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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.8**

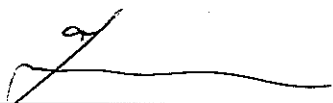
(FROM FEBRUARY TO APRIL 2012)

Prepared by:



LAW, Sau Yee
Senior Environmental Officer

Checked by:



LAU, Chi Leung
Environmental Team Leader

Issue Date: 16 May 2012

Report No.: ENA20586

ENVIRON

Ref.: WSDWHCMSEI00_0_0257L.12

21st May, 2012

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

By Post

Attention: Mr. Johnny Ho

Dear Sir,

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.8
(for Feb 2012 – Apr 2012)

Reference is made to Environment Team's submission of the Quarterly Environmental Monitoring and Audit Report No. 8 by Email on 16th May 2012 (entitled "9/WSD/08 - Draft Quarterly Report (Feb to April 12)") and the subsequent revision of the report by Email on 21st May 2012.

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

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EXECUTIVE SUMMARY

This is the eighth 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 February to April 2012.

Site Activities

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

<i>February 2012</i>	<i>Re-installation of the vertical seawall (Portion J); and Placing of Rock Armour (Type 2) to the submarine main (Portion I).</i>
<i>March 2012</i>	<i>Re-installation of the vertical seawall (Portion J); and Placing of Rock Armour (Type 2) to the submarine main (Portion I).</i>
<i>April 2012</i>	<i>Re-instatement of the vertical seawall (Portion J); and Placing of Rock Armour (Type 2) to the submarine main (Portion I).</i>

Environmental Monitoring Works

Noise Monitoring

In this quarter, no exceedance of Action Level of noise monitoring was recorded in this reporting quarter since no complaint on noise issue was received. Besides, totally forty-eight 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 exceedance of Action and Limit Level was recorded in this quarter.

Environmental Complaints, Notification of summons and successful prosecutions

No environmental complaint, notification of summon and prosecution with respect to environmental issues was 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 February to April 2012.

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 I. 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

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

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.

According to the impact noise monitoring results in this quarter, forty-eight exceedances in Limit Level were recorded during night-time noise monitoring. No exceedance of Action Level of noise monitoring was recorded in this quarter since no complaint on noise issue was received.

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 (February 2012)</i>	0	0	0	0
<i>Action (March 2012)</i>	0	0	0	0
<i>Action (April 2012)</i>	0	0	0	0
<i>Cumulative</i>	0	0	0	0
<i>Limit (February 2012)</i>	0	0	30	0
<i>Limit (March 2012)</i>	0	0	18	0
<i>Limit (April 2012)</i>	0	0	0	0
<i>Cumulative</i>	0	0	227	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>February 2012</i>	<i>March 2012</i>	<i>April 2012</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
Construction Noise Permit (West Kowloon)	GW-RE0754-11	12/10/11	11/04/12	Group A One Generator, standard (CNP 101) One Derrick barge (CNP 061) One Guard boat One Tug boat (CNP 221) Group B Two Generator, standard (CNP 101) Two Derrick barge (CNP 061) One Guard boat One Tug boat (CNP 221) Group C One Crane, mobile (diesel) (CNP 048) One Air compressor with Noise Emission Label showing a sound power level of $\leq 100\text{dB(A)}$ One Generator, standard (CNP 101)
Construction Noise Permit (West Kowloon)	GW-RE0108-12	20/02/12	19/07/12	Group A One Generator, standard (CNP 101) One Derrick barge (CNP 061) One Guard boat Group B Two Generator, standard (CNP 101) Two Derrick barge (CNP 061) One Guard boat One Tug boat (CNP 221) Group C One Generator, standard (CNP 101) One Water pump, submersible (electric) (CNP 283)



Description	Permit No.	Valid Period		Remarks
		From	To	
Construction Noise Permit (West Kowloon)	GW-RE0196-12	16/03/12	15/08/12	<p>Group A One Generator, standard (CNP 101) One Derrick barge (CNP 061) One Guard boat</p> <p>Group B Two Generator, standard (CNP 101) Two Derrick barge (CNP 061) One Guard boat One Tug boat (CNP 221)</p> <p>Group C One Water pump, submersible (electric) (CNP283) One Generator, standard (CNP 101)</p> <p>Group D One Generator, standard (CNP 101) One Dredger, grab (CNP 063) One Guard boat</p> <p>Group E One Generator, standard (CNP 101) One Dredger, grab (CNP 063) One Guard boat One Tug boat (CNP 221)</p>
Construction Noise Permit (Sai Ying Pun)	GW-RS0877-11	26/09/11	25/03/12	<p>Group A One Crane, mobile (diesel) (CNP 048) One Air compressor with Noise Emission Label showing a sound power level of $\leq 98\text{dB(A)}$ One Generator, silenced, $\leq 108\text{dB(A)}$ (CNP 101)</p> <p>Group B One Air compressor with Noise Emission Label showing a sound power level of $\leq 98\text{dB(A)}$ One Generator, silenced, $\leq 108\text{dB(A)}$ (CNP 101)</p> <p>Group C One Generator, silenced, $\leq 108\text{dB(A)}$ (CNP 101) One Derrick barge (CNP 061) One Guard boat One Tug boat (CNP 221)</p> <p>Group D One Generator, silenced, $\leq 108\text{dB(A)}$ (CNP 101) One Derrick barge (CNP 061) One Guard boat One Tug boat (CNP 221)</p>
Construction Noise Permit (Sai Ying Pun)	GW-RS0338-12	29/03/12	28/09/12	<p>Group A One Crane, mobile (diesel) (CNP 048) One Air compressor with Noise Emission Label showing a sound power level of $\leq 98\text{dB(A)}$ One Generator, silenced, $\leq 108\text{dB(A)}$ (CNP 101)</p> <p>Group B One Air compressor with Noise Emission Label showing a sound power level of $\leq 98\text{dB(A)}$ One Generator, silenced, $\leq 108\text{dB(A)}$ (CNP 101)</p> <p>Group C One Generator, silenced, $\leq 108\text{dB(A)}$ (CNP 101) One Derrick barge (CNP 061) One Guard boat One Tug boat (CNP 221)</p> <p>Group D One Generator, silenced, $\leq 108\text{dB(A)}$ (CNP 101) One Derrick barge (CNP 061) One Guard boat One Tug boat (CNP 221)</p>
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.			



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 ³)	599.27		17077.29
	Broken Concrete (in m ³)	0	---	0
	Reused in the Contract (in m ³)	0	---	0
	Reused in other Projects (in m ³)	0	---	0
	Disposal as Public Fill (in m ³)	599.27	SENT Landfill	17077.29
C&D Waste	Metals (in kg)	0	---	0
	Paper/Cardboard Packaging (in kg)	13	Collected by recycling company	169
	Plastics (in kg)	0	---	0
	Chemical Waste (in kg)	0	---	3578
	Other, e.g. General Refuse (in m ³)	42.32	SENT Landfill	151.53
Dredged Materials	Type 1 (in m ³)	0	East Ninepin Mud Disposal Ground	160500
	Type 2 (in m ³)	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 exceedance of Action and Limit Level of marine water quality monitoring results was recorded in this quarter.

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

Totally forty-eight exceedances in Limit Level was recorded according to the results of noise monitoring in this quarter.

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

Since the exceedances of Limit Level of noise monitoring recorded in this quarter were considered to be invalid (not project related), no action on the review of the reason for and the implication of non-compliance was required.

6.3 Summary of Actions Taken

Since the exceedances of Limit Level of noise monitoring recorded in this quarter were considered to be invalid (not project related), no further action was required.

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

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

Table 6.1 Summary of Environmental Complaints and Prosecutions

Period	Complaints logged	Summon served	Successful Prosecution
February 2012	0	0	0
March 2012	0	0	0
April 2012	0	0	0
Cumulative	1	0	0

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.

In this quarter, no exceedance of Action Level of noise monitoring was recorded in this reporting quarter since no complaint on noise issue was received. Besides, totally forty-eight 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 exceedance of Action and Limit Level of water quality monitoring results was recorded during the reporting quarter.

No environmental complaint, 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;



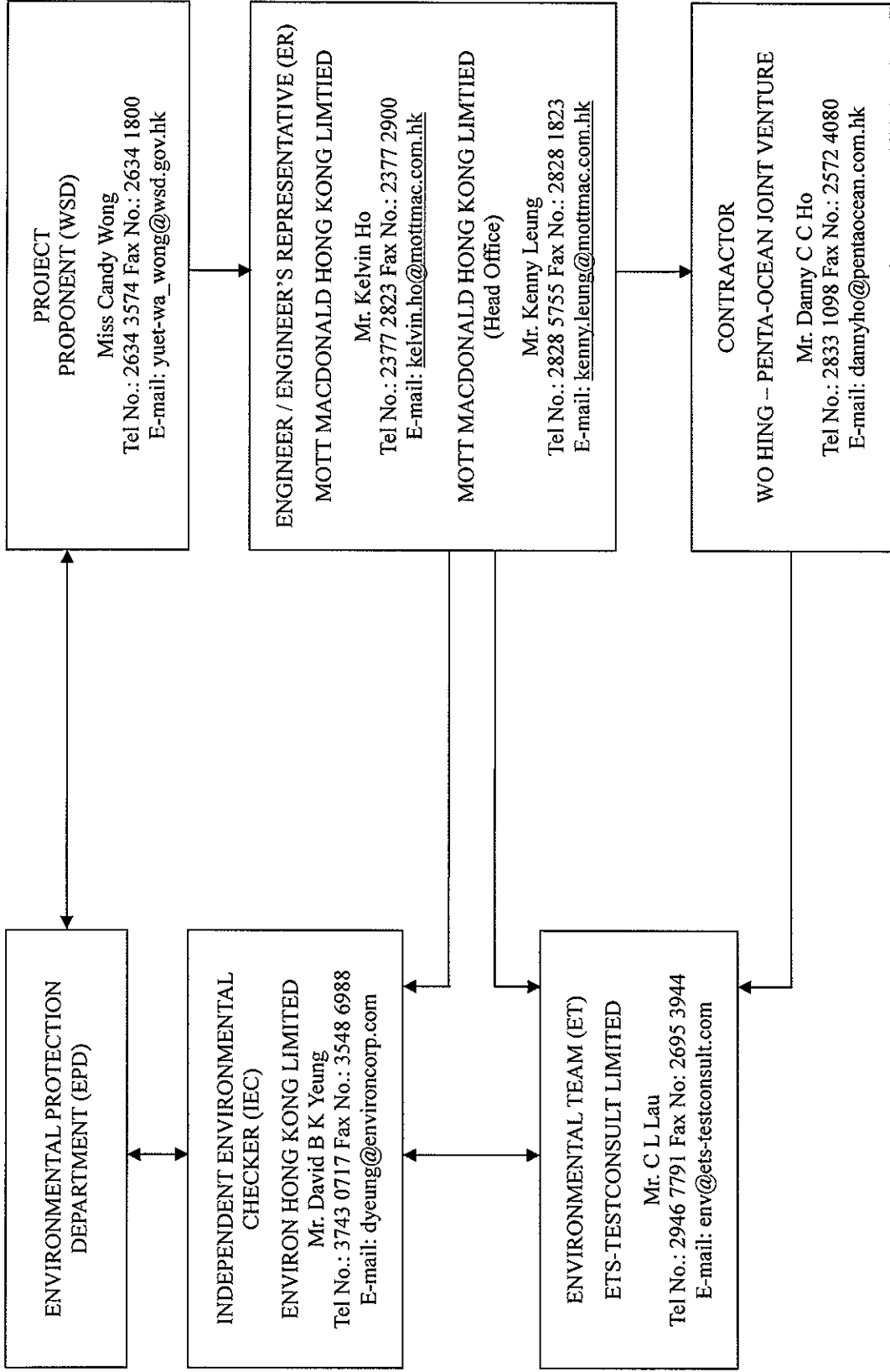
- Provide and maintain sufficient drip trays for diesel drums, chemical containers, chemical waste storage drums and diesel operated generator set;
- Maintain good housekeeping at the works area;
- Avoid soil being polluted during oil filling and equipment maintenance; hence, properly remove and store the contaminated soil, if any.

- END OF REPORT -



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



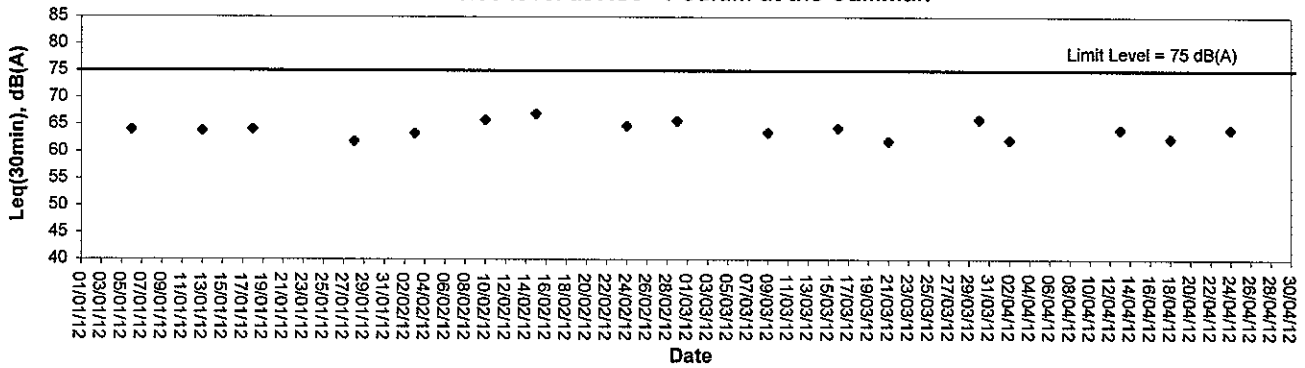
Appendix B

Graphical Plots of Noise Monitoring Data

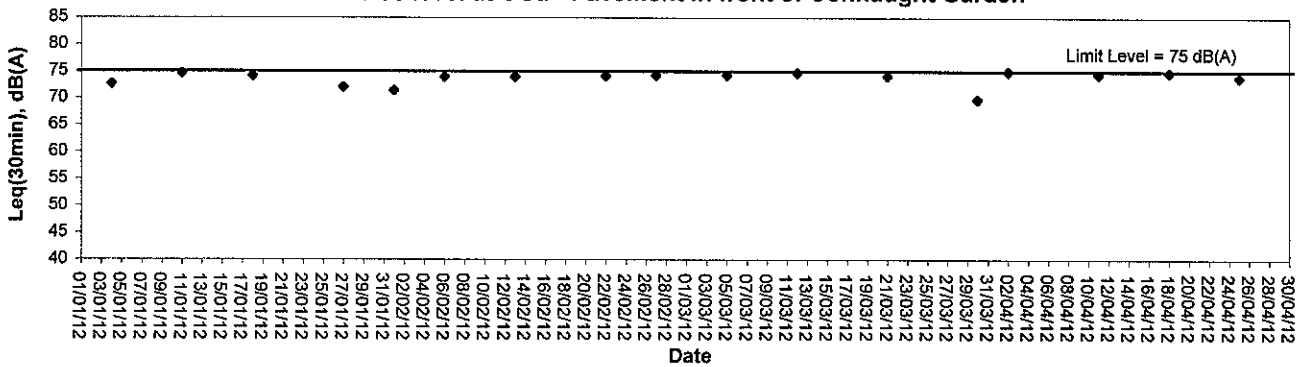


Noise Monitoring (Day-time)

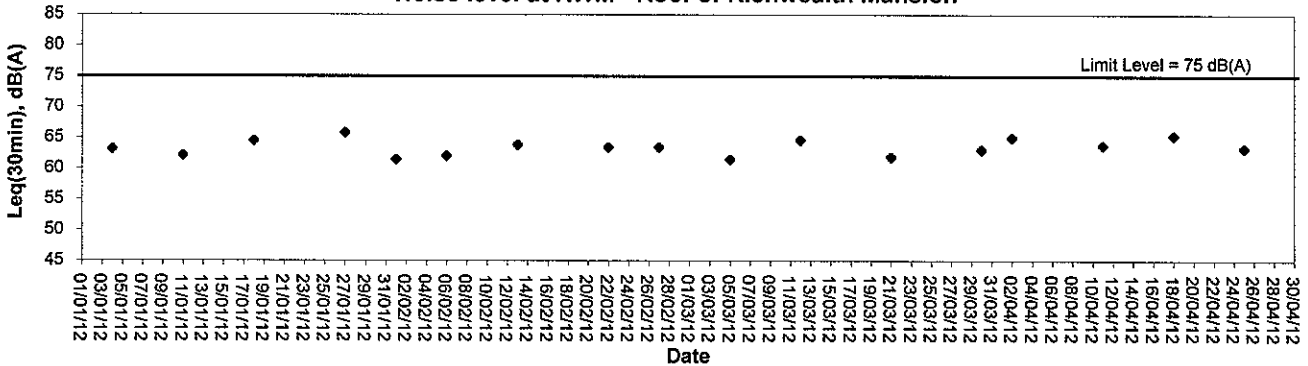
Noise level at KS6 - Podium at the Culliman



