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.6

(FROM AUGUST TO OCTOBER 2011)

Prepared by: _____
LAW, Sau Yee
Senior Environmental Officer

Checked by: _____
LAU, Chi Leung
Environmental Team Leader

Issue Date: 05 November 2011 *Report No.: ENA11150*

ENVIRON

Ref.: WSDWHCMSEI00_0_0204L.11 17th Nov, 2011

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

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. 6
(for Aug – Oct 2011)

Reference is made to Environment Team's submission of the Quarterly Environmental Monitoring and Audit Report No. 6 by Email on 5th Nov 2011 (entitled "9/WSD/08 - Draft Quarterly Report (Aug to Oct 11)") and the subsequent revision of the report by Email on 17th Nov 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

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www.environcorp.com ENVIRON Hong Kong Ltd. 英環香港有限公司
Room 2310, China Resources Building, 26 Harbour Road, Wan Chai, Hong Kong T: 852.3743 0788 F: 852.3548 6988

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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(WS) 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 August to October 2011.

Site Activities

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

August 2011	*Removal of turn roller A & B and back anchor (Portion J);* *Installation of the kentledge system of the dry well (Portion J);* *Tie-in works of the submarine pipe(Portion J);* *Installation of the strutting system of the cofferdam (Portion H1 & H2);* *Excavation within cofferdam (Portion H1 & H2);* *Fabrication of the riser spools (Portion H1 & H2); and* *Removal of the buoyance tanks (Portion I)..*
September 2011	*Cut / break the RC slab of the back anchor (Portion J);* *Re-installation of the vertical seawell (Portion J);* *Underwater concreting of the thrust block and external concrete coating of th submarine pipe (Portion J);* *Excavation within cofferdam (Portion H1 & H2);* *Tie-in works in West Kowloon (Portion I, H1 & H2);* *Removal of the buoyance tanks (Portion I); and* *Placing Rock Fill Material (Grade 75) for backfilling the submarine pipeline..*
October 2011	*Re-installation of the vertical seawell (Portion J);* *Cut / break the external concrete coating of the surplus 1200mm dia steel water main (Portion H1 & H2);* *Reinstatement of the sloping seawall in West Kowloon (Portion I); and* *Placing Rock Fill Material (Grade 75) to the submarine main (Portion 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, no exceedance in Limit Level was recorded according to the results of noise monitoring.

Marine Water Quality Monitoring

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

Water quality monitoring scheduled on 29 September 2011 was cancelled due to bad weather (Typhoo Signal No.8).

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(WS) 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 August to October 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 vincinty 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.

No exceedance in Limit Level was recorded in this quarter.

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

Exceedance Level	*Daytime*	*Evening-time*	*Night-time*	*Holiday-time*
Action (August 2011)	*0*	*0*	*0*	*0*
Action (September 2011)	*0*	*0*	*0*	*0*
Action (October 2011)	*0*	*0*	*0*	*0*
Cumulative	*0*	*0*	*0*	*0*
Limit (August 2011)	*0*	*0*	*0*	*0*
Limit (September 2011)	*0*	*0*	*0*	*0*
Limit (October 2011)	*0*	*0*	*0*	*0*
Cumulative	*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

Parameter	*Exceedance Level*	*August 2011*	*September 2011*	*October 2011*
Dissolved Oxygen, DO	*Action*	*0*	*0*	*0*
	Limit	*0*	*0*	*0*
	Total	*0*	*0*	*0*
Turbidity (Depth-average)	*Action*	*0*	*0*	*0*
	Limit	*0*	*0*	*0*
	Total	*0*	*0*	*0*
Suspended Solids, SS (Depth-average)	*Action*	*0*	*0*	*0*
	Limit	*0*	*0*	*0*
	Total	*0*	*0*	*0*
Cumulative Exceedances	*Action*	*0*	*0*	*0*
	Limit	*0*	*0*	*0*
	Total	*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)	*WT00005347-2009*	*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)	*WT00005800-2010*	*14/01/10*	*31/01/15*	*Effluent arising from the construction site through Sedimentation Tank*
Construction Noise Permit (West Kowloon)	*GW-RE0257-11*	*19/04/11*	*04/10/11*	***Goup A*** *One Air Compressor, air flow ≤10m³/min (CNP 001) (Zone A)* *One Crane, mobile (diesel) (CNP 048) (Zone A)* *One Generator, silenced, ≤75dB(A) at 7m (Zone A)* *One Generator, standard (CNP 101) (Zone B)* ***Group B*** *One Concrete lorry mixer (CNP 044) (Zone A)* *One Crane, mobile (diesel) (CNP 048) (Zone A)* *One Air compressor, air flow ≤10m³/min (CNP 001) (Zone B)* *Two Crane, mobile (diesel) (CNP 048) (Zone B)* *One Derrick barge (CNP 061) (Zone B)* *Four Generator, silenced, ≤75dB(A) 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)* ***Group C*** *One Generator, silenced, ≤75dB(A) at 7m (Zone A)* *One Air compressor, air flow ≤10m³/min (CNP 001) (Zone B)* *One Grinder, hand-held (electric) (CNP065) (Zone B)* *One Generator, silenced, ≤75dB(A) at 7m (Zone B)* ***Group D*** *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)*

Description	Permit No.	Valid Period		Remarks
		From	To	
Construction Noise Permit (West Kowloon)	GW-RE0647-11	05/09/11	04/03/12	**Goup A** One Air Compressor, air flow ≤10m^3/min (CNP 001) (Zone A) One Crane, mobile (diesel) (CNP 048) (Zone A) One Generator, standard (CNP 101) (Zone A) **Group B** Two Derrick barge (CNP 061) (Zone B) Two Generator, standard (CNP 101) (Zone B) Two Guard boats (Zone B) One Tug boat (CNP 221) (Zone B)
Construction Noise Permit (Sai Ying Pun)	GW-RS0352-11	26/04/11	10/10/11	**Group A** 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 ≤98dB(A) One Generator, silenced, 108dB(A) (CNP 101) One Derrick barge (CNP 061) **Group B** One Crane, mobile (diesel) (CNP 048) One Air compressor with Noise Emission Label showing a sound power level of ≤98dB(A) One Generator, silenced, 108dB(A) (CNP 101) **Group C** 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 ≤98dB(A) Two Generator, silenced, 108dB(A) (CNP 101) **Group D** 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 ≤98dB(A) One Generator, silenced, 108dB(A) (CNP 101) **Group E** One Derrick barge (CNP 061) Two Guard boats One Tug boat (CNP 221) One Crane, mobile (diesel) (CNP 048) Two Generator, silenced, 108dB(A) (CNP 101) One Winch (electric) (CNP 262) **Group F** One Air compressor with Noise Emission Label showing a sound power level of ≤98dB(A) One Generator, silenced, 108dB(A) (CNP 101)
Construction Noise Permit (Sai Ying Pun)	GW-RS0877-11	26/09/11	25/03/12	**Group A** One Crane, mobile (diesel) (CNP 048) One Air compressor with Noise Emission Label showing a sound power level of ≤98dB(A) One Generator, silenced, ≤108dB(A) (CNP 101) **Group B** One Air compressor with Noise Emission Label showing a sound power level of ≤98dB(A) One Generator, silenced, ≤108dB(A) (CNP 101) **Group C** One Generator, silenced, ≤108dB(A) (CNP 101) One Derrick barge (CNP 061) One Guard boat One Tug boat (CNP 221) **Group D** One Generator, silenced, ≤108dB(A) (CNP 101) One Derrick barge (CNP 061) One Guard boat One Tug boat (CNP 221)

Description	Permit No.	Valid Period		Remarks
		From	To	
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)	1443.09		15628.19
	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)	1443.09	SENT Landfill	15628.19
C&D Waste	Metals (in kg)	0	---	0
	Paper/Cardboard Packaging (in kg)	26	Collected by recycling company	143
	Plastics (in kg)	0	---	0
	Chemical Waste (in kg)	0	---	0
	Other, e.g. General Refuse (in m^3)	11.05	SENT Landfill	96.51
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.

No exceedance 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 no exceedance of Action and Limit Level of noise monitoring was recorded in this quarter, no action on the review of the reason for and the implication of non-compliance was required.

6.3 Summary of Actions Taken

Since no exceedance of Action and Limit Leven of noise monitoring was recorded in this quarter, 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*
August 2011	*0*	*0*	*0*
September 2011	*0*	*0*	*0*
October 2011	*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.

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

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, no exceedance in Limit Level was recorded according to the results of noise monitoring

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.

- 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

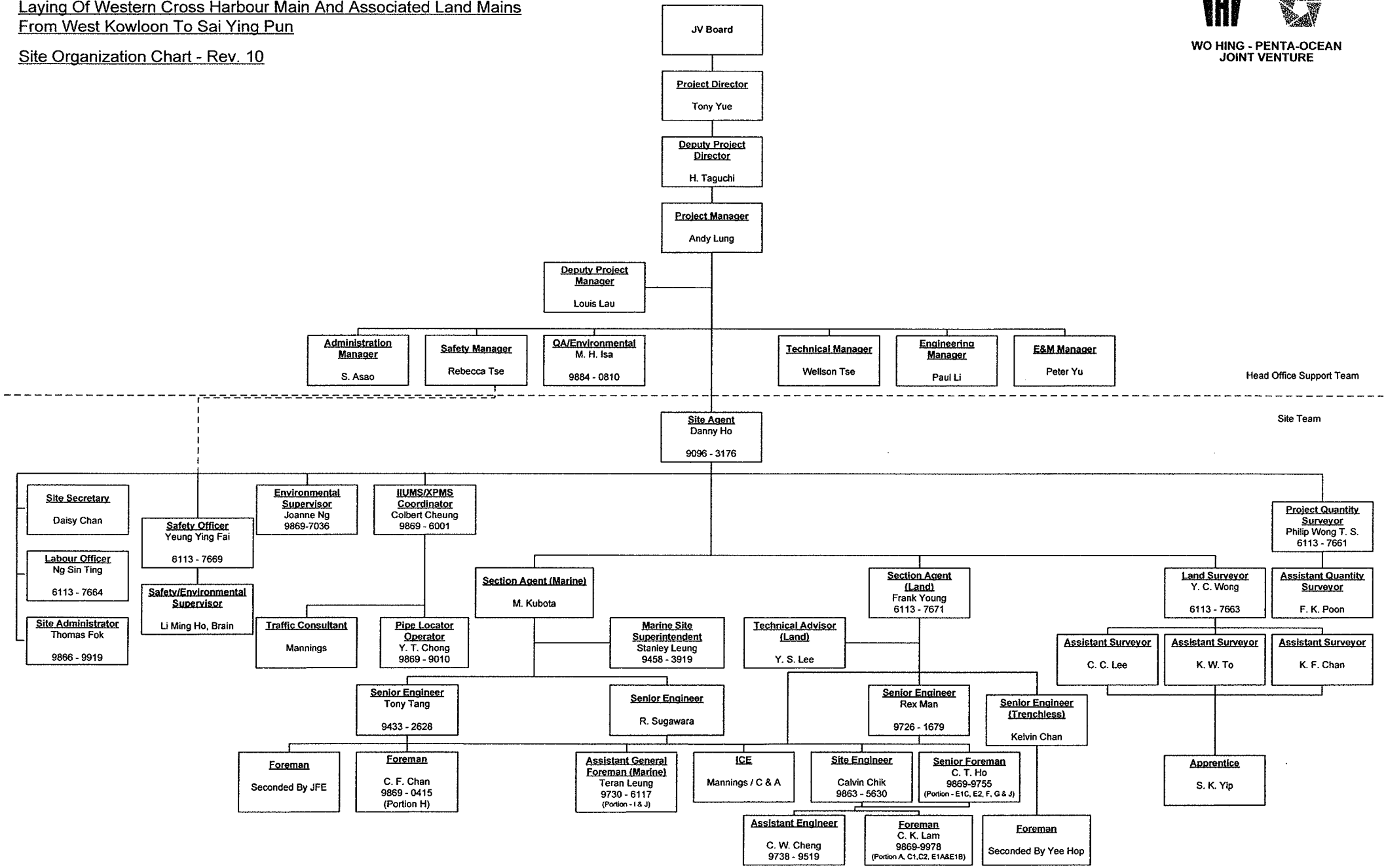
Organization Chart and Lines of Communication

Contract No. 9/WSD/08

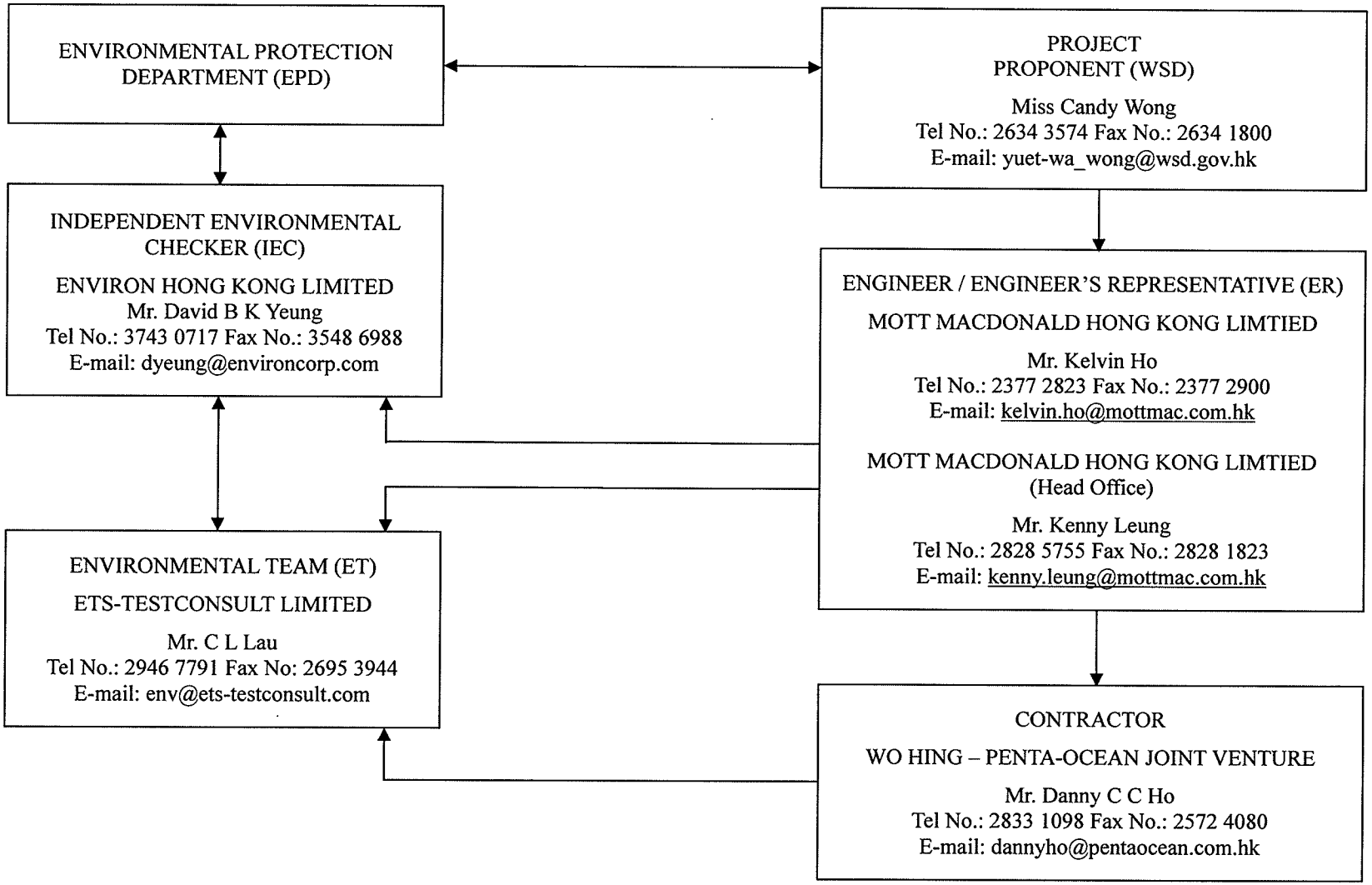
Laying Of Western Cross Harbour Main And Associated Land Mains From West Kowloon To Sai Ying Pun

Site Organization Chart - Rev. 10

WO HING - PENTA-OCEAN JOINT VENTURE



New Staff

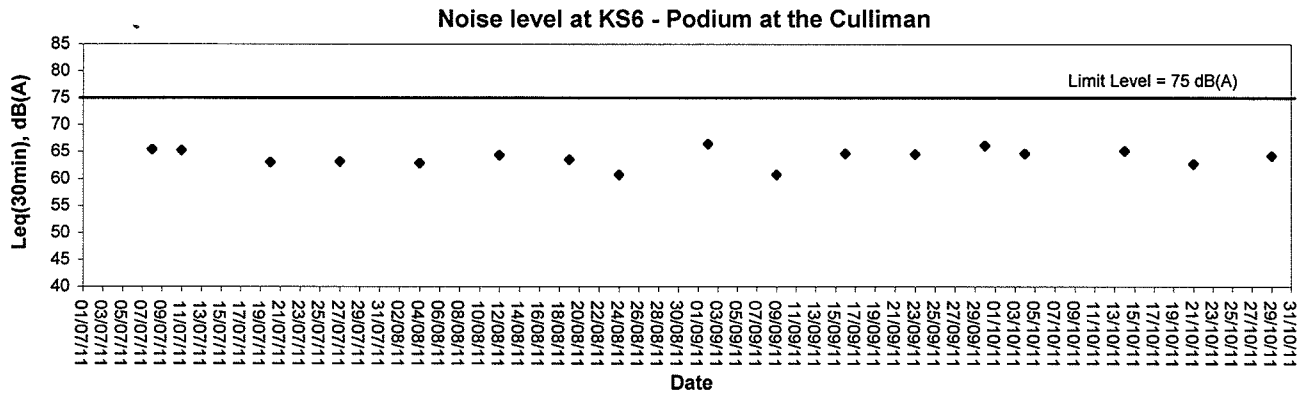


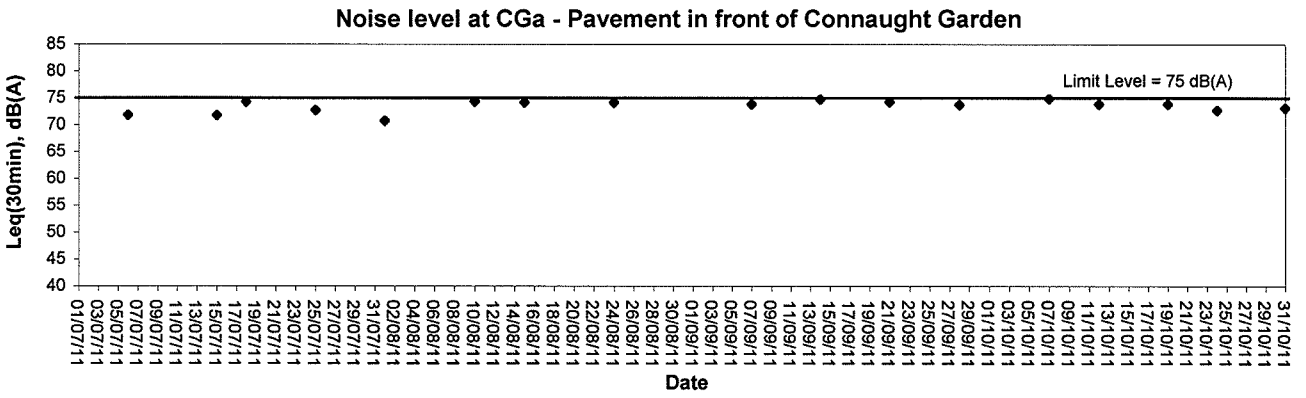
Project	Laying of Western Cross Harbour Main and Associated Land Mains From West Kowloon to Sai Ying Pun - Investigation	Mott MacDonald
Title	Project Organization and Line of Communication	Figure 1.3a
Date Dec 2009		

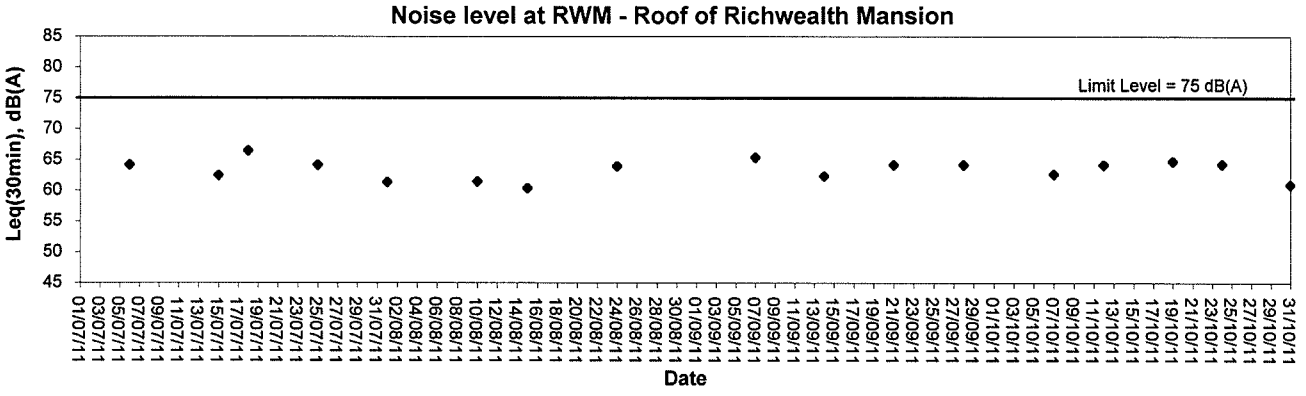
Appendix B

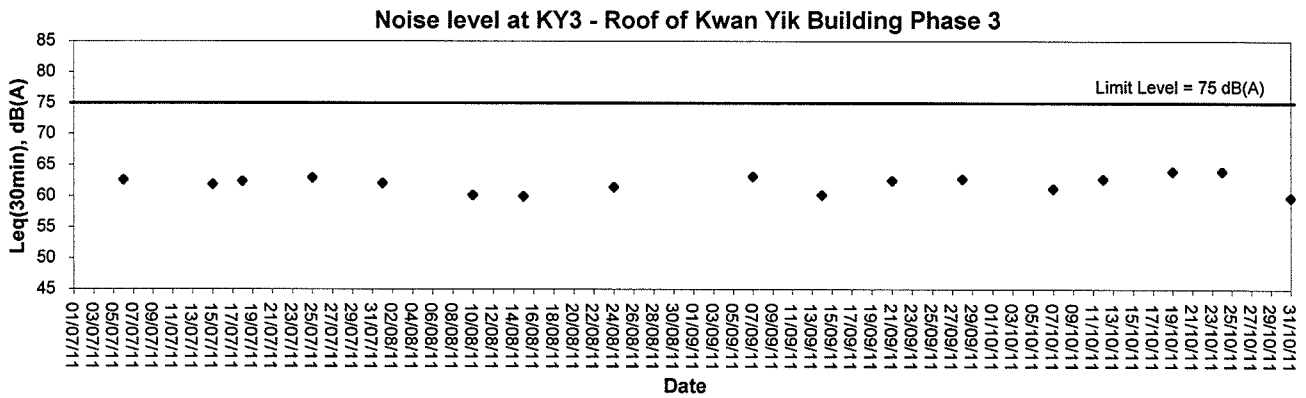
Graphical Plots of Noise Monitoring Data

Noise Monitoring (Day-time)



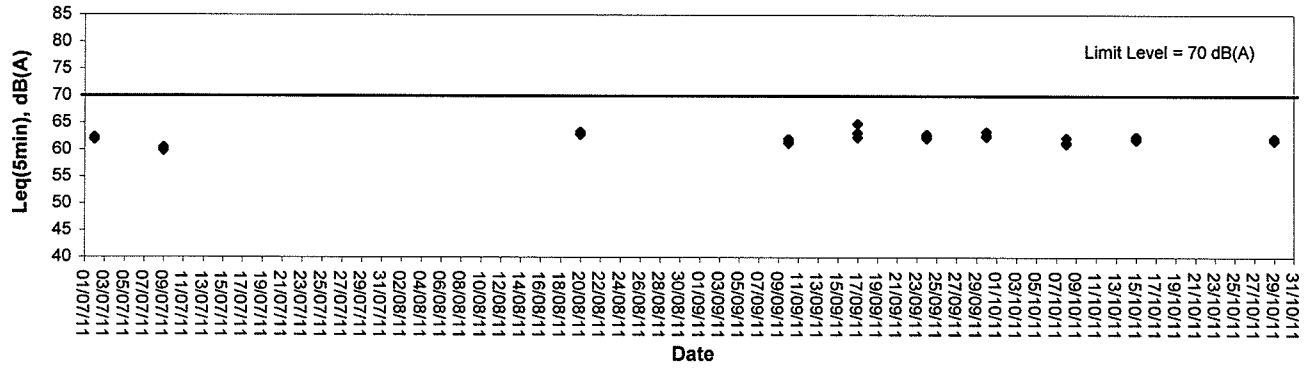




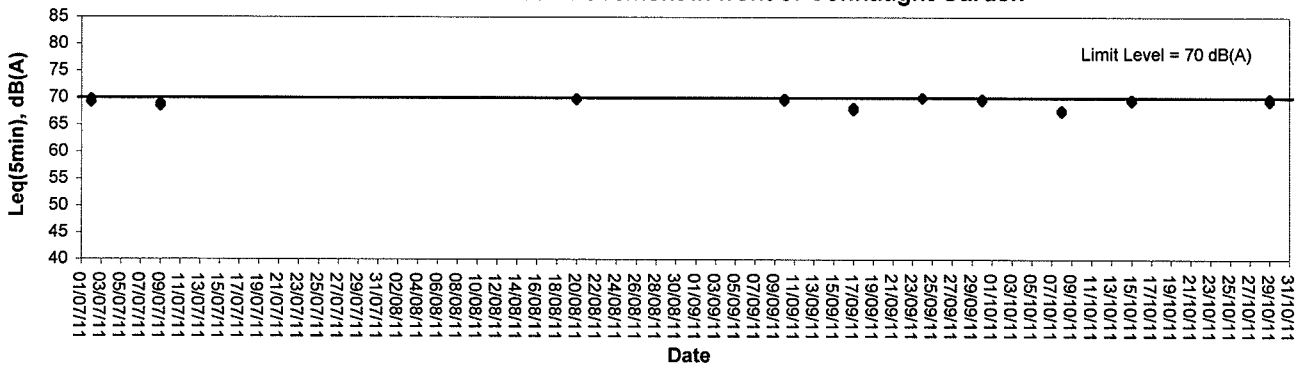


Noise Monitoring (Evening-time)

