MTR Corporation Limited
香港鐵路有限公司
www.mtr.com.hk

The EIA Ordinance Register Office,
27th Floor, Southorn Centre,
130 Hennessy Road,
Wanchai,
Hong Kong

Attention: Mr. Victor Yeung

Your ref :

Our ref: C747-COR-HSD-ENV-010349

23 July, 2010

BY HAND

Dear Mr. Yeung,

MTR West Island Line
Environmental Permit No. EP-313/2008C
EP Condition 6.4: Environmental Monitoring and Audit Report No. 11

In compliance with WIL EP Condition 6.4, I enclose herewith 6 hard copies and one electronic copy of the Environmental Monitoring and Audit Report No.11 dated July 2010 which has been certified by the ET Leader and verified by the IEC.

Yours sincerely,

Glenn Frommer

Dr. Glenn Frommer
Head of Sustainability Development

Encls.

GF/EL/bl

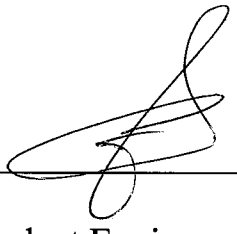
Direct Tel: 2688-1552

MTR Corporation Limited

West Island Line Project

Environmental Monitoring and Audit Report No.11

(July 2010)

Verified by: 

Position: Independent Environmental Checker

Date: 23 July 2010

MTR Corporation Limited

West Island Line Project

Environmental Monitoring and Audit Report No.11

(July 2010)

Certified by: Glenn Frommes

Position: Environmental Team Leader

Date: 21 July 2010

EXECUTIVE SUMMARY

The West Island Line Project commenced on 10 July 2009. The EM&A programme for the West Island Line Project commenced on 10 August 2009, the commencement date of construction of the Project. This is the eleventh monthly Environmental Monitoring and Audit (EM&A) Report for West Island Line Project. The Report presents the results of EM&A works and the impact monitoring for the construction works undertaken during the period of 10 June 2010 to 9 July 2010. The major construction activities in the reporting period included slope works at Works Areas A/A1/A2/A3, demolition of Building Block A at Works Area A, site preparation and pipe piling at Works Area C, site preparation at Works Areas E/G/J2/J3/L1/M2, shaft excavation inside noise enclosure at Works Area M, diaphragm wall construction at Works Area N1, excavation works inside construction shaft with noise decking installed to cover the shaft excavation area at Works Areas G and J, site preparation and slope works at Works Area I, construction of tunnel portals, tunnel works and E&M works at Works Area MA.

Impact monitoring for air quality and noise were conducted in accordance with the EM&A Manual in the reporting period, no exceedance was found and there was no breach of Limit Levels for air and noise monitoring.

No environmental notification of summon and prosecution was received in the reporting period. No environmental complaint was received in the reporting period.

Site inspections were conducted by the Environmental Team on a weekly basis to monitor proper implementation of environmental pollution control and mitigation measures for the Project. No non-conformance to the environmental requirements was identified by the Environmental Team in the reporting period.

The Environmental Permit (EP-313/2008/C) issued by EPD on 31 August 2009 is being used for the WIL Project.

In the reporting period, there was no reporting change of circumstances which may affect the compliance with the recommendations of the EIA Report.

List of Appendices

1 INTRODUCTION

1.1 Project Background

MTR Corporation Limited (MTRCL) proposes to build a new railway line, the West Island Line (WIL) which is an extension of the Island Line to the Western District. The route length of the fully underground WIL is approximately 3 km with three new underground stations namely Sai Ying Pun Station (SYP), University Station (UNI) and Kennedy Town Station (KET).

1.2 Project Programme

The West Island Line Project commenced on 10 July 2009. Commencement of construction was on 10 August 2009. The commencement of operation of the Project is scheduled to be in mid 2014.

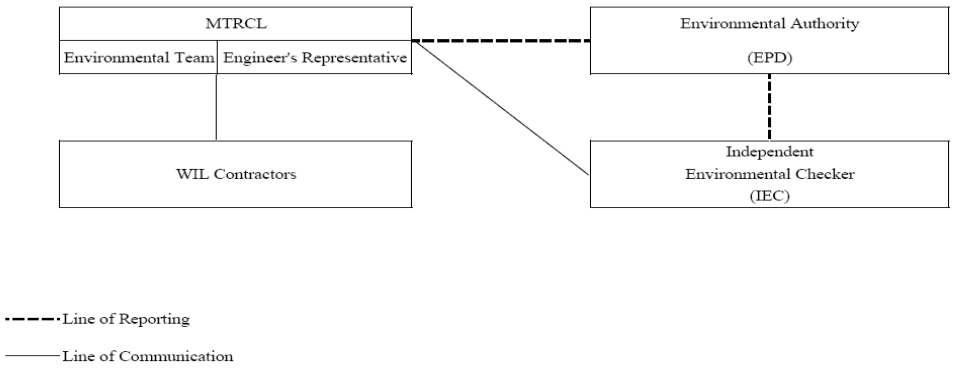
1.3 Coverage of the EM&A Report

The EM&A programme for the West Island Line Project commenced on 10 August 2009. This is the eleventh Monthly Environmental Monitoring and Audit (EM&A) Report for the Project. The Report presents the results of EM&A works and the impact monitoring for the construction works undertaken during the period of 10 June 2010 to 9 July 2010.

2 PROJECT INFORMATION

2.1 Project Management Organization and Contact Details

The WIL Project organization chart is presented in Figure 1. Contacts of key environmental personnel of the Project are shown in Tables 1a, 1b and 1c respectively.



PROJECT ORGANIZATION
Figure 1

Table 1a Contact List of Key Personnel for Project Management

Organization	Name	Telephone
Engineer's Representative		
Project Manager – WIL Civil	Mr. Julian Saunders	3921 3331 / 9738 8634
Construction Manager	Mr. Daljit Dhanda	3921 1668 / 6292 6106
Independent Environmental Checker		
Senior Environmental Consultant	Mr. Coleman Ng	2268 3097
Environmental Team		
Environmental Team Leader	Mr. Glenn Frommer	2688 1552 / 9018 0644
Deputy Environmental Team Leader	Mr. Richard Kwan	2688 1179 / 9819 9027
Contact 703 Contractor		
Project Director	Mr. Seved Robin	2541 1511
General Construction Manager	Mr. Emmanuel Clech	2541 1586
Contact 704 Contractor		
Project Director	Mr. V.H. Elias	3559 9001
Project Manager	Mr. C.C. Hau	3559 9003
Contact 705 Contractor		
Project Director	Mr. Brian Gowran	9865 0100
Project Manager	Mr. Harry Tsang	9467 0226
Contact 706 Contractor		
Project Manager	Mr. Cheng Kam Man	9650 1739
Construction Manager	Mr. Tai Yiu Tong	9047 1830
Contact 706A Contractor		
Project Manager	Mr. Hobby H.M. Lau	9828 0638
Site Agent	Mr. Stan Y.S. Lo	6276 0908
Contact 708 Contractor		
Project Manager	Mr. Jason Cheng	9837 9323
Tunnel Engineer	Mr. John Wai	6083 9220

Table 1b Contact List of Key Personnel for Emergency Response

Organization	Name	Telephone
Engineer's Representative		
Project Manager – WIL Civil	Mr. Julian Saunders	3921 3331 / 9738 8634
Construction Manager	Mr. Daljit Dhanda	3921 1668 / 6292 6106
Independent Environmental Checker		
Senior Environmental Consultant	Mr. Coleman Ng	2268 3097
Environmental Team		
Environmental Team Leader	Mr. Glenn Frommer	2688 1552 / 9018 0644
Deputy Environmental Team Leader	Mr. Richard Kwan	2688 1179 / 9819 9027
Contact 703 Contractor		
Project Director	Mr. Seved Robin	6300 0374
General Construction Manager	Mr. Emmanuel Clech	6392 8991
Environmental Officer	Mr. Keith Lee	5191 8251
Contact 704 Contractor		
Project Director	Mr. V.H. Elias	3559 9001
Project Manager	Mr. C.C. Hau	3559 9003
Environmental Manager	Mr. Eddie Tse	3559 9053
Contact 705 Contractor		
Project Director	Mr. Brian Gowran	9865 0100
Project Manager	Mr. Harry Tsang	9467 0226
Project Environmental Manager	Mr. M.K. Cheung	9096 7254
Contact 706 Contractor		
Project Manager	Mr. Cheng Kam Man	9650 1739
Construction Manager	Mr. Tai Yiu Tong	9047 1830
Environmental Manager	Mr. Andrew Hui	9424 1926
Contact 706A Contractor		
Project Manager	Mr. Hobby H.M. Lau	9828 0638
Site Agent	Mr. Stan Y.S. Lo	6276 0908
Environmental Officer	Mr. Lee Ho Cheong	9416 8347

Organization	Name	Telephone
Contact 708 Contractor		
Project Manager	Mr. Jason Cheng	9837 9323
Tunnel Engineer	Mr. John Wai	6083 9220
Environmental Engineer	Mr. M. K. Cheung	9096 7254

Table 1c Contact List of Environmental Authority

Organization	Name	Telephone
Environmental Protection Department		
Sr Env Protection Offr(Metro Assessment) 3	Mr. Victor Yeung	2835 1155
Sr Env Protection Offr(Regional S) 1	Mr. Sean Law	2516 1806

2.2 Project Works Areas and Environmental Monitoring Locations

The WIL Project works areas and the locations of environmental monitoring stations are shown in Figures 2 and 3, 5 to 7 respectively. Table 2 shows the details of the active monitoring stations as reported in Sections 3.1 and 3.2 below.

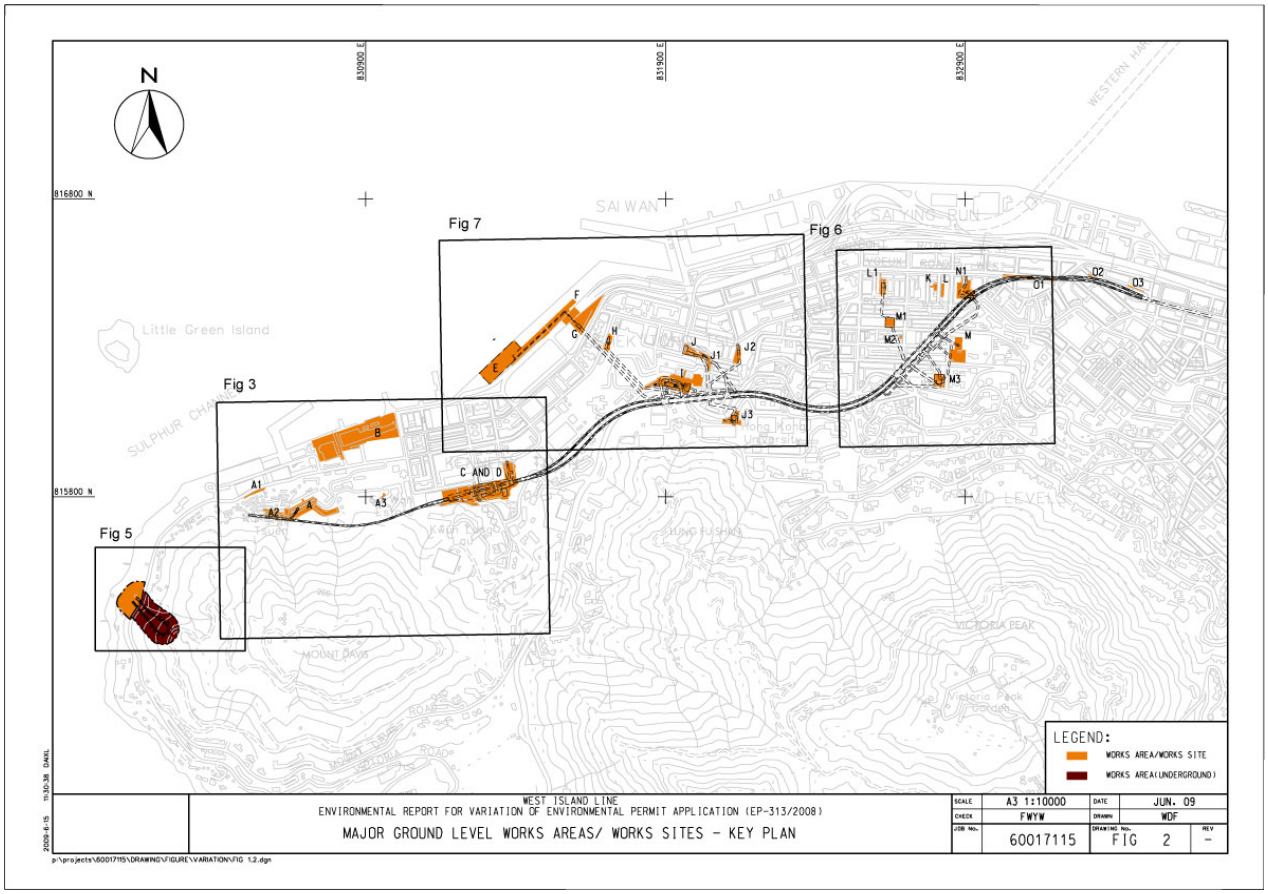


Table 2 Summary of impact air quality and noise monitoring stations

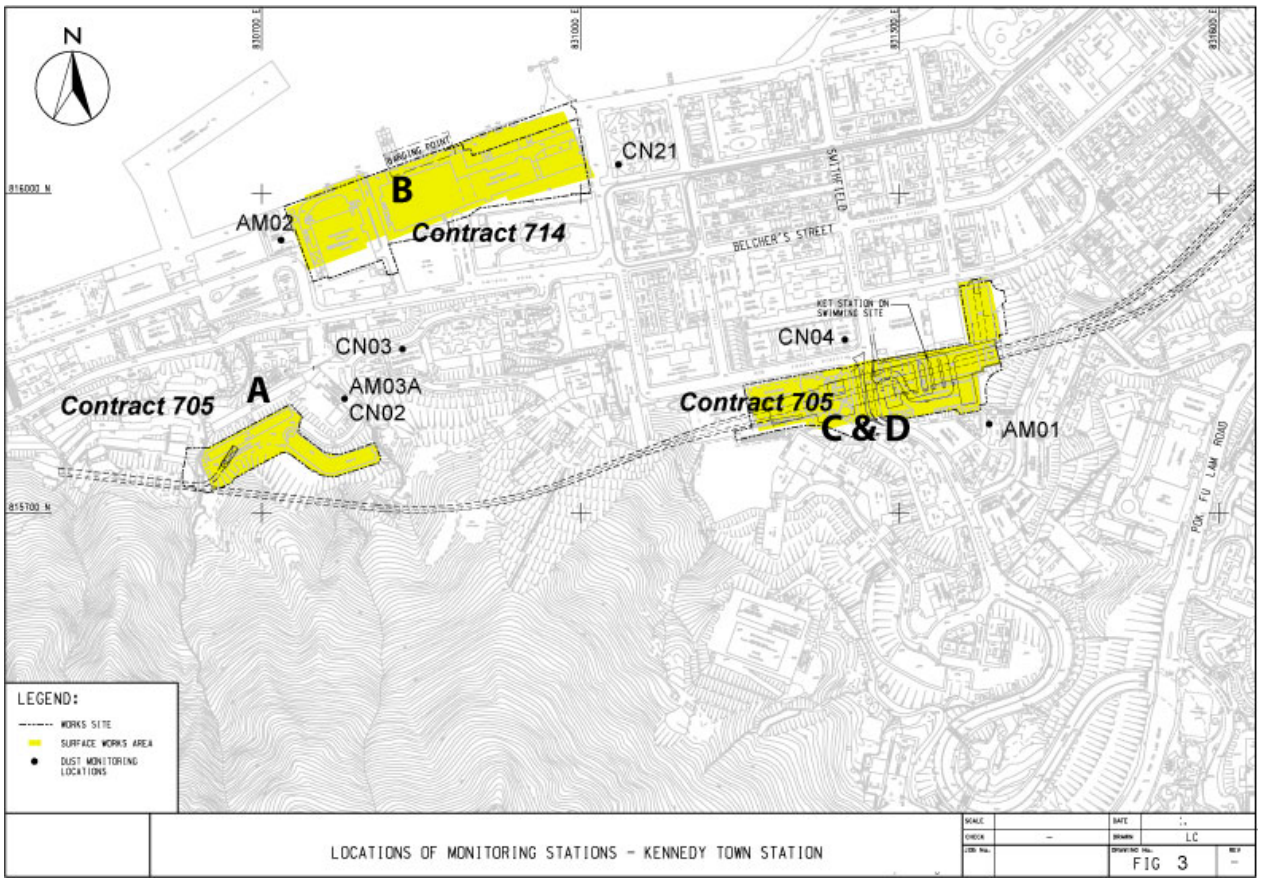
ID	Premise	Monitoring Location (Active)
Air		
AM1a+	Kwun Lung Lau Block 1	Building facing Works Area C
AM2	Victoria Public Mortuary	Building facing Works Area B
AM3a*	Hong Kong Institute of Vocational Education (Tsing Yi) Kennedy Town Centre	Building facing Works Area A
AM4	Chee Sing Kok Social Centre of the Humanity Love (current name for the premise)	Adjacent to building and facing Works Area MA
AM6a*	St. Paul's College Primary School	Building facing Works Area I
AM7a*	Hill Court	Building facing Works Area J
AM9a^	No. 28 Sai Woo Lane	Building facing Works Area N1
Noise		
CN1	Chee Sing Kok Social Centre of the Humanity Love (current name for the premise)	Adjacent to building and facing Works Area MA
CN2	Hong Kong Institute of Vocational Education (Tsing Yi) Kennedy Town Centre	Building facing Works Area A
CN3	Lui Ming Choi Primary School	Building facing Works Area B
CN4	Luen Tak Apartments	Building facing Works Area C

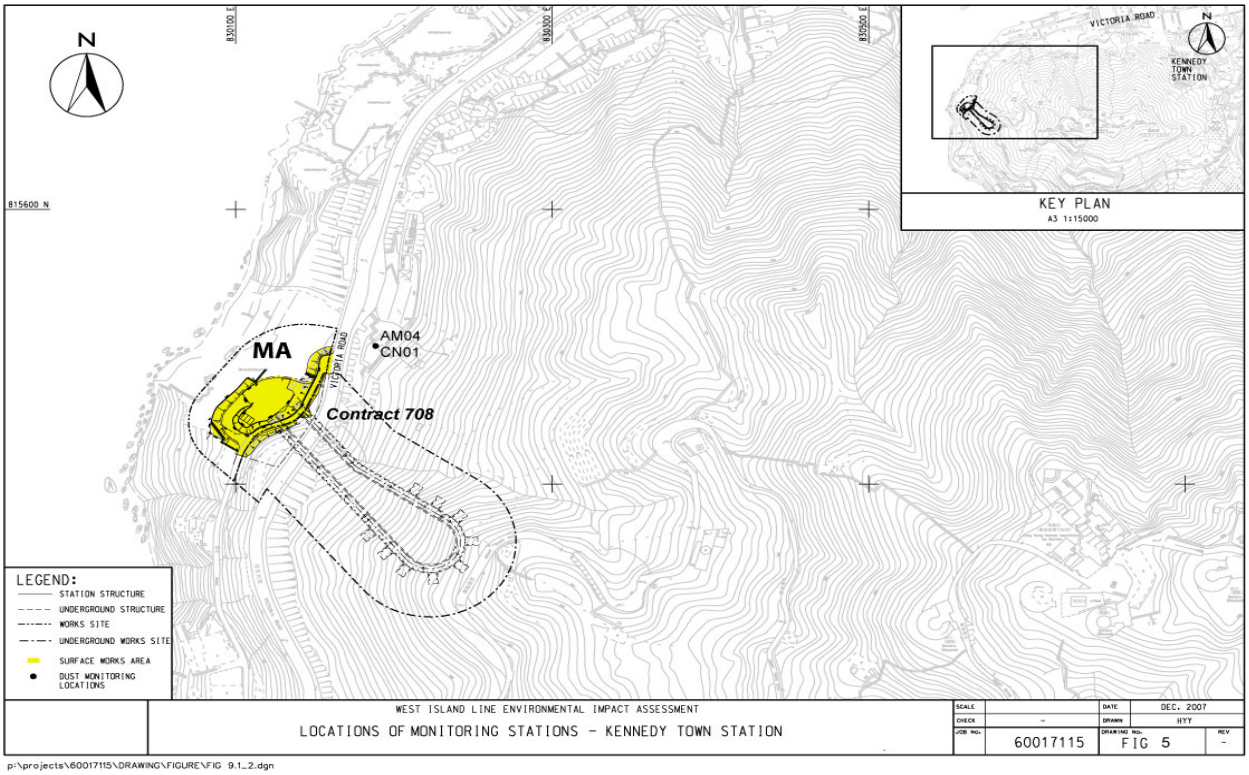
ID	Premise	Monitoring Location (Active)
CN6	Yick Fung Garden (Block A)	Building facing Works Area G
CN8	St. Paul's College Primary School	Building facing Works Area I
CN9	Hill Court	Building facing Works Area J
CN13	No. 18-20 Eastern Street	Building facing Works Area N1
CN17	No. 1 Third Street	Building facing Works Area M
CN21	The Merton (Block 2)	Building facing Works Area B