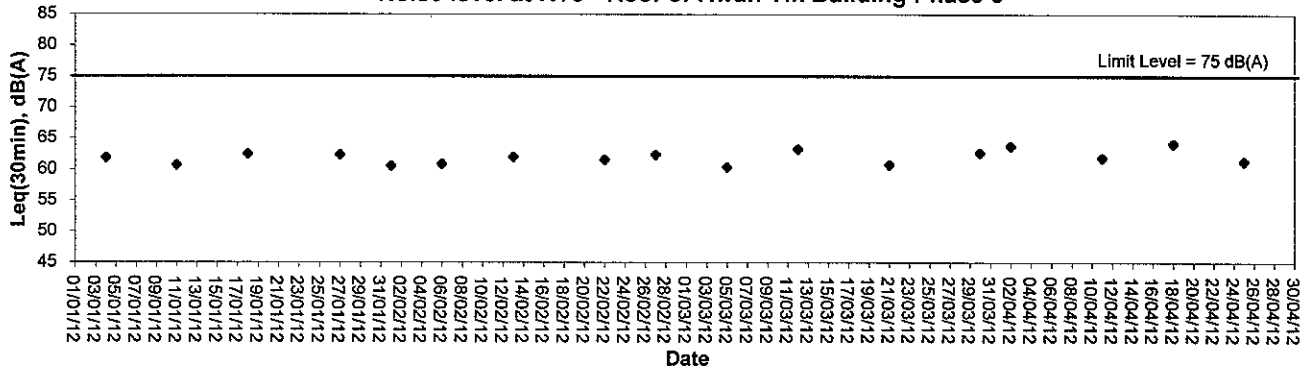
Noise level at CGa - Pavement in front of Connaught Garden



Noise level at RWM - Roof of Richwealth Mansion



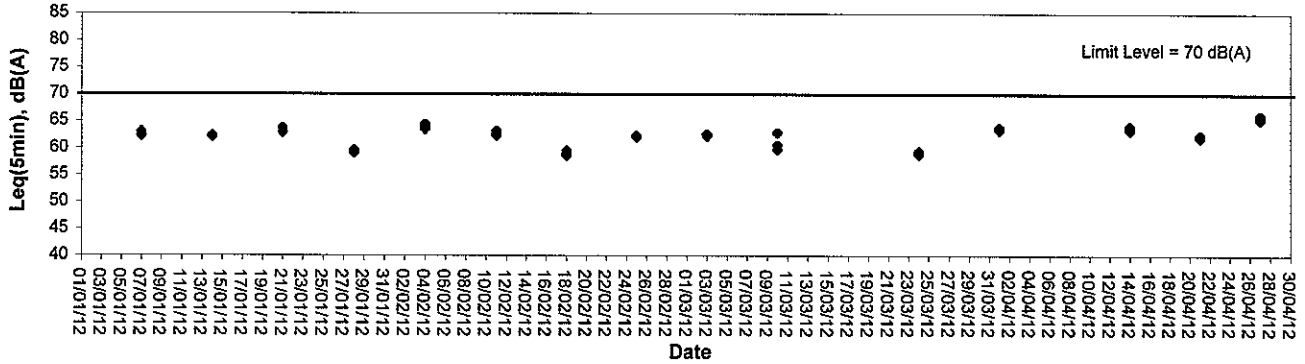
Noise level at KY3 - Roof of Kwan Yik Building Phase 3



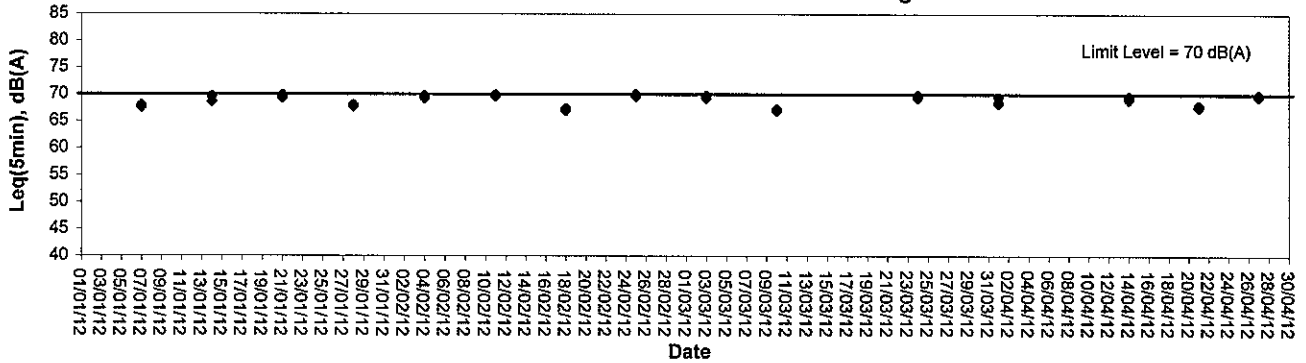


Noise Monitoring (Evening-time)

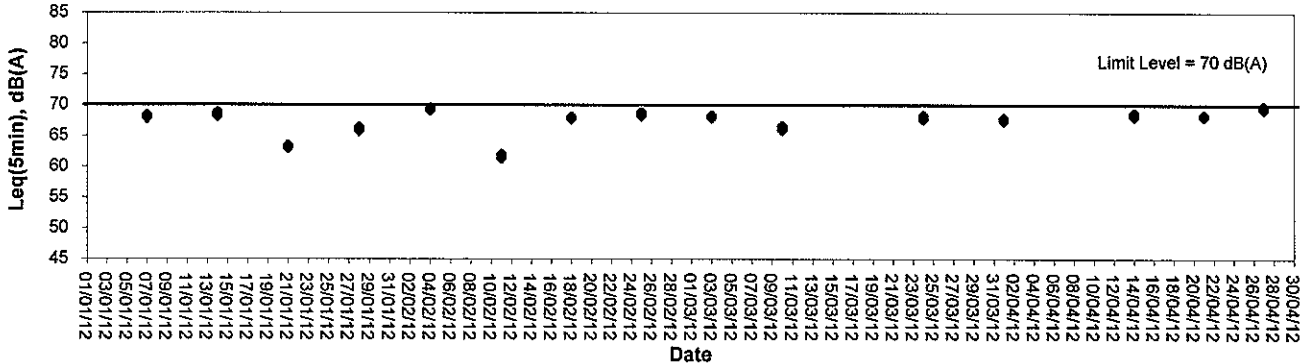
Noise level at KS6 - Podium at the Culliman



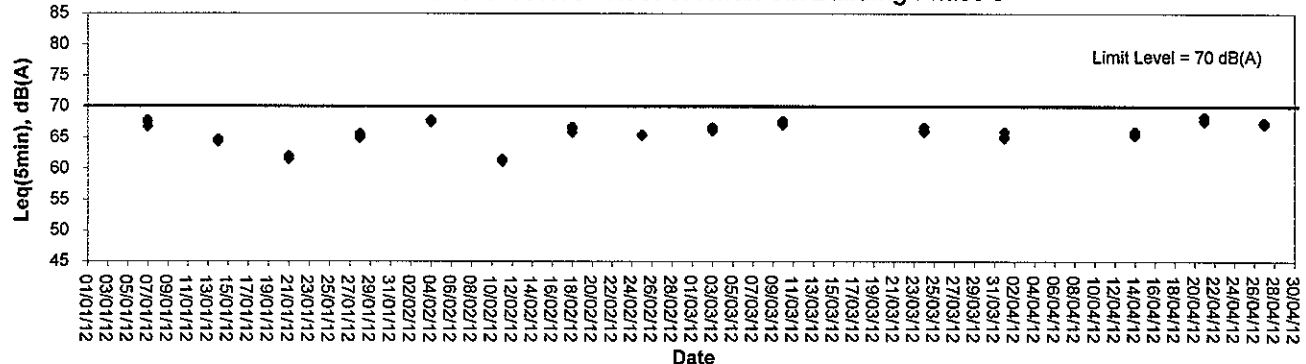
Noise level at CGa - Pavement in front of Connaught Garden



Noise level at RWM - Roof of Richwealth Mansion



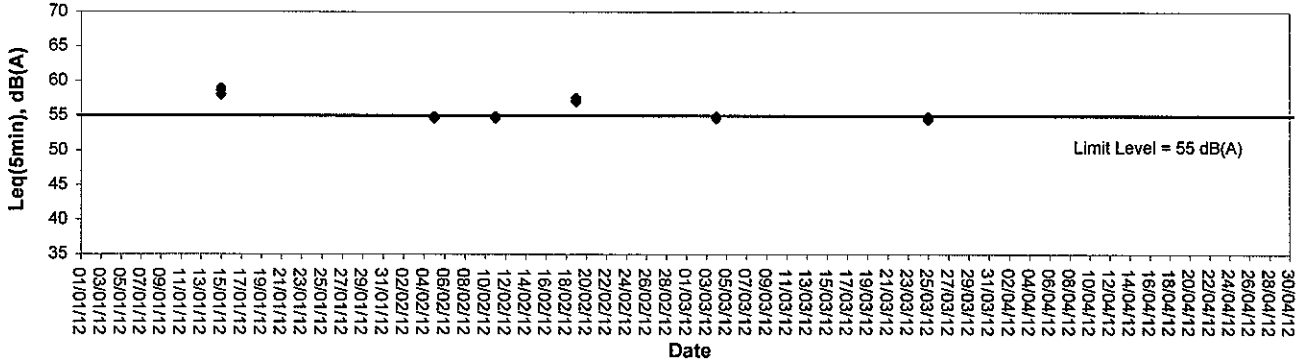
Noise level at KY3 - Roof of Kwan Yik Building Phase 3



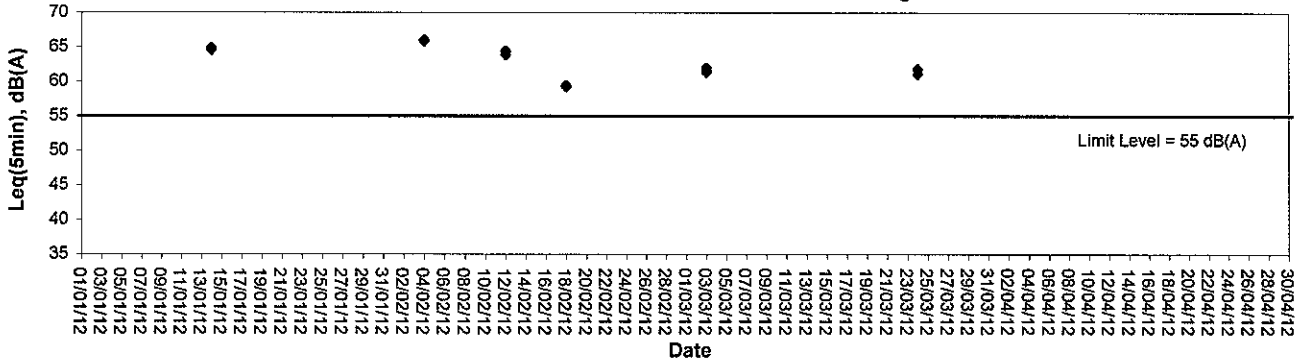


Noise Monitoring (Night-time)

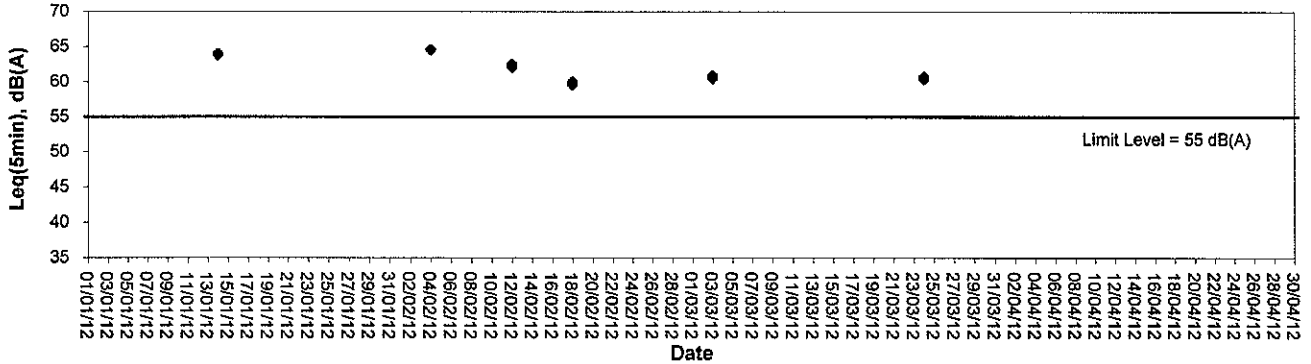
Noise level at KS6 - Podium at the Culliman



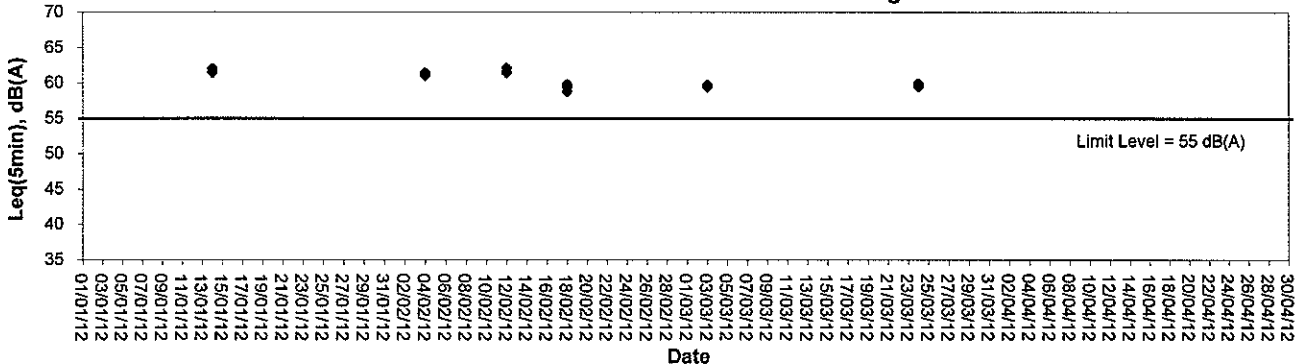
Noise level at CGa - Pavement in front of Connaught Garden



Noise level at RWM - Roof of Richwealth Mansion



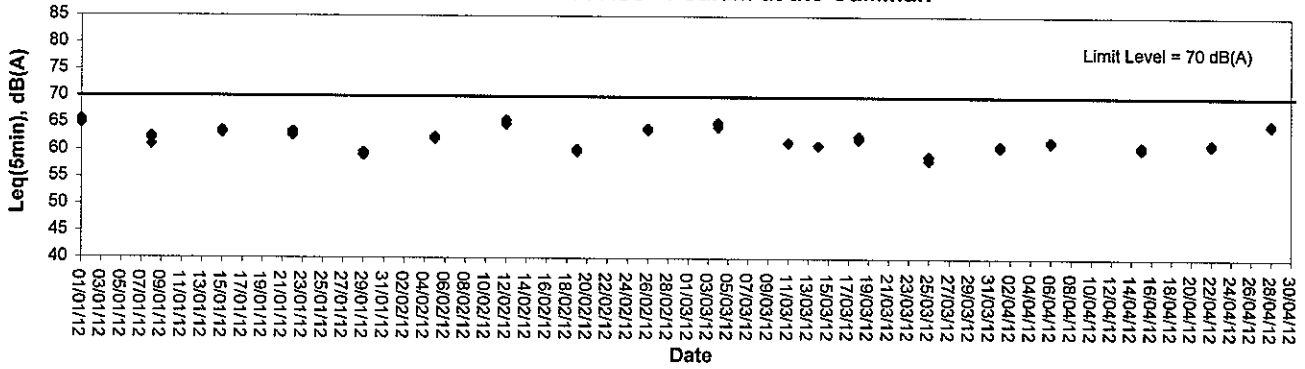
Noise level at KY3 - Roof of Kwan Yik Building Phase 3



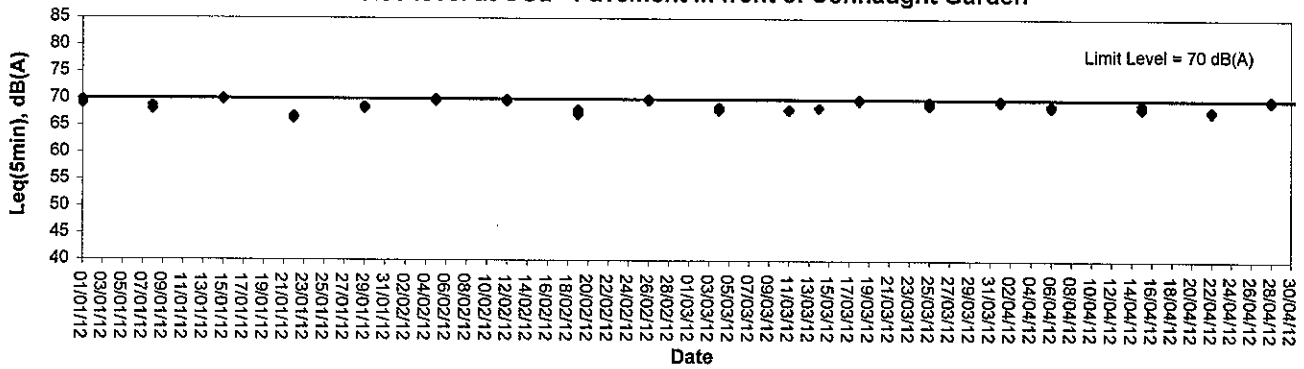


Noise Monitoring (Holiday-time)

