

東業德勤測試顧問有限公司  
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong  
Tel : 2695 8318 E-mail : etl@ets-testconsult.com  
Fax : 2695 3944 Web site : www.ets-testconsult.com

**TEST REPORT**

**WO HING – PENTA-OCEAN JOINT VENTURE**

**CONTRACT NO. 9/WSD/08  
LAYING OF WESTERN CROSS  
HARBOUR MAIN AND ASSOCIATED  
LAND MAINS FROM WEST KOWLOON  
TO SAI YING PUN**

**QUARTERLY EM&A SUMMARY REPORT  
NO.5**

**(FROM MAY TO JULY 2011)**

Prepared by:

LAW, Sau Yee  
Senior Environmental Officer

Checked by:

LAU, Chi Leung  
Environmental Team Leader

Issue Date: 16 August 2011

Report No.: ENA10804

ENVIRON

Ref.: WSDWHCMSEI00\_0\_0183L.11

25<sup>th</sup> Aug, 2011

Water Supplies Department  
Sha Tin Office  
6/F Sha Tin Government Offices  
1 Sheung Wo Che Road  
Sha Tin, NT

By Post

Attention: Ms. Candy Wong

Dear Ms. Wong

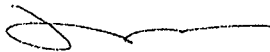
Re: **Contact No. 9/WSD/08**  
**Laying of Western Cross Harbour Main and Associated Land Mains from West Kowloon to Sai Ying Pun**  
**Quarterly Environmental Monitoring and Audit Report No. 5**  
**(for May – Jul 2011)**

Reference is made to Environment Team's submission of the Quarterly Environmental Monitoring and Audit Report No. 5 by Email on 16<sup>th</sup> Aug 2011 (entitled "9/WSD/08 - Draft Quarterly Report (May to July 11)") and the subsequent revision of the report by Email on 25<sup>th</sup> Aug 2011.

We are pleased to inform you that we have no comment on the revised captioned report.

Thank you very much for your kind attention and please do not hesitate to contact the undersigned should you have any queries.

Yours sincerely,



David Yeung  
Independent Environmental Checker

c.c.	Mott MacDonald Hong Kong Limited	Mr. Kelvin Ho	Fax: 2377 2900
	Wo Hing – Penta-Ocean Joint Venture	Mr. Danny Ho	Fax: 2572 4080
	ETS-TESTCONSULT LIMITED	Mr. C.L. Lau	Fax: 2695 3944

Q:\Projects\WSDWHCMSEI00\Corr\Out\WSDWHCMSEI00\_0\_0183L.11.doc

<b>TABLE OF CONTENTS</b>		<b>Page</b>
<b>EXECUTIVE SUMMARY</b>		
<b>1.0</b>	<b>INTRODUCTION</b>	1
<b>2.0</b>	<b>PROJECT INFORMATION</b>	
	2.1 Scope of the Project	1
	2.2 Work Programme	1
	2.3 Project Organization and Management Structure	1
	2.4 Contact Details of Key Personnel	1
<b>3.0</b>	<b>SUMMARY OF EM&amp;A REQUIREMENTS</b>	
	3.1 EM&A Programme	2
	3.2 Monitoring Stations and Parameters	2
	3.3 Monitoring Methodology and Calibration Details	2
	3.4 Environmental Quality Performance Limits (Action/Limit Levels)	2
	3.5 Environmental Mitigation Measures	2
<b>4.0</b>	<b>MONITORING RESULTS</b>	
	4.1 Noise	2 – 3
	4.2 Marine Water Quality	3 – 4
<b>5.0</b>	<b>INSPECTION RESULTS</b>	
	5.1 Inspection Results	4
	5.2 Status of Environmental Licensing and Permitting	4 – 5
	5.3 Advice on Solids and Liquid Waste Management Status	6
<b>6.0</b>	<b>NON-COMPLIANCE OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS</b>	
	6.1 Summary of Non-compliance	6
	6.2 Review of the Reasons for and the implication of non-compliance	6
	6.3 Summary of Action Taken	7
	6.4 Summary of Environmental Complaint, Notification of Summons and Successful	7
<b>7.0</b>	<b>COMMENTS, CONCLUSIONS AND RECOMMENDATION</b>	7 – 8

#### **APPENDIX**

A	Organization Chart and Lines of Communication
B	Graphical Plots of Impact Noise Monitoring Data
C	Graphical Plots of Impact Marine Water Quality Monitoring Data
D	Environmental Quality Performance (Action / Limit Levels)
E	Event-Action Plans
F	Work Programme
G	Implementation Schedule of Environmental Mitigation Measures (EMIS)
H	Statistical Analysis of the Monitoring Parameters between Quarterly Mean and Ambient Mean
I	Site General Layout Plan

#### **Figures**

Figure 1	Location of Noise Monitoring Station at West Kowloon
Figure 2	Location of Noise Monitoring Stations at Sai Yung Pun
Figure 3	Locations of Water Quality Monitoring Stations
Figure 1.2a	Locations of Water Sensitive Receivers and stormwater outfalls at Western Harbour
Figure 1.2b	Locations of Noise Sensitive Receivers at Sai Ying Pun
Figure 1.2c	Locations of Noise Sensitive Receivers at West Kowloon



## **Tables**

- 2.1 Contact Details of Key Personnel
- 4.1 Summary of Impact Monitoring results of Impact Noise Monitoring
- 4.2 Total Number of Marine Water Quality Exceedances in the Quarter
- 4.3 Summary of statistical analysis between Quality Mean and 1.3 times of Ambient Mean
- 5.1 Summary of Environmental Licensing and Permit Status
- 5.2 Summary of Waste Disposal in this Quarter
- 6.1 Summary of Environmental Complaints and Prosecutions



### **EXECUTIVE SUMMARY**

This is the fifth Quarterly Environmental Monitoring and Audit (EM&A) Summary Report prepared by ETS-Testconsult Ltd (ET) for the "Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Main from West Kowloon to Sai Ying Pun" (the Project) under the requirements of "Environmental Monitoring & Audit Manual – Agreement No. CE42/2005(W) Laying of Western Cross Harbour Main and Associated Land Main from West Kowloon to Sai Ying Pun" (the EM&A Manual).

This report documents the findings of EM&A Works conducted during the Project from May to July 2011.

#### **Site Activities**

As informed by the Contractor, the site activities in this reporting quarter were as below:

May 2011	Grouting works behind the existing vertical seawall (Portion J); Drilling of pipe pile (Portion H1 & H2); Preparation works for pipe pulling (Portion H1, H2 & J); Laying of the 18 mm dia. pilot wire (Portion J); Pulling of the 38 mm dia. pilot wire and 76 mm pulling wire from West Kowloon to Sai Ying Pun (Portion J) Pulling of the submarine pipe from West Kowloon to Sai Ying Pun (Portion J); Erection of noise barrier for concrete truck mixer (Portion H1 & H2); Transfer the stored pipes to the flattop pontoon (Portion I); and Pipe pulling works, including welding of the field joint, apply external coating, install steel wire mesh, install steel jacket to the field joint, concrete coating of the field joint, internal lining of the field welded joint and pipe pulling (Portion I).
June 2011	Pipe pulling by bottom pull method from West Kowloon to Sai Ying Pun (Portion J); Erection of noise barriers (Portion H2); Transfer the stored pipes to the flattop pontoon (Portion I); and Pipe pulling works, including welding of the field joint, apply external coating, install steel wire mesh, install steel jacket to the field joint, concrete coating of the field joint, internal lining of the field welded joint and pipe pulling (Portion I).
July 2011	Pipe pulling by bottom pull method from West Kowloon to Sai Ying Pun (Portion J); Dismantle of the kentledge system of the turn roller "A" (Portion J); Erection of the kentledge system of the dry well (Portion J); Dismantle of the back anchor (Portion J); Erection of noise barriers (Portion H2); Transfer the stored pipes to the flattop pontoon (Portion I); Fabrication of steel waling for strutting system of the cofferdam (Portion H1 & H2); Site clearance after bottom of pull of the pipeline; and Pipe pulling works, including welding of the field joint, apply external coating, install steel wire mesh, install steel jacket to the field joint, concrete coating of the field joint, internal lining of the field welded joint and pipe pulling (Portion I); Excavation within cofferdam in West Kowloon (Portion I); and Installation of strutting system for the cofferdam in West Kowloon (Portion I).

#### **Environmental Monitoring Works**

##### **Noise Monitoring**

No exceedances of Action Level of noise monitoring were recorded in this quarter since no complaint on noise issue was received.

In this quarter, totally six exceedances in Limit Level were recorded according to the results from night-time noise monitoring. However, all of the exceedances were considered to be invalid (not project related) and no further actions were required. Interim notifications of exceedance (NOEs) for all exceedances were issued to EPD, ER, IEC and the Contractor by ET.

##### **Marine Water Quality Monitoring**

Marine water quality monitoring was conducted in accordance with the EM&A Manual.

According to the summary of marine water monitoring results, no exceedances of Action and Limit Level were recorded in this quarter.



**Environmental Complaints, Notification of summons and successful prosecutions**

One complaint received on 23 June 2011 was forwarded by the Engineer's Representatives on 08 July 2011 through internet from a citizen against urinating into the sea from the Launching Barge which caused by site workers. The complainant complained that that caused an environmental nuisance. Refer to the ET weekly site inspection on 08 July 2011, the Contractor had provided portable chemical toilet and warning notice on the Launching Barge. As a result, it concluded that the situation was noted improved. Complaint Investigation report of this event has been prepared and submit to RE, IEC and Contractor by ET.

No notification of summons and prosecutions with respect to environmental issues were received in this quarter.

## 1.0 INTRODUCTION

Wo Hing – Penta-Ocean Joint Venture (WHPOJV) appointed Environmental Team of ETS-Testconsult Limited (ETL) to undertake the Environmental Impact Monitoring for “Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Main from West Kowloon to Sai Ying Pun” (the Project) under the requirements of the “Environmental Monitoring & Audit Manual – Agreement No. CE42/2005(W.S) Laying of Western Cross Harbour Main and Associated Land Main from West Kowloon to Sai Ying Pun” (the EM&A Manual) of the approved EIA report (Registration No. AEIAR-109/2007) in accordance with the Environmental Permit (No.: EP-273/2007) (the EP).

This quarterly report documented the findings of EM&A Works conducted during the impact monitoring from May to July 2011.

## 2.0 PROJECT INFORMATION

### 2.1 Scope of the Project

The construction works of the Project are located in West Kowloon, across the Victoria Harbour and in Sai Ying Pun.

The construction works under this Project are briefly described, without limitation, as follow:

- Laying of about 1.5km of 1200mm diameter steel fresh water mains at West Kowloon;
- Laying of about 2.1km of 1200mm diameter steel submarine pipeline from West Kowloon to Sai Ying Pun including dredging, cathodic protection system and other associated works;
- Laying of about 0.4km of 1200mm diameter steel fresh water main at Sai Ying Pun;
- Laying of about 0.5km of 800mm diameter steel salt water main at West Kowloon;
- Construction of motorized butterfly valve (MBV) and the associated facilities in the vicinity of Sun Yat Sen Memorial Park at Sai Ying Pun;
- Construction of all chambers associated with pipeworks;
- Making service connections;
- Ancillary works including but not limited to reinstatement of roads, landscaping works.

Areas of the Project present in Appendix H. Locations of environmental monitoring stations and sensitive receivers are shown in Figures 1, 2, 3, 1.2a, 1.2b and 1.2c

### 2.2 Work Programme

Details of work programme are shown in Appendix F.

### 2.3 Project Organization and Management Structure

The organization chart and lines of communication with respect to the on-site environmental management and monitoring program are shown in Appendix A.

### 2.4 Contact Details of Key Personnel

The key personnel contact names and telephone numbers are shown in Table 2.1.

Table 2.1 Contact Details of Key Personnel

Project Role	Organization	Name of Key Staff	Tel. No.	Fax No.
Engineer's Representative	Mott MacDonald	Mr. Kelvin HO	2377 2823	2377 2900
IEC	Environ	Mr David Yeung	3743 0788	3548 6988
Contractor's Agent	WHPOJV	Mr. Danny HO	2695 8318	2957 8213
ET Leader	ET (ETL)	Mr C. L. Lau	2946 7791	2695 3944

The proponents' contact and hotline telephone number for the Public to make enquiries by the Contractor is Mr. Peter Yung (Telephone No.: 61137660).



### **3.0 SUMMARY OF EM&A REQUIREMENTS**

#### **3.1 EM&A Programme**

The EM&A programme required environmental monitoring for noise, marine water quality and environmental site inspections for air quality, noise, marine water quality and waste management. The EM&A requirements for each parameter described in the following sections include:

- *All monitoring parameters;*
- *Action and Limit levels for all environmental parameters;*
- *Event/Action Plans;*
- *Environmental mitigation measures, as recommended in the Project EIA report; and*
- *Environmental requirements in contract documents.*

The advice on implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 4 of the Report.

#### **3.2 Monitoring Stations and Parameters**

The EM&A Manual designates several locations to monitor environmental impacts in terms of noise and marine water quality due to the Project. The description and detailed locations of monitoring stations for noise and marine water quality are shown in Figures 1, 2 and 3 and relevant sections of this Report.

#### **3.3 Monitoring Methodology and Calibration Details**

All monitoring works were conducted and monitoring equipment was calibrated in according with the EM&A Manual and the manufacturer's instruction.

#### **3.4 Environmental Quality Performance Limits (Action/Limit Levels)**

The environmental quality performance limits, i.e. Action/Limit Levels (AL Levels) were derived from the baseline monitoring results. If the measured environmental quality parameters exceed the AL Levels, the respective action plan will be implemented. The AL Levels for each monitoring parameter are given in Appendix D. The event action plan is given in Appendix E.

#### **3.5 Environmental Mitigation Measures**

Relevant mitigation measures were recommended in the EM&A Manual for the Contractor to implement. A list of mitigation measures is given in Appendix G.

### **4.0 MONITORING RESULTS**

#### **4.1 Noise**

As the requirement in the EM&A Manual, impact noise monitoring was conducted for a weekly basis in four different time periods, day-time, evening-time, night-time and holiday-time, at designated monitoring locations. The noise levels in the past three months are plotted in Appendix B.

In this quarter, the impact noise monitoring was carried out weekly in the absence of fog, rain, storm, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s. As a result, all impact noise monitoring data was considered to be unaffected by the weather condition.

In this quarter, totally six exceedances in Limit Level were recorded according to the results from night-time noise monitoring. After ET investigation, all of the exceedances were considered to be invalid (not project related) and hence no further actions were required. Interim notifications of exceedance (NOEs) for all exceedances were issued to EPD, ER, IEC and the Contractor by ET.



Table 4.1 presents the summary of impact noise monitoring results in the reporting quarter.

Table 4.1 Summary of Impact Monitoring results of Impact Noise Monitoring in the Quarter

<i>Exceedance Level</i>	<i>Daytime</i>	<i>Evening-time</i>	<i>Night-time</i>	<i>Holiday-time</i>
<i>Action (May 2011)</i>	0	0	0	0
<i>Action (June 2011)</i>	0	0	0	0
<i>Action (July 2011)</i>	0	0	0	0
<i>Cumulative</i>	0	0	0	0
<i>Limit (May 2011)</i>	0	0	0	0
<i>Limit (June 2011)</i>	0	0	6	0
<i>Limit (July 2011)</i>	0	0	0	0
<i>Cumulative</i>	0	0	155	0

In this quarter, the major noise source at KS6 was from local traffic along West Kowloon Highway and human activities from the Element. Besides, local traffic along Connaught Road West and Western Harbour Crossing and human activities was also the major noise source at KY3, RWM and CGa.

#### 4.2 Marine Water Quality

In accordance with the EM&A Manual, the marine water quality monitoring was conducted at four control stations and nine impact monitoring stations in the reporting quarter. Impact marine water quality monitoring was conducted three days per week. Measurements were taken at both mid-ebb and mid-flood tides at three depths (i.e. 1m below surface, mid depth and 1m above seabed). The AL Levels are included in Appendix D.

Table 4.2 presents the total number of marine water quality exceedances in the reporting quarter. The trend of marine water quality in the past three months is depicted in Appendix C.

Table 4.2 Total Number of Marine Water Quality Exceedances in the Quarter

<i>Parameter</i>	<i>Exceedance Level</i>	<i>May 2011</i>	<i>June 2011</i>	<i>July 2011</i>
<i>Dissolved Oxygen, DO</i>	<i>Action</i>	0	0	0
	<i>Limit</i>	0	0	0
	<i>Total</i>	0	0	0
<i>Turbidity (Depth-average)</i>	<i>Action</i>	0	0	0
	<i>Limit</i>	0	0	0
	<i>Total</i>	0	0	0
<i>Suspended Solids, SS (Depth-average)</i>	<i>Action</i>	0	0	0
	<i>Limit</i>	0	0	0
	<i>Total</i>	0	0	0
<i>Cumulative Exceedances</i>	<i>Action</i>	0	0	0
	<i>Limit</i>	0	0	0
	<i>Total</i>	0	0	0

A comparison between the quarterly mean of impact stations (including WSD Seawater Intakes R15 and other eight Impact Stations R5, R6, R7, R8a, R16, R17, R28 and R29) and the 1.3 times of the ambient mean (e.g. 130% of Baseline Mean) of impact stations was made for Dissolved Oxygen, Turbidity and Suspended Solids.

The statistical analysis results are given in Appendix H and it shows that there is no significant difference ( $p > 0.05$ ) between the quarterly mean and 1.3 times of ambient mean on Dissolved Oxygen, Turbidity and Suspended Solids. Table 4.3 summarizes the statistical analysis between quarterly mean and 1.3 times of ambient mean on Dissolved Oxygen, Turbidity and Suspended Solids.

Table 4.3 Summary of statistical analysis between Quality Mean and 1.3 times of Ambient Mean

Parameter	Groups involved	P-value	Significant Difference between quarterly mean and 1.3 times of ambient mean (Y or N)
DO (Surface, Middle and Bottom)	Quarterly mean and 1.3 times of ambient mean	1	N
SS	Quarterly mean and 1.3 times of ambient mean	1	N
Turbidity	Quarterly mean and 1.3 times of ambient mean	1	N

## 5.0 INSPECTION RESULTS

### 5.1 Implementation Status of Environmental Mitigation Measures

ET conducted weekly site inspections to monitor the Contractor's implementation of environmental mitigation measures. After each site inspection, the Contractor was notified of ET's observations and recommendations. A site inspection checklist detailing the environmental observations was prepared by ET and the Contractor then completed this plan to propose/report their remedial works. A summary of implementation status of mitigation measures on site inspections is presented in Appendix G

### 5.2 Status of Environmental Licensing and Permitting

The status of licences and permits is summarized in Table 5.1.

Table 5.1 Summary of Environmental Licensing and Permit Status

Description	Permit No.	Valid Period		Remarks
		From	To	
Environmental Permit	EP-273/2007	31/07/07	End of Project	Whole Project
Water Discharge Licence (West Kowloon)	WT0000534 7-2009	07/01/10	31/01/15	Effluent and all other wastewater arising from the construction site through Screen & Sedimentation Tank
Water Discharge Licence (Sai Yung Pun)	WT0000580 0-2010	14/01/10	31/01/15	Effluent arising from the construction site through Sedimentation Tank
Chemical Waste Producer	5213-217-W3086-01	13/10/09	End of Project	Spent oil, surplus flammable liquid, surplus paint, soil, rags & containers contaminated with lubricating oil, diesel, flammable liquid & paint, & used batteries
Notification under APCO	Application had been submitted to EPD on 25/09/09 and approved from 29/09/09.			

Description	Permit No.	Valid Period		Remarks
		From	To	
Construction Noise Permit (West Kowloon)	GW-RE0257-11	19/04/11	04/10/11	<p><b>Group A</b> One Air Compressor, air flow <math>\leq 10\text{m}^3/\text{min}</math> (CNP 001) (Zone A) One Crane, mobile (diesel) (CNP 048) (Zone A) One Generator, silenced, <math>\leq 75\text{dB(A)}</math> at 7m (Zone A) One Generator, standard (CNP 101) (Zone B)</p> <p><b>Group B</b> One Concrete lorry mixer (CNP 044) (Zone A) One Crane, mobile (diesel) (CNP 048) (Zone A) One Air compressor, air flow <math>\leq 10\text{m}^3/\text{min}</math> (CNP 001) (Zone B) Two Crane, mobile (diesel) (CNP 048) (Zone B) One Derrick barge (CNP 061) (Zone B) Four Generator, silenced, <math>\leq 75\text{dB(A)}</math> at 7m (Zone B) Six Grinder, hand-held (electric) (CNP065) (Zone B) Two Guard boats (Zone B) Two Poker, vibratory, external (electric) (Zone B) One Tug boat (CNP 221) (Zone B)</p> <p><b>Group C</b> One Generator, silenced, <math>\leq 75\text{dB(A)}</math> at 7m (Zone A) One Air compressor, air flow <math>\leq 10\text{m}^3/\text{min}</math> (CNP 001) (Zone B) One Grinder, hand-held (electric) (CNP065) (Zone B) One Generator, silenced, <math>\leq 75\text{dB(A)}</math> at 7m (Zone B)</p> <p><b>Group D</b> One Derrick barge (CNP 061) (Zone B) One dredger, grab (CNP 063) (Zone B) One Generator, standard (CNP 101) (Zone B) Two Guard boats (Zone B) One Tug boat (CNP 221) (Zone B)</p>
Construction Noise Permit (Sai Ying Pun)	GW-RS0352-11	26/04/11	10/10/11	<p><b>Group A</b> One dredger, grab (CNP 063) Two Guard boats One Tug boats (CNP 221) One Hopper barge One Air compressor with Noise Emission Label showing a sound power level of <math>\leq 98\text{dB(A)}</math> One Generator, silenced, <math>108\text{dB(A)}</math> (CNP 101) One Derrick barge (CNP 061)</p> <p><b>Group B</b> One Crane, mobile (diesel) (CNP 048) One Air compressor with Noise Emission Label showing a sound power level of <math>\leq 98\text{dB(A)}</math> One Generator, silenced, <math>108\text{dB(A)}</math> (CNP 101)</p> <p><b>Group C</b> Two Derrick barge (CNP 061) Three Guard boats One Tug boat (CNP 221) One Air compressor with Noise Emission Label showing a sound power level of <math>\leq 98\text{dB(A)}</math> Two Generator, silenced, <math>108\text{dB(A)}</math> (CNP 101)</p> <p><b>Group D</b> One Derrick barge (CNP 061) Two Guard boats One Tug boat (CNP 221) One Crane, mobile (diesel) (CNP 048) One Air compressor with Noise Emission Label showing a sound power level of <math>\leq 98\text{dB(A)}</math> One Generator, silenced, <math>108\text{dB(A)}</math> (CNP 101)</p> <p><b>Group E</b> One Derrick barge (CNP 061) Two Guard boats One Tug boat (CNP 221) One Crane, mobile (diesel) (CNP 048) Two Generator, silenced, <math>108\text{dB(A)}</math> (CNP 101) One Winch (electric) (CNP 262)</p> <p><b>Group F</b> One Air compressor with Noise Emission Label showing a sound power level of <math>\leq 98\text{dB(A)}</math> One Generator, silenced, <math>108\text{dB(A)}</math> (CNP 101)</p>



### 5.3 Advice on Solids and Liquid Waste Management Status

Summary of waste disposal in this quarter is present in Table 5.2.