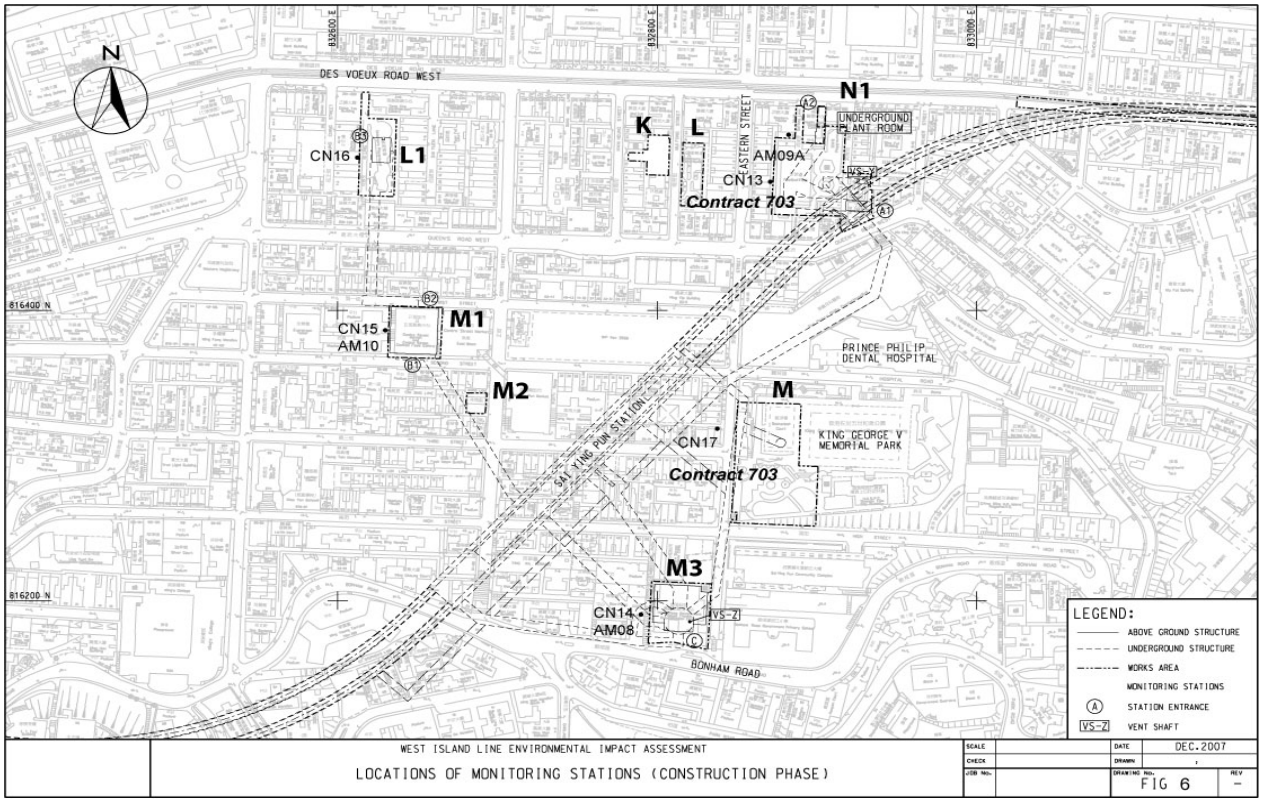
* The alternative air monitoring stations AM3a, AM6a and AM7a were approved by EPD on 10 August 2009

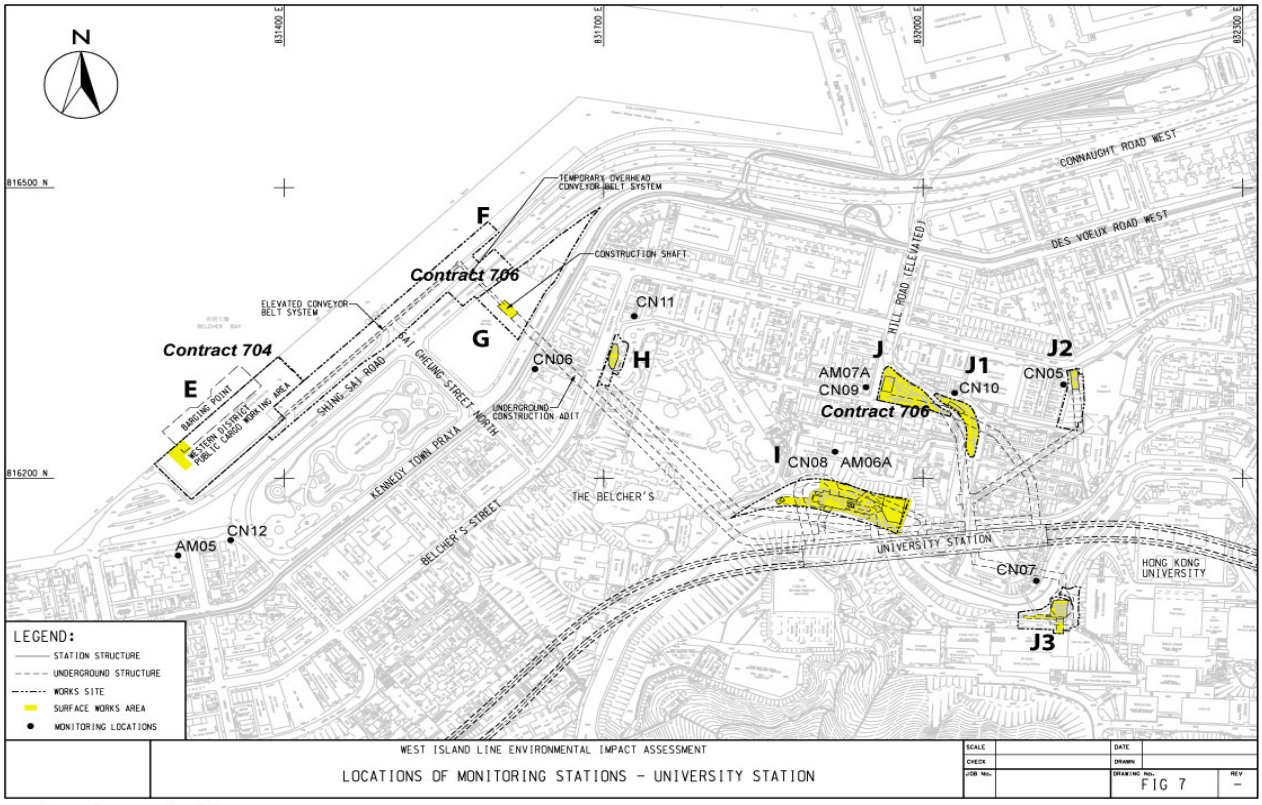
^The alternative air monitoring station AM9a was approved by EPD on 26 November 2009

+The alternative air monitoring station AM1a proposal was submitted to EPD on 11 May 2010




N
835100 E
836200 E
835500
815600 N
MA
AM04
CN01
VICTORIA ROAD
Contract 708
KEY PLAN
A3 1:15000
KENNEDY TOWN STATION
LEGEND:
STATION STRUCTURE
UNDERGROUND STRUCTURE
WORKS SITE
UNDERGROUND WORKS SITE
SURFACE WORKS AREA
DUST MONITORING LOCATIONS
LIC2
15:51:33
2008-8-13
WEST ISLAND LINE ENVIRONMENTAL IMPACT ASSESSMENT
LOCATIONS OF MONITORING STATIONS - KENNEDY TOWN STATION
SCALE
CHECK
JOB No.
60017115
DATE
DEC. 2007
DRAWN
HYY
DRAWING No.
FIG 5
REV
p:\projects\60017115\DRAWING\FIGURE\FIG 9.1_2.dgn


N
832600 E
832800 E
833000 E
DES VOEUX ROAD WEST
CN16
L1
K
L
EASTERN STREET
N1
UNDERGROUND PLANT ROOM
AM09A
CN13
VS-Y
Contract 703
816400 N
CN15
AM10
M1
M2
M
PRINCE PHILIP DENTAL HOSPITAL
SAI YING PUN STATION
CN17
KING GEORGE V MEMORIAL PARK
Contract 703
M3
816200 N
CN14
AM08
VS-Z
BONHAM ROAD
LEGEND:
ABOVE GROUND STRUCTURE
UNDERGROUND STRUCTURE
WORKS AREA
MONITORING STATIONS
STATION ENTRANCE
VENT SHAFT
WEST ISLAND LINE ENVIRONMENTAL IMPACT ASSESSMENT
LOCATIONS OF MONITORING STATIONS (CONSTRUCTION PHASE)
SCALE
CHECK
JOB No.
DATE
DEC.2007
DRAWN
DRAWING No.
FIG 6
REV



2.3 Summary of EM&A Requirements

The EM&A programme requires environmental monitoring for air quality, noise, water quality and waste management as specified in the EM&A Manual.

In the reporting month, 24-hour TSP levels at the air monitoring stations shown in Table 2 were monitored during the construction stage.

In the reporting month, construction noise levels at the noise monitoring stations shown in Table 2 were monitored during the construction stage.

A summary of impact EM&A requirements as applicable to this EM&A Report is presented in Table 3 below.

Table 3 Summary of impact EM&A Requirements

Parameters	Descriptions	Locations	Frequencies	Duration
Air Quality	24-hr TSP	Shown in Table 2	Once every 6 days	During construction stage
Noise	Leq(30min)	Shown in Table 2	Once a week	During construction stage
Waste	On-Site Audit	Active Works Sites	Monthly	During construction stage

Parameters	Descriptions	Locations	Frequencies	Duration
Wastewater	On-Site Audit	Active Works Sites	Monthly	During construction stage
General Site Conditions	Environmental Site Inspection	Active Works Sites	Weekly	During construction stage

Environmental Quality Performance Limits for air quality and noise are shown in Appendix A. The Event Action Plan for air quality and noise are shown in Appendix B.

2.4 Implementation of Environmental Mitigation Measures

The WIL Civil Works Contractors are required to implement the mitigation measures as specified in the EP, EIA Report and EM&A Manual. During the regular environmental site inspections, the Contractors' implementation of mitigation measures were inspected and reviewed. A schedule of the implementation of mitigation measures identified in the WIL EIA is given in Appendix C.

2.5 Construction Activities in the Reporting Month

Major construction activities carried out by the respective WIL Civil Works Contractors during the reporting period include:

Contract 703 - Works Area K/L
- No site work

Contract 703 - Works Area M
- Shaft excavation inside noise enclosure

Contract 703 - Works Area N1
- Diaphragm wall construction

Contract 704 - Works Areas E/G/J2/J3/L1/M2
- Site preparation

Contract 705 - Works Area A
- Site preparation
- Demolition of Building Block A

Contract 705 - Works Area B
- Management of Works Area B

Contract 705 - Works Area C
- Site preparation
- Pipe piling

Contract 706 - Works Area G
- Noise decking installed to cover the shaft excavation area
- Excavation works inside the construction shaft
- Construction shaft completed and handed over to Contract 704

Contract 706 - Works Area I
- Site preparation
- Slope works

Contract 706 - Works Area J
- Noise decking installed to cover the shaft excavation area
- Excavation works inside the construction shaft

Contract 706A - Works Areas A/A1/A2/A3
- Slope works at Works Area A/A1/A2/A3

Contract 708 - Works Area MA
- Construction of tunnel portals
- Tunnel works and E&M works

Contract 714 - Works Area B
- Contract completed

2.6 Construction Activities for the Coming Month

According to the construction programme for the Civil Works Contracts, the scheduled major construction activities in the next reporting month are as follows:

Contract 703 - Works Areas K/L
- No site work

Contract 703 - Works Area M
- Shaft excavation inside noise enclosure
- Shaft excavation by blasting inside noise enclosure

Contract 703 - Works Area N1
- Diaphragm wall construction

Contract 704 - Works Areas E/G/J2/J3/M2
- Site preparation

Contract 704 - Works Areas L1
- Pipe piling

Contract 705 - Works Area A
- Site preparation
- Demolition of Building Block A

Contract 705 - Works Area B
- Management of Works Area B

Contract 705 - Works Area C
- Site preparation
- Pipe piling

Contract 706 - Works Area G
- Construction shaft completed and handed over to Contract 704

Contract 706 - Works Area I
- Site preparation
- Slope works substantially complete and the completed slope will be handed back to the Hillview Garden in end July 2010 which is an entrustment work by the Hillview Garden

Contract 706 - Works Area J
- Noise decking installed to cover the shaft excavation area
- Excavation works inside the construction shaft

Contract 706A - Works Areas A/A1/A2/A3
- Slope work at Works Area A/A1/A2/A3

Contract 708 - Works Area MA
- Construction works substantially complete

Contract 714 - Works Area B
- Contract completed

3 IMPACT MONITORING

3.1 Air Quality

24-Hour TSP Levels Monitoring

The sampling procedure follows that described in the App. B of Pt 50 in 40CFR Ch.1 (U.S. Environmental Protection Agency). TSP is sampled by drawing air through a conditioned, pre-weighed filter paper inside the high volume sampler at a controlled rate. After 24-hour sampling the filter paper with retained particles is collected and returned to the laboratory for drying in a desiccator followed by weighing. TSP levels are calculated from the ratio of the mass of particulate retained on the filter paper to the total volume of air sampled.

The samplers should be properly maintained. Prior to dust monitoring commencing, appropriate checks should be made to ensure that all equipment and necessary power supply are in good working condition.

Calibration Requirements

The flow rate of the high volume sampler with mass flow controller will be calibrated using an orifice calibrator. Initial calibration (five points) will be conducted upon installation and prior to commissioning. Calibration will be carried out every six months. Calibration certificates are attached in Appendix E.

To examine the construction dust levels, 24-hour TSP monitoring was undertaken according to the EM&A Manual. The dust monitoring locations are shown in the Section 2.2 above. Monitoring results are presented in the following table (see Appendix D for graphical plot). The 24-hour TSP levels when there were construction activities during the monitoring period were

within the Action Level. No exceedance was found. This indicates that the construction activities did not have a noticeable adverse effect on the general air quality for the works areas.

Monitoring schedules are shown in Appendix F.

In addition, air baseline check for monitoring station AM6a was conducted on Sunday when no construction activities were carried out in the vicinity. It is observed that there is no significant deviation from the air baseline level obtained during the baseline monitoring before commencement of construction work.

AM1a- Kwun Lung Lau Block 1+					
Date	TSP (μg/m3)	Action Level (μg/m3)	Limit Level (μg/m3)	Compliance (Yes/No)	Weather Condition
10/06/2010	161.7	170	260	Yes	Rainy
15/06/2010	162.9	170	260	Yes	Fine
21/06/2010	60.5	170	260	Yes	Fine
26/06/2010	54.3	170	260	Yes	Rainy
02/07/2010	59.6	170	260	Yes	Fine
08/07/2010	53.4	170	260	Yes	Fine
AM2- Victoria Public Mortuary					
10/06/2010	54.7	155	260	Yes	Rainy
15/06/2010	37.6	155	260	Yes	Fine
21/06/2010	65.5	155	260	Yes	Fine
26/06/2010	65.8	155	260	Yes	Rainy
02/07/2010	57.4	155	260	Yes	Fine
08/07/2010	58.9	155	260	Yes	Fine
AM3a- Hong Kong Institute of Vocational Education (Tsing Yi) Kennedy Town Centre*					
10/06/2010	132.7	155	260	Yes	Rainy
15/06/2010	35.1	155	260	Yes	Fine
21/06/2010	125.9	155	260	Yes	Fine
26/06/2010	128.3	155	260	Yes	Rainy
02/07/2010	54.6	155	260	Yes	Fine
08/07/2010	153.5	155	260	Yes	Fine
AM4- Chee Sing Kok Social Centre of the Humanity Love					
10/06/2010	88.7	158	260	Yes	Rainy
15/06/2010	36.4	158	260	Yes	Fine
21/06/2010	96.0	158	260	Yes	Fine
26/06/2010	35.3	158	260	Yes	Rainy
02/07/2010	56.1	158	260	Yes	Fine
08/07/2010	50.2	158	260	Yes	Fine
AM6a- St. Paul's College Primary School*					
10/06/2010	104.9	157	260	Yes	Rainy
13/06/2010@	57.2	157	260	Yes	Fine
15/06/2010	89.3	157	260	Yes	Fine
21/06/2010	124.1	157	260	Yes	Fine
26/06/2010	44.9	157	260	Yes	Rainy
02/07/2010	51.5	157	260	Yes	Fine
08/07/2010	127.1	157	260	Yes	Fine
AM7a- Hill Court*					

10/06/2010	49.0	151	260	Yes	Rainy
15/06/2010	54.1	151	260	Yes	Fine
21/06/2010	56.0	151	260	Yes	Fine
26/06/2010	52.4	151	260	Yes	Rainy
02/07/2010	62.1	151	260	Yes	Fine
08/07/2010	57.1	151	260	Yes	Fine
AM9a- No.28 Sai Woo Lane^					
10/06/2010	166.3	168	260	Yes	Rainy
15/06/2010	38.7	168	260	Yes	Fine
21/06/2010	55.4	168	260	Yes	Fine
26/06/2010	60.9	168	260	Yes	Rainy
02/07/2010	60.8	168	260	Yes	Fine
08/07/2010	46.3	168	260	Yes	Fine

*The alternative air monitoring stations AM3a, AM6a and AM7a were approved by EPD on 10 August 2009
^The alternative air monitoring station AM9a was approved by EPD on 26 November 2009
+The alternative air monitoring station AM1a proposal was submitted to EPD on 11 May 2010
@Baseline Check

3.2 Noise

B&K 2236 sound level meters which complied with the International Electrotechnical Commission Publication 651:1979 (Type 1) and 804:1985 (Type 1), specification as referred to in the Technical Memoranda to the NCO were used for the construction noise impact monitoring. The B&K sound level meters and B&K 4231 calibrator are verified by the certified laboratory or manufacturer once every two years to ensure they perform to the same level of accuracy as stated in the manufacturer's specifications. Calibration certificates are attached in Appendix E.

Immediately prior to and following each set of measurements at any NSR, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. If the calibration levels before and after the measurement differ by more than 1.0dB the measurement shall be repeated to obtain a reliable result (note: maximum deviation during this initial baseline monitoring period was 0.3dB). Periods of prolonged or repeated overloading of the sound level meter detector were avoided by setting the meter with adequate headroom prior to commencing measurements. Measurements were recorded to the nearest 0.1 dB, with values of 0.05 being rounded up.

Impact noise monitoring of $L_{A,eq30}$ was undertaken to measure construction noise levels in accordance with the EM&A Manual. The noise monitoring locations are shown in Section 2.2 above.

Monitoring results are presented in the following table (see Appendix D for graphical plot). No exceedance was found. Monitoring schedules are shown in Appendix F.

In addition, noise baseline checks for monitoring station CN8 was conducted during noon time when no construction work was carried out in the vicinity. It is observed that there is no significant deviation from the noise baseline level obtained during the baseline monitoring before commencement of construction work.