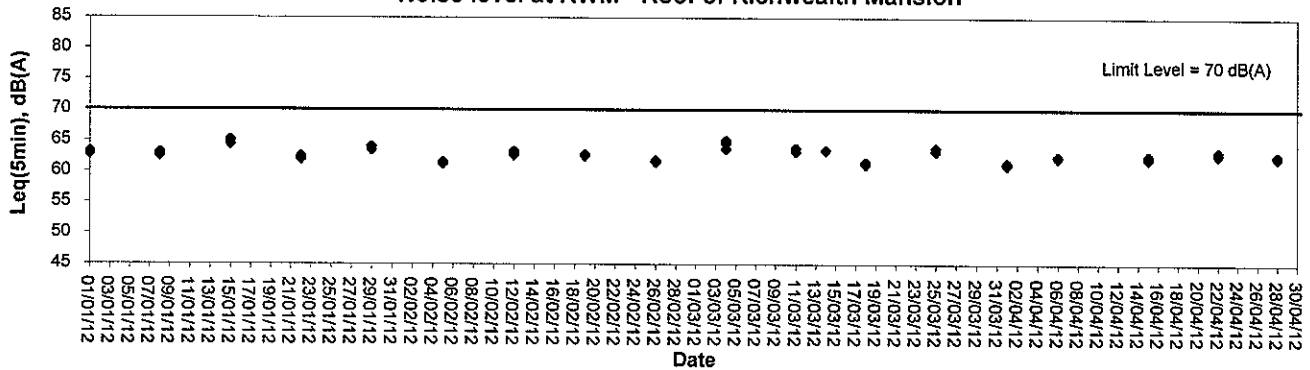
Noise level at KS6 - Podium at the Culliman



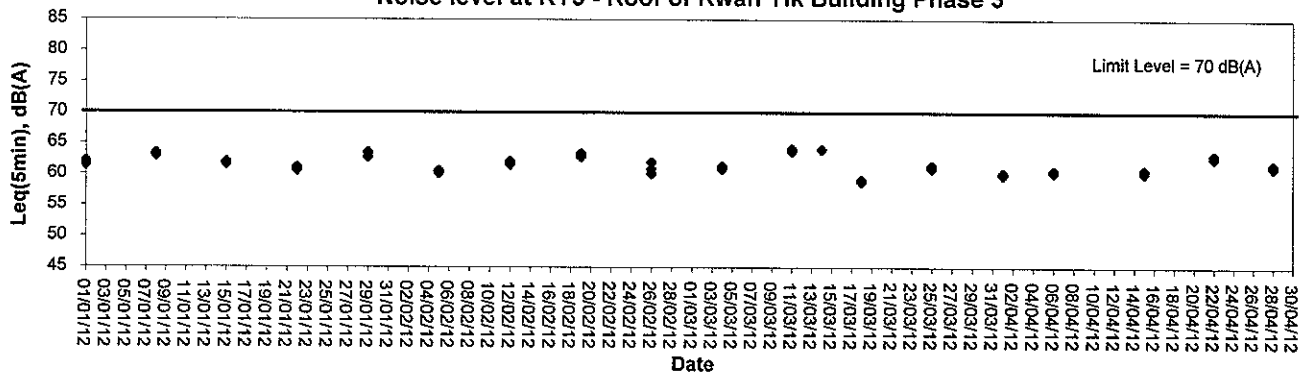
Noise level at CGa - Pavement in front of Connaught Garden



Noise level at RWM - Roof of Richwealth Mansion



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



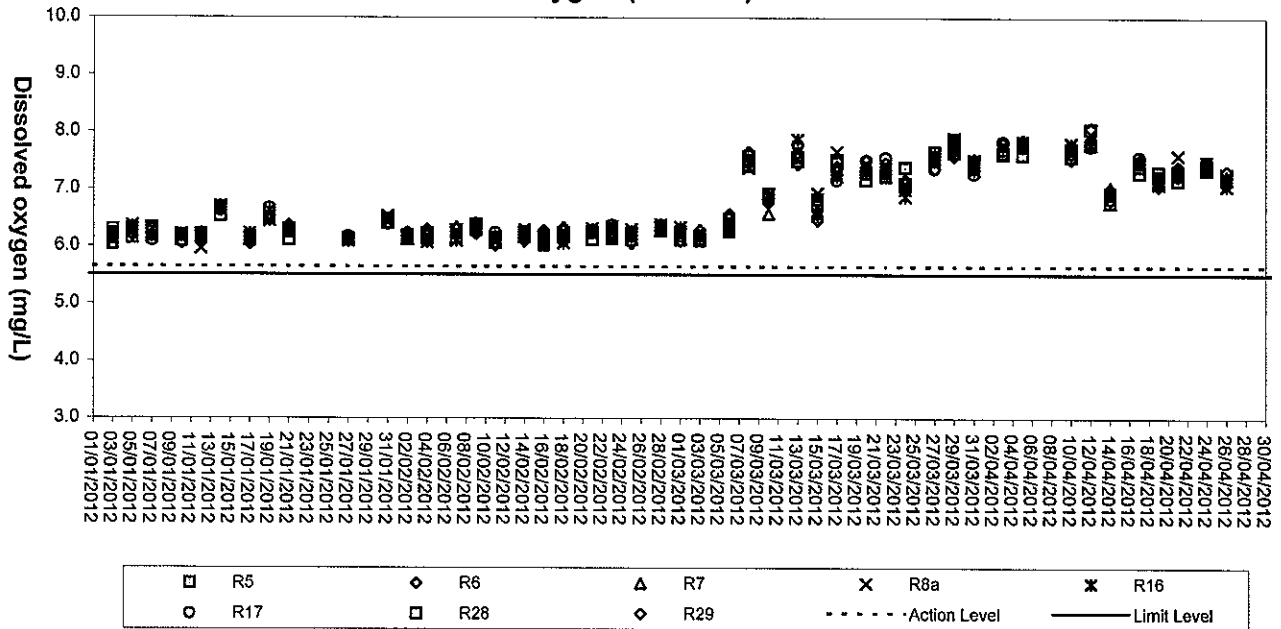


Appendix C

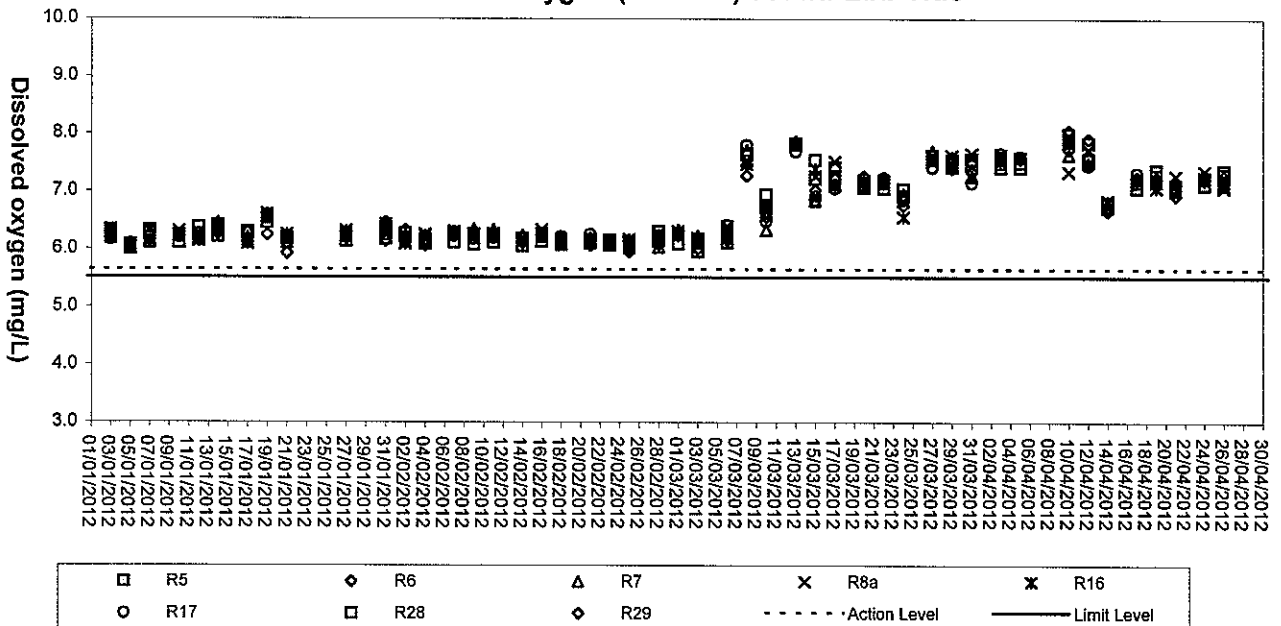
Graphical Plots of Impact Marine Water Quality Monitoring Data



Dissolved Oxygen (Surface) at Mid-Flood Tide

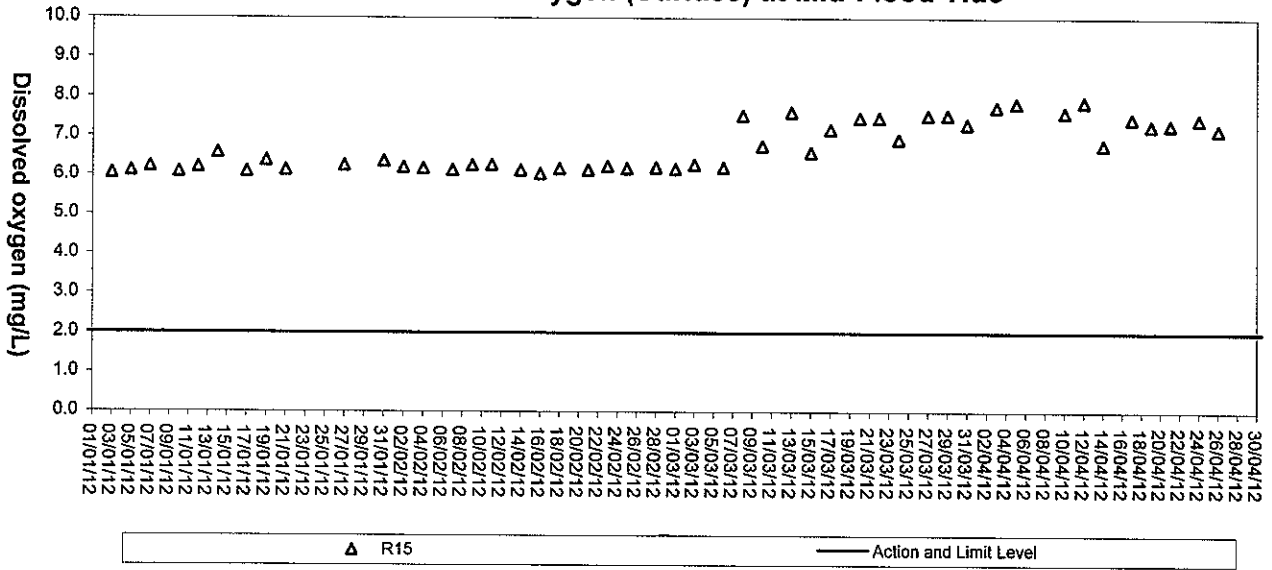


Dissolved Oxygen (Surface) at Mid-Ebb Tide





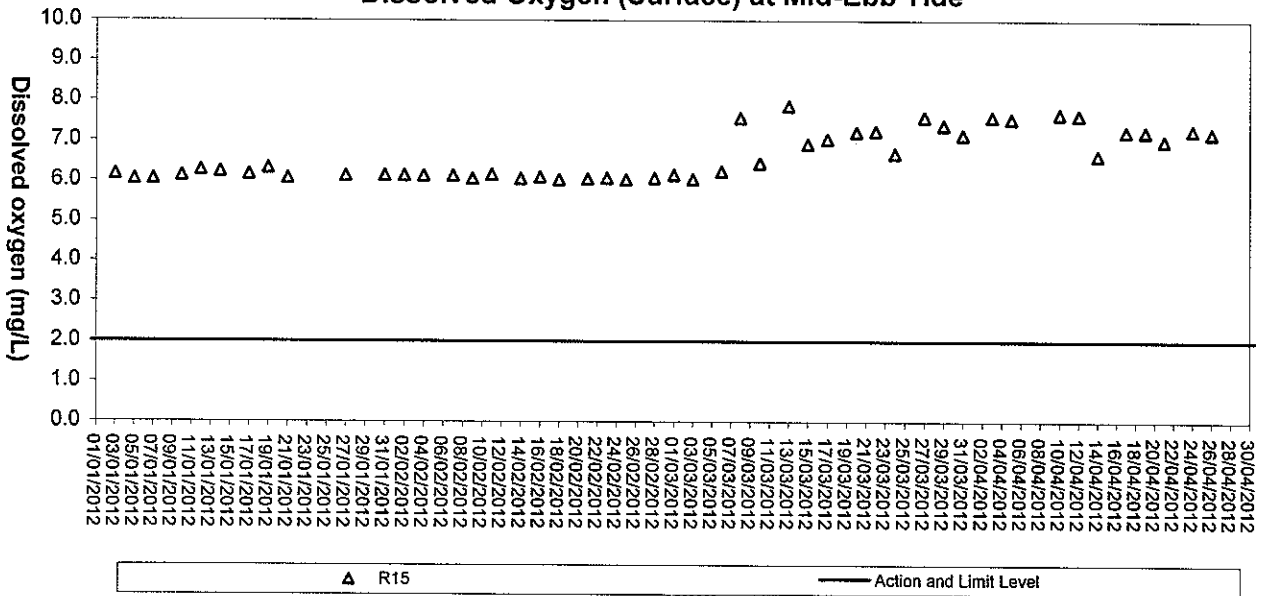
Dissolved Oxygen (Surface) at Mid-Flood Tide