Table 5.2 Summary of Waste Disposal in this Quarter

Type of Waste		Quantity	Disposal Location	Cumulative Quantity
Inert C&D Materials	Total Quantity Generated (in m <sup>3</sup> )	1378.34		14185.10
	Broken Concrete (in m <sup>3</sup> )	0	---	0
	Reused in the Contract (in m <sup>3</sup> )	0	---	0
	Reused in other Projects (in m <sup>3</sup> )	0	---	0
	Disposal as Public Fill (in m <sup>3</sup> )	1378.34	SENT Landfill	14185.10
C&D Waste	Metals (in kg)	0	---	0
	Paper/Cardboard Packaging (in kg)	13	Collected by recycling company	117
	Plastics (in kg)	0	---	0
	Chemical Waste (in kg)	0	---	0
	Other, e.g. General Refuse (in m <sup>3</sup> )	12.72	SENT Landfill	85.46
Dredged Materials	Type 1 (in m <sup>3</sup> )	0	East Ninepin Mud Disposal Ground	160500
	Type 2 (in m <sup>3</sup> )	0	The East Sha Chau	104990

The Contractor should provide sufficient preventive measures during equipment maintenance works so as to avoid oil leakage on the ground. In the event of any oil leakage, the Contractor should clean up the polluted soil and handle all the materials used for this cleaning works as chemical waste.

Besides, pre-cast drip trays were provided for oil drums at several areas, such as barge and chemical storage area. The Contractor should collect and dispose of any stagnant water accumulated in the drip trays and handle them as chemical waste.

The Contractor should use suitable containers with proper labels to store chemical wastes in accordance with Code of Practice on the Packaging, Labeling and Storage of Chemical Waste. The Contractor should also advise their workers of the proper procedures in handling the chemical waste. All the trip tickets for chemical waste disposal were properly kept in the site office. No chemical waste disposal was undertaken in the reporting quarter.

The Contractor was reminded to increase the frequency of inspection and cleaning of the site drainage system, including desilting facilities. Moreover, the Contractor should apply approved pesticides in the stagnant water.

## 6.0 NON-COMPLIANCE OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

### 6.1 Summary of Non-compliance

No exceedances of Action and Limit Level of marine water quality monitoring results were recorded in this quarter.

No exceedances of Action Level of noise monitoring were recorded in this reporting quarter since no complaint on noise issue was received.

Totally six exceedances in Limit Level were recorded according to the results from night-time noise monitoring in this quarter.

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

Refer to Interim notifications of exceedance (NOEs) by ET, all exceedances of night-time noise monitoring recorded in this quarter were due to the noise from local traffic and human activities near the noise monitoring stations and considered to be invalid (not project related).



### 6.3 Summary of Actions Taken

Since all exceedances of night-time noise monitoring were considered to be invalid (not project related), no further actions were required.

### 6.4 Summary of Environmental Complaint, Notifications of Summons and Successful Prosecutions Handling

One complaint received on 23 June 2011 was forwarded by the Engineer's Representatives on 08 July 2011 through internet from a citizen against urinating into the sea from the Launching Barge which caused by site workers. The complainant complained that that caused an environmental nuisance. Refer to the ET weekly site inspection on 08 July 2011, the Contractor had provided portable chemical toilet and warning notice on the Launching Barge. As a result, it concluded that the situation was noted improved. Complaint Investigation report of this event has been prepared and submit to RE, IEC and Contractor by ET.

No notification of summon or successful prosecution was received. A summary of environmental complaints and prosecutions was given in Table 6.1.

Table 6.1 Summary of Environmental Complaints and Prosecutions

<i>Period</i>	<i>Complaints logged</i>	<i>Summon served</i>	<i>Successful Prosecution</i>
<i>May 2011</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>June 2011</i>	<i>1</i>	<i>0</i>	<i>0</i>
<i>July 2011</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Cumulative</i>	<i>1</i>	<i>0</i>	<i>0</i>

## 7.0 COMMENTS, CONCLUSIONS AND RECOMMENDATION

Impact monitoring of noise and water quality were carried out at designated locations in accordance with the EM&A Manual in this reporting quarter.

According to the ET weekly site inspections carried out in this quarter, the Contractor generally implemented sufficient environmental mitigation measures.

In this quarter, totally six exceedances in Limit Level were recorded according to the results from night-time noise monitoring. However, all of the exceedances were considered to be invalid (not project related) and no further actions were required.

No exceedances of Action Level of noise monitoring were recorded in this reporting quarter since no complaint on noise issue was received.

No exceedances of Action and Limit Level of water quality monitoring results were recorded during the reporting quarter.

One complaint received on 23 June 2011 was forwarded by the Engineer's Representatives on 08 July 2011 through internet from a citizen against urinating into the sea from the Launching Barge which caused by site workers. The complainant complained that that caused an environmental nuisance. Refer to the ET weekly site inspection on 08 July 2011, the Contractor had provided portable chemical toilet and warning notice on the Launching Barge. As a result, it concluded that the situation was noted improved.

No prosecution or notifications of summons was received in this reporting month.

According to the environmental site inspections performed in this quarter, the following recommendations were provided:

#### **Air Quality**

- Ensure the frequency of water spraying on unloading areas and stockpiles to be sufficient to suppress the dust sources;
- Provide proper maintenance for the powered mechanical equipment and barges to avoid emission of dark smoke; and
- Implement the dust mitigation measures for the site activities.



**Noise**

- Conduct noisy activities at a farther location from the NSRs.

**Water Quality**

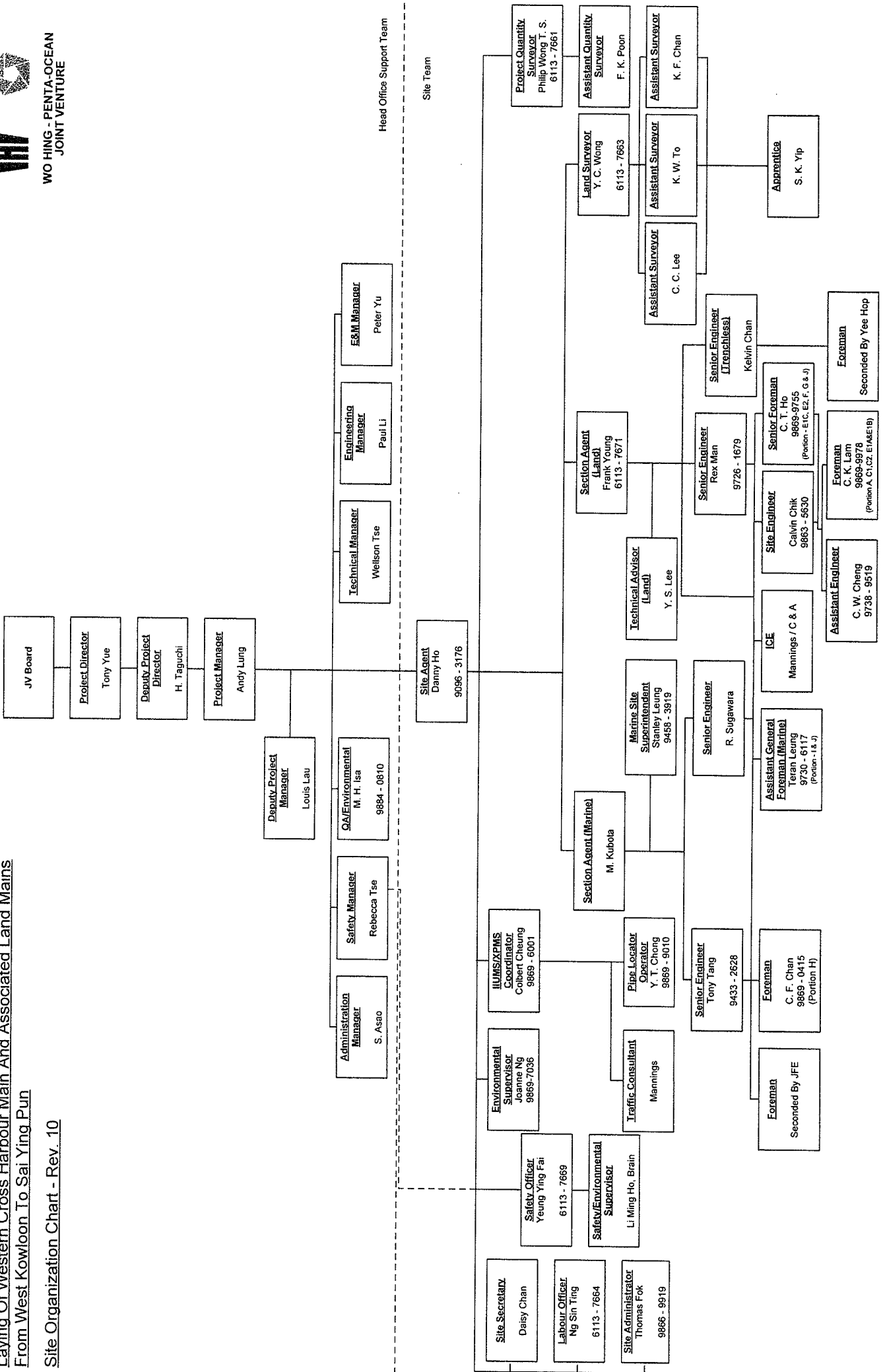
- Maintain the drainage system regularly;
- Operate and maintain the silt curtains and silt screen regularly;
- Operate the cleaning vessel regularly;
- Provide proper treatment for the wastewater discharge;
- Clean up the fill material on the barge frequently; and
- Remove the stagnant water or provide approved pesticides for the stagnant water, if any.

**Chemical and Waste Management**

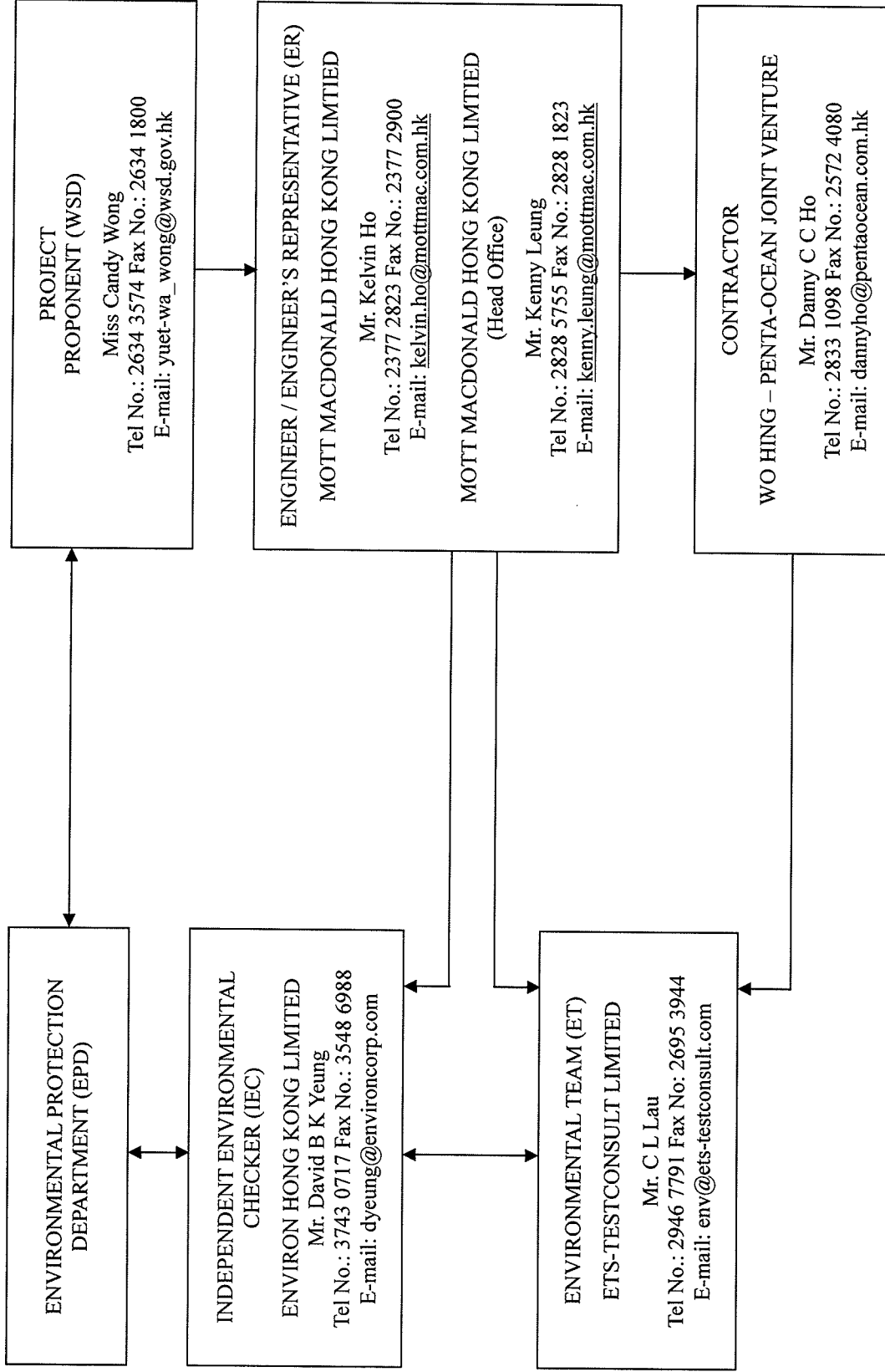
- Remove waste materials from the site to avoid accumulation regularly;
- Handle and store chemical wastes properly;
- Remove unwanted material in the existing stockpiles and avoid further dumping of such material;
- Provide and maintain sufficient drip trays for diesel drums, chemical containers, chemical waste storage drums and diesel operated generator set;
- Maintain good housekeeping at the works area;
- Avoid soil being polluted during oil filling and equipment maintenance; hence, properly remove and store the contaminated soil, if any.

## **Appendix A**

### **Organization Chart and Lines of Communication**







Project Laying of Western Cross Harbour Main and Associated Land Mains From West Kowloon to Sai Ying Pun - Investigation

Title Project Organization and Line of Communication

Date Dec 2009

Figure 1.3a

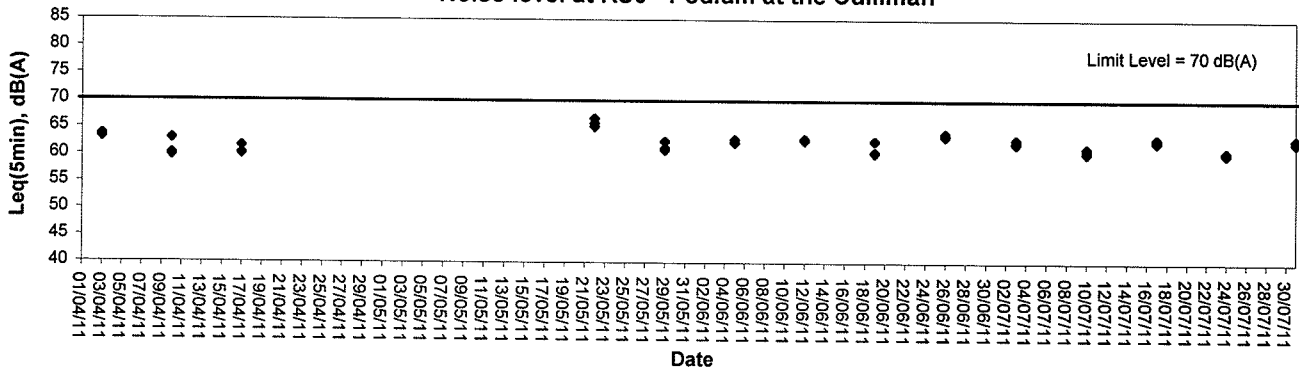
## **Appendix B**

### **Graphical Plots of Noise Monitoring Data**

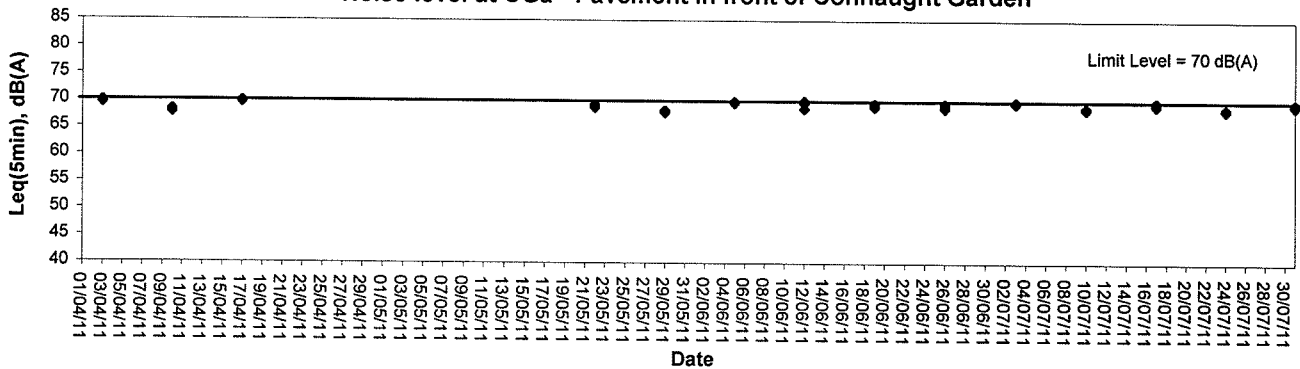


### Noise Monitoring (Holiday-time)

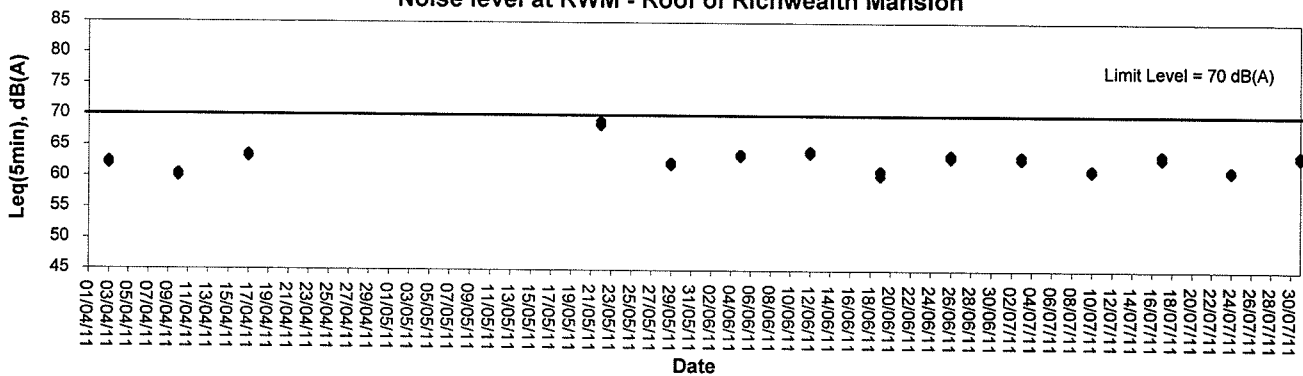
Noise level at KS6 - Podium at the Culliman



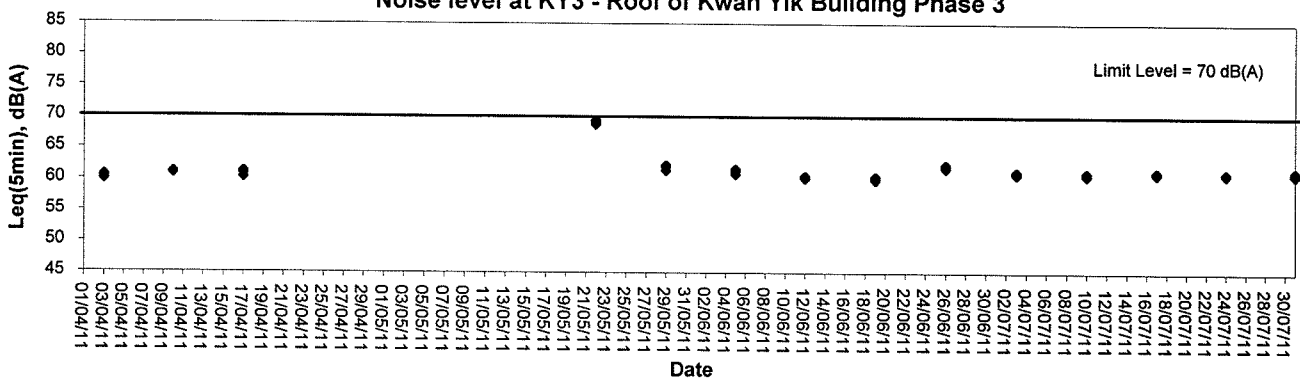
Noise level at CGa - Pavement in front of Connaught Garden