CN1- Chee Sing Kok Social Centre of the Humanity Love					
Date	Time	Leq(dBA)	Limit Level (dBA)	Compliance (Yes/No)	Weather Conditions
17/06/2010	15:13	69.2	75	Yes	Fine, wind<2m/s
24/06/2010	09:55	70.3	75	Yes	Cloudy, wind<2m/s
02/07/2010	10:12	69.4	75	Yes	Fine, wind<2m/s
08/07/2010	10:10	69.9	75	Yes	Fine, wind<2m/s
CN2- Hong Kong Institute of Vocational Education (Tsing Yi) Kennedy Town Centre					
17/06/2010	16:01	67.9	70	Yes	Fine, wind<2m/s
24/06/2010	13:30	69.7	70	Yes	Cloudy, wind<2m/s
02/07/2010	13:44	69.8	70	Yes	Fine, wind<2m/s
08/07/2010	13:55	67.2	70	Yes	Fine, wind<2m/s
CN3- Lui Ming Choi Primary School					
17/06/2010	09:25	67.3	70	Yes	Fine, wind<2m/s
22/06/2010	10:00	66.4	70	Yes	Fine, wind<2m/s
28/06/2010	10:15	67.0	70	Yes	Cloudy, wind<2m/s
05/07/2010	10:30	67.2	70	Yes	Fine, wind<2m/s
CN4 - Luen Tak Apartments					
11/06/2010	09:45	74.0	75	Yes	Fine, wind<2m/s
17/06/2010	10:10	71.0	75	Yes	Fine, wind<2m/s
22/06/2010	10:55	71.2	75	Yes	Fine, wind<2m/s
28/06/2010	11:20	72.5	75	Yes	Cloudy, wind<2m/s
05/07/2010	10:20	74.1	75	Yes	Fine, wind<2m/s
CN6- Yick Fung Garden (BlockA)					
17/06/2010	11:23	74.7	75	Yes	Fine, wind<2m/s
22/06/2010	11:15	73.8	75	Yes	Fine, wind<2m/s
29/06/2010	09:20	73.3	75	Yes	Fine, wind<2m/s
06/07/2010	11:30	74.0	75	Yes	Fine, wind<2m/s
CN8- St. Paul's College Primary School					
14/06/2010@	12:00	63.9	70	Yes	Fine, wind<2m/s
15/06/2010	10:05	69.7	70	Yes	Fine, wind<2m/s
22/06/2010	09:45	68.7	70	Yes	Fine, wind<2m/s
29/06/2010	10:10	68.3	70	Yes	Fine, wind<2m/s
06/07/2010	10:15	68.3	70	Yes	Fine, wind<2m/s
CN9- Hill Court					
15/06/2010	09:11	73.2	75	Yes	Fine, wind<2m/s
22/06/2010	09:00	74.1	75	Yes	Fine, wind<2m/s
29/06/2010	09:25	73.4	75	Yes	Fine, wind<2m/s
07/07/2010	09:10	74.1	75	Yes	Fine, wind<2m/s
CN13- No. 18-20 Eastern Street					
15/06/2010	13:05	74.5	75	Yes	Fine, wind<2m/s
23/06/2010	15:25	74.9	75	Yes	Cloudy, wind<2m/s
02/07/2010	13:10	73.9	75	Yes	Fine, wind<2m/s
09/07/2010	13:25	74.8	75	Yes	Fine, wind<2m/s
CN17- No.1 Third Street					
15/06/2010	13:45	73.2	75	Yes	Fine, wind<2m/s
23/06/2010	16:15	72.6	75	Yes	Cloudy, wind<2m/s
02/07/2010	16:05	74.2	75	Yes	Fine, wind<2m/s
09/07/2010	16:10	73.9	75	Yes	Fine, wind<2m/s
CN21- The Merton (Block 2)					
11/06/2010	11:30	71.8	75	Yes	Fine, wind<2m/s

18/06/2010	11:30	69.6	75	Yes	Fine, wind<2m/s
25/06/2010	14:55	70.5	75	Yes	Fine, wind<2m/s
30/06/2010	10:10	67.6	75	Yes	Fine, wind<2m/s
05/07/2010	11:18	71.1	75	Yes	Fine, wind<2m/s

@Baseline Check

3.3 Action taken in Event of Exceedence

There was no exceedance in air quality and noise monitoring parameters recorded in the reporting period, therefore no action was taken.

4 LANDSCAPE AND VISUAL

4.1 Monitoring Requirements

Monitoring of the implementation of the landscape and visual mitigation measures during construction phase was conducted in accordance with the requirements as stipulated in the EM&A Manual.

The landscape and visual monitoring and audit will be conducted once a month throughout the construction stage covering the entire project site areas.

4.2 Audit Results

Monthly monitoring and audit was undertaken in accordance with the EM&A Manual.

Tree Felling at Contract 703 Works Area L

15 nos. of trees were removed in accordance with the approved Tree Removal Application during the site clearance work as mentioned in the EM&A Report for October 2009.

Tree Felling at Contract 703 Works Area M

11 nos. of trees were removed in accordance with the approved Tree Removal Application during the site clearance work as mentioned in the EM&A Report for October 2009.

Tree Felling at Contract 703 Works Area N1

29 nos. of trees were removed in accordance with the approved Tree Removal Application during the site clearance work as mentioned in the EM&A Report for October 2009.

Tree Felling at Contract 704 Works Area L1

19 nos. of trees were removed in accordance with the approved Tree Removal Application during the site clearance work as mentioned in the EM&A Report for June 2010.

Tree Felling at Contract 704 Works Area I

42 nos. of trees were removed in accordance with the approved Tree Removal Application during the site clearance work as mentioned in the EM&A Report for June 2010.

Tree Felling at Contract 705 Works Area C

31 nos. of trees were removed in accordance with the approved Tree Removal Application during the site clearance work as mentioned in the EM&A Report for March 2010. 6 nos. of trees were removed during the site clearance work as mentioned in the EM&A Report for June 2010.

Tree Felling at Contract 706 Works Area G

4 nos. of trees were removed in accordance with the approved Tree Removal Application during the site clearance work as mentioned in the EM&A Report for September 2009.

Tree Felling at Contract 706 Works Area J

16 nos. of trees were removed in accordance with the approved Tree Removal Application during the site clearance work as mentioned in the EM&A Report for September 2009.

Tree Felling at Contract 708 Works Area MA

107 nos. of trees were removed in accordance with the approved Tree Removal Application during the site clearance work as mentioned in the EM&A Report for September 2009.

Tree Felling at Contract 714 Works Area B

2 nos. of trees were removed in accordance with the approved Tree Removal Application during the site clearance work as mentioned in the EM&A Report for October 2009.

Tree Transplantation in past reporting periods

7 nos. of trees were transplanted from Works Area J to the Receptor Sites at Sheung Wan Pumping Station site (4nos.), Junction of Shing Sai Road/New Praya (2 nos.) and Shing Sai Road (1 no.) in accordance with the approved Tree Removal Application. In the approved Tree Removal Application, 5nos. of trees were approved to be transplanted in Works Area J, 2 nos. additional trees were transplanted in response to the request made by LCSD with a view to preserving the landscape resources as much as practicable.

In addition, 2nos. of trees from Works Area C and 6nos. of trees from Works Area J3 were transplanted to the Receptor Site at Sheung Wan Pumping Station site in accordance with the approved Tree Removal Application. The tree transplanting works for these two works areas were carried out prior to the construction contracts award.

3 nos. of trees were transplanted from Works Area N1 to the Receptor Sites at Sheung Wan Pumping Station site, road side planter at Shing Sai Road and Connaught Road West. 1 no. of tree was transplanted from Works Area L to the Receptor Site at road side planter at Connaught Road West. 14 nos. of trees were transplanted within the park area for Works Area M.

11 nos. of trees were transplanted from Works Area C to the Receptor Site at the road side planter at Shing Sai Road.

20 nos. of trees were transplanted from Works Area I to the Receptor Site at Shing Sai Road/Pok

Fu Lam Road Playground and CEDD's GMP sites. 17 nos. of trees were transplanted from Works Area L1 to the CEDD's GMP sites. 2 nos. of trees were transplanted from Works Area G to the Receptor Site at Shing Sai Road.

Tree Transplantation in this reporting period

There was no tree transplant carried out in the reporting period.

The Certified Arborist as required by the EP has conducted inspections and audits and found that the transplanting works and the tree protection works being carried out by the civil works and transplanting contractors were in accordance with the EP/EIA, Tree Protection Plan and contract requirements. No non compliance was identified in the reporting period. Monthly inspection record for June 2010 is attached in Appendix G.

Others

In accordance with EP Condition 2.8, the two individual plants, *Pavetta hongkongensis* located at the Works Area MA shall be transplanted.

It was identified that only one of the plant as mentioned above require transplanting and the other can be retained at its original location.

With consent from AFCD on the proposed method statement for transplanting the plant and protecting the retained plant, the plant was transplanted to a nearby location with similar habitat in September 2009 as agreed by AFCD and supervised by the Certified Arborist. The retained plant was properly protected in accordance with the agreed method.

The existing trees and species of conservation importance (ie the two identified *Artocarpus hypargyreus*) located near the Works Area MA were fenced off and the trunk protected with hessian sacking.

In addition, the tree (no. BT049A) at Pok Fu Lam Road which was originally proposed for transplant was toppled by Typhoon Koppu on 14 September 2009 and was removed by LCSD. Access to this site had not been given to MTR and no work had been carried out to the tree. This incident will be included in the revised Tree Protection Plan accordingly.

The ET had reminded the ER and the civil works contractors to implement appropriate tree protection measures to ensure tree stability for the coming typhoon season.

5 WASTE MANAGEMENT

Mitigation measures on waste management have been implemented in accordance with the Waste Management Plans for the respective civil works contracts submitted under the Environmental Permit. The C&D materials are to be disposed of at the public filling reception facilities while C&D wastes are to be disposed of at the landfills. Quantities of wastes disposed in the reporting period are summarized in the following table:

Amount of Construction Wastes Disposed			
Reporting Period	**Inert C&D Materials to Public Fill (ton)**	**Non-inert Waste to Landfill (ton)**	**Chemical Waste to designated treatment facility (litre)**
Contract 703			
Aug – Sep 2009	305.1	5.9	0
Oct – Dec 2009	4158.4	51.1	0
Jan – Mar 2010	7855.6	86.8	0
Apr 2010	1806.6	14.4	0
May 2010	4610.9	16.0	0
June 2010	4583.3	40.8	0
Cumulative	23319.9	215.0	0
Contract 704			
Apr 2010*	799	77	0
May 2010	1692.1	38.2	0
June 2010	770.0	80.1	0
Cumulative	3261.1	195.3	0
Contract 705			
Dec 2009	0	0	0
Jan – Mar 2010	826	67	0
Apr 2010	440	18	125kg^
May 2010	707	8	0
June 2010	2999	28	400
Cumulative	4972	121	400
Contract 706			
Jul – Sep 2009	1746.6	12.7	0
Oct – Dec 2009	5641.3	10.4	200
Jan – Mar 2010	13633.9	54.9	0
Apr 2010	6760.8	8.7	0
May 2010	7890.3	13.0	0
June 2010	6557.7	50.9	0
Cumulative	42230.6	150.6	200
Contract 706A			
Dec 2009	0	0	0
Jan – Mar 2010	8238.6	96.2	0
Apr 2010	390	1677	0
May 2010	560.7	13.8	0
June 2010	104.0	33.2	0
Cumulative	9293.3	1820.2	0
Contract 708			
Jul – Sep 2009	0	181	0
Oct - Dec 2009	5698.9	12	0
Jan – Mar 2010	9989.6	12.5	0
Apr 2010	377	47.7	0
May 2010	1634.6	2.9	0

June 2010	729.4	3.7	0
Cumulative	18429.5	259.8	0
Contract 714 (Contract completed in April 2010)			
Jul – Sep 2009	0	42.1	0
Oct - Dec 2009	271.9	161.6	0
Jan – Mar 2010	87.7	124.7	0
Apr 2010	0	0	0
Cumulative	359.6	328.4	0

*Wastes disposal generated from site clearance works
^ACM disposal from buildings demolished in Works Area A

6 WATER QUALITY

Monitoring of the implementation of the water quality mitigation measures during construction phase was conducted in accordance with the requirements as stipulated in the EM&A Manual.

Weekly site inspection will be conducted throughout the construction stage covering the entire project site areas to ensure the recommended mitigation measures are properly implemented.

In the reporting period, the water quality mitigation measures were implemented in accordance with the requirements as stipulated in the EM&A Manual.

Water sample test was conducted for Works Areas C in the reporting period. Results were satisfactory and were in compliance with the requirement under the WPCO licence.

7 CULTURAL HERITAGE

The licensed archaeologist had carried out initial site inspections for Works Area H in June 2010. No archaeological finding was observed.

Archaeological Watching Brief monitoring for Works Area J were conducted in accordance with the approved Archaeological Watching Brief Proposal at Works Area J at two half day site visits per week during the shaft excavation. No archaeological finding was observed.

Archaeological Watching Brief monitoring for Works Area M in accordance with the approved Archaeological Watching Brief Proposal at two half day site visits per week during the excavation completed in the reporting period. No archaeological finding was observed. AMO had been informed of the completion of Archaeological Watching Brief monitoring for this Works Area.

Archaeological Watching Brief monitoring for Works Area M2 completed as mentioned in the EM&A Report for May 2010.

8 RECORD OF ENVIRONMENTAL COMPLAINTS

No public environmental complaint was received in the reporting period. In addition, in the

reporting period, there was a public enquiry received on the Contract 704 site preparation work at Works Area I. The enquiry had been responded accordingly.

A summary of environmental complaints since commencement of construction is shown below:

Reporting Period	Frequency	Cumulative	Nature	Status
10 Aug – 9 Sep 2009	0	0	N/A	N/A
10 Sep – 9 Oct 2009	3	3	Noise	Cases closed
10 Oct – 9 Nov 2009	0	3	N/A	N/A
10 Nov – 9 Dec 2009	4	7	2 nos. - Noise/Air 2 nos. – Noise	Cases closed
10 Dec 2009 – 9 Jan 2010	1	8	Noise/Air	Case closed
10 Jan 2010 – 9 Feb 2010	1	9	Noise	Case closed
10 Feb 2010 – 9 Mar 2010	2	11	1 no. - Noise 1 no. – Dust/Smoke	Cases closed
10 Mar 2010 – 9 Apr 2010	3	14	2 nos. - Noise 1 no. – Dust/Smoke	Cases closed
10 Apr 2010 – 9 May 2010	5	19	3 nos. - Noise 2 nos. – Dust/Smoke	Cases closed
10 May 2010 – 9 Jun 2010	1	20	1 no. – Dust/Smoke	Case closed
10 Jun 2010 – 9 Jul 2010	0	20	N/A	N/A

9 RECORD OF NON-COMPLIANCES

There was no non-compliance identified in the reporting period.

10 NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

No summon or prosecution related to environmental issue was received or made against the Project in the reporting period. A summary of environmental prosecution since commencement of construction is shown below:-

Reporting Period	Frequency	Cumulative	Nature	Status
10 Aug – 9 Nov 2009	0	0	N/A	N/A
10 Nov 2009– 9 Feb 2010	0	0	N/A	N/A
10 Feb 2010 – 9 May 2010	0	0	N/A	N/A
10 May 2010 – 9 Jun 2010	0	0	N/A	N/A
10 Jun 2010 – 9 Jul 2010	0	0	N/A	N/A

11 STATUS OF STATUTORY SUBMISSIONS

11.1 Submissions required under Environmental Permit

A summary of the status of submissions required under the WIL Environmental Permit as of 9 July 2010 is shown below:

EP-313/2008/C Clause No.	Description		Status
1.11	1	Commencement date of construction	submitted on 10 July 2009
2.1 & 2.2	2	Employment of IEC, ET Leader	submitted on 23 June 2009
2.3	3	Contractor Management Organization for Civil Works Contracts 706, 708 and 714	submitted on 24 July 2009
2.3	4	Contractor Management Organization for Civil Works Contract 703	submitted on 14 September 2009 and 6 October 2009
2.3	5	Contractor Management Organization for Civil Works Contracts 705 and 706A	submitted on 22 January 2010
2.3	6	Contractor Management Organization for Civil Works Contract 704	submitted on 16 April 2010
2.5 & 2.7	7	Certified Arborist and Tree Protection Plan	submitted on 24 July 2009 and 5 August 2009
2.5 & 2.7	8	Certified Arborist and Tree Protection Plan – Responses to Comments	submitted on 10 September 2009
2.5 & 2.7	9	Certified Arborist and Tree Protection Plan – Certified Arborist	submitted on 3 November 2009
2.5	10	Certified Arborist	submitted on 22 June 2010
2.6	11	Set up of Community Liaison Groups and designated complaint hotline	submitted on 20 July 2009
2.11.1	12	Archaeological Watching Brief Proposal	submitted on 31 August 2009
2.11.1	13	Revised Archaeological Watching Brief Proposal	submitted on 23 September 2009
2.11.1	14	Revised Archaeological Watching Brief Proposal	submitted on 16 October 2009
2.12	15	Waste Management Plans for Civil Works Contracts 706, 708 and 714	submitted on 24 July 2009
2.12	16	Revised Waste Management Plans for Civil Works Contracts 706, 708 and 714	submitted on 7 September 2009
2.12	17	Revised Waste Management Plans for Civil Works Contracts 706, 708 and 714	submitted on 16 October 2009
2.12	18	Waste Management Plan for Civil Works Contract 703	submitted on 2 December 2009
2.12	19	Revised Waste Management Plan for Civil Works Contract 703	submitted on 14 January 2010
2.12	20	Waste Management Plan for Civil Works Contract 706A	submitted on 22 January 2010
2.12	21	Waste Management Plan for Civil Works Contract 705	submitted on 5 February 2010
3.1.1(a) & 2.4	22	Works Area B programme, site layout plan and drawings of mitigation measures	submitted on 23 June 2009
3.1.1(a)	23	Remediation Report for Works Area B	submitted on 10 June 2009
3.1.2(a) & 3.1.2(b)	24	Appointment of ISC and certification of additional concrete paving for the small western portion of Works Area B occupied by HyD Depot	submitted on 13 July 2009 and 25 August 2009
3.1.2(a) & 3.1.2(b)	25	Appointment of ISC and certification of additional concrete paving for Works Area B for WIL Project	submitted on 30 October 2009
6.3	26	Baseline Monitoring Report (Part 1) for	submitted on 10 July 2009

		Works Area B	
6.3	27	Baseline Monitoring Report (Part 2) for Works Area MA	submitted on 12 August 2009
6.3	28	Baseline Monitoring Report (Part 3) for Works Areas G and J	submitted on 28 August 2009
6.3	29	Baseline Monitoring Report (Part 4) for Works Areas M and N1	submitted on 9 October 2009
6.3	30	Baseline Monitoring Report (Part 5) for Works Area I	submitted on 8 December 2009
6.3	31	Baseline Monitoring Report (Part 6) for Works Area C	submitted on 10 February 2010
6.3	32	Baseline Monitoring Report (Part 7) for Works Areas C and D	submitted on 15 April 2010
6.3	33	Baseline Monitoring Report (Part 7) Rev A for Works Areas C and D	submitted on 11 June 2010
6.3	34	Baseline Monitoring Report (Part 8) for Works Area A	submitted on 23 April 2010
6.3	35	Baseline Monitoring Report (Part 8) Rev A for Works Area A	submitted on 15 June 2010
6.3	36	Baseline Monitoring Report (Part 9) for Works Area L1	submitted on 7 July 2010
6.4	37	EM&A Report for September 2009	submitted on 23 September 2009
6.4	38	EM&A Report for October 2009	submitted on 23 October 2009
6.4	39	EM&A Report for November 2009	submitted on 23 November 2009
6.4	40	EM&A Report for December 2009	submitted on 23 December 2009
6.4	41	EM&A Report for January 2010	submitted on 22 January 2010
6.4	42	EM&A Report for February 2010	submitted on 25 February 2010
6.4	43	EM&A Report for March 2010	submitted on 23 March 2010
6.4	44	EM&A Report for April 2010	submitted on 23 April 2010
6.4	45	EM&A Report for May 2010	submitted on 24 May 2010
6.4	46	EM&A Report for June 2010	submitted on 24 June 2010
7.2	47	Internet address of web site for environmental monitoring and project data	submitted on 23 September 2009