▲ R15

— Action and Limit Level

Dissolved Oxygen (Surface) at Mid-Ebb Tide

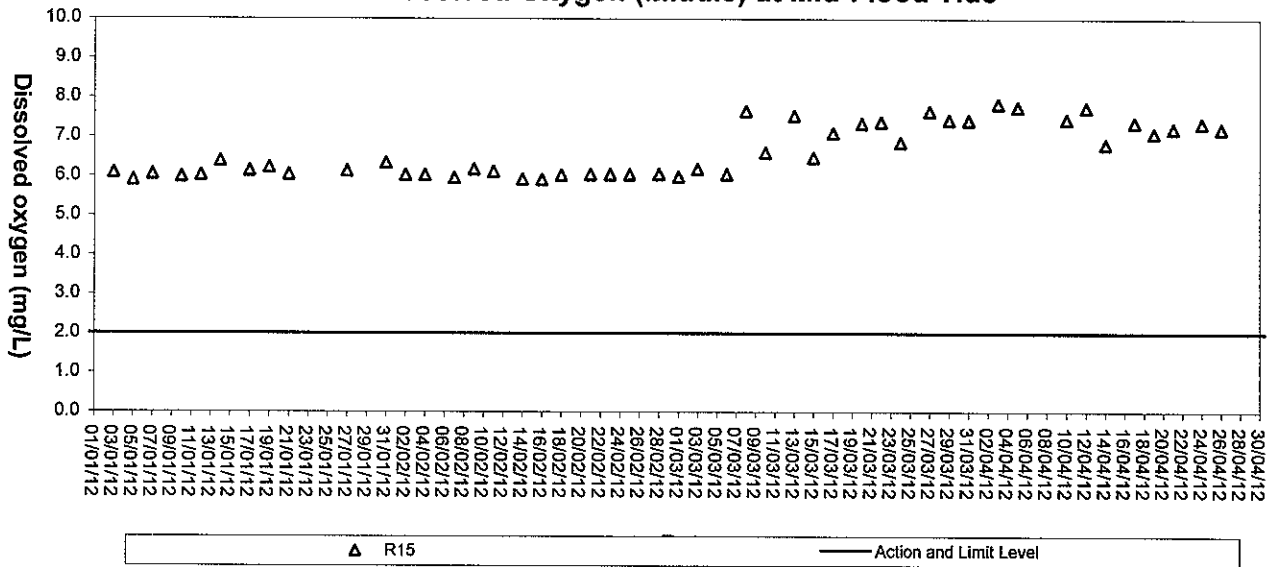


▲ R15

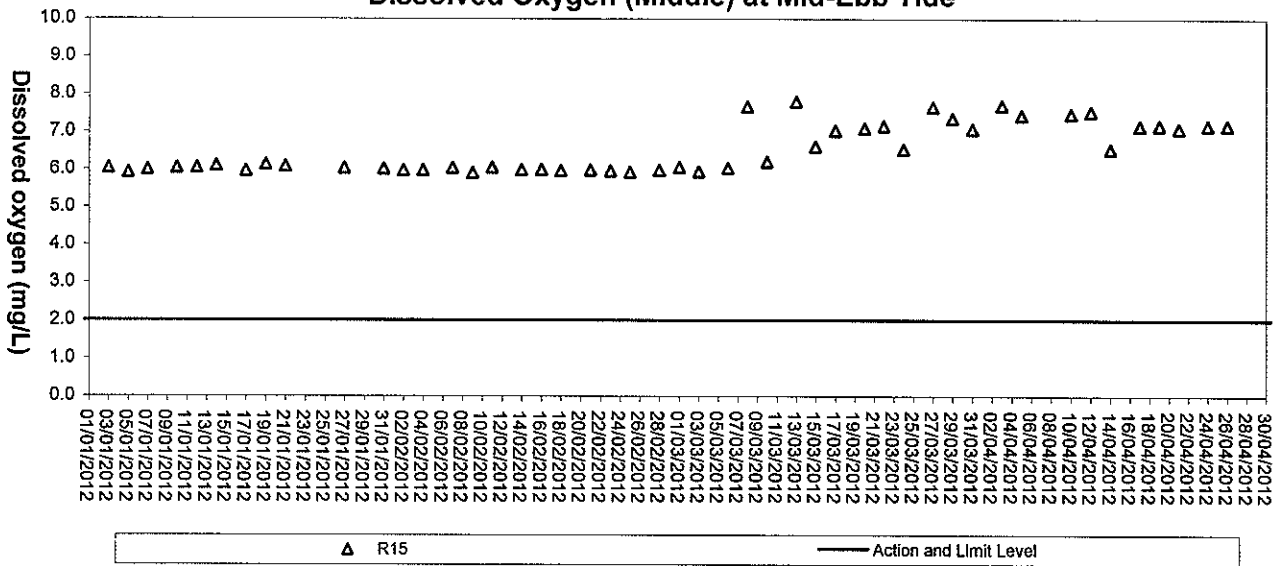
— Action and Limit Level



Dissolved Oxygen (Middle) at Mid-Flood Tide

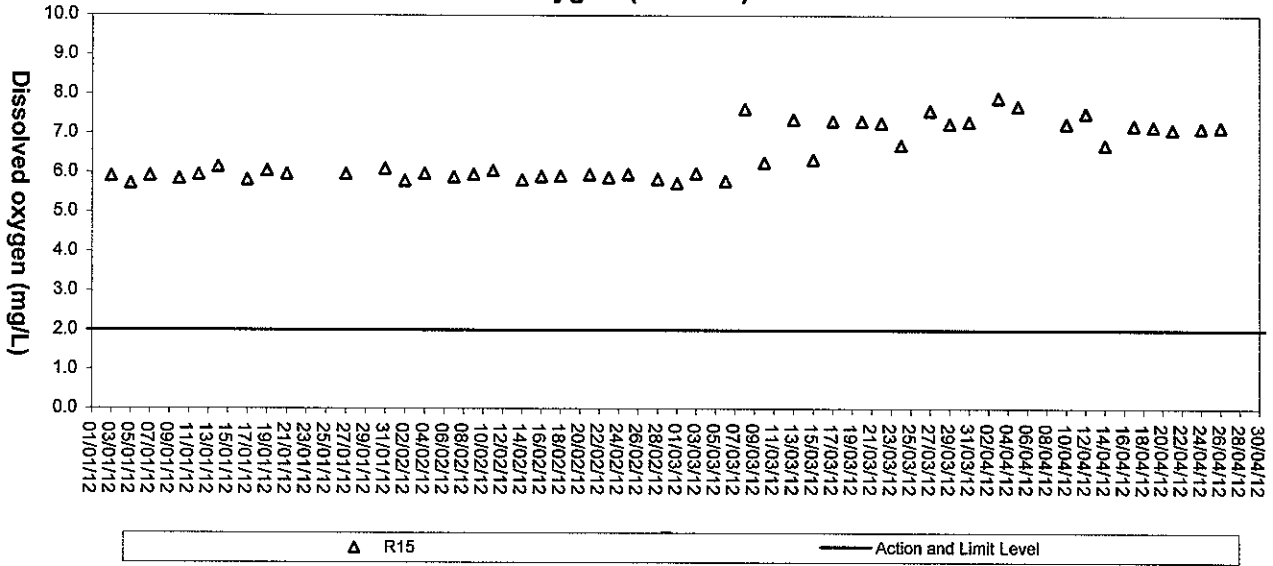


Dissolved Oxygen (Middle) at Mid-Ebb Tide

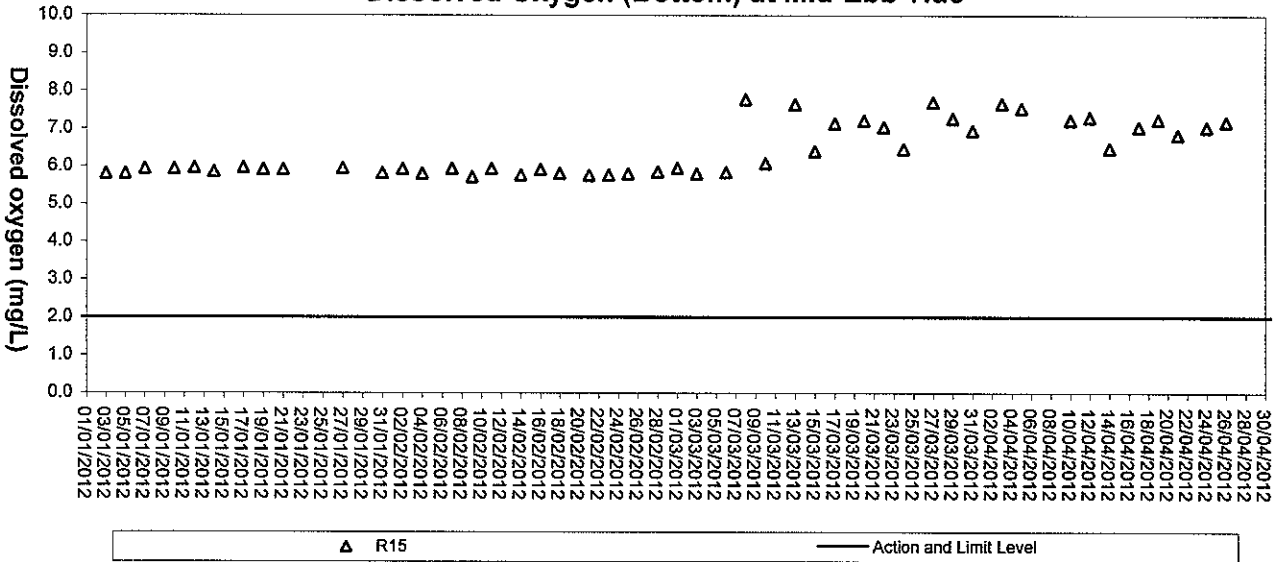




Dissolved Oxygen (Bottom) at Mid-Flood Tide

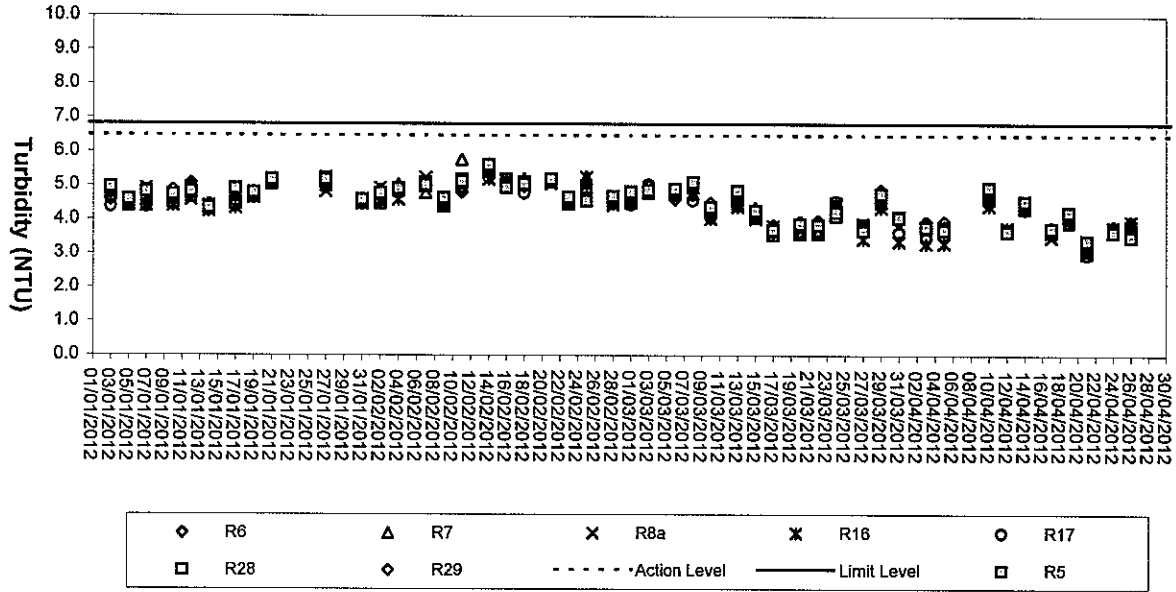


Dissolved Oxygen (Bottom) at Mid-Ebb Tide

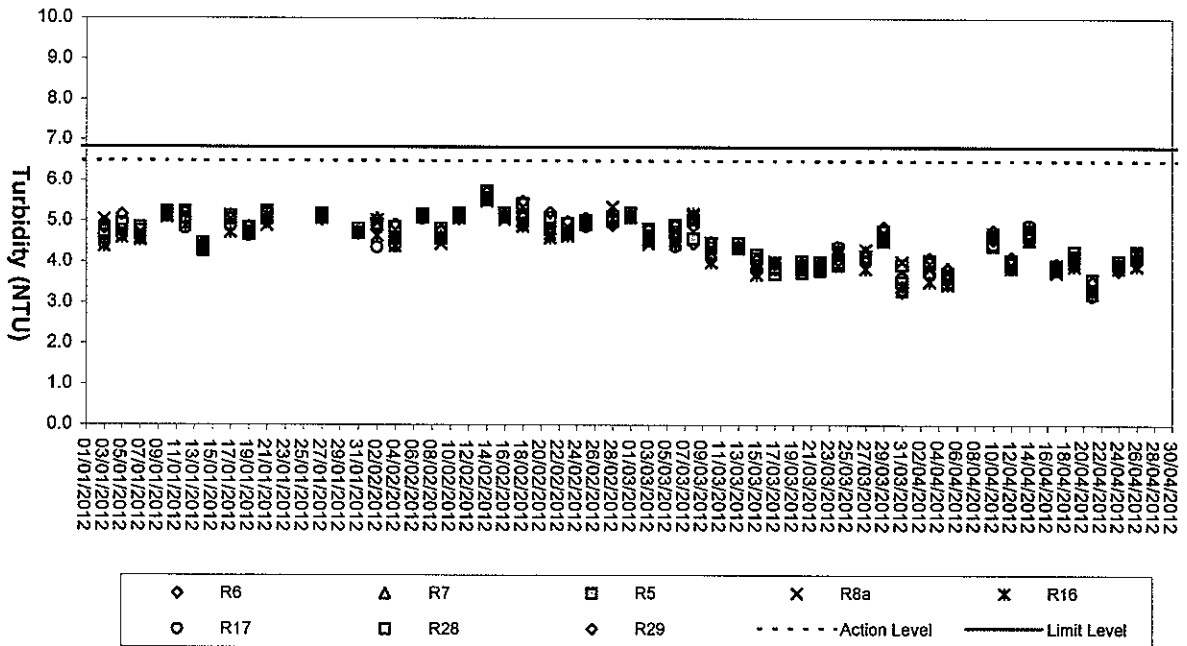




Turbidity (Depth-average) at Mid-Flood Tide

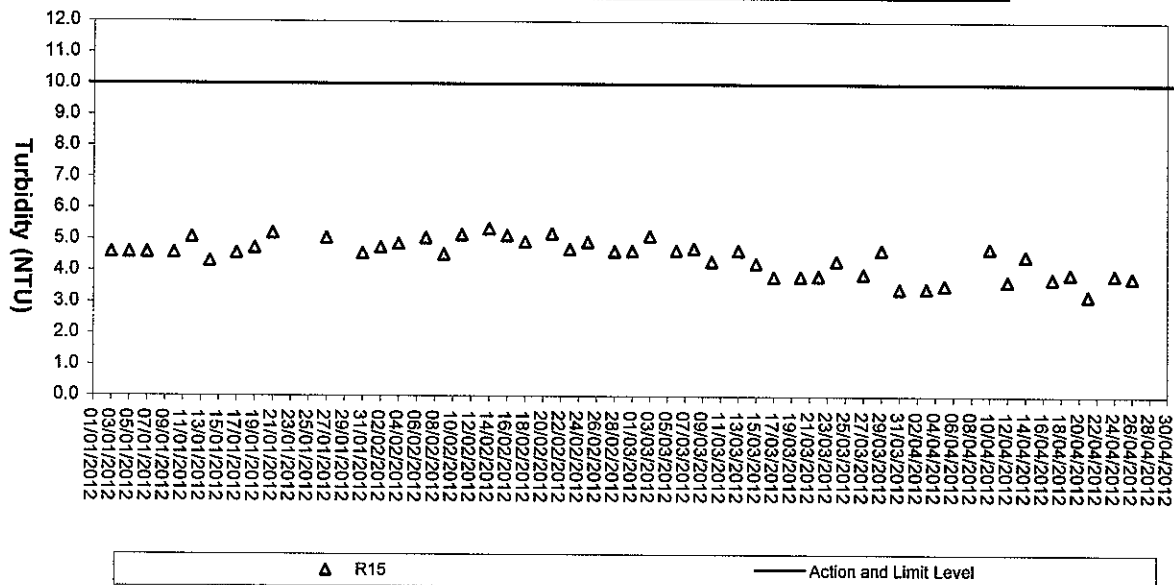


Turbidity (Depth-average) at Mid-Ebb Tide

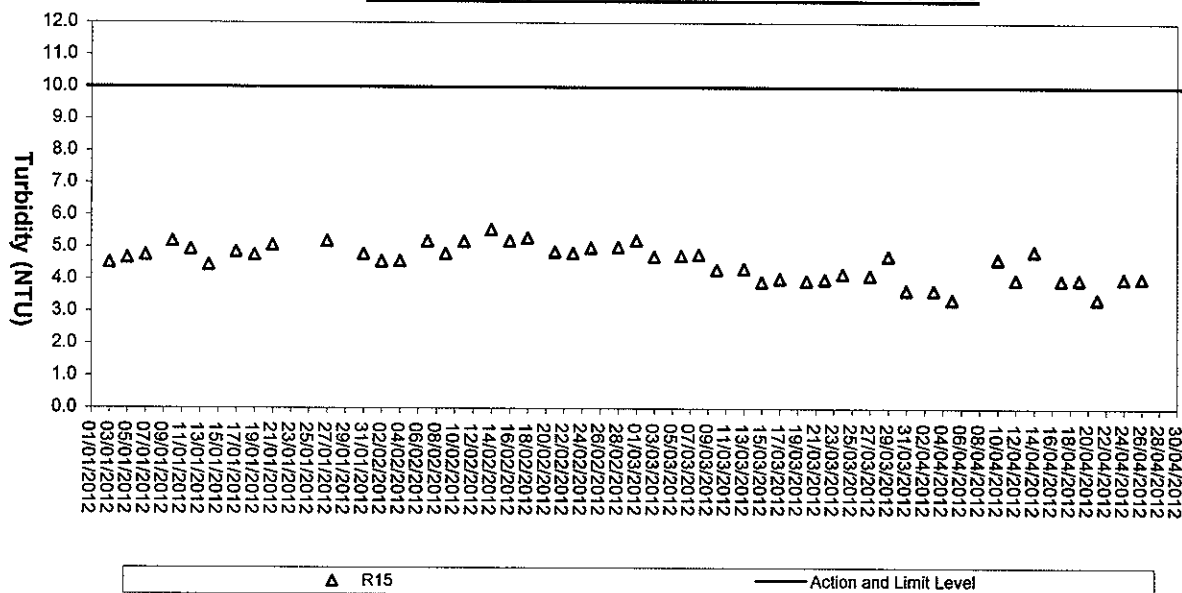




Turbidity (Depth-average) of R15 at Mid-Flood Tide

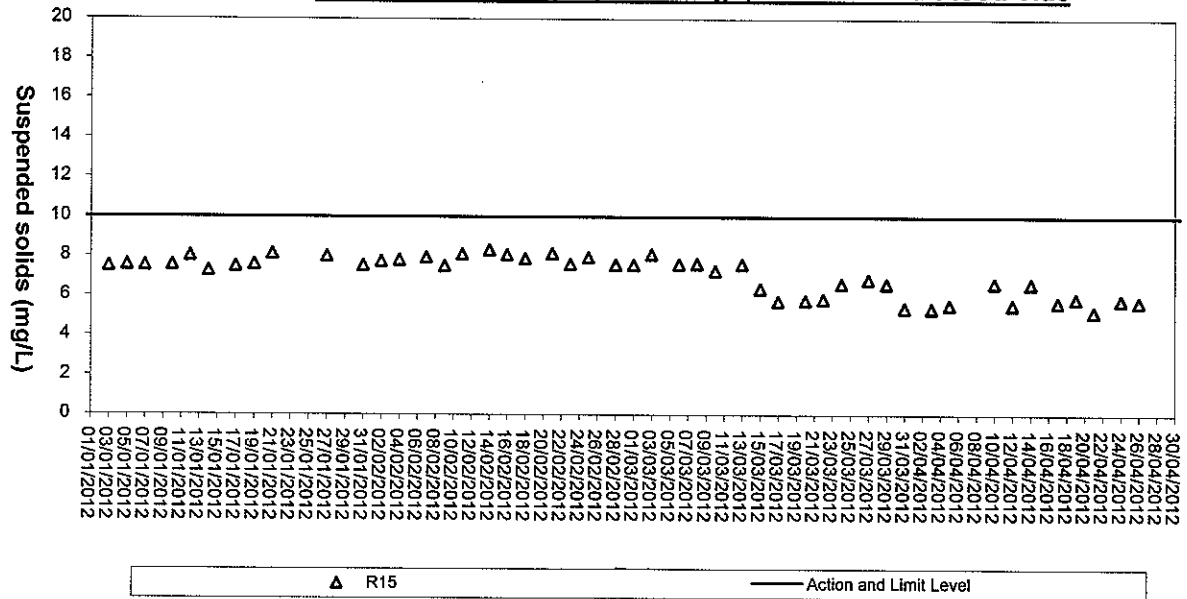


Turbidity (Depth-average) of R15 at Mid-Ebb Tide

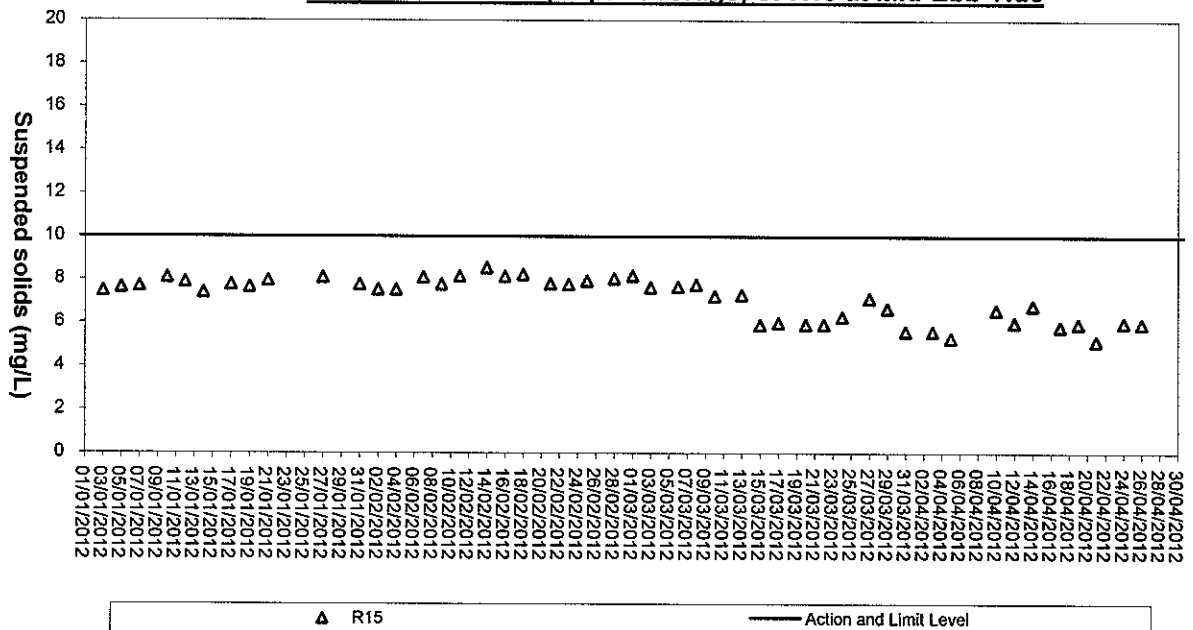




Suspended solids (Depth-average) of R15 at Mid-Flood Tide



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



Event and Action Plan for Water Quality for Construction Phase

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



Event and Action Plan for Water Quality for Construction Phase

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



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Appendix F

Work Programme

Act ID	Description	Orig. Dur.	Early Start	Early Finish	Late Start
General Information					
		1156	07SEP09 A	06NOV12	07SEP09 A
Key Dates					
KD-1010	Contract Commencement Date	0	07SEP09 A	06NOV12 *	07SEP09 A
KD-1020	Contract Completion	0		06NOV12 *	
KD-1030	Works Period of Section 1 Works (791Days)	830	07SEP09 A	06NOV11	07SEP09 A
KD-1040	Works Period of Section 2 Works (426Days)	448	07SEP09 A	06NOV10	07SEP09 A
KD-1050	Works Period of Section 4 Works (549Days)	576	07SEP09 A	06MAY11	07SEP09 A
KD-1060	Works Period of Section 5 Works (1156Days)	1156	07SEP09 A	06NOV12	07SEP09 A
Preliminaries					
B1-1000	Mobilization	90	07SEP09 A	06DEC09 A	07SEP09 A
B1-1100	Site Office	60	16NOV09 A	16JAN10	16NOV09 A
B1-1120	Maintenance/Service of Preliminary Items	936	17JAN10	09AUG12	17JAN10
B1-1130	Clearance & Demobilisation	88	10AUG12	06NOV12	10AUG12
B1-1140	Environmental Monitoring	1026	28DEC09 A	18OCT12	28DEC09 A
B1-1150	Material Approval For Water Mains & Accessories	100	07SEP09 A	18FEB10	07SEP09 A
B1-1160	Material Procurement & Delivery Start	60	28DEC09 A	01FEB10	28DEC09 A
B1-1160B	Delivery of Valve, Actuators, Flow Meter & E&M	400	14JUN10	18JUL11 *	14JUN10
B1-1170	CCTV & Monitoring Of Existing DSD Drainage	610	18JAN10	19SEP11	15APR10
B1-1180	Monitoring of HYD Structure	610	06MAY10	06NOV11	15APR10
Section 1					
		937	07SEP09 A	31MAY12	07SEP09 A
Land Works					
General					
S1-1010	Approval & Consent - XP, TTA, MS & Temp Works.	180	07SEP09 A	05MAY10	07SEP09 A
S1-1020	Trial Pit & Utilities Detection (Except E2 & K)	120	01DEC09 A	16MAY10	01DEC09 A
S1-1030	Portion H2 Cycle Track & Footpath Proposal	40	07SEP09 A	06OCT09 A	07SEP09 A
S1-1040	Portion H2 Diversion Route For Cycle Track	60	07OCT09 A	28NOV09 A	07OCT09 A
S1-1050	Portion H2 Submission For Hearing Approved Design	90	07SEP09 A	17FEB10	07SEP09 A
S1-1060	Portion H2 Set Up For Hearing Approved Design	30	18FEB10	19MAY10	07OCT12
S1-1080	Initial & Utilities Survey (Except E2 & K)	120	06OCT09 A	04MAY10	06OCT09 A
S1-2010	Final Pipe Testing & Reinstatement	45	18FEB12	31MAY12	01NOV11
S1-2020	Completion of Section 1 Works	0		15DEC11 *	
Portion C1					
S1-3010	MTRCL Consent For Works Commencement	180	07SEP09 A	05MAY10	07SEP09 A
S1-3020	MTRCL Structure Stability Monitoring	270	28MAY10	21FEB11	05JAN11
S1-3030	Portion C1 Pipe Works CH195.0-237.5 (O)	90	24JUN10	21SEP10	19MAY11
S1-3030A10	Preparation & Submission of Risk Assessment	40	22FEB10 *	02APR10	02NOV10
S1-3030A20	Preparation & Submission of Method Statement	40	22FEB10	02APR10	02NOV10
S1-3030A30	Preparation & Submission of Temp. Design	40	22FEB10	02APR10	02NOV10
S1-3030B10	Excavation & Shoring	80	28MAY10	16AUG10	12DEC10
S1-3030B20	Pipe Laying & Welding	50	17JUL10	04SEP10	31JAN11

Start date 07SEP09
Finish date 06NOV12
Data date 04JAN10
Run date 03MAY12
Page number 1A
c Pimavara Systems, Inc.

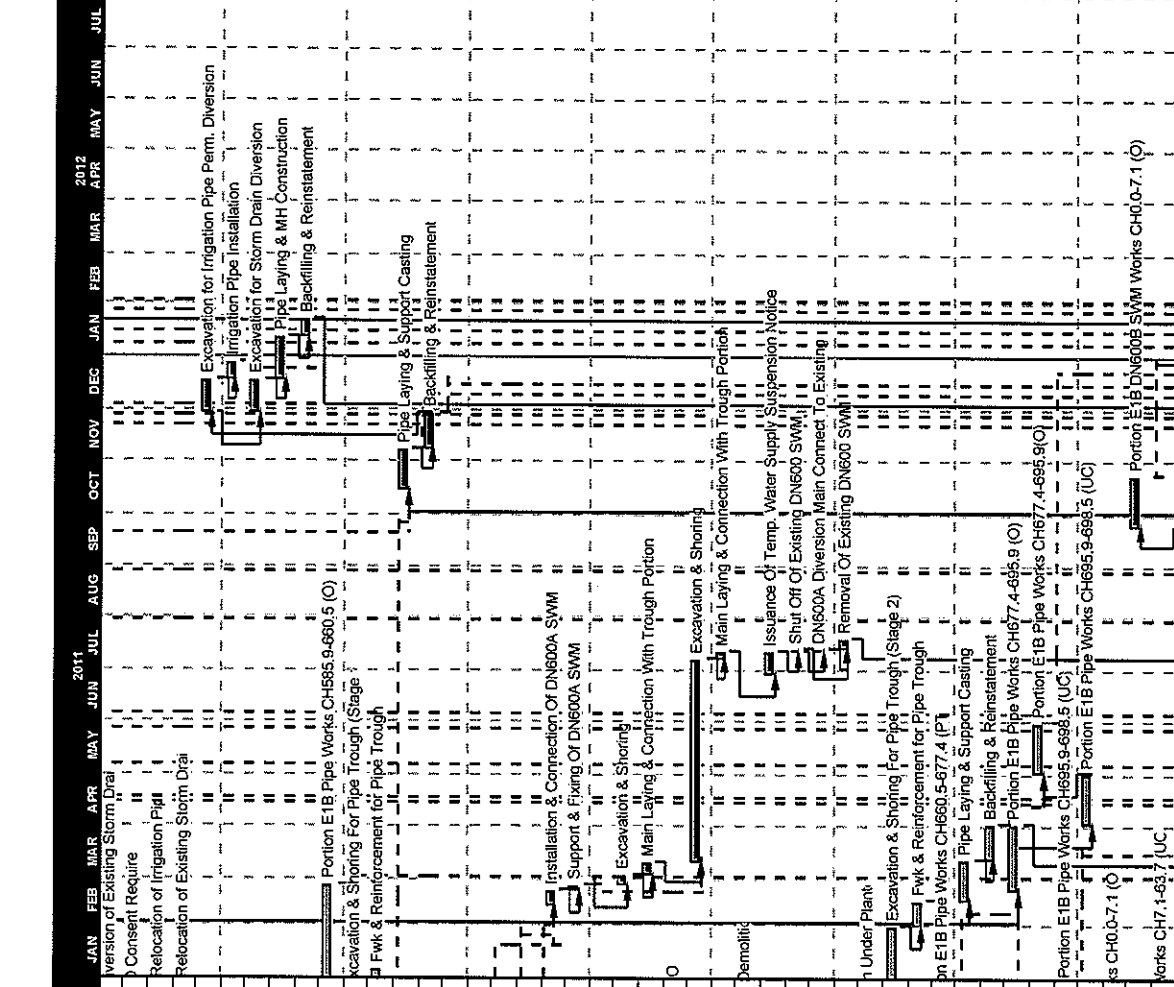
Legend:
 Early bar