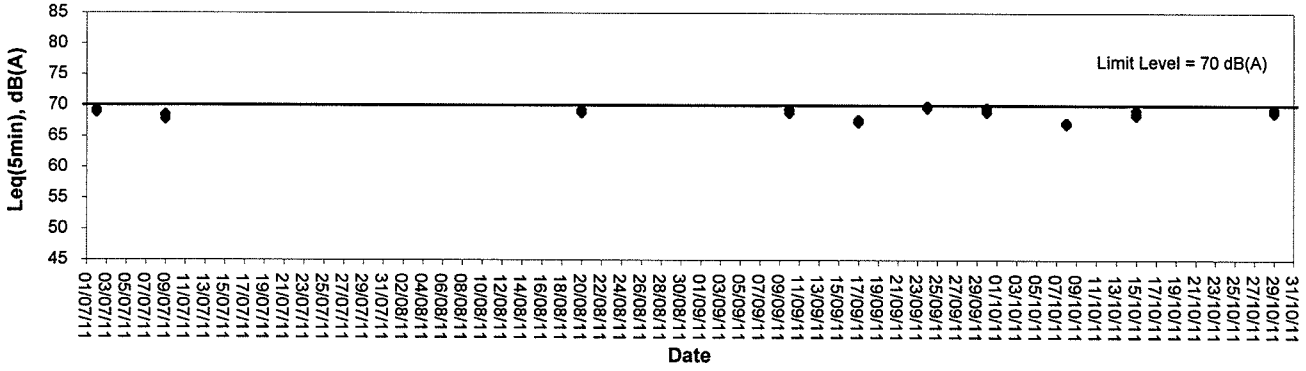
Noise level at KS6 - Podium at the Culliman



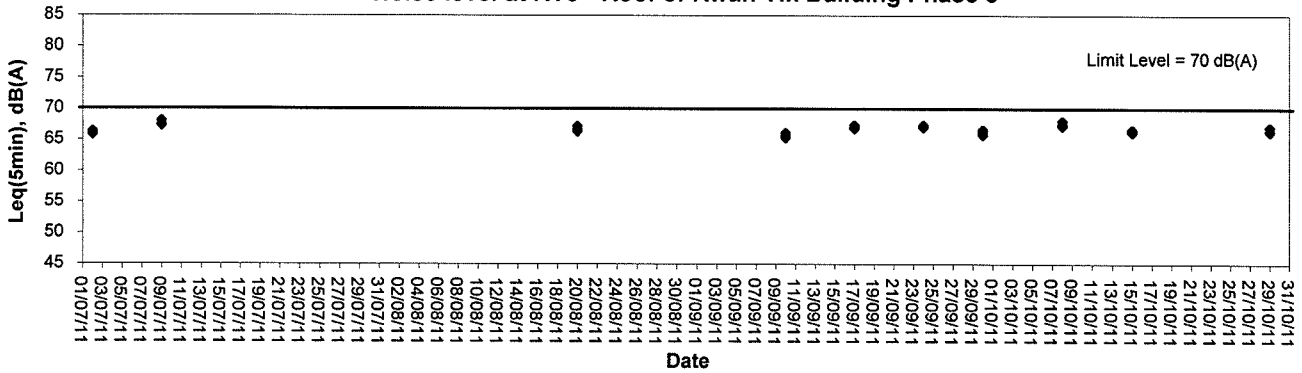
Noise level at CGa - Pavement in front of Connaught Garden



Noise level at RWM - Roof of Richwealth Mansion

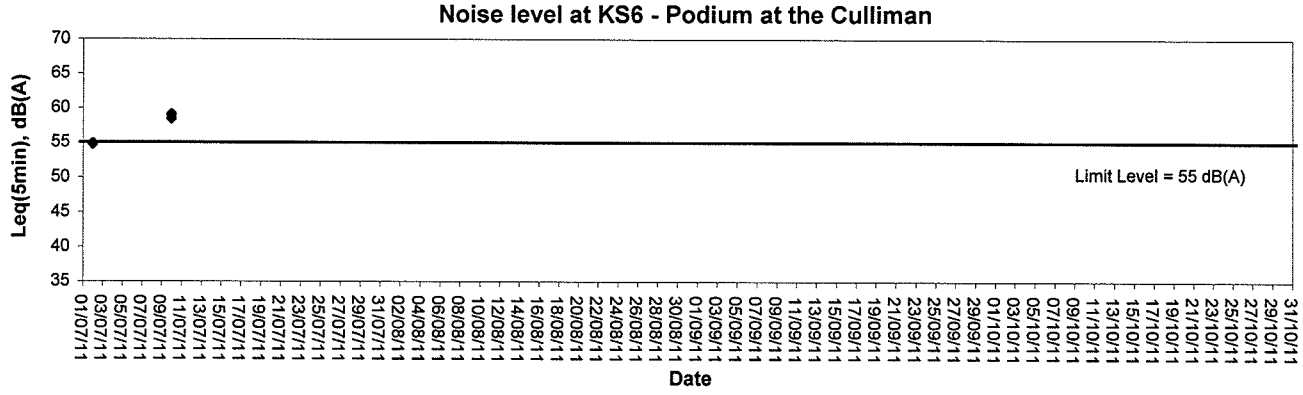


Noise level at KY3 - Roof of Kwan Yik Building Phase 3

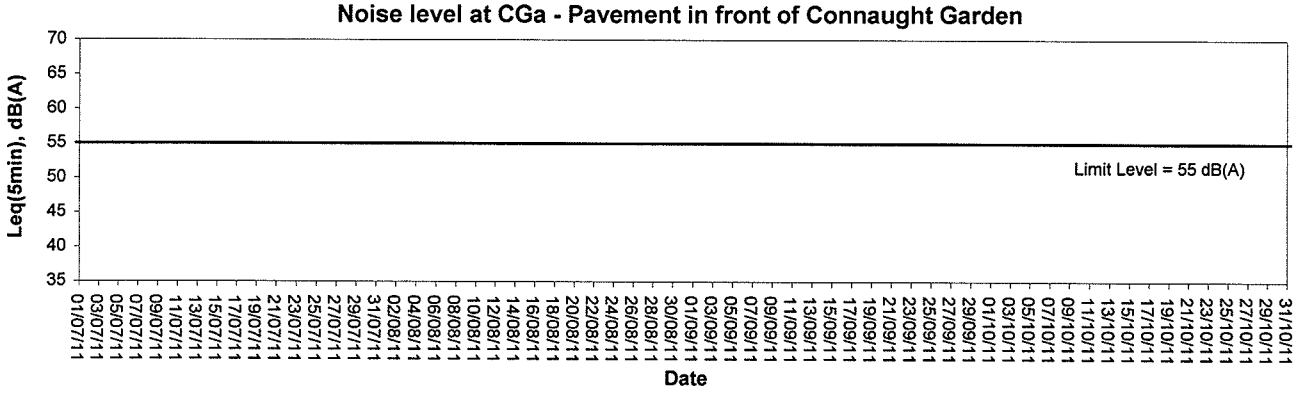


Noise Monitoring (Night-time)

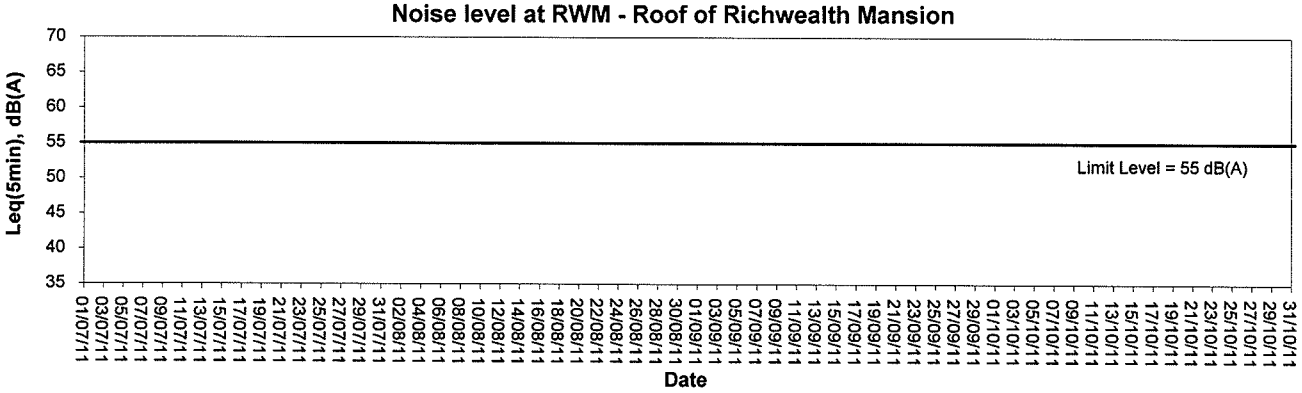
Noise level at KS6 - Podium at the Culliman



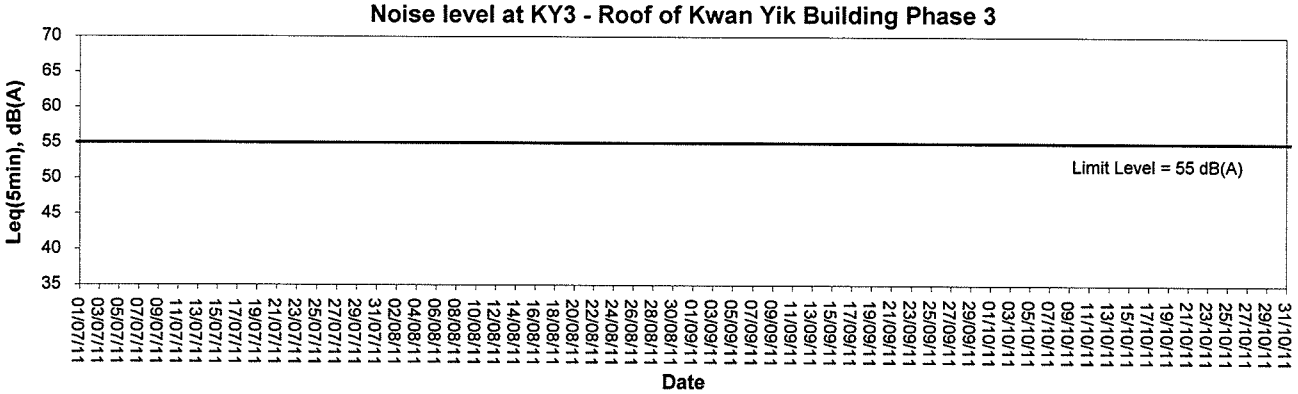
Noise level at CGa - Pavement in front of Connaught Garden



Noise level at RWM - Roof of Richwealth Mansion

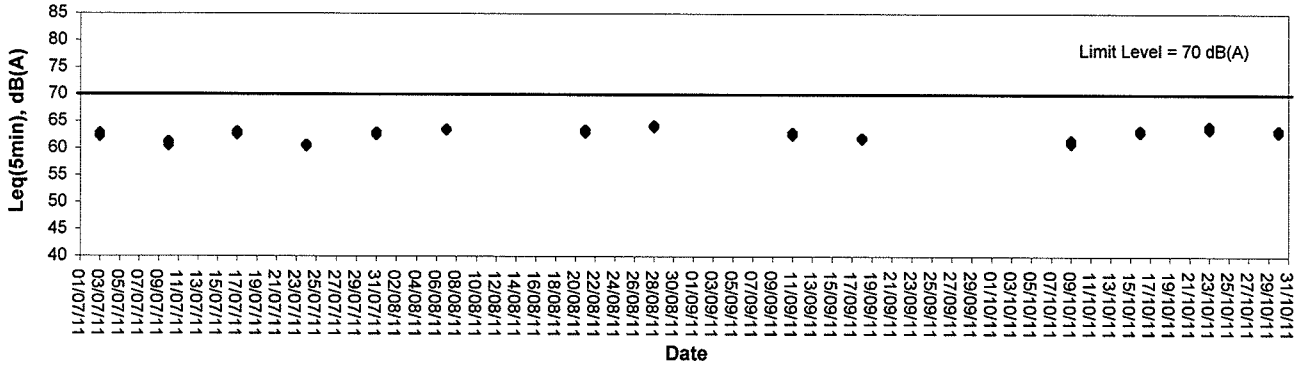


Noise level at KY3 - Roof of Kwan Yik Building Phase 3

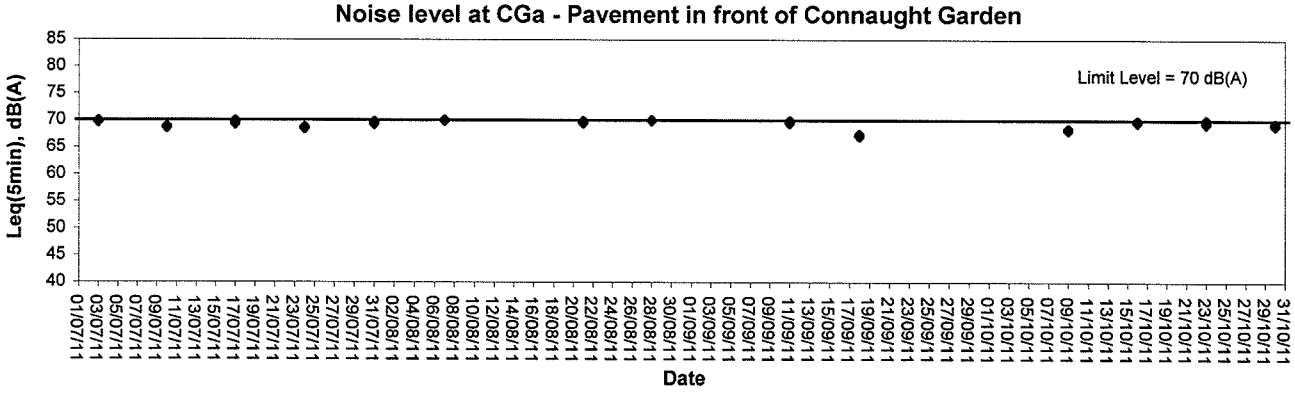


Noise Monitoring (Holiday-time)

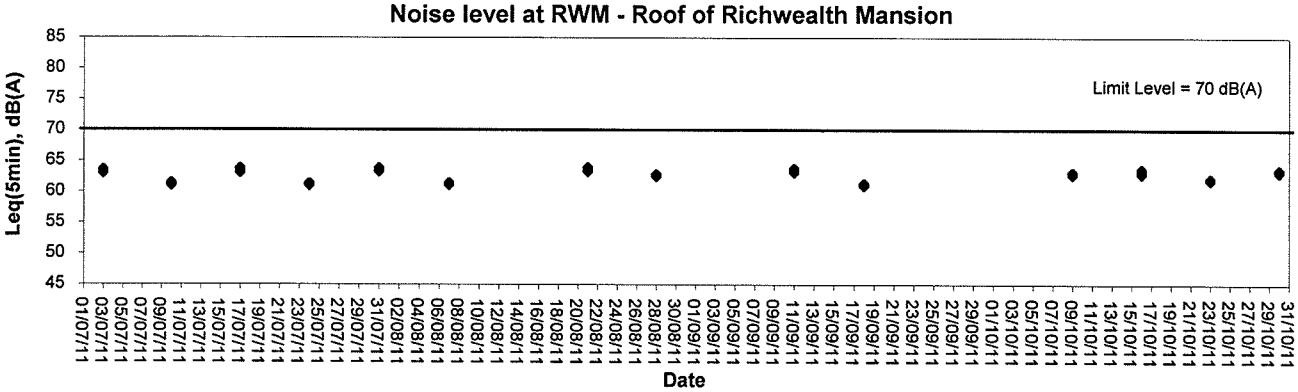
Noise level at KS6 - Podium at the Culliman



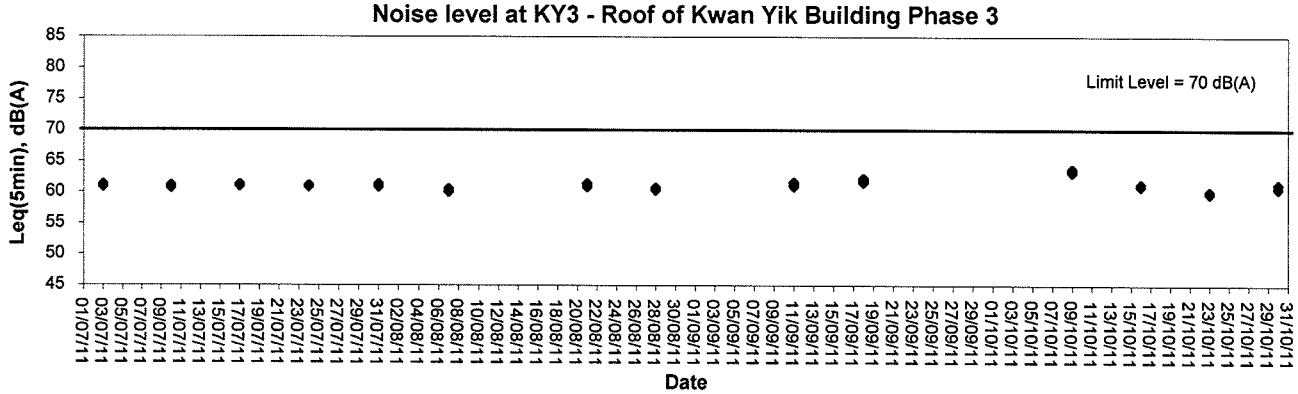
Noise level at CGa - Pavement in front of Connaught Garden



Noise level at RWM - Roof of Richwealth Mansion

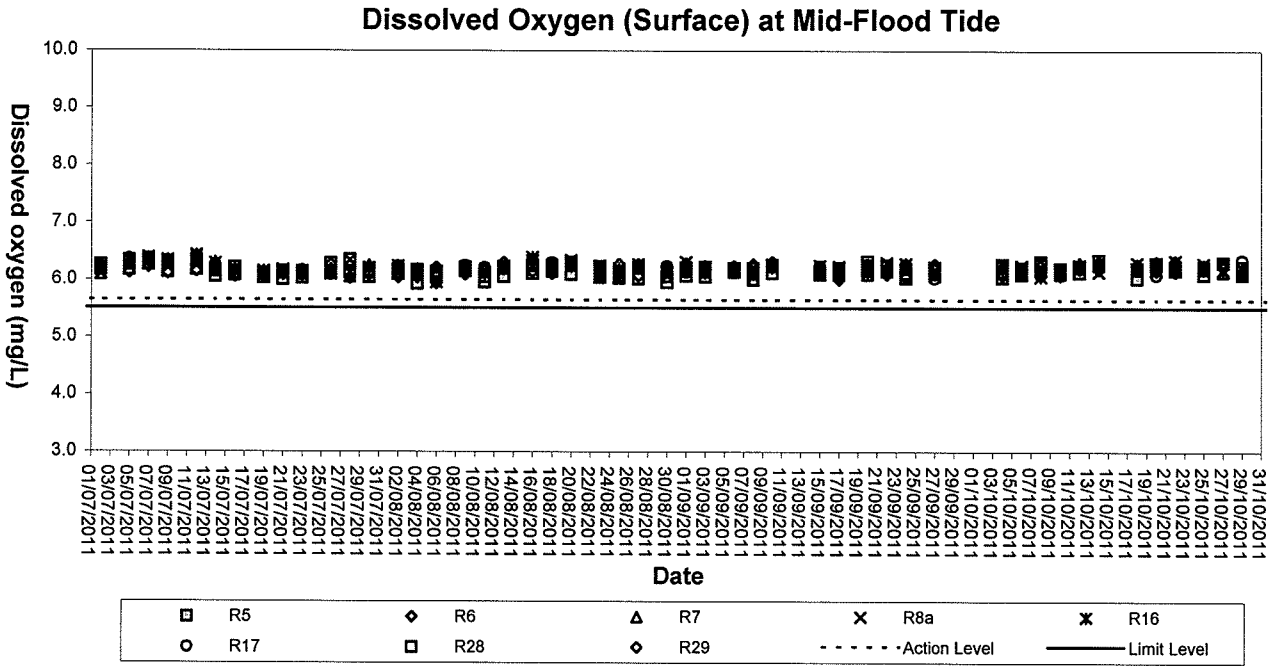


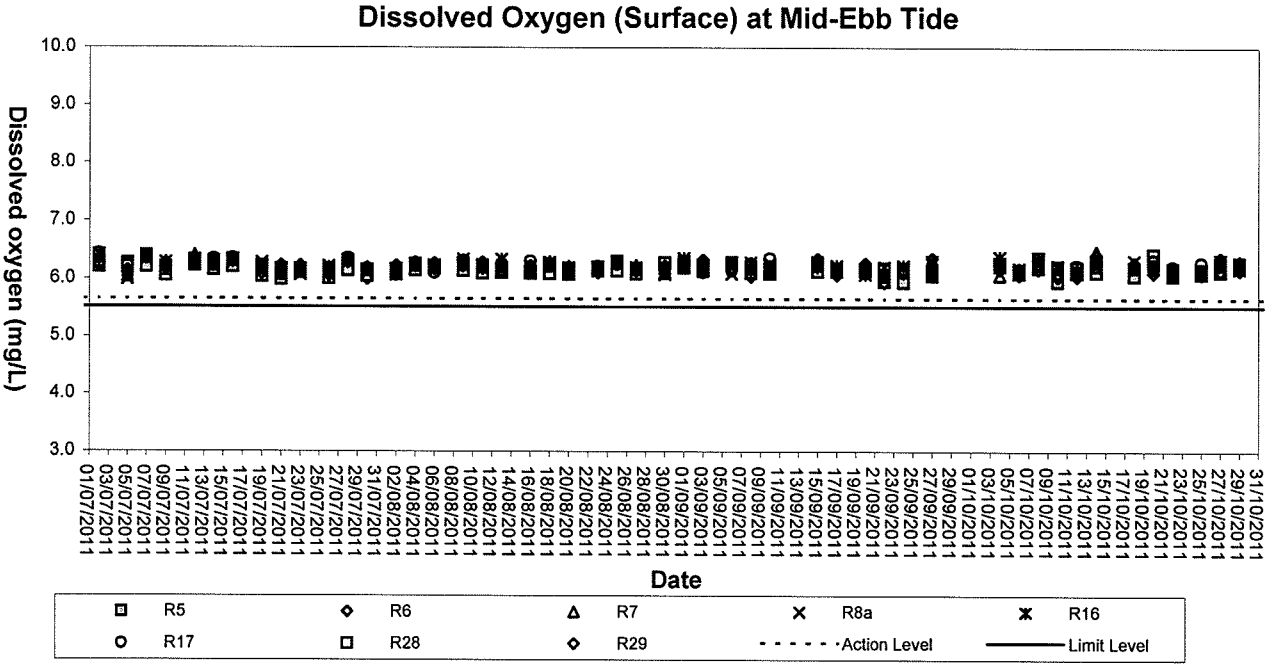
Noise level at KY3 - Roof of Kwan Yik Building Phase 3

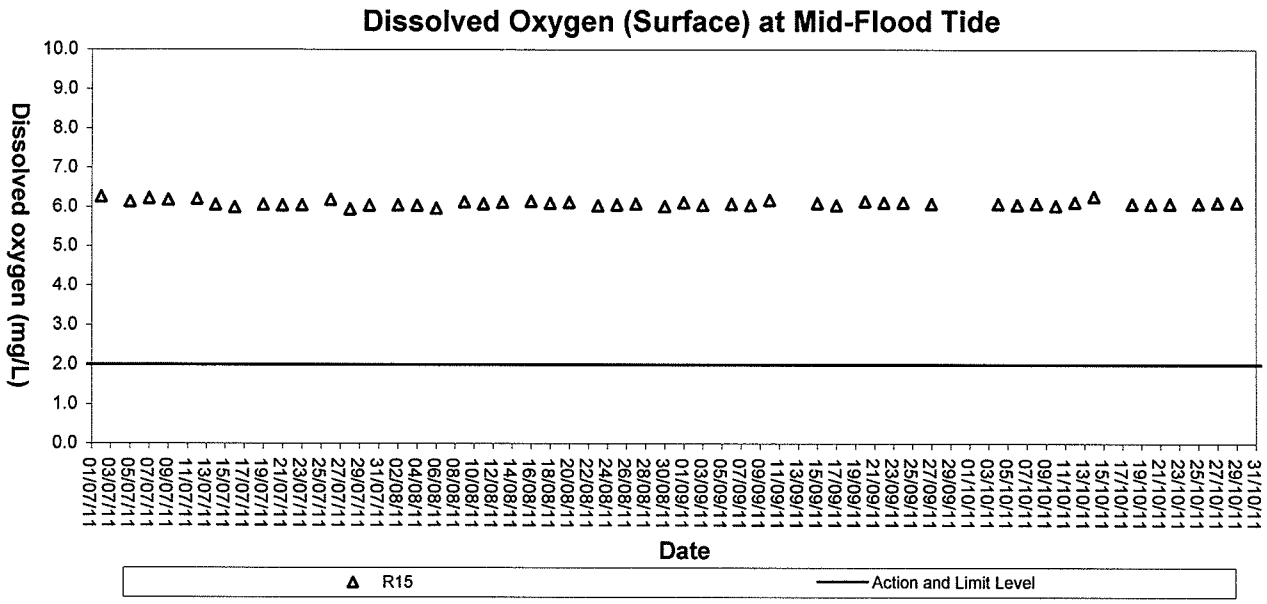


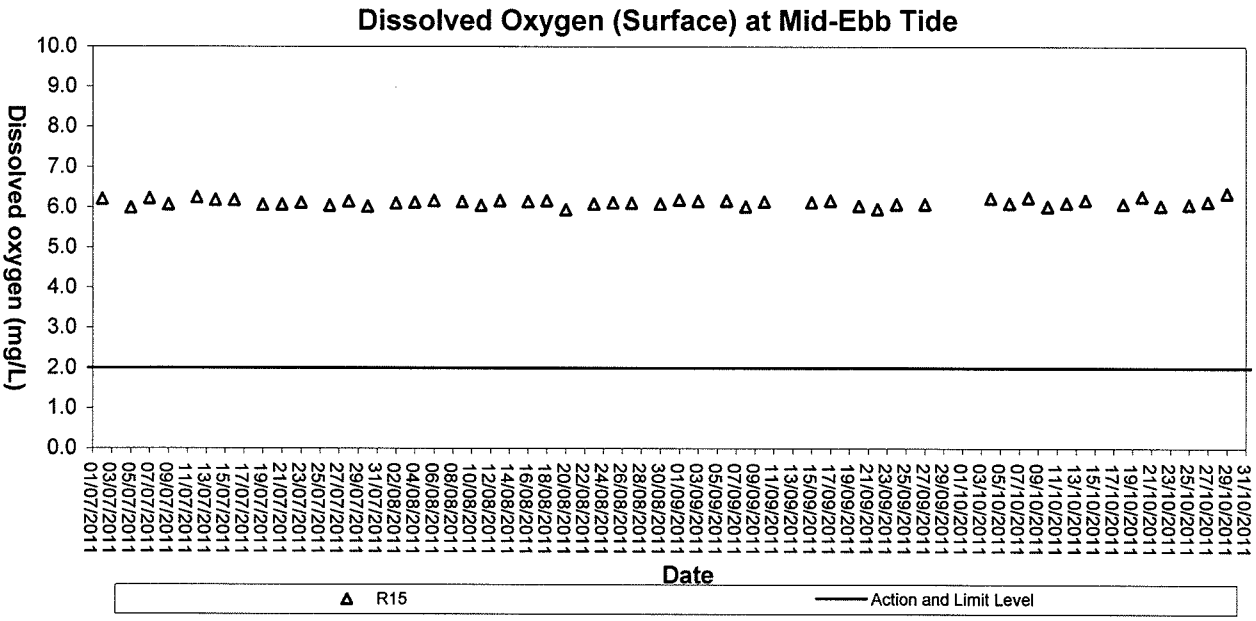
Appendix C

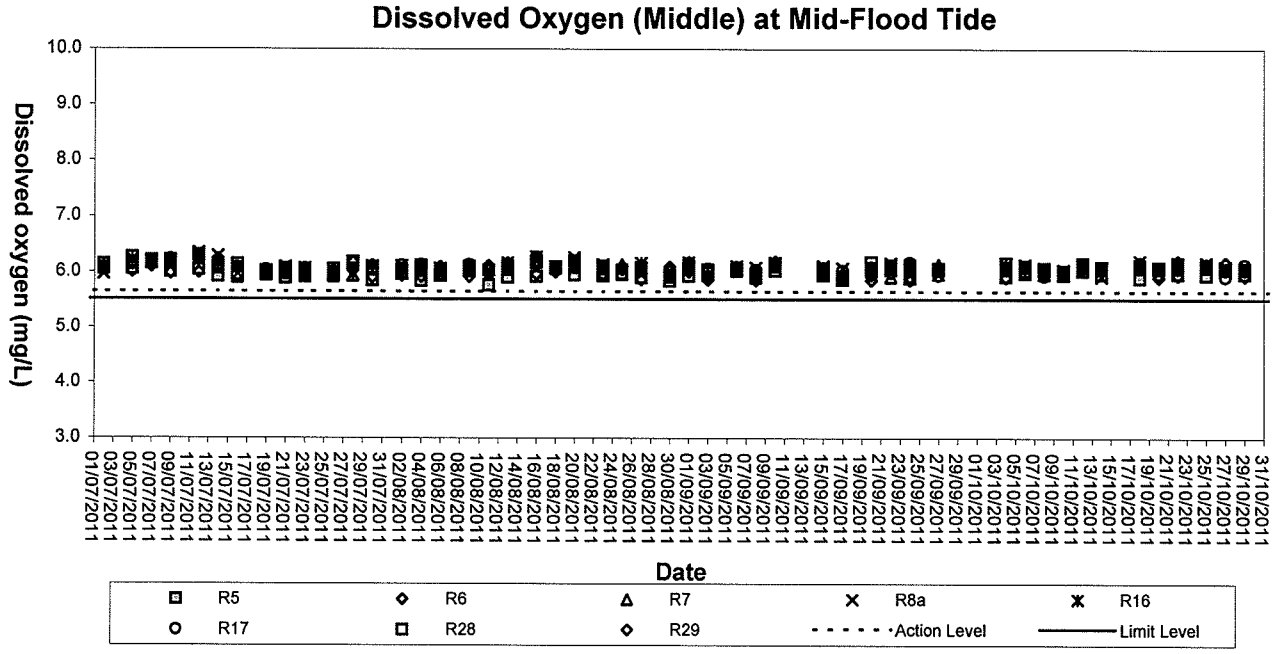
Graphical Plots of Impact Marine Water Quality Monitoring Data