Noise level at RWM - Roof of Richwealth Mansion

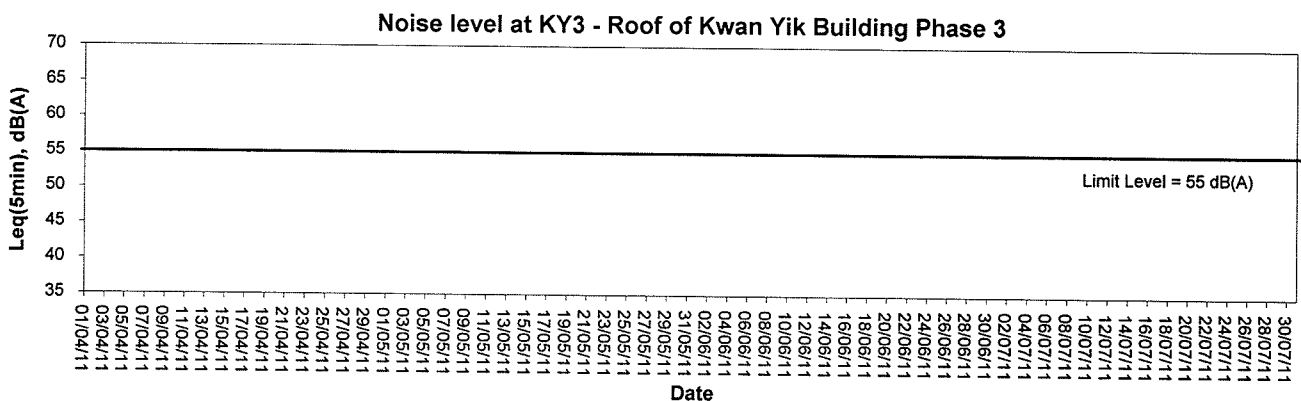
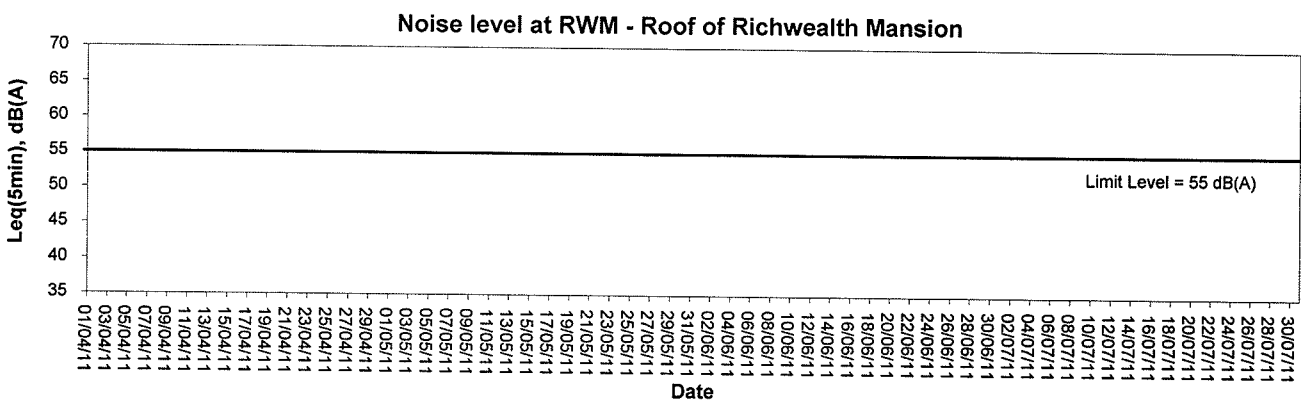
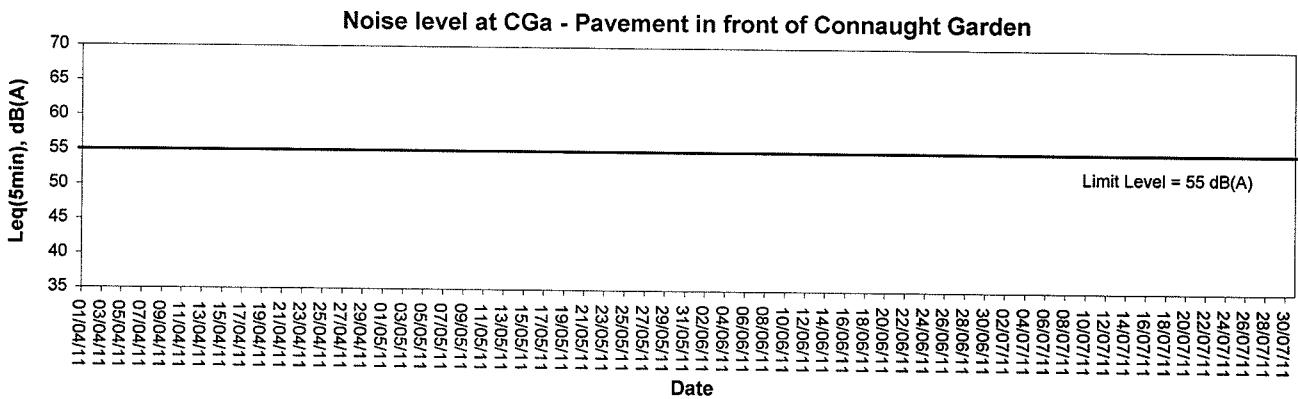
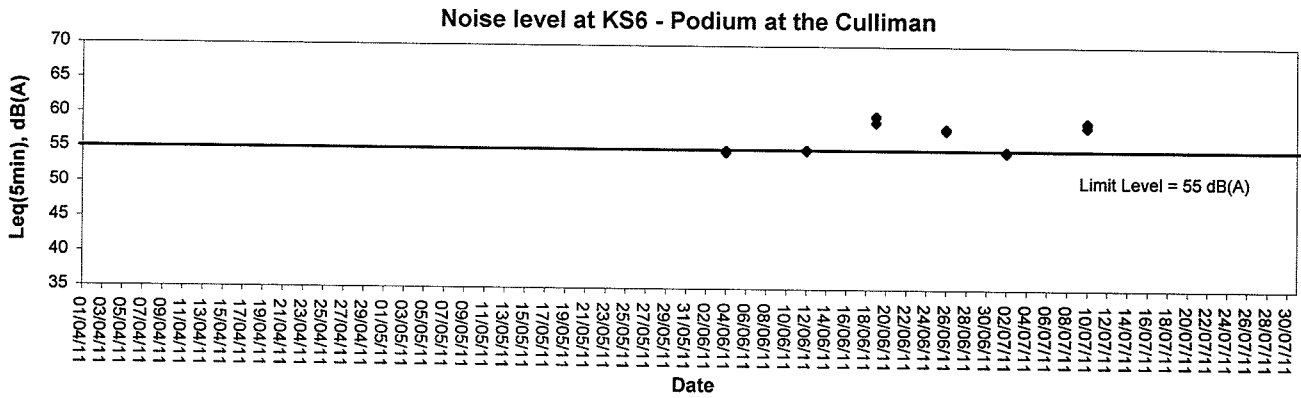


Noise level at KY3 - Roof of Kwan Yik Building Phase 3





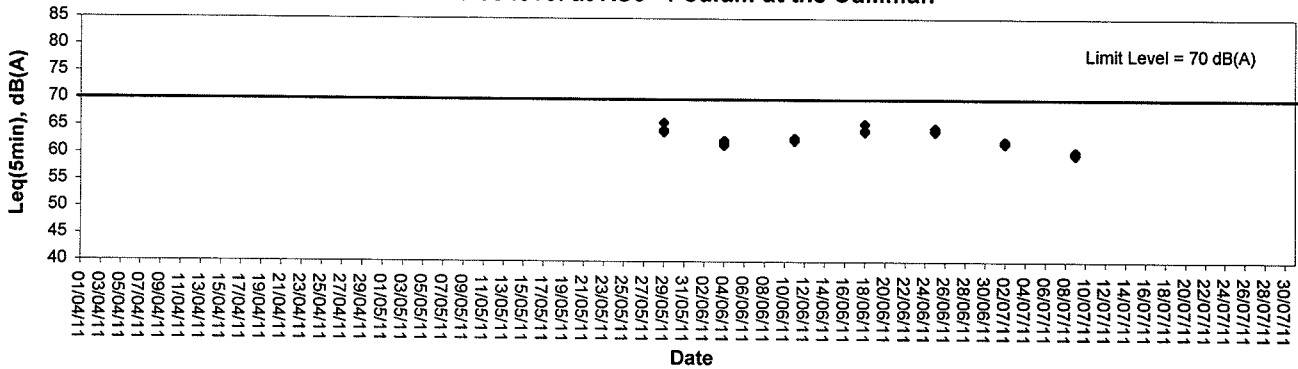
### Noise Monitoring (Night-time)



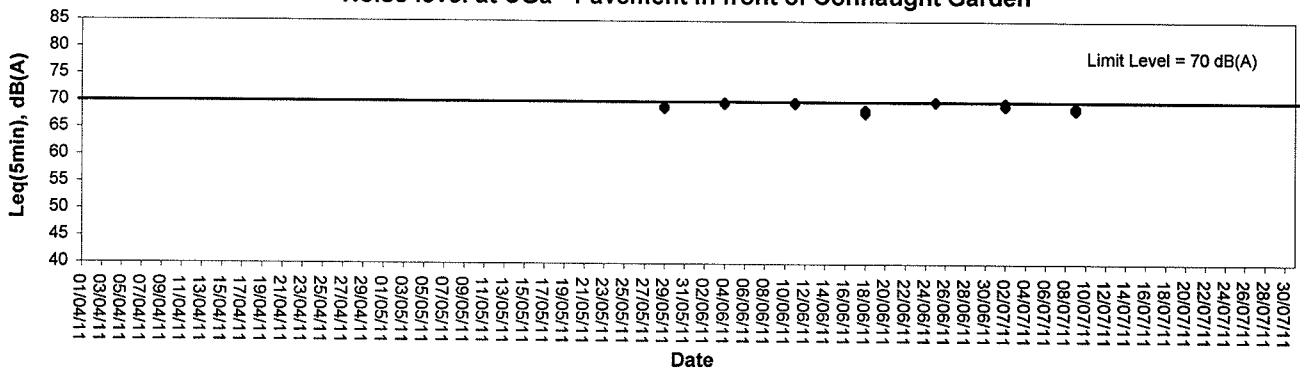


### Noise Monitoring (Evening-time)

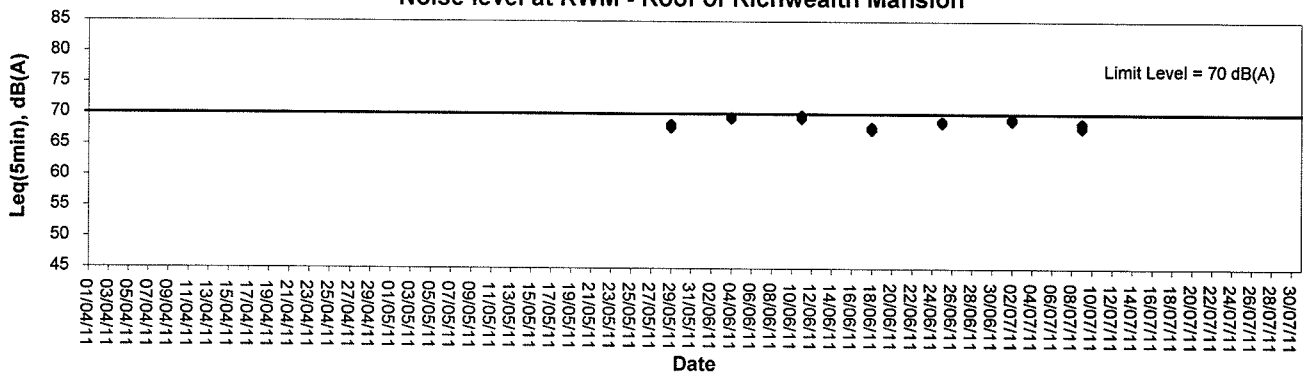
Noise level at KS6 - Podium at the Culliman



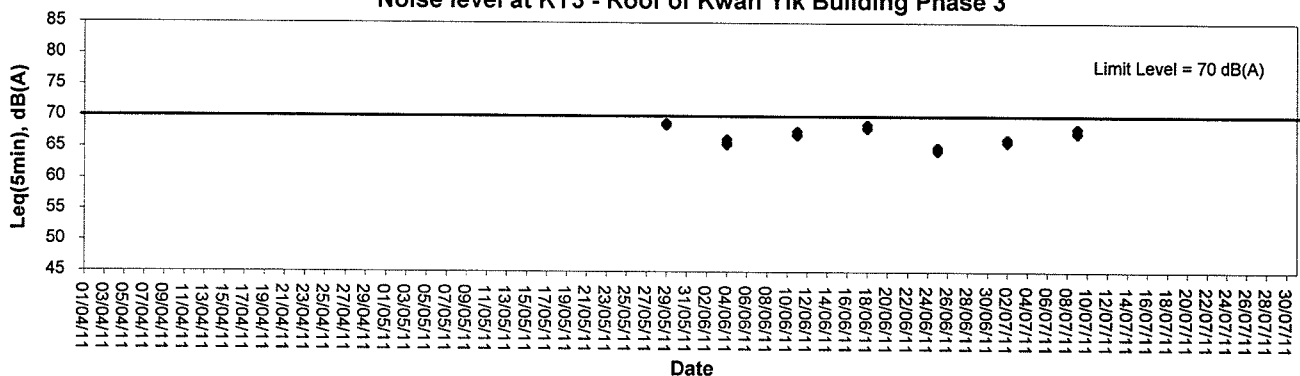
Noise level at CGa - Pavement in front of Connaught Garden



Noise level at RWM - Roof of Richwealth Mansion



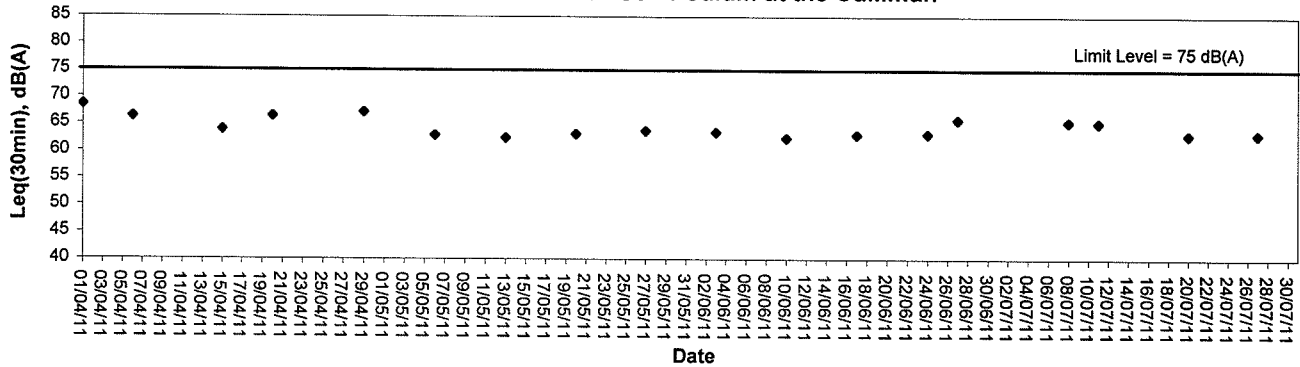
Noise level at KY3 - Roof of Kwan Yik Building Phase 3



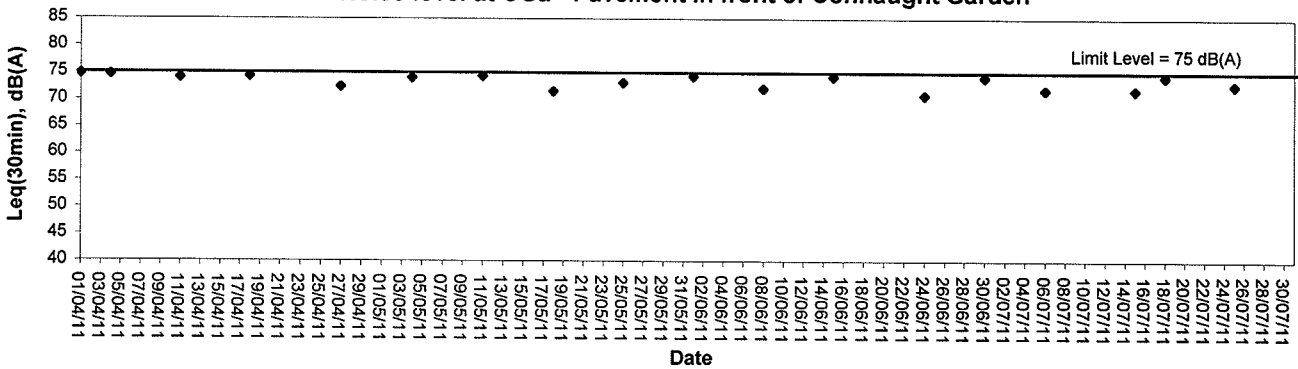


### Noise Monitoring (Day-time)

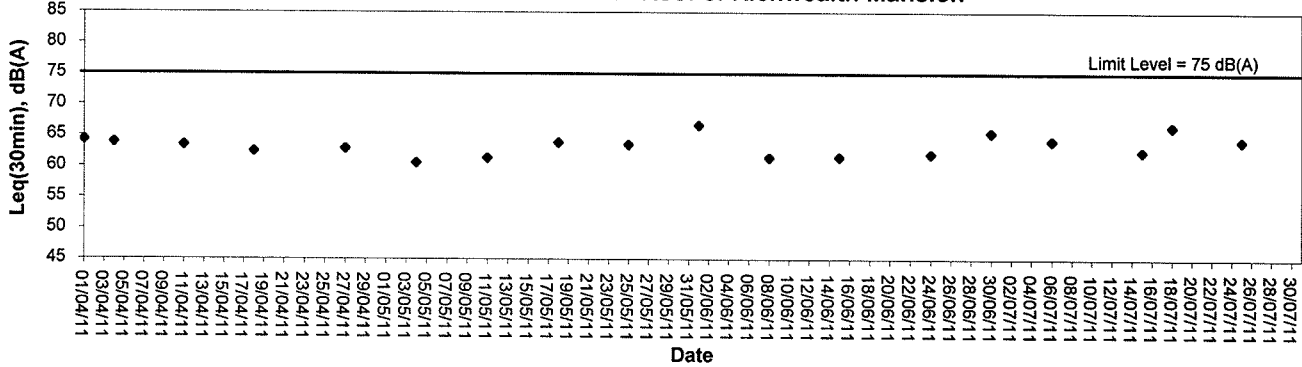
Noise level at KS6 - Podium at the Culliman



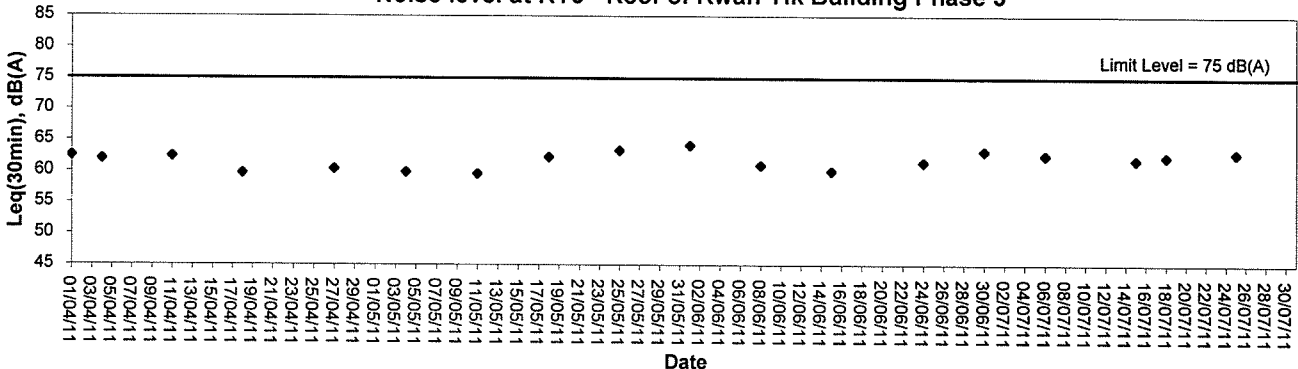
Noise level at CGa - Pavement in front of Connaught Garden



Noise level at RWM - Roof of Richwealth Mansion



Noise level at KY3 - Roof of Kwan Yik Building Phase 3

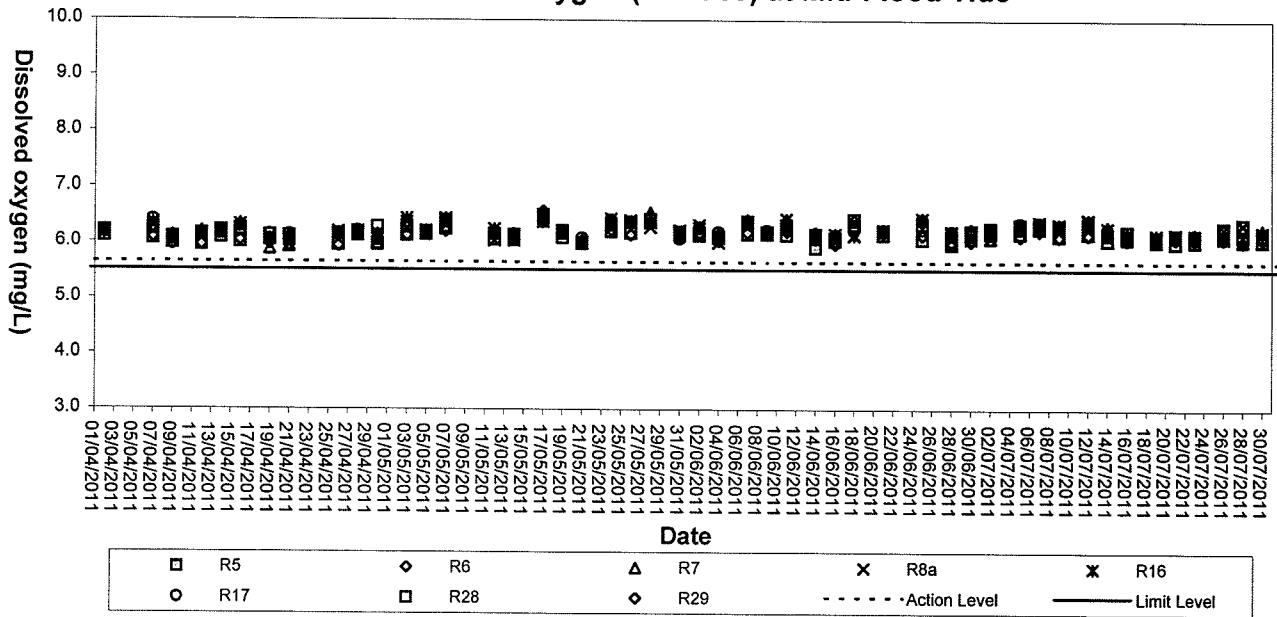


## **Appendix C**

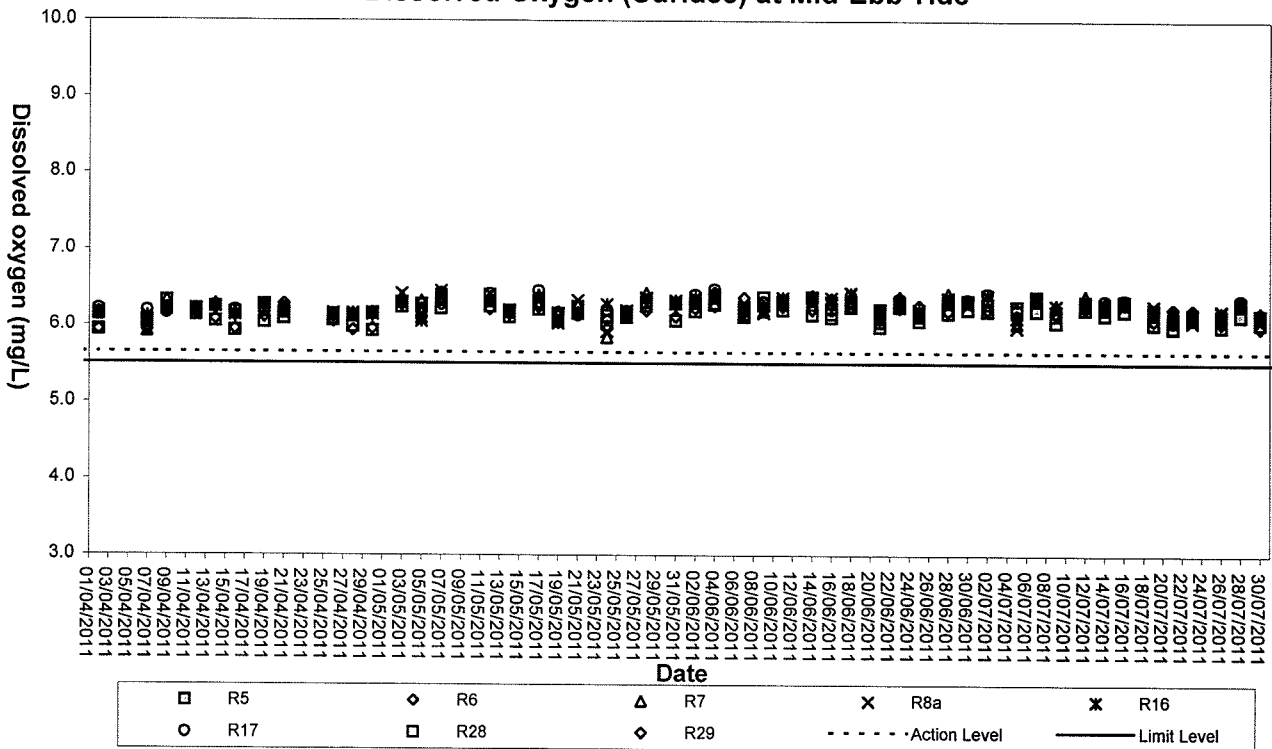
### **Graphical Plots of Impact Marine Water Quality Monitoring Data**