 Progress bar
 Critical bar
 Summary bar
 Start milestone point
 Finish milestone point

3 Months Rolling Program (April 2012)

Contract No. 91WS008
Laying of Western Cross Harbour Main & Associated Land Mains from West Kowloon to Sa Ying Pun

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
S1-4010	Portion E1B Diversion of Existing Storm Drain	50	13SEP10	01NOV10	06MAY11																			
S1-4010A10	Trees Transplanting (LCSD Consent Required)	5	08SEP10*	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	29NOV11	18DEC11	24AUG11																			
S1-4010A60	Irrigation Pipe Installation	10	19DEC11	28DEC11	28SEP11																			
S1-4010A70	Excavation for Storm Drain Diversion	20	29NOV11	18DEC11	24AUG11																			
S1-4010A80	Pipe Laying & MH Construction	25	19DEC11	12JAN12	13SEP11																			
S1-4010A90	Backfilling & Reinstatement	10	02NOV10	22JAN12	09OCT11																			
S1-4040	Portion E1B Pipe Works CH585.9-680.5 (O)	115	02NOV10	24FEB11	25JUN11																			
S1-4040B10	Excavation & Shoring For Pipe Trough (Stage 1)	40	13NOV10	22DEC10	01APR11																			
S1-4040B20	Fwk & Reinforcement for Pipe Trough	15	23DEC10	06JAN11	25JUN11																			
S1-4040B30	Pipe Laying & Support Casting	25	15OCT11	08NOV11	10JUL11																			
S1-4040B40	Backfilling & Reinstatement	20	09NOV11	28NOV11	04AUG11																			
S1-4410	Portion E2 DN600A SWM Works CH7.1-63.7 (UC)	50	05MAR10	23APR10	03SEP10																			
S1-4410A10	Preparation & Submission Of Risk Assessment	28	19FEB10	18MAR10	02OCT10																			
S1-4410A20	Preparation & Submission Of Method Statement	28	19FEB10	18MAR10	02OCT10																			
S1-4410A30	Submission & Approval Of Temp. Work	28	19FEB10	18MAR10	02OCT10																			
S1-4410B10	Installation & Connection Of DN600A SWM	8	14FEB11*	21FEB11	30OCT10																			
S1-4410B20	Support & Fixing Of DN600A SWM	31	22FEB11	24FEB11	07NOV10																			
S1-4420	Portion E1B DN600A SWM Works CH0.0-7.1 (O)	30	24APR10	23MAY10	23OCT10																			
S1-4420B10	Excavation & Shoring	6	25FEB11	02MAR11	10NOV10																			
S1-4420B20	Main Laying & Connection With Trough Portion	8	03MAR11	10MAR11	16NOV10																			
S1-4430	Portion E2 DN600A SWM Works CH63.7-67.9 (O)	30	24APR10	23MAY10	23OCT10																			
S1-4430B10	Excavation & Shoring	120	11MAR11	08JUL11	24NOV10																			
S1-4430B20	Main Laying & Connection With Trough Portion	4	09JUL11	12JUL11	24NOV10																			
S1-4440	E1B Existing DN600 SWM Diversion & Demolition	30	23JUN10	22JUL10	24MAY11																			
S1-4440A10	Issuance Of Temp. Water Supply Suspension Notice	14	29JUN11	12JUL11	14MAY11																			
S1-4440B10	Shut Off Of Existing DN600 SWM	2	13JUL11	14JUL11	28MAY11																			
S1-4440B20	DN600A Diversion Main Connect To Existing	2	13JUL11	14JUL11	28MAY11																			
S1-4440B30	Removal Of Existing DN600 SWM	6	15JUL11	20JUL11	30MAY11																			
S1-4445	Portion E1B Trough Construction Under Planter	60	24JUN10	22AUG10	10FEB11																			
S1-4445B10	Excavation & Shoring For Pipe Trough (Stage 2)	40	23DEC10	31JAN11	11MAY11																			
S1-4445B20	Fwk & Reinforcement for Pipe Trough	15	01FEB11	15FEB11	20JUN11																			
S1-4450	Portion E1B Pipe Works CH680.5-677.4 (PT)	60	11OCT10	09DEC10	11APR11																			
S1-4450B10	Pipe Laying & Support Casting	25	16FEB11	12MAY11	05JUL11																			
S1-4450B20	Backfilling & Reinstatement	20	13MAY11	01APR11	30JUL11																			
S1-4460	Portion E1B Pipe Works CH677.4-695.9 (O)	40	22FEB11	02APR11	08SEP11																			
S1-4460B10	Portion E1B Pipe Works CH677.4-695.9 (O)	30	02MAY11	31MAY11	18SEP11																			
S1-4470	Portion E1B Pipe Works CH695.9-698.5 (UC)	20	10DEC10	29DEC10	10JUN11																			
S1-4470B10	Portion E1B Pipe Works CH695.9-698.5 (UC)	30	02APR11	01MAY11	19AUG11																			
S1-4480	Portion E1B DN600B SWM Works CH0.0-7.1 (O)	30	23JUL10	21AUG11	10FEB11																			
S1-4480B10	Portion E1B DN600B SWM Works CH0.0-7.1 (O)	30	25SEP11	24OCT11	18SEP11																			
S1-4490	Portion E2 DN600B SWM Works CH7.1-63.7 (UC)	50	23JUL10	10SEP10	21JAN11																			