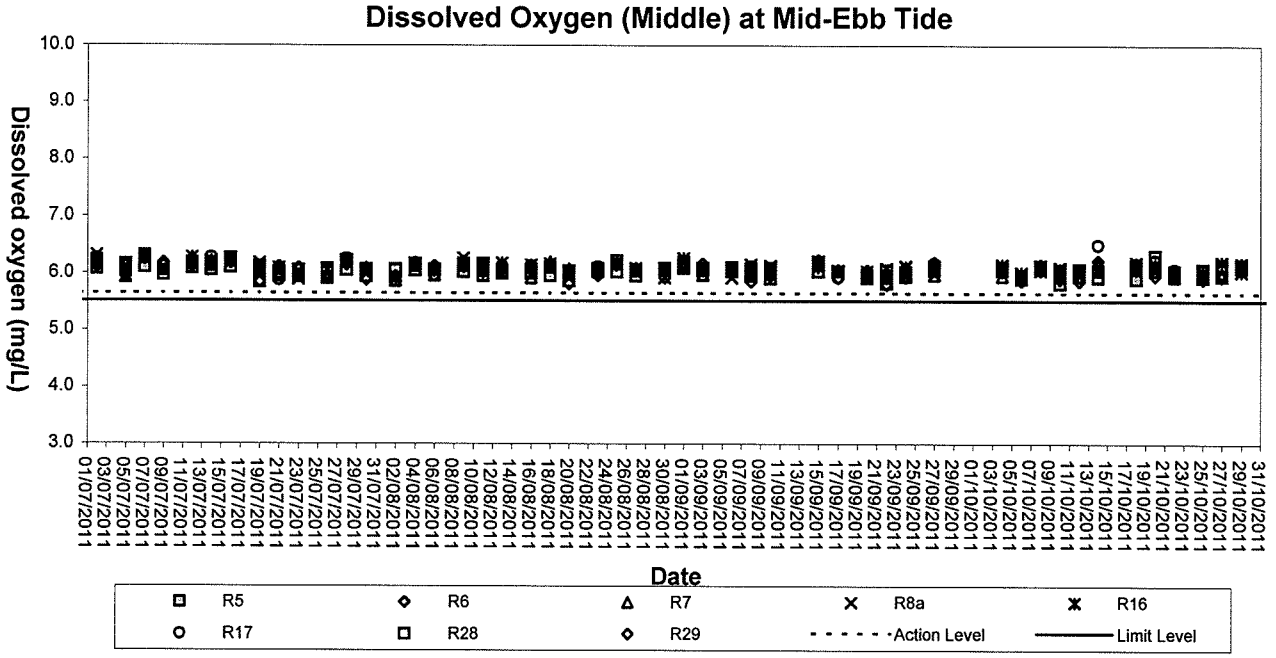

Dissolved Oxygen (Surface) at Mid-Flood Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
Date
R5
R6
R7
R8a
R16
R17
R28
R29
Action Level
Limit Level

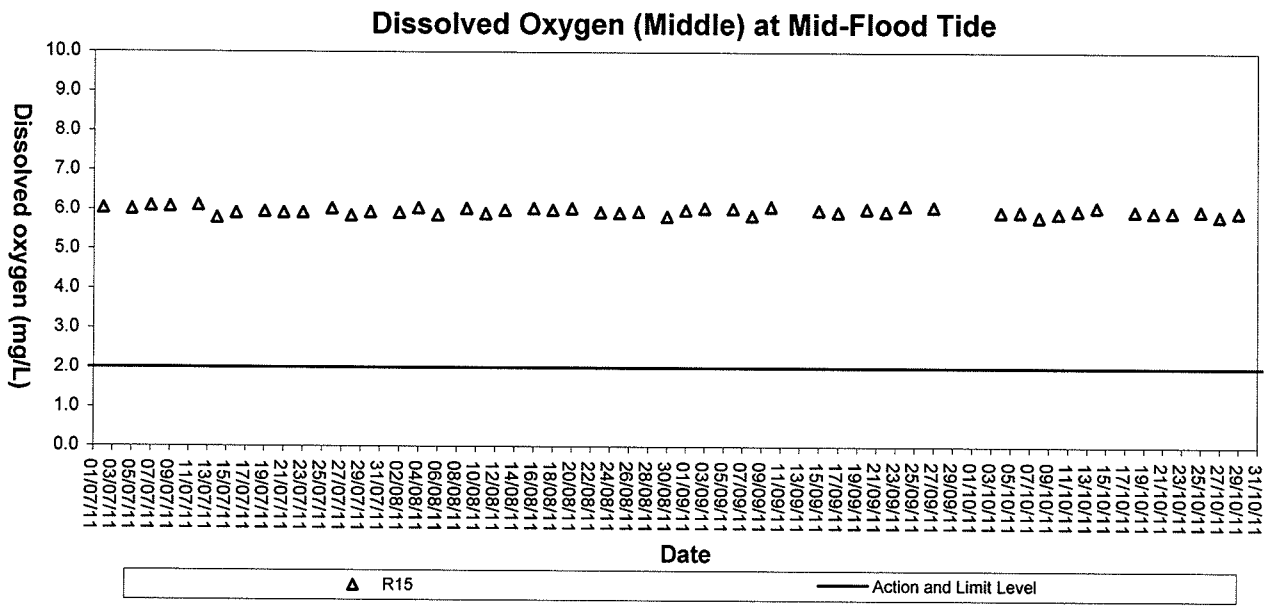

Dissolved Oxygen (Surface) at Mid-Ebb Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
Date
R5
R6
R7
R8a
R16
R17
R28
R29
Action Level
Limit Level


Dissolved Oxygen (Surface) at Mid-Flood Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Date
R15
Action and Limit Level


Dissolved Oxygen (Surface) at Mid-Ebb Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Date
R15
Action and Limit Level


Dissolved Oxygen (Middle) at Mid-Flood Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
Date
R5
R6
R7
R8a
R16
R17
R28
R29
Action Level
Limit Level


Dissolved Oxygen (Middle) at Mid-Ebb Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
Date
R5
R6
R7
R8a
R16
R17
R28
R29
Action Level
Limit Level


Dissolved Oxygen (Middle) at Mid-Flood Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/07/11
03/07/11
05/07/11
07/07/11
09/07/11
11/07/11
13/07/11
15/07/11
17/07/11
19/07/11
21/07/11
23/07/11
25/07/11
27/07/11
29/07/11
31/07/11
02/08/11
04/08/11
06/08/11
08/08/11
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12/08/11
14/08/11
16/08/11
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17/10/11
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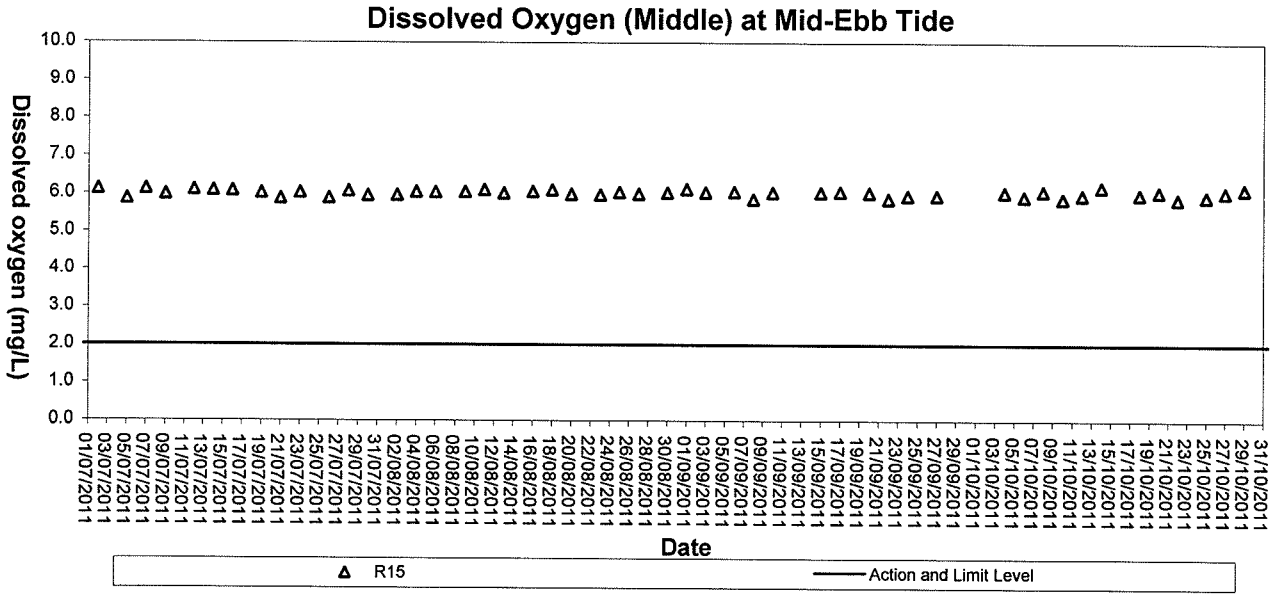
23/10/11
25/10/11
27/10/11
29/10/11
31/10/11
Date
R15
Action and Limit Level


Dissolved Oxygen (Middle) at Mid-Ebb Tide
Dissolved oxygen (mg/L)
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9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/07/2011
03/07/2011
05/07/2011
07/07/2011
09/07/2011
11/07/2011
13/07/2011
15/07/2011
17/07/2011
19/07/2011
21/07/2011
23/07/2011
25/07/2011
27/07/2011
29/07/2011
31/07/2011
02/08/2011
04/08/2011
06/08/2011
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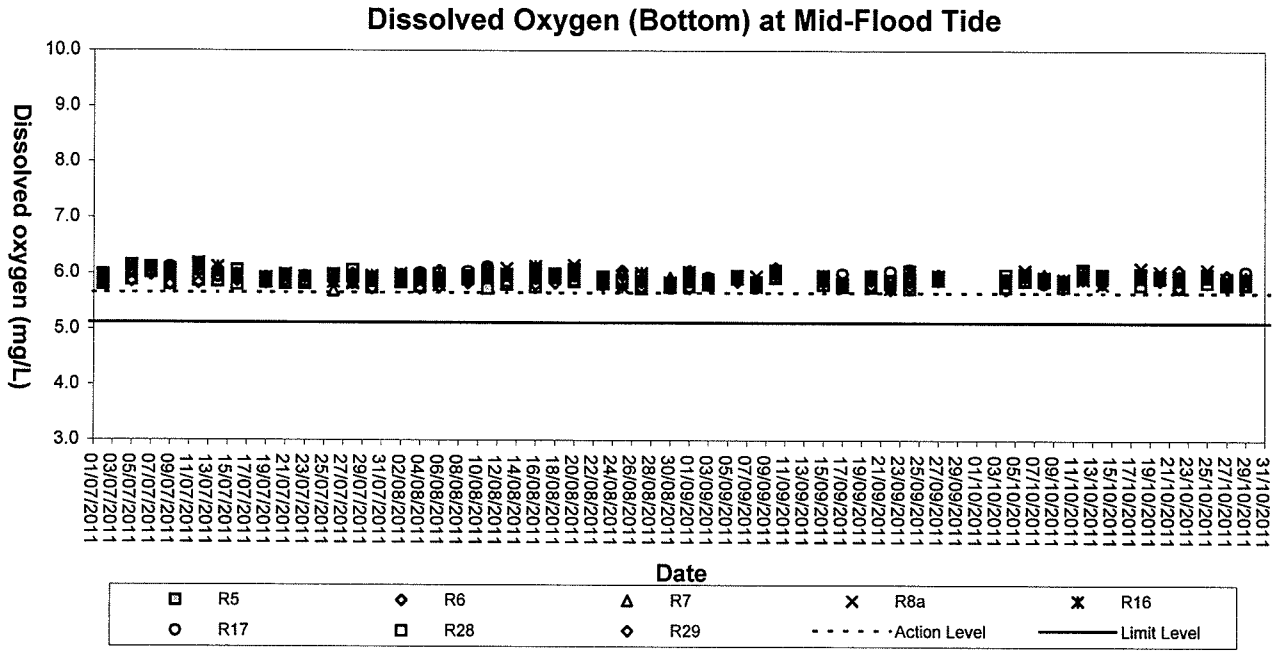
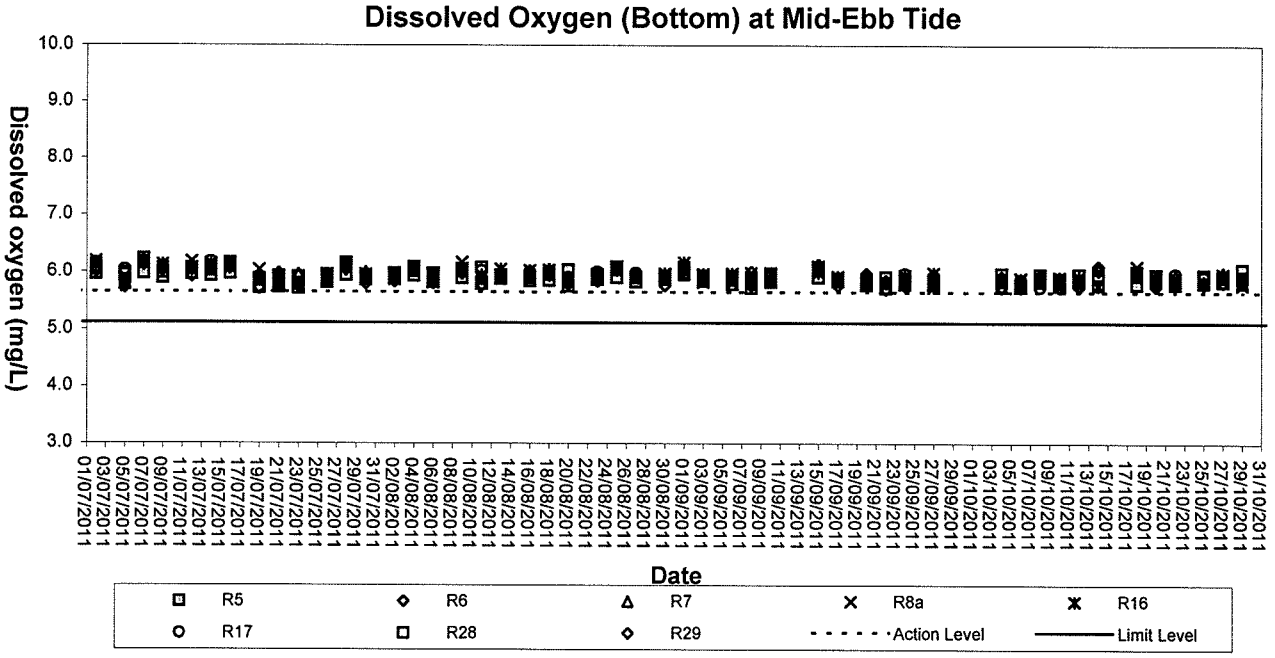
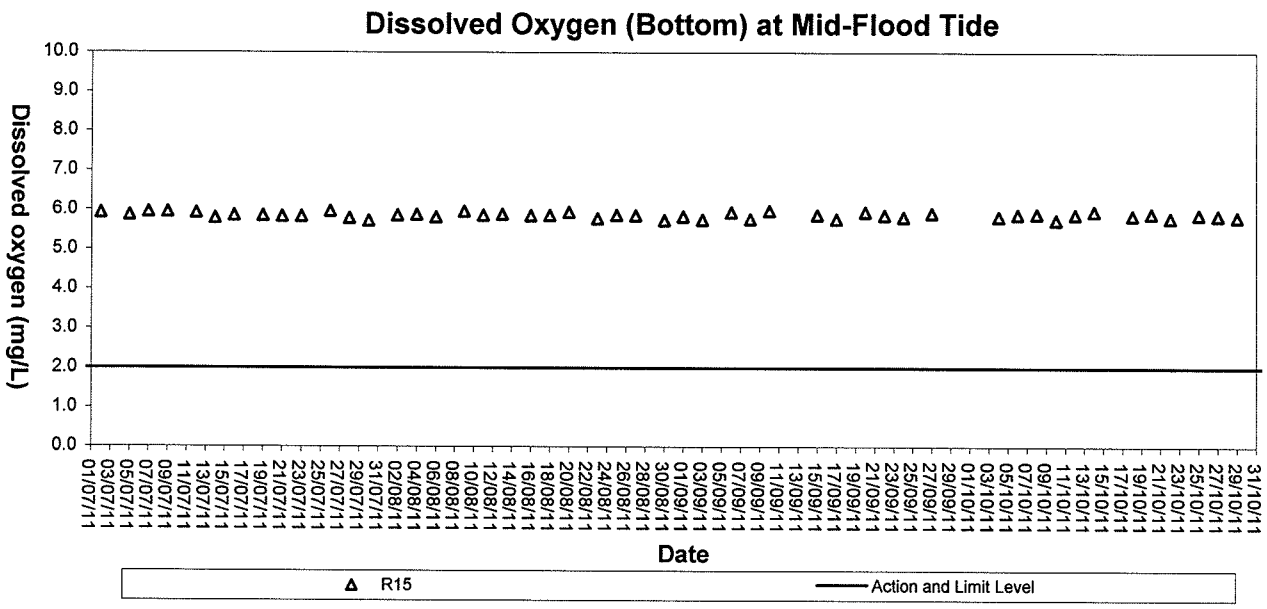
15/10/2011
17/10/2011
19/10/2011
21/10/2011
23/10/2011
25/10/2011
27/10/2011
29/10/2011
31/10/2011
Date
R15
Action and Limit Level


Dissolved Oxygen (Bottom) at Mid-Flood Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
Date
R5
R6
R7
R8a
R16
R17
R28
R29
Action Level
Limit Level


Dissolved Oxygen (Bottom) at Mid-Ebb Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
Date
R5
R6
R7
R8a
R16
R17
R28
R29
Action Level
Limit Level


Dissolved Oxygen (Bottom) at Mid-Flood Tide
Dissolved oxygen (mg/L)
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9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/07/11
03/07/11
05/07/11
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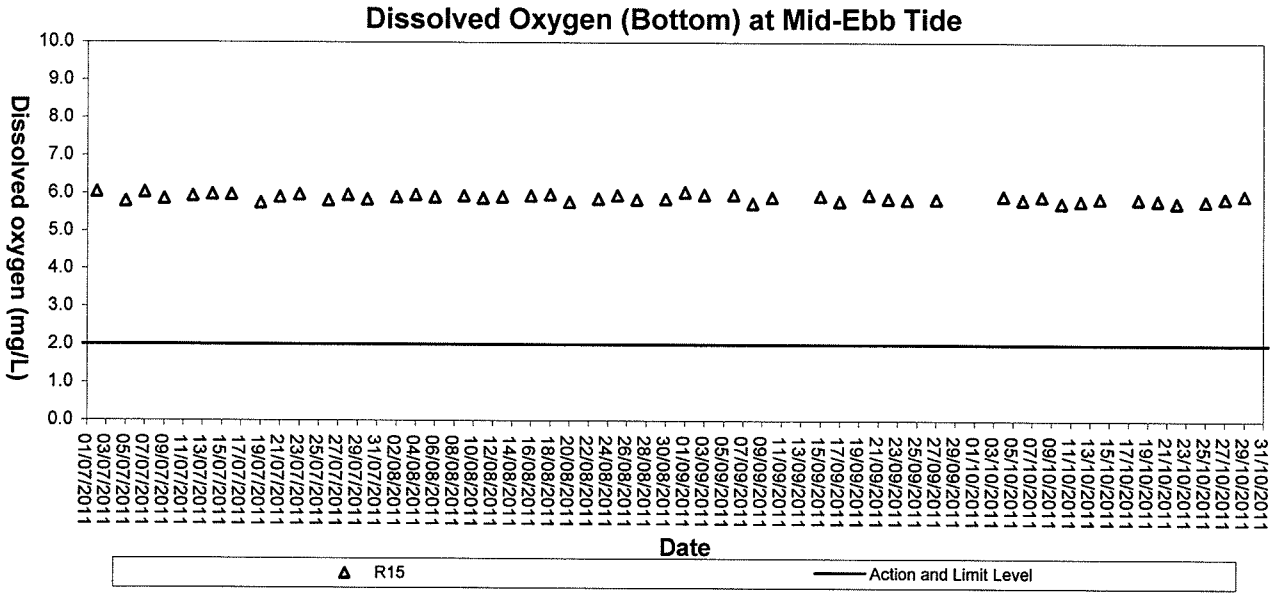
Date
R15
Action and Limit Level


Dissolved Oxygen (Bottom) at Mid-Ebb Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/07/2011
03/07/2011
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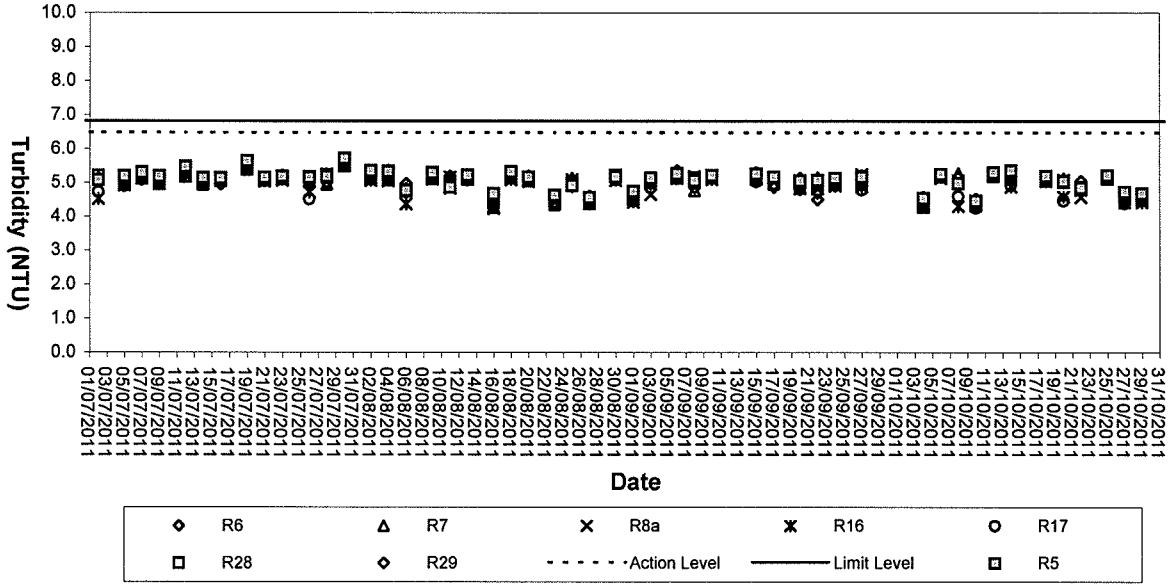
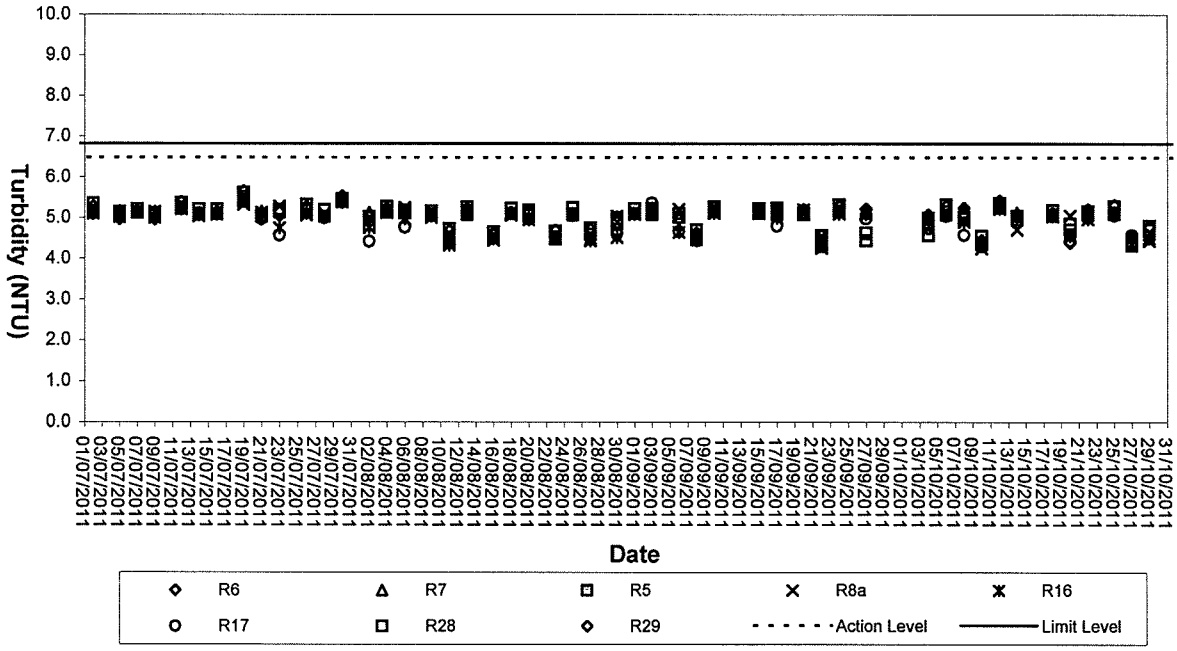
19/10/2011
21/10/2011
23/10/2011
25/10/2011
27/10/2011
29/10/2011
31/10/2011
Date
R15
Action and Limit Level

