**13.5**	9.5	13.7	Action Level	Action taken / to be taken:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition
									Possible reason:	Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD17 and not related to the project work.
									Remarks / Other Obs:	Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.

Summary for Notification of Exceedance

Ref no.	Date	Tidal	Location	Parameters (Unit)	Average	Action Level	Limit Level	Level of Exceedance	Follow-up action	
X119	11-Dec-10	Mid-flood	WSD17	SS (mg/L)	**10.0**	9.5	13.7	Action Level	Action taken / to be taken: Possible reason: Remarks / Other Obs:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; The SS level is within the tolerance of baseline water monitoring results; Contractor's dredging rate was complied with EP's condition Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD17 and not related to the project work. Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X120	13-Dec-10	Mid-flood	WSD15	SS (mg/L)	**9.5**	7.8	8.4	Limit Level	Action taken / to be taken: Possible reason: Remarks / Other Obs:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD15 and not related to the project work. Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X121	13-Dec-10	Mid-flood	WSD17	SS (mg/L)	**12.0**	9.5	13.7	Action Level	Action taken / to be taken: Possible reason: Remarks / Other Obs:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD17 and not related to the project work. Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X122	16-Dec-10	Mid-ebb	WSD10	SS (mg/L)	**10.5**	7.7	10.3	Limit Level	Action taken / to be taken: Possible reason: Remarks / Other Obs:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition It is concluded that the source of impact was due to natural variation or change around WSD10 and not related to the project work. Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.

Summary for Notification of Exceedance

Ref no.	Date	Tidal	Location	Parameters (Unit)	Average	Action Level	Limit Level	Level of Exceedance	Follow-up action	
X123	16-Dec-10	Mid-ebb	WSD15	SS (mg/L)	**8.0**	7.8	8.4	Action Level	Action taken / to be taken: Possible reason: Remarks / Other Obs:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition It is concluded that the source of impact was due to natural variation or change around WSD15 and not related to the project work. Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X124	20-Dec-10	Mid-ebb	WSD9	SS (mg/L)	**7.0**	6.9	7.8	Action Level	Action taken / to be taken: Possible reason: Remarks / Other Obs:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition Since the natural flow during the ebb tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD9 and not related to the project work. Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X125	25-Dec-10	Mid-flood	WSD9	SS (mg/L)	**10.0**	6.9	7.8	Limit Level	Action taken / to be taken: Possible reason: Remarks / Other Obs:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition It is concluded that the source of impact was due to natural variation or change around WSD9 and not related to the project work. Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X126	25-Dec-10	Mid-ebb	WSD9	SS (mg/L)	**7.5**	6.9	7.8	Action Level	Action taken / to be taken: Possible reason: Remarks / Other Obs:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition Since the natural flow during the ebb tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD9 and not related to the project work. Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.

Summary for Notification of Exceedance

Ref no.	Date	Tidal	Location	Parameters (Unit)	Average	Action Level	Limit Level	Level of Exceedance	Follow-up action	
X127	28-Dec-10	Mid-flood	WSD17	SS (mg/L)	**12.5**	9.5	13.7	Action Level	Action taken / to be taken:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition
									Possible reason:	Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD17 and not related to the project work.
									Remarks / Other Obs:	Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.
X128	30-Dec-10	Mid-flood	WSD17	SS (mg/L)	**10.0**	9.5	13.7	Action Level	Action taken / to be taken:	Silt screen was inspected and confirmed in a proper condition during the water monitoring; Potential source of impact was recorded; no sign of traceable source was identified; Checked monitoring data; Contractor's dredging rate was complied with EP's condition
									Possible reason:	Since the natural flow during the flood tide indicated that the source of impact was located at the upstream of the project site, it is concluded that the source of impact was due to natural variation or change around WSD17 and not related to the project work.
									Remarks / Other Obs:	Conclude as non-dredging related impact and hence no further mitigation nor repeated measurement under the EAP is required.

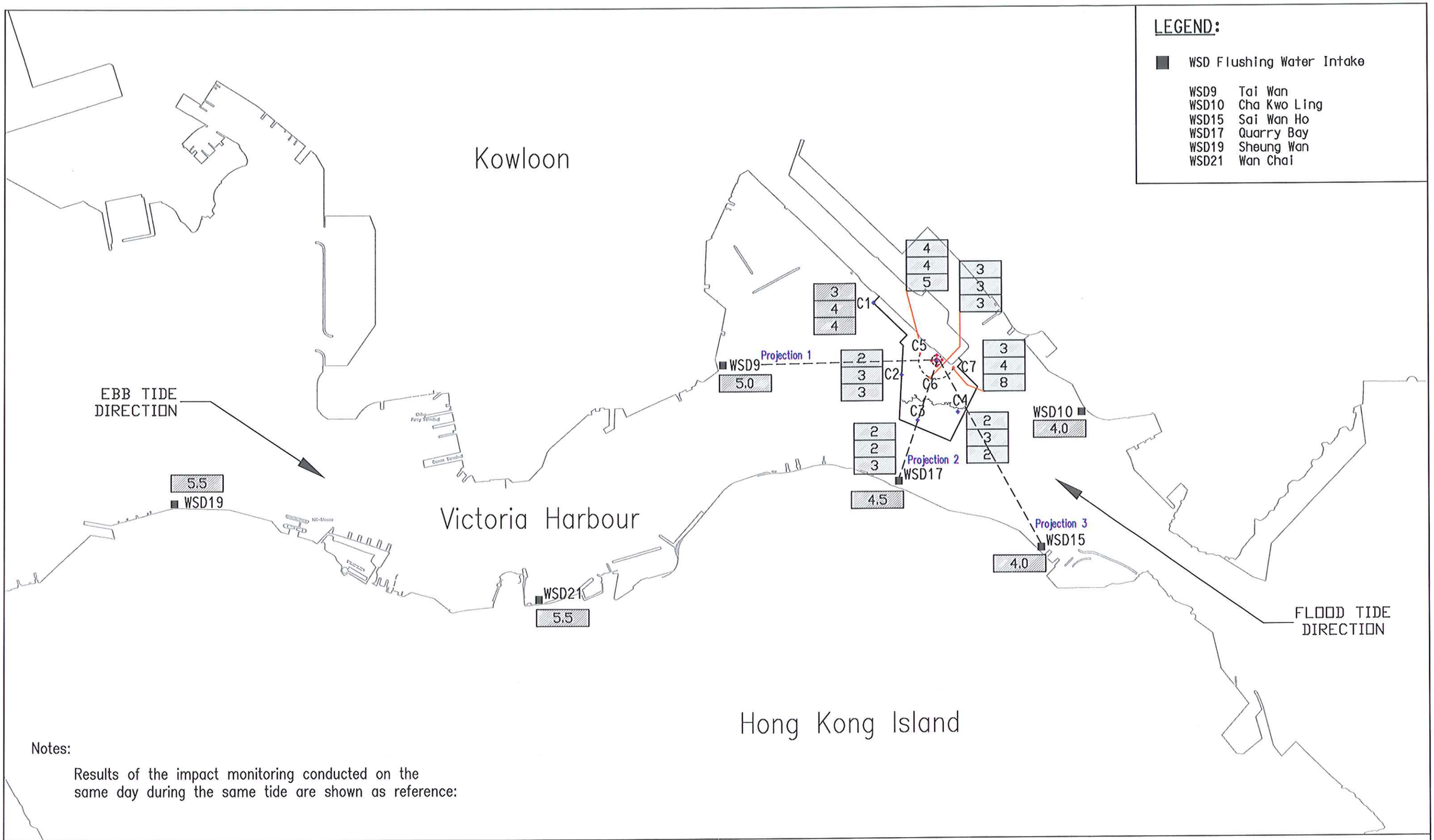
Appendix 6.1

Water Quality Surveillance Data and Graphical Presentation

Water Quality Surveillance System Monitoring Results - 3 December 2010 (Ebb Tide)