11.2 Statutory Permits and Licenses

A summary of the status of all relevant environmental permits and licenses as of 9 July 2010 is shown below:

Description	**Status**
Environmental Permit for West Island Line Project (EP-313/2008)	Issued on 12 January 2009 and superseded
Environmental Permit for West Island Line Project (EP-313/2008/A)	Issued on 26 June 2009 and superseded

Environmental Permit for West Island Line Project (EP-313/2008/B)	Issued on 22 July 2009 and superseded
Environmental Permit for West Island Line Project (EP-313/2008/C)	Issued on 31 August 2009
Contract 703	
Wastewater Discharge License	WT00005106-2009 and WT00005108-2009
Registration as a Chemical Waste Producer	Approved on 2 September 2009 Permit no. 5213-113-D2422-01 Permit no. 5213-113-D2422-02 Permit no. 5213-113-D2422-03
Disposal of Construction Waste	Billing Account no. 7009262 activated on 21 August 2009
Construction Noise Permit	GW-RS0867-09 (expired) GW-RS0025-10 (expired) GW-RS0176-10 (expired) GW-RS0086-10 (expired) GW-RS0297-10 (7 Apr – 6 Oct 10) GW-RS0367-10 (11 May – 10 Nov 10) GW-RS0448-10 (31 May – 26 Nov 10) GW-RS0467-10 (9 Jun – 26 Nov 10)
Contract 704	
Wastewater Discharge License	WT00006664-2010, WT00006823-2010 WT00006824-2010, WT00006826-2010, WT00006925-2010, WT00006958-2010 WT00006961-2010 and WT00006962-2010
Registration as a Chemical Waste Producer	Approved on 2 June 2010 Permit no. 5214-111-G2260-03
Disposal of Construction Waste	Billing Account no. 7010555 activated on 8 April 2010
Construction Noise Permit	GW-RS0413-10 (1 Jun – 30 Sep 10) GW-RS0552-10 (27 Jun – 4 Jul 10) GW-RS0572-10 (30 Jun – 20 Dec 10)
Contract 705	
Wastewater Discharge License	WT00006145-2010, WT00006685-2010 and WT00006686-2010
Registration as a Chemical Waste Producer	Approved on 8 February 2010 Permit no. 5213-111-G2347-17
Disposal of Construction Waste	Billing Account no. 7009116 activated on 8 January 2010
Contract 706	
Wastewater Discharge License	WT00004519-2009, WT00004526-2009 and WT00005600-2009
Registration as a Chemical Waste Producer	Approved on 6 October 2009 Permit no. 5213-116-P2781-16

Disposal of Construction Waste	Billing Account no. 7009056 activated on 16 July 2009
Construction Noise Permit	GW-RS0703-09 for using PME for general construction works at Kennedy Town Praya works site was cancelled by EPD on 18 November 2009 GW-RS0174-10 for using PME for general construction works at Kennedy Town Praya works site was cancelled by EPD on 19 May 2010
Contract 706A	
Wastewater Discharge License	WT00005647-2009
Registration as a Chemical Waste Producer	Approved on 17 December 2009 Permit no. 5213-111-F2541-02
Disposal of Construction Waste	Billing Account no. 7009743 activated on 17 November 2009
Contract 708	
Wastewater Discharge License	WT00004902-2009
Registration as a Chemical Waste Producer	Approved on 7 September 2009 Permit no. 5213-111-G2347-08
Disposal of Construction Waste	Billing Account no. 7009116 activated on 12 August 2009
Construction Noise Permit	GW-RS0938-09 (expired) GW-RS0283-10 (1 Apr – 22 Aug 10)
Contract 714	
Wastewater Discharge License	WT00004893-2009
Registration as a Chemical Waste Producer	Approved on 21 September 2009 Permit no. 5213-111-S3305-02
Disposal of Construction Waste	Billing Account no. 7009127 activated on 14 August 2009

12 SITE INSPECTIONS

12.1 Observations

Regular site inspections were undertaken by the ET in accordance with the EM&A Manual. The contractors' performance on environmental matters were assessed. The inspection findings and the associated recommendations on improvement to the environmental protection and pollution control works were raised to the contractors for reference and/ or action.

In addition, the ET carried out night time inspections to Works Areas C, M and N1 in the reporting period in order to check for compliance with the NCO, the results were in general satisfactory with no construction work was observed.

Observations against the implementation of the mitigation measures recommended in the EP/EIA are summarized as follows:

Item	Description	Follow-up Status
	Contract 703	
1	The contractor was reminded to clear stagnant water inside surface channels to avoid mosquito bleeding	Ongoing
2	The contractor was reminded to provide sufficient movable noise barriers to minimize noise nuisance to nearby residents	Improved and the standard to be maintained
3	The contractor was reminded to properly implement wastes sorting	Ongoing
4	No water sample test was conducted in the reporting month	N/A
	Contract 704	
1	The contractor was reminded to properly implement wastes sorting	Ongoing
2	The contractor was reminded to provide sufficient movable noise barriers to minimize noise nuisance to nearby residents during site clearance works	Ongoing
3	No water sample test was conducted in the reporting month	N/A
	Contract 705	
1	The contractor was reminded to properly implement wastes sorting	Ongoing
2	The contractor was reminded to provide sufficient movable noise barriers to minimize noise nuisance to nearby residents	Ongoing
3	The contractor advised that rock crusher will not be adopted in Works Area B and wastewater treatment plant will be used instead of sedimentation tank	Ongoing
4	Water sample test was conducted in the reporting month for Works Area C, results were satisfactory	N/A
	Contract 706	
1	The contractor was reminded to provide sufficient movable noise barriers to minimize noise nuisance to nearby residents and ensure proper implementation of noise mitigation measure for piling rig during operation	Improved and the standard to be maintained
2	The contractor was reminded to prevent muddy site water egress	Ongoing
3	No water sample test was conducted in the reporting month	N/A
	Contract 706A	
1	The contractor was reminded to properly implement wastes sorting	Ongoing
2	The contractor was reminded to provide proper sedimentation tank to treat site water	Ongoing
3	No water sample test was conducted in the reporting month	N/A
	Contract 708	
1	The contractor was reminded to properly protect all the retained trees as per EP/EIA requirements	Ongoing

2	The contractor was reminded to properly implement wastes sorting	Ongoing
3	The contractor was reminded to direct site runoff to the settlement tank for recycling and reuse	Ongoing
4	No water sample test was conducted in the reporting month	N/A
	Contract 714	
1	No water sample test was conducted in the reporting month	Contract Completed

12.2 Other Notable Events

IEC Site Inspections

The IEC conducted site inspections for Works Areas A, A2, A3, C, G, J, M, MA and N1 on 29 June 2010, minor irregularities were observed during the site inspections and the respective civil works contractors had followed up and satisfactorily rectified the issues as identified in the site inspections promptly.

Works Area B

The small western portion of Works Area B had been occupied by Highways Department as a depot upon the completion of the additional concrete paving and certification of the paving design by ISC in accordance with the EP requirements. Monthly inspections on the condition of the additional paving, site drainage and foul sewerage systems had been carried out in accordance with EP Condition 3.2.2. No new crack was found in the reporting period, the surface cracks identified previously had been satisfactorily sealed such that the structural integrity of the additional concrete paving can be maintained.

Community Liaison Groups

The Community Liaison Groups were established on 10 July 2009 in accordance with the EP Condition 2.6. Three CLGs, namely, Sai Ying Pun, University and Kennedy Town have been set up to provide direct communication channel for the local communities to MTR during the construction stage of the Project on the project matters including enquiries and complaints handling on all environmental issues. Members of CLGs include the Central & Western District Councillors, Chairmen of Area Committees, representatives of local groups and government departments. Property management office, schools, and other local committees will be invited to participate in the CLGs. The first CLG meetings had been held in July 2009. The second CLG meetings had been held in October 2009. The third CLG meetings had been held in January 2010. The fourth CLG meetings had been held in April 2010 and the fifth CLG meetings will be held in end July 2010.

In the fourth SYP CLG, enquiry on the potential noise nuisance from blasting at King George V Memorial Park works site was made. It was mentioned that the blasting work was scheduled in July 2010 and there will be one blast per day and the blast will last about several minutes. The noise impact to the nearby residents will be low.

In the fourth UNI CLG, enquiry on whether the trees at the Belcher Street open space would be

retained was made. It was mentioned that an entrance will be constructed at the captioned works site. One tree was transplanted from this work site. MTRCL will liaise with LCSD for the restoration of this public open space.

In the fourth KET CLG, enquiry on the open space affected by the WIL Project was made. It was mentioned that the District Council and MTRCL identified suitable locations in the district for the reprovisioning of public open space. MTRCL will liaise with LCSD for the reprovisioning work.

In addition, a MTR Project hotline at 2993 3333 is in operation for public enquiries on the WIL Project and it also serves as the complaint hotline during the construction stage of the Project.

Revised Technical Note of Re-examination for WIL Hazard to Life

Revision of the WIL hazard assessment results had been carried out based on the new accident frequency adopted in the XRL study and the latest information on actual explosives quantities proposed to be used for the WIL Project. The results were found to be broadly the same and the conclusions that 'the overall risk of storage, transport and use of explosives for the WIL Project lies within the acceptable region' remains unchanged. The Revised Technical Note of Re-examination for WIL Hazard to Life and the EPD response letter are attached in Appendix H.

Proposed Alternative Construction Method for Construction Shaft at King George V Memorial Park

Revised Environmental Review Report was submitted to EPD on 16 July 2010 which concluded that the proposed alternative method for construction of KGV shaft by blasting of rock will not constitute a material change to the WIL Project. Through discussions with the local residents, it is believed that there will be a societal benefit from the local use of explosives for the excavation of hard rock instead of the many months of mechanical breaking and the associated environmental nuisances. The Contract 703 Contractor schedules to commence the rock blasting at KGV works site in early August 2010.

13 FUTURE KEY ISSUES

13.1 Key Issues for the Coming Month

Future key issues envisaged in the coming month include the followings:-

- Disposal of C&D waste;
- Dust generation from site activities;
- Noise impact from operating equipment;
- Site water discharge;
- Chemical wastes;
- Tree protection.

13.2 Solid and Liquid Waste Management Status

Base on the findings of the weekly site inspections, the Contractors' performance in solid and liquid waste management were acceptable and compliance with the EIA requirements were demonstrated. Solid wastes and liquid waste were properly disposed of. The current management standard should be maintained.

13.3 Effectiveness and Efficiency of Mitigation Measures

Based on the environmental monitoring results, the effectiveness and efficiency of the mitigation measures implemented were found to be satisfactory. The current practice should be maintained.

14 CONCLUSIONS

The Report presents the results of EM&A works and the impact monitoring for the construction works undertaken during the period of 10 June 2010 to 9 July 2010. The major construction activities in the reporting period included slope works at Works Areas A/A1/A2/A3, demolition of Building Block A at Works Area A, site preparation and pipe piling at Works Area C, site preparation at Works Areas E/G/J2/J3/L1/M2, shaft excavation inside noise enclosure at Works Area M, diaphragm wall construction at Works Area N1, excavation works inside construction shaft with noise decking installed to cover the shaft excavation area at Works Areas G and J, site preparation and slope works at Works Area I, construction of tunnel portals, tunnel works and E&M works at Works Area MA.

Impact monitoring for air quality and noise were conducted in accordance with the EM&A Manual in the reporting period, no exceedance was found and there was no breach of Limit Levels for air and noise monitoring.

No environmental notification of summon and prosecution was received in the reporting period. No environmental complaint was received in the reporting period.

Site inspections were conducted by the Environmental Team on a weekly basis to monitor proper implementation of environmental pollution control and mitigation measures for the Project. No non-conformance to the environmental requirements was identified by the Environmental Team in the reporting period.

The Environmental Permit (EP-313/2008/C) issued by EPD on 31 August 2009 is being used for the WIL Project.

In the reporting period, there was no reporting change of circumstances which may affect the compliance with the recommendations of the EIA Report.

It is concluded from the environmental monitoring and audit works for the West Island Line Project that the construction works were undertaken in an appropriately environmentally sensitive manner in the reporting period. The environmental protection and pollution control measures provided by the contractors were generally acceptable apart from some minor irregularities which were rectified timely by the respective civil works contractors.

The ET will continue the implementation of the environmental monitoring and audit programme in accordance to the EM&A Manual and to a level consistent with MTRCL's Corporate Sustainability Policy.

Appendix A
Environmental Quality Performance Limits

Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level (μg/m3)	Limit Level (μg/m3)
AM1a	170	260
AM2	155	260
AM3a	155	260
AM4	158	260
AM6a	157	260
AM7a	151	260
AM9a	168	260

Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level (dB(A)), Leq(30min)
0700-1900 hr on normal weekdays	When one documented complaint is received	75*
0700-2300 hr on holidays including Sundays and 1900-2300 hr on all other days		Subject to requirements stipulated in Construction Noise Permits
2300-0700 hr of next day		

* Limit for school is 70 dB(A) and 65 dB(A) during school examination periods.

Appendix B
Event Action Plans

Table 2.4 Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	1. Notify IEC and ER 2. Carry out investigation 3. Report the results of investigation to the IEC and ER 4. Discuss jointly with the ER and Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness	1. Review the analysed results submitted by the ET 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly 3. Supervise the implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals to ER with copy to IEC 2. Implement noise mitigation proposals
Limit Level	1. Notify IEC, ER, EPD and Contractor 2. Identify source 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, EPD the causes and actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results 8. If exceedance stops, cease additional monitoring	1. Discuss amongst ER, ET and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly 3. Supervise the implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to ER with copy to IEC 3. Implement the agreed proposals 4. Revise and resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Table 9.4 Event and Action Plan for Ambient Air Quality Monitoring (Construction)

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of complaint and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and ER (together with the Contractor) on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and ER (together with the Contractor) on possible remedial measures; 4. Advise the ET/ER on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial to ER within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC, ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and ER (together with the Contractor) on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ER with a copy to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ER with a copy to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Revise and resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix C
Implementation of Environmental Mitigation Measures

Table C1 Project Implementation Schedule for All Works Areas (Status as of 9 July 2010)

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
Airborne Noise Impact (Construction Phase)							
S 3.55	S 2.23	The following good site practices shall be implemented: - Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program - Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program - Mobile plant, if any, shall be sited as far from NSRs as possible - Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum - Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs - Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	To reduce construction noise impact	MTRC / Contractor	All works areas	Construction phase	Being implemented
S 3.56-3.57, Table 3.10	S 2.23	Quieter plant shall be used for the following PME: - Truck - Crane/ Mobile Crane - Backhoe/Excavator/Wheel Loader/ Front-end-loader - Breaker - Concrete Mixer Truck - Pokers, vibratory, hand held - Pile Extractor - Roller, vibratory - Asphalt Paver - Hydraulic Breaker	To reduce construction noise impacts	MTRC / Contractor	All works areas	Construction phase	Being implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		- Pile Rig - Crawler Crane - Sheet Pilling Machine/ Piling, Hydraulic					
S 3.58-3.59	S 2.23	Movable noise barrier shall be used for the following PME where practicable: - Breaker - Mini Backhoe - Generator, super silenced - Backhoe - Crane - Poker, vibratory, hand-held - Hydraulic Breaker - Wheel Loader - Crusher - Hand Held Breaker - Compressor - Grout Plant - Grout Mixer - Concrete Pump - Excavator - Lorry Crane - Mobile Crane - Crawler Crane	To reduce construction noise impacts	MTRC / Contractor	Works areas A, C, D, H, I, J, J1, L1, M1, N1, M3, O1, O2 and O3.	Construction phase	Being implemented
S 3.60	S 2.23	Noise enclosure/acoustic shed shall be used for the following PME where practicable: - Air Compressor - Concrete Pump - Shotcrete Pump - Hand Held Breaker - Grout Pump - Concrete Corer	To reduce construction noise impacts	MTRC / Contractor	All works areas	Construction phase	Being implemented
S 3.61	S 2.23	Acoustic Enclosure shall be used for enclosing the rock drill as fully as possible.	To reduce construction noise	MTRC / Contractor	Works areas H,	Construction phase	To be implemented as per construction

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
			impacts		N1 and M		programme
S 3.62	S 2.23	Noise insulating cover shall be used to cover the following PME: - Breaker - Backhoe - Water pump, submersible (electric) - Crawler mounted rock drill trucks - Rock drill - Air compressor - Electric Winch - Concrete pump - Poker, vibratory, hand-held - Hand Held Breaker - Crane - Shotcrete pump	To reduce construction noise impacts	MTRC / Contractor	Works areas J1, N1, M1 and M3	Construction phase	Being implemented
S 3.63	S 2.23	Silencer shall be used for the ventilation fan	To reduce construction noise impacts	MTRC / Contractor	Works areas MA, A, C, D, G, H, I, J, J1, J2, J3, L1, M, M1, M3, N1, O1, O2 and O3.	Construction phase	Being implemented
S 3.64	S 2.23	Noise insulating fabric shall be applied where practicable to cover the following PME: - Pile Rig - Drill rig - Pile Extractor - Power Rammer - Pilling, earth auger - Piling, hydraulic	To reduce construction noise impacts	MTRC / Contractor	Works areas MA, C, D, G, H, I, J, J1, J2, J3, L1, M, M1, M3, N1, O1, O2 and O3.	Construction phase	Being implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		- Sheet Piling Machine					
S 3.65	S 2.23	Use of "Noise Control Curtain" - a noise insulating fabric to be mounted on the steel scaffold erected on the buildings to be demolished to an extent such that the line of sight between the noise source and NSR would be blocked	To reduce construction noise impacts	MTRC / Contractor	Works area A	Construction Phase – during the demolition of Block A & C of Kennedy Town Ex-Police Quarter	To be implemented as per construction programme
S 3.67-3.70, Figure 3.17 and 3.18.	S 2.23	Temporary noise barriers shall be erected at the works areas of West of KET Station and SYP Entrance A1 & A2.	To reduce construction noise impacts	MTRC / Contractor	Works areas C and N1	Construction phase	To be implemented as per construction programme
S 3.71	S 2.23	Decking over would be provided to cover the excavation area.	To reduce construction noise impacts	MTRC / Contractor	Works areas J, J3, G and L1	Construction phase	Being implemented at Works Area J, completed for Works Area G
S3.72	S 2.23	Full enclosure of entire works area	To reduce construction noise impacts	MTRC / Contractor	Works area J2	Construction Phase (after piling is completed)	To be implemented as per construction programme
S3.73 –	S 2.23	Use of concrete crusher instead of hydraulic breaker	To reduce construction noise	MTRC /	Works area J2,	Construction	To be implemented as

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
3.74			impacts	Contractor	M1 and M3	Phase	per construction programme
Airborne Noise Impact (Operation Phase)							
S 3.50-3.51, Table 3.9	Appendix B	The maximum permissible sound power levels (Max SWLs) for the fixed plant shall be complied with during the selection of equipment and mitigation measures.	To comply with the noise criteria of Noise Control Ordinance	MTRC / Contractor	Vent shafts and chiller plants at KET Station, UNI Entrance C1 and SYP Entrance C, and vent shafts at KET Ex-Police Quarter, UNI Vent Shaft-Y and SYP Entrance A1&A2.	Design and operation phases	To be implemented in operation phase
S 3.77	Appendix A	The following shall be considered as far as possible in the detailed design of fixed plant: - Choose quieter plant such as those which have been effectively silenced. - Include noise levels specification when ordering new plant (including chiller and E/M equipment).	To comply with the noise criteria of Noise Control Ordinance	MTRC / Contractor	Vent shafts and chiller plants at KET Station, UNI	Design and operation phases	To be implemented in operation phase