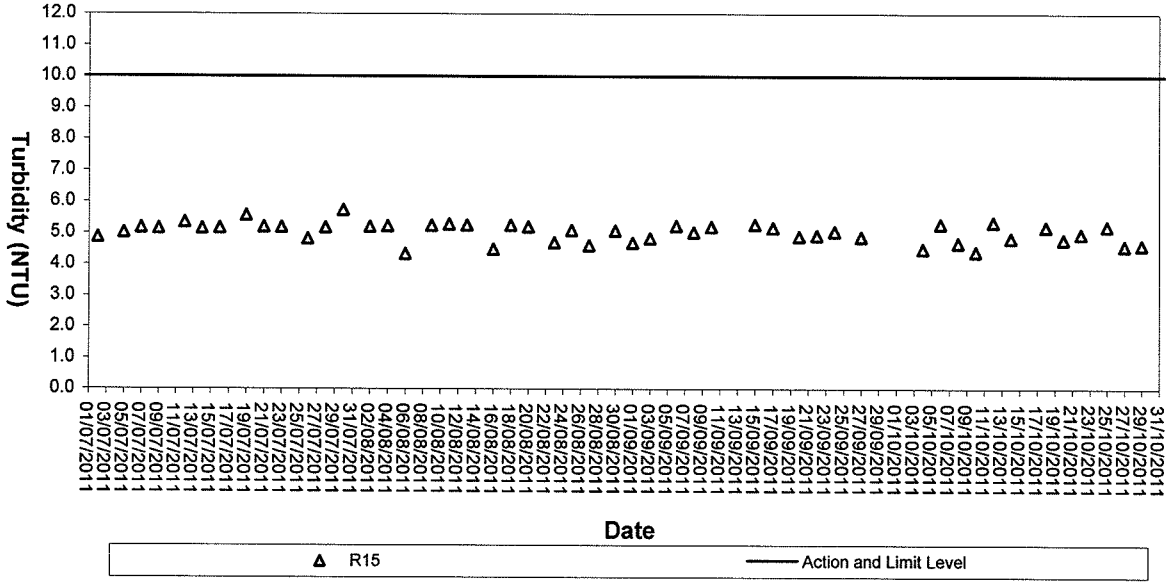
Turbidity (Depth-average) at Mid-Flood Tide



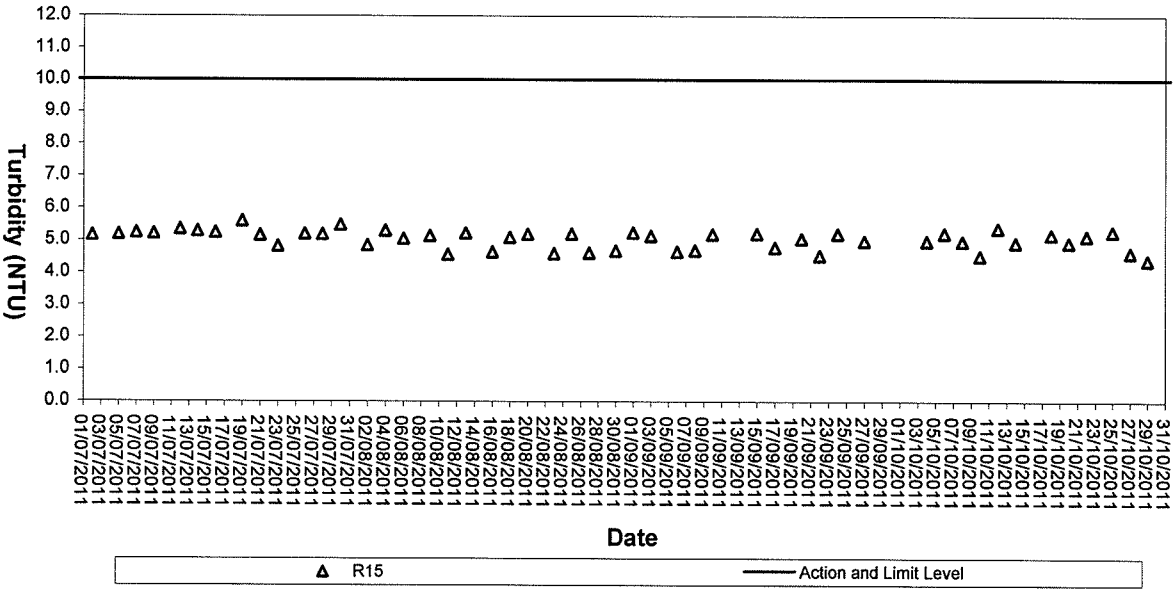
Turbidity(Depth-average) at Mid-Ebb Tide



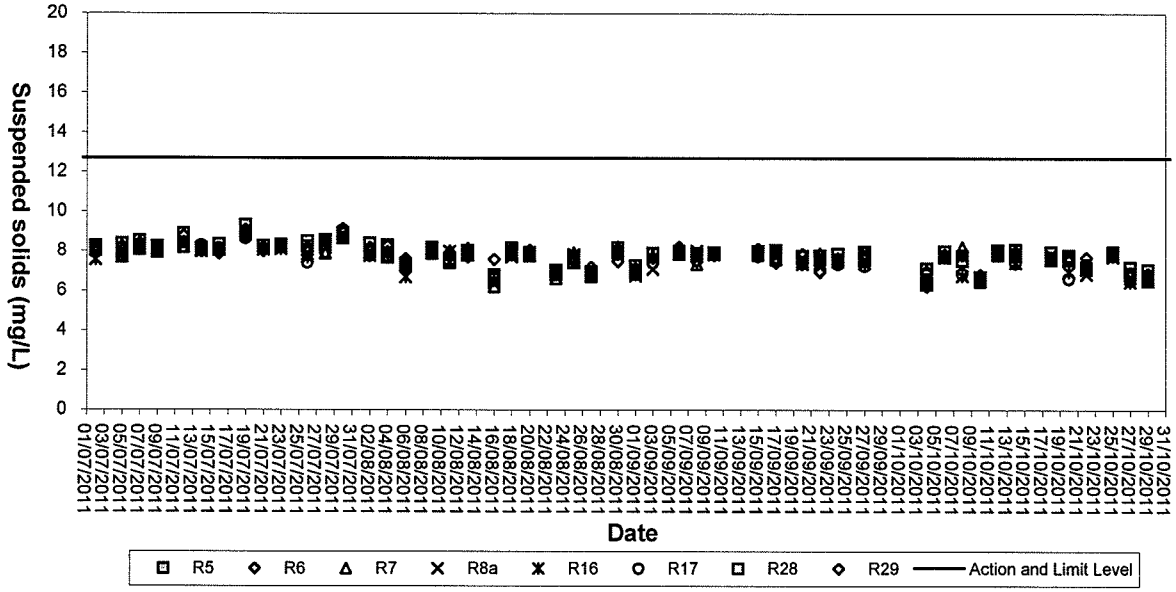
Turbidity (Depth-average) of R15 at Mid-Flood Tide



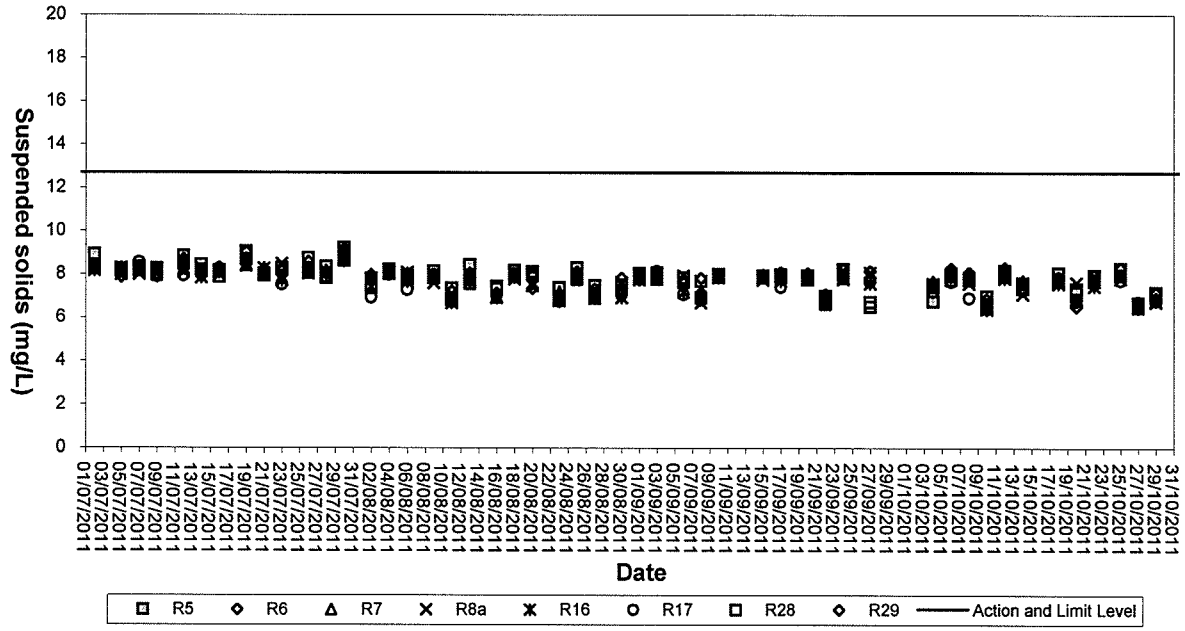
Turbidity(Depth-average) of R15 at Mid-Ebb Tide



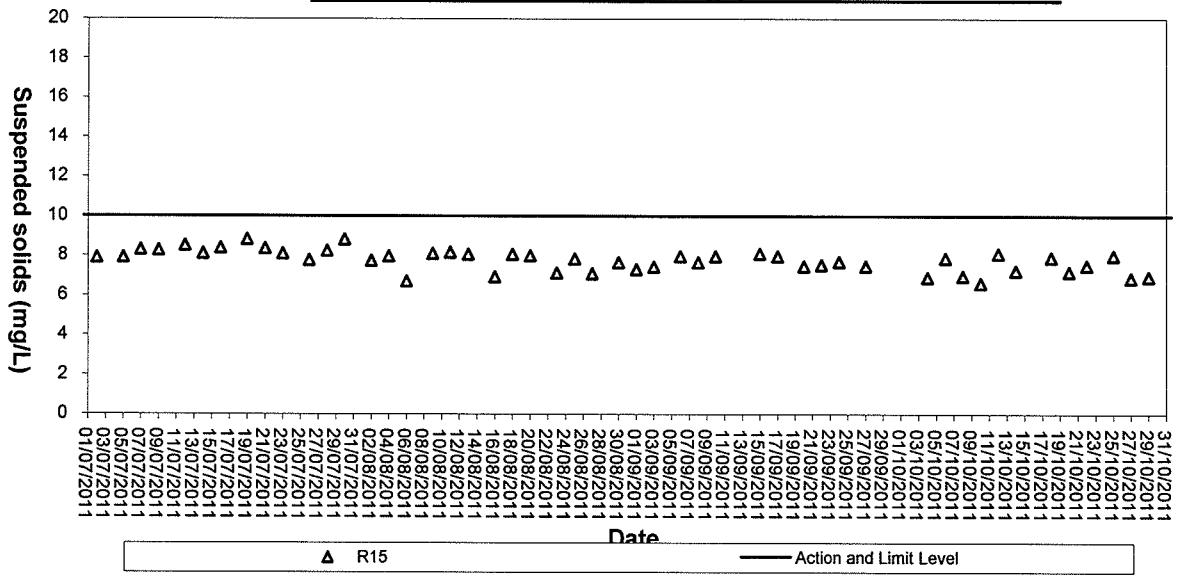
Suspended solids (Depth-average) at Mid-Flood Tide



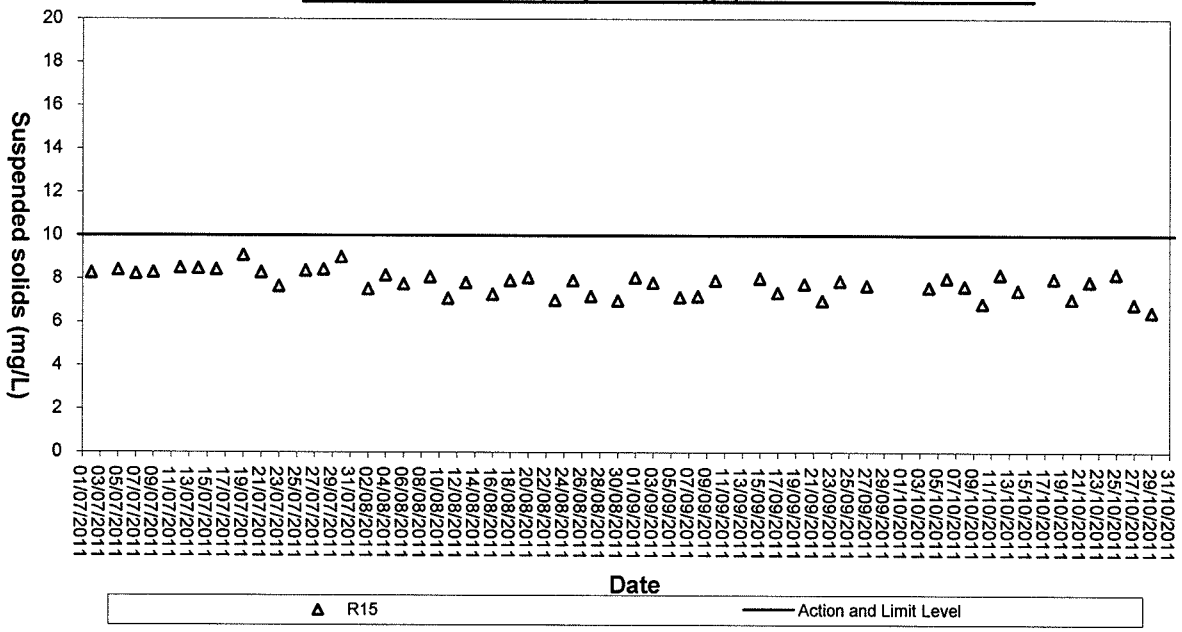
Suspended Solids (Depth-average) at Mid-Ebb Tide



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 Qualilty

Parameter	Action Level	Limit Level
DO (mg/L) (Surface, Middle & Bottom)	Surface, Middle & Bottom 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)	Surface & Middle 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) Bottom 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	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.	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.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	1. 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.	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.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Water Quality for Construction Phase

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level				
Exceedance for one sample	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.	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.	1. Discuss with IEC on the proposed mitigation measures; and 2. Make agreement on the mitigation measures to be implemented.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all 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	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.	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.	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.	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

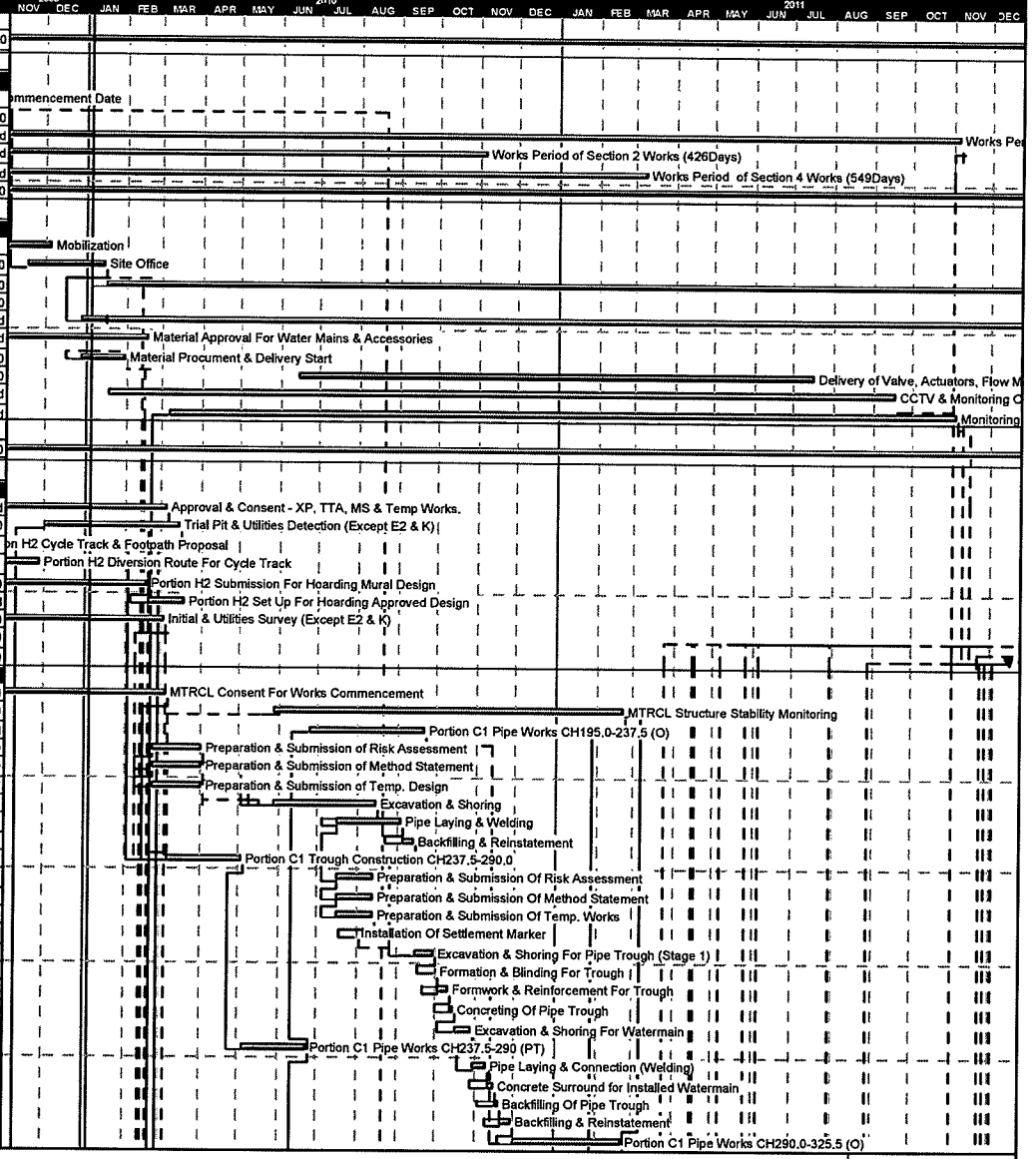
Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Limit Level				
Exceedance for one sample	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. 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.	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.	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.	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	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.	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.	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.	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.

Appendix F

Work Programme

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

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float
General Information								
		1156	07SEP09 A	05NOV12	07SEP09 A	05NOV12	0	0
Key Dates								
KD-1010	Contract Commencement Date	0	07SEP09 A		07SEP09 A			
KD-1020	Contract Completion	0		05NOV12 *		05NOV12 *	0	0
KD-1030	Works Period of Section 1 Works (791Days)	830	07SEP09 A	06NOV11	07SEP09 A	15DEC11	39d	39d
KD-1040	Works Period of Section 2 Works (426Days)	449	07SEP09 A	06NOV10	07SEP09 A	29NOV10	23d	23d
KD-1050	Works Period of Section 4 Works (549Days)	576	07SEP09 A	09MAR11	07SEP09 A	05APR11	27d	27d
KD-1060	Works Period of Section 5 Works (1156Days)	1156	07SEP09 A	05NOV12	07SEP09 A	05NOV12	0	0
Preliminaries								
B1-1000	Mobilization	90	07SEP09 A	06DEC09 A	07SEP09 A	06DEC09 A		
B1-1110	Site Office	60	16NOV09 A	16JAN10	16NOV09 A	16JAN10	0	0
B1-1120	Maintenance/Servicing of Preliminary Items	936	17JAN10	09AUG12	17JAN10	09AUG12	0	0
B1-1130	Clearance & Demobilisation	88	10AUG12	05NOV12	10AUG12	05NOV12	0	0
B1-1140	Environmental Monitoring	1026	28DEC09 A	18OCT12	28DEC09 A	05NOV12	18d	18d
B1-1150	Material Approval For Water Mains &	100	07SEP09 A	18FEB10	07SEP09 A	04JUL10	136d	14d
B1-1160	Material Procument & Delivery Start	60	28DEC09 A	01FEB10	28DEC09 A	03JUN10	122d	0
B1-1160B	Delivery of Valve, Actuators, Flow Meter & E&M	400	14JUN10	18JUL11 *	14JUN10	18JUL11 *	0	0
B1-1170	CCTV & Monitoring Of Existing DSD Drainage	610	18JAN10	19SEP11	15APR10	15DEC11	87d	87d
B1-1180	Monitoring of Hy D Structure	610	06MAR10	05NOV11	15APR10	15DEC11	40d	40d
Section 1								
		937	07SEP09 A	31MAR12	07SEP09 A	05NOV12	219d	0
Land Works								
General								
S1-1010	Approval & Consent - XP, TTA, MS & Temp	180	07SEP09 A	05MAR10	07SEP09 A	26APR10	52d	11d
S1-1020	Trial Pit & Utilities Detection (Except E2 & K)	120	01DEC09 A	16MAR10	01DEC09 A	25APR10	40d	0
S1-1030	Portion H2 Cycle Track & Footpath Proposal	40	07SEP09 A	08OCT09 A	07SEP09 A	08OCT09 A		
S1-1040	Portion H2 Diversion Route For Cycle Track	60	07OCT09 A	28NOV09 A	07OCT09 A	28NOV09 A		
S1-1050	Portion H2 Submission For Hoarding Mural	90	07SEP09 A	17FEB10	07SEP09 A	06OCT12	962d	0
S1-1060	Portion H2 Set Up For Hoarding Approved	30	18FEB10	19MAR10	07OCT12	05NOV12	962d	962d
S1-1080	Initial & Utilities Survey (Except E2 & K)	120	05OCT09 A	04MAR10	05OCT09 A	14APR10	41d	0
S1-2010	Final Pipe Testing & Reinstatement	45	16FEB12	31MAR12	01NOV11	15DEC11	-107d	0
S1-2020	Completion of Section 1 Works	0		15DEC11 *		15DEC11 *	0	0
Portion C1								
S1-3010	MTRCL Consent For Works Commencement	180	07SEP09 A	05MAR10	07SEP09 A	14APR10	40d	0
S1-3020	MTRCL Structure Stability Monitoring	270	28MAY10	21FEB11	05JAN11	01OCT11	222d	0
S1-3030	Portion C1 Pipe Works CH195.0-237.5 (O)	90	24JUN10	21SEP10	19MAR11	16JUN11	268d	70d
S1-3030A1C	Preparation & Submission of Risk Assessment	40	22FEB10 *	02APR10	02NOV10	11DEC10	253d	0
S1-3030A2C	Preparation & Submission of Method Statement	40	22FEB10	02APR10	02NOV10	11DEC10	253d	0
S1-3030A3C	Preparation & Submission of Temp. Design	40	22FEB10	02APR10	02NOV10	11DEC10	253d	55d
S1-3030B1C	Excavation & Shoring	80	28MAY10	15AUG10	12DEC10	01MAR11	198d	0
S1-3030B2C	Pipe Laying & Welding	50	17JUL10	04SEP10	31JAN11	21MAR11	198d	0
S1-3030B3C	Backfilling & Reinstatement	10	05SEP10	14SEP10	22MAR11	31MAR11	198d	0
S1-3040	Portion C1 Trough Construction CH237.5-290.0	60	06MAR10	04MAY10	15APR10	13JUN10	40d	0
S1-3040A2C	Preparation & Submission Of Risk Assessment	28	17JUL10	13AUG10	15MAR11	11APR11	241d	0
S1-3040A3C	Preparation & Submission Of Method Statement	28	17JUL10	13AUG10	15MAR11	11APR11	241d	0
S1-3040A4C	Preparation & Submission Of Temp. Works	28	17JUL10	13AUG10	15MAR11	11APR11	241d	0
S1-3040B1C	Installation Of Settlement Marker	3	31JUL10	02AUG10	29MAR11	31MAR11	241d	43d
S1-3040B2C	Excavation & Shoring For Pipe Trough (Stage 1)	15	15SEP10	29SEP10	01APR11	15APR11	198d	0
S1-3040B3C	Formation & Blinding For Trough	3	30SEP10	02OCT10	16APR11	18APR11	198d	0
S1-3040B4C	Formwork & Reinforcement For Trough	10	03OCT10	12OCT10	19APR11	28APR11	198d	0
S1-3040B5C	Concreting Of Pipe Trough	3	13OCT10	15OCT10	29APR11	01MAY11	198d	0
S1-3040C1C	Excavation & Shoring For Watermain	15	16OCT10	30OCT10	02MAY11	16MAY11	198d	0
S1-3050	Portion C1 Pipe Works CH237.5-290 (PT)	50	05MAY10	23JUN10	22DEC10	09FEB11	231d	0
S1-3050B1C	Pipe Laying & Connection (Welding)	10	31OCT10	09NOV10	17MAY11	26MAY11	198d	0
S1-3050B2C	Concrete Surround for Installed Watermain	6	10NOV10	15NOV10	27MAY11	01JUN11	198d	0
S1-3050B3C	Backfilling Of Pipe Trough	5	16NOV10	20NOV10	02JUN11	06JUN11	198d	0
S1-3050B4C	Backfilling & Reinstatement	10	21NOV10	30NOV10	07JUN11	16JUN11	198d	0
S1-3060	Portion C1 Pipe Works CH290.0-325.5 (O)	83	01DEC10	21FEB11	17JUN11	07SEP11	198d	0