### Dissolved Oxygen (Surface) at Mid-Flood Tide



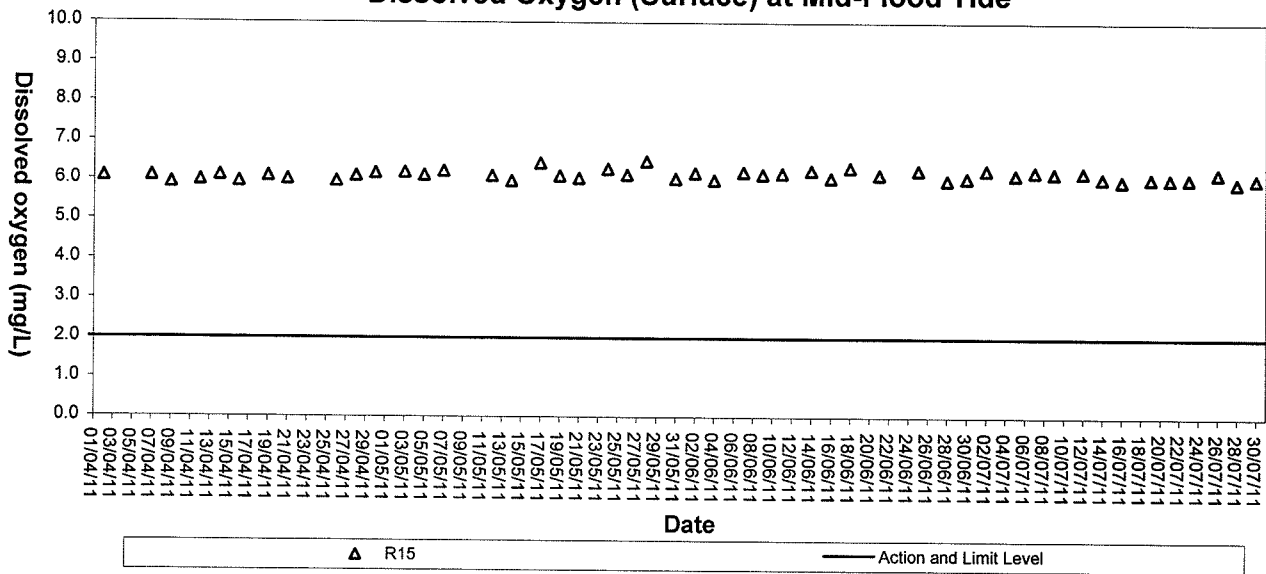
### Dissolved Oxygen (Surface) at Mid-Ebb Tide







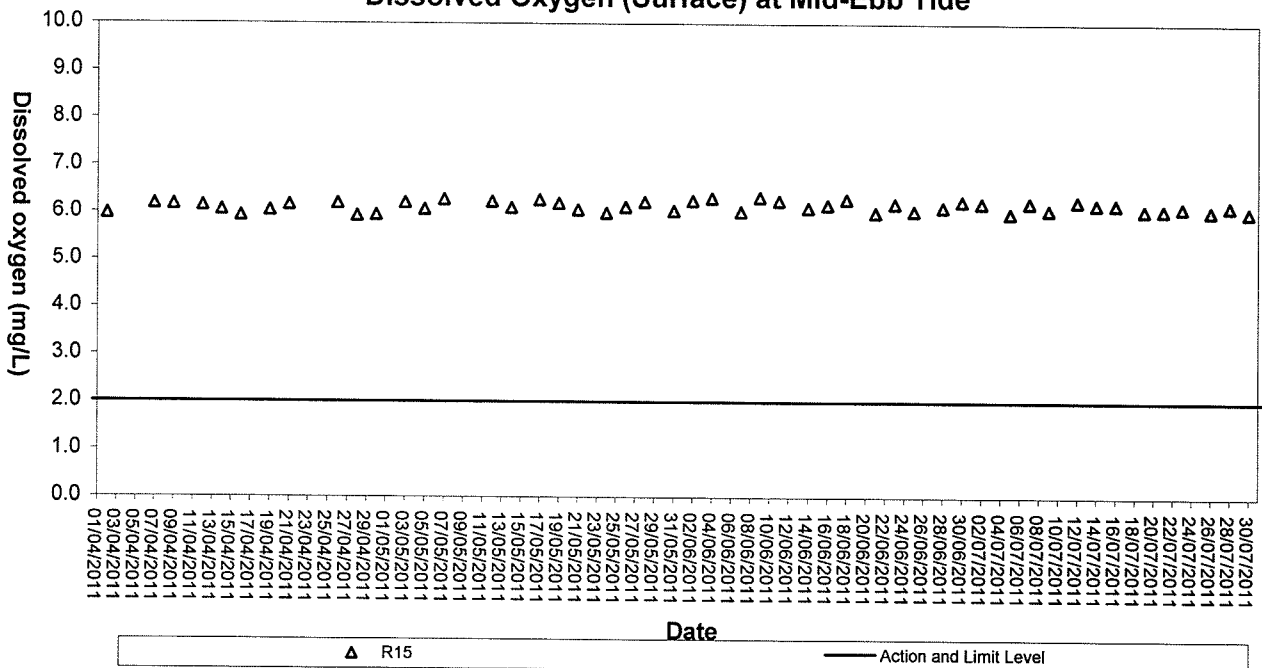
### Dissolved Oxygen (Surface) at Mid-Flood Tide



▲ R15

— Action and Limit Level

### Dissolved Oxygen (Surface) at Mid-Ebb Tide

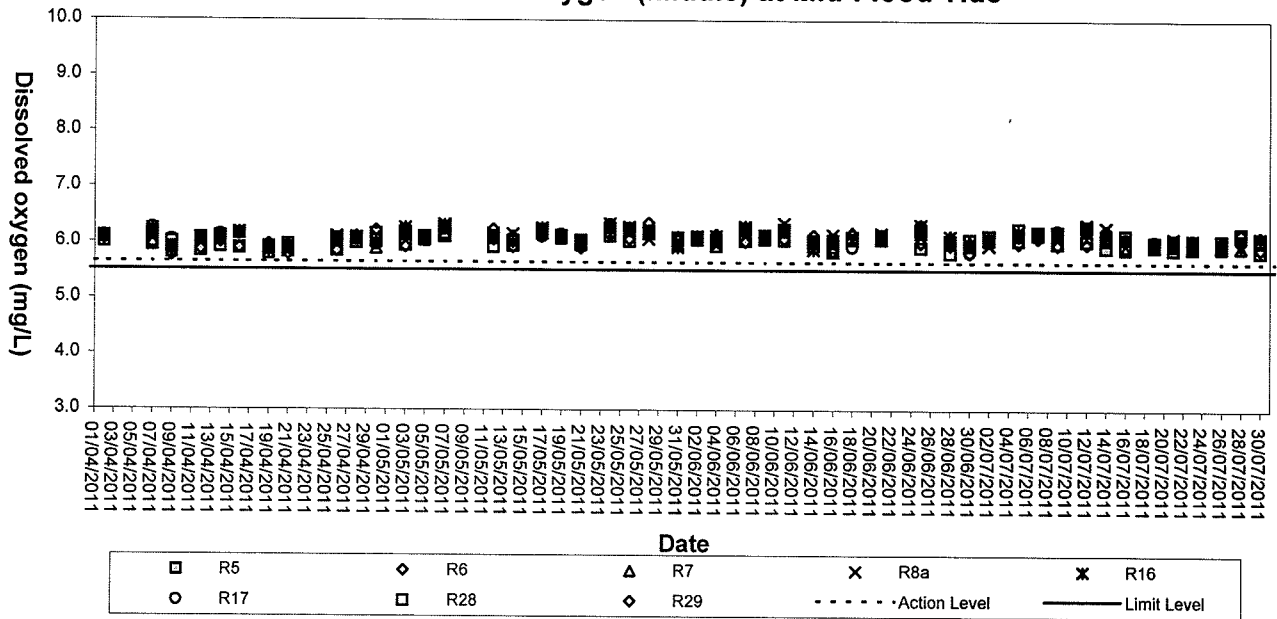


▲ R15

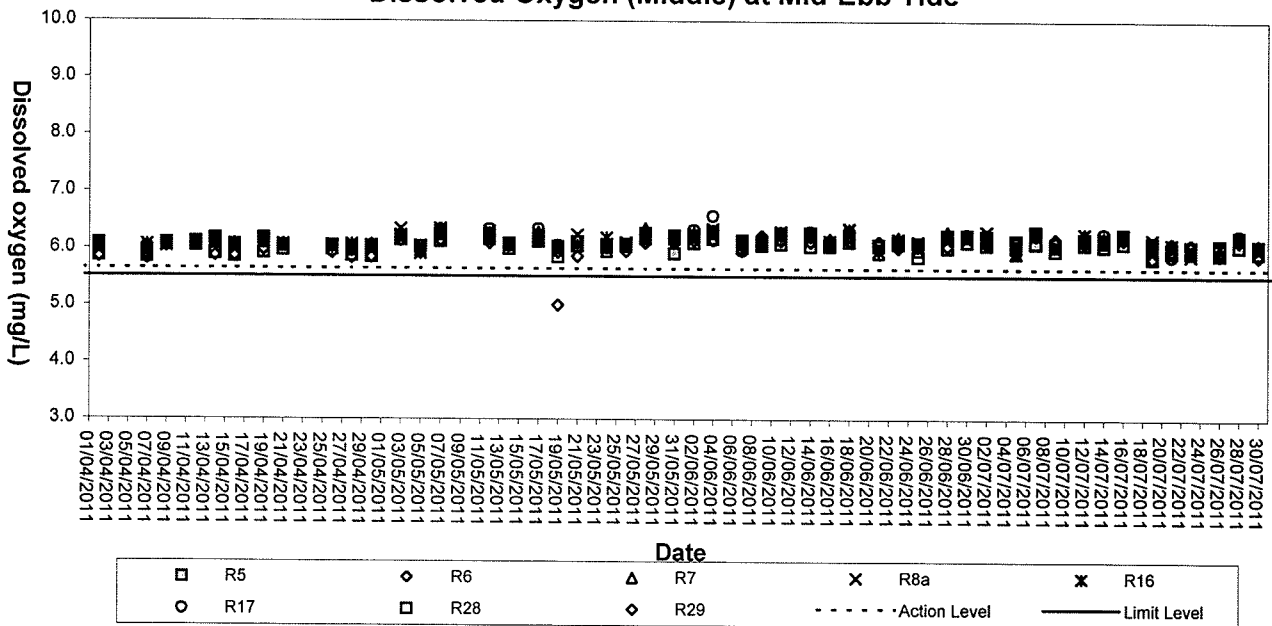
— Action and Limit Level



**Dissolved Oxygen (Middle) at Mid-Flood Tide**

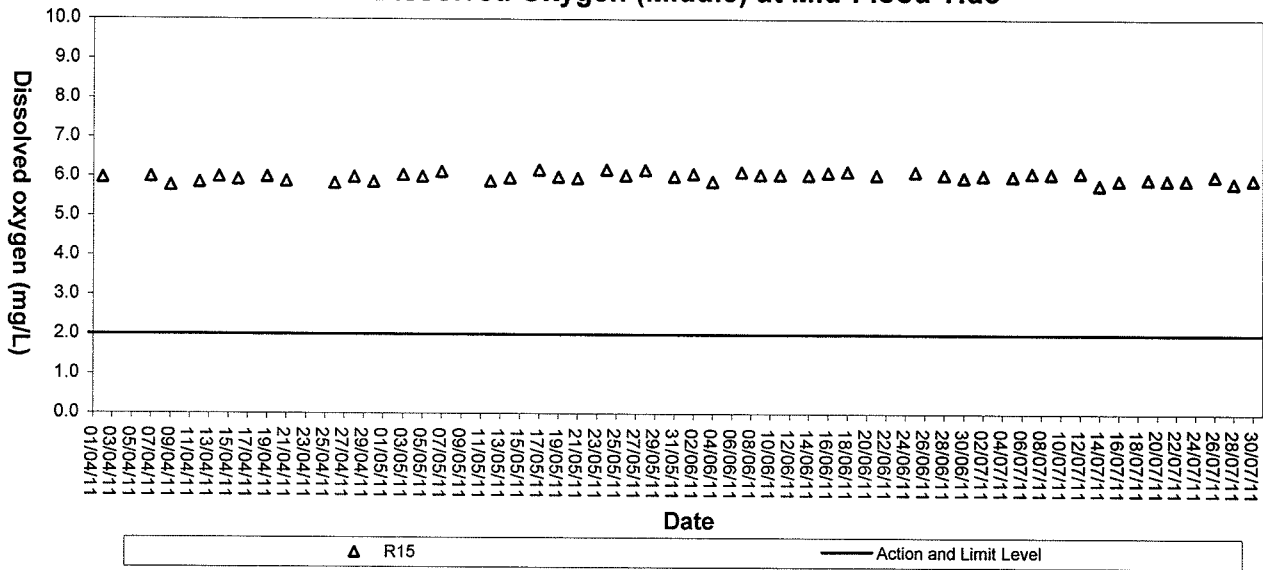


**Dissolved Oxygen (Middle) at Mid-Ebb Tide**





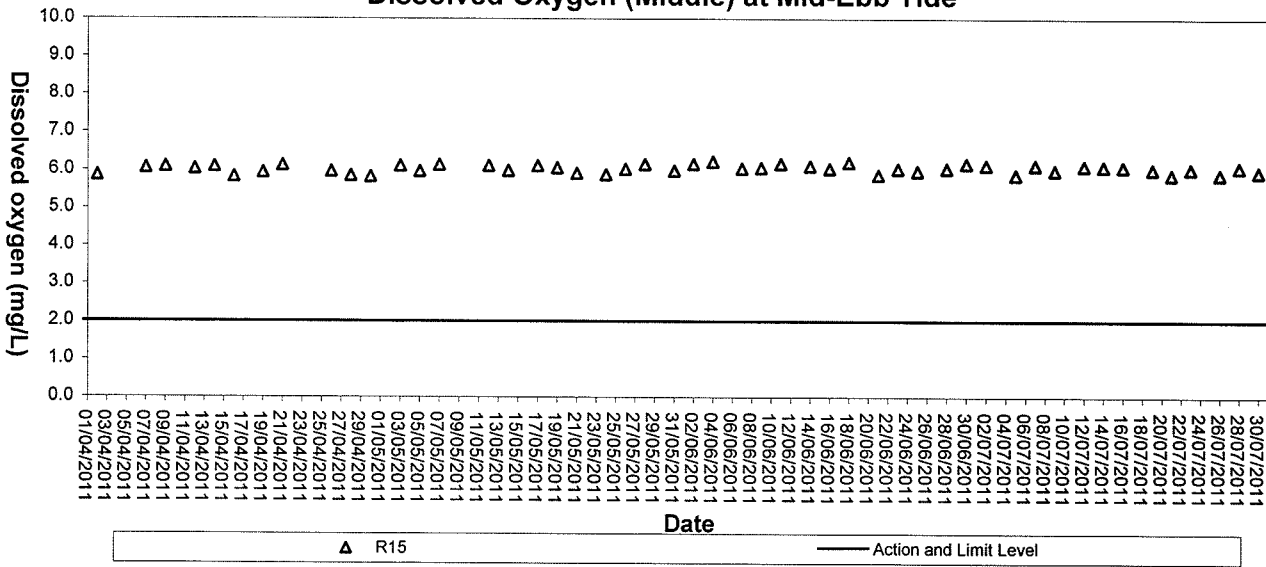
### Dissolved Oxygen (Middle) at Mid-Flood Tide



▲ R15

— Action and Limit Level

### Dissolved Oxygen (Middle) at Mid-Ebb Tide



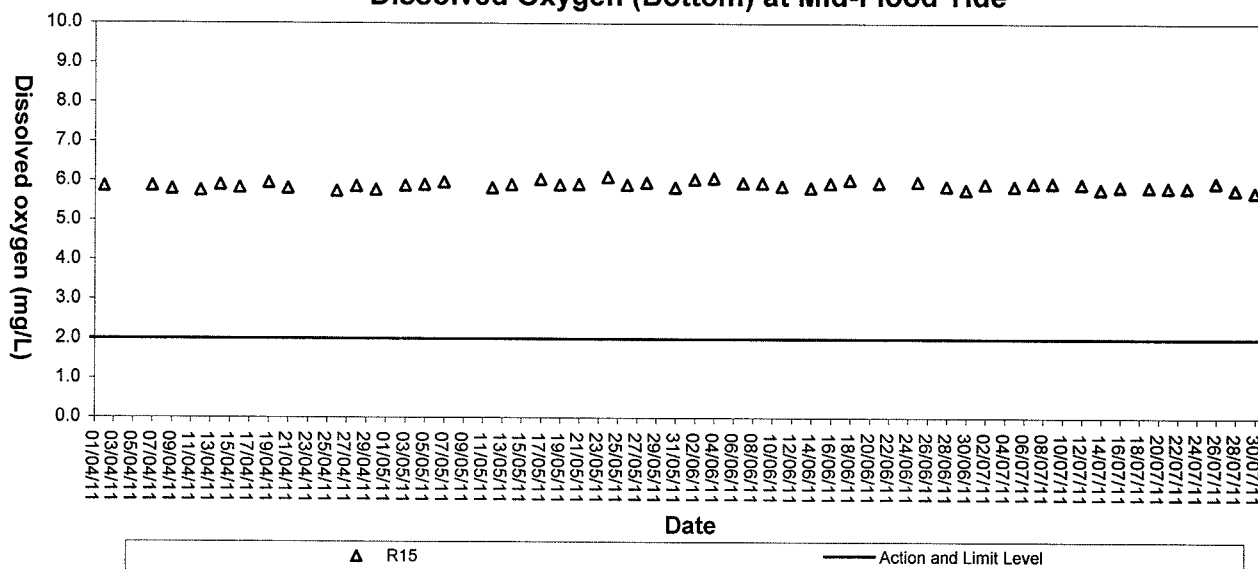
▲ R15

— Action and Limit Level





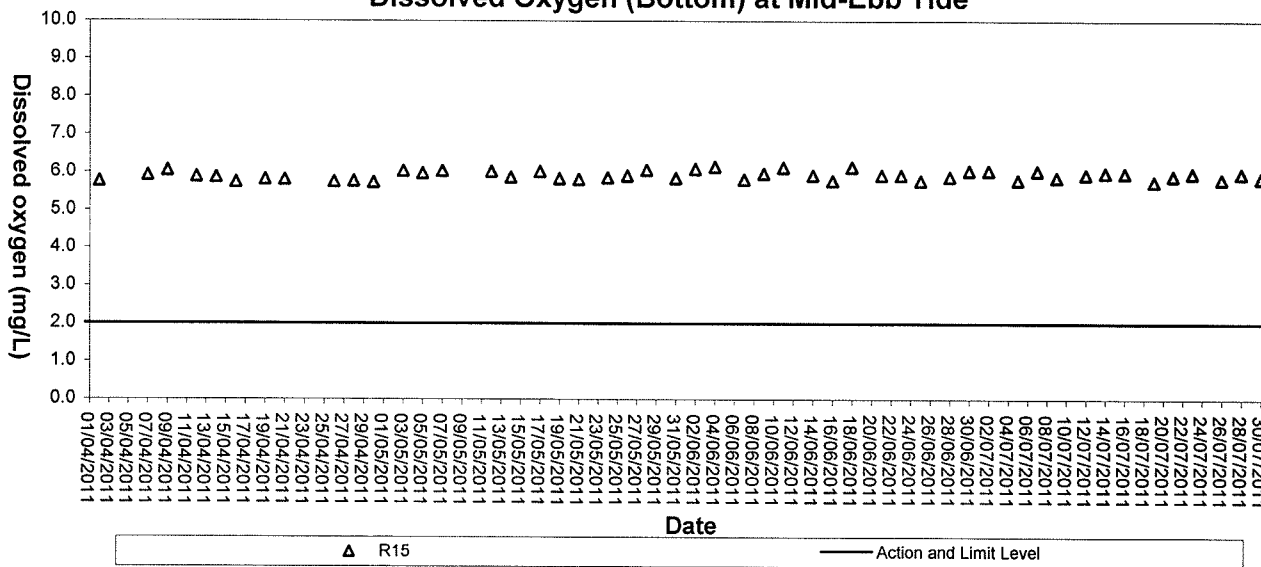
### Dissolved Oxygen (Bottom) at Mid-Flood Tide