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		- Locate fixed plant/louver away from any NSRs as far as practicable. - Locate fixed plant in walled plant rooms or in specially designed enclosures. - Locate noisy machines in a basement or a completely separate building. - Install direct noise mitigation measures including silencers, acoustic louvers and acoustic enclosure where necessary.			Entrance C1 and SYP Entrance C, and vent shafts at KET Ex-Police Quarter, UNI Vent Shaft-Y and SYP Entrance A1&A2.		
Groundborne Noise Impact							
S4.91	S3.1	Ground-borne construction noise monitoring shall be conducted. The measurement locations shall be above the cutting face of the TBM, and shall be located as close to the cutting face as practicable.	To comply with the noise criteria of Noise Control Ordinance	MTRC / Contractor	Works areas of tunneling by TBM	Construction phase	To be implemented as per construction programme
S 4.88 & Table 4.10	S 3.2	Type 1a Trackform – Resilient Baseplate with stiffness of about 25 KN/mm shall be installed at both the west- and east-bounds starting from turnout in proximity of Hongway Garden towards the Sai Ying Pun Station and also the alignment under Po Shu Lau to Sai Wan Estate. A commissioning test shall be included in the Contract document in order to ensure compliance of the operational ground-borne noise criteria.	To comply with the noise criteria of Noise Control Ordinance	MTRC	Tunnel alignment	Operation phase	To be implemented as per construction programme
Landscape and Visual Impact (Construction Phase)							

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
Table 5.4	Table 4.2	Re-use of Existing Soil Existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. ▪	To reduce the volume of soil for disposal	MTRC / Contractor	All Works areas	Construction phase	Being Implemented
Table 5.4	Table 4.2	No-intrusion Zone To maximize protection to existing trees, ground vegetation and the associated understory habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should close monitor and restrict the site working staff not to enter the “no-intrusion zone”, even for non-direct construction activities and storage of equipment.	To protect the existing trees, ground vegetation and the associated understory habitats.	MTRC / Contractor	All Works areas	Construction phase	Being Implemented
Table 5.4	Table 4.2	Decorative Hoarding Erection of decorative screen hoarding should be designed to be compatible with the existing urban context.	To reduce visual impact due to construction	MTRC / Contractor	All Works areas	Construction phase	Being Implemented
Table 5.4	Table 4.2	Minimize light pollution and control of night-time glare All security floodlights for construction sites shall be equipped with adjustable shield, frosted diffusers and reflective covers, and be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC users. The Contractor shall consider other security measures which shall minimize the visual impacts.	To minimize the visual impacts.	MTRC / Contractor	All Works areas	Construction phase	Being Implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
Table 5.4	Table 4.2	Aesthetic design of the conveyor belt system The removal of excavated material requires installation of a conveyor and a barging point. The conveyor will be covered, except the portion where it meets the barging point. The aim of covering or enclosing the conveyor is to avoid noise and air quality issues; however, the conveyor where above-ground should be adequately screened and /or constructed of suitable materials and in colours/tones that minimize visual intrusion.	To minimize the visual intrusion as well as the air and noise quality issues	MTRC / Contractor	Works areas E & F	Construction phase	To be implemented as per construction programme
Table 5.4	Table 4.2	Protection of Retained Trees All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. In addition, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. All implementation of tree protection works and tree preservation measures shall be supervised by a landscape specialist on site.	To protect the retained trees within the site boundary	MTRC / Contractor	All Works areas	Construction phase	Being Implemented
Table 5.4	Table 4.2	Protection of Registered Old and Valuable Trees Detailed tree protection measures as stipulated in WBTC No. 29/2004 – Registration of Old and Valuable Trees, and Guidelines for their Preservation, shall be allowed and included in the Contract	To protect the OVT within the site boundary	MTRC / Contractor	All Works areas	Construction phase	Being Implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		Specification. All implementation of OVT protection measures shall be supervised by a landscape specialist on site.					
Table 5.4	Table 4.2	Protection of Old Stone Wall-cum-trees Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. All implementation of Old stone wall-cum-trees protection measures shall be supervised by a landscape specialist on site.	To protect the existing trees-cum-wall	MTRC / Contractor	All Works areas	Construction phase	Being Implemented
Landscape and Visual Impact (Operation Phase)							
Table 5.5	Table 4.3	Tree Transplanting Trees of high to medium survival rate after transplanting to be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees will be submitted separately to seek relevant government department's approval.	Tree preservation	MTRC / Contractor	All Works areas	Detail design and operation phase	Being Implemented
Table 5.5	Table 4.3	Compensation Tree Planting Compensatory tree planting should be provided to compensate for felled trees. Compensatory tree planting proposal including location of compensation will be submitted separately to seek relevant government department's approval.	To reduce impact to existing trees.	MTRC / Contractor	All Works areas	Detail design and operation phase	Being Implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
Table 5.5	Table 4.3	Aesthetic landscape and architectural treatment on Station / Entrance / vent shaft All station entrances, vent shafts and all above ground structures shall be sensitively designed to ensure the element with colour, texture and tonal quality being compatible to the existing urban context, which shall include tree planting where space permits, to minimize the potential adverse landscape and visual impacts. For example, roof greening and vertical greening would be applied where possible subject to technical operational and maintenance constraints.	To ensure the elements are compatible to the existing urban context and minimize the landscape and visual impacts.	MTRC / Contractor	Stations / Entrances / Vent Shafts	Detail design and operation phase	To be implemented as per construction programme
Table 5.5	Table 4.3	Re-instatement of excavated Area All excavated area and disturbed area for utilities diversion, temporary road diversion, and pipeline woks shall be reinstated to former conditions or even better, to the satisfaction of the relevant Government departments.	To minimize the visual impacts.	MTRC / Contractor	All Works areas	Operation phase	Being implemented
Table 5.5	Table 4.3	Re-provision of public open space Every effort should be made to so that no public open space would be unnecessarily affected by the Project and if affected, they should be reprovided as far as possible and practicable. Sensitive design and reprovision of the affected Public Open Space (Forbes Street Playground, Hill Road Rest Garden, Ki Ling Lane Children's Playground, Mui Fong Street Children Playground, Sai Woo Lane Playground, Centre Street Market Sitting-out Area, King George V Memorial Park) incorporating replacement facilities for those provided at present, using materials of quality suitable for long term use and acceptable to relevant Government authority. Relevant government departments including LCSD and PlanD should be consulted on the design of the reprovisioned public open spaces at the early stage of the design process.	Re-provision of landscape amenity area and facilities	Contractor	All Works areas	Operation phase	To be implemented as per construction programme
Cultural Heritage Impact (Construction Phase)							

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
S6.45, S6.51-6.55	S 5.4 – 5.11	The construction vibration control limits shall be followed. Compliance monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme The location and installation of the monitoring stations should be discussed and agreed with AMO before installation.	To minimize vibration impacts on the identified vibration sensitive historical buildings.	MTRC / Contractor	All Works Areas	Detail design, construction and operational phase	Being implemented
S6.46	S5.3	Hoardings or boundary fencing shall be designed in a manner that responds to the existing urban context.	To minimize visual impacts	MTRC / Contractor	All Works Area	Detailed design and operational phase	Being Implemented
S6.44	S5.12-5.14	Archaeological watching brief shall be conducted for the identification of any historical finds in the directly impacted works areas which might have a potential for finds and remains of archaeological interest to be found. Details of the frequency of inspection shall be provided to AMO for review and comment once the detailed construction programme has been finalized. The inspection should be carried out by the qualified archaeologist who have applied to the Antiquities Authority for a License	To indentify any historical finds in the works areas	MTRC / Qualified Archaeologist	Works Area C, H, I, J, J1, J2, J3, M and M2	Construction phase	Being implemented
Cultural Heritage Impact (Operation Phase)							
Table 6.2	5.3	Aboveground structures shall be designed in a manner that responds to the existing urban context.	To minimize visual impacts	MTRC / Contractor	Stations / Entrances / Vent Shafts	Detail design and operation phase	To be implemented as per construction programme
S6.60	S 5.15	Recommended measures for mitigating operational phase landscape and visual impacts shall be implemented.	To minimize potential visual impact on heritage sites	MTRC / Contractor	Stations / Entrances / Vent Shafts	Detail design and operational phase	To be implemented as per construction programme
Waste Management Implications (Construction Phase)							

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
S7.30	S 6.5	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 - Training of site personnel in proper waste management and chemical handling procedures - Provision of sufficient waste disposal points and regular collection of waste - Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. - Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre.	To reduce waste management impacts	MTRC / Contractor	All works areas	Construction phase	Being implemented
S7.31 & S7.32	S 6.6 – S 6.7	Waste reduction measures - Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals - 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 - Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other	To achieve waste reduction	MTRC / Contractor	All works areas	Construction phase	Being implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		general refuse generated by the work force - Proper storage and site practices to minimise the potential for damage or contamination of construction materials - Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. - A recording system for the amount of wastes generated, recycled and disposed (including disposal sites) should be proposed - Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle. - A Waste Management Plan shall be prepared by the Contractor prior to the commencement of construction work to provide an overall framework for waste management and reduction.					
S7.34 & S7.35	S 6.9 & S6.10	C&D Material - In order to minimise impacts resulting from collection and transportation of C&D material for off-site disposal, the excavated materials arising from station and tunnel construction shall be reused on-site as backfilling material and for landscaping works as far as practicable. - Surplus rock generated from the tunnelling works, shafts/adits construction and the stations cavern construction should be reused in reclamation and site formation projects either in the Mainland or Macau, or disposed of at a PFRF, as agreed with the Secretary of the Public Fill Committee, for other beneficial	To minimize environmental impacts during the handling, transportation and disposal of C&D material	MTRC / Contractor	All works areas	Construction phase	Being implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		uses. - C&D waste generated site clearance from the proposed works areas would require disposal to the designated landfill site. - In order to monitor the disposal of inert C&D material and C&D waste at PFRFs and landfills, respectively, and to control fly-tipping, a trip-ticket system shall be established in accordance with ETWB TCW No. 31/2004. - Material delivered to PFRFs should be of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee.					
S7.36	S 6.11	General refuse - General refuse shall be stored in enclosed bins or compaction units separate from C&D material and chemical wastes. - A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material and chemical wastes. Preferably an enclosed and covered area shall be provided to reduce the occurrence of 'wind blown' light material.	To minimize environmental impacts during the handling, transportation and disposal of general refuse	MTRC / Contractor	All works areas	Construction phase	Being implemented
S7.37	S 6.12	Chemical waste - Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*. - Good quality containers compatible with the chemical wastes shall be used, and incompatible chemicals shall be stored separately.	To minimize environmental impacts during the handling, transportation and disposal of chemical refuse	MTRC / Contractor	All works areas	Construction phase	Being implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		- Appropriate labels shall be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. - The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, either to the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.					
Waste Management Implications (Operation Phase)							
S7.39	S 6.11	General Refuse and Industrial Waste ▪ A reputable waste collector should be employed to remove general refuse and industrial wastes from the stations on a daily basis to minimise odour, pest and litter impacts.	Storage and handling of waste	MTRC	Stations and entrances	Operational stage	Being implemented
S7.40	S 6.12	Chemical Waste ▪ The requirements given in the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes* should be followed in handling of these chemical wastes. ▪ A trip-ticket system should be operated in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation* to monitor all movements of chemical wastes which would be collected by a licensed collector to a licensed facility for final treatment and disposal. ▪ The guidelines covered under the construction phase mitigation of chemical wastes should be referred.	Storage and handling of the chemical waste to avoid environmental and health hazard	MTRC	Stations and entrances	Operational stage	Being implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
Water Quality Impact (Construction Phase)							
S9.31	S 8.4	Construction Site Run-off and Drainage The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed as far as practicable in order to minimise surface runoff and the chance of erosion. The following measures are recommended to protect water quality and sensitive uses of the coastal area i.e. WSD flushing water intakes along the harbour front, and when properly implemented should be sufficient to adequately control site discharges so as to avoid water quality impacts: - At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site shall be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers shall be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system would be undertaken by the contractor prior to the commencement of construction. - The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates	To minimize water quality impacts	MTRC / Contractor	All works areas	Construction phase	Being implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		- Sand/silt removal facilities such as sand/silt traps and sediment basins shall be provided to remove sand/silt particles from runoff to meet the requirements of the TM standards under the WPCO. The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps shall be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flowrate of $0.1m^3/s$ a sedimentation basin of $30m^3$ would be required and for a flow rate of $0.5\ m^3/s$ the basin would be $150m^3$. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction. - All drainage facilities and erosion and sediment control structures shall be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit shall be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times. - Measures shall be taken to minimize the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from foundation excavations shall be discharged into storm drains via silt removal facilities. - If surface excavation works cannot be avoided during the wet season (April to September), temporarily exposed slope/soil surfaces shall be covered by a tarpaulin or other means, as far as practicable, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Interception channels shall be provided (e.g. along the crest/ edge of the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in					

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. Other measures that need to be implemented before, during and after rainstorms are summarized in ProPECC PN 1/94. - The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all trafficked areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows - All vehicles and plant shall be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility shall be provided at every construction site exit where practicable. Wash-water shall have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road shall be paved with sufficient backfill toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. - Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. - 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 drainage system and storm runoff being directed into foul					

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		sewers. - Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. - Bentonite slurries used in diaphragm wall construction shall be reconditioned and reused wherever practicable. Temporary enclosed storage locations shall be provided on-site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 shall be adhered to in the handling and disposal of bentonite slurries.					
S9.32 & S9.33	S 8.5 & S 8.6	General Construction Activities - Construction solid waste, debris and refuse generated on-site shall be collected, handled and disposed of properly to avoid entering any nearby stormwater drain. Stockpiles of cement and other construction materials shall be kept covered when not being used. Requirements of the solid waste management are described in Section 7 of this EIA Report. - Oils and fuels shall only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to nearby stormwater drain, all fuel tanks and storage areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund shall be drained of rainwater after a rain event.	To minimize water quality impacts	MTRC / Contractor	All works areas	Construction phase	Being implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
S9.34	S 8.7	Sewage from Construction Workforce - Temporary sanitary facilities, such as portable chemical toilets, shall be employed on-site where necessary to handle sewage from the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and would be responsible for appropriate disposal of waste matter and maintenance of these facilities.	To minimize water quality impacts	MTRC / Contractor	All works areas with on-site sanitary facilities	Construction phase	Being implemented
S9.35	S 8.8	Tunnelling Wastewater Discharge Wastewater with a high level of suspended solids should be treated before discharge by settlement in tanks with sufficient retention time. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. In case of very high levels of suspended solids, an on-site pre-packaged treatment plant may be required with the addition of flocculants to improve the settlement of solids. A discharge licence under the WPCO would be required for discharge to the stormwater drain. It may be a stipulation of the WPCO licence to require the Contractor to monitor the quality / quantity of the discharge to show compliance with the conditions of the licence.	To minimize water quality impacts	MTRC / Contractor	All works areas with tunneling works	Construction phase	To be implemented as per construction programme
S9.36	S8.9	Groundwater Monitoring Monitoring of groundwater table shall be conducted on a weekly basis and recharge wells will be installed.	To control the potential impact on tree walls at Forbes Street due to groundwater drawdown induced by tunneling	MTRC / Contractor	Works Areas C & D	Construction phase	To be implemented as per construction programme
Water Quality Impact (Operation Phase)							
S9.27	S8.10-	Runoff from Rail Track and operational tunnel drainage - The tunnel wall would be equipped with water-tight liner and designed for no seepage.	To control runoff from rail track and tunnel seepage	MTRC	Tunnels and rail tracks	Operation phase	To be implemented in operation phase

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
S9.37	S8.11 S8.12-S8.14	- Standard designed silt trap or grease trap (if necessary) and oil interceptor would be provided to remove the oil, lubricants, grease, silt and grit from the tunnel runoff before discharge into stormwater drainage. - Track drainage channels discharge should pass through oil/grit interceptors/chambers to remove oil, grease and sediment before being pumped to the public stormwater drainage system. - The silt traps and oil interceptors should be cleaned and maintained regularly. - Oily contents of the oil interceptors should be transferred to an appropriate disposal facility, or to be collected for reuse, if possible.					
S9.27	S8.15-S8.16	Sewage from Station - Sewage and wastewater effluents generated from the staff at stations and food and beverage outlets, if any, would be connected to the existing foul sewerage system. - Runoff from cleaning activities at the stations which would enter floor drains would also be connected to the foul sewer.	To control sewage from stations	MTRC	WIL Stations	Operation phase	To be implemented in operation phase
Hazard to Life							
S10	S10.1	Blasting activities regarding transport, storage and use of explosives should be supervised and audited by competent site staff to ensure strict compliance with the blasting permit conditions.	To ensure that the risks from the proposed explosives storage, handling and transport	MTRC / Contractor	Works areas at which explosives would be stored	Construction phase	Being implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
			would be acceptable		and/or used.		
S10	S10.1	Delivery vehicles shall not be permitted to remain unattended within the magazine. In addition, they shall not be allowed to park overnight, or when not in use, within the magazine and its audits	To reduce the risk of fire within the magazine	MTRC / Contractor	Explosive Magazine	Operational phase	Being implemented
S10	S10.1	Blast doors or heavy duty blast curtains should be installed at the access adits and shafts to prevent flyrock, and control the air over-pressure	To reduce the risk of injury due to flyrock during the WIL construction	MTRC / Contractor	At suitable locations, access adits and shafts	Construction phase	Being implemented
S10	S10.1	Detonators shall not be transported in the same vehicle with other Class 1 explosives	To reduce the risk of explosion during the transport of cartridged emulsion	MTRC / Contractor	-	Construction phase	Being implemented
Air Quality (Construction Phase)							
Table 11.6	Table 9.5	Rock Crushing Plants The unloading process would be undertaken within enclosed rock crushing facility. Water spraying would be provided at the unloading point. The crushing process is the secondary crushing. The rock crushing plant is enclosed and water spraying system would be installed. Dust extraction and collection system with 80% dust removal efficiency would be provided. The crushed stone/rock would be screened by the screening and sorting facility before transporting to the temporary stockpile via enclosed conveyor. Water spraying system would be installed. Dust extraction and collection system with 80% dust removal	To minimize dust impacts	MTRC / Contractor	Rock crushing plants at works areas B and E	Construction phase	To be implemented as per construction programme

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		efficiency would be provided.					
Table 11.7	Table 9.6	Temporary Stockpiles Kennedy Town Abattoir Site: Loading point – Loading of crushed materials from rock crushing facility onto stockpile - The transportation would be via an enclosed conveyor belt system and water spraying and flexible dust curtains would be provided at the loading point to suppress the dust impact. Storage of materials - Active area for loading & unloading materials - The active area would be minimized to 20% of the total area of the stock piles. The 80% inactive area would be well covered with impervious sheeting. Water spraying system would be applied on the active area and watering with complete coverage of active area four times a day would be required. Transportation of materials to Barging Point 1 - Wheel wash facilities provided at the site exit. The vehicles would be washed before leaving the stockpiles. The spoils would also be well covered before leaving the site in order to minimise generation of dusty materials. - The haul roads within the site would be all paved and water spraying would be provided to keep the wet condition. Western PCWA: Loading point – Loading of crushed materials from rock crushing facility onto stockpile - The transportation would be via an enclosed conveyor belt system and water spraying and flexible dust curtains would be provided at the loading point to suppress the dust impact.	To minimize dust impacts	MTRC / Contractor	Temporary stockpiles at works areas B and E	Construction phase	To be implemented as per construction programme

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		Storage of materials - Active area for loading & unloading materials - Water spraying system would be applied on the active area and watering with complete of active area four times a day would be required. Transportation of materials to Barging Point 2 - The vehicles would be washed before leaving the stockpiles. The spoils would also be well covered before leaving the site in order to minimise generation of dusty materials. - The haul road would be paved and water spraying would be provided to keep the wet condition					
Table 11.8	Table 9.7	Barging Facilities Kennedy Town Abattoir Site Transportation of spoils to Barging Point 1 - All road surfaces within the barging facilities would be paved and water spraying would be provided to keep the wet condition. Unloading of spoil materials - The unloading process would be undertaken within enclosed tipping hall. Flexible dust curtains and water spraying would be provided at the discharge point for dust suppression. Vehicles leaving the barging facility - Vehicle wheel washing facilities provided at site exit Western PCWA Transportation of spoils to Barging Point 2 - All road surfaces within the barging facilities would be paved and water spraying would be provided to keep the wet condition. Unloading of spoil materials from trucks to Barging Point 2	To minimize dust impacts	MTRC / Contractor	Barging points at works areas B and E	Construction phase	To be implemented as per construction programme

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		- The unloading process should be undertaken within the enclosed tipping hall. Flexible dust curtains and water spraying would be provided at the discharge point for dust suppression. Unloading of spoil materials from enclosed tipping hall to Barging Point 3 - The tipping hall would be enclosed structure. The conveyor from tipping hall to the Barging Point 3 would be enclosed. Water spraying and flexible dust curtains would be provided at the receiving point of the tipping hall. Flexible dust curtains and water spraying would be provided at the discharge point of barging facilities for dust suppression. Vehicles leaving the barging facility - Vehicle wheel washing facilities provided at site exit					
Table 11.9	S 9.26	Rock Crushing Plant at Kennedy Town Abattoir Site - Dust extraction and collection system (80% dust removal efficiency) should be installed at the rock crushing facility and the discharge point is located at least 39m away from the west boundary of the rock crushing facility under the preliminary design	To minimize dust impacts	MTRC / Contractor	Rock Crushing Plant at works area B - Kennedy Town Abattoir Site	Construction phase	To be implemented as per construction programme
Table 11.10	S 9.27	Works areas at KET station construction site Active operating area of 50% Watering four times a day with complete coverage of active construction area	To minimize dust impacts	MTRC / Contractor	Works area A, C and D	Construction phase	To be implemented as per construction programme
Table 11.10	S9.27	Open work areas at temporary magazine site Active operating area of 50%	To minimize dust impacts	MTRC / Contractor	Open works area at	Construction phase	To be implemented as per construction

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		Watering two times a day with complete coverage of active construction area			magazine site		programme
S 11.42	S 9.28	For both rock crushing plants, the requirements and mitigation measures stipulated in the *Guidance Note on the Best Practicable Means for Mineral Works (Stone Crushing Plants) BPM 11/1* should be followed and implemented.	To minimize dust impacts	MTRC / Contractor	Rock crushing plants	Construction phase	To be implemented as per construction programme
S 11.42	S 9.28	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs. - Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. - Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. - Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. - Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. - Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading points, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry	To minimize dust impacts	MTRC / Contractor	All works areas	Construction phase	Being implemented

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Implementation Status
		seasons/ periods. - Imposition of speed controls for vehicles on unpaved site roads. 8 kilometers per hour is the recommended limit. - Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. - Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. - Cement or dry PFA delivered in bulk shall be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed. - Loading, unloading, transfer, handling or storage of bulk cement or dry PFA shall be carried out in a totally enclosed system or facility, and any vent or exhaust shall be fitted with an effective fabric filter or equivalent air pollution control system.					