Start date 07SEP09
 Finish date 08NOV12
 Data date 06JAN10
 Run date 03MAY12
 Page number 3A
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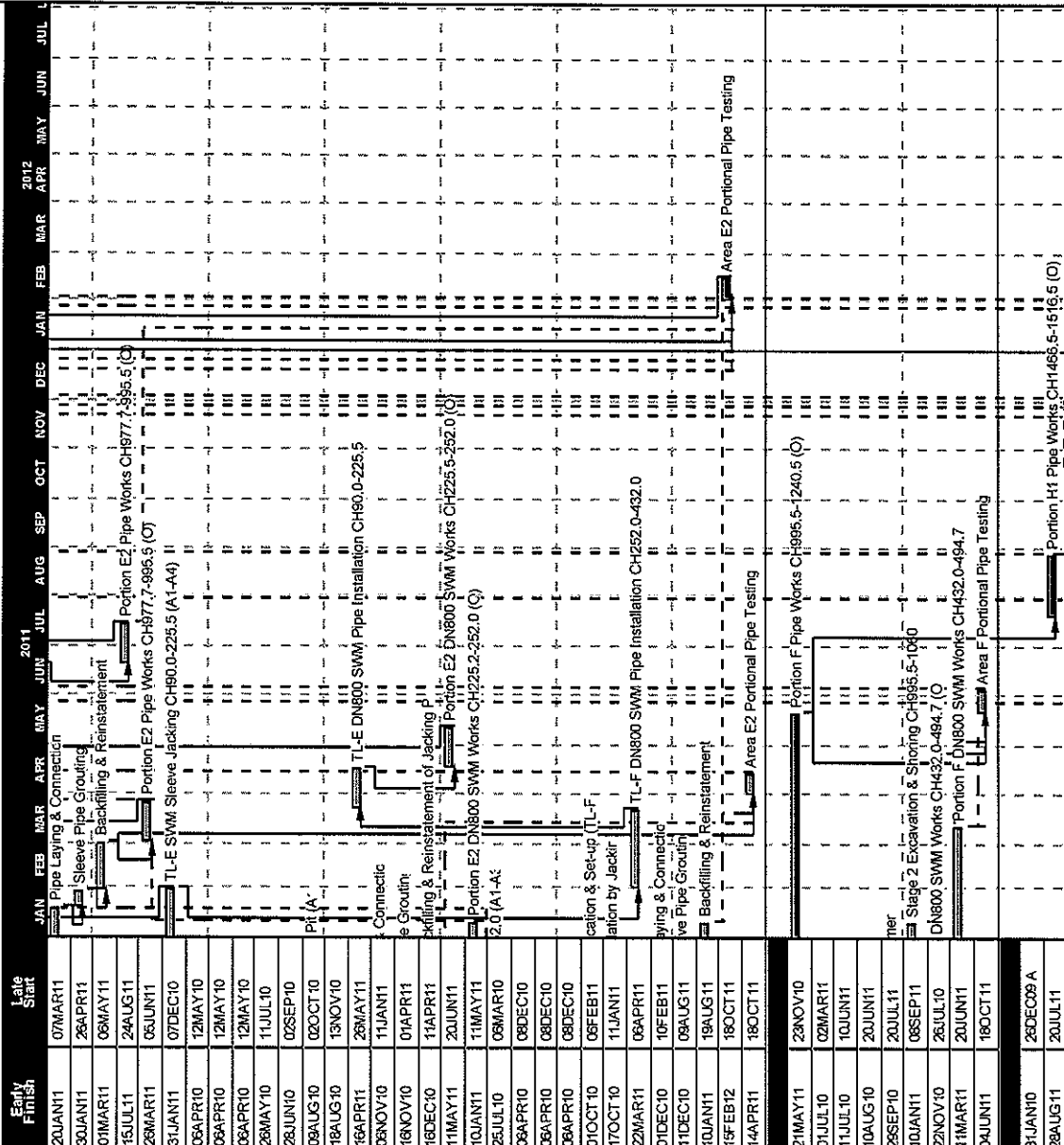
3 Months Rolling Program (April 2012)

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

Contract No. 9WSD/08
Laying of Western Cross Harbour Main & Associated Land Mains from West Kowloon to Sa Ying Ping

Act 10

Act	Description	Orig. Date	Early Start	Early Finish	Latest Start	2011	2012
						JAN	FEB
S1-5095B10	Pipe Laying & Connection	50	02DEC10	20JAN11	07MAR11		
S1-5095B20	Sleeve Pipe Grouting	10	21JAN11	30JAN11	28APR11		
S1-5095B30	Backfilling & Reinstatement	30	31JAN11	03MAY11	06MAY11		
S1-5100	Portion E2 Pipe Works CH877.7-895.5 (O)	25	21JUN11	15JUL11	24AUG11		
S1-5100A	Portion E2 Pipe Works CH877.7-895.5 (O)	25	02MAR11	28MAR11	05JUN11		
S1-5110	TL-E SWM Sleeve Jacking CH90.0-225.5 (A1-A4)	120	04OCT10	31JAN11	07DEC10		
S1-5110A10	Preparation & Submission of Risk Assessment	60	08FEB10*	08APR10	12MAY10		
S1-5110A20	Preparation & Submission of Method Statement	60	08FEB10	08APR10	12MAY10		
S1-5110A30	Preparation & Submission of Temp. Design	60	08FEB10	08APR10	12MAY10		
S1-5110B10	Excavation & Shoring for Jacking Pit (A4)	50	07APR10	28MAY10	11JUL10		
S1-5110B20	Jacking Pit Set-up (TL-E)	30	30MAY10	28JUN10	02SEP10		
S1-5110B30	Excavation & Shoring for Receiving Pit (A1)	42	23JUN10	09AUG10	02OCT10		
S1-5110C10	Sleeve Pipe Installation by Jacking	9	10AUG10	18AUG10	13NOV10		
S1-5115	TL-E DN800 SWM Pipe Installation CH90.0-225.5	25	23MAR11	16APR11	28MAY11		
S1-5115B10	Pipe Laying & Connection	30	08OCT10	08NOV10	11JAN11		
S1-5115B20	Sleeve Pipe Grouting	10	07NOV10	16NOV10	01APR11		
S1-5115B30	Backfilling & Reinstatement of Jacking Pit	30	17NOV10	16DEC10	11APR11		
S1-5120	Portion E2 DN800 SWM Works CH225.5-252.0 (O)	25	17APR11	11MAY11	20JUN11		
S1-5120A	Portion E2 DN800 SWM Works CH225.5-252.0 (O)	25	17DEC10	10JAN11	11MAY11		
S1-5130	TL-F SWM Sleeve Jacking CH252.0-432.0 (A1-A3)	142	08MAR10	25JUL10	08MAR10		
S1-5130A10	Preparation & Submission of Risk Assessment	60	08FEB10*	08APR10	08DEC10		
S1-5130A20	Preparation & Submission of Method Statement	60	08FEB10	08APR10	08DEC10		
S1-5130A30	Preparation & Submission of Temp. Design	60	08FEB10	08APR10	08DEC10		
S1-5130B10	Jacking Pit (A3) Modification & Set-up (TL-F)	14	18SEP10	01OCT10	08FEB11		
S1-5130C10	Sleeve Pipe Installation by Jacking	30	18SEP10	17OCT10	11JAN11		
S1-5135	TL-F DN800 SWM Pipe Installation CH252.0-432.0	50	01FEB11	22MAR11	06APR11		
S1-5135B10	Pipe Laying & Connection	25	07NOV10	01DEC10	10FEB11		
S1-5135B20	Sleeve Pipe Grouting	10	02DEC10	11DEC10	09AUG11		
S1-5135B30	Backfilling & Reinstatement	30	12DEC10	10JAN11	19AUG11		
S1-5140	Area E2 Portional Pipe Testing	14	02FEB12	19FEB12	18OCT11		
S1-5140B10	Area E2 Portional Pipe Testing	14	01APR11	14APR11	18OCT11		
Portion F							
S1-6010	Portion F Pipe Works CH995.5-1240.5 (O)	180	23NOV10	21MAY11	23NOV10		
S1-6010B10	Stage 1 Excavation & Shoring CH1060-1240.5	100	24MAR10*	01JUL10	02MAR11		
S1-6010B20	Formation Trimming	10	02JUL10	11JUL10	10JUN11		
S1-6010B30	Pipe Laying & Connection (Welding)	30	12JUL10	10AUG10	20JUN11		
S1-6010B40	Backfilling & Reinstatement	50	11AUG10	28SEP10	20JUL11		
S1-6010C10	Stage 2 Excavation & Shoring CH995.5-1060	40	02DEC10	10JAN11	08SEP11		
S1-6020	Portion F DN800 SWM Works CH432.0-494.7 (O)	120	23JUL10	22NOV10	23JUL10		
S1-6020A10	Portion F DN800 SWM Works CH432.0-494.7	120	12NOV10	11MAR11	20JUN11		
S1-6030	Area F Portional Pipe Testing	14	22MAY11	04JUN11	18OCT11		
Portion H1							
S1-7010	Portion H1 Temporary Assess Road	80	28DEC09 A	31JAN10	28DEC09 A		
S1-7020	Portion H1 Pipe Works CH1465.5-1516.5 (O)	40	20JUL11	28AUG11	20JUL11		



Start date	07SEP09
Finish date	05NOV12
Data date	04JAN10
Run date	03MAY12
Page number	5A
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3 Months Rolling Program (April 2012)

Wo Hing - Penta-Ocean Joint Venture

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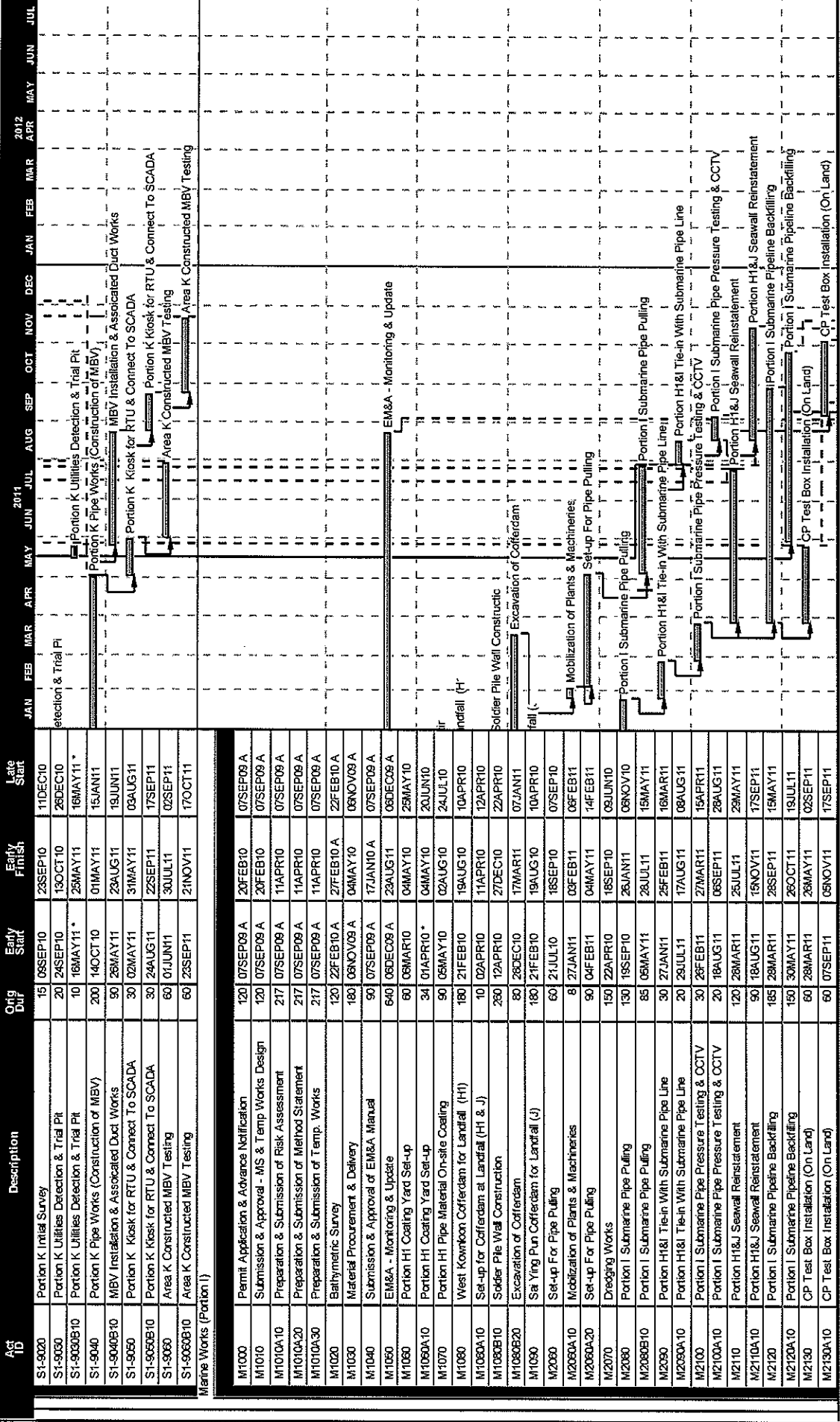
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- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point

Area E2 Portional Pipe Testing

Area F Portional Pipe Testing

Portion H1 Pipe Works CH1465.5-1516.5 (O)

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



Start date 07SEP09
Finish date 06NOV12
Data date 04JAN10
Run date 09MAY12
Page number 7A
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Legend:
 Early bar
 Progress bar
 Critical bar
 Summary bar
 Start milestone point
 Finish milestone point

3 Months Rolling Program (April 2012)

Wo Hing - Penta-Ocean Joint Venture

Appendix G

Implementation Schedule of Environmental Mitigation Measures (EMIS)



Environmental Protection Measures		Location	Implementation Status				
			Implemented	Partially implemented	Not implemented	Not Applicable	
Noise Impact							
<ul style="list-style-type: none"> Well maintained plant should be operated on-site and plant should be serviced regularly during the construction works. Air compressors and hand held breakers should have noise labels. Compressors and generators should operate with door closed. Material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 		All areas	✓				
		All areas	✓				
		All areas	✓				
		All areas	✓				
Water Quality							
Mitigation Measures for Dredging							
<ul style="list-style-type: none"> Dredging should be undertaken using one grab dredger only with a maximum production rate of 4,000m³ per day. Deployment of frame type silt curtain should be fully enclose the grab while dredging works are in progress. Deployment of silt screen should be at the sea water intake at Kowloon South Salt Water Pumping Station while dredging works are in progress. 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. 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. The decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard. Adequate free board shall be maintained on barges to ensure that decks are not washed by wave action. 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. 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. 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. The speed of vessels should be controlled within the works area to prevent propeller wash from stirring up the seabed sediments. 		Marine					✓
		Marine					✓
		Marine	✓				
		Marine					✓
		Marine					✓
		Marine					✓
		Marine					✓
		Marine	✓				
		Marine	✓				
		Marine	✓				
Mitigation Measures for other Construction Activities							
<ul style="list-style-type: none"> Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m³ 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. 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. 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. 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. 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. 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. 		All areas	✓				
		All areas	✓				
		All areas					✓
		All areas					✓
		All areas	✓				



Environmental Protection Measures		Location	Implementation Status			
			Implemented	Partially implemented	Not implemented	Not Applicable
Water Quality						
Mitigation Measures for other Construction Activities						
<ul style="list-style-type: none"> 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. 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. Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding. 		All areas	✓			
Waste Management						
C&D Materials						
<ul style="list-style-type: none"> Excavated materials should be reused on-site as backfilling material and for landscaping works as far as practicable. C&D material generated from excavation works should be disposed of at public fill reception facilities for other beneficial uses. A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed 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. 		All areas				✓
<ul style="list-style-type: none"> All areas All areas All areas All areas 			✓			✓
Chemical Waste						
<ul style="list-style-type: none"> Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. 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. 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. 		All areas	✓			
<ul style="list-style-type: none"> All areas All areas All areas 			✓			
General Refuse						
<ul style="list-style-type: none"> General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. An enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material. 		All areas	✓			
<ul style="list-style-type: none"> All areas All areas All areas 			✓			
Marine Dredged Sediment (During transportation and disposal)						
<ul style="list-style-type: none"> 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 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 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. 		Marine				✓
<ul style="list-style-type: none"> Marine Marine 						✓
Good Site Practices						
<ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical handling procedures Provision of sufficient waste disposal points and regular collection of waste 		All areas	✓			
<ul style="list-style-type: none"> All areas All areas 			✓			
<ul style="list-style-type: none"> 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	1944	6.7535	0.6691	0.0152
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) = 1

Difference between means = 1.43 (Std Dev = 0.9261 and SE = 0.0185)
(95% CI : 1.3938 < Diff < 1.4662)

t-value of difference = 77.423 (2514 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	648	4.4099	0.5726	0.0225
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 = 2.3314 (Std Dev = 1.4307 and SE = 0.0918)
(95% CI : 2.1515 < Diff < 2.5113)

t-value of difference = 25.403 (243 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	648	6.8959	0.9895	0.0389
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 = 5.888 (Std Dev = 2.6564 and SE = 0.172)
(95% CI : 5.5509 < Diff < 6.2251)

t-value of difference = 34.234 (238 degrees of freedom)
P = 1 (>0.05)

Conclusion:

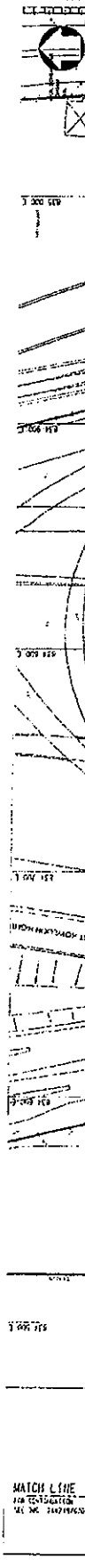
There is no statistically significant difference of Suspended Solids between 1.3 times of ambient mean and quarterly mean.