▲ R15

— Action and Limit Level

### Dissolved Oxygen (Bottom) at Mid-Ebb Tide

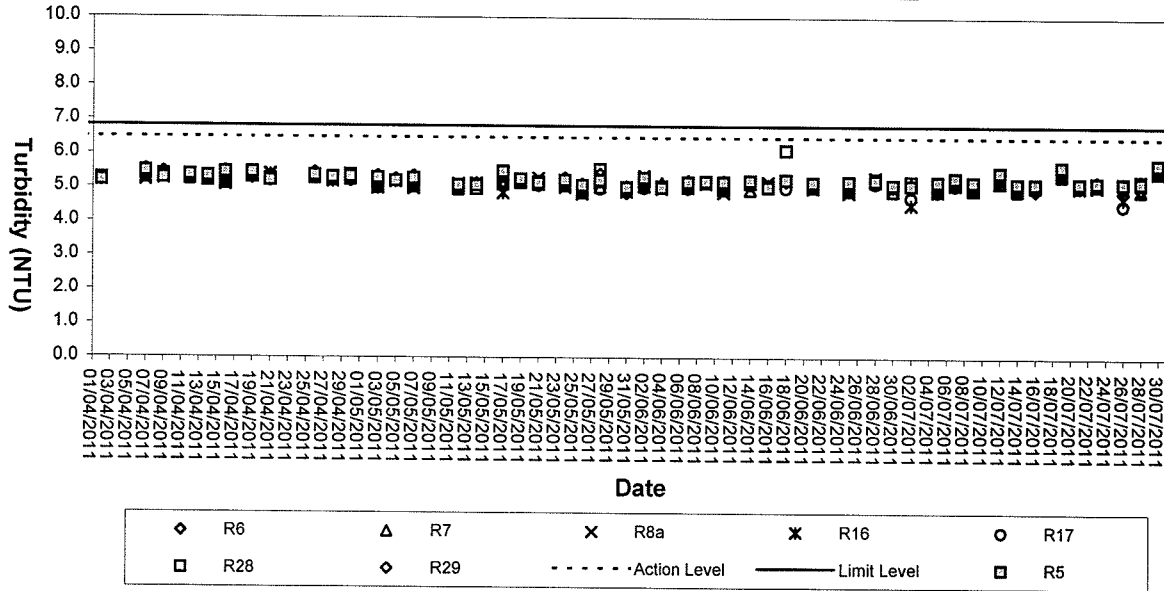


▲ R15

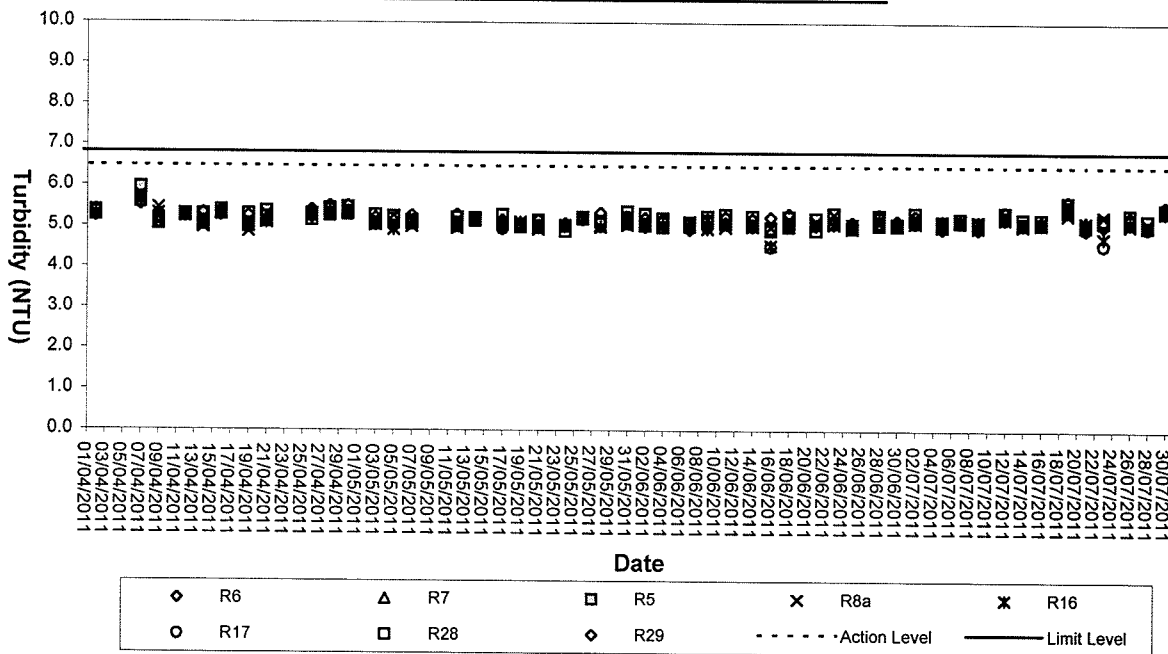
— Action and Limit Level



**Turbidity (Depth-average) at Mid-Flood Tide**

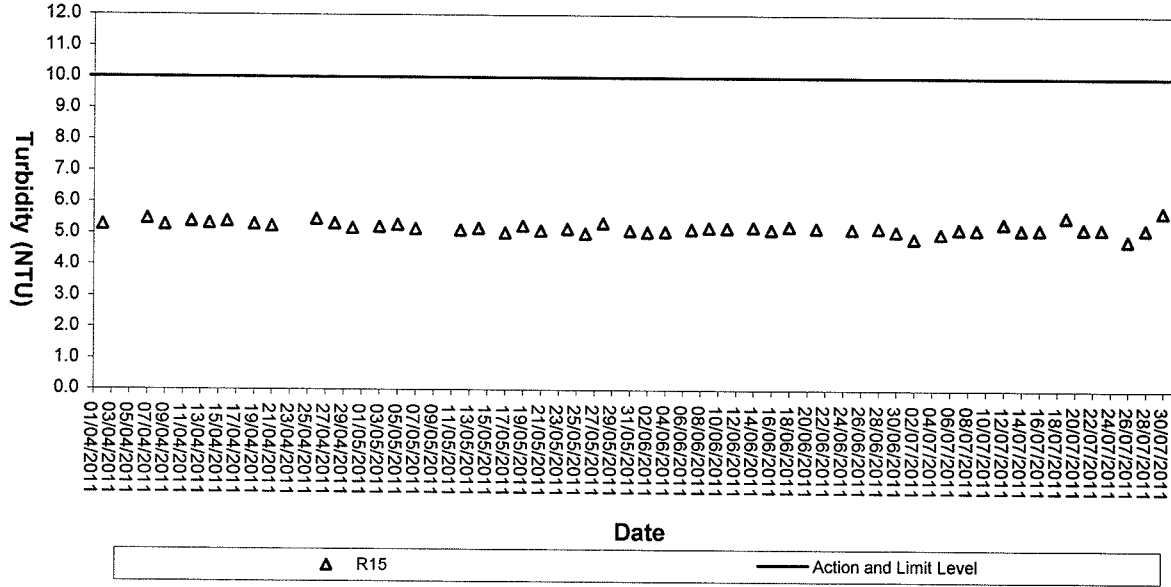


**Turbidity (Depth-average) at Mid-Ebb Tide**

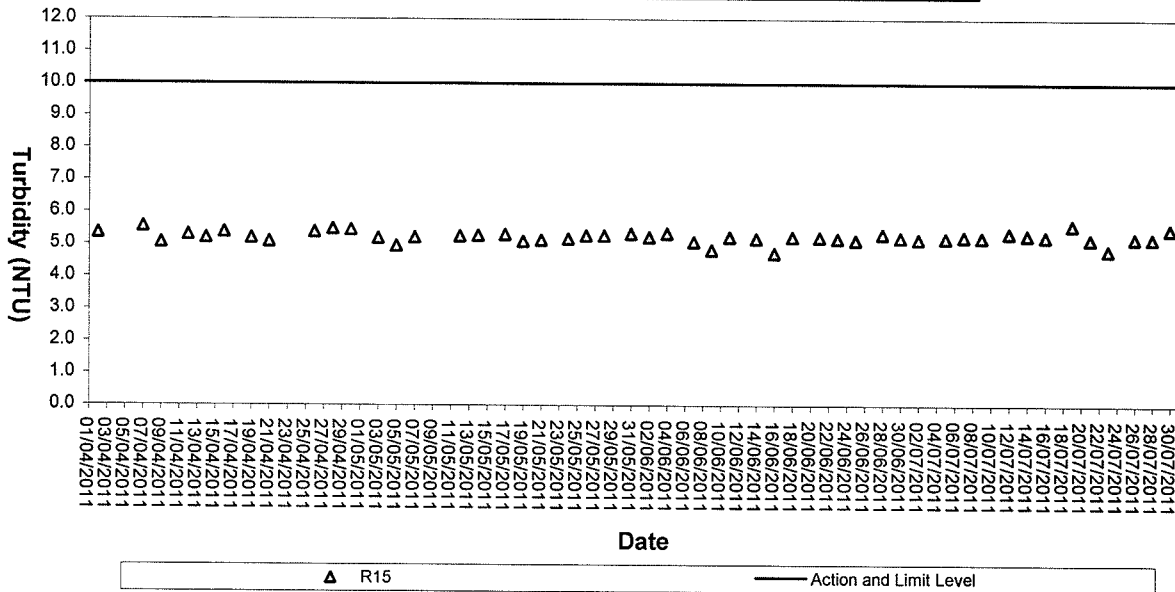




### Turbidity (Depth-average) of R15 at Mid-Flood Tide

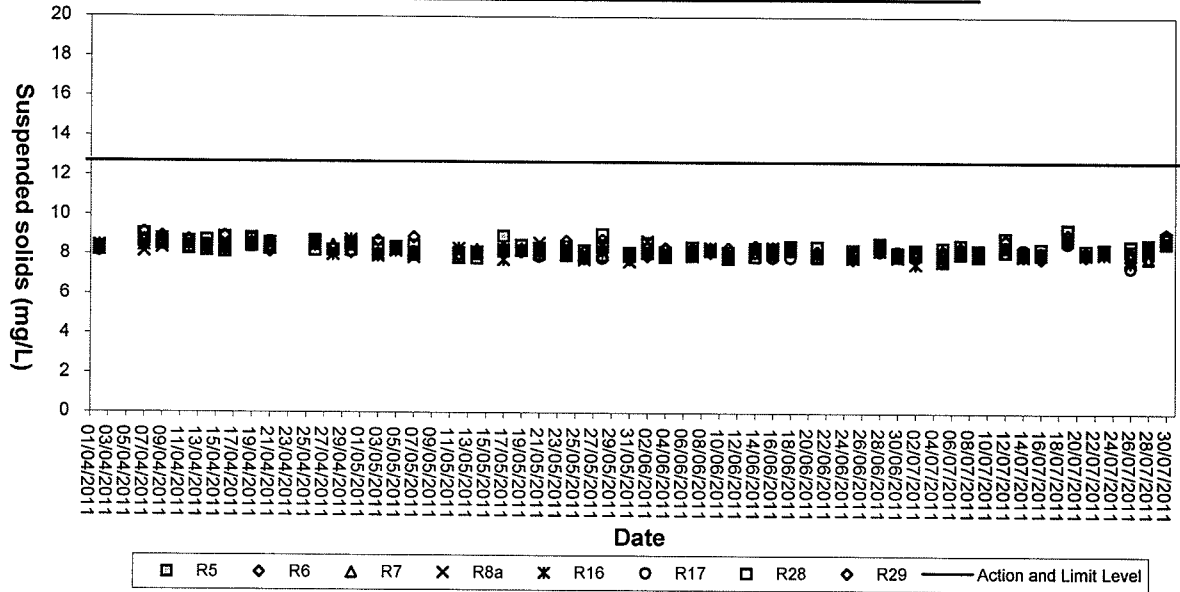


### Turbidity (Depth-average) of R15 at Mid-Ebb Tide

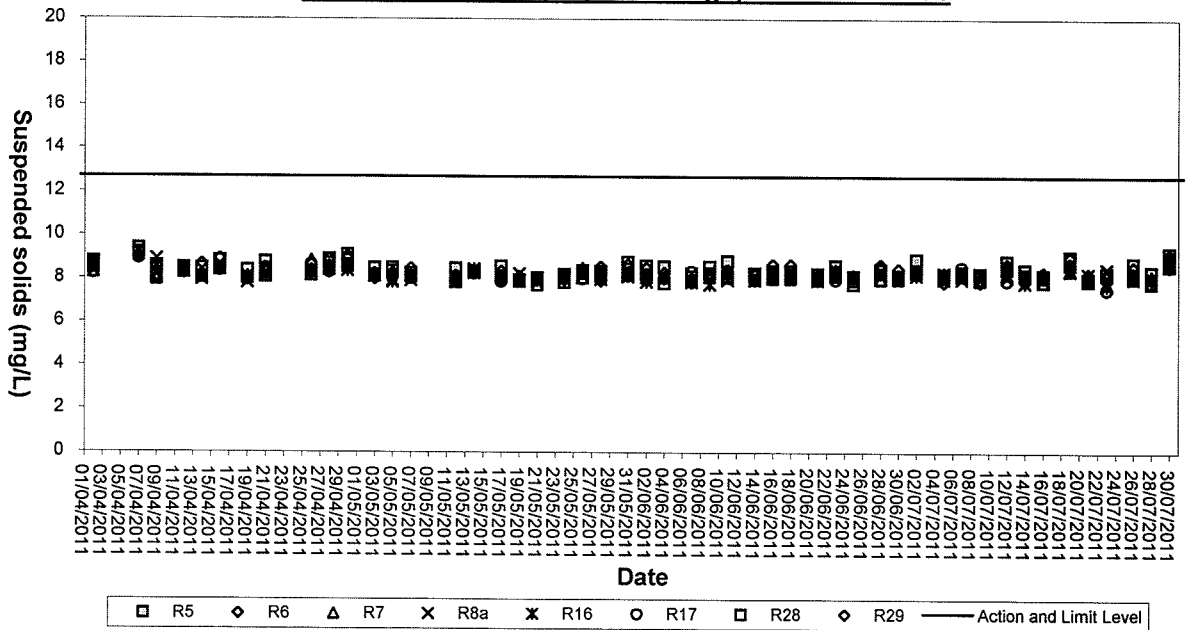




### Suspended solids (Depth-average) at Mid-Flood Tide



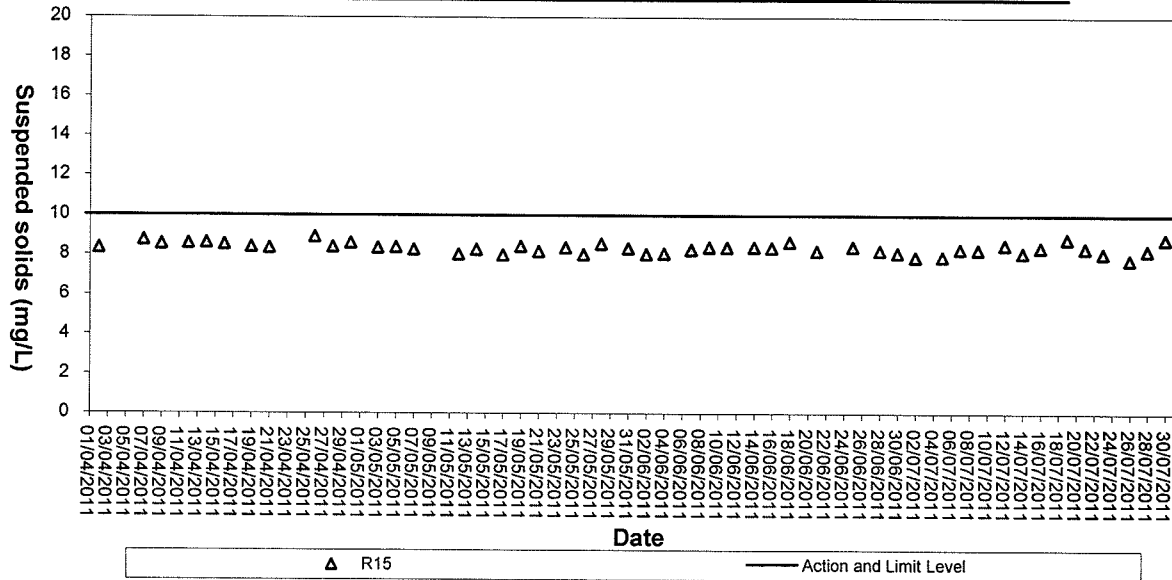
### Suspended Solids (Depth-average) at Mid-Ebb Tide



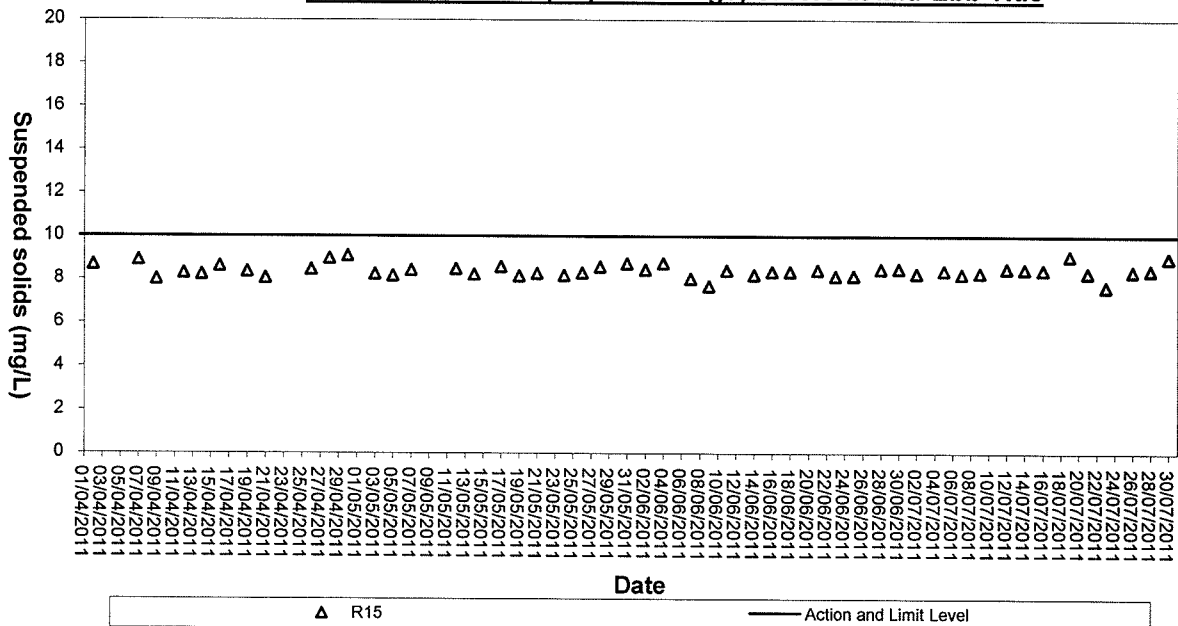




### Suspended solids (Depth-average) of R15 at Mid-Flood Tide



### Suspended Solids (Depth-average) of R15 at Mid-Ebb Tide



## **Appendix D**

### **Environmental Quality Performance (Action / Limit Levels)**

### Action and Limit Levels for Noise Monitoring

Time Period	Action	Limit
0700 –1900 hrs on normal weekday (Day-time)	When one documented complaint is received	75 dB(A) *
1900-2300 hrs (Evening-time)		70 dB(A)
0700-1900 hrs on Holiday (Holiday-time)		70 dB(A)
Restricted hours (2300-0700 hrs of next day) (Night-time)		55 dB(A)

\* reduce to 70dB(A) for school and 65dB(A) during school examination periods

### Action and Limit Levels for Marine Water Quality

Parameter	Action Level	Limit Level
DO (mg/L) (Surface, Middle & Bottom)	<u>Surface, Middle &amp; Bottom</u>  WSD Seawater Intakes 2 mg/L (For R15)  Other Impact Monitoring Stations 5.65 mg/L (For R5, R6, R7, R8a, R16, R17, R28 and R29)	<u>Surface &amp; Middle</u>  WSD Seawater Intakes 2 mg/L (For R15)  Other Impact Monitoring Stations 5.51 mg/L (For R5, R6, R7, R8a, R16, R17, R28 and R29)  <u>Bottom</u>  5.11 mg/L (For R15, R5, R6, R7, R8a, R16, R17, R28 and R29)
SS (mg/L) (Depth-averaged)	WSD Seawater Intakes 10 mg/L (For R15)  Other Impact Monitoring Stations 12.7 mg/L (For R5, R6, R7, R8a, R16, R17, R28 and R29)	WSD Seawater Intakes 10 mg/L (For R15)  Other Impact Monitoring Stations 12.7 mg/L (For R5, R6, R7, R8a, R16, R17, R28 and R29)
Turbidity (NTU) (Depth-averaged)	WSD Seawater Intakes 10 NTU  Other Impact Monitoring Stations 6.48 NTU (For R5, R6, R7, R8a, R16, R17, R28 and R29)	WSD Seawater Intakes 10 NTU  Other Impact Monitoring Stations 6.82 NTU (For R5, R6, R7, R8a, R16, R17, R28 and R29)

- Notes: 1. "depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.  
2. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.  
3. For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.  
4. All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.



## **Appendix E**

### **Event-Action Plans**



## Event and Action Plan for Construction Noise

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



## Event and Action Plan for Water Quality for Construction Phase

Event	Action			
	ET Leader	IEC	ER	Contractor
<b>Action Level</b>				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm finding;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC and Contractor;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC and Contractor; and</li> <li>6. Repeat measurement on next day of exceedance.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC on the proposed mitigation measures; and</li> <li>2. Make agreement on the mitigation measures to be implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET and IEC and propose mitigation measures to IEC and ER; and</li> <li>6. Implement the agreed mitigation measures.</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm finding;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC and Contractor;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC and Contractor;</li> <li>6. Ensure mitigation measures are implemented;</li> <li>7. Prepare to increase the monitoring frequency to daily; and</li> <li>8. Repeat measurement on next day of exceedance.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC on the proposed mitigation measures;</li> <li>2. Make agreement on the mitigation measures to be implemented; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the Engineer and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; and</li> <li>6. Implement the agreed mitigation measures.</li> </ol>



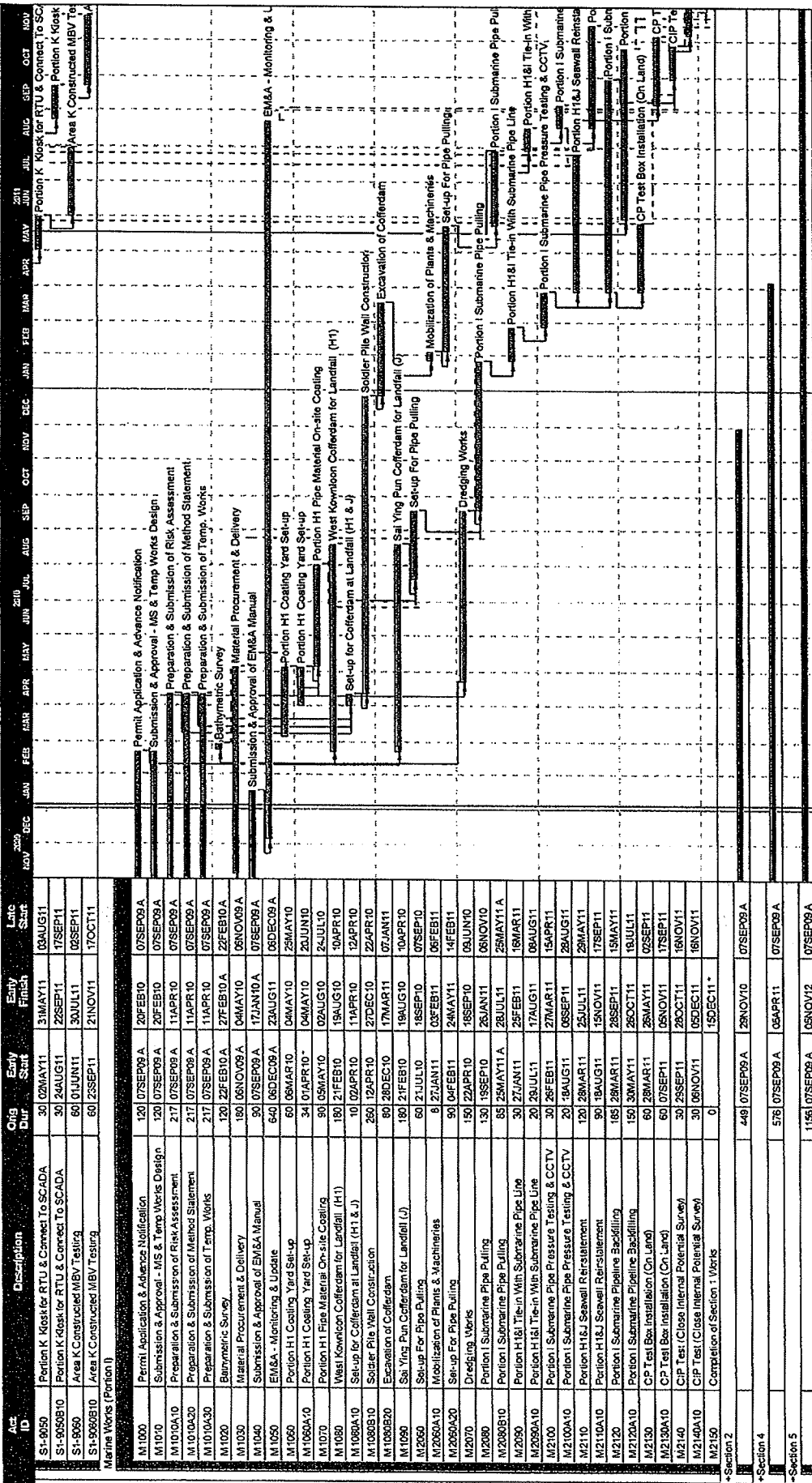
## Event and Action Plan for Water Quality for Construction Phase

Event	Action			
	ET Leader	IEC	ER	Contractor
<b>Limit Level</b>				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm finding;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, ER and Contractor;</li> <li>6. Ensure mitigation measures are implemented; and</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Limit level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and</li> <li>2. Request Contractor to critically review the working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented; and</li> <li>4. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the Engineer and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET and IEC and ER and propose mitigation measures to IEC and ER within 3 working days; and</li> <li>6. Implement the agreed mitigation measures.</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm finding;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, ER and Contractor;</li> <li>6. Ensure mitigation measures are implemented; and</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and</li> <li>2. Request Contractor to critically review the working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented;</li> <li>4. Assess the effectiveness of the implemented mitigation measures; and</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET and IEC and ER and propose mitigation measures to IEC and ER within 3 working days;</li> <li>6. Implement the agreed mitigation measures; and</li> <li>7. As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities.</li> </ol>