Monitoring Location		Turbidity in NTU	Compare to Trigger Level	Suspended Solids in mg/L	Compare to Trigger Level
SP1	Surface	4.88	N/A	8	N/A
	Middle	5.13	N/A	10	N/A
	Bottom	4.28	N/A	6	N/A
MP1	Surface	3.64	N/A	6	N/A
	Middle	4.47	N/A	7	N/A
	Bottom	3.64	N/A	6	N/A
MP2	Surface	2.22	N/A	3	N/A
	Middle	4.47	N/A	3	N/A
	Bottom	3.64	N/A	5	N/A
MP3	Surface	3.97	N/A	4	N/A
	Middle	2.78	N/A	3	N/A
	Bottom	3.04	N/A	4	N/A
MP4	Surface	2.99	N/A	4	N/A
	Middle	4.66	N/A	6	N/A
	Bottom	4.15	N/A	5	N/A
C1	Surface	2.93	N/A	3	N/A
	Middle	2.74	N/A	4	N/A
	Bottom	3.54	N/A	4	N/A
C2	Surface	2.26	N/A	<2	N/A
	Middle	3.25	N/A	3	N/A
	Bottom	3.34	N/A	3	N/A
C3	Surface	2.50	Lower	2	Lower
	Middle	2.40	Lower	2	Lower
	Bottom	2.48	Lower	3	Lower
C4	Surface	1.95	Lower	<2	Lower
	Middle	3.01	Lower	3	Lower
	Bottom	2.66	Lower	2	Lower
C5	Surface	2.87	N/A	4	N/A
	Middle	3.56	N/A	4	N/A
	Bottom	4.10	N/A	5	N/A
C6	Surface	3.40	N/A	3	N/A
	Middle	2.45	N/A	3	N/A
	Bottom	2.26	N/A	3	N/A
C7	Surface	2.90	N/A	3	N/A
	Middle	4.32	N/A	4	N/A
	Bottom	3.50	N/A	8	N/A

Control Point	Trigger Level for Turbidity in NTU for All Season	Trigger Level for SS in mg/L for Dry Season
C1	12.3 for Flood Tide	12.7 for Flood Tide
C2	12.3 for Flood Tide	13.8 for Flood Tide
C3	16.9	13.7
C4	10.5 for Ebb Tide	15.7 for Ebb Tide



Notes:

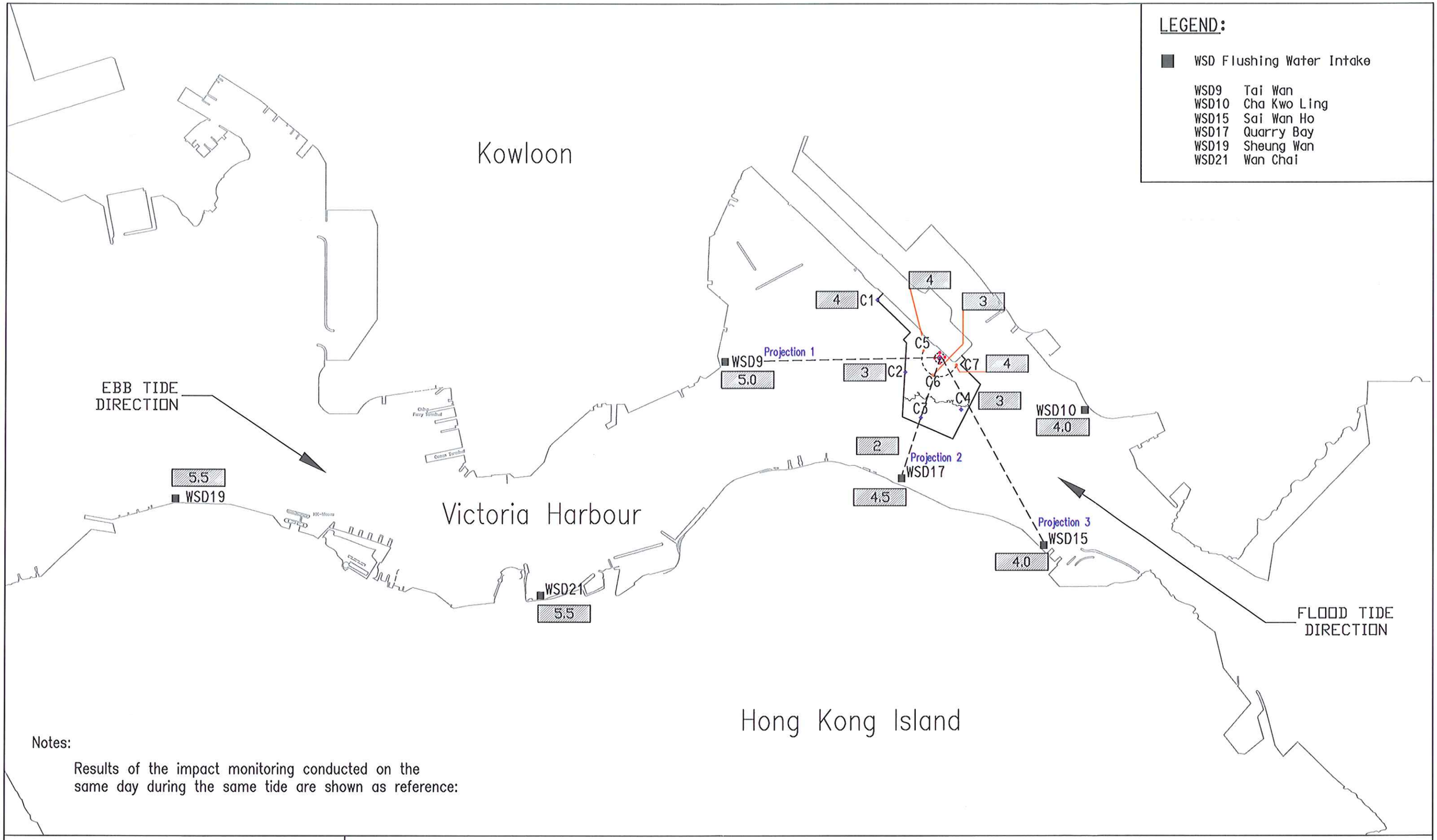
Results of the impact monitoring conducted on the same day during the same tide are shown as reference:

PENTA-OCEAN CONSTRUCTION CO., LTD. 五洋建設

PROJECT
KL/2009/01 Site Formation for Kai Tak Cruise Terminal Development

TITLE
WATER QUALITY SURVEILLANCE SYSTEM – (3 DEC 2010 EBB) – Page 1

DATE	PREPARED BY
28-Dec-10	PY
SCALE: NOT TO SCALE	SKETCH No.: SK-0419



Notes:

Results of the impact monitoring conducted on the same day during the same tide are shown as reference:

PENTA-OCEAN CONSTRUCTION CO., LTD. 五洋建設

PROJECT
KL/2009/01 Site Formation for Kai Tak Cruise Terminal Development

TITLE
WATER QUALITY SURVEILLANCE SYSTEM – (3 DEC 2010 EBB) – Page 2

DATE	PREPARED BY
28–Dec–10	PY
SCALE: NOT TO SCALE	SKETCH No.: SK–0421

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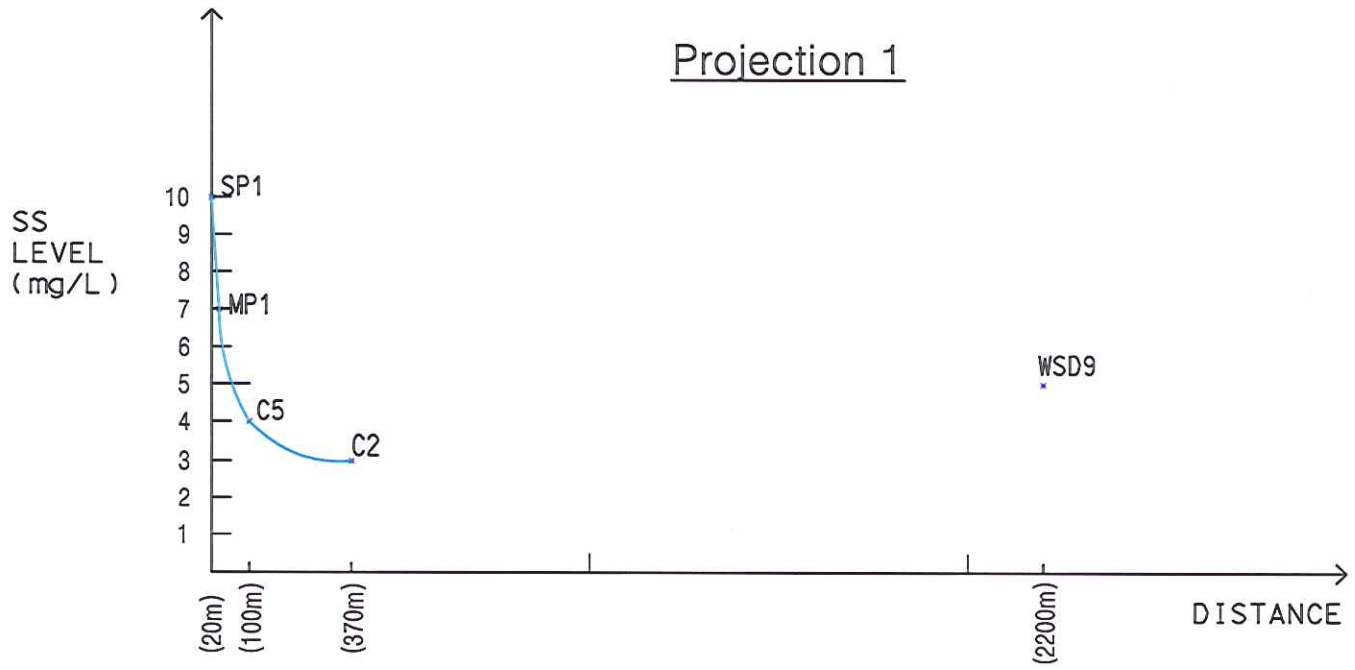
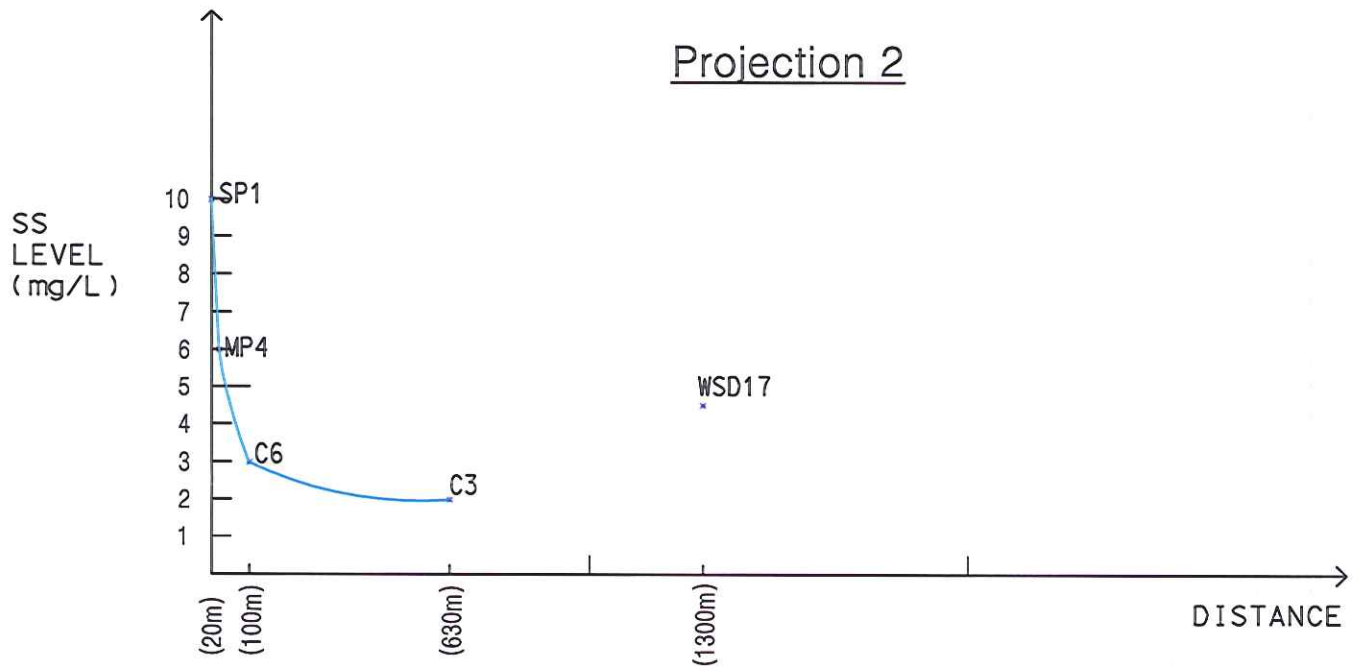
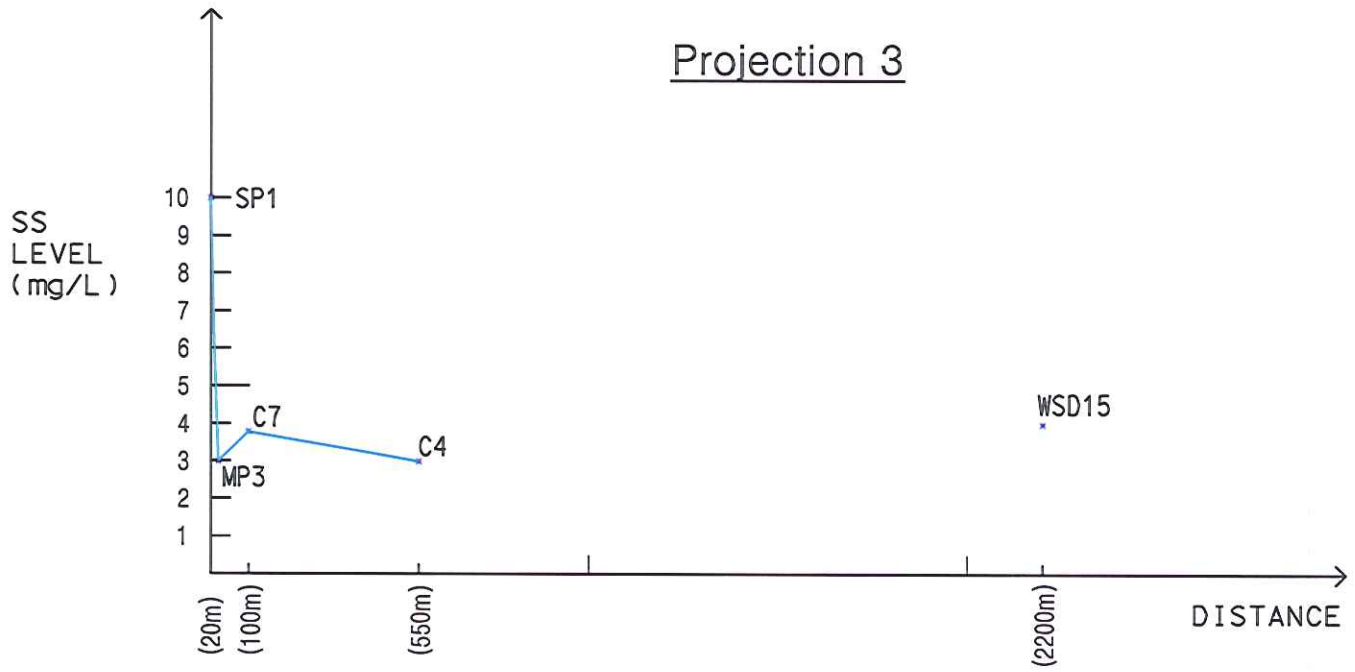