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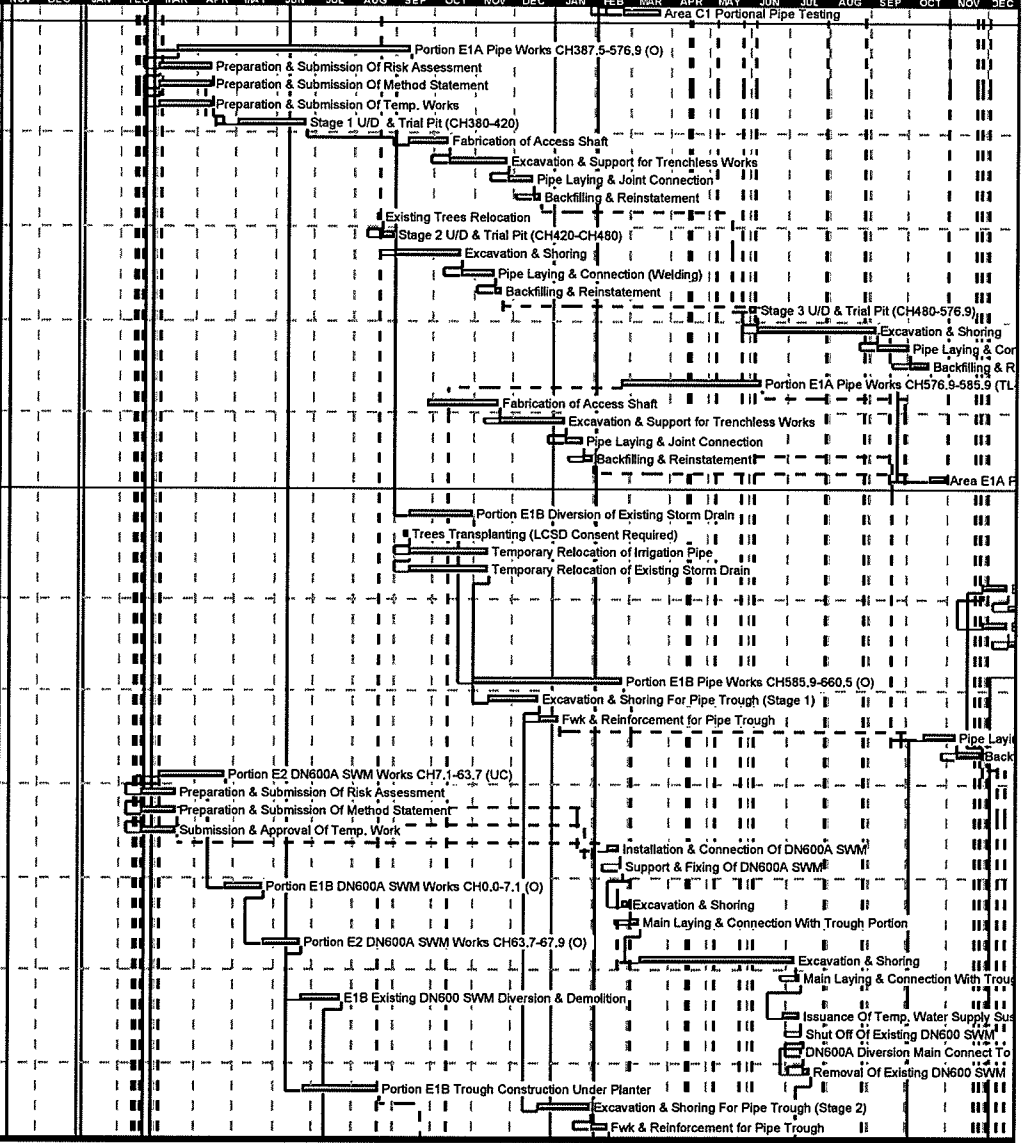
3 Months Rolling Program (Sept 2011)

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

Contract No.9/WSD/08
Laying of Western Cross Habour Main & Associated Land Mains from West Kowloon to Sai Ying Pun

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float
S1-3070	Area C1 Portional Pipe Testing	30	22FEB11	23MAR11	02OCT11	31OCT11	222d	329d
Portion E1A								
S1-4020	Portion E1A Pipe Works CH387.5-576.9 (O)	180	17MAR10	12SEP10	24AUG10	19FEB11	160d	0
S1-4020A20	Preparation & Submission Of Risk Assessment	40	03MAR10	11APR10	10AUG10	18SEP10	160d	0
S1-4020A30	Preparation & Submission Of Method Statement	40	03MAR10	11APR10	10AUG10	18SEP10	160d	0
S1-4020A40	Preparation & Submission Of Temp. Works	40	03MAR10	11APR10	10AUG10	18SEP10	160d	0
S1-4020B10	Stage 1 U/D & Trial Pit (CH380-420)	52	03MAY10	23JUN10	10OCT10	30NOV10	160d	0
S1-4020B20	Fabrication of Access Shaft	30	12SEP10	11OCT10	19FEB11	20MAR11	160d	0
S1-4020B30	Excavation & Support for Trenchless Works	45	12OCT10	25NOV10	21MAR11	04MAY11	160d	0
S1-4020B40	Pipe Laying & Joint Connection	20	26NOV10	15DEC10	05MAY11	24MAY11	160d	0
S1-4020B50	Backfilling & Reinstatement	7	16DEC10	22DEC10	25MAY11	31MAY11	160d	160d
S1-4020C05	Existing Trees Relocation	4	19AUG10 *	22AUG10	03JUN11	06JUN11	288d	0
S1-4020C10	Stage 2 U/D & Trial Pit (CH420-CH480)	10	23AUG10	01SEP10	07JUN11	16JUN11	288d	0
S1-4020C20	Excavation & Shoring	50	02SEP10	21OCT10	17JUN11	05AUG11	288d	0
S1-4020C30	Pipe Laying & Connection (Welding)	25	22OCT10	15NOV10	06AUG11	30AUG11	288d	0
S1-4020C40	Backfilling & Reinstatement	7	16NOV10	22NOV10	31AUG11	06SEP11	288d	288d
S1-4020D10	Stage 3 U/D & Trial Pit (CH480-576.9)	6	01JUN11 *	06JUN11	01JUN11	06JUN11	0	0
S1-4020D20	Excavation & Shoring	92	07JUN11	06SEP11	07JUN11	06SEP11	0	0
S1-4020D30	Pipe Laying & Connection (Welding)	25	07SEP11	01OCT11	07SEP11	01OCT11	0	0
S1-4020D40	Backfilling & Reinstatement	16	02OCT11	17OCT11	02OCT11	17OCT11	0	0
S1-4030	Portion E1A Pipe Works CH576.9-585.9 (TL-B)	108	23FEB11 *	10JUN11	02JUL11	17OCT11	129d	129d
S1-4030B10	Fabrication of Access Shaft	55	27SEP10 *	20NOV10	12MAR11	05MAY11	166d	0
S1-4030B20	Excavation & Support for Trenchless Works	50	21NOV10	09JAN11	06MAY11	24JUN11	166d	0
S1-4030B30	Pipe Laying & Joint Connection	15	10JAN11	24JAN11	25JUN11	09JUL11	166d	0
S1-4030B40	Backfilling & Reinstatement	8	25JAN11	01FEB11	10OCT11	17OCT11	258d	258d
S1-4050	Area E1A Portional Pipe Testing	14	18OCT11	31OCT11	18OCT11	31OCT11	0	107d
Portion E1B + E2 SWM								
S1-4010	Portion E1B Diversion of Existing Storm Drain	50	13SEP10	01NOV10	06MAY11	24JUN11	235d	0
S1-4010A10	Trees Transplanting (LCSD Consent Required)	5	09SEP10 *	13SEP10	26JAN11	30JAN11	139d	0
S1-4010A20	Temporary Relocation of Irrigation Pipe	60	14SEP10	12NOV10	31JAN11	31MAR11	139d	0
S1-4010A30	Temporary Relocation of Existing Storm Drain	60	14SEP10	12NOV10	31JAN11	31MAR11	139d	0
S1-4010A50	Excavation for Irrigation Pipe Perm. Diversion	20	29NOV11	18DEC11	24AUG11	12SEP11	-97d	0
S1-4010A60	Irrigation Pipe Installation	10	19DEC11	28DEC11	28SEP11	07OCT11	-82d	15d
S1-4010A70	Excavation for Storm Drain Diversion	20	29NOV11	18DEC11	24AUG11	12SEP11	-97d	0
S1-4010A80	Pipe Laying & MH Construction	25	19DEC11	12JAN12	13SEP11	07OCT11	-97d	0
S1-4010A90	Backfilling & Reinstatement	10	13JAN12	22JAN12	08OCT11	17OCT11	-97d	0
S1-4040	Portion E1B Pipe Works CH585.9-660.5 (O)	115	02NOV10	24FEB11	25JUN11	17OCT11	235d	37d
S1-4040B10	Excavation & Shoring For Pipe Trough (Stage 1)	40	13NOV10	22DEC10	01APR11	10MAY11	139d	0
S1-4040B20	Fwk & Reinforcement for Pipe Trough	15	23DEC10	06JAN11	25JUN11	09JUL11	184d	281d
S1-4040B30	Pipe Laying & Support Casting	25	15OCT11	08NOV11	10JUL11	03AUG11	-97d	0
S1-4040B40	Backfilling & Reinstatement	20	09NOV11	28NOV11	04AUG11	23AUG11	-97d	0
S1-4410	Portion E2 DN600A SWM Works CH7.1-63.7	50	05MAR10	23APR10	03SEP10	22OCT10	182d	0
S1-4410A10	Preparation & Submission Of Risk Assessment	28	19FEB10	18MAR10	02OCT10	29OCT10	225d	0
S1-4410A20	Preparation & Submission Of Method Statement	28	19FEB10	18MAR10	02OCT10	29OCT10	225d	0
S1-4410A30	Submission & Approval Of Temp. Work	28	19FEB10	18MAR10	02OCT10	29OCT10	225d	332d
S1-4410B10	Installation & Connection Of DN600A SWM	8	14FEB11 *	21FEB11	30OCT10	06NOV10	-107d	0
S1-4410B20	Support & Fixing Of DN600A SWM	3	22FEB11	24FEB11	07NOV10	09NOV10	-107d	0
S1-4420	Portion E1B DN600A SWM Works CH0.0-7.1	30	24APR10	23MAY10	23OCT10	21NOV10	182d	0
S1-4420B10	Excavation & Shoring	6	25FEB11	02MAR11	10NOV10	15NOV10	-107d	0
S1-4420B20	Main Laying & Connection With Trough Portion	8	03MAR11	10MAR11	16NOV10	23NOV10	-107d	0
S1-4430	Portion E2 DN600A SWM Works CH63.7-67.9	30	24MAY10	22JUN10	22NOV10	21DEC10	182d	0
S1-4430B10	Excavation & Shoring	120	11MAR11	08JUL11	24NOV10	23MAR11	-107d	0
S1-4430B20	Main Laying & Connection With Trough Portion	4	09JUL11	12JUL11	24MAR11	27MAR11	-107d	0
S1-4440	E1B Existing DN600 SWM Diversion &	30	23JUN10	22JUL10	22DEC10	20JAN11	182d	0
S1-4440A10	Issuance Of Temp. Water Supply Suspension	14	29JUN11	12JUL11	14MAR11	27MAR11	-107d	0
S1-4440B10	Shut Off Of Existing DN600 SWM	2	13JUL11	14JUL11	28MAR11	29MAR11	-107d	0
S1-4440B20	DN600A Diversion Main Connect To Existing	2	13JUL11	14JUL11	28MAR11	29MAR11	-107d	0
S1-4440B30	Removal Of Existing DN600 SWM	6	15JUL11	20JUL11	30MAR11	04APR11	-107d	0
S1-4445	Portion E1B Trough Construction Under Planter	60	24JUN10	22AUG10	10FEB11	10APR11	231d	49d
S1-4445B10	Excavation & Shoring For Pipe Trough (Stage 2)	40	23DEC10	31JAN11	11MAY11	19JUN11	139d	0
S1-4445B20	Fwk & Reinforcement for Pipe Trough	15	01FEB11	15FEB11	20JUN11	04JUL11	139d	0



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Finish date	05NOV12
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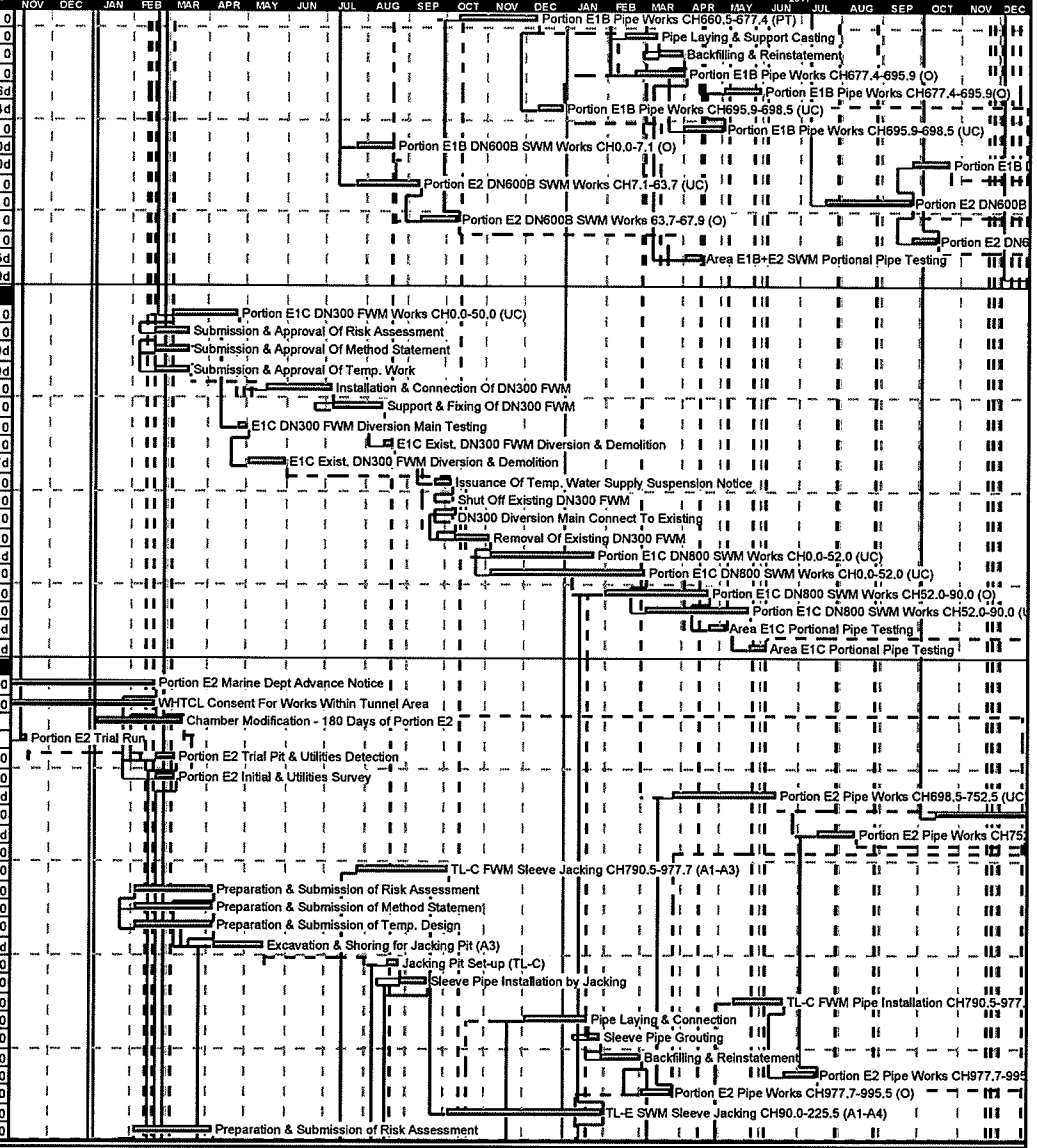
3 Months Rolling Program (Sept 2011)

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

Contract No.9/WSD/08
Laying of Western Cross Habour Main & Associated Land Mains from West Kowloon to Sai Ying Pun

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float
S1-4450	Portion E1B Pipe Works CH660.5-677.4 (PT)	60	11OCT10	09DEC10	11APR11	09JUN11	182d	0
S1-4450B1C	Pipe Laying & Support Casting	25	16FEB11	12MAR11	05JUL11	29JUL11	139d	0
S1-4450B2C	Backfilling & Reinstatement	20	13MAR11	01APR11	30JUL11	18AUG11	139d	0
S1-4460	Portion E1B Pipe Works CH677.4-695.9 (O)	40	22FEB11	02APR11	08SEP11	17OCT11	198d	0
S1-4460B1C	Portion E1B Pipe Works CH677.4-695.9(O)	30	02MAY11	31MAY11	18SEP11	17OCT11	139d	236d
S1-4470	Portion E1B Pipe Works CH695.9-698.5 (UC)	20	10DEC10	29DEC10	10JUN11	29JUN11	182d	54d
S1-4470B1C	Portion E1B Pipe Works CH695.9-698.5 (UC)	30	02APR11	01MAY11	19AUG11	17SEP11	139d	0
S1-4480	Portion E1B DN600B SWM Works CH0.0-7.1	30	23JUL10	21AUG10	10FEB11	11MAR11	202d	20d
S1-4480B1C	Portion E1B DN600B SWM Works CH0.0-7.1	30	25SEP11	24OCT11	18SEP11	17OCT11	-7d	90d
S1-4490	Portion E2 DN600B SWM Works CH7.1-63.7	50	23JUL10	10SEP10	21JAN11	11MAR11	182d	0
S1-4490B1C	Portion E2 DN600B SWM Works CH7.1-63.7	66	21JUL11	24SEP11	05APR11	09JUN11	-107d	0
S1-4500	Portion E2 DN600B SWM Works 63.7-67.9 (O)	30	11SEP10	10OCT10	12MAR11	10APR11	182d	0
S1-4500B1C	Portion E2 DN600B SWM 63.7-67.9 (O)	20	25SEP11	14OCT11	10JUN11	29JUN11	-107d	0
S1-4510	Area E1B+E2 SWM Portional Pipe Testing	14	03APR11	16APR11	18OCT11	31OCT11	198d	305d
S1-4510B1C	Area E1B+E2 SWM Portional Pipe Testing	14	23JAN12	05FEB12	18OCT11	31OCT11	-97d	10d
Portion E1C + E1D								
S1-4710	Portion E1C DN300 FWM Works CH0.0-50.0	50	05MAR10	23APR10	27SEP10	15NOV10	206d	0
S1-4710A1C	Submission & Approval Of Risk Assessment	28	19FEB10	18MAR10	13SEP10	10OCT10	206d	0
S1-4710A2C	Submission & Approval Of Method Statement	28	19FEB10	18MAR10	13SEP10	10OCT10	206d	59d
S1-4710A3C	Submission & Approval Of Temp. Work	28	19FEB10	18MAR10	13SEP10	10OCT10	206d	59d
S1-4710B1C	Installation & Connection Of DN300 FWM	50	17MAY10*	05JUL10	11OCT10	29NOV10	147d	0
S1-4710B2C	Support & Fixing Of DN300 FWM	40	06JUL10	14AUG10	30NOV10	08JAN11	147d	0
S1-4720	E1C DN300 FWM Diversion Main Testing	8	24APR10	01MAY10	03APR11	10APR11	344d	0
S1-4720B1C	E1C Exist. DN300 FWM Diversion & Demolition	8	15AUG10	22AUG10	09JAN11	16JAN11	147d	0
S1-4730	E1C Exist. DN300 FWM Diversion & Demolition	30	02MAY10	31MAY10	11APR11	10MAY11	344d	157d
S1-4730A1C	Issuance Of Temp. Water Supply Suspension	14	22SEP10	05OCT10	16FEB11	01MAR11	147d	0
S1-4730A2C	Shut Off Existing DN300 FWM	2	06OCT10	07OCT10	02MAR11	03MAR11	147d	0
S1-4730A3C	DN300 Diversion Main Connect To Existing	2	06OCT10	07OCT10	02MAR11	03MAR11	147d	0
S1-4730A4C	Removal Of Existing DN300 FWM	28	08OCT10	04NOV10	04MAR11	31MAR11	147d	0
S1-4740	Portion E1C DN800 SWM Works CH0.0-52.0	80	05NOV10	23JAN11	11MAY11	29JUL11	187d	8d
S1-4740B1C	Portion E1C DN800 SWM Works CH0.0-52.0	120	05NOV10	04MAR11	01APR11	29JUL11	147d	0
S1-4750	Portion E1C DN800 SWM Works CH52.0-90.0	80	01FEB11	21APR11	30JUL11	17OCT11	179d	0
S1-4750B1C	Portion E1C DN800 SWM Works CH52.0-90.0	80	05MAR11	23MAY11	30JUL11	17OCT11	147d	0
S1-4760	Area E1C Portional Pipe Testing	14	22APR11	05MAY11	18OCT11	31OCT11	179d	286d
S1-4760B1C	Area E1C Portional Pipe Testing	14	24MAY11	06JUN11	18OCT11	31OCT11	147d	254d
Portion E2								
S1-5010	Portion E2 Marine Dept Advance Notice	90	07OCT09 A	20FEB10	07OCT09 A	20FEB10	0	0
S1-5020	WHTCL Consent For Works Within Tunnel Area	120	07SEP09 A	20FEB10	07SEP09 A	20FEB10	0	0
S1-5030	Chamber Modification - 180 Days of Portion E2	65	07JAN10 A	14MAR10 A	07JAN10 A	14MAR10 A		
S1-5040	Portion E2 Trial Run	60	09NOV09 A	14NOV09 A	09NOV09 A	14NOV09 A		
S1-5050	Portion E2 Trial Pit & Utilities Detection	15	21FEB10	07MAR10	21FEB10	07MAR10	0	0
S1-5060	Portion E2 Initial & Utilities Survey	15	21FEB10	07MAR10	21FEB10	07MAR10	0	0
S1-5070	Portion E2 Pipe Works CH698.5-752.5 (UC)	80	27MAR11	14JUN11	30JUN11	17SEP11	95d	31d
S1-5070B1C	Portion E2 Pipe Works CH698.5-752.5 (UC)	80	15OCT11	02JAN12	30JUN11	17SEP11	-107d	0
S1-5080	Portion E2 Pipe Works CH752.5-790.5 (O)	30	16JUL11	14AUG11	18SEP11	17OCT11	64d	171d
S1-5080A	Portion E2 Pipe Works CH752.5-790.5 (O)	30	03JAN12	01FEB12	18SEP11	17OCT11	-107d	0
S1-5090	TL-C FWM Sleeve Jacking CH790.5-977.7	70	26JUL10	03OCT10	28SEP10	06DEC10	64d	0
S1-5090A1C	Preparation & Submission of Risk Assessment	60	06FEB10*	06APR10	03SEP10	01NOV10	209d	0
S1-5090A2C	Preparation & Submission of Method Statement	60	06FEB10	06APR10	03SEP10	01NOV10	209d	0
S1-5090A3C	Preparation & Submission of Temp. Design	60	06FEB10	06APR10	03SEP10	01NOV10	209d	0
S1-5090B1C	Excavation & Shoring for Jacking Pit(A3)	40	07APR10	16MAY10	02NOV10	11DEC10	209d	94d
S1-5090B2C	Jacking Pit Set-up (TL-C)	10	19AUG10	28AUG10	12DEC10	21DEC10	115d	0
S1-5090C1C	Sleeve Pipe Installation by Jacking	20	29AUG10	17SEP10	22DEC10	10JAN11	115d	0
S1-5095	TL-C FWM Pipe Installation CH790.5-977.7	40	12MAY11	20JUN11	15JUL11	23AUG11	64d	0
S1-5095B1C	Pipe Laying & Connection	50	02DEC10	20JAN11	07MAR11	25APR11	95d	0
S1-5095B2C	Sleeve Pipe Grouting	10	21JAN11	30JAN11	26APR11	05MAY11	95d	0
S1-5095B3C	Backfilling & Reinstatement	30	31JAN11	01MAR11	06MAY11	04JUN11	95d	0
S1-5100	Portion E2 Pipe Works CH977.7-995.5 (O)	25	21JUN11	15JUL11	24AUG11	17SEP11	64d	0
S1-5100A	Portion E2 Pipe Works CH977.7-995.5 (O)	25	02MAR11	26MAR11	05JUN11	29JUN11	95d	0
S1-5110	TL-E SWM Sleeve Jacking CH90.0-225.5	120	04OCT10	31JAN11	07DEC10	05APR11	64d	0
S1-5110A1C	Preparation & Submission of Risk Assessment	60	06FEB10*	06APR10	12MAY10	10JUL10	95d	0



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Run date	19SEP11
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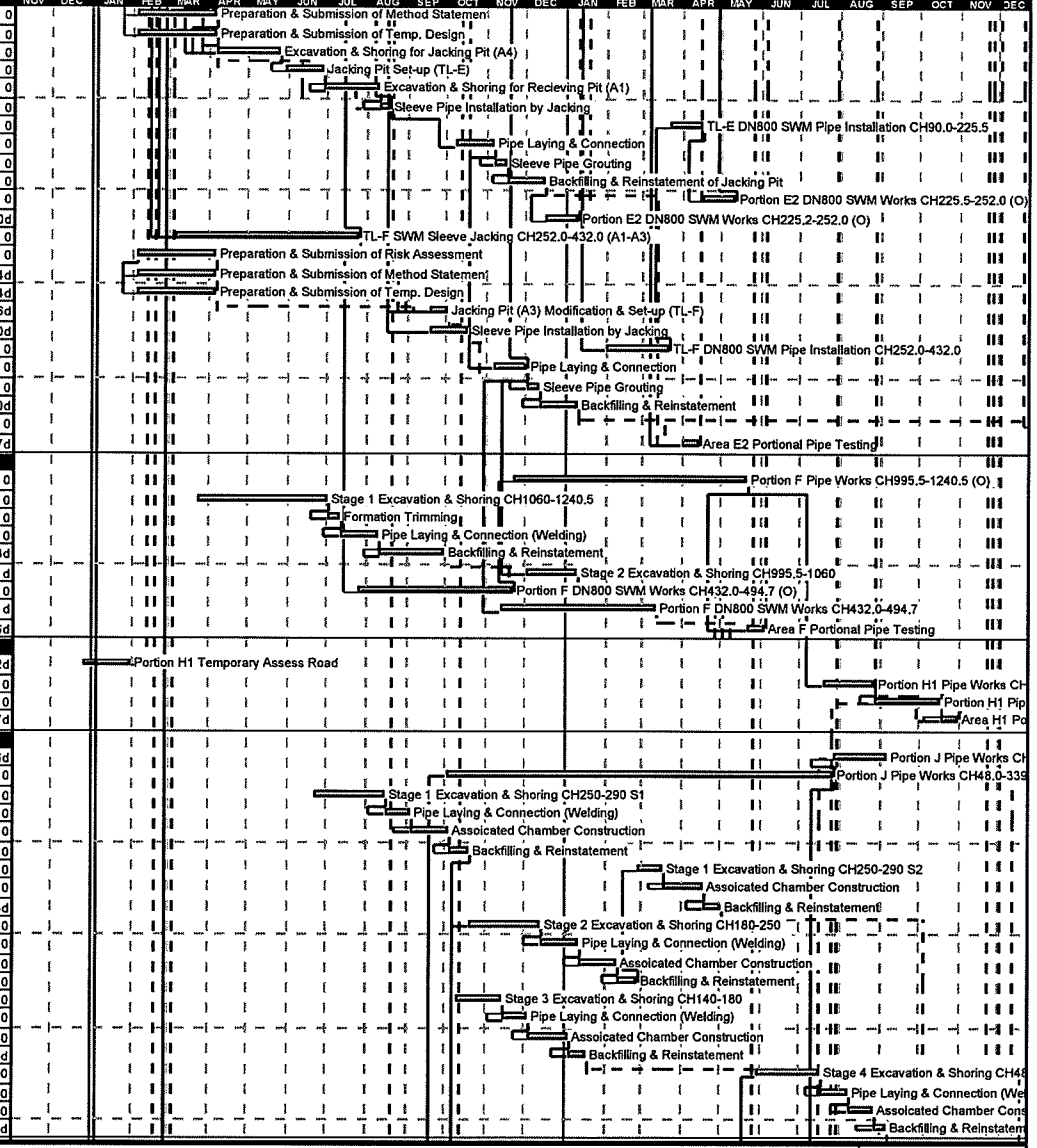
Wo Hing - Penta-Ocean Joint Venture