Table C2 Implementation Schedule Specific for Works Area MA - Underground Magazine Site (Status as of 9 July 2010)

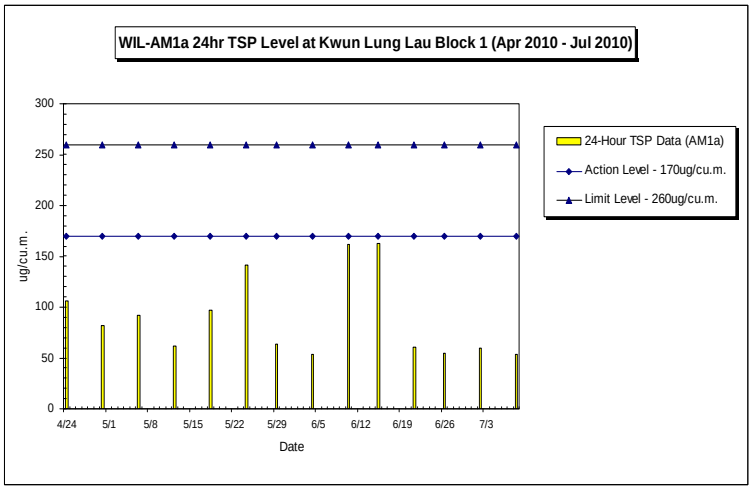
EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Reference
Ecological Impact (Construction Phase)							
App.2.3 – S. 6.1		Proposed works shall be designed to avoid or minimize direct impacts to natural habitats in the works area wherever possible.	To protect the natural habitats in the works area	MTRC / Contractor	Works Area MA	Design and construction of the magazine site	Being implemented
App.2.3 – S. 6.2		Planting of vegetation shall be provided to compensate for the unavoidable loss of tall shrubland and woodland habitats. It shall be provided to re-vegetate the areas which would be 1m beyond the security fencing and temporarily affected by the construction works (e.g. slope works, erecting security fence) after the construction phase. The plant species selected for re-vegetation shall make reference to the existing habitats.	To compensate for the ecological impacts associated with the loss of vegetation	MTRC / Contractor	Works Area MA	Construction phase of the magazine site	To be implemented as per construction programme
App.2.3 – S. 6.2		Suitable plants, preferably with native species, shall be planted within the boundary of the completed magazine site to compensate for unavoidable loss of understorey vegetation resulting from the proposed works on-site after the decommissioning of the magazine site. The compensatory planting shall make use of native plant species with flowers/fruits to attract wildlife.	To compensate for the ecological impacts associated with the loss of vegetation	MTRC / Contractor	Works Area MA	After completing the construction of the magazine site	To be implemented as per construction programme
App.2.3 – S. 6.3		The two individuals of Hong Kong Pavetta (*Pavetta hongkongensis*) located within the footprint of the proposed tunnel portal and access entrance shall be transplanted to a suitable nearby tall shrubland or woodland habitats. Transplantation shall be supervised by a suitably qualified ecologist/horticulturalist	To protect the 2 species from the proposed works within the works area	MTRC / Contractor	Works Area MA	Prior to the construction phase of the magazine site	Implemented
App.2.3 – S. 6.4		The trees located within the works area shall be preserved as far as practicable. If tree felling is unavoidable, feasibility of tree transplantation and compensatory planting shall be explored shall be implemented.	To protect the existing trees within the works area	MTRC / Contractor	Works Area MA	Prior to the construction phase of the	Implemented

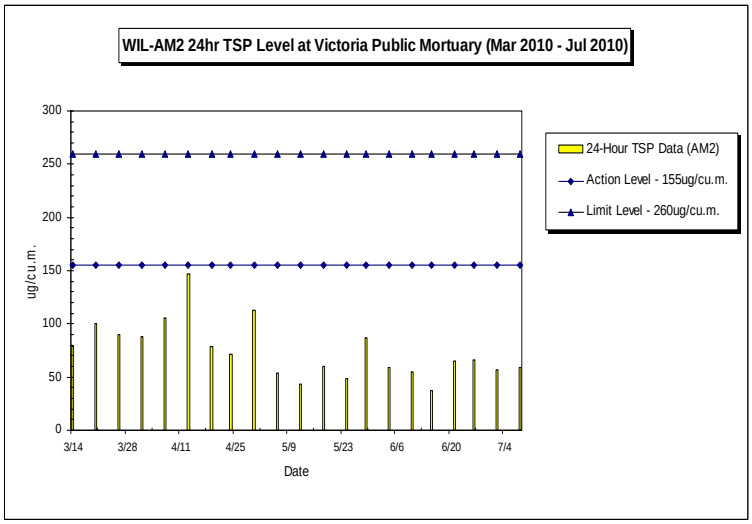
EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Reference
						magazine site	
App.2.3 – S. 6.5		All the existing trees and species of conservation importance (i.e. the two identified Silver-back Artocarpus, *Artocarpus hypargyreus*) located near the proposed works site shall be fenced off and the trunk shall be protected with hessian sacking as far as possible.	To protect the existing trees and the species of conservation importance near the works area	MTRC / Contractor	Works Area MA	Construction and operation phase of the magazine site	Implemented
App.2.3 – S. 6.6		Noise control measures including the use of quiet excavation methods, quiet construction plant and temporary noise barriers shall be implemented	To minimize the noise disturbance to the wildlife near the works area	MTRC / Contractor	Works Area MA	Construction and operation phase of the magazine site	Being implemented
App.2.3 – S. 6.7		Standard good site practice measures shall be implemented, including • Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. • Construction activities should be restricted to work areas that would be clearly demarcated. The work areas should be reinstated after completion of the works. • Waste skips should be provided to collect general refuse and construction wastes. The wastes would be disposed of timely and properly off-site. • General drainage arrangements should include sediment and oil traps to collect and control construction site run-off. • Open burning on works sites is illegal, and should be strictly prohibited.	To minimize ecological impacts	MTRC / Contractor	Works Area MA	Construction and operation phase of the magazine site	Being implemented

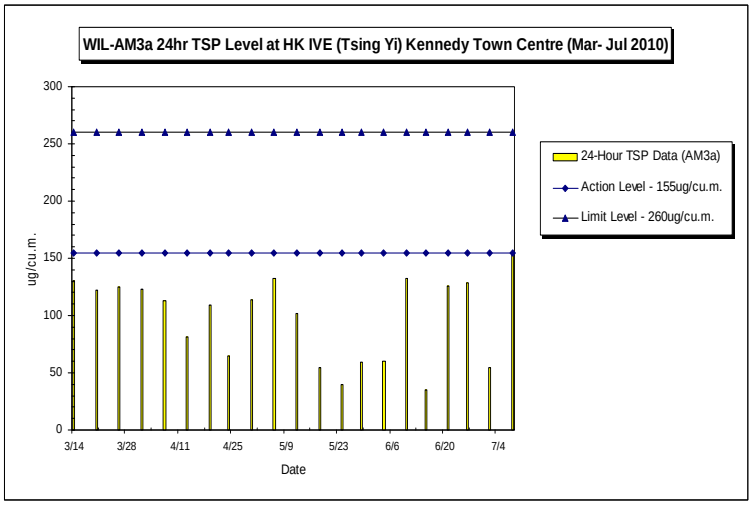
Table C3 Implementation Schedule Specific for Works Area B – Kennedy Town Abattoir and Incinerator Area (Status as of 9 July 2010)

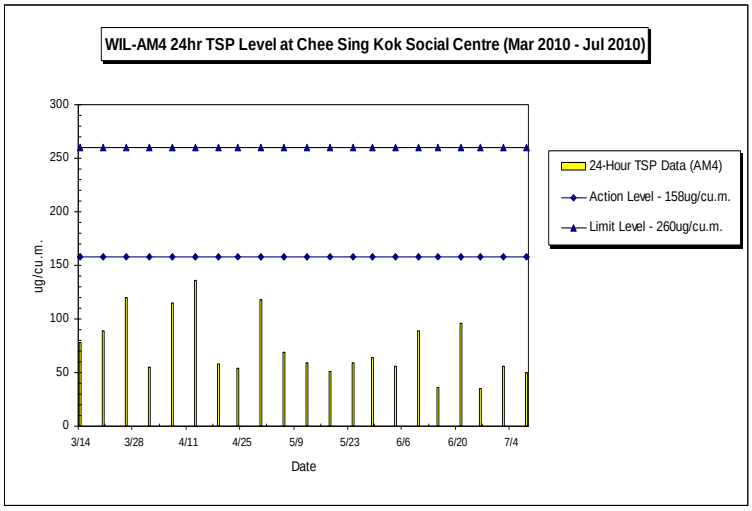
Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	Reference
The existing ground slab/pavement within the works area shall be kept intact.	To minimize human health risk associated with the contaminated soil and groundwater in the works area.	MTRC / Contractor	Works Area B	Construction phase	Implemented
A reinforced concrete paving of no less than 200mm thick for the cleared site shall be provided after the demolition and clearance works. A debonding layer shall be placed between the existing and new concrete slabs to allow the latter to be removed prior to the former.	To minimize human health risk associated with the contaminated soil and groundwater in the works area.	MTRC / Contractor	Works Area B	Construction phase	Implemented
Monthly site inspection shall be conducted to ensure the integrity of the existing and/or the new paving layer. Any surface cracks identified shall be filled out such that underneath soil would not be exposed.	To minimize human health risk associated with the contaminated soil and groundwater in the works area.	MTRC / Contractor	Works Area B	Construction phase	Being implemented
A clear void between the structure slab of the site office and the ground surface shall be created, i.e. the site office is a raised structure.	To allow ventilation by natural air movements to dilute the contaminant vapour released from the soil and groundwater.	MTRC / Contractor	Works Area B	During the construction of the site offices	Implemented
Incorporate gas-resistant membranes into the raised floor of the site office.	To prevent contaminant vapour under the floor slab from entering the site office to protect the staff working in the site office.	MTRC / Contractor	Works Area B	During the construction of the site offices	Implemented
Site hoardings shall be erected around the works area, and they shall be properly maintained to restrict access of trespassers.	To protect the trespassers from the contaminated soil and groundwater in the works area.	MTRC / Contractor	Works Area B	Construction phase	Implemented

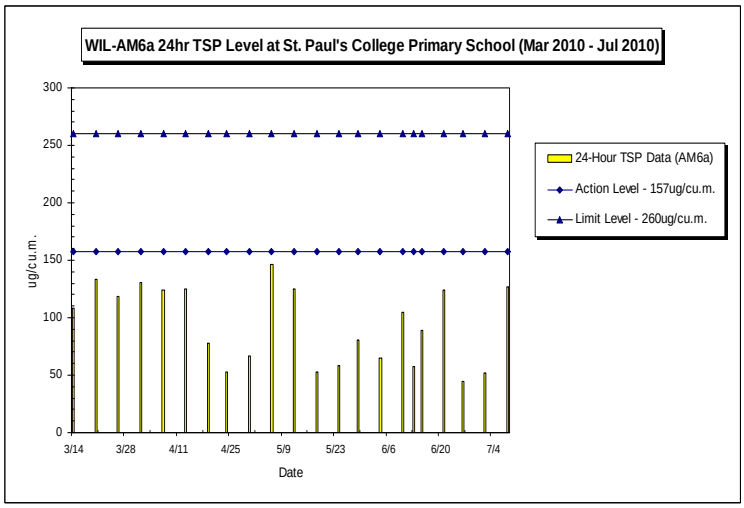
Appendix D
Impact Monitoring Graphical Plots

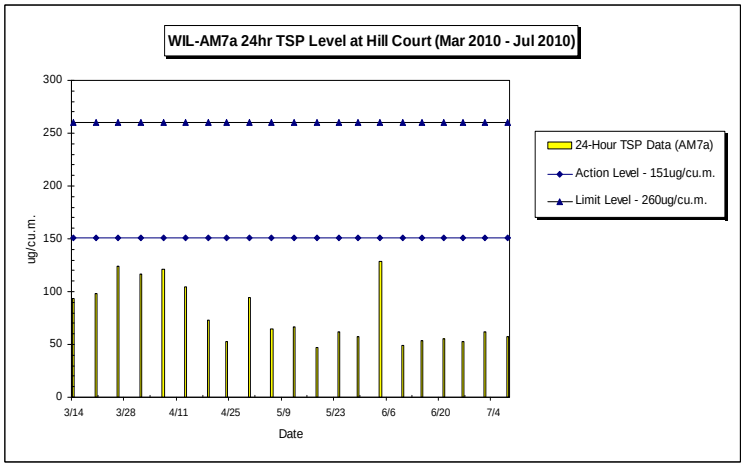

WIL-AM1a 24hr TSP Level at Kwun Lung Lau Block 1 (Apr 2010 - Jul 2010)
ug/cu.m.
300
250
200
150
100
50
0
4/24
5/1
5/8
5/15
5/22
5/29
6/5
6/12
6/19
6/26
7/3
Date
24-Hour TSP Data (AM1a)
Action Level - 170ug/cu.m.
Limit Level - 260ug/cu.m.

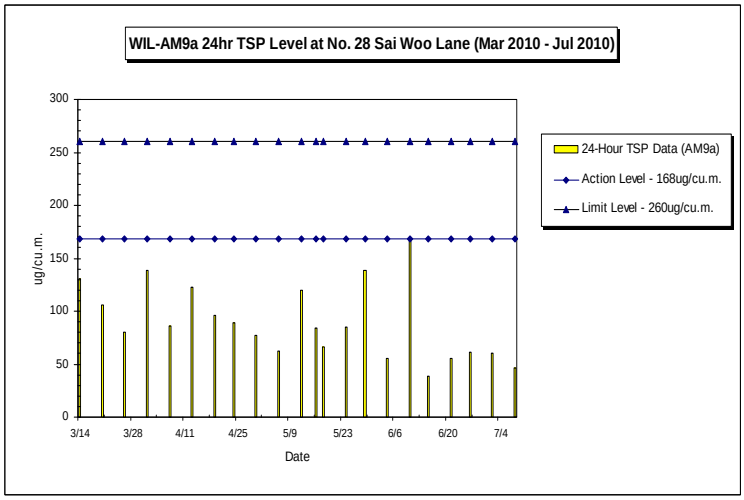

WIL-AM2 24hr TSP Level at Victoria Public Mortuary (Mar 2010 - Jul 2010)
ug/cu.m.
300
250
200
150
100
50
0
3/14
3/28
4/11
4/25
5/9
5/23
6/6
6/20
7/4
Date
24-Hour TSP Data (AM2)
Action Level - 155ug/cu.m.
Limit Level - 260ug/cu.m.

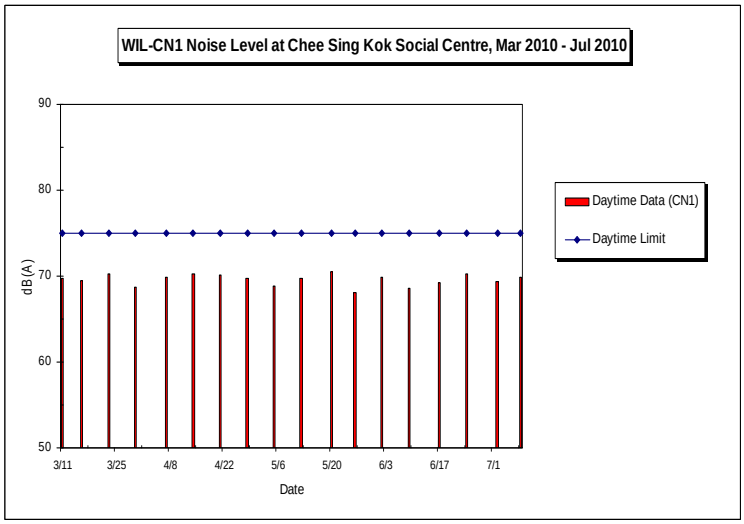

WIL-AM3a 24hr TSP Level at HK IVE (Tsing Yi) Kennedy Town Centre (Mar- Jul 2010)
ug/cu.m.
300
250
200
150
100
50
0
3/14
3/28
4/11
4/25
5/9
5/23
6/6
6/20
7/4
Date
24-Hour TSP Data (AM3a)
Action Level - 155ug/cu.m.
Limit Level - 260ug/cu.m.

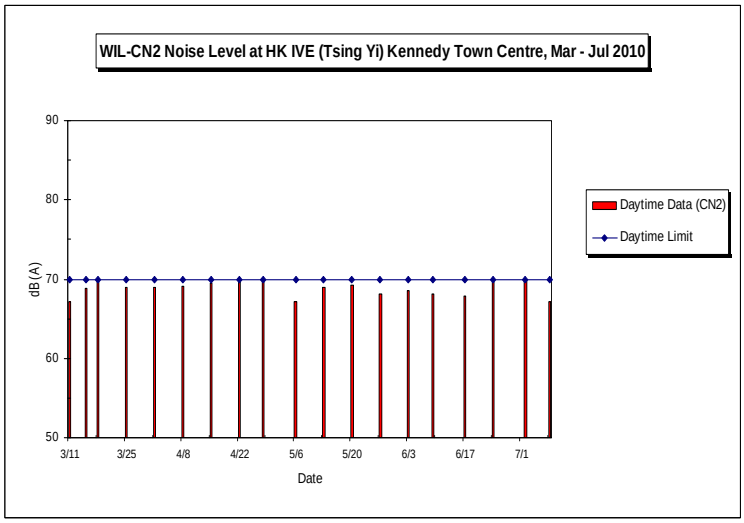

WIL-AM4 24hr TSP Level at Chee Sing Kok Social Centre (Mar 2010 - Jul 2010)
ug/cu.m.
300
250
200
150
100
50
0
3/14
3/28
4/11
4/25
5/9
5/23
6/6
6/20
7/4
Date
24-Hour TSP Data (AM4)
Action Level - 158ug/cu.m.
Limit Level - 260ug/cu.m.