Appendix I

Site General Layout plan

NOTES:
 1. THE DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. 241239/6/0301.



LEGEND:

- PROPOSED FRESH WATER MAIN
- PROPOSED SANITARY MAIN
- PROPOSED POWER MAIN
- SEA / SHT
- SECTION A (SECTION 1)
- SECTION B
- SECTION C (SECTION 2)
- SECTION D
- SECTION E (SECTION 3)
- SECTION F
- SECTION G
- SECTION H
- SECTION I
- SECTION J
- SECTION K
- SECTION L
- SECTION M
- SECTION N
- SECTION O
- SECTION P
- SECTION Q
- SECTION R
- SECTION S
- SECTION T
- SECTION U
- SECTION V
- SECTION W
- SECTION X
- SECTION Y
- SECTION Z

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Section 2
 Section 3
 Section 4

NO.	ITEM	QUANTITY	UNIT	REMARKS
01	PIPE	100	M	100mm dia. for drainage
02	PIPE	200	M	200mm dia. for drainage
03	PIPE	300	M	300mm dia. for drainage
04	PIPE	400	M	400mm dia. for drainage
05	PIPE	500	M	500mm dia. for drainage
06	PIPE	600	M	600mm dia. for drainage
07	PIPE	700	M	700mm dia. for drainage
08	PIPE	800	M	800mm dia. for drainage
09	PIPE	900	M	900mm dia. for drainage
10	PIPE	1000	M	1000mm dia. for drainage
11	PIPE	1100	M	1100mm dia. for drainage
12	PIPE	1200	M	1200mm dia. for drainage
13	PIPE	1300	M	1300mm dia. for drainage
14	PIPE	1400	M	1400mm dia. for drainage
15	PIPE	1500	M	1500mm dia. for drainage
16	PIPE	1600	M	1600mm dia. for drainage
17	PIPE	1700	M	1700mm dia. for drainage
18	PIPE	1800	M	1800mm dia. for drainage
19	PIPE	1900	M	1900mm dia. for drainage
20	PIPE	2000	M	2000mm dia. for drainage

Mott MacDonald

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

9/MSD/08

LAYING OF WESTERN CROSS HARBOUR MAIN
 AND ASSOCIATED LAND MAINS FROM WEST
 KOWLOON TO SA YIN PUN

POSSESSION OF SITE
 (SHEET 1 OF 5)

NO.	REVISION	DATE	BY	CHKD.
1	ISSUED FOR TENDER	15/08/08	W. CHAN	W. CHAN
2	REVISED FOR CONSTRUCTION	15/08/08	W. CHAN	W. CHAN
3	REVISED FOR CONSTRUCTION	15/08/08	W. CHAN	W. CHAN
4	REVISED FOR CONSTRUCTION	15/08/08	W. CHAN	W. CHAN
5	REVISED FOR CONSTRUCTION	15/08/08	W. CHAN	W. CHAN
6	REVISED FOR CONSTRUCTION	15/08/08	W. CHAN	W. CHAN
7	REVISED FOR CONSTRUCTION	15/08/08	W. CHAN	W. CHAN
8	REVISED FOR CONSTRUCTION	15/08/08	W. CHAN	W. CHAN
9	REVISED FOR CONSTRUCTION	15/08/08	W. CHAN	W. CHAN
10	REVISED FOR CONSTRUCTION	15/08/08	W. CHAN	W. CHAN

1:1000
 PEN

241239/6/0301

05

NOTES :

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 241239/03/01 TO 03/03 AND 03/04 TO 03/05.
- THE LEGEND SHALL REFER TO DRAWING NO. 241239/03/01.

DATE	DESCRIPTION	BY	CHECKED
01 JAN 09	DESIGN APPROVAL NO. 3	JL	JL
05 DEC 08	PK ISSUE FOR TENDER	KL	JL
03 DEC 08	PK ISSUE FOR TENDER	KL	JL
03 DEC 08	PK ISSUE FOR TENDER	KL	JL

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 27/F, One Island Plaza
 1181 Queen's Road East
 Hong Kong
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 Fax: 852 2512 1112
 Web: www.mottmacdonald.com.hk

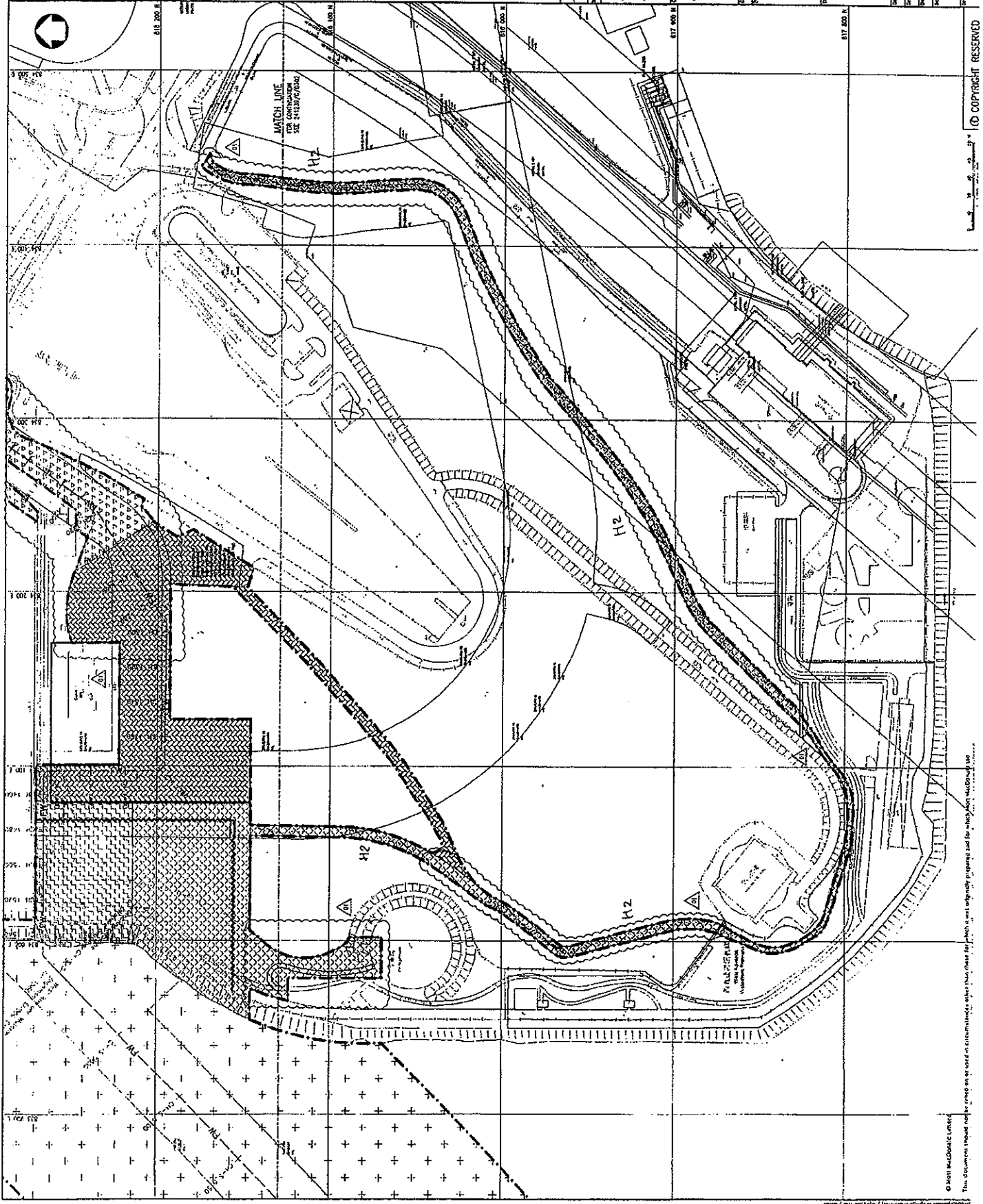
THE GOVERNMENT OF THE HONG KONG
 SPECIAL ADMINISTRATIVE REGION
 WATER SUPPLIES DEPARTMENT

9/WSU/03

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

POSSESSION OF SITE
 (SHEET 3 OF 5)

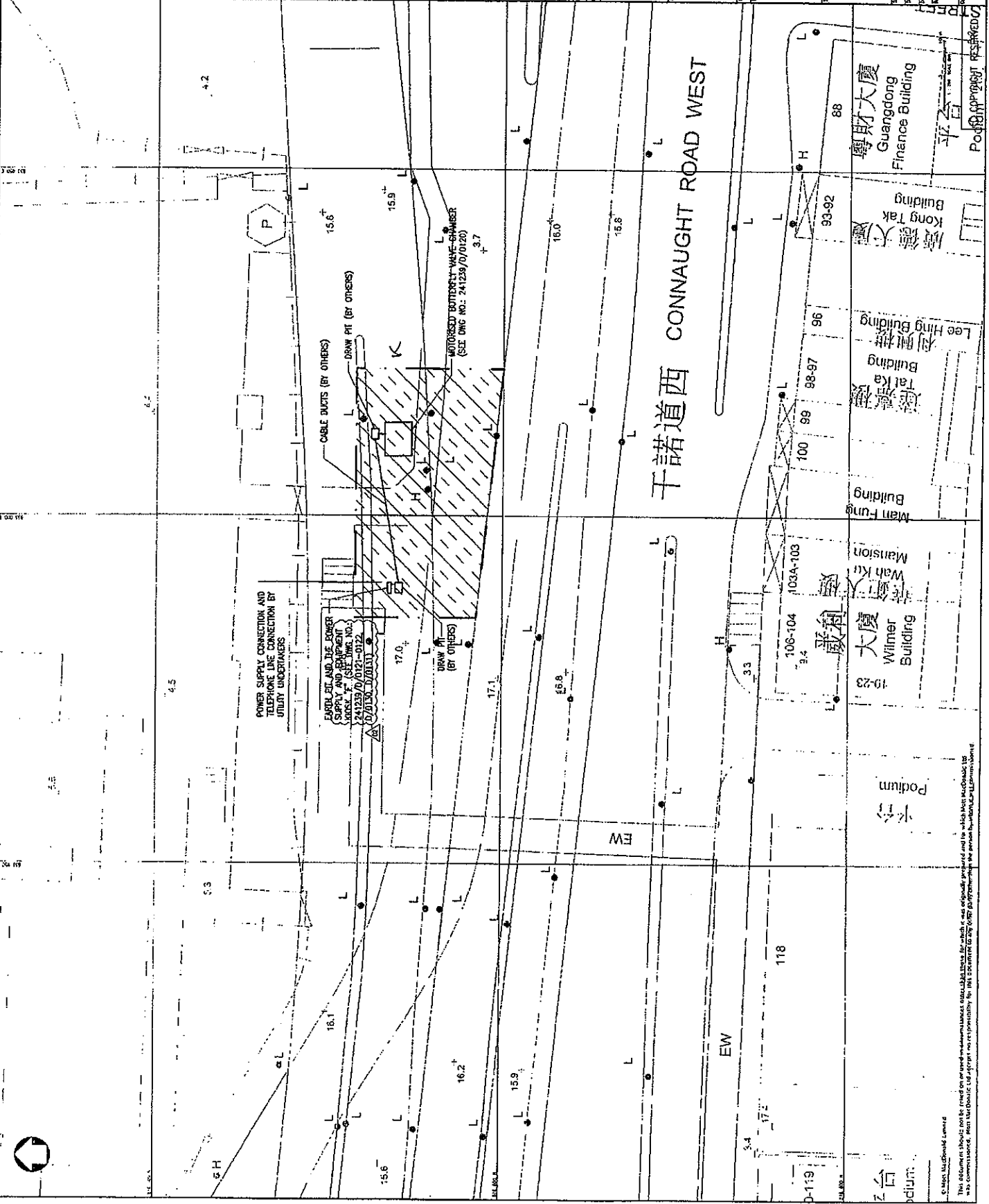
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4	241239	KL	JL	ISSUE FOR TENDER
5	241239	KL	JL	ISSUE FOR TENDER
6	241239	KL	JL	ISSUE FOR TENDER
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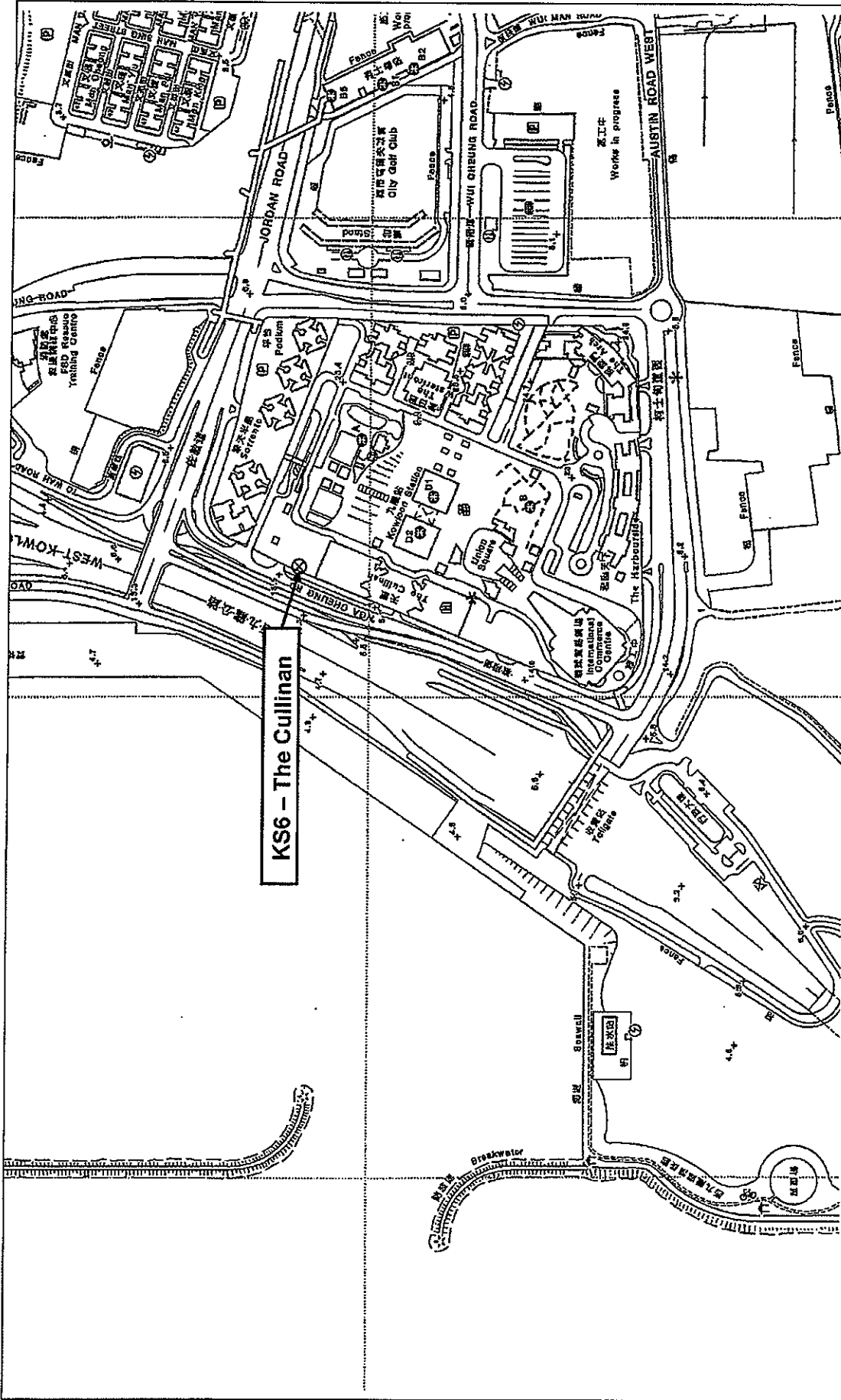
NOTES

1. THIS DRAWING SHALL BE READ IN CONNECTION WITH DRAWING NOS. 241239/02/001 TO 004.
2. THE LEGEND SHALL REFER TO DRAWING NO. 241239/02/001.