3 Months Rolling Program (Sept 2011)

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

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

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float
S1-5110A2C	Preparation & Submission of Method Statement	60	06FEB10	06APR10	12MAY10	10JUL10	95d	0
S1-5110A3C	Preparation & Submission of Temp. Design	60	06FEB10	06APR10	12MAY10	10JUL10	95d	0
S1-5110B1C	Excavation & Shoring for Jacking Pit(A4)	50	07APR10	26MAY10	11JUL10	29AUG10	95d	0
S1-5110B2C	Jacking Pit Set-up (TL-E)	30	30MAY10	28JUN10	02SEP10	01OCT10	95d	0
S1-5110B3C	Excavation & Shoring for Recieving Pit(A1)	42	29JUN10	09AUG10	02OCT10	12NOV10	95d	0
S1-5110C1C	Sleeve Pipe Installation by Jacking	9	10AUG10	18AUG10	13NOV10	21NOV10	95d	0
S1-5115	TL-E DN800 SWM Pipe Installation	25	23MAR11	16APR11	26MAY11	19JUN11	64d	0
S1-5115B1C	Pipe Laying & Connection	30	08OCT10	06NOV10	11JAN11	09FEB11	95d	0
S1-5115B2C	Sleeve Pipe Grouting	10	07NOV10	16NOV10	01APR11	10APR11	145d	0
S1-5115B3C	Backfilling & Reinstatement of Jacking Pit	30	17NOV10	16DEC10	11APR11	10MAY11	145d	0
S1-5120	Portion E2 DN800 SWM Works CH225.5-252.0	25	17APR11	11MAY11	20JUN11	14JUL11	64d	0
S1-5120A	Portion E2 DN800 SWM Works CH225.2-252.0	25	17DEC10	10JAN11	11MAY11	04JUN11	145d	50d
S1-5130	TL-F SWM Sleeve Jacking CH252.0-432.0	142	06MAR10	25JUL10	06MAR10	25JUL10	0	0
S1-5130A1C	Preparation & Submission of Risk Assessment	60	06FEB10 *	06APR10	08DEC10	05FEB11	305d	0
S1-5130A2C	Preparation & Submission of Method Statement	60	06FEB10	06APR10	08DEC10	05FEB11	305d	164d
S1-5130A3C	Preparation & Submission of Temp. Design	60	06FEB10	06APR10	08DEC10	05FEB11	305d	164d
S1-5130B1C	Jacking Pit(A3) Modification & Set-up (TL-F)	14	18SEP10	01OCT10	06FEB11	19FEB11	141d	26d
S1-5130C1C	Sleeve Pipe Installation by Jacking	30	18SEP10	17OCT10	11JAN11	09FEB11	115d	20d
S1-5135	TL-F DN800 SWM Pipe Installation	50	01FEB11	22MAR11	06APR11	25MAY11	64d	0
S1-5135B1C	Pipe Laying & Connection	25	07NOV10	01DEC10	10FEB11	06MAR11	95d	0
S1-5135B2C	Sleeve Pipe Grouting	10	02DEC10	11DEC10	09AUG11	18AUG11	250d	0
S1-5135B3C	Backfilling & Reinstatement	30	12DEC10	10JAN11	19AUG11	17SEP11	250d	50d
S1-5140	Area E2 Portional Pipe Testing	14	02FEB12	15FEB12	18OCT11	31OCT11	-107d	0
S1-5140B1C	Area E2 Portional Pipe Testing	14	01APR11	14APR11	18OCT11	31OCT11	200d	307d
Portion F								
S1-6010	Portion F Pipe Works CH995.5-1240.5 (O)	180	23NOV10	21MAY11	23NOV10	21MAY11	0	0
S1-6010B1C	Stage 1 Excavation & Shoring CH1060-1240.5	100	24MAR10 *	01JUL10	02MAR11	09JUN11	343d	0
S1-6010B2C	Formation Trimming	10	02JUL10	11JUL10	10JUN11	19JUN11	343d	0
S1-6010B3C	Pipe Laying & Connection (Welding)	30	12JUL10	10AUG10	20JUN11	19JUL11	343d	0
S1-6010B4C	Backfilling & Reinstatement	50	11AUG10	29SEP10	20JUL11	07SEP11	343d	63d
S1-6010C1C	Stage 2 Excavation & Shoring CH995.5-1060	40	02DEC10	10JAN11	08SEP11	17OCT11	280d	131d
S1-6020	Portion F DN800 SWM Works CH432.0-494.7	120	26JUL10	22NOV10	26JUL10	22NOV10	0	0
S1-6020A1C	Portion F DN800 SWM Works CH432.0-494.7	120	12NOV10	11MAR11	20JUN11	17OCT11	220d	71d
S1-6030	Area F Portional Pipe Testing	14	22MAY11	04JUN11	18OCT11	31OCT11	149d	256d
Portion H1								
S1-7010	Portion H1 Temporary Assess Road	80	26DEC09 A	31JAN10	26DEC09 A	05MAR10	33d	2d
S1-7020	Portion H1 Pipe Works CH1466.5-1516.5 (O)	40	20JUL11	28AUG11	20JUL11	28AUG11	0	0
S1-7030	Portion H1 Pipe Works CH1516.5-1544.7 (O-S	50	29AUG11	17OCT11	29AUG11	17OCT11	0	0
S1-7040	Area H1 Portional Pipe Testing	14	18OCT11	31OCT11	18OCT11	31OCT11	0	107d
Portion J								
S1-8010	Portion J Pipe Works CH0.0-48.0 (O-SWall)	40	29JUL11	06SEP11	08SEP11	17OCT11	41d	146d
S1-8020	Portion J Pipe Works CH48.0-339.0 (O)	300	02OCT10	28JUL11	12NOV10	07SEP11	41d	0
S1-8020B1C	Stage 1 Excavation & Shoring CH250-290 S1	55	22JUN10 *	15AUG10	29AUG10	22OCT10	68d	0
S1-8020B2C	Pipe Laying & Connection (Welding)	20	16AUG10	04SEP10	23OCT10	11NOV10	68d	0
S1-8020B3C	Assoicated Chamber Construction	30	05SEP10	04OCT10	12NOV10	11DEC10	68d	0
S1-8020B4C	Backfilling & Reinstatement	15	05OCT10	19OCT10	12DEC10	26DEC10	68d	0
S1-8020B5C	Stage 1 Excavation & Shoring CH250-290 S2	20	27FEB11	18MAR11	06MAY11	25MAY11	68d	0
S1-8020B6C	Assoicated Chamber Construction	30	19MAR11	17APR11	26MAY11	24JUN11	68d	0
S1-8020B7C	Backfilling & Reinstatement	15	18APR11	02MAY11	25JUN11	09JUL11	68d	173d
S1-8020C1C	Stage 2 Excavation & Shoring CH180-250	55	20OCT10	13DEC10	27DEC10	19FEB11	68d	0
S1-8020C2C	Pipe Laying & Connection (Welding)	30	14DEC10	12JAN11	20FEB11	21MAR11	68d	0
S1-8020C3C	Assoicated Chamber Construction	30	13JAN11	11FEB11	22MAR11	20APR11	68d	0
S1-8020C4C	Backfilling & Reinstatement	15	12FEB11	26FEB11	21APR11	05MAY11	68d	0
S1-8020D1C	Stage 3 Excavation & Shoring CH140-180	35	11OCT10 *	14NOV10	10JUL11	13AUG11	272d	0
S1-8020D2C	Pipe Laying & Connection (Welding)	20	15NOV10	04DEC10	14AUG11	02SEP11	272d	0
S1-8020D3C	Assoicated Chamber Construction	30	05DEC10	03JAN11	03SEP11	02OCT11	272d	0
S1-8020D4C	Backfilling & Reinstatement	15	04JAN11	18JAN11	03OCT11	17OCT11	272d	377d
S1-8020E1C	Stage 4 Excavation & Shoring CH48-CH140	50	30MAY11	18JUL11	10JUL11	28AUG11	41d	0
S1-8020E2C	Pipe Laying & Connection (Welding)	20	19JUL11	07AUG11	29AUG11	17SEP11	41d	0
S1-8020E3C	Assoicated Chamber Construction	20	08AUG11	27AUG11	18SEP11	07OCT11	41d	0
S1-8020E4C	Backfilling & Reinstatement	10	28AUG11	06SEP11	08OCT11	17OCT11	41d	146d



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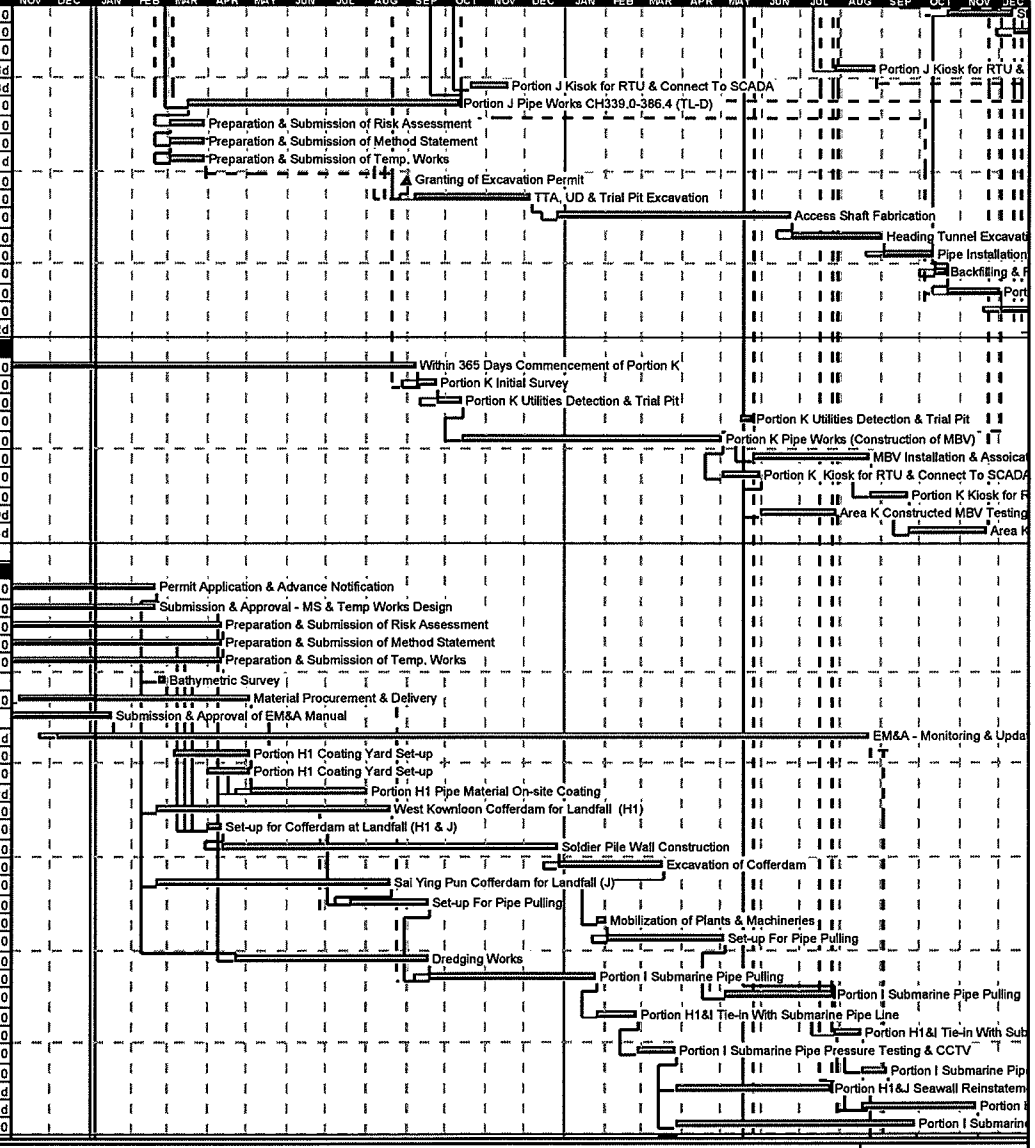
Wo Hing - Penta-Ocean Joint Venture

3 Months Rolling Program (Sept 2011)

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

Contract No.9/WSD/08
Laying of Western Cross Habour Main & Associated Land Mains from West Kowloon to Sai Ying Pun

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float
S1-8020F10	Stage 5 Excavation & Shoring CH290-340	50	23OCT11	11DEC11	10JUL11	28AUG11	-105d	0
S1-8020F20	Pipe Laying & Connection (Welding)	30	12DEC11	10JAN12	29AUG11	27SEP11	-105d	0
S1-8020F30	Backfilling & Reinstatement	20	11JAN12	30JAN12	28SEP11	17OCT11	-105d	0
S1-8030	Portion J Kiosk for RTU & Connect To SCADA	30	29JUL11	27AUG11	18SEP11	17OCT11	51d	156d
S1-8030B10	Portion J Kisok for RTU & Connect To SCADA	30	20OCT10	18NOV10	18SEP11	17OCT11	333d	438d
S1-8040	Portion J Pipe Works CH339.0-386.4 (TL-D)	209	17MAR10	11OCT10	27APR10	21NOV10	41d	0
S1-8040A10	Preparation & Submission of Risk Assessment	28	03MAR10	30MAR10	28APR10	25MAY10	56d	0
S1-8040A20	Preparation & Submission of Method Statement	28	03MAR10	30MAR10	28APR10	25MAY10	56d	0
S1-8040A30	Preparation & Submission of Temp. Works	28	03MAR10	30MAR10	28APR10	25MAY10	56d	161d
S1-8040A40	Granting of Excavation Permit	0	01SEP10 *		19MAY10		-105d	0
S1-8040B10	TTA, UD & Trial Pit Excavation	90	08SEP10	06DEC10	26MAY10	23AUG10	-105d	0
S1-8040B20	Access Shaft Fabrication	180	27DEC10	24JUN11	13SEP10	11MAR11	-105d	0
S1-8040B30	Heading Tunnel Excavation (Hand Shield)	70	25JUN11	02SEP11	12MAR11	20MAY11	-105d	0
S1-8040B40	Pipe Installation Inside Heading Tunnel	40	03SEP11	12OCT11	21MAY11	29JUN11	-105d	0
S1-8040B50	Backfilling & Reinstatement	10	13OCT11	22OCT11	30JUN11	09JUL11	-105d	0
S1-8050	Portion J Pipe Works CH386.4-396.4 (O)	40	23OCT11	01DEC11	10JUL11	18AUG11	-105d	0
S1-8060	Portion J Pipe Works DN1000 CH0.0-22.7 (O)	60	02DEC11	30JAN12	19AUG11	17OCT11	-105d	0
S1-8070	Area J Portional Pipe Testing	14	31JAN12	13FEB12	18OCT11	31OCT11	-105d	2d
Portion K								
S1-9010	Within 365 Days Commencement of Portion K	365	07SEP09 A	08SEP10	07SEP09 A	10DEC10	93d	0
S1-9020	Portion K Initial Survey	15	09SEP10	23SEP10	11DEC10	25DEC10	93d	0
S1-9030	Portion K Utilities Detection & Trial Pit	20	24SEP10	13OCT10	26DEC10	14JAN11	93d	0
S1-9030B10	Portion K Utilities Detection & Trial Pit	10	16MAY11 *	25MAY11	16MAY11 *	25MAY11	0	0
S1-9040	Portion K Pipe Works (Construction of MBV)	200	14OCT10	01MAY11	15JAN11	02AUG11	93d	0
S1-9040B10	MBV Installation & Assolcated Duct Works	90	26MAY11	23AUG11	19JUN11	16SEP11	24d	0
S1-9050	Portion K Kiosk for RTU & Connect To SCADA	30	02MAY11	31MAY11	03AUG11	01SEP11	93d	0
S1-9050B10	Portion K Kiosk for RTU & Connect To SCADA	30	24AUG11	22SEP11	17SEP11	16OCT11	24d	0
S1-9060	Area K Constructed MBV Testing	60	01JUN11	30JUL11	02SEP11	31OCT11	93d	200d
S1-9060B10	Area K Constructed MBV Testing	60	23SEP11	21NOV11	17OCT11	15DEC11	24d	24d
Marine Works (Portion I)								
M1000	Permit Application & Advance Notification	120	07SEP09 A	20FEB10	07SEP09 A	09APR10	48d	0
M1010	Submission & Approval - MS & Temp Works	120	07SEP09 A	20FEB10	07SEP09 A	11MAY10	80d	0
M1010A10	Preparation & Submission of Risk Assessment	217	07SEP09 A	11APR10	07SEP09 A	21APR10	10d	0
M1010A20	Preparation & Submission of Method Statement	217	07SEP09 A	11APR10	07SEP09 A	21APR10	10d	0
M1010A30	Preparation & Submission of Temp. Works	217	07SEP09 A	11APR10	07SEP09 A	21APR10	10d	0
M1020	Bathymetric Survey	120	22FEB10 A	27FEB10 A	22FEB10 A	27FEB10 A		
M1030	Material Procurement & Delivery	180	06NOV09 A	04MAY10	06NOV09 A	23JUL10	80d	0
M1040	Submission & Approval of EM&A Manual	90	07SEP09 A	17JAN10 A	07SEP09 A	17JAN10 A		
M1050	EM&A - Monitoring & Update	640	06DEC09 A	23AUG11	06DEC09 A	15NOV11	84d	36d
M1060	Portion H1 Coating Yard Set-up	60	06MAR10	04MAY10	25MAY10	23JUL10	80d	0
M1060A10	Portion H1 Coating Yard Set-up	34	01APR10 *	04MAY10	20JUN10	23JUL10	80d	0
M1070	Portion H1 Pipe Material On-site Coating	90	05MAY10	02AUG10	24JUL10	21OCT10	80d	32d
M1080	West Kowniloon Cofferdam for Landfall (H1)	180	21FEB10	19AUG10	10APR10	06OCT10	48d	0
M1080A10	Set-up for Cofferdam at Landfall (H1 & J)	10	02APR10	11APR10	12APR10	21APR10	10d	0
M1080B10	Soldier Pile Wall Construction	260	12APR10	27DEC10	22APR10	06JAN11	10d	0
M1080B20	Excavation of Cofferdam	80	28DEC10	17MAR11	07JAN11	27MAR11	10d	0
M1090	Sai Ying Pun Cofferdam for Landfall (J)	180	21FEB10	19AUG10	10APR10	06OCT10	48d	0
M2060	Set-up For Pipe Pulling	60	21JUL10	18SEP10	07SEP10	05NOV10	48d	0
M2060A10	Mobilization of Plants & Machineries	8	27JAN11	03FEB11	06FEB11	13FEB11	10d	0
M2060A20	Set-up For Pipe Pulling	90	04FEB11	04MAY11	14FEB11	14MAY11	10d	0
M2070	Dredging Works	150	22APR10	18SEP10	09JUN10	05NOV10	48d	0
M2080	Portion I Submarine Pipe Pulling	130	19SEP10	26JAN11	06NOV10	15MAR11	48d	0
M2080B10	Portion I Submarine Pipe Pulling	85	05MAY11	28JUL11	15MAY11	07AUG11	10d	0
M2090	Portion H1&I Tie-in With Submarine Pipe Line	30	27JAN11	25FEB11	16MAR11	14APR11	48d	0
M2090A10	Portion H1&I Tie-in With Submarine Pipe Line	20	29JUL11	17AUG11	08AUG11	27AUG11	10d	0
M2100	Portion I Submarine Pipe Pressure Testing &	30	26FEB11	27MAR11	15APR11	14MAY11	48d	0
M2100A10	Portion I Submarine Pipe Pressure Testing &	20	18AUG11	06SEP11	28AUG11	16SEP11	10d	0
M2110	Portion H1&J Seawall Reinstatement	120	28MAR11	25JUL11	29MAY11	25SEP11	62d	23d
M2110A10	Portion H1&J Seawall Reinstatement	90	18AUG11	15NOV11	17SEP11	15DEC11	30d	30d
M2120	Portion I Submarine Pipeline Backfilling	185	28MAR11	28SEP11	15MAY11	15NOV11	48d	0



Start date	07SEP09
Finish date	05NOV12
Data date	04JAN10
Run date	19SEP11
Page number	5A
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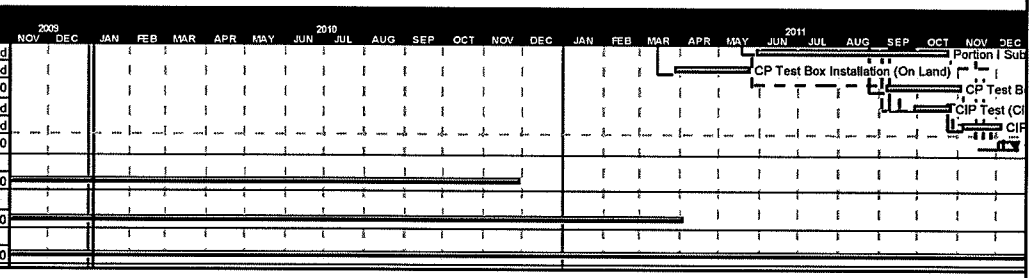
Wo Hing - Penta-Ocean Joint Venture

3 Months Rolling Program (Sept 2011)

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

Contract No.9/WSD/08
Laying of Western Cross Habour Main & Associated Land Mains from West Kowloon to Sai Ying Pun

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float
M2120A10	Portion I Submarine Pipeline Backfilling	150	30MAY11	26OCT11	19JUL11	15DEC11	50d	50d
M2130	CP Test Box Installation (On Land)	60	28MAR11	26MAY11	02SEP11	31OCT11	158d	125d
M2130A10	CP Test Box Installation (On Land)	60	07SEP11	05NOV11	17SEP11	15NOV11	10d	0
M2140	CIP Test (Close Internal Potential Survey)	30	29SEP11	28OCT11	16NOV11	15DEC11	48d	48d
M2140A10	CIP Test (Close Internal Potential Survey)	30	06NOV11	05DEC11	16NOV11	15DEC11	10d	10d
M2150	Completion of Section 1 Works	0		15DEC11 *		15DEC11 *	0	0
+Section 2								
		449	07SEP09 A	29NOV10	07SEP09 A	29NOV10	0	0
+Section 4								
		576	07SEP09 A	05APR11	07SEP09 A	05APR11	0	0
+Section 5								
		1156	07SEP09 A	05NOV12	07SEP09 A	05NOV12	0	0



Start date	07SEP09
Finish date	05NOV12
Data date	04JAN10
Run date	19SEP11
Page number	6A
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Wo Hing - Penta-Ocean Joint Venture

3 Months Rolling Program (Sept 2011)

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

Appendix G

Implementation Schedule of Environmental Mitigation Measures (EMIS)

Environmental Mitigation Implementation Schedule

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Air Quality					
▪ Dust control / mitigation measures shall be provided to prevent dust nuisance.	All areas	√			
▪ Any excavated dusty materials or stockpile of dusty materials should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet, and recovered or backfilled or reinstated within 24 hours of the excavation or unloading.	All areas	√			
▪ The working area of excavation should be sprayed with water immediately before, during and immediately after the operations so as to maintain the entire surface wet.	All areas	√			
▪ The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle	All areas	√			
▪ Where a site boundary adjoins a road, streets or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length except for a site entrance or exit;.	All areas	√			
▪ The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	Site Egress				√
▪ Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	All haul roads	√			
▪ The portion of road leading only to a construction site that is within 30m of a designated vehicle entrance or exit should be kept clear of dusty materials.	All areas	√			
▪ All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet.	All areas		√		
▪ Vehicle speed should be limited to 10 kph except on completed access roads.	All areas	√			
▪ Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	All areas	√			
▪ The public road around the site entrance should be kept clean and free from dust.	All areas	√			
▪ Vehicle and equipment should be switched off while not in use.	All areas	√			
▪ All plant and equipment should be well maintained e.g. without black smoke emission.	All areas	√			
▪ Open burning should be prohibited.	All areas	√			
Noise Impact					
▪ The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	All areas	√			
▪ The constructions works should be scheduled to minimize noise nuisance. Concurrent noisy works should be carried out at different time slots or spread around the construction sites in order to help to reduce the cumulative noise effect produced in the construction process.	All areas	√			
▪ Noisy equipment and mobile plant shall always be site away from NSRs.	All areas	√			
▪ Machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	All areas	√			
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	All areas	√			
▪ Mobile or movable noise barriers should be erected near to the construction plants to reduce the noise levels from stationary items of PME whenever practicable.	All areas	√			
▪ Quality Powered mechanical equipment (Quality PME), which are construction plants and equipments that are notably quieter, more environmental friendly and efficiently, recognized by the Noise Control Authority for the purpose of CNP application should be used to reduce the noise generated from the construction plants effectively. The Contractor shall note the required procedures involved in application of the QPME.	All areas	√			

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Noise Impact					
▪ Well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	All areas	√			
▪ Air compressors and hand held breakers should have noise labels.	All areas	√			
▪ Compressors and generators should operate with door closed.	All areas	√			
▪ Material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	All areas	√			
Water Quality					
Mitigation Measures for Dredging					
▪ Dredging should be undertaken using one grab dredger only with a maximum production rate of 4,000m^3 per day.	Marine				√
▪ Deployment of frame type silt curtain should be fully enclose the grab while dredging works are in progress.	Marine				√
▪ Deployment of silt screen should be at the sea water intake at Kowloon South Salt Water Pumping Station while dredging works are in progress	Marine	√			
▪ 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.	Marine				√
▪ 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	Marine	√			
▪ The decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard	Marine	√			
▪ Adequate free board shall be maintained on barges to ensure that decks are not washed by wave action.	Marine	√			
▪ 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	Marine				√
▪ 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	Marine	√			
▪ 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	Marine	√			
▪ The speed of vessels should be controlled within the works area to prevent propeller wash from stirring up the seabed sediments	Marine	√			
Mitigation Measures for other Construction Activities					
▪ Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 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	All areas	√			
▪ 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 areas	√			
▪ 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.	All areas				√
▪ 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.	All areas				√
▪ 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	All areas				√
▪ 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	√			