# Appendix F

## Work Programme





Section	Start	Finish
*Section 2	448	07SEP09 A
*Section 4	576	07SEP09 A
*Section 5	1196	07SEP09 A

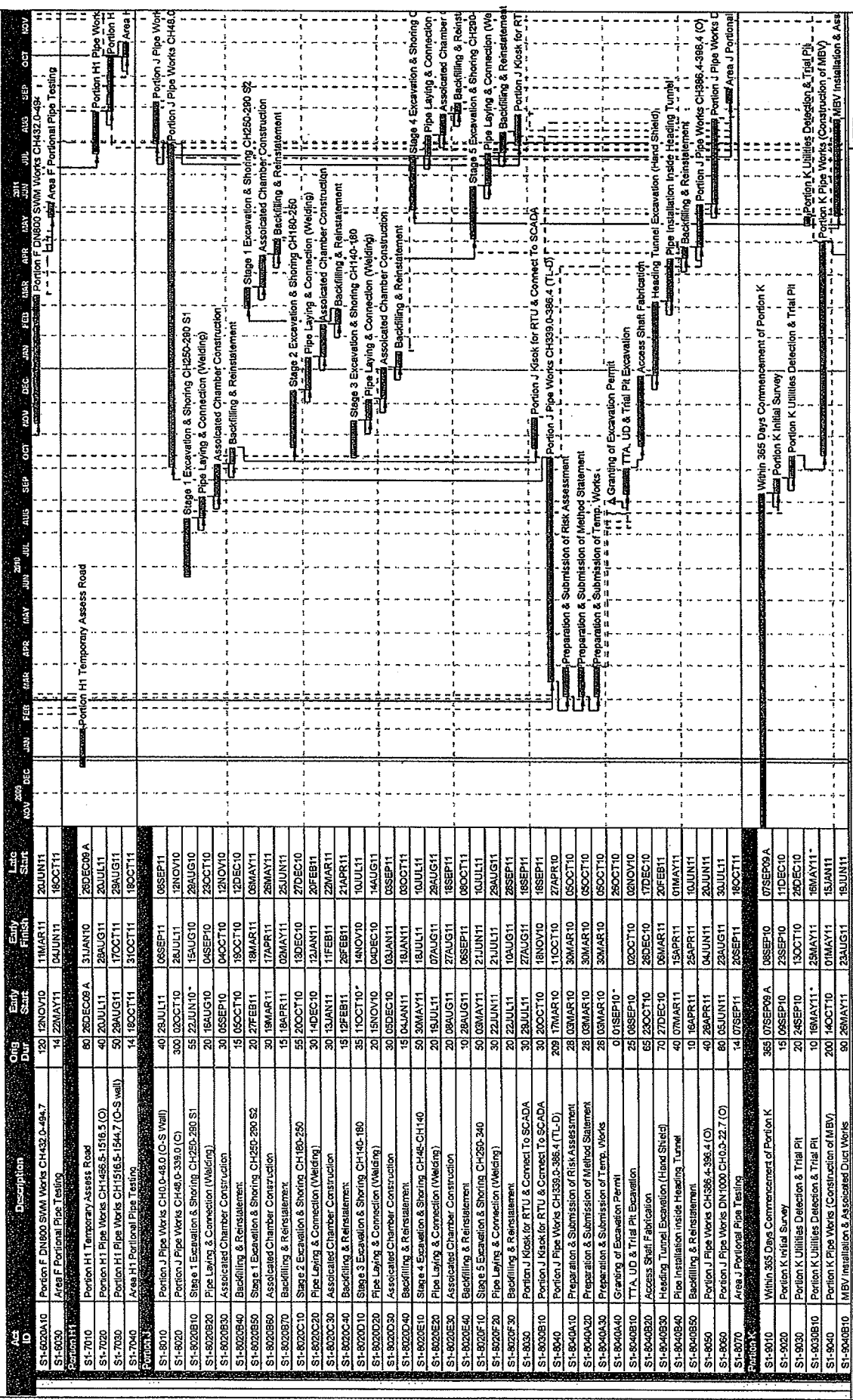
3 Months Rolling Program (July 2011)

Wo Hing - Penta-Ocean Joint Venture

Start date: 07SEP09  
 Finish date: 05NOV12  
 Date date: 04JAN10  
 Run date: 27JUN11  
 Page number: 6A  
 c Primavera Systems, Inc.

Legend:  
 Early bar  
 Progress bar  
 Critical bar  
 Summary bar  
 Start milestone point  
 Finish milestone point

Contract No. 9MWD/08  
Laying of Western Cross Harbour Main & Associated Land Works from West Kowloon to Sai Ying Pun

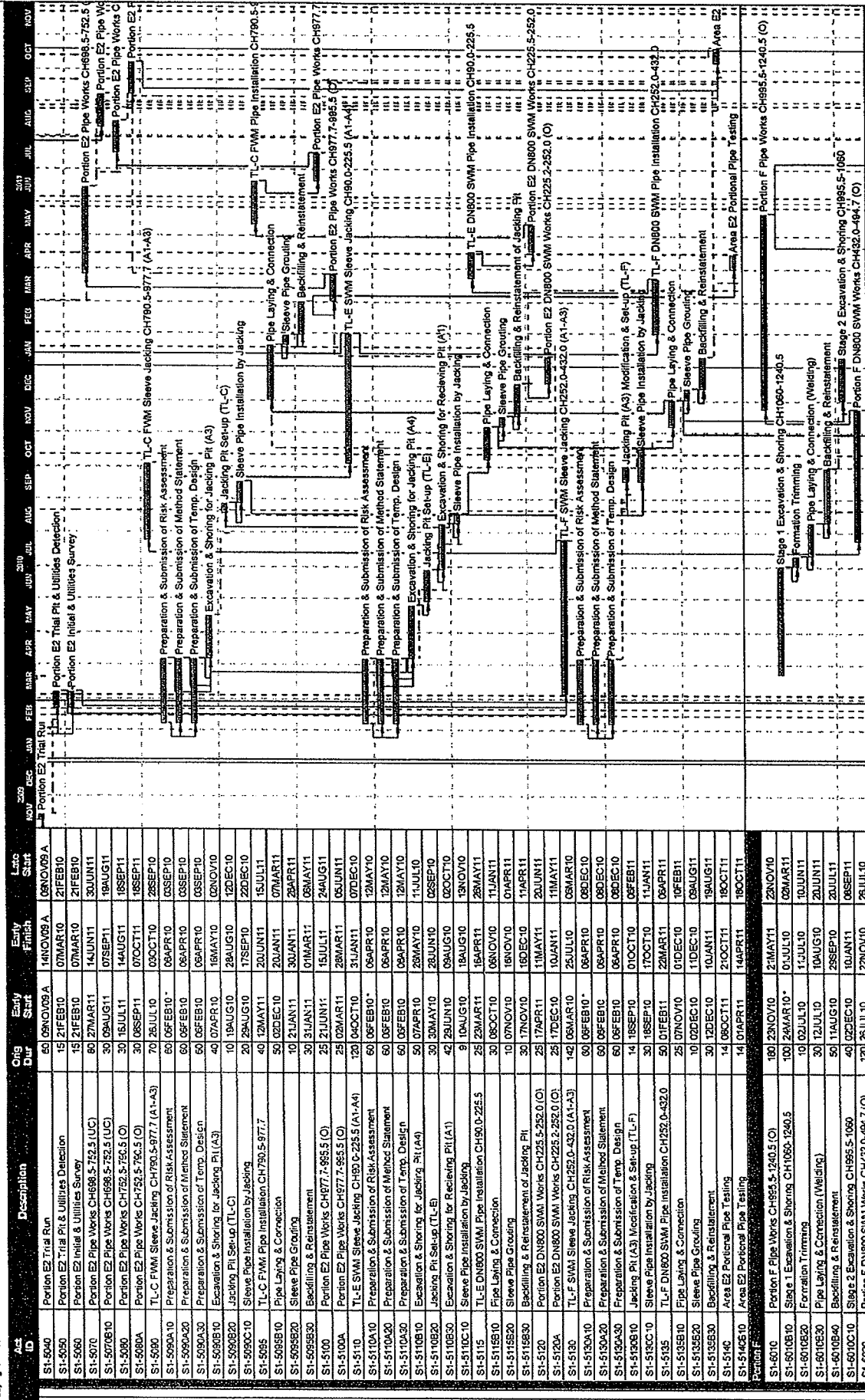


**3 Months Rolling Program (July 2011)**

Progress bar  
 Critical bar  
 Summary bar  
 Start milestone point  
 Finish milestone point

Start date: 07SEP09  
 Finish date: 05NOV12  
 Data date: 04JAN10  
 Run date: 27JUN11  
 Page number: 5A  
 © Primavera Systems, Inc.

Contract No. 91WSD08  
Laying of Western Cross Harbour Main's & Associated Land Mains from West Kowloon to Sai Ying Pun



Start date	Finish date	Run date	Page number
07SEP09	05NOV12	04JAN10	44
05NOV12	04JAN10	27JUN11	
04JAN10	27JUN11		
27JUN11			

3 Months Rolling Program (July 2011)

Wo Hing - Penta-Ocean Joint Venture

© Primavera Systems, Inc.

Contract No. 09WSB008  
Laying of Western Cross Harbour Main & Associated Land Mains from West Kowloon to Sai Ying Pun

SI	ID	Description	Start		Finish		Month															
			Earliest	Latest	Earliest	Latest	2009	2010	2011	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
S1-4410920		Support & Fixing Of DN600A SWM	24FEB11	03JUL11	24FEB11	03JUL11																
S1-4420810		Portion E1B DN600A SWM Works CH0.0-7.1 (O)	23MAY10	23OCT10	23MAY10	23OCT10																
S1-4420820		Excavation & Shoring	8 FEB E11	02MAR11	8 FEB E11	02MAR11																
S1-4430010		Main Laying & Connection With Trough Portion	02MAR11	08JUL11	02MAR11	08JUL11																
S1-4430020		Excavation & Shoring	30 24MAY10	22NOV10	30 24MAY10	22NOV10																
S1-4430030		Excavation & Shoring	8 05MAR11	14JUL11	8 05MAR11	14JUL11																
S1-4430040		Main Laying & Connection With Trough Portion	4 13MAR11	22JUL11	4 13MAR11	22JUL11																
S1-4440010		E1B Existing DN600 SWM Diversion & Demolition	14 03MAY10	22JUL10	14 03MAY10	22JUL10																
S1-4440020		Issuance Of Temp. Water Supply Suspension Notice	14 03MAY11	12JUL11	14 03MAY11	12JUL11																
S1-4440030		Shut Off Of Existing DN600 SWM	2 17MAR11	26JUL11	2 17MAR11	26JUL11																
S1-4440040		DN600A Diversion Main Connect To Existing	2 16JUL11	23JUL11	2 16JUL11	23JUL11																
S1-4440050		Removal Of Existing DN600 SWM	6 18JUL11	28JUL11	6 18JUL11	28JUL11																
S1-4440060		Portion E1B Trough Construction Under Planter	60 24JUN10	32AUG10	60 24JUN10	32AUG10																
S1-4440070		Excavation & Shoring For Pipe Trough (Stage 2)	40 23DEC10	31JAN11	40 23DEC10	31JAN11																
S1-4440080		Excavation & Shoring For Pipe Trough	15 07FEB11	19FEB11	15 07FEB11	19FEB11																
S1-4440090		Ewk & Reinforcement for Pipe Trough	60 11OCT10	09DEC10	60 11OCT10	09DEC10																
S1-4450010		Portion E1B Pipe Works CH660.5-677.4 (PT)	23 16FEB11	12MAY11	23 16FEB11	12MAY11																
S1-4450020		Backfilling & Reinforcement	20 13MAR11	01APR11	20 13MAR11	01APR11																
S1-4460010		Portion E1B Pipe Works CH677.4-995.9 (O)	30 02MAY11	31MAY11	30 02MAY11	31MAY11																
S1-4460020		Portion E1B Pipe Works CH677.4-995.9 (UC)	30 10DEC10	10JUN11	30 10DEC10	10JUN11																
S1-4470010		Portion E1B Pipe Works CH695.9-698.5 (UC)	30 02APR11	01MAY11	30 02APR11	01MAY11																
S1-4480010		Portion E1B DN600B SWM Works CH0.0-7.1 (O)	30 23JUL10	21AUG10	30 23JUL10	21AUG10																
S1-4480020		Portion E1B DN600B SWM Works CH0.0-7.1 (UC)	8 01AUG11	10OCT11	8 01AUG11	10OCT11																
S1-4490010		Portion E2 DN600B SWM Works CH7.1-63.7 (UC)	50 23JUL10	10SEP10	50 23JUL10	10SEP10																
S1-4500010		Portion E2 DN600B SWM Works CH7.1-63.7 (UC)	8 24JUL11	31JUL11	8 24JUL11	31JUL11																
S1-4500020		Portion E2 DN600B SWM Works CH7.1-63.7 (UC)	30 11SEP10	10OCT10	30 11SEP10	10OCT10																
S1-4510010		Area E1B+E2 SWM Portional Pipe Testing	8 01AUG11	08AUG11	8 01AUG11	08AUG11																
S1-4510020		Area E1B+E2 SWM Portional Pipe Testing	14 03APR11	16APR11	14 03APR11	16APR11																
S1-4510030		Area E1B+E2 SWM Portional Pipe Testing	14 08AUG11	22AUG11	14 08AUG11	22AUG11																
S1-4710010		Portion E1C DN300 FWM Works CH0.0-50.0 (UC)	20 09MAR10	23APR10	20 09MAR10	23APR10																
S1-4710020		Submission & Approval Of Risk Assessment	28 19FEB10	18MAR10	28 19FEB10	18MAR10																
S1-4710030		Submission & Approval Of Method Statement	28 19FEB10	18MAR10	28 19FEB10	18MAR10																
S1-4710040		Submission & Approval Of Temp. Work	28 19FEB10	18MAR10	28 19FEB10	18MAR10																
S1-4710050		Installation & Connection Of DN300 FWM	50 17MAY10	05JUL10	50 17MAY10	05JUL10																
S1-4710060		Support & Fixing Of DN300 FWM	40 08JUL10	14AUG10	40 08JUL10	14AUG10																
S1-4720010		E1C DN300 FWM Diversion Main Testing	8 24APR10	01MAY10	8 24APR10	01MAY10																
S1-4720020		E1C Exst. DN300 FWM Diversion & Demolition	8 14AUG10	29AUG10	8 14AUG10	29AUG10																
S1-4730010		E1C Exst. DN300 FWM Diversion & Demolition	30 02MAY10	31MAY10	30 02MAY10	31MAY10																
S1-4730020		Issuance Of Temp. Water Supply Suspension Notice	14 22SEP10	05OCT10	14 22SEP10	05OCT10																
S1-4730030		Shut Off Existing DN300 FWM	2 08OCT10	07OCT10	2 08OCT10	07OCT10																
S1-4730040		DN300 Diversion Main Connect To Existing	21 08OCT10	07OCT10	21 08OCT10	07OCT10																
S1-4730050		Removal Of Existing DN300 FWM	28 08OCT10	04NOV10	28 08OCT10	04NOV10																
S1-4740010		Portion E1C DN800 SWM Works CH0.0-52.0 (UC)	80 05NOV10	23JAN11	80 05NOV10	23JAN11																
S1-4750010		Portion E1C DN800 SWM Works CH0.0-52.0 (UC)	120 08NOV10	04MAR11	120 08NOV10	04MAR11																
S1-4750020		Portion E1C DN800 SWM Works CH0.0-52.0 (UC)	80 01FEB11	21APR11	80 01FEB11	21APR11																
S1-4750030		Portion E1C DN800 SWM Works CH52.0-96.3 (UC)	80 05MAR11	23MAY11	80 05MAR11	23MAY11																
S1-4760010		Area E1C Portional Pipe Testing	14 22APR11	08MAY11	14 22APR11	08MAY11																
S1-4760020		Area E1C Portional Pipe Testing	14 22APR11	08JUN11	14 22APR11	08JUN11																
S1-5010		Portion E2 Marine Dept. Advance Notice	90 07OCT09 A	20FEB10	90 07OCT09 A	20FEB10																
S1-5020		WHTEL Consent For Works Within Tunnel Area	120 07SEP09 A	20FEB10	120 07SEP09 A	20FEB10																
S1-5030		Chamber Modification - 160 Days of Portion E2	65 07JAN10 A	14MAR10 A	65 07JAN10 A	14MAR10 A																

Start date	07SEP08	Start milestone point	
Finish date	05NOV12	Early bar	
Date date	04JAN10	Progress bar	
Run date	27JUN11	Critical bar	
Page number	3A	Summary bar	
CP Primavera Systems, Inc.		Finish milestone point	

**3 Months Rolling Program (July 2011)**

Wo Hing - Penta-Ocean Joint Venture

Contract No. 9WSD008

Laying of Western Cross Heave Main & Associated Land Mains from West Komicon to Sai Ying Pun

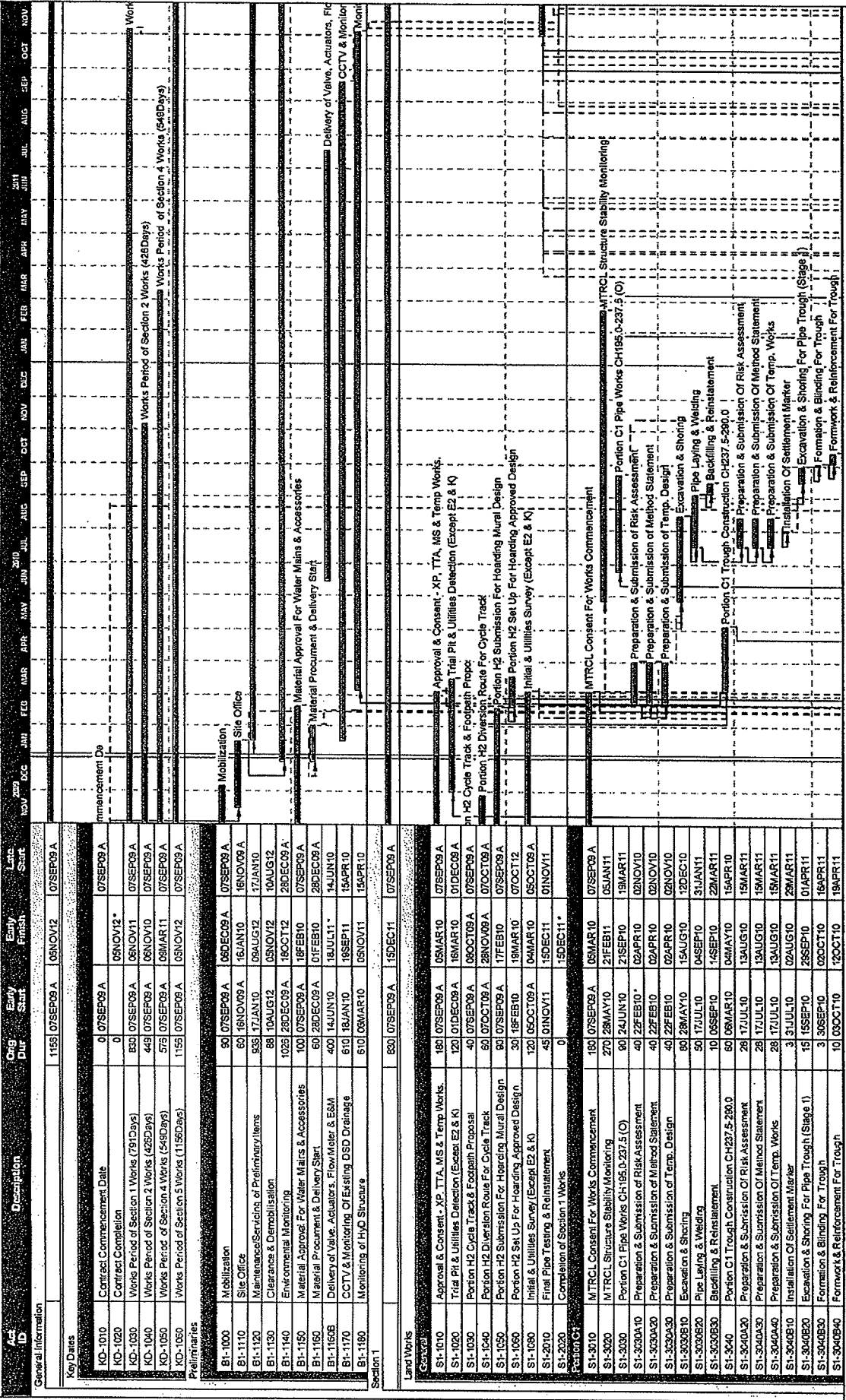
Act ID	Description	Orig. Start	Orig. Finish	Late Start	Late Finish	2010																	
						JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC						
S1-3040B50	Concrete of Pipe Trough	3	18OCT10	15OCT10	29APR11																		
S1-3040C10	Excavation & Shoring For Watermain	15	16OCT10	30OCT10	29APR11																		
S1-3050	Portion C1 Pipe Works CH237.5-250 (PT)	50	05MAY10	23JUN10	02DEC11																		
S1-3050B10	Pipe Laying & Connection (Welding)	40	31OCT10	09NOV10	17MAY11																		
S1-3050B20	Concrete Surround for Installed Watermain	6	10NOV10	15NOV10	27MAY11																		
S1-3050B30	Backfilling Of Pipe Trough	5	16NOV10	20NOV10	02JUN11																		
S1-3050B40	Backfilling & Reinstatement	10	21NOV10	30NOV10	07JUN11																		
S1-3060	Portion C1 Pipe Works CH290.0-325.5 (O)	83	01DEC10	21FEB11	17JUN11																		
S1-3070	Area C1 Portion Pipe Testing	30	22FEB11	23MAR11	12OCT11																		
S1-4020	Portion E1A Pipe Works CH387.5-576.9 (O)	160	17MAR10	12SEP10	24AUG10																		
S1-4020A20	Preparation & Submission Of Risk Assessment	40	03MAR10	11APR10	10AUG10																		
S1-4020A30	Preparation & Submission Of Method Statement	40	03MAR10	11APR10	10AUG10																		
S1-4020A40	Preparation & Submission Of Temp. Works	40	03MAR10	11APR10	10AUG10																		
S1-4020B10	Stage 1 UID & Trial Pit (CH380-420)	32	03MAY10	23JUN10	10OCT10																		
S1-4020B20	Fabrication of Access Shaft	30	19SEP10	11OCT10	19FEB11																		
S1-4020B30	Excavation & Support for Trenchless Works	45	12OCT10	25NOV10	21MAR11																		
S1-4020B40	Pipe Laying & Joint Connection	7	16DEC10	15DEC10	05MAY11																		
S1-4020C05	Existing Trees Relocation	4	19AUG10	22AUG10	03JUN11																		
S1-4020C10	Stage 2 UID & Trial Pit (CH420-C+480)	10	23AUG10	01SEP10	07JUN11																		
S1-4020C20	Excavation & Shoring	50	02SEP10	21OCT10	17JUN11																		
S1-4020C30	Pipe Laying & Connection (Welding)	25	22OCT10	15NOV10	08AUG11																		
S1-4020C40	Backfilling & Reinstatement	7	16NOV10	23NOV10	31AUG11																		
S1-4020D10	Stage 3 UID & Trial Pit (CH480-576.9)	6	01JUN11	03JUN11	03JUN11																		
S1-4020D20	Excavation & Shoring	92	07JUN11	06SEP11	07JUN11																		
S1-4020D30	Pipe Laying & Connection (Welding)	25	07SEP11	10OCT11	07SEP11																		
S1-4020D40	Backfilling & Reinstatement	16	07OCT11	17OCT11	02OCT11																		
S1-4030	Portion E1B Pipe Works CH576.9-585.9 (TL-B)	108	23FEB11	10JUN11	02JUL11																		
S1-4030B10	Excavation & Support for Trenchless Works	55	27SEP10	20NOV10	12MAR11																		
S1-4030B20	Fabrication of Access Shaft	50	21NOV10	05JAN11	06MAY11																		
S1-4030B30	Pipe Laying & Joint Connection	15	10JAN11	24JAN11	25JUN11																		
S1-4030B40	Backfilling & Reinstatement	6	25JAN11	01FEB11	10OCT11																		
S1-4050	Area E1A Portion Pipe Testing	14	18OCT11	31OCT11	16OCT11																		
S1-4010	Portion E1B SWM	50	13SEP10	01NOV10	06MAY11																		
S1-4010A10	Trees Transplanting (LCSD Consent Required)	5	09SEP10	13SEP10	26JAN11																		
S1-4010A20	Temporary Relocation of Irrigation Pipe	60	14SEP10	12NOV10	31JAN11																		
S1-4010A30	Temporary Relocation of Existing Storm Drain	60	14SEP10	12NOV10	31JAN11																		
S1-4010A50	Excavation for Irrigation Pipe Perm. Diversion	20	31MAR11	30MAR11	24AUG11																		
S1-4010A60	Irrigation Pipe Installation	10	31MAR11	09APR11	28SEP11																		
S1-4010A70	Excavation for Storm Drain Diversion	20	31MAR11	30MAR11	24AUG11																		
S1-4010A80	Pipe Laying & M.H Construction	10	25APR11	04MAY11	06OCT11																		
S1-4400	Portion E1B Pipe Works CH585.9-590.5 (O)	115	02NOV10	24FEB11	25JUN11																		
S1-4400B10	Excavation & Shoring For Pipe Trough (Stage 1)	40	13NOV10	22DEC10	07APR11																		
S1-4400B20	Excavation & Shoring For Pipe Trough (Stage 1)	15	23DEC10	06JAN11	25JUN11																		
S1-4400B30	Excavation & Shoring For Pipe Trough (Stage 1)	25	25JAN11	18FEB11	10JUL11																		
S1-4400B40	Backfilling & Reinstatement	20	19FEB11	10MAR11	04AUG11																		
S1-4410	Portion E2 DN600A SWM Works CH71.6-37.7 (LC)	50	05MAR10	23APR10	03SEP10																		
S1-4410A10	Preparation & Submission Of Risk Assessment	28	18FEB10	18MAR10	28MAY11																		
S1-4410A20	Preparation & Submission Of Method Statement	28	18FEB10	18MAR10	28MAY11																		
S1-4410A30	Submission & Approval Of Temp. Work	28	18FEB10	18MAR10	28MAY11																		
S1-4410B10	Installation & Connection Of DN600A SWM	8	14FEB11	21FEB11	25JUN11																		