Projection 2



Projection 3



PROJECT

KL/2009/01 Site Formation for Kai Tak Cruise Terminal Development

PENTA-OCEAN CONSTRUCTION CO., LTD. 五洋建設

TITLE

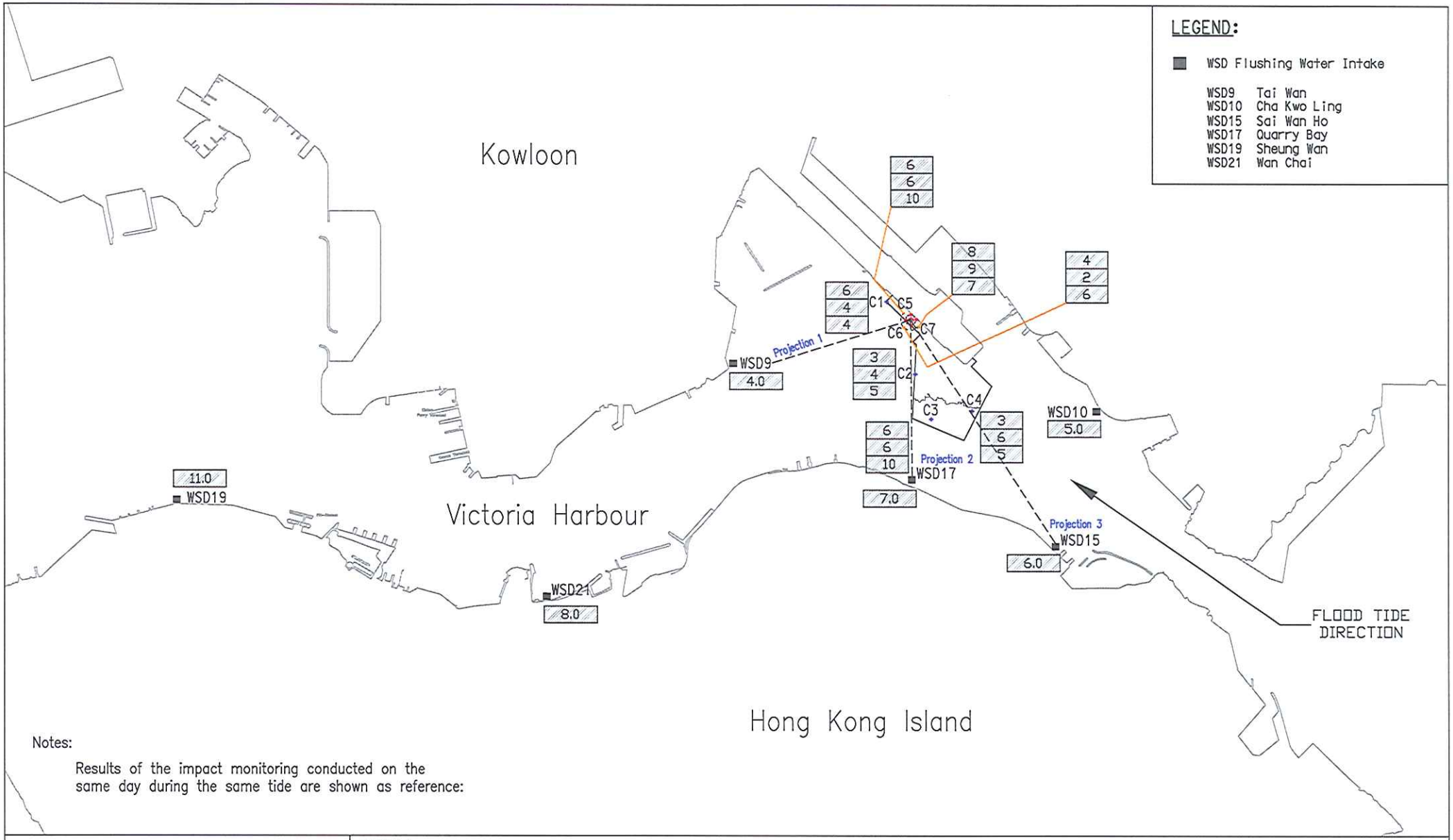
GRAPHICAL PRESENTATION OF THE WATER QUALITY SURVEILLANCE SYSTEM MONITORING RESULTS – (3 DEC 2010. EBB)

DATE	PREPARED BY
28–Dec–10	PY
SCALE	SKETCH No.
NOT TO SCALE	SK–0420

Water Quality Surveillance System Monitoring Results - 20 December 2010 (Flood Tide)

Monitoring Location		Turbidity in NTU	Compare to Trigger Level	Suspended Solids in mg/L	Compare to Trigger Level
SP1	Surface	2.68	N/A	7	N/A
	Middle	2.76	N/A	3	N/A
	Bottom	13.0	N/A	25	N/A
MP1	Surface	2.42	N/A	3	N/A
	Middle	2.59	N/A	4	N/A
	Bottom	2.63	N/A	5	N/A
MP2	Surface	2.04	N/A	3	N/A
	Middle	2.28	N/A	3	N/A
	Bottom	2.20	N/A	2	N/A
MP3	Surface	3.27	N/A	7	N/A
	Middle	2.61	N/A	6	N/A
	Bottom	2.78	N/A	9	N/A
MP4	Surface	2.27	N/A	8	N/A
	Middle	2.20	N/A	4	N/A
	Bottom	7.80	N/A	15	N/A
C1	Surface	2.24	Lower	6	Lower
	Middle	1.77	Lower	4	Lower
	Bottom	2.20	Lower	4	Lower
C2	Surface	2.33	Lower	3	Lower
	Middle	2.27	Lower	4	Lower
	Bottom	2.04	Lower	5	Lower
C3	Surface	2.08	Lower	6	Lower
	Middle	2.03	Lower	6	Lower
	Bottom	2.98	Lower	10	Lower
C4	Surface	1.35	N/A	3	N/A
	Middle	2.72	N/A	6	N/A
	Bottom	2.40	N/A	5	N/A
C5	Surface	2.17	N/A	6	N/A
	Middle	3.27	N/A	6	N/A
	Bottom	4.39	N/A	10	N/A
C6	Surface	1.81	N/A	4	N/A
	Middle	2.00	N/A	2	N/A
	Bottom	1.73	N/A	6	N/A
C7	Surface	4.40	N/A	8	N/A
	Middle	2.76	N/A	9	N/A
	Bottom	4.58	N/A	7	N/A

Control Point	Trigger Level for Turbidity in NTU for All Season	Trigger Level for SS in mg/L for Dry Season
C1	12.3 for Flood Tide	12.7 for Flood Tide
C2	12.3 for Flood Tide	13.8 for Flood Tide
C3	16.9	13.7
C4	10.5 for Ebb Tide	15.7 for Ebb Tide



Notes:

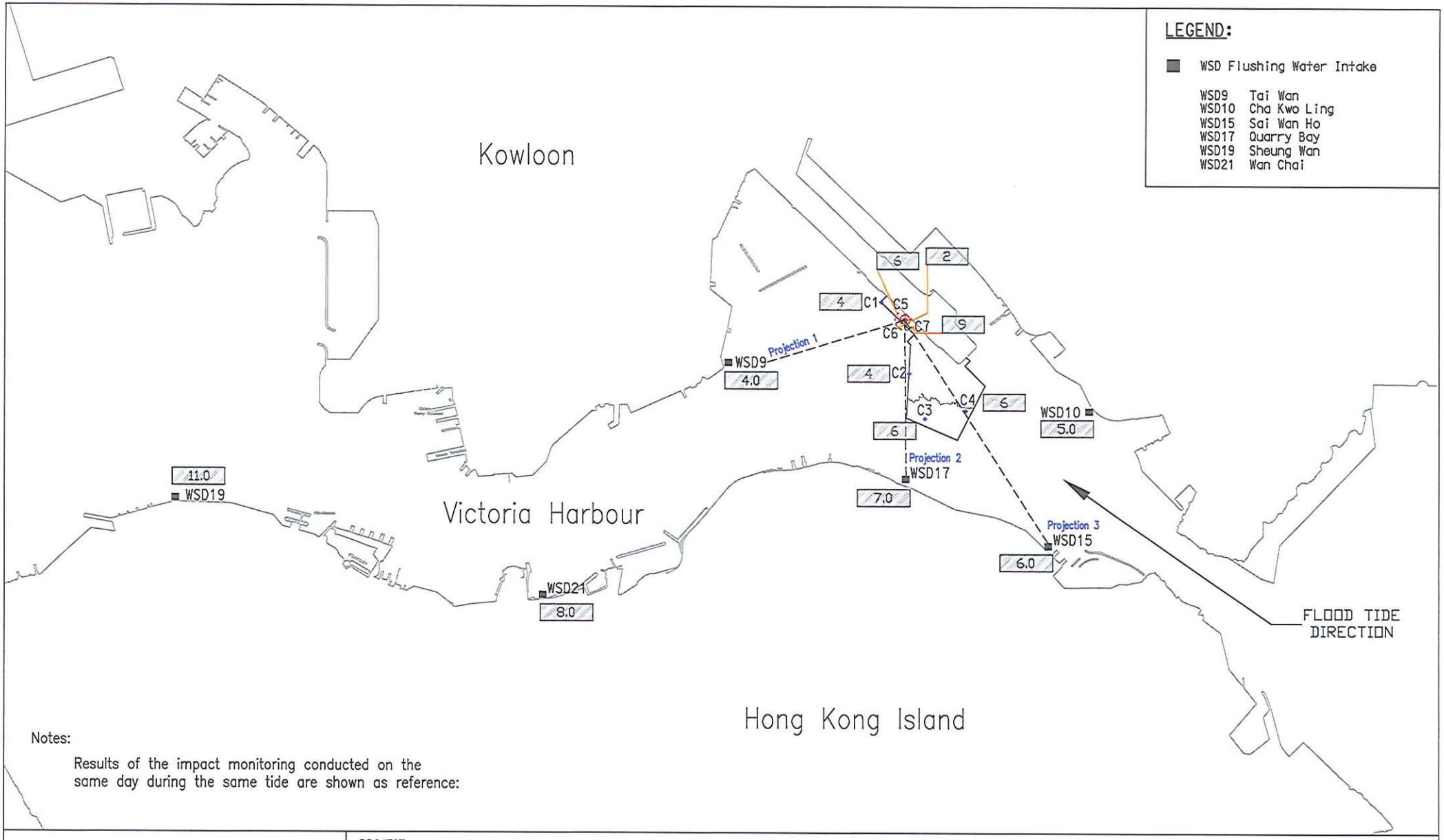
Results of the impact monitoring conducted on the same day during the same tide are shown as reference:

PENTA-OCEAN CONSTRUCTION CO., LTD. 五洋建設

PROJECT
KL/2009/01 Site Formation for Kai Tak Cruise Terminal Development

TITLE
WATER QUALITY SURVEILLANCE SYSTEM – (20 DEC 2010 FLOOD) – Page 1

DATE	PREPARED BY
4-Jan-11	PY
SCALE	SKETCH No.
NOT TO SCALE	SK-0423



Notes:

Results of the impact monitoring conducted on the same day during the same tide are shown as reference:

PENTA-OCEAN CONSTRUCTION CO., LTD. 五洋建設

PROJECT
KL/2009/01 Site Formation for Kai Tak Cruise Terminal Development

TITLE
WATER QUALITY SURVEILLANCE SYSTEM – (20 DEC 2010 FLOOD) – Page 2

DATE	PREPARED BY
4-Jan-11	PY
SCALE	SKETCH No.
NOT TO SCALE	SK-0424

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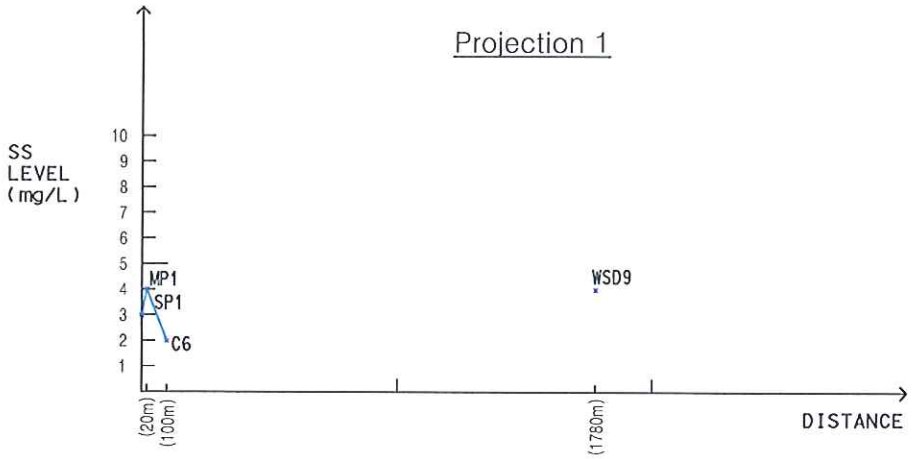

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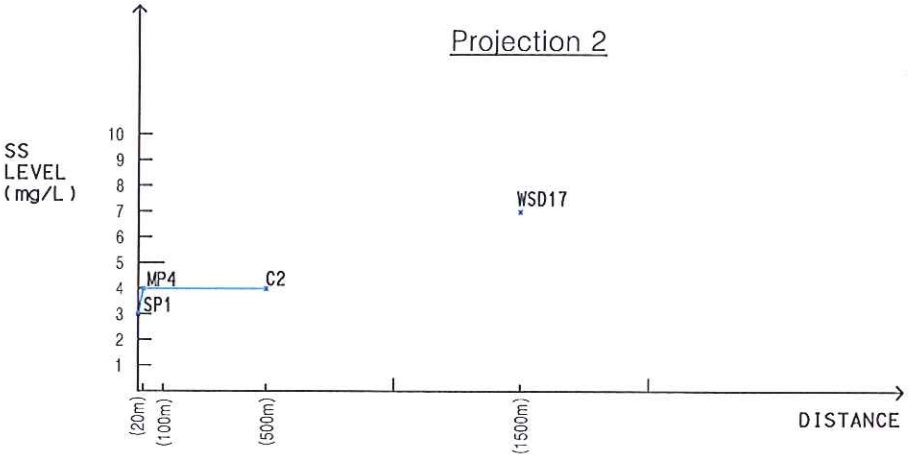
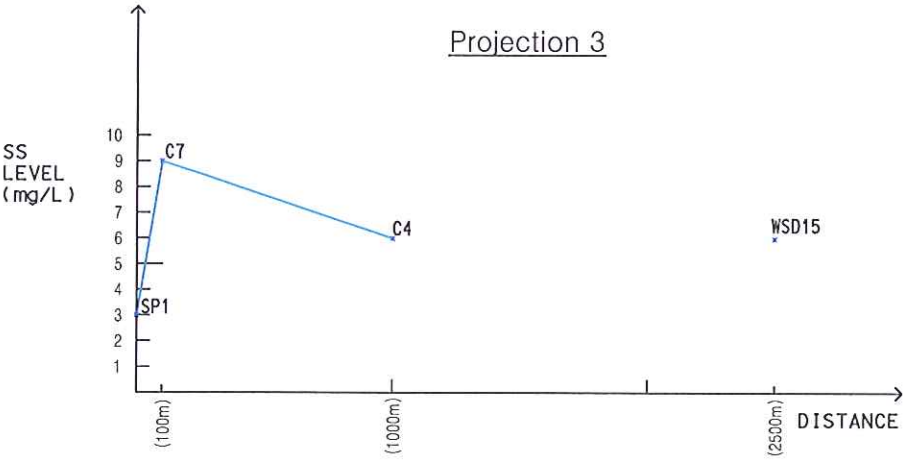