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Water Quality					
Mitigation Measures for other Construction Activities					
▪ 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.	All areas	√			
▪ 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.	All areas	√			
▪ Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	All areas		√		
Waste Management					
C&D Materials					
▪ Excavated materials should be reused on-site as backfilling material and for landscaping works as far as practicable.	All areas				√
▪ C&D material generated from excavation works should be disposed of at public fill reception facilities for other beneficial uses.	All areas				√
▪ A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed	All areas	√			
▪ 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	√			
Chemical Waste					
▪ Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately.	All areas	√			
▪ 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.	All areas	√			
▪ 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	√			
General Refuse					
▪ General refuse should be stored in enclosed bins or compaction units separate from C&D material.	All areas	√			
▪ A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material.	All areas	√			
▪ An enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	All areas	√			
Marine Dredged Sediment (During transportation and disposal)					
▪ 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	Marine				√
▪ 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	Marine				√
▪ 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				√
Good Site Practices					
▪ 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	All areas	√			
▪ Training of site personnel in proper waste management and chemical handling procedures	All areas	√			
▪ Provision of sufficient waste disposal points and regular collection of waste	All areas	√			

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Waste Management					
Good Site Practices					
▪ 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.	All areas		√		
▪ Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers	All areas	√			
Waste Reduction Measures					
▪ Sort C&D material from demolition and decommissioning of the existing facilities to recover recyclable portions such as metals	All areas	√			
▪ 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	All areas	√			
▪ 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	All areas	√			
▪ Proper storage and site practices to minimise the potential for damage or contamination of construction materials	All areas	√			
▪ Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste	All areas	√			
Marine Ecology					
▪ Use of one grab dredger only with a maximum production rate of 4,000m^3 per day for dredging.	Marine				√
▪ Deployment of frame type silt curtain to fully enclose the grab while dredging works are in progress.	Marine				√
▪ Deployment of silt screen at the sea water intake at Kowloon South Salt Water Pumping Station while dredging works are in progress.	Marine	√			
▪ Good site practices to avoid silt runoff from construction works associated with the construction of the submarine watermain.	Marine	√			
Good Site Practices					
▪ The Environmental Permit should be displaced conspicuously on site.	All areas	√			
▪ Construction noise permits should be posted at site entrance or available for site inspection.	All areas	√			
▪ Chemical storage area provided with lock and located on sealed areas.	All areas	√			
▪ All chemicals should be placed at the banded area with adequate band capacity (>110% of largest tank).	All areas	√			
▪ Any unused chemicals or those with remaining functional capacity should be recycled.	All areas	√			
▪ All generators, fuel and oil storage are within bundle areas.	All areas		√		
▪ Regular cleaning and maintenance programme for waste storage area, drainage systems, silt traps, sumps and oil interceptors.	All areas	√			
▪ 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 bunded and all the polluted surface run-off collected within this area should be diverted into wastewater treatment system.	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	6.0397	0.1439	0.0033
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 = 2.1438 (Std Dev = 0.3068 and SE = 0.011)
(95% CI : 2.1222 < Diff < 2.1654)

t-value of difference = 194.496 (774 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	4.9298	0.2950	0.0116
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 = 1.8115 (Std Dev = 1.3379 and SE = 0.0897)
(95% CI : 1.6356 < Diff < 1.9874)

t-value of difference = 20.189 (221 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	7.5341	0.4953	0.0195
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 = 5.2498 (Std Dev = 2.5065 and SE = 0.1687)
(95% CI : 4.9192 < Diff < 5.5804)

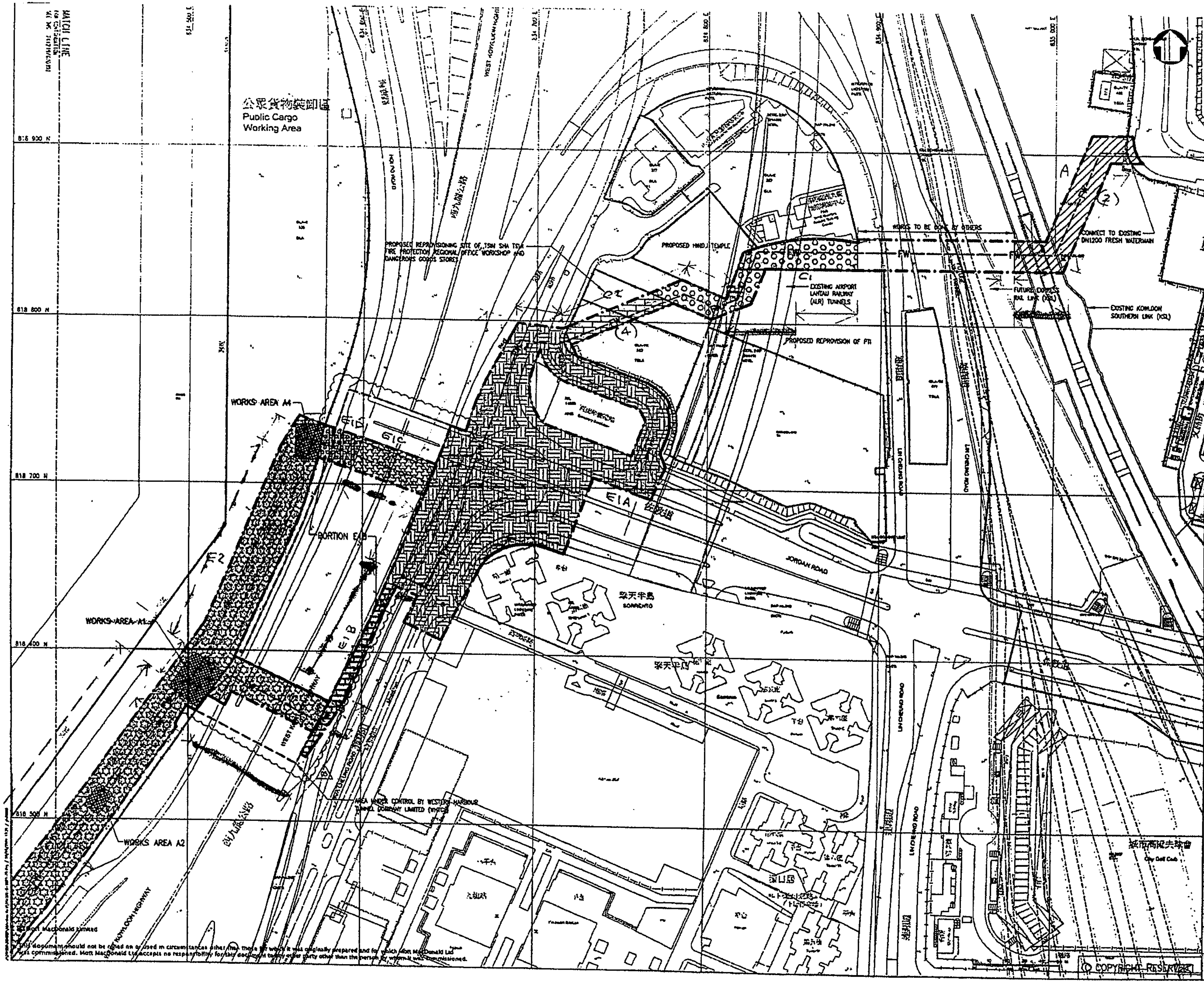
t-value of difference = 31.124 (220 degrees of freedom)
P = 1 (>0.05)

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 CONJUNCTION WITH DRAWING NOS. 241239/G/0302 TO 0305.

LEGEND :

- PROPOSED FRESH WATERMAIN
- PROPOSED SALT WATERMAIN
- PROPOSED WORKS LIMIT
- GLA / STT
- PORTION A (Section 2)
- PORTION C1
- PORTION C2 (Section 4)
- PORTION E1A
- PORTION E1B
- PORTION E1C
- PORTION E1D
- PORTION E2
- PORTION F
- PORTION G (Section 4)
- PORTION H1
- PORTION H2
- PORTION I
- PORTION J
- PORTION K
- WORKS AREA WITHIN NEW YAU MA TEI PUBLIC CARGO WORKING AREA FORMING PART OF PORTION E2 OF THE SITE. (TO BE FENCED OFF BY CONCRETE BARRIERS AS PART OF TEMPORARY TRAFFIC ARRANGEMENT BY THE CONTRACTOR. DETAILS REFER TO WSD STANDARD DRAWING NO. K2104)

Section 1
Section 2
Section 4

Rev	Date	Drawn	Description	Ch'k'd	App'd
05	MAY 09		TENDER ADDENDUM NO. 6		
04	APR 09	PL	TENDER ADDENDUM NO. 5	KL	SHC
03	APR 09	PL	TENDER ADDENDUM NO. 4	KL	SHC
02	MAR 09	PL	TENDER ADDENDUM NO. 3	KL	SHC
01	FEB 09	PL	TENDER ADDENDUM NO. 2	KL	SHC
0	DEC 08	PL	ISSUE FOR TENDER	KL	SHC

Mott MacDonald

Mott MacDonald Hong Kong Limited
7th Floor
West Wing Office Building
New World Centre
20 Salisbury Road
Hong Kong
Tel 2828 5757
Fax 2827 1823

Client

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

Contract No. 9/WSD/08

Project

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

Title

POSSESSION OF SITE
(SHEET 1 OF 5)

Designed	KSC	Eng Chk	KL		
Drawn	PL	Coordination	SHC		
Dwg Chk	KL	Approved	SHC		
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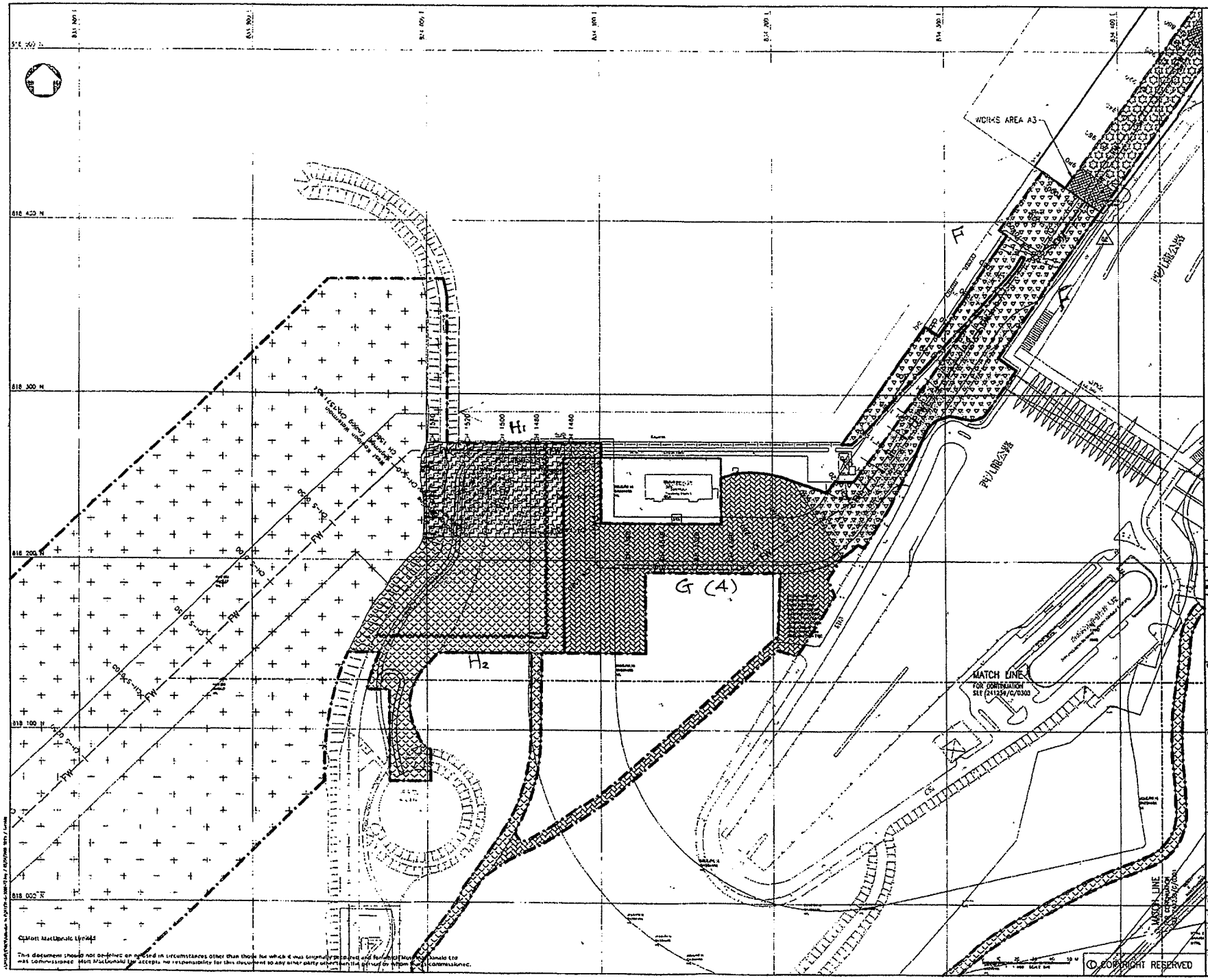
Drawing No.	241239/G/0301			Rev	05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WORKS AREA A3
H1
H2
G (4)
MATCH LINE FOR CONTINUATION SEE 241239/G/0303
MATCH LINE FOR CONTINUATION SEE 241239/G/0303
02 APR 09 TENDER ADDENDUM NO 4
01 MAR 09 TENDER ADDENDUM NO. 3
0 DEC 08 ISSUE FOR TENDER
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THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION WATER SUPPLIES DEPARTMENT
Contract No. 9/WSD/08
LAYING OF WESTERN CROSS HARBOUR MAIN AND ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN
POSSESSION OF SITE (SHEET 2 OF 5)
1:1000 @A1
241239
241239/G/0302
02
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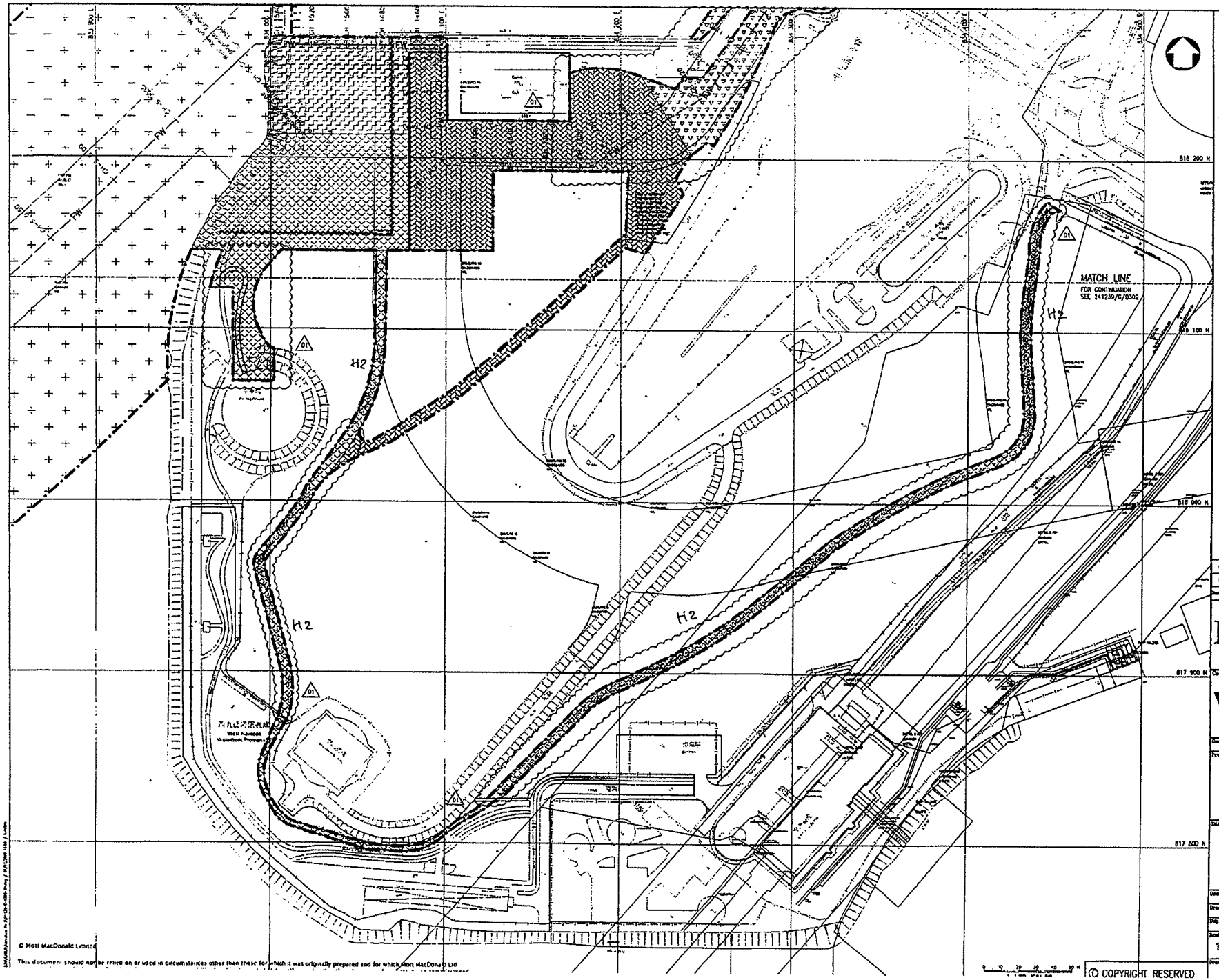


NOTES :

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 241239/G/0301 TO 0302 AND 0304 TO 0305.
2. THE LEGEND SHALL REFER TO DRAWING NO. 241239/G/0301.

Rev	Date	Drawn	Description	Ch'k'd	App'd
01	MAR 09		TENDER ADDENDUM NO. 3	JL	AHL
0	DEC 08	PL	ISSUE FOR TENDER	KL	SHC

Mott MacDonald

Mott MacDonald Hong Kong Limited
7th Floor
Wan Hing Office Building
Wan Hing Centre
70 Sandbury Road
Hong Kong

Tel 2828 5757
Fax 2827 1823
Web www.mottmac.com.hk

Client

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

Contract No. 9/WSD/08

Project

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

Title

POSSESSION OF SITE
(SHEET 3 OF 5)

Designed	KSC		Eng'g'd	KL	JL
Drawn	PL		Coordinated	SHC	AHL
Eng'g'd	KL	JL	Approved	SHC	AHL

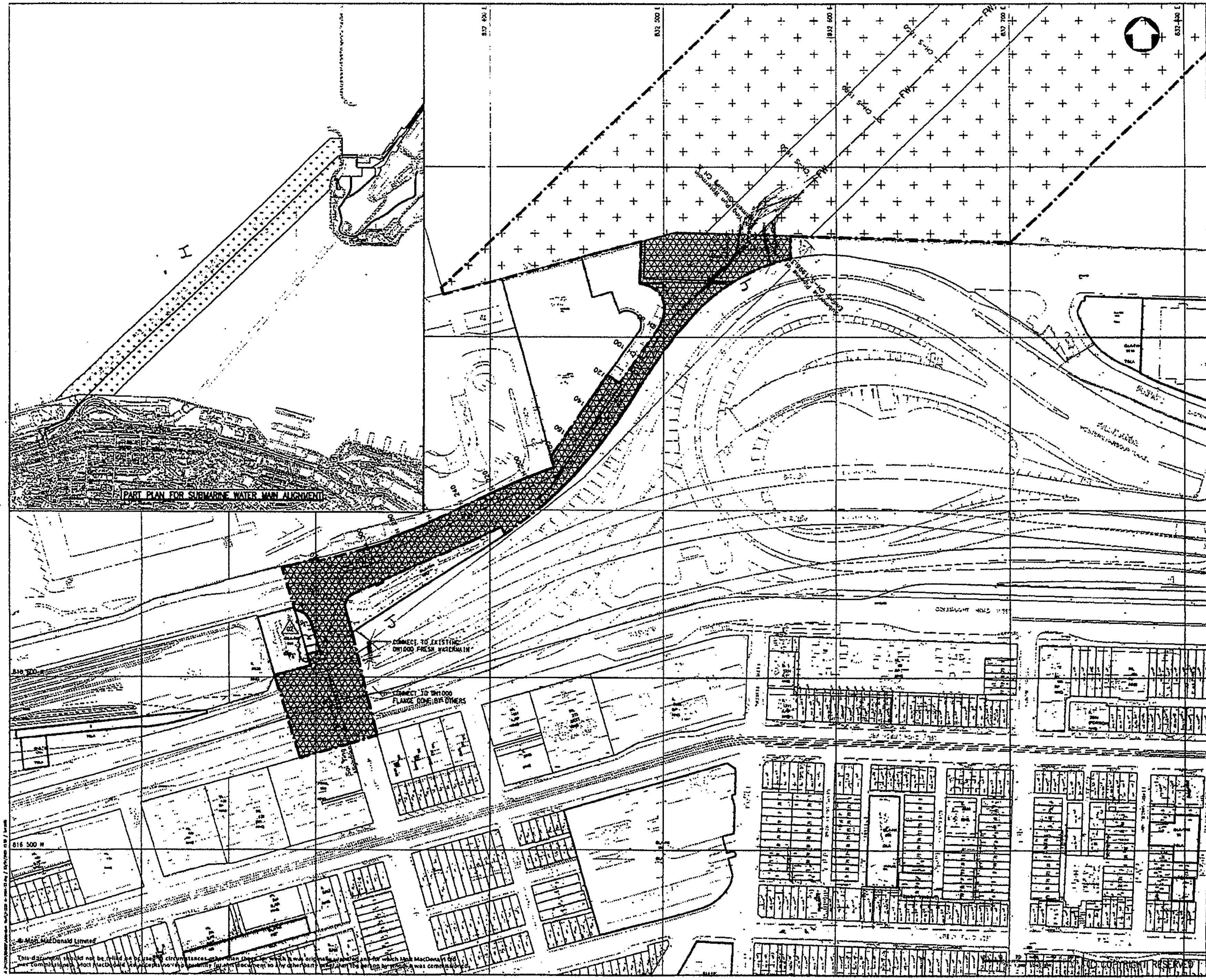
Scale 1:1000 @A1

Project 241239

Status TEN

Drawing No. 241239/G/0303

Rev 01



NOTES :

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 241239/G/0301 TO 0303 AND 0305.
2. THE LEGEND SHALL REFER TO DRAWING NO. 241239/G/0301.

Rev	Date	Drawn	Description	Ch'k'd	App'd
02	APR 09		TENDER ADDENDUM NO. 4		
01	MAR 09	PL	TENDER ADDENDUM NO. 3	CF	SHC
0	DEC 08	PL	ISSUE FOR TENDER	CF	SHC

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Mott MacDonald Hong Kong Limited, 7th Floor, West Wing Office Building, New World Centre, 20 Salisbury Road, Hong Kong. Tel 2828 5757, Fax 2827 1823

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

Contract No. 9/WSD/08

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

Title: POSSESSION OF SITE (SHEET 4 OF 5)

Designed	KSC		Eng.Chk.	KL	
Drawn	PL		Coordination	SHC	
Dwg.Chk.	KL		Approved	SHC	
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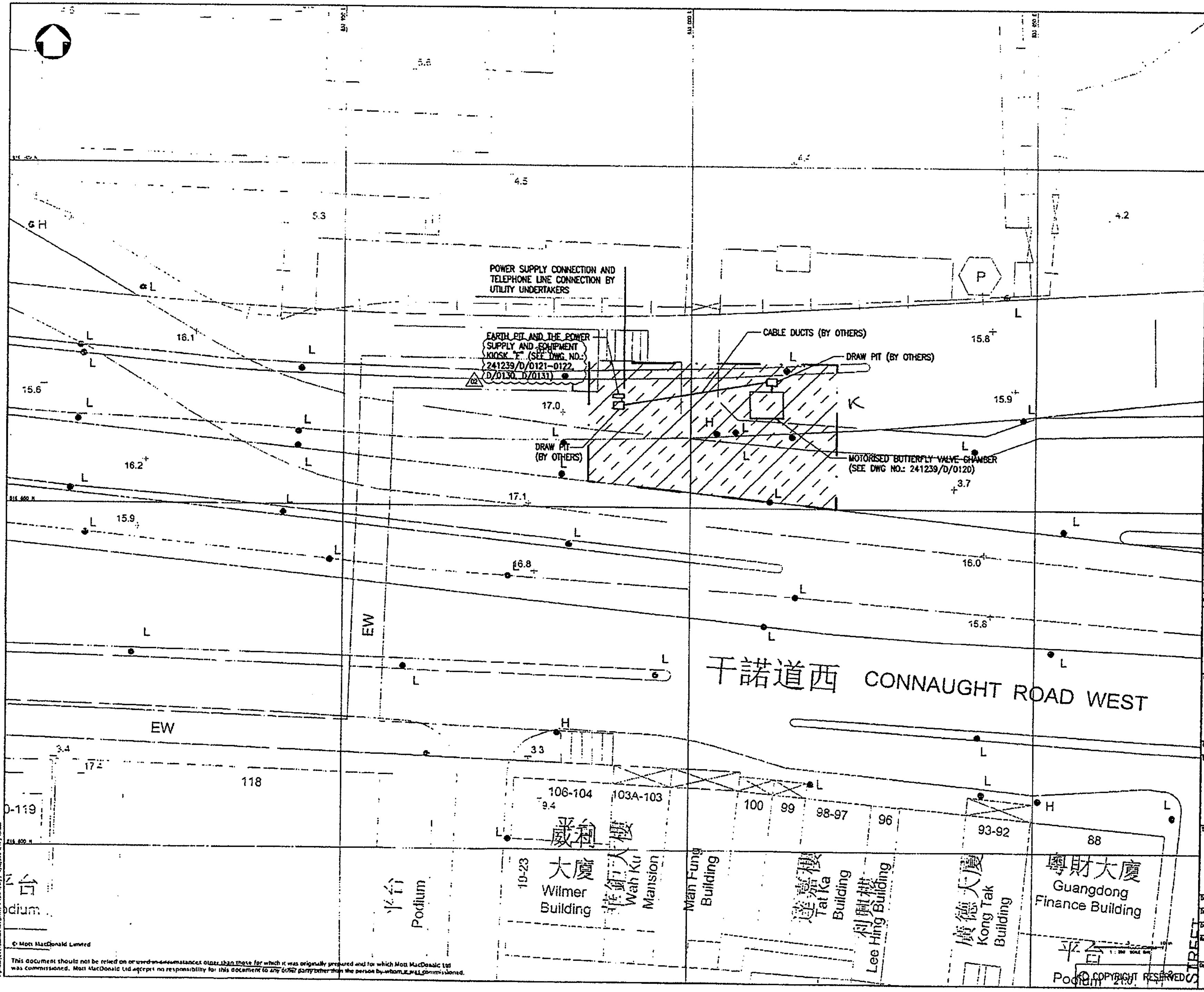
Drawing No.	241239/G/0304			Rev	02



NOTES

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 241239/G/0301 TO 0304.
2. THE LEGEND SHALL REFER TO DRAWING NO. 241239/G/0301.