3 Months Rolling Program (July 2011)

Wo Hing - Penta-Ocean Joint Venture

Contract No. 99NS008  
Laying of Water/Cross Harbour Main & Associated Land Mains from West Konouan to Sa Ying Pan



Key Dates	Start	Finish	Activity
1158	07SEP09 A	10NOV12	07SEP09 A
0	07SEP09 A	07SEP09 A	07SEP09 A
833	07SEP09 A	05NOV11	07SEP09 A
449	07SEP09 A	05NOV10	07SEP09 A
579	07SEP09 A	05MAR11	07SEP09 A
1158	07SEP09 A	05NOV12	07SEP09 A
90	07SEP09 A	06DEC09 A	07SEP09 A
60	16NOV09 A	16JAN10	16NOV09 A
593	17JAN10	08AUG12	17JAN10
88	10AUG12	10AUG12	10AUG12
1029	28DEC09 A	18OCT12	28DEC09 A
100	07SEP09 A	18FEB10	07SEP09 A
60	28DEC09 A	01FEB10	28DEC09 A
400	14JUN10	19JUL11*	14JUN10
610	18JAN10	18SEP11	18JAN10
610	08MAR10	05NOV11	15APR10
600	07SEP09 A	15DEC11	07SEP09 A
180	07SEP09 A	05MAR10	07SEP09 A
120	01DEC09 A	16MAR10	01DEC09 A
40	07SEP09 A	08OCT09 A	07SEP09 A
60	07OCT09 A	28NOV09 A	07OCT09 A
60	07SEP09 A	17FEB10	07SEP09 A
30	18FEB10	19MAR10	07OCT12
120	05OCT09 A	04MAR10	05OCT09 A
45	01NOV11	15DEC11*	01NOV11
0	07SEP09 A	07SEP09 A	07SEP09 A
270	28MAY10	21FEB11	05JAN11
90	24JUN10	21SEP10	19MAR11
40	22FEB10	02APR10	02NOV10
40	22FEB10	02APR10	02NOV10
40	22FEB10	02APR10	02NOV10
90	28MAY10	15AUG10	12DEC10
50	17JUL10	04SEP10	31JAN11
60	08SEP10	22MAR11	22MAR11
60	08MAR10	04MAY10	15APR10
28	17JUL10	13AUG10	15MAR11
28	17JUL10	13AUG10	15MAR11
28	17JUL10	13AUG10	15MAR11
3	31JUL10	02AUG10	29MAR11
15	15SEP10	28SEP10	01APR11
3	30SEP10	09OCT10	16APR11
10	09OCT10	12OCT10	19APR11

3 Months Rolling Program (July 2011)

Start date	07SEP09
Finish date	05NOV12
Date date	04/JAN/10
Run date	27/JUN/11
Page number	1A

Wo Hing - Penta-Ocean Joint Venture

c/Primavera Systems, Inc.



## **Appendix G**

# **Implementation Schedule of Environmental Mitigation Measures (EMIS)**





Environmental Protection Measures		Location	Implementation Status				
			Implemented	Partially implemented	Not implemented	Not Applicable	
<b>Noise Impact</b>							
<ul style="list-style-type: none"> <li>Well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.</li> <li>Air compressors and hand held breakers should have noise labels.</li> <li>Compressors and generators should operate with door closed.</li> <li>Material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>		All areas	√				
		All areas	√				
		All areas	√				
		All areas	√				
<b>Water Quality</b>							
<b>Mitigation Measures for Dredging</b>							
<ul style="list-style-type: none"> <li>Dredging should be undertaken using one grab dredger only with a maximum production rate of 4,000m<sup>3</sup> per day.</li> <li>Deployment of frame type silt curtain should be fully enclose the grab while dredging works are in progress.</li> <li>Deployment of silt screen should be at the sea water intake at Kowloon South Salt Water Pumping Station while dredging works are in progress.</li> <li>Tight-closing grabs should be used to minimize the loss of sediment to suspension during dredging works. For dredging of any contaminated mud, closed watertight grabs must be used.</li> <li>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.</li> <li>The decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.</li> <li>Adequate free board shall be maintained on barges to ensure that decks are not washed by wave action.</li> <li>All barges used for the transport of dredged materials should be fitted with tight bottom seals to prevent leakage of material during loading and transport.</li> <li>Construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present in the water within the site or dumping grounds.</li> <li>Loading of barges should be controlled to prevent splashing of material into the surrounding waters. Barges should not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation.</li> <li>The speed of vessels should be controlled within the works area to prevent propeller wash from stirring up the seabed sediments.</li> </ul>		Marine					√
		Marine					√
		Marine		√			
		Marine					√
		Marine	√				
		Marine	√				
		Marine	√				
		Marine	√				
		Marine	√				
		Marine	√				
		Marine	√				
		Marine	√				
		Marine	√				
		Marine	√				
		Marine	√				
		Marine	√				
<b>Mitigation Measures for other Construction Activities</b>							
<ul style="list-style-type: none"> <li>Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m<sup>3</sup> capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity should be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped.</li> <li>Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the storm runoff being directed into foul sewers.</li> <li>All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads.</li> <li>An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process.</li> <li>The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfill toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</li> <li>Fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour and Western Harbour-WCZs.</li> </ul>		All areas	√				
		All areas	√				
		All areas	√				
		All areas					√
		All areas					√
		All areas					√
		All areas	√				



Environmental Protection Measures		Location	Implementation Status		
			Implemented	Partially implemented	Not implemented
<b>Water Quality</b>					
<b>Mitigation Measures for other Construction Activities</b>					
<ul style="list-style-type: none"> <li>Portable chemical toilets should be used to handle construction workforce sewage prior to discharge to the existing trunk sewer. Sufficient numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers. The Contractor shall also be responsible for waste disposal and maintenance practices.</li> <li>Construction site runoff should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the Victoria Harbour WCZ under the TM-DSS.</li> <li>Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.</li> </ul>	All areas	√			
<b>Waste Management</b>					
<b>C&amp;D Materials</b>					
<ul style="list-style-type: none"> <li>Excavated materials should be reused on-site as backfilling material and for landscaping works as far as practicable.</li> <li>C&amp;D material generated from excavation works should be disposed of at public fill reception facilities for other beneficial uses.</li> <li>A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed</li> <li>A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used, e.g. trip ticket system for chemical waste disposal. Quantities could be determined by weighing each load or other suitable methods.</li> </ul>	All areas				√
All areas					√
All areas	√				
All areas	√				
<b>Chemical Waste</b>					
<ul style="list-style-type: none"> <li>Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately.</li> <li>Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc.</li> <li>The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility.</li> </ul>	All areas	√			
All areas	√				
All areas	√				
<b>General Refuse</b>					
<ul style="list-style-type: none"> <li>General refuse should be stored in enclosed bins or compaction units separate from C&amp;D material.</li> <li>A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&amp;D material.</li> <li>An enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.</li> </ul>	All areas	√			
All areas	√				
All areas	√				
<b>Marine Dredged Sediment (During transportation and disposal)</b>					
<ul style="list-style-type: none"> <li>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 dredgers before the vessel is moved</li> <li>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 EPD</li> <li>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.</li> </ul>	Marine				√
Marine					√
Marine					√
<b>Good Site Practices</b>					
<ul style="list-style-type: none"> <li>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</li> <li>Training of site personnel in proper waste management and chemical handling procedures</li> <li>Provision of sufficient waste disposal points and regular collection of waste</li> </ul>	All areas	√			
All areas	√				
All areas	√				



Environmental Protection Measures		Location	Implementation Status			
			Implemented	Partially implemented	Not implemented	Not Applicable
<b>Waste Management</b>						
<b>Good Site Practices</b>						
<ul style="list-style-type: none"> <li>Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment.</li> <li>Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers</li> </ul>	All areas		√			
<ul style="list-style-type: none"> <li>Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers</li> </ul>	All areas	√				
<b>Waste Reduction Measures</b>						
<ul style="list-style-type: none"> <li>Sort C&amp;D material from demolition and decommissioning of the existing facilities to recover recyclable portions such as metals</li> <li>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</li> <li>Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force</li> <li>Proper storage and site practices to minimise the potential for damage or contamination of construction materials</li> <li>Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>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</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>Proper storage and site practices to minimise the potential for damage or contamination of construction materials</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste</li> </ul>	All areas	√				
<b>Marine Ecology</b>						
<ul style="list-style-type: none"> <li>Use of one grab dredger only with a maximum production rate of 4,000m<sup>3</sup> per day for dredging.</li> <li>Deployment of frame type silt curtain to fully enclose the grab while dredging works are in progress.</li> <li>Deployment of silt screen at the sea water intake at Kowloon South Salt Water Pumping Station while dredging works are in progress.</li> <li>Good site practices to avoid silt runoff from construction works associated with the construction of the submarine watermain.</li> </ul>	Marine				√	
<ul style="list-style-type: none"> <li>Deployment of frame type silt curtain to fully enclose the grab while dredging works are in progress.</li> </ul>	Marine				√	
<ul style="list-style-type: none"> <li>Deployment of silt screen at the sea water intake at Kowloon South Salt Water Pumping Station while dredging works are in progress.</li> </ul>	Marine		√			
<ul style="list-style-type: none"> <li>Good site practices to avoid silt runoff from construction works associated with the construction of the submarine watermain.</li> </ul>	Marine	√				
<b>Good Site Practices</b>						
<ul style="list-style-type: none"> <li>The Environmental Permit should be displaced conspicuously on site.</li> <li>Construction noise permits should be posted at site entrance or available for site inspection.</li> <li>Chemical storage area provided with lock and located on sealed areas.</li> <li>All chemicals should be placed at the banded area with adequate band capacity (&gt;110% of largest tank).</li> <li>Any unused chemicals or those with remaining functional capacity should be recycled.</li> <li>All generators, fuel and oil storage are within bundle areas.</li> <li>Regular cleaning and maintenance programme for waste storage area, drainage systems, silt traps, sumps and oil interceptors.</li> <li>A collection area should be provided where waste can be stored and loaded prior to removal from site. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. If an open area is unavoidable for the storage or loading/unloading of wastes, then the area should be banded and all the polluted surface run-off collected within this area should be diverted into wastewater treatment system.</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>Construction noise permits should be posted at site entrance or available for site inspection.</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>Chemical storage area provided with lock and located on sealed areas.</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>All chemicals should be placed at the banded area with adequate band capacity (&gt;110% of largest tank).</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>Any unused chemicals or those with remaining functional capacity should be recycled.</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>All generators, fuel and oil storage are within bundle areas.</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>Regular cleaning and maintenance programme for waste storage area, drainage systems, silt traps, sumps and oil interceptors.</li> <li>A collection area should be provided where waste can be stored and loaded prior to removal from site. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. If an open area is unavoidable for the storage or loading/unloading of wastes, then the area should be banded and all the polluted surface run-off collected within this area should be diverted into wastewater treatment system.</li> </ul>	All areas	√				
<ul style="list-style-type: none"> <li>A collection area should be provided where waste can be stored and loaded prior to removal from site. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. If an open area is unavoidable for the storage or loading/unloading of wastes, then the area should be banded and all the polluted surface run-off collected within this area should be diverted into wastewater treatment system.</li> </ul>	All areas		√			

## **Appendix H**

### **Statistical Analysis of the Monitoring Parameters between Quarterly Mean and Ambient Mean**

## Statistical Analysis of the Trend of Dissolved Oxygen

### t-test

Group Name	N	Mean	Std Dev	SE
Quarterly Mean	2025	6.1006	0.1533	0.0034
1.3 times of Ambient Mean (130% of Baseline Mean)	648	8.1835	0.2680	0.0105

### Result:

Probability that two variances are equal (f-test) = 0

Difference between means = 2.0829 (Std Dev = 0.3104 and SE = 0.0111)  
(95% CI : 2.0612 < Diff < 2.1046)

t-value of difference = 188.234 (760 degrees of freedom)  
P = 1 (>0.05)

### Conclusion:

There is no statistically significant difference of Dissolved Oxygen between 1.3 times of ambient mean and quarterly mean.

## Statistical Analysis of the Trend of Turbidity

### t-test

Group Name	N	Mean	Std Dev	SE
Quarterly Mean	675	5.1294	0.1576	0.0061
1.3 times of Ambient Mean (130% of Baseline Mean)	216	6.7413	1.3077	0.0892

### Result:

Probability that two variances are equal (f-test) = 0

Difference between means = 1.6119 (Std Dev = 1.3138 and SE = 0.0892)  
(95% CI : 1.4371 < Diff < 1.7867)

t-value of difference = 18.074 (217 degrees of freedom)  
P = 1 (>0.05)

### Conclusion:

There is no statistically significant difference of Turbidity between 1.3 times of ambient mean and quarterly mean.



## Statistical Analysis of the Trend of Suspended Solids

### t-test

Group Name	N	Mean	Std Dev	SE
Quarterly Mean	675	8.2008	0.2724	0.0105
1.3 times of Ambient Mean (130% of Baseline Mean)	216	12.7839	2.4624	0.1679

### Result:

Probability that two variances are equal (f-test) = 0

Difference between means = 4.5831 (Std Dev = 2.4711 and SE = 0.1679)  
(95% CI : 4.2541 < Diff < 4.9121)

t-value of difference = 27.301 (216 degrees of freedom)  
P = 1 (>0.05)

### Conclusion:

There is no statistically significant difference of Suspended Solids between 1.3 times of ambient mean and quarterly mean.



## **Appendix I**

### **Site General Layout plan**







NOTES :

1. THIS DRAWING SHALL BE READ IN CONNECTION WITH DRAWING NOS. 241239/G/03/01 TO 03/04 AND 03/04 TO 03/05.
2. THE LEGEND SHALL REFER TO DRAWING NO. 241239/G/03/01.

PROJECT NO. 9/WSD/03

THE GOVERNMENT OF THE HONG KONG  
SPECIAL ADMINISTRATIVE REGION  
WATER SUPPLIES DEPARTMENT

POSSESSION OF SITE  
(SHEET 3 OF 5)

SCALE: 1:1000

DATE: 241239

PROJECT: TEN

DRAWING NO. 01

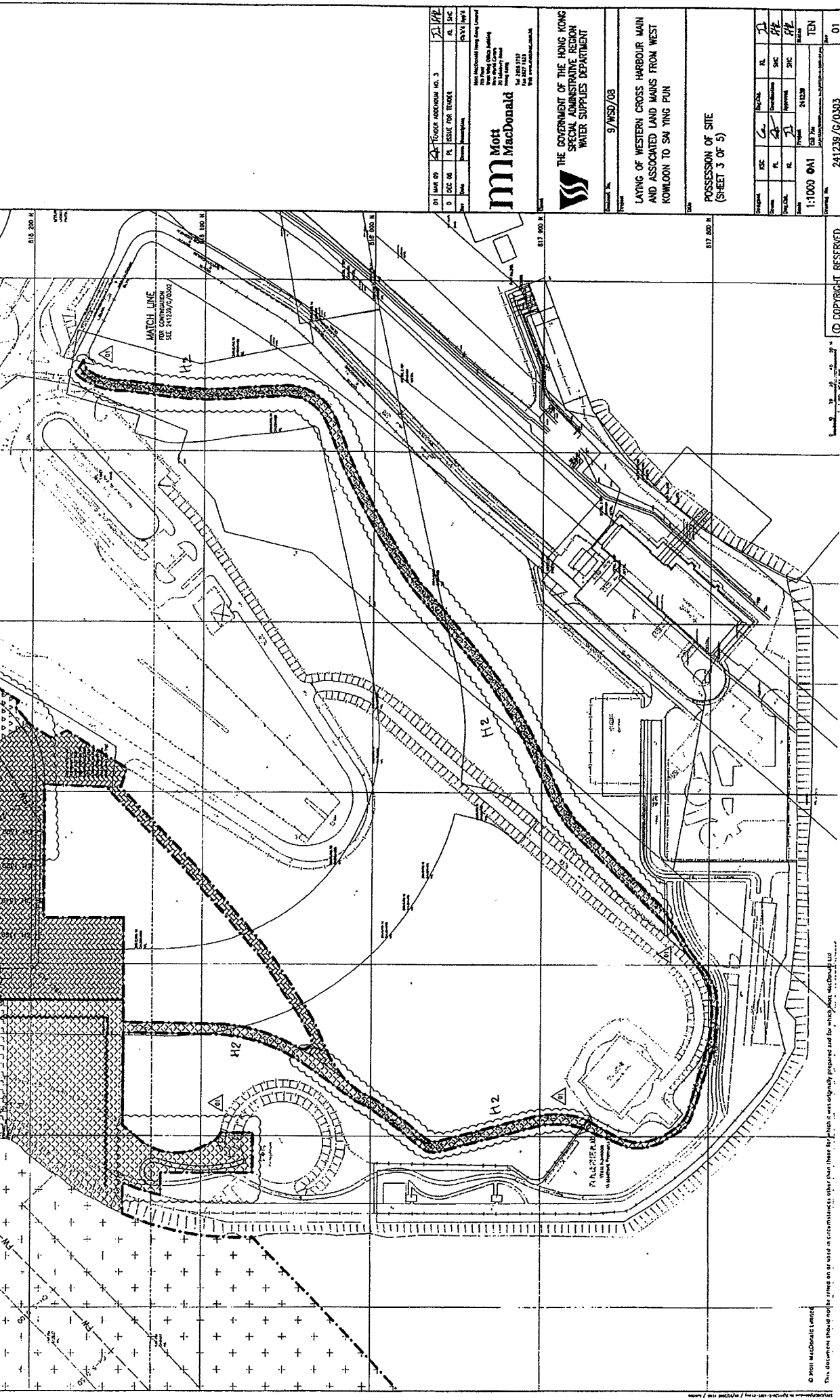
DATE	DESCRIPTION	BY	CHECKED
01 MAR 09	ISSUE FOR TENDER	ALP	ALP
05 DEC 08	FOR ISSUE FOR TENDER	ALP	ALP
01 MAR 09	FOR ISSUE FOR TENDER	ALP	ALP

PROJECT ADDRESS NO. 3  
241239

PROJECT NO. 9/WSD/03

THE GOVERNMENT OF THE HONG KONG  
SPECIAL ADMINISTRATIVE REGION  
WATER SUPPLIES DEPARTMENT

POSSESSION OF SITE  
(SHEET 3 OF 5)



© 2009 MOTT MACDONALD LIMITED  
This document should not be used or reproduced in any form without the prior written permission of Mott MacDonald Limited.