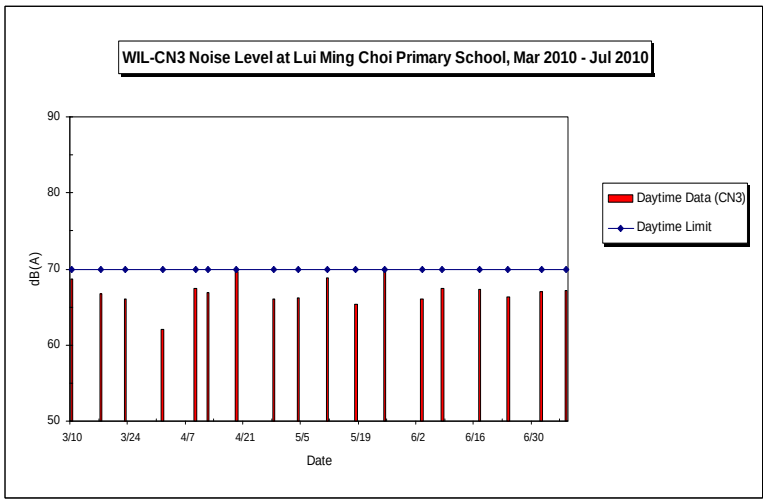

WIL-AM6a 24hr TSP Level at St. Paul's College Primary School (Mar 2010 - Jul 2010)
ug/cu.m.
300
250
200
150
100
50
0
3/14
3/28
4/11
4/25
5/9
5/23
6/6
6/20
7/4
Date
24-Hour TSP Data (AM6a)
Action Level - 157ug/cu.m.
Limit Level - 260ug/cu.m.

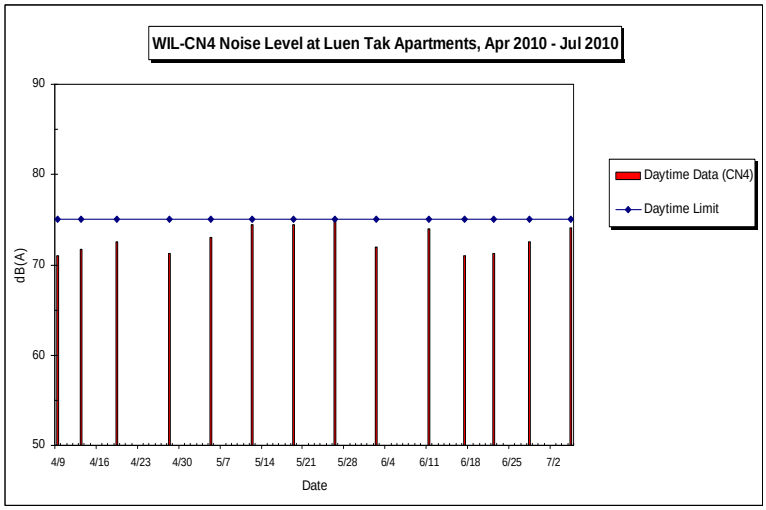

WIL-AM7a 24hr TSP Level at Hill Court (Mar 2010 - Jul 2010)
ug/cu.m.
300
250
200
150
100
50
0
3/14
3/28
4/11
4/25
5/9
5/23
6/6
6/20
7/4
Date
24-Hour TSP Data (AM7a)
Action Level - 151ug/cu.m.
Limit Level - 260ug/cu.m.

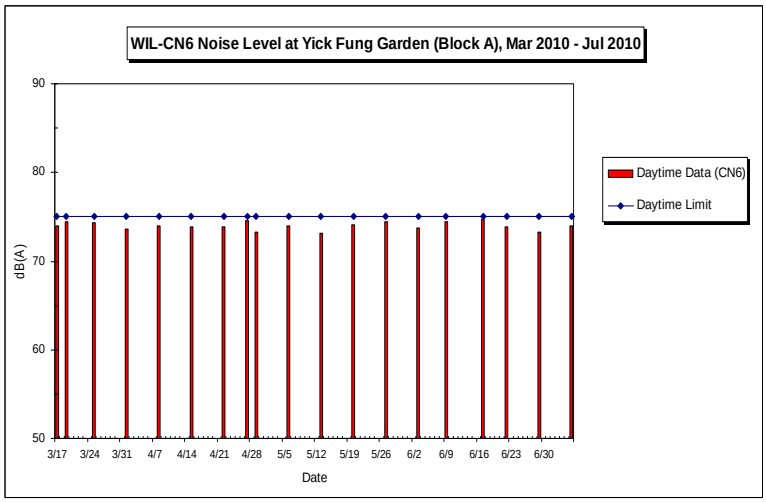

WIL-AM9a 24hr TSP Level at No. 28 Sai Woo Lane (Mar 2010 - Jul 2010)
300
250
200
150
100
50
0
ug/cu.m.
3/14
3/28
4/11
4/25
5/9
5/23
6/6
6/20
7/4
Date
24-Hour TSP Data (AM9a)
Action Level - 168ug/cu.m.
Limit Level - 260ug/cu.m.

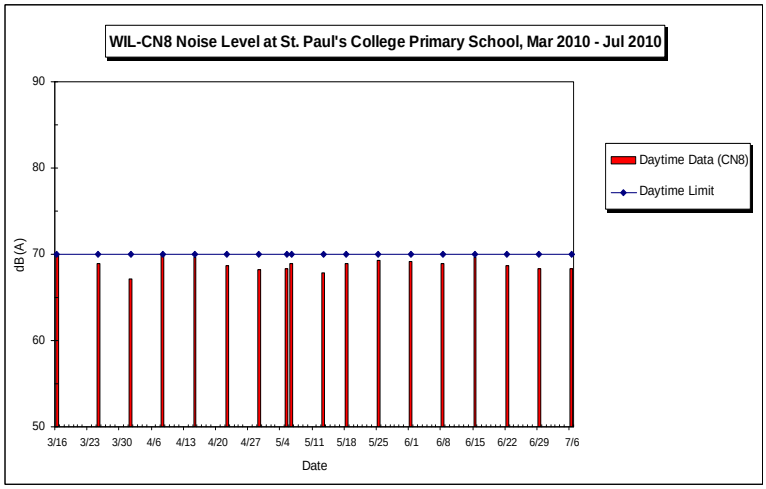

WIL-CN1 Noise Level at Chee Sing Kok Social Centre, Mar 2010 - Jul 2010
90
80
70
60
50
dB (A)
3/11
3/25
4/8
4/22
5/6
5/20
6/3
6/17
7/1
Date
Daytime Data (CN1)
Daytime Limit

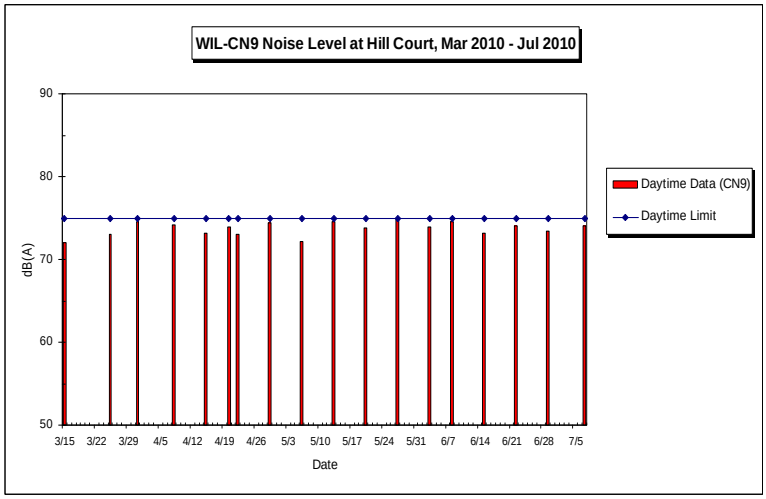

WIL-CN2 Noise Level at HK IVE (Tsing Yi) Kennedy Town Centre, Mar - Jul 2010
90
80
70
60
50
dB (A)
3/11
3/25
4/8
4/22
5/6
5/20
6/3
6/17
7/1
Date
Daytime Data (CN2)
Daytime Limit

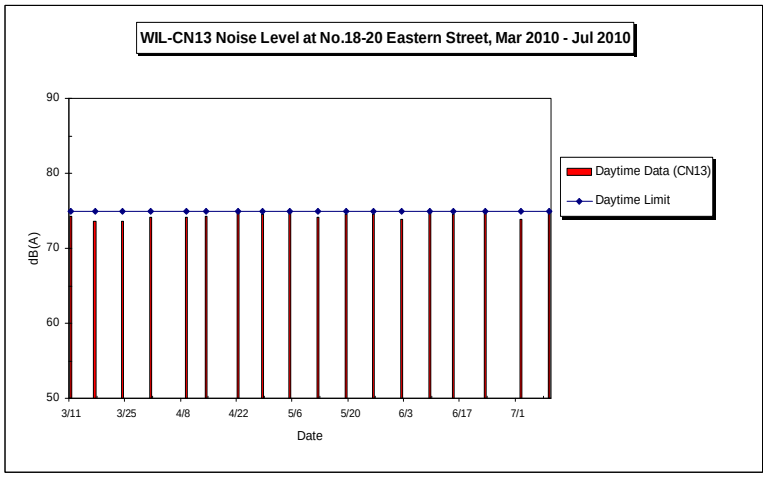

WIL-CN3 Noise Level at Lui Ming Choi Primary School, Mar 2010 - Jul 2010
90
80
70
60
50
dB (A)
3/10
3/24
4/7
4/21
5/5
5/19
6/2
6/16
6/30
Date
Daytime Data (CN3)
Daytime Limit

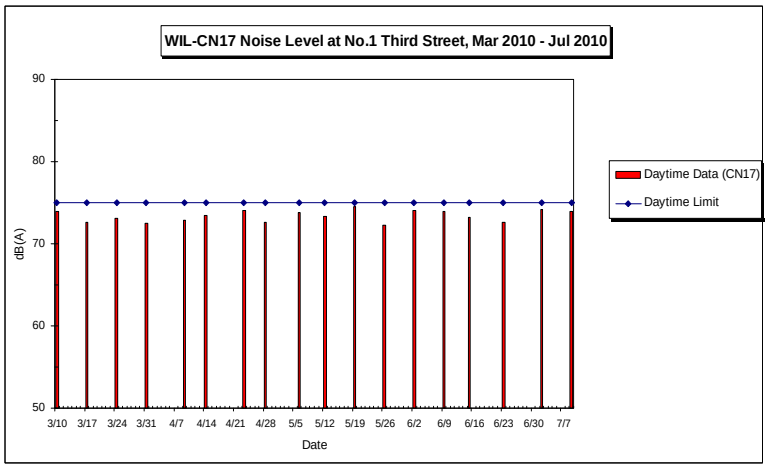

WIL-CN4 Noise Level at Luen Tak Apartments, Apr 2010 - Jul 2010
90
80
70
60
50
dB(A)
4/9
4/16
4/23
4/30
5/7
5/14
5/21
5/28
6/4
6/11
6/18
6/25
7/2
Date
Daytime Data (CN4)
Daytime Limit

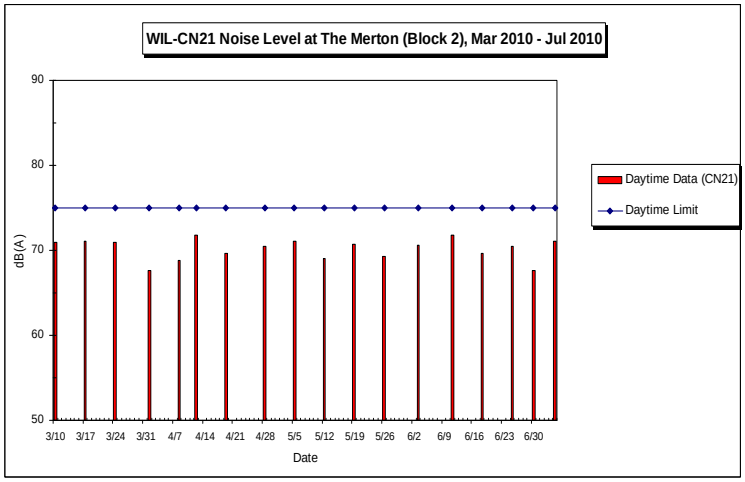

WIL-CN6 Noise Level at Yick Fung Garden (Block A), Mar 2010 - Jul 2010
90
80
70
60
50
dB(A)
3/17
3/24
3/31
4/7
4/14
4/21
4/28
5/5
5/12
5/19
5/26
6/2
6/9
6/16
6/23
6/30
Date
Daytime Data (CN6)
Daytime Limit


WIL-CN8 Noise Level at St. Paul's College Primary School, Mar 2010 - Jul 2010
90
80
70
60
50
dB(A)
3/16
3/23
3/30
4/6
4/13
4/20
4/27
5/4
5/11
5/18
5/25
6/1
6/8
6/15
6/22
6/29
7/6
Date
Daytime Data (CN8)
Daytime Limit


WIL-CN9 Noise Level at Hill Court, Mar 2010 - Jul 2010
90
80
70
60
50
dB(A)
3/15 3/22 3/29 4/5 4/12 4/19 4/26 5/3 5/10 5/17 5/24 5/31 6/7 6/14 6/21 6/28 7/5
Date
Daytime Data (CN9)
Daytime Limit


WIL-CN13 Noise Level at No.18-20 Eastern Street, Mar 2010 - Jul 2010
90
80
70
60
50
dB(A)
3/11 3/25 4/8 4/22 5/6 5/20 6/3 6/17 7/1
Date
Daytime Data (CN13)
Daytime Limit


WIL-CN17 Noise Level at No.1 Third Street, Mar 2010 - Jul 2010
90
80
70
60
50
dB(A)
3/10 3/17 3/24 3/31 4/7 4/14 4/21 4/28 5/5 5/12 5/19 5/26 6/2 6/9 6/16 6/23 6/30 7/7
Date
Daytime Data (CN17)
Daytime Limit


WIL-CN21 Noise Level at The Merton (Block 2), Mar 2010 - Jul 2010
90
80
70
60
50
dB(A)
3/10
3/17
3/24
3/31
4/7
4/14
4/21
4/28
5/5
5/12
5/19
5/26
6/2
6/9
6/16
6/23
6/30
Date
Daytime Data (CN21)
Daytime Limit

Appendix E
Calibration Details

ANDERSEN INSTRUMENTS INC.

GS2310 Series Sampler Calibration

(Dickson Recorder)

SITE

Location -> Kwun Lung Lau Block 1 Date -> 17-Feb-10

Sampler -> 994-0879 Tech -> Chan Kin Fung

CONDITIONS

Sea Level Pressure	(hpa)	1019.7	Sampler Elevation	(feet)	100
Sea Level Pressure	(in Hg)	30.11	Corrected Pressure	(mm Hg)	762.25
Temperature	(deg C)	16.8	Temperature	(deg K)	289.80
Seasonal SL Pressure	(in Hg)	30.11	Corrected Seasonal	(mm Hg)	762.25
Seasonal Temperature	(deg C)	16.80	Seasonal Temperature	(deg K)	289.80

CALIBRATION ORIFICE

Make -> Andersen Instruments Inc. Qstd Slope -> 1.99

Model -> 25A Qstd Intercept -> -0.014012

Serial# -> 5303 Date Certified ->

CALIBRATION

	Plate or Test #	H_2O (in)	Qstd (M^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	18	14.8	1.970	64	64.995	Slope =	31.3996
2	13	12	1.775	59	59.917	Intercept =	3.8090
3	10	9.2	1.555	52	52.809	Corr. Coeff. =	0.9980
4	7	5.8	1.236	43	43.669		
5	5	3.6	0.975	33	33.513		

Calculations

$Qstd = 1/m [Sqrt (H_2O (Pa/Pstd) (Tstd/Ta)) - b]$

$IC = I [Sqrt (Pa/Pstd) (Tstd/Ta)]$

Qstd = standard flow rate

IC = corrected chart response

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pa = actual pressure during calibration (mm Hg)

Tstd = 298 deg K

Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m ((I) [Sqrt (298/Tav) (Pav/760)] - b)

m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

This is to certify that the above equipment has been calibrated in accordance with manufacturer's procedure.

ANDERSEN INSTRUMENTS INC.

GS2310 Series Sampler Calibration

(Dickson Recorder)

Customer -> MTRC SITE

Location -> Victoria Public Mortuary Date -> 25-May-10

Sampler -> 994-0871 Tech -> Chan Kin Fung

CONDITIONS

Sea Level Pressure	(hpa)	1007	Sampler Elevation	(feet)	30
Sea Level Pressure	(in Hg)	29.74	Corrected Pressure	(mm Hg)	754.49
Temperature	(deg C)	26	Temperature	(deg K)	299.00
Seasonal SL Pressure	(in Hg)	29.74	Corrected Seasonal	(mm Hg)	754.49
Seasonal Temperature	(deg C)	26.00	Seasonal Temperature	(deg K)	299.00

CALIBRATION ORIFICE

Make -> Andersen Instruments Inc. Qstd Slope -> 1.99

Model -> 25A Qstd Intercept -> -0.014012

Serial# -> 5303 Date Certified ->

CALIBRATION

	Plate or Test #	H_2O (in)	Qstd (M^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	18	12.3	1.760	64	63.661	Slope =	36.3723
2	13	10	1.588	56	55.703	Intercept =	-1.0810
3	10	7.7	1.394	50	49.735	Corr. Coeff. =	0.9989
4	7	5	1.125	40	39.788		
5	5	3	0.873	31	30.836		

Calculations

$Qstd = 1/m [Sqrt (H_2O (Pa/Pstd) (Tstd/Ta)) - b]$

$IC = I [Sqrt (Pa/Pstd) (Tstd/Ta)]$

Qstd = standard flow rate

IC = corrected chart response

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pa = actual pressure during calibration (mm Hg)

Tstd = 298 deg K

Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

$1/m ((I) [Sqrt (298/Tav) (Pav/760)] - b)$

SCIENCE INTERNATIONAL CORPORATION 新儀公司 HONG KONG

m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

This is to certify that the above equipment has been calibrated in accordance with manufacturer's procedure.

ANDERSEN INSTRUMENTS INC.

GS2310 Series Sampler Calibration

(Dickson Recorder)

SITE

Location -> HK IVE (TSING YI) KENNEDY TOWN CENTR Date -> 17-Feb-10

Sampler -> 994-0875 Tech -> Chan Kin Fung

CONDITIONS

Sea Level Pressure	(hpa)	1019.7	Sampler Elevation	(feet)	100
Sea Level Pressure	(in Hg)	30.11	Corrected Pressure	(mm Hg)	762.25
Temperature	(deg C)	16.8	Temperature	(deg K)	289.80
Seasonal SL Pressure	(in Hg)	30.11	Corrected Seasonal	(mm Hg)	762.25
Seasonal Temperature	(deg C)	16.80	Seasonal Temperature	(deg K)	289.80

CALIBRATION ORIFICE

Make -> Andersen Instruments Inc. Qstd Slope -> 1.99

Model -> 25A Qstd Intercept -> -0.014012

Serial# -> 5303 Date Certified ->

CALIBRATION

	Plate or Test #	H_2O (in)	Qstd (M^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	18	15	1.984	62	62.964	Slope =	27.7574
2	13	12	1.775	58	58.902	Intercept =	8.5098
3	10	9.3	1.563	50	50.777	Corr. Coeff. =	0.9951
4	7	6	1.257	44	44.684		
5	5	3.5	0.962	34	34.529		

Calculations

Qstd = 1/m [Sqrt (H_2O (Pa/Pstd) (Tstd/Ta)) - b]

IC = I [Sqrt (Pa/Pstd) (Tstd/Ta)]

Qstd = standard flow rate

IC = corrected chart response

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pa = actual pressure during calibration (mm Hg)

Tstd = 298 deg K

Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m ((I) [Sqrt (298/Tav) (Pav/760)] - b)

m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

This is to certify that the above equipment has been calibrated in accordance with manufacturer's procedure.