Rev	Date	Drawn	Description	Ch'k'd	App'd
02	FEB 09		TENDER ADDENDUM NO. 2		
01	JAN 09	PL	TENDER ADDENDUM NO. 1	KL	SHC
0	DEC 08	PL	ISSUE FOR TENDER	KL	SHC

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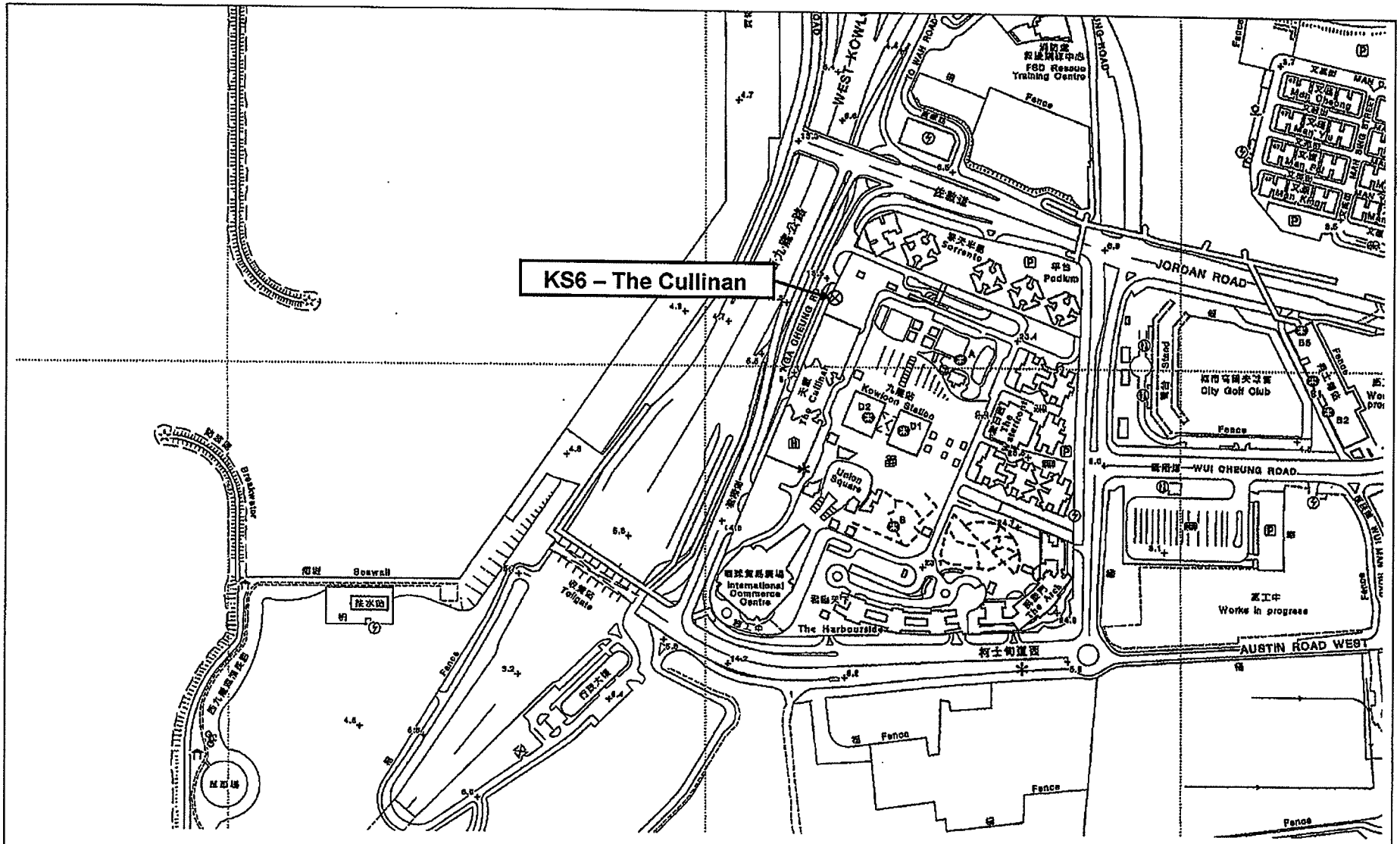
Contract No.: 9/WSD/08

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

Title: POSSESSION OF SITE (SHEET 5 OF 5)

Designed	KSC		Eng Chk	KL
Drawn	PL		Coordination	SHC
Dwg Chk	KL		Approved	SHC
Scale 1:250 @A1	Project 241239		Status TEN	
Drawing No. 241239/G/0305			Rev 02	

Figures

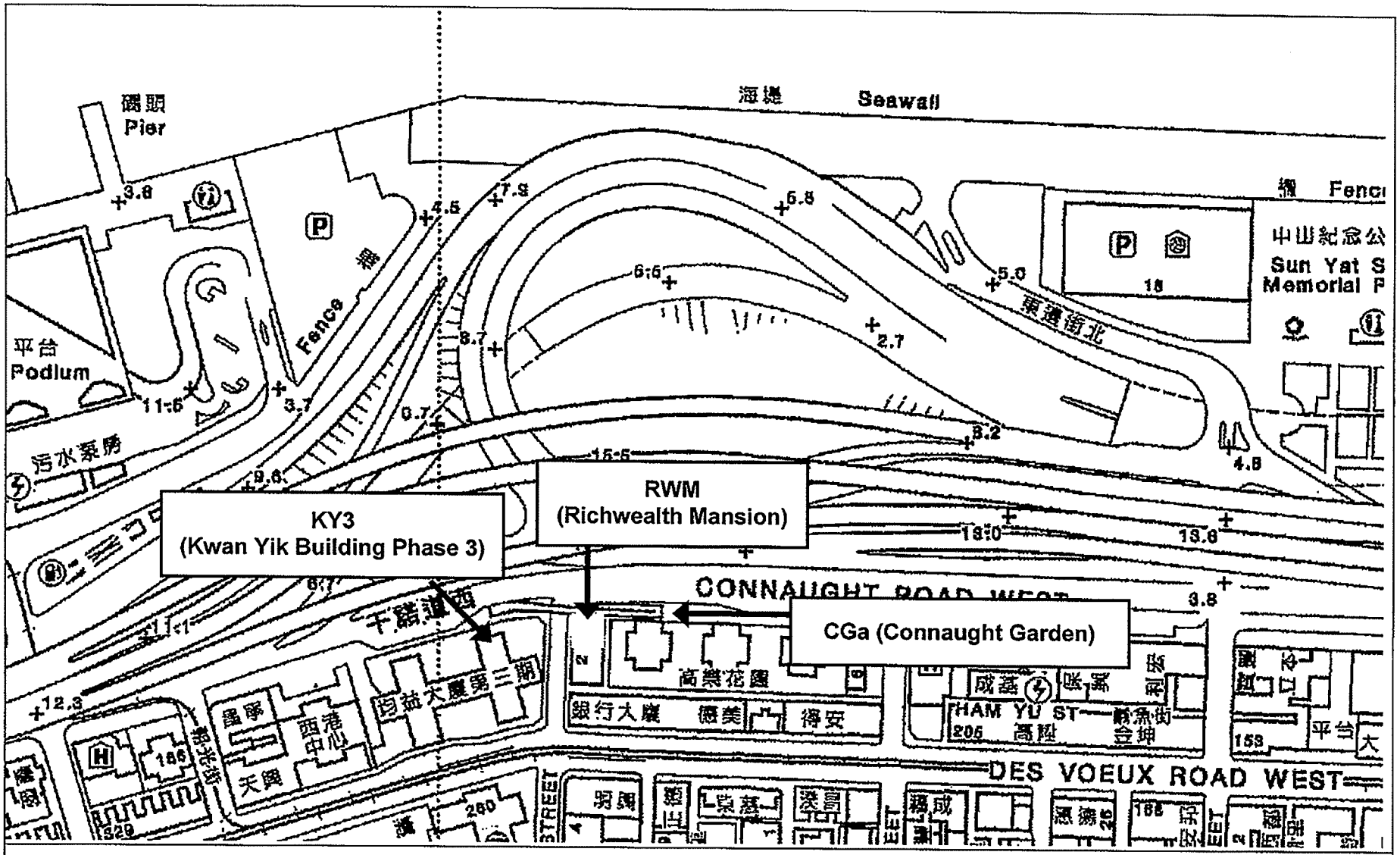


Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Mains for West Kowloon to Sai Ying Pun

Figure 1

Location of Noise Monitoring Station at West Kowloon

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

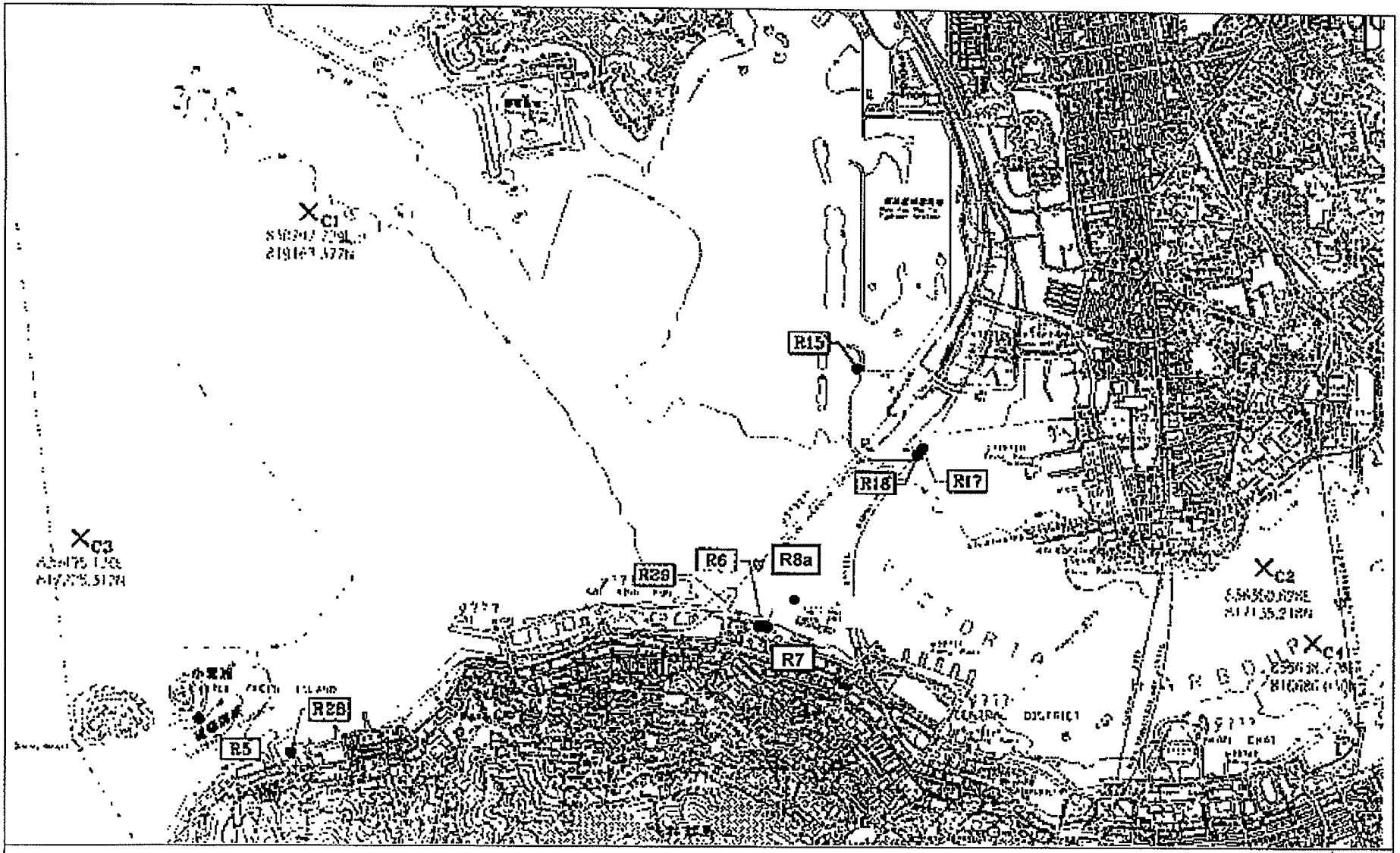


Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Mains for West Kowloon to Sai Ying Pun

Figure 2

Locations of Noise Monitoring Stations at Sai Ying Pun

東業環動測試顧問有限公司
ETS-TESTCONSULT LIMITED

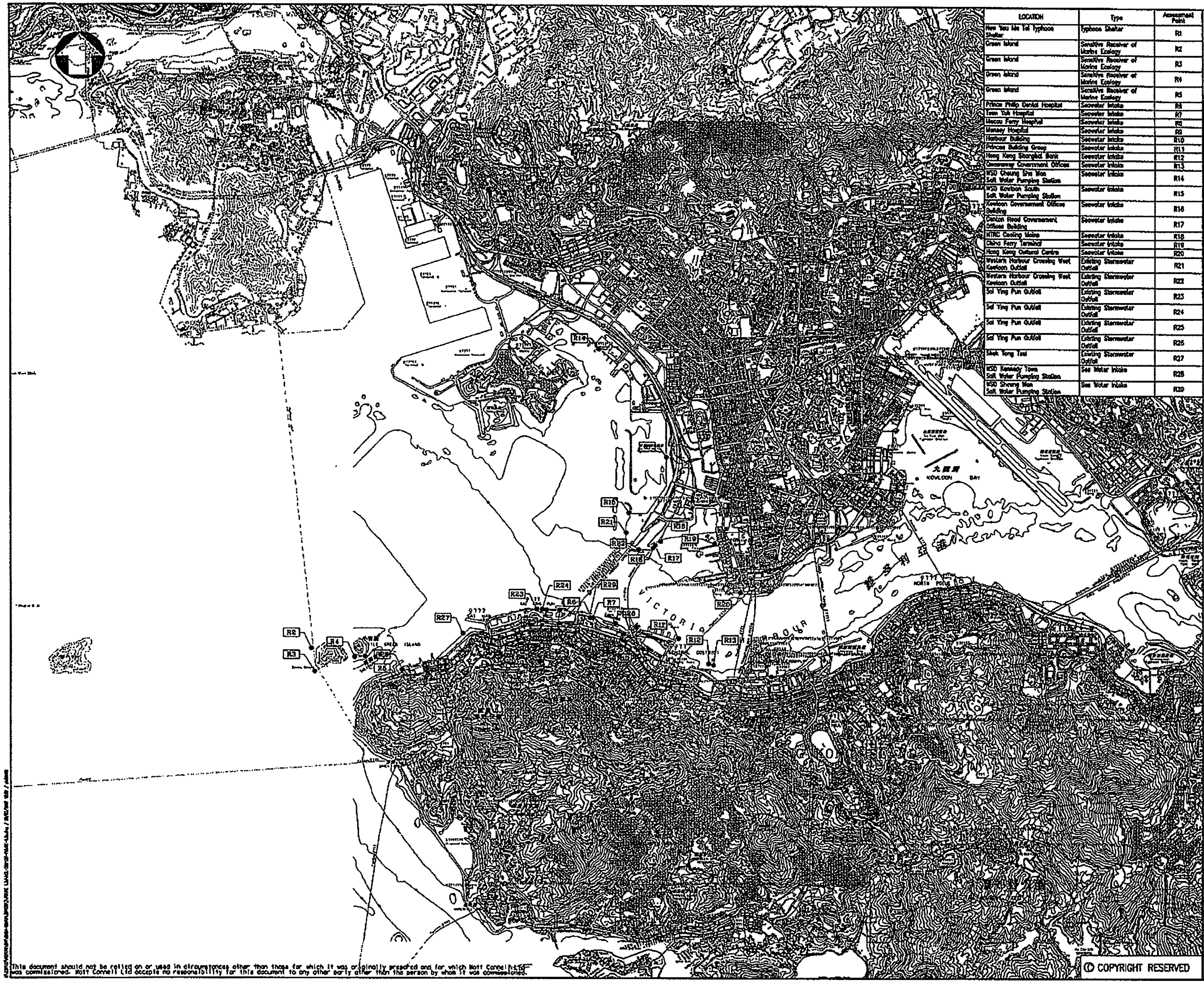


Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Mains for West Kowloon to Sai Ying Pun

Figure 3

Locations of Water Quality Monitoring Stations

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED



LOCATION	Type	Assessment Point
New Yau Ma Tei Typhoon Shelter	Typhoon Shelter	R1
Green Island	Sensitive Receiver of Marine Ecology	R2
Green Island	Sensitive Receiver of Marine Ecology	R3
Green Island	Sensitive Receiver of Marine Ecology	R4
Green Island	Sensitive Receiver of Marine Ecology	R5
Prince Philip Dental Hospital	Seawater Intake	R6
Tsan Yuk Hospital	Seawater Intake	R7
Macau Ferry Hospital	Seawater Intake	R8
Mansey Hospital	Seawater Intake	R9
Harbour Building	Seawater Intake	R10
Princes Building Group	Seawater Intake	R11
Hong Kong Shanghai Bank	Seawater Intake	R12
Queensway Government Offices	Seawater Intake	R13
WSD Cheung Sha Wan Salt Water Pumping Station	Seawater Intake	R14
WSD Kowloon South Salt Water Pumping Station	Seawater Intake	R15
Kowloon Government Offices Building	Seawater Intake	R16
Canton Road Government Offices Building	Seawater Intake	R17
KTRC Cooling Mains	Seawater Intake	R18
China Ferry Terminal	Seawater Intake	R19
Hong Kong Cultural Centre	Seawater Intake	R20
Western Harbour Crossing West Kowloon Outfall	Existing Stormwater Outfall	R21
Western Harbour Crossing West Kowloon Outfall	Existing Stormwater Outfall	R22
Sai Ying Pun Outfall	Existing Stormwater Outfall	R23
Sai Ying Pun Outfall	Existing Stormwater Outfall	R24
Sai Ying Pun Outfall	Existing Stormwater Outfall	R25
Sai Ying Pun Outfall	Existing Stormwater Outfall	R26
Shek Tong Tsui	Existing Stormwater Outfall	R27
WSD Kennedy Town Salt Water Pumping Station	Sea Water Intake	R28
WSD Sheung Wan Salt Water Pumping Station	Sea Water Intake	R29

Rev	Date	Drawn	Description	Ch'k'd	App'd
A	06/08	LYK	PRELIMINARY		

Mott Connell
Mott Connell Limited
40/F Hopewell Centre
183 Queen's Road East
Hong Kong
Tel 2828 5757
Fax 2827 1823
Web www.mottlimac.com

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

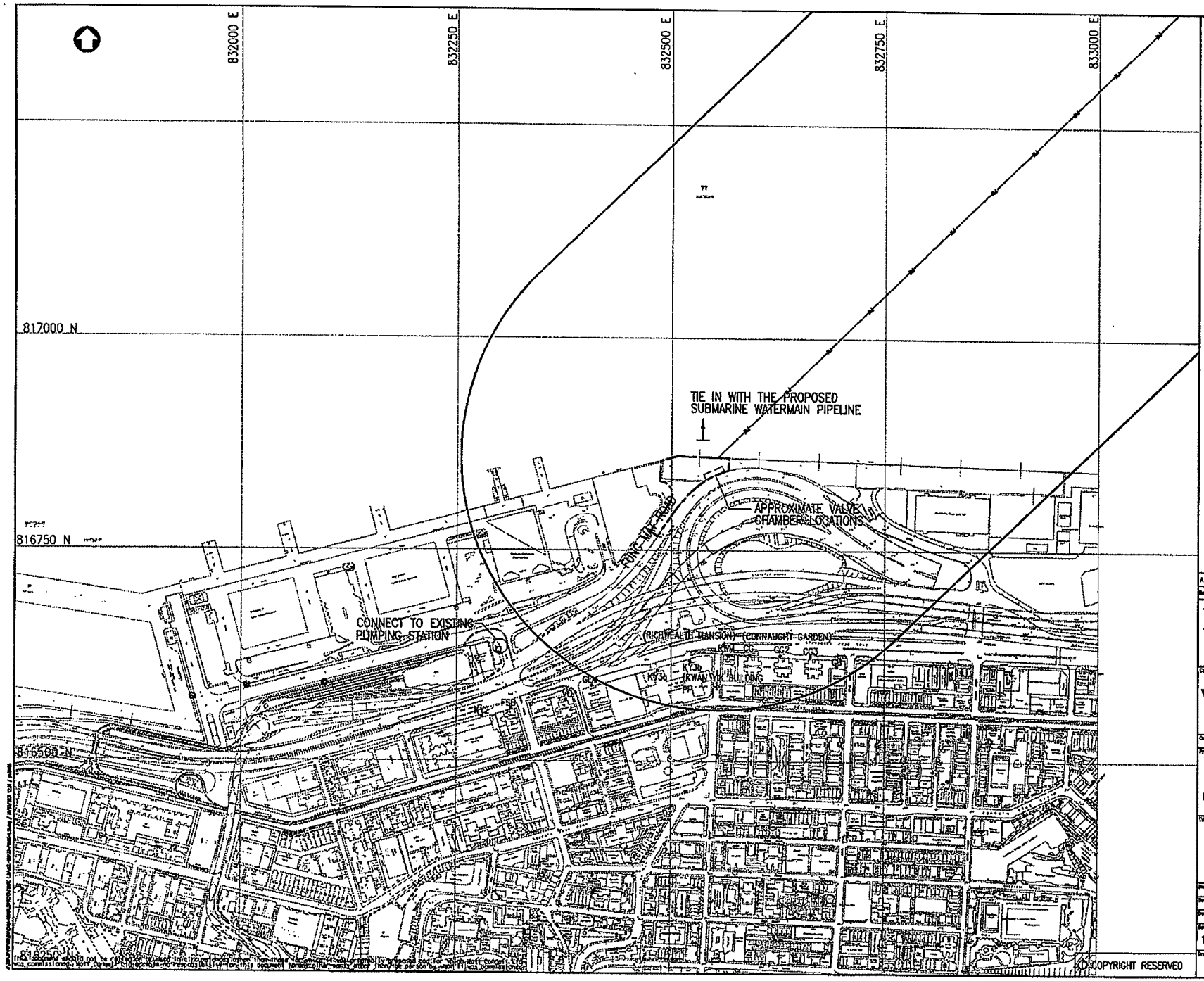
Contract No. CE42/2005(WS)

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

Title: LOCATIONS OF WATER SENSITIVE RECEIVERS AND STORMWATER OUTFALLS AT WESTERN HARBOUR

Designed: | Eng Chk:
Drawn: LYK | Coordination: –
Dwg Chk: — | Approved:
Scale: 1 : 25000@A1 | Project: 224133 | Status:

Drawing No. FIGURE 1.2a | Rev A



LEGEND:

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

Rev	Date	Name	Description	Ch'k'd	App'd
A	06/08	LYK	PRELIMINARY		

Mott Connell

Mott Connell Limited
49/F Hopewell Centre
183 Queen's Road East
Hong Kong
Tel 2828 5757
Fax 2907 1907
Web www.mottmac.com

Client

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

Contract No. CE42/2005(WS)

Project

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

Title

LOCATIONS OF NOISE SENSITIVE RECEIVERS IN SAI YING PUN

Designed			Reg'd'd		
Drawn	LYK		Coordinated		
Eng'd'd	—		Approved		

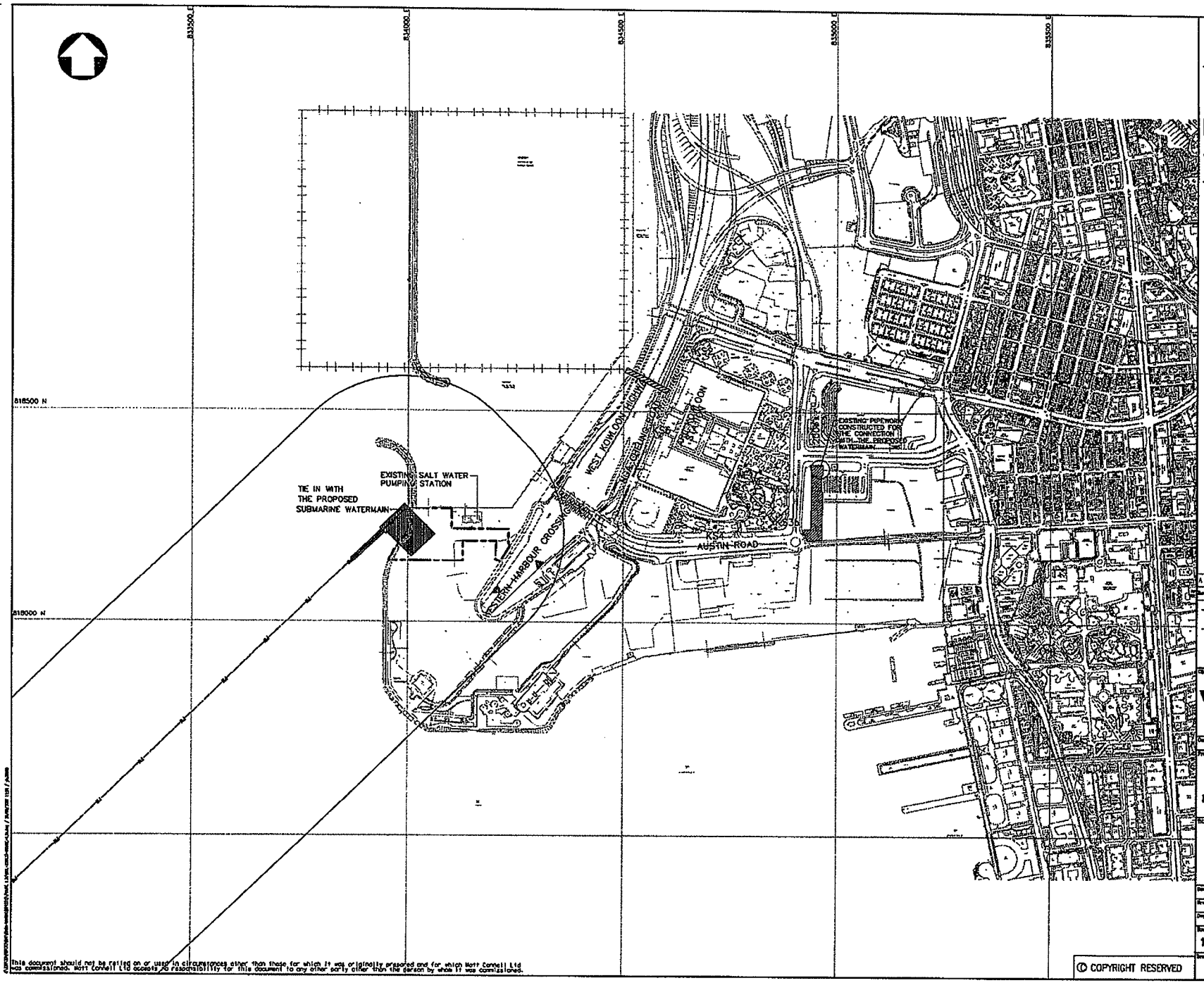
Scale: 1 : 2000@A1

Project

Status

Drawing No. FIGURE 1.2b

Rev A



A	08/06	LYK	PRELIMINARY		
Rev	Date	Drawn	Description	Ch'k'd	Appr'd

Mott Connell

Mott Connell Limited
42/F Hopewell Centre
183 Queen's Road East
Hong Kong

Tel 2828 5757
Fax 2827 1823
Web www.mottmac.com

Client

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

Contract No. CE42/2005(WS)

Project

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

Title

LOCATION OF NOISE SENSITIVE RECEIVERS IN WEST KOWLOON

Designed			Eng'r'g Ch'k		
Drawn	LYK		Coordination	–	
Eng Ch'k	–		Approved		
Scale	1 : 40000@A1	Project		Status	
Drawing No.	FIGURE 1.2c				Rev A