Projection 3

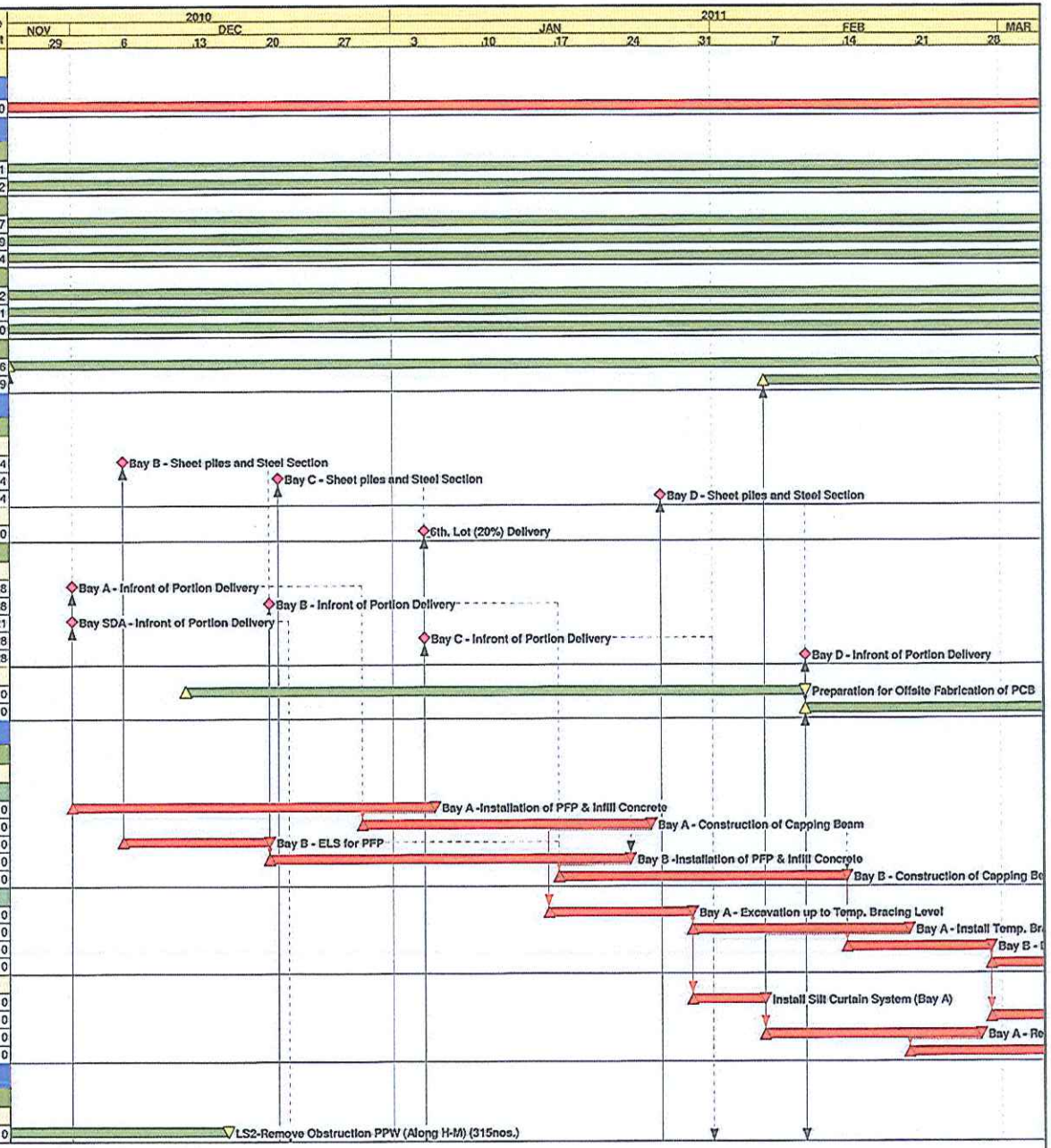


PROJECT	KL/2009/01 Site Formation for Kai Tak Cruise Terminal Development		
PENTA-OCEAN CONSTRUCTION CO., LTD. 五洋建設	TITLE: GRAPHICAL PRESENTATION OF THE WATER QUALITY SURVEILLANCE SYSTEM MONITORING RESULTS – (20 DEC 2010 FLOOD)	DATE: 4-Jan11	PREPARED BY: PY
		SCALE: NOT TO SCALE	SKETCH No.: SK-0425

Appendix 9.0

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								
PD1100	Contract Period	1,486	30/11/09*	30/11/09*	24/12/13	24/12/13	0	0
Preliminaries & General Requirements								
Temporary Accommodation								
TA1060	Servicing of Temp Accommodation for the Engineer	1,406	28/01/10	18/02/10	03/12/13	24/12/13	21	21
TA1070	Maintenance of Traffic Flow	1,344	28/02/10	21/04/10	02/11/13	24/12/13	52	52
Environmental and Site Safety Monitoring								
ES1050	Monthly Update of SSP & EMP	1,422	07/12/09	02/02/10	28/10/13	24/12/13	57	57
ES1110	Impact Monitoring for Water Quality	1,380	05/02/10	16/03/10	15/11/13	24/12/13	39	39
ES1125	Maintenance of Silt Screen at WSD Intakes	1,380	31/01/10	16/03/10	10/11/13	24/12/13	44	44
Mobilization & Site Clearance								
MP1020	Routine Site Cleanliness and Tidiness	1,484	30/11/09	02/12/09	22/12/13	24/12/13	2	2
MP1060	Disposal of Surplus C&D Material	695	10/03/10	30/01/12	02/02/12	24/12/13	691	691
MP1070	Primary Sorting of C&D Material	1,200	26/03/10	12/09/10	07/07/13	24/12/13	170	0
Sorting of C&D Material								
SM1000	Bay SDA - Sorting and Mixing C&D Material	100	25/11/10	08/04/11	04/03/11	16/07/11	134	116
SM1010	Bay A - Sorting and Mixing C&D Material	100	06/02/11	25/02/11	18/05/11	04/06/11	19	19
Preparatory Works								
Procurement of Material								
Procurement of Material for Temporary Work								
PW.1.1010	Bay B - Sheet piles and Steel Section	0	06/12/10	20/12/10			14	14
PW.1.1015	Bay C - Sheet piles and Steel Section	0	21/12/10	27/02/11			68	14
PW.1.1020	Bay D - Sheet piles and Steel Section	0	27/01/11	01/04/11			64	14
Procurement of Material for Permanent Work								
PW.1.2080	6th. Lot (20%) Delivery	0	04/01/11	18/09/11			257	0
Production of Precast Units								
Precast Front Panel (PFP) along PipePile Wall								
PW.2.1020	Bay A - Infront of Portion Delivery	0	01/12/10	29/12/10			28	28
PW.2.1030	Bay B - Infront of Portion Delivery	0	20/12/10	17/01/11			28	28
PW.2.1050	Bay SDA - Infront of Portion Delivery	0	01/12/10	09/01/11			39	21
PW.2.1060	Bay C - Infront of Portion Delivery	0	04/01/11	27/03/11			82	28
PW.2.1065	Bay D - Infront of Portion Delivery	0	10/02/11	29/04/11			78	28
Precast Concrete Block (PCB) for Seawall								
PW.3.1000	Preparation for Offsite Fabrication of PCB	60	12/12/10	02/03/12	09/02/11	30/04/12	446	0
PW.3.1010	Portion SDA	56	10/02/11	18/06/12	06/04/11	12/08/12	494	0
Section 1 - Portion MQ1								
Portion MQ1 (Bays A - B)								
Piling Work								
Installation of PFP (Precast Front Panels)								
SW.1.2410	Bay A -Installation of PFP & Infill Concrete	35	01/12/10	01/12/10	04/01/11	04/01/11	0	0
SW.1.2420	Bay A - Construction of Capping Beam	28	29/12/10	29/12/10	25/01/11	25/01/11	0	0
SW.1.2430	Bay B - ELS for PFP	14	06/12/10	06/12/10	19/12/10	19/12/10	0	0
SW.1.2440	Bay B -Installation of PFP & Infill Concrete	35	20/12/10	20/12/10	23/01/11	23/01/11	0	0
SW.1.2460	Bay B - Construction of Capping Beam	28	17/01/11	17/01/11	13/02/11	13/02/11	0	0
Temp. Piling Bracing								
SW.1.2600	Bay A - Excavation up to Temp. Bracing Level	14	16/01/11	16/01/11	29/01/11	29/01/11	0	0
SW.1.2610	Bay A - Install Temp. Bracing & Supportings	21	30/01/11	30/01/11	19/02/11	19/02/11	0	0
SW.1.2620	Bay B - Excavation up to Temp. Bracing Level	14	14/02/11	14/02/11	27/02/11	27/02/11	0	0
SW.1.2630	Bay B - Install Temp. Bracing & Supportings	21	28/02/11	28/02/11	20/03/11	20/03/11	0	0
Dredging Work & Removal of Existing Seawall								
SW.1.2900	Install Silt Curtain System (Bay A)	7	30/01/11	30/01/11	05/02/11	05/02/11	0	0
SW.1.2910	Install Silt Curtain System (Bay B)	7	28/02/11	28/02/11	06/03/11	06/03/11	0	0
SW.1.3000	Bay A - Remove Existing Seawall Armour (4500m3)	21	06/02/11	06/02/11	26/02/11	26/02/11	0	0
SW.1.3010	Bay A-Remove Existing Seawall Rockfill (16500m3)	35	20/02/11	20/02/11	26/03/11	26/03/11	0	0
Section 2 - Portions MQ2, LS1, LS2, SDA & DZA								
Portion MQ2 (Bays C - G), LS1 & LS2								
Piling Work (Bays C - G, LS1 & LS2)								
SW.2.1030	LS2-Remove Obstruction PPW (Along H-M) (315nos.)	147	22/07/10	16/10/10	15/12/10	11/03/11	86	0



PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

Early Bar
Progress Bar
Critical Activity

KTWP

Sheet 1 of 3

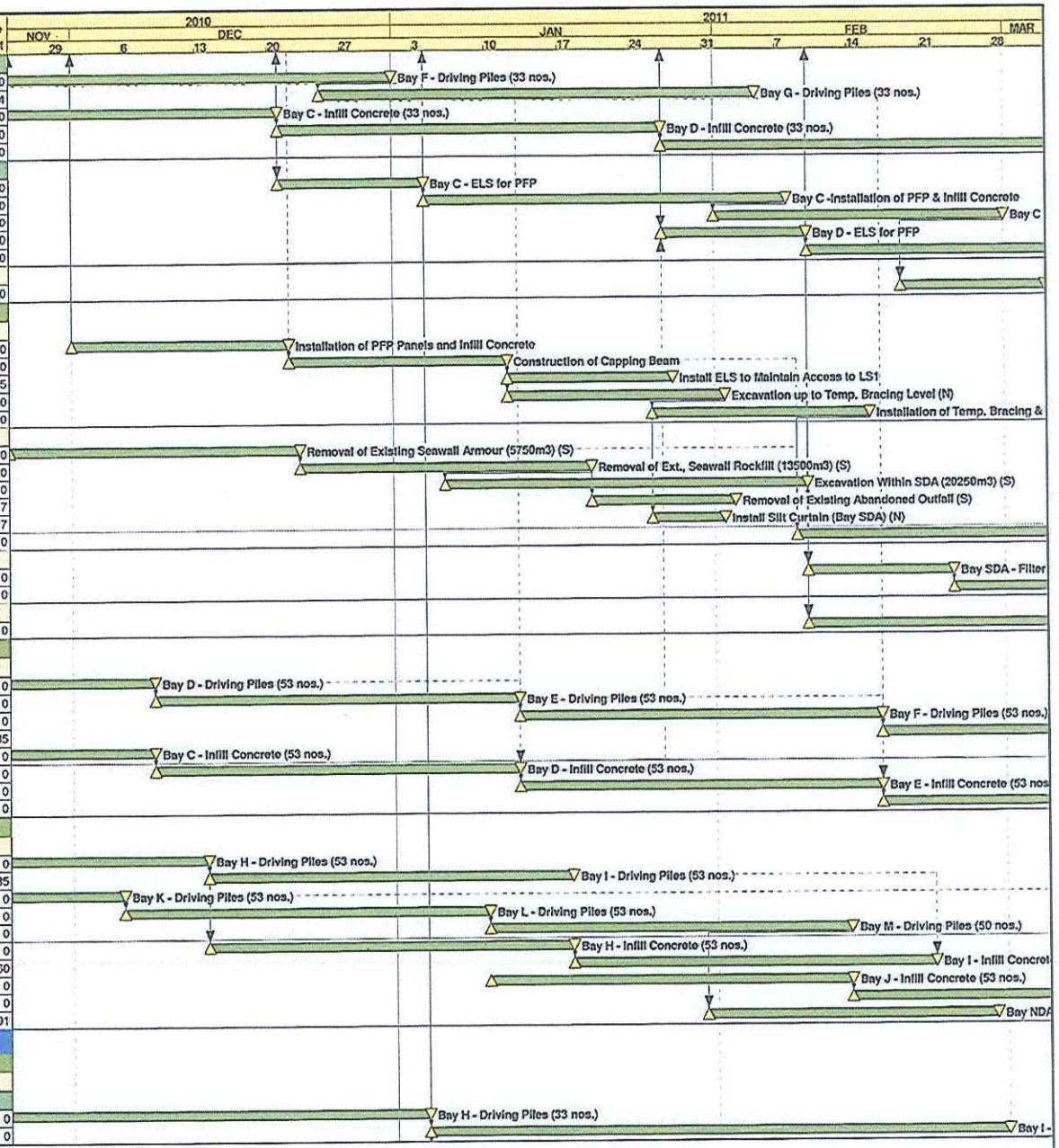
Penta-Ocean Construction Co., Ltd.

CEDD Contract No. KL/2009/01
Site Formation for Kai Tak Cruise Terminal Development
Three Months Rolling Programme (Dec 2010- Feb 2011)

Start Date	30/11/09
Finish Date	24/12/13
Data Date	30/11/09
Run Date	02/12/10 13:48