241239/G/03/03

© COPYRIGHT RESERVED

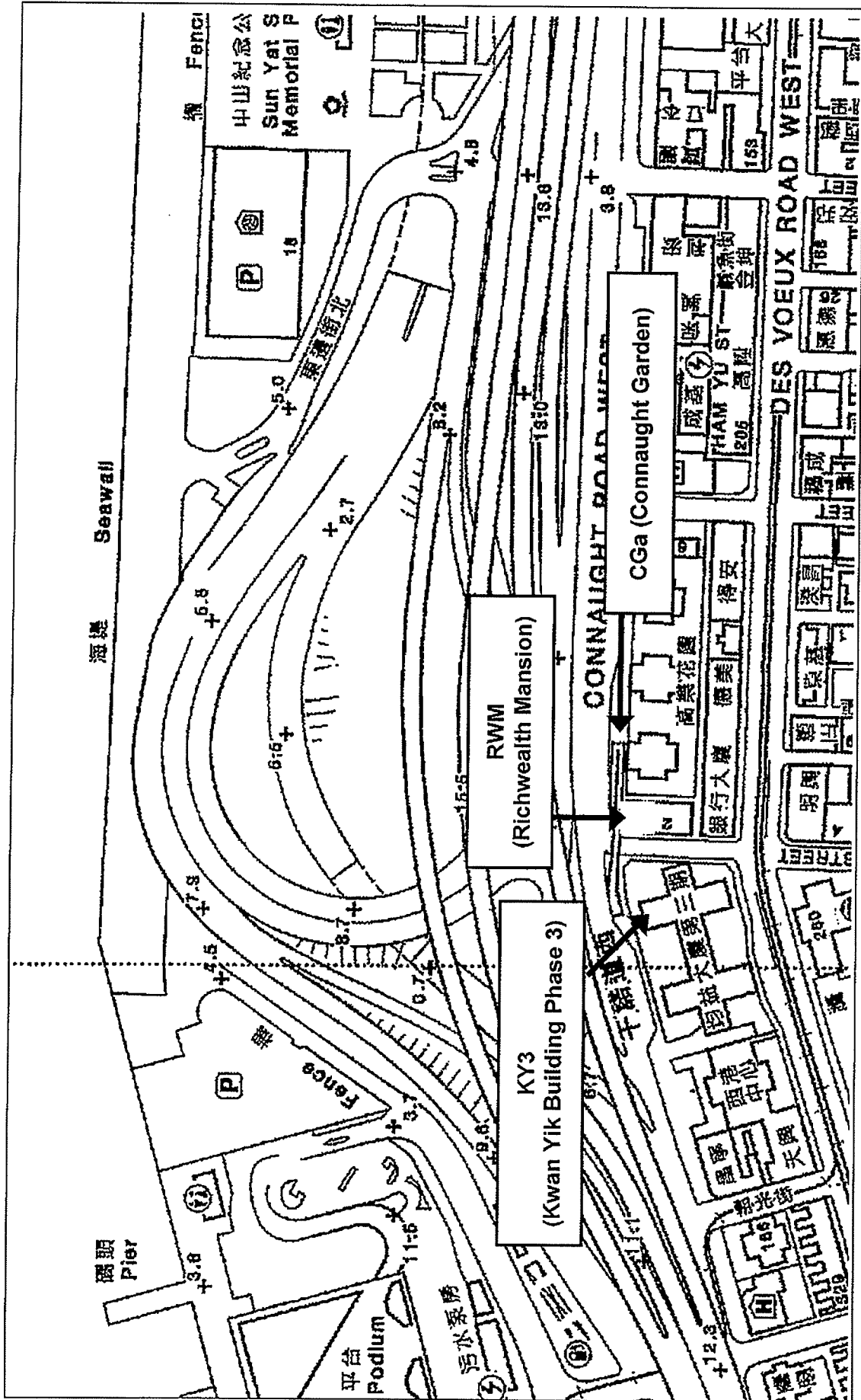
01





## Figures

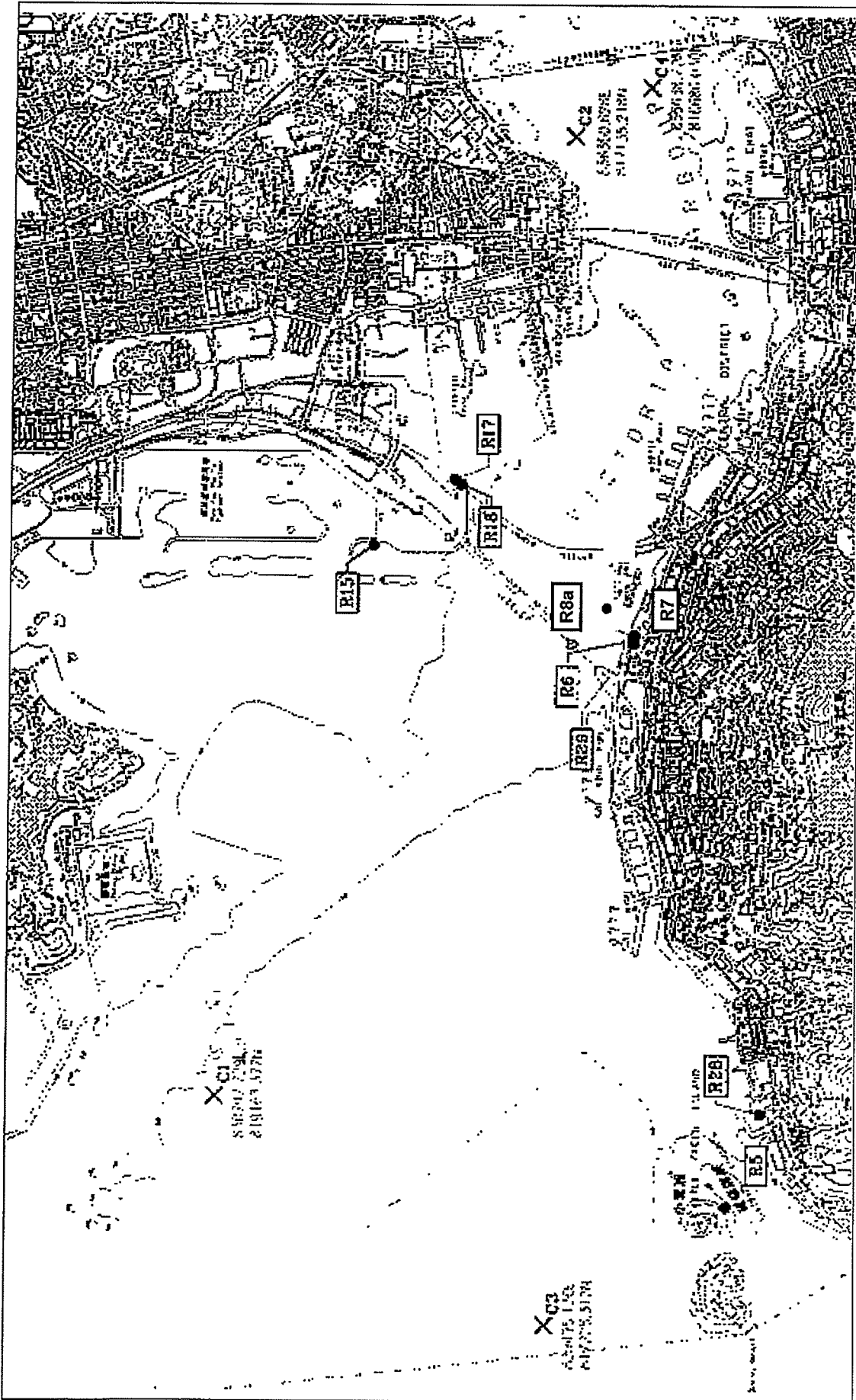




Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Mains for West Kowloon to Sai Ying Pun

Figure 2

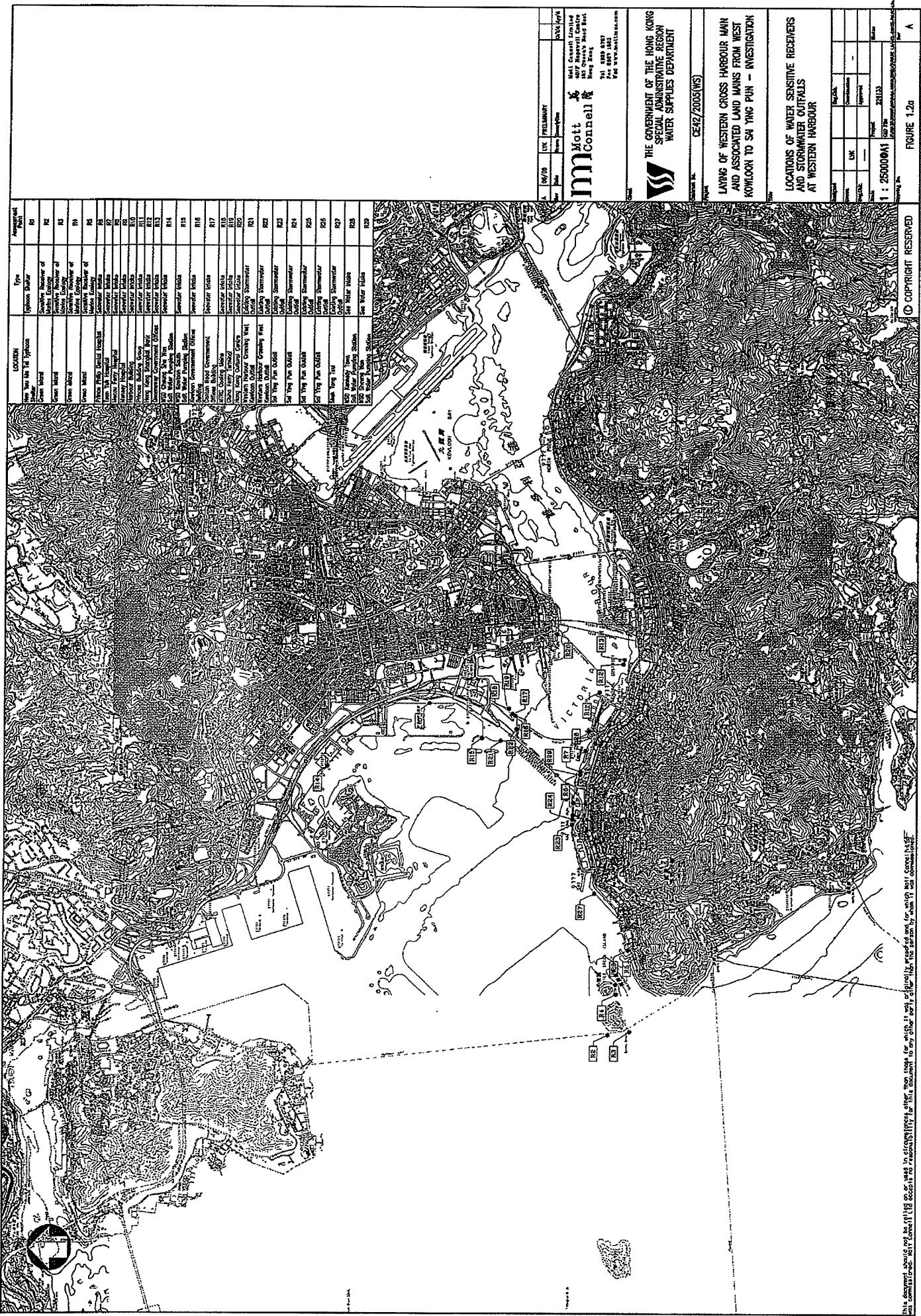
Locations of Noise Monitoring Stations at Sai Ying Pun



Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Mains for West Kowloon to Sai Ying Pun

Figure 3  
Locations of Water Quality Monitoring Stations





Number	Location	Type	Remarks
R1	San Yee Tin Tai Tye	Open Water	
R2	San Yee Tin Tai Tye	Shallow Receiver of Stormwater	
R3	Green Island	Shallow Receiver of Stormwater	
R4	Green Island	Shallow Receiver of Stormwater	
R5	Green Island	Shallow Receiver of Stormwater	
R6	Green Island	Shallow Receiver of Stormwater	
R7	Green Island	Shallow Receiver of Stormwater	
R8	Green Island	Shallow Receiver of Stormwater	
R9	Green Island	Shallow Receiver of Stormwater	
R10	Green Island	Shallow Receiver of Stormwater	
R11	Green Island	Shallow Receiver of Stormwater	
R12	Green Island	Shallow Receiver of Stormwater	
R13	Green Island	Shallow Receiver of Stormwater	
R14	Green Island	Shallow Receiver of Stormwater	
R15	Green Island	Shallow Receiver of Stormwater	
R16	Green Island	Shallow Receiver of Stormwater	
R17	Green Island	Shallow Receiver of Stormwater	
R18	Green Island	Shallow Receiver of Stormwater	
R19	Green Island	Shallow Receiver of Stormwater	
R20	Green Island	Shallow Receiver of Stormwater	
R21	Green Island	Shallow Receiver of Stormwater	
R22	Green Island	Shallow Receiver of Stormwater	
R23	Green Island	Shallow Receiver of Stormwater	
R24	Green Island	Shallow Receiver of Stormwater	
R25	Green Island	Shallow Receiver of Stormwater	
R26	Green Island	Shallow Receiver of Stormwater	
R27	Green Island	Shallow Receiver of Stormwater	
R28	Green Island	Shallow Receiver of Stormwater	
R29	Green Island	Shallow Receiver of Stormwater	

**m** Mott  
Connell

Mott Connell Limited  
4077 Regency Centre  
4077 Regency Centre  
Hong Kong

Tel: 852 2577 1111  
Fax: 852 2577 1111  
E-mail: mottconnell.com

THE GOVERNMENT OF THE HONG KONG  
SPECIAL ADMINISTRATIVE REGION  
WATER SUPPLIES DEPARTMENT

CE 42 / 2003 (WS)

LAYING OF WESTERN CROSS HARBOUR MAIN  
AND ASSOCIATED LAND MAINS FROM WEST  
KOWLOON TO SAN YING PUN - INVESTIGATION

LOCATIONS OF WATER SENSITIVE RECEIVERS  
AND STORMWATER OUTFALLS  
AT WESTERN HARBOUR

Scale	1 : 25000/0/0/1
Project No.	2003/001
Sheet No.	001
Date	2003.11.13
Author	
Checker	
Approver	
Scale	
Project No.	
Sheet No.	
Date	
Author	
Checker	
Approver	

This document should not be reproduced or stored in a retrieval system without the prior written permission of Mott Connell Limited. It is the property of Mott Connell Limited and is loaned to you for your use only. It is not to be distributed to any other person without the prior written permission of Mott Connell Limited.

© COPYRIGHT RESERVED

FIGURE 1.2a

A

**LEGEND.**

- PROPOSED ROUTE OF 1500PS PRESSURE WATER MAIN
- NOISE SENSITIVE RECEIVERS
- 300m NOISE ASSESSMENT BOUNDARY
- - - WORKS AREA BOUNDARY

NO. 1	DATE	DESCRIPTION	BY
1	15/07/20	PRELIMINARY	SAW/AYL

**Mott**  
Connell

3441 Central Limited  
3441 Central Limited  
222 Desford Centre  
222 Desford Centre  
Wing King, 2nd Fl.,  
TV 2429 8707  
Fax 2429 1400  
www.mottconnell.com

THE GOVERNMENT OF THE HONG KONG  
SPECIAL ADMINISTRATIVE REGION  
WATER SUPPLIES DEPARTMENT

Contract No. CE42/2025(M5)

LAYING OF WESTERN CROSS HARBOUR MAIN  
AND ASSOCIATED LAND MAINS FROM WEST  
KOWLOON TO SAU YING PUN - INVESTIGATION

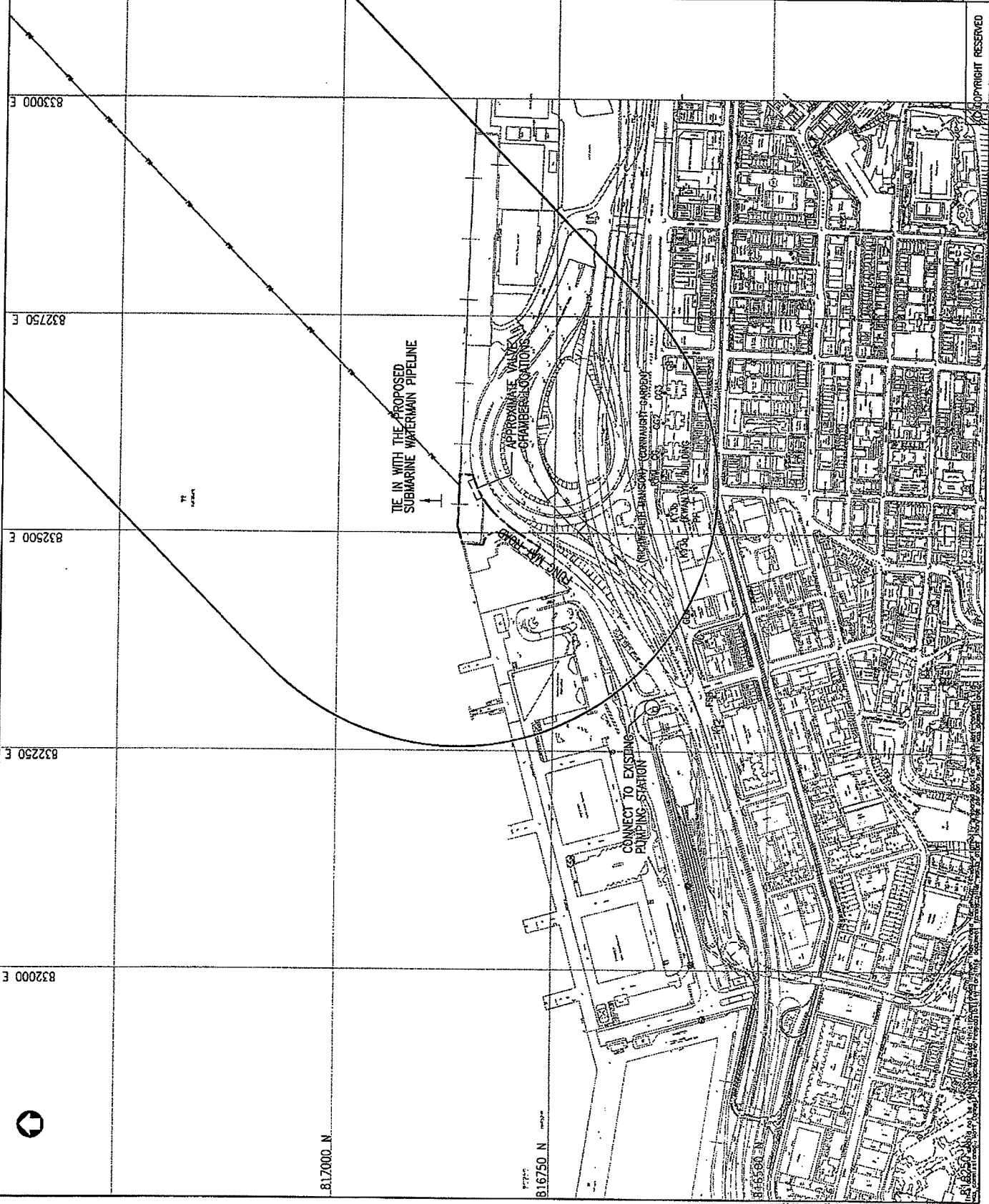
LOCATIONS OF NOISE SENSITIVE  
RECEIVERS IN SAU YING PUN

NO. 1	DATE	DESCRIPTION	BY
1	15/07/20	PRELIMINARY	SAW/AYL

Project No. 1 : 200006A1

Scale 1 : 20000

Figure No. 1.2b



COPYRIGHT RESERVED

**LEGEND:**

- PROPOSED SCOPE OF 1200µF FRESH WATER MAIN
- NOISE SENSITIVE RECEIVERS
- TEMPORARY PLATFORM
- 300m NOISE ASSESSMENT BOUNDARY
- WORKS AREA BOUNDARY

NO.	DATE	REV.	DESCRIPTION
1	2005/07/27		ISSUED FOR TENDER

**m Mott  
Connell**  
 Mott Connell Limited  
 115 Queen's Road East  
 Hong Kong  
 Tel: 852 2579 7000  
 Fax: 852 2579 7001  
 Web: www.mottconnell.com

THE GOVERNMENT OF THE HONG KONG  
 SPECIAL ADMINISTRATIVE REGION  
 WATER SUPPLIES DEPARTMENT

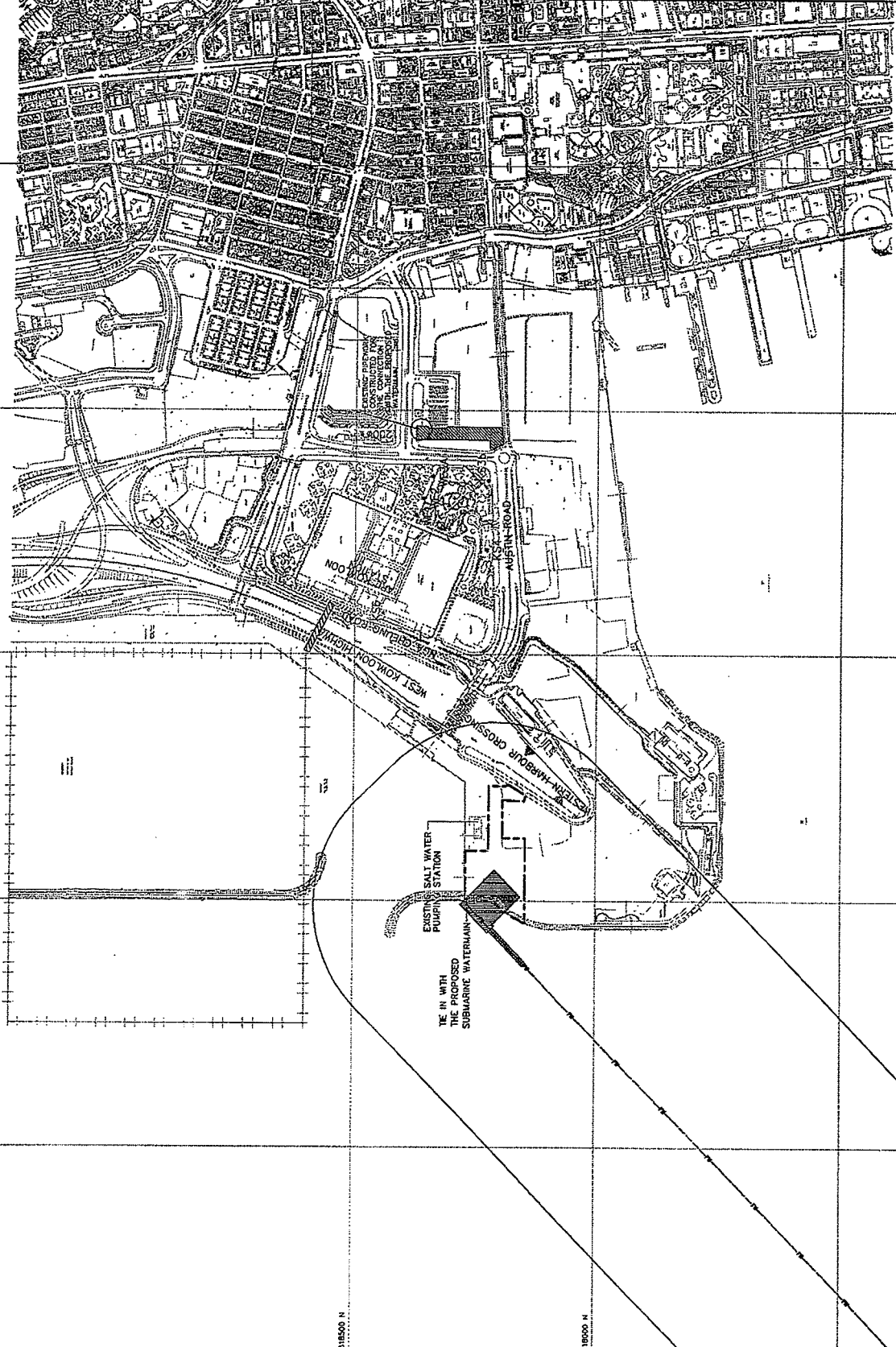
DE/2/2005(MS)

LAYING OF WESTERN CROSS HARBOUR MAIN  
 AND ASSOCIATED LAND MAINS FROM WEST  
 KOWLOON TO SAN YING FUN - INVESTIGATION

LOCATION OF NOISE SENSITIVE  
 RECEIVERS IN WEST KOWLOON

Project No.	DE/2/2005(MS)
Scale	1 : 4000(A1)
Revision	
Author	
Check	
Drawn	
Approved	
Date	

FIGURE 1.2c  
 A



© COPYRIGHT RESERVED

This document should not be relied upon for any purpose other than that for which it was prepared. The Government of the Hong Kong Special Administrative Region is not responsible for any errors or omissions in this document.