Figures



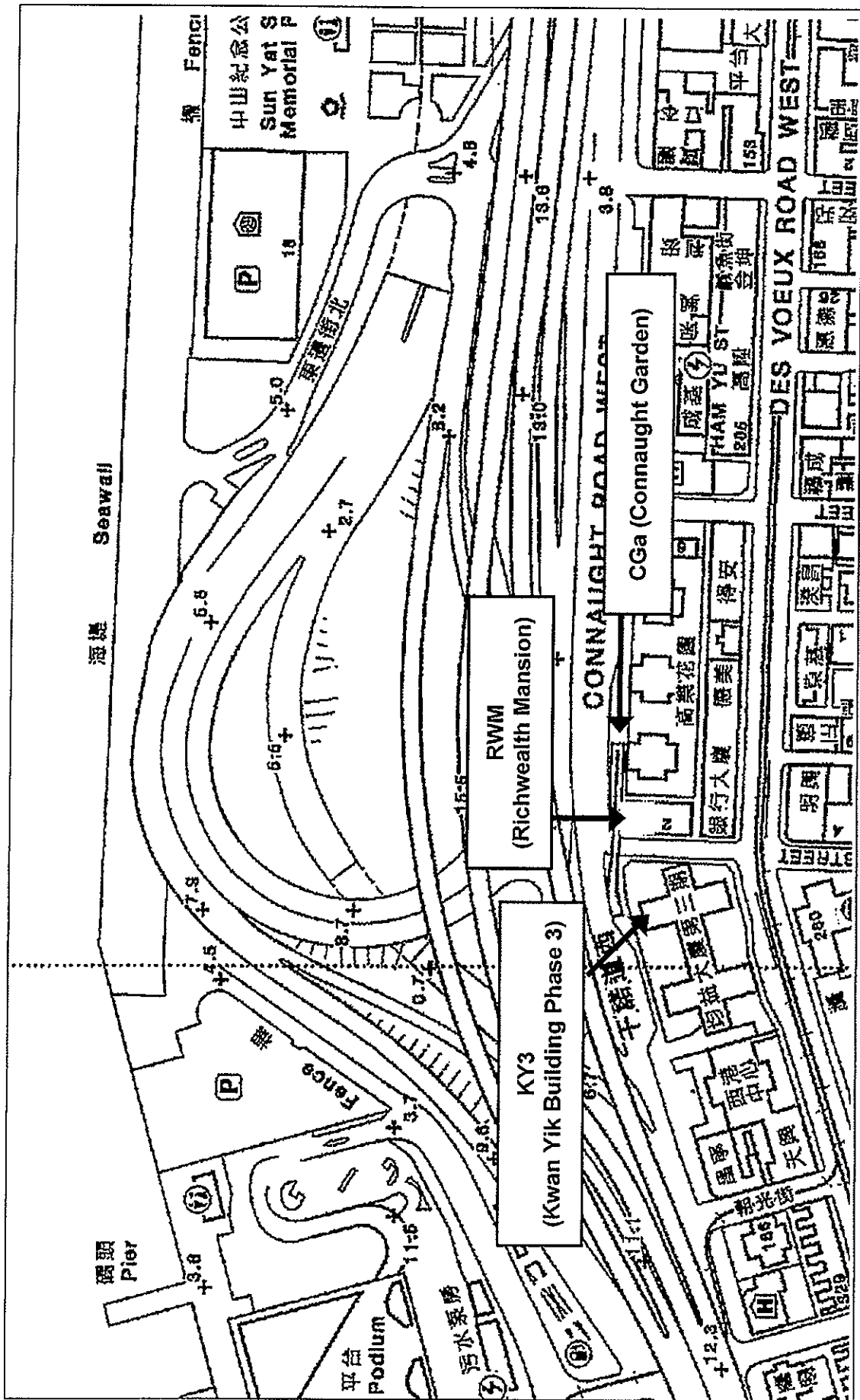
Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Mains for West Kowloon to Sai Ying Pun

Figure 1

Location of Noise Monitoring Station at West Kowloon



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ETS-TESTCONSULT LIMITED



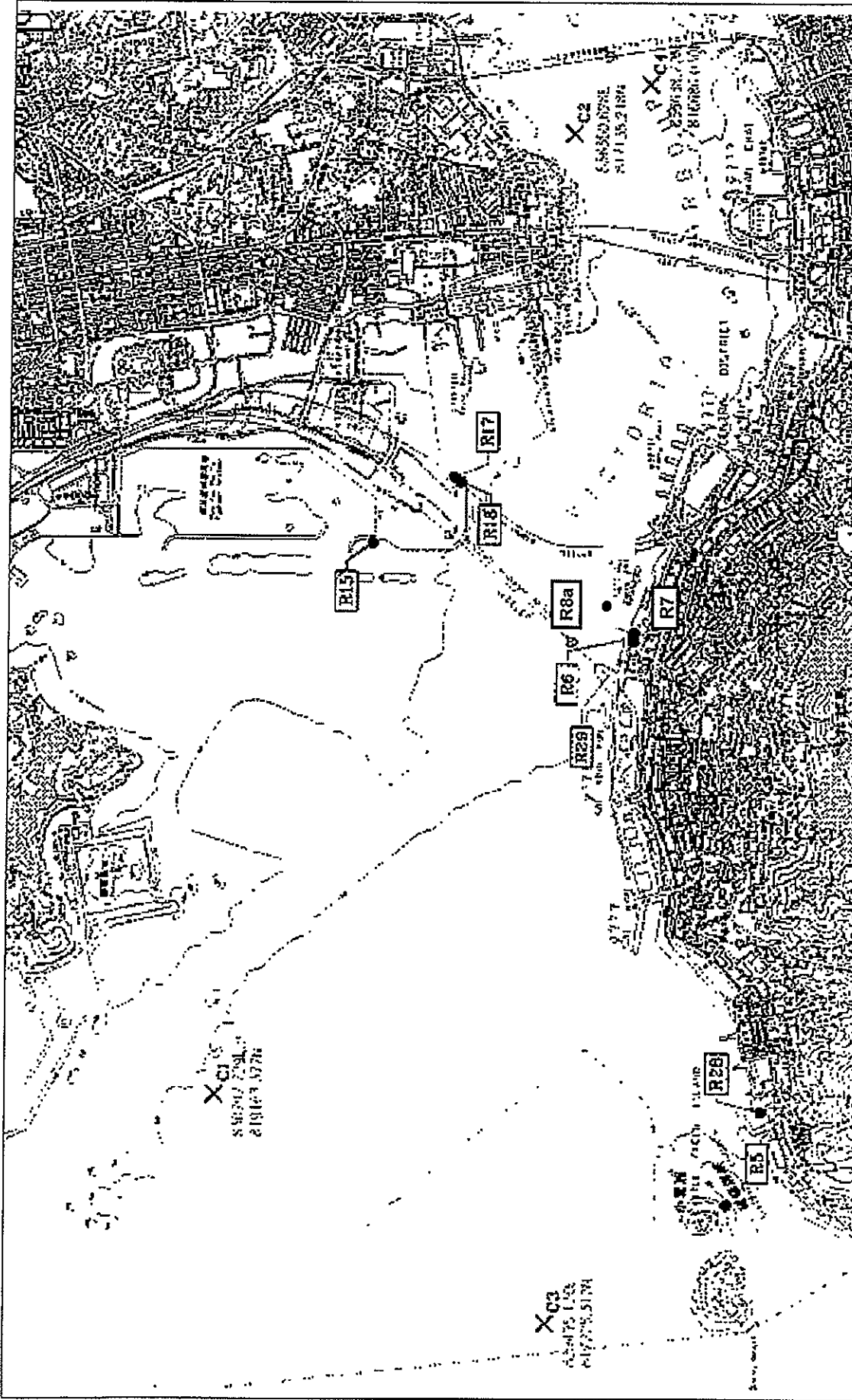
Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Mains for West Kowloon to Sai Ying Pun

Figure 2

Locations of Noise Monitoring Stations at Sai Ying Pun



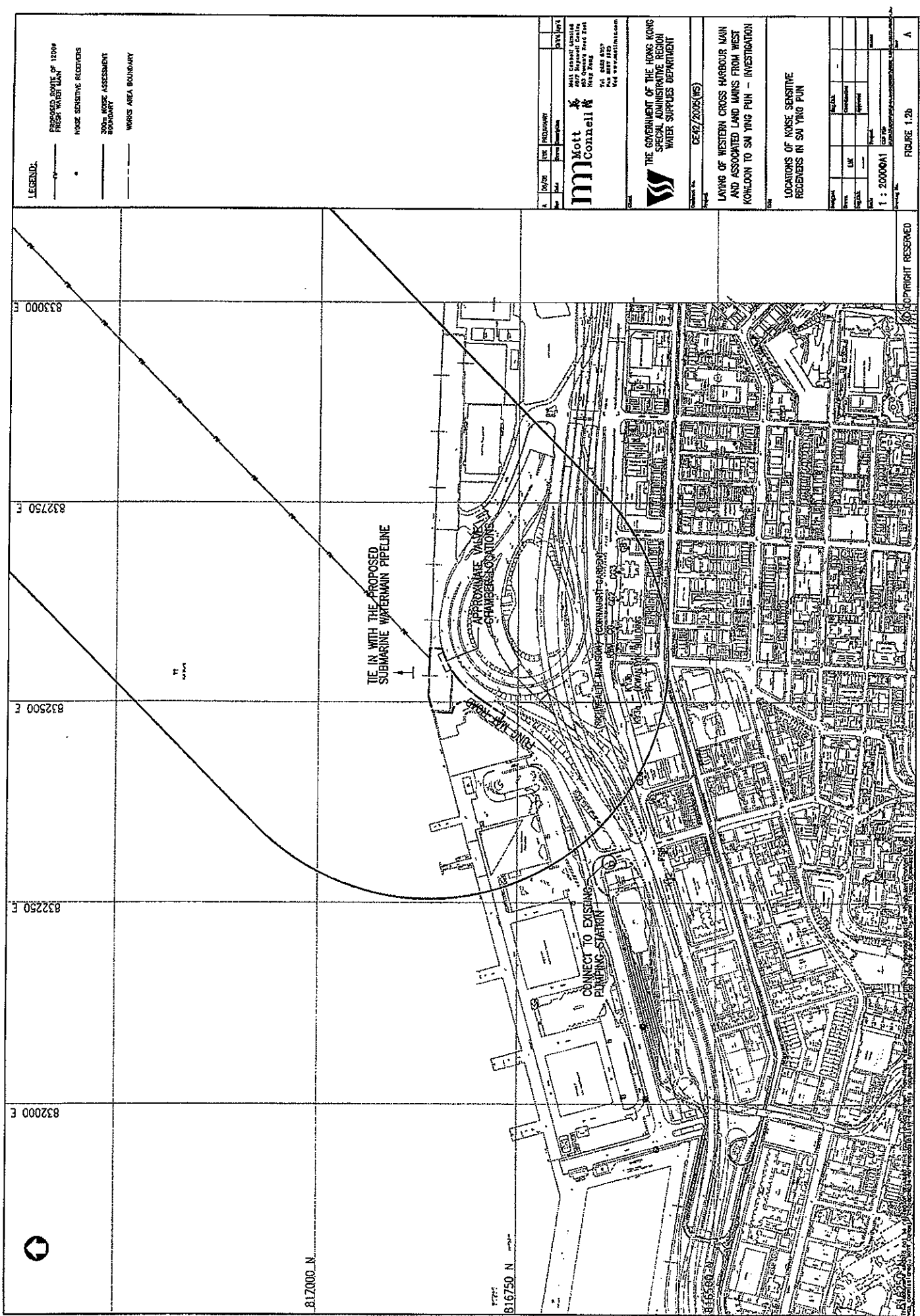
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Figure 3

Locations of Water Quality Monitoring Stations



LEGEND.

- PROPOSED ROUTE OF 1200P FRESH WATER MAIN
- NOISE SENSITIVE RECEIVERS
- 300m NOISE ASSESSMENT BOUNDARY
- WORKS AREA BOUNDARY

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

PROJECT No. CE47/2005(W5)

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

LOCATIONS OF NOISE SENSITIVE RECEIVERS IN SAI YING PUN

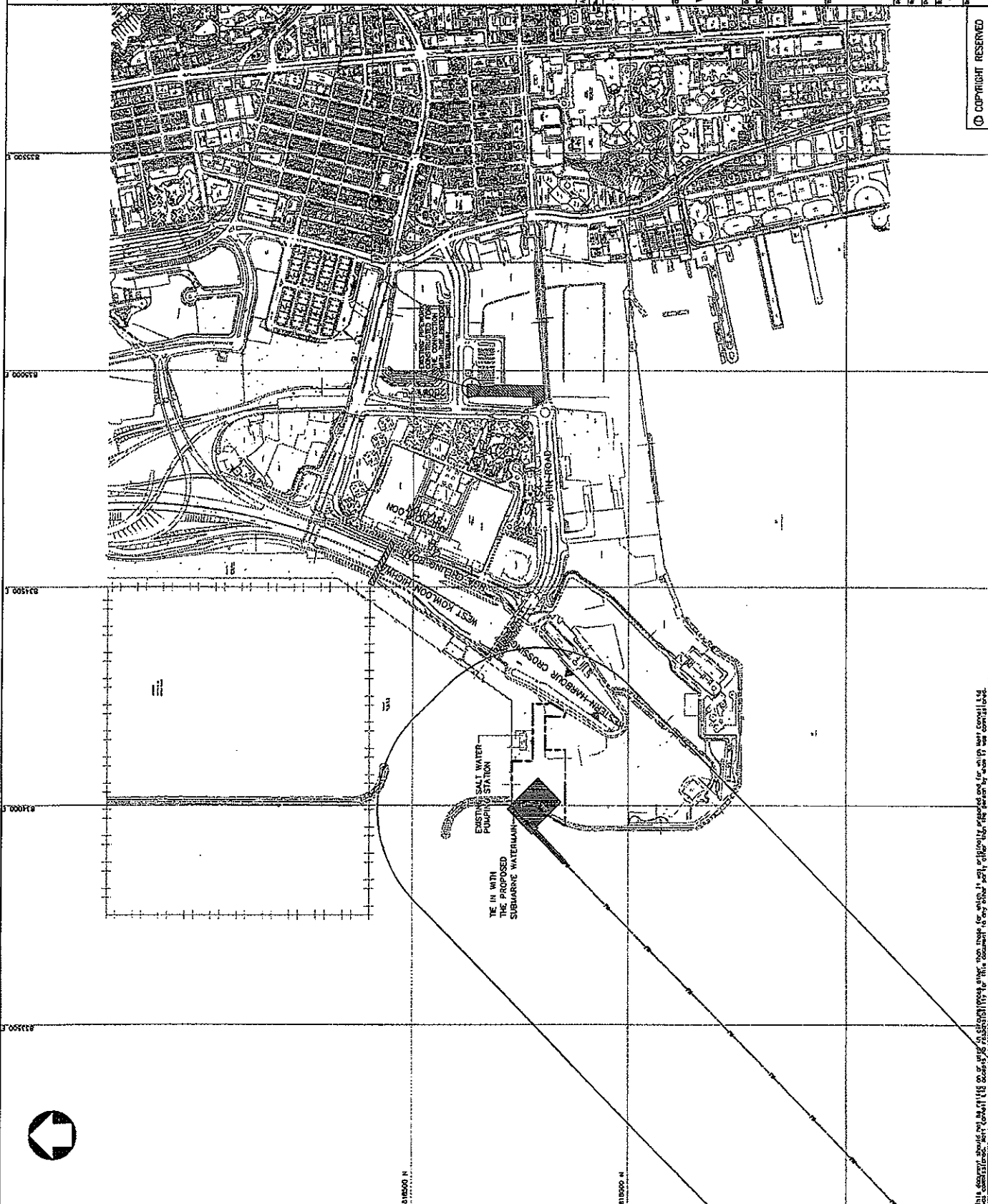
DATE	DESCRIPTION	BY	CHECKED
1: 2006/01	Issue for Approval		

FIGURE 1.2b

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LEGEND.

- PROPOSED ROUTE OF 1100P
FRESH WATER MAIN
- NOISE SENSITIVE RECEIVERS
- TEMPORARY PLATFORM
- 300M NOISE ASSESSMENT
BOUNDARY
- WORKS AREA BOUNDARY



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

CE42/2005(W3)

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

LOCATION OF NOISE SENSITIVE
RECEIVERS IN WEST KOWLOON

Project No.	1 : 40000/01
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