Date	Revision	Checked	Approved
02/12/10	J	TM	WT

Activity ID	Activity Description	Orig Dur	Early Start	Late Start	Early Finish	Late Finish	Total Float	Free Float
Pipe Pile for Quay Structure								
SW.2.1250	Bay F - Driving Piles (33 nos.)	42	20/11/10	27/02/11	31/12/10	09/04/11	99	0
SW.2.1260	Bay G - Driving Piles (33 nos.)	42	25/12/10	03/04/11	04/02/11	14/05/11	99	54
SW.2.1290	Bay C - Infill Concrete (33 nos.)	67	15/10/10*	05/11/10	20/12/10	10/01/11	21	0
SW.2.1300	Bay D - Infill Concrete (33 nos.)	37	21/12/10	11/01/11	26/01/11	16/02/11	21	0
SW.2.1310	Bay E - Infill Concrete (33 nos.)	41	27/01/11	17/02/11	08/03/11	29/03/11	21	0
Precast Front Panels (PFP) & Capping Beam								
SW.2.1500	Bay C - ELS for PFP	14	21/12/10	13/02/11	03/01/11	26/02/11	54	0
SW.2.1505	Bay C -Installation of PFP & Infill Concrete	35	04/01/11	27/02/11	07/02/11	02/04/11	54	0
SW.2.1515	Bay C - Construction of Capping Beam	28	01/02/11	27/03/11	28/02/11	23/04/11	54	0
SW.2.1520	Bay D - ELS for PFP	14	27/01/11	18/03/11	09/02/11	31/03/11	50	0
SW.2.1525	Bay D -Installation of PFP & Infill Concrete	35	10/02/11	01/04/11	16/03/11	05/05/11	50	0
Temp. Piling Bracing								
SW.2.2500	Bay C - Excavate Down to Bracing Level	14	19/02/11	14/04/11	04/03/11	27/04/11	54	0
Portion SDA (Bay SDA)								
Precast Front Panel (PFP) & Temp. Piling Bracing								
SW.21.2010	Installation of PFP Panels and Infill Concrete	21	01/12/10	19/12/10	21/12/10	08/01/11	18	0
SW.21.2020	Construction of Capping Beam	21	22/12/10	09/01/11	11/01/11	29/01/11	18	0
SW.21.2045	Install ELS to Maintain Access to LS1	14	12/01/11	11/02/11	27/01/11	26/02/11	20	5
SW.21.2050	Excavation up to Temp. Bracing Level (N)	21	12/01/11	30/01/11	01/02/11	19/02/11	18	0
SW.21.2060	Installation of Temp. Bracing & Supporting (N)	21	26/01/11	13/02/11	15/02/11	05/03/11	18	0
Dredging Work & Removal of Existing Seawall								
SW.21.3000	Removal of Existing Seawall Armour (5750m3) (S)	28	25/11/10	30/01/11	22/12/10	26/02/11	68	0
SW.21.3010	Removal of Ext., Seawall Rockfill (13500m3) (S)	28	23/12/10	26/03/12	19/01/11	22/04/12	459	0
SW.21.3020	Excavation Within SDA (20250m3) (S)	35	06/01/11	09/04/12	09/02/11	13/05/12	459	0
SW.21.3030	Removal of Existing Abandoned Outfall (S)	14	20/01/11	30/04/12	02/02/11	13/05/12	466	7
SW.21.3039	Install Silt Curtain (Bay SDA) (N)	7	26/01/11	20/02/11	01/02/11	26/02/11	25	7
SW.21.3040	Removal of Existing Seawall Armour (5750m3) (N)	28	09/02/11	27/02/11	08/03/11	26/03/11	18	0
New Seawall Construction								
SW.21.4000	Bay SDA - Filter 1 (2750m3) (S)	14	10/02/11	16/10/13	23/02/11	29/10/13	979	0
SW.21.4010	Bay SDA - Filter 2 (6250m3) (S)	28	24/02/11	30/10/13	23/03/11	28/11/13	979	0
Concret Block Seawall								
SW.21.7000	Filters Under Seawall Blocks (SB2-SB3)	35	10/02/11	14/05/12	16/03/11	17/06/12	459	0
Portion LS1								
Pipe Pile Wall								
SW.23.520	Bay D - Driving Piles (53 nos.)	35	04/11/10	19/12/10	08/12/10	22/01/11	45	0
SW.23.525	Bay E - Driving Piles (53 nos.)	35	09/12/10	23/01/11	12/01/11	26/02/11	45	0
SW.23.530	Bay F - Driving Piles (53 nos.)	35	13/01/11	27/02/11	16/02/11	02/04/11	45	0
SW.23.535	Bay G - Driving Piles (53 nos.)	35	17/02/11	03/04/11	23/03/11	07/05/11	45	35
SW.23.565	Bay C - Infill Concrete (53 nos.)	35	04/11/10	14/11/10	08/12/10	18/12/10	10	0
SW.23.575	Bay D - Infill Concrete (53 nos.)	35	09/12/10	19/12/10	12/01/11	22/01/11	10	0
SW.23.585	Bay E - Infill Concrete (53 nos.)	35	13/01/11	23/01/11	16/02/11	26/02/11	10	0
SW.23.590	Bay F - Infill Concrete (53 nos.)	35	17/02/11	27/02/11	23/03/11	02/04/11	10	0
Portion LS2								
Pipe Pile Wall								
SW.24.500	Bay H - Driving Piles (53 nos.)	35	09/11/10	28/04/11	13/12/10	01/06/11	170	0
SW.24.505	Bay I - Driving Piles (53 nos.)	35	14/12/10	07/07/11	17/01/11	10/08/11	205	35
SW.24.515	Bay K - Driving Piles (53 nos.)	35	01/11/10	09/10/11	05/12/10	12/11/11	342	0
SW.24.520	Bay L - Driving Piles (53 nos.)	35	06/12/10	17/11/11	09/01/11	21/12/11	346	0
SW.24.525	Bay M - Driving Piles (50 nos.)	35	10/01/11	25/12/11	13/02/11	28/01/12	349	0
SW.24.530	Bay H - Infill Concrete (53 nos.)	35	14/12/10	02/08/11	17/01/11	06/07/11	170	0
SW.24.535	Bay I - Infill Concrete (53 nos.)	35	18/01/11	07/07/11	21/02/11	10/08/11	170	160
SW.24.540	Bay J - Infill Concrete (53 nos.)	35	10/01/11	31/08/11	13/02/11	04/10/11	233	0
SW.24.545	Bay K - Infill Concrete (53 nos.)	35	14/02/11	09/10/11	20/03/11	12/11/11	237	0
SW.24.560	Bay NDA - Driving Piles (22 nos.)	28	31/01/11	25/03/12	27/02/11	21/04/12	419	91
Section 3 - Portion MQ3								
Portion MQ3 (Bays H - I)								
Piling Work								
Pipe Pile for Quay Structure								
SW.3.1500	Bay H - Driving Piles (33 nos.)	56	09/11/10	03/02/11	03/01/11	30/03/11	86	0
SW.3.1505	Bay I - Driving Piles (33 nos.)	56	04/01/11	10/05/11	28/02/11	04/07/11	126	0



PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

Early Bar
Progress Bar
Critical Activity

KTWP

Sheet 2 of 3

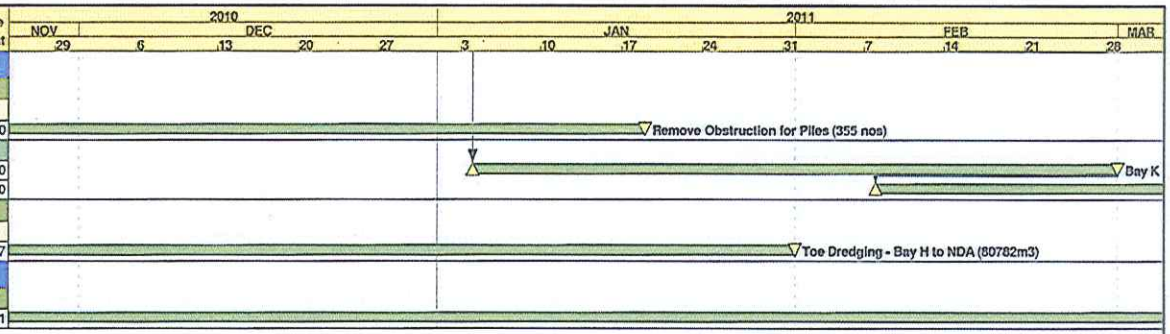
Penta-Ocean Construction Co., Ltd.

CEDD Contract No. KL/2009/01
Site Formation for Kai Tak Cruise Terminal Development
Three Months Rolling Programme (Dec 2010- Feb 2011)

Start Date	30/11/09
Finish Date	24/12/13
Data Date	30/11/09
Run Date	02/12/10 13:48

Date	Revision	Checked	Approved
02/12/10	J	TM	WT

Activity ID	Activity Description	Orig Dur	Early Start	Late Start	Early Finish	Late Finish	Total Float	Free Float
Section 4 - Portions MQ4, LS3, NDA & DZB								
Portion MQ4 (Bays J - M) & LS3								
Piling Work (Bays J-M & LS3)								
SW.4.1010	Remove Obstruction for Piles (355 nos)	180	23/07/10	13/03/11	18/01/11	08/09/11	233	0
Pipe Pile for Quay Structure								
SW.4.1205	Bay K - Driving Piles (33 nos.)	56	04/01/11	18/09/11	28/02/11	12/11/11	257	0
SW.4.1210	Bay L - Driving Piles (33 nos.)	56	08/02/11	27/10/11	04/04/11	21/12/11	261	0
Portion DZB								
Dredging Work								
SW.42.1020	Toe Dredging - Bay H to NDA (80782m3)	77	16/11/10	06/10/11	31/01/11	21/12/11	324	277
Section 5 - Portion CA3, CA5B & WA1A								
Transplanting and Tree Preservation								
LS1030	Preservation & Protection of Existing Trees	1,300	03/05/10	04/05/10	22/11/13	23/11/13	1	1



PENTA-OCEAN CONSTRUCTION CO., LTD. 五洋建設

Early Bar
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Sheet 3 of 3

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