ANDERSEN INSTRUMENTS INC.

GS2310 Series Sampler Calibration

(Dickson Recorder)

Customer -> MTRC SITE

Location -> Victoria Rd. Magazine Site Date -> 22-May-10

Sampler -> 994-0870 Tech -> Chan Kin Fung

CONDITIONS

Sea Level Pressure	(hpa)	1007	Sampler Elevation	(feet)	300
Sea Level Pressure	(in Hg)	29.74	Corrected Pressure	(mm Hg)	747.67
Temperature	(deg C)	26	Temperature	(deg K)	299.00
Seasonal SL Pressure	(in Hg)	29.74	Corrected Seasonal	(mm Hg)	747.67
Seasonal Temperature	(deg C)	26.00	Seasonal Temperature	(deg K)	299.00

CALIBRATION ORIFICE

Make -> Andersen Instruments Inc. Qstd Slope -> 1.99

Model -> 25A Qstd Intercept -> -0.014012

Serial# -> 5303 Date Certified ->

CALIBRATION

	Plate or Test #	H_2O (in)	Qstd (M^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	18	11.8	1.716	57	56.441	Slope =	31.7157
2	13	9.7	1.557	51	50.500	Intercept =	2.0416
3	10	7.6	1.379	47	46.539	Corr. Coeff. =	0.9964
4	7	5	1.120	39	38.618		
5	5	3	0.869	29	28.716		

Calculations

$Qstd = 1/m [Sqrt (H_2O (Pa/Pstd) (Tstd/Ta)) - b]$

$IC = I [Sqrt (Pa/Pstd) (Tstd/Ta)]$

Qstd = standard flow rate

IC = corrected chart response

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pa = actual pressure during calibration (mm Hg)

Tstd = 298 deg K

Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m ((I) [Sqrt (298/Tav) (Pav/760)] - b)

m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

This is to certify that the above equipment has been calibrated in accordance with manufacturer's procedure.

ANDERSEN INSTRUMENTS INC.

GS2310 Series Sampler Calibration

(Dickson Recorder)

SITE

Location -> St' Paul's College Primary Date -> 27-Jan-10

Sampler -> 1294-1113 Tech -> Chan Kin Fung

CONDITIONS

Sea Level Pressure	(hpa)	1012	Sampler Elevation	(feet)	300
Sea Level Pressure	(in Hg)	29.88	Corrected Pressure	(mm Hg)	751.42
Temperature	(deg C)	17	Temperature	(deg K)	290.00
Seasonal SL Pressure	(in Hg)	29.88	Corrected Seasonal	(mm Hg)	751.42
Seasonal Temperature	(deg C)	17.00	Seasonal Temperature	(deg K)	290.00

CALIBRATION ORIFICE

Make -> Andersen Instruments Inc. Qstd Slope -> 1.99

Model -> 25A Qstd Intercept -> -0.014012

Serial# -> 5303 Date Certified ->

CALIBRATION

	Plate or Test #	H_2O (in)	Qstd (M^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	18	12.2	1.776	62	62.494	Slope =	36.7827
2	13	9.7	1.585	56	56.446	Intercept =	-2.1255
3	10	7.5	1.394	49	49.390	Corr. Coeff. =	0.9972
4	7	4.8	1.117	40	40.319		
5	5	3	0.884	29	29.231		

Calculations

Qstd = 1/m [Sqrt (H_2O (Pa/Pstd) (Tstd/Ta)) - b]

IC = I [Sqrt (Pa/Pstd) (Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m ((I) [Sqrt (298/Tav) (Pav/760)] - b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

This is to certify that the above equipment has been calibrated in accordance with manufacturer's procedure.

ANDERSEN INSTRUMENTS INC.

GS2310 Series Sampler Calibration

(Dickson Recorder)

Customer -> MTRC SITE

Location -> Hill Court Date -> 22-May-10

Sampler -> 694-0662 Tech -> Chan Kin Fung

CONDITIONS

Sea Level Pressure	(hpa)	1006	Sampler Elevation	(feet)	400
Sea Level Pressure	(in Hg)	29.71	Corrected Pressure	(mm Hg)	744.40
Temperature	(deg C)	33	Temperature	(deg K)	306.00
Seasonal SL Pressure	(in Hg)	29.71	Corrected Seasonal	(mm Hg)	744.40
Seasonal Temperature	(deg C)	33.00	Seasonal Temperature	(deg K)	306.00

CALIBRATION ORIFICE

Make -> Andersen Instruments Inc. Qstd Slope -> 1.99

Model -> 25A Qstd Intercept -> -0.014012

Serial# -> 5303 Date Certified ->

CALIBRATION

	Plate or Test #	H_2O (in)	Qstd (M^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	18	10.6	1.605	54	52.740	Slope =	33.2178
2	13	8.7	1.455	50	48.833	Intercept =	0.1961
3	10	6.5	1.258	44	42.973	Corr. Coeff. =	0.9982
4	7	4.1	1.001	34	33.206		
5	5	2.4	0.767	26	25.393		

Calculations

Qstd = 1/m [Sqrt (H_2O (Pa/Pstd) (Tstd/Ta)) - b]

IC = I [Sqrt (Pa/Pstd) (Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m ((I) [Sqrt (298/Tav) (Pav/760)] - b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

This is to certify that the above equipment has been calibrated in accordance with manufacturer's procedure.

ANDERSEN INSTRUMENTS INC.

GS2310 Series Sampler Calibration

(Dickson Recorder)

SITE

Location -> No.28 Sai Woo Lane Date -> 27-Jan-10

Sampler -> 894-0834 Tech -> Chan Kin Fung

CONDITIONS

Sea Level Pressure	(hpa)	1018	Sampler Elevation	(feet)	30
Sea Level Pressure	(in Hg)	30.06	Corrected Pressure	(mm Hg)	762.74
Temperature	(deg C)	17	Temperature	(deg K)	290.00
Seasonal SL Pressure	(in Hg)	30.06	Corrected Seasonal	(mm Hg)	762.74
Seasonal Temperature	(deg C)	17.00	Seasonal Temperature	(deg K)	290.00

CALIBRATION ORIFICE

Make -> Andersen Instruments Inc. Qstd Slope -> 1.99

Model -> 25A Qstd Intercept -> -0.01401

Serial# -> 5303 Date Certified ->

CALIBRATION

	Plate or Test #	H_2O (in)	Qstd (M^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	18	11.6	1.745	60	60.932	Slope =	34.9591
2	13	9.2	1.555	52	52.807	Intercept =	-0.5385
3	10	7.1	1.367	47	47.730	Corr. Coeff. =	0.9986
4	7	4.7	1.113	38	38.590		
5	5	3	0.891	30	30.466		

Calculations

Qstd = 1/m [Sqrt (H_2O (Pa/Pstd) (Tstd/Ta)) - b]

IC = I [Sqrt (Pa/Pstd) (Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m ((I) [Sqrt (298/Tav) (Pav/760)] - b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

This is to certify that the above equipment has been calibrated in accordance with manufacturer's procedure.

MTR Corporation
Internal Calibration

Project Laboratory MTR

Balance Calibration Report
Tested to MTRC Method WI/707M/01

Laboratory Equipment Identification Number			BA0011		
Manufacturer	Sartorius	Model	A200S-**DIB	Serial No.	1065989
Capacity	120g	Discrimination	0.1mg	Type	Top Loading
Location	Concrete Testing Area		Temperature	25℃	

Reference Mass Set Used (Equip. ID. No.)		RM001	
Manufacturer	Troemner	OIML Classification	F1
Last Calibration Date	29-04-2002	Calibrated By	South China National Centre of Metrology

(1) Repeatability of Reading

Reference Mass (g)	Standard Deviation of Balance Reading (g)	Maximum Difference Between Successive Readings (g)
10	0.000071	0.0002
60	0.0001333	0.0002
120	0.0001287	0.0003

Standard Deviation of the Balance = 0.0001333

(2) Departure from Nominal Value

Reading (g)	Correction (g)	Uncertainty (g)
10.0001	-0.0001	±0.000361
20.0001	-0.00005	
30.0001	-0.00005	
40.0001	0.00003	
50.0002	-0.00028	
60.0001	-0.00018	
70.000	0.00002	
80.0001	-0.00008	
90.0000	0.00005	
100.0001	-0.00025	

Maximum Correction = -0.00028

(3) Off-Centre Loading

A mass of approximately 60 was moved to various position on the balance pan. The balance readings obtained at different position are given in the table.

Centre	Front	Back	Left	Right
60.0001	60.0001	60.0004	59.9997	59.9997

Maximum Difference = 0.0007

(4) Hysteresis

Load (g)	Hysteresis (g)
50	-0.0001333

(5) Limit of Performance of the Balance = ± 0.000680

Checked by : Kenny Li Certified by : _____

Date : 13-02-2009 Date : 16/12/2009

Notes:

1.The balance has been tested according to the specifications laid down in Chapter 6 of the CSIRO Publication "The Calibration of Balances - by David B. Prowse".

2.Uncertainties quoted in this report have been estimated on the basis of there being not more than one chance in one hundred that any value differs from the true value by more than the stated uncertainty.

3.The Limit of Performance is the tolerance band within which all readings of the balance will fall.

MAXLAB

CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	30th December, 2008	***Certificate Number***	MLCN081193S

Customer Information

Company Name	MTR Corporation Limited
Address	MTR Tower, Telford Plaza, 33 Wai Yip St., Kowloon Bay, Kowloon, Hong Kong

Unit Under Test (UUT)

Description	Precision Integrating Sound Level Meter
Manufacturer	Brüel & Kjær
Model Number	Type 2236
Serial Number	1814957
Equipment Number	-

Calibration Result

* All calibration results are within the manufacturer's specification.
* Calibration data are detailed on the attached sheet(s).

Approved By

Laboratory Manager

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the UUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
* MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the UUT.
*

The service is provided under a HKQAA ISO9001:2000 certified quality system of Certificate No. CC1929.

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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	30th December, 2008	*Certificate Number*	MLCN081193S

Calibration Status

Date of Calibration			30th December, 2008
Calibration Equipment Used			4231 (MLTE008)/ CA0801167/ 24th Feb 2010
Calibration Procedure			MLCG00 & MLCG15.
Calibration Uncertainty			±0.2 dB
Calibration Condition	*Lab*	*Temperature*	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	UUT	*Stabilizing Time*	24 hours
		Warm-up Time	10 minutes
		Supply Voltage	Not applicable

Calibration Data

UUT Setting				UUT Rdg	Std Rdg	UUT Error	UUT Error Limit
Frequency Wt.	Parameter	Response	Range (dB)				
A (1 kHz Input)	SPL	F	20 - 100	93.9 dB	94 dB	-0.1 dB	0.7 dB
		S		93.9 dB	94 dB	-0.1 dB	0.7 dB
		I		93.9 dB	94 dB	-0.1 dB	0.7 dB
C (1 kHz Input)		F	20 - 100	93.9 dB	94 dB	-0.1 dB	0.7 dB
		S		93.9 dB	94 dB	-0.1 dB	0.7 dB
		I		93.9 dB	94 dB	-0.1 dB	0.7 dB
L (1 kHz Input)		F	20 - 100	93.9 dB	94 dB	-0.1 dB	0.7 dB
		S		93.9 dB	94 dB	-0.1 dB	0.7 dB
		I		93.9 dB	94 dB	-0.1 dB	0.7 dB
A (1 kHz Input)		F	40 - 120	113.9 dB	114 dB	-0.1 dB	0.7 dB
		S		113.9 dB	114 dB	-0.1 dB	0.7 dB
		I		113.9 dB	114 dB	-0.1 dB	0.7 dB

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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	30th December, 2008	***Certificate Number***	MLCN081195S

Customer Information

Company Name	MTR Corporation Limited
Address	MTR Tower, Telford Plaza, 33 Wai Yip St., Kowloon Bay, Kowloon, Hong Kong

Unit Under Test (UUT)

Description	Precision Integrating Sound Level Meter
Manufacturer	Brüel & Kjær
Model Number	Type 2236
Serial Number	1814960
Equipment Number	-

Calibration Result

* All calibration results are within the manufacturer's specification.
* Calibration data are detailed on the attached sheet(s).

Approved By

Laboratory Manager

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the UUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	30th December, 2008	***Certificate Number***	MLCN081195S

Calibration Status

Date of Calibration			30th December, 2008
Calibration Equipment Used			4231 (MLTE008)/ CA0801167/ 24th Feb 2010
Calibration Procedure			MLCG00 & MLCG15.
Calibration Uncertainty			±0.2 dB
Calibration Condition	***Lab***	***Temperature***	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	UUT	***Stabilizing Time***	24 hours
		Warm-up Time	10 minutes
		Supply Voltage	Not applicable

Calibration Data

UUT Setting				UUT Rdg	Std Rdg	UUT Error	UUT Error Limit
Frequency Wt.	**Parameter**	**Response**	Range (dB)				
A (1 kHz Input)	SPL	F	20 - 100	94.1 dB	94 dB	0.1 dB	0.7 dB
		S		94.1 dB	94 dB	0.1 dB	0.7 dB
		I		94.1 dB	94 dB	0.1 dB	0.7 dB
C (1 kHz Input)		F	20 - 100	94.1 dB	94 dB	0.1 dB	0.7 dB
		S		94.1 dB	94 dB	0.1 dB	0.7 dB
		I		94.1 dB	94 dB	0.1 dB	0.7 dB
L (1 kHz Input)		F	20 - 100	94.1 dB	94 dB	0.1 dB	0.7 dB
		S		94.1 dB	94 dB	0.1 dB	0.7 dB
		I		94.1 dB	94 dB	0.1 dB	0.7 dB
A (1 kHz Input)		F	40 - 120	114.0 dB	114 dB	0.0 dB	0.7 dB
		S		114.0 dB	114 dB	0.0 dB	0.7 dB
		I		114.0 dB	114 dB	0.0 dB	0.7 dB

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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	6th November, 2008	***Certificate Number***	MLCN080969S

Customer Information

Company Name	MTR Corporation Limited
Address	MTR Tower, Telford Plaza, 33 Wai Yip St., Kowloon Bay, Kowloon, Hong Kong

Unit Under Test (UUT)

Description	Sound Level Calibrator
Manufacturer	Brüel & Kjær
Model Number	4231
Serial Number	1795385
Equipment Number	-

Calibration Result

* All calibration results within the manufacturer's specification.
* Calibration data are detailed on the attached sheet(s).

Approved By

Laboratory Manager

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the UUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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MAXLAB
CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	6th November, 2008	*Certificate Number*	MLCN080969S

Calibration Status

Date of Calibration			6th November, 2008
Calibration Equipment Used			4231 (Spec) (MLTE008)/ CA0801167/ 24th Feb 2008 1351 (MLTE049)/ MLEC08/06/02/ 14th Jun 2009
Calibration Procedure			MLCG00 & MLCG15.
Calibration Uncertainty			± 0.1 dB
Calibration Condition	*Lab*	*Temperature*	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	UUT	*Stabilizing Time*	24 hours
		Warm-up Time	Not applicable
		Supply Voltage	Not applicable

Calibration Data

UUT Setting	STD Rdg	UUT Error	UUT Error Limit
94 dB	94.0 dB	0.0 dB	0.2 dB
114 dB	114.0 dB	0.0 dB	0.2 dB

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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	6th November, 2008	***Certificate Number***	MLCN080973S

Customer Information

Company Name	MTR Corporation Limited
Address	MTR Tower, Telford Plaza, 33 Wai Yip St., Kowloon Bay, Kowloon, Hong Kong

Unit Under Test (UUT)

Description	Sound Level Calibrator
Manufacturer	Brüel & Kjær
Model Number	4231
Serial Number	1795391
Equipment Number	-

Calibration Result

* All calibration results within the manufacturer's specification.
* Calibration data are detailed on the attached sheet(s).

Approved By

Laboratory Manager

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the UUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	6th November, 2008	***Certificate Number***	MLCN080973S

Calibration Status

Date of Calibration			6th November, 2008
Calibration Equipment Used			4231 (Spec) (MLTE008)/ CA0801167/ 24th Feb 2008 1351 (MLTE049)/ MLEC08/06/02/ 14th Jun 2009
Calibration Procedure			MLCG00 & MLCG15.
Calibration Uncertainty			± 0.1 dB
Calibration Condition	***Lab***	***Temperature***	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	UUT	***Stabilizing Time***	24 hours
		Warm-up Time	Not applicable
		Supply Voltage	Not applicable

Calibration Data

UUT Setting	STD Rdg	UUT Error	UUT Error Limit
94 dB	94.0 dB	0.0 dB	0.2 dB
114 dB	114.1 dB	0.1 dB	0.2 dB

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Appendix F
Monitoring Schedules

Air Impact Monitoring

1. The air impact monitoring schedule for the present reporting period is shown in Section 3.1.

2. The air impact monitoring schedule for the next reporting period will commence on 12 July 2010 and will be conducted at a sampling frequency of at least once in every six days.

Noise Impact Monitoring

1. The noise impact monitoring schedule for the present reporting period is shown in Section 3.2.

2. The noise impact monitoring schedule for the next reporting period will commence on 12 July 2010 and will be conducted at a frequency of once a week when construction activities are underway.

Appendix G
Certified Arborist Monthly Inspection Record for
June 2010

WEST ISLAND LINE

Consultancy Agreement No. : C735F - Arborist for Tree Protection

Consultant : Muni Arborist Limited

Name : Mike Leung (Certified Arborist)

Monthly Inspection Record for June 2010

Date	Activity Description	Purpose
03 June 2010	Regular Inspection for June	Monitor the conditions of transplanted and retained trees
21 June 2010	Regular Inspection for June	Monitor the conditions of transplanted and retained trees

Signed by Muni Arborist Limited : _____

Date :30 June 2010

The Transplant and protection works were carried out in accordance with requirement of the Tree Protection Plan in general

Appendix H
Revised Technical Note of Re-examination for WIL Hazard to Life

本署檔號
OUR REF: (14) in Ax(7) to EP1/G/72 Pt.XII
來函檔號
YOUR REF: NEX1042-COR-HSD-ENV-030129
電話
TEL. NO.: 2835 1142
圖文傳真
FAX NO.: 2591 0558
電子郵件
E-MAIL:
網址
HOMEPAGE: http://www.epd.gov.hk

Environmental Protection Department
Branch Office
28th Floor, Southorn Centre,
130 Hennessy Road,
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環境保護署分處
香港灣仔
軒尼詩道
一百三十號
修頓中心廿八樓

MTR Corporation Limited,
MTR Headquarters Building, Telford Plaza,
Kowloon Bay, Kowloon, Hong Kong.

1 June 2010
By Post & Fax : 2798 8822
(Total 1 page)

(Attn.: Dr. Glenn Frommer, Head of Sustainability Development)

Dear Sir,

West Island Line (WIL) - Hazard Assessment

We refer to your letter dated 19-5-2010 regarding the above and the enclosed Revised Technical Note of Re-examination for WIL Hazard to Life (Revised TN) and Responses to Comments from the Hazard Assessment Section of EPD vide their letter to you dated 30-4-2010.

The Revised TN has been checked by our specialists at the Hazard Assessment Section and they found that their comments have been addressed. Hence, the Revised TN, which concluded that "... *the overall conclusions and recommendations from the original WIL study remain unchanged* ...", may be considered in order from hazard assessment perspective.

According to the approved WIL EM&A Manual Section 10.1, "*Blasting activities regarding transport, storage and use of explosives should be audited at practical intervals to ensure that the assumptions and recommendations from the QRA and the recommendations from the systematic hazard identification workshop are implemented in accordance with the intent of the Hazard to Life assessment.*" The Revised TN may be considered such an audit. The approved WIL EM&A Manual Section 12.5 also stipulates that "*The results and findings of all EM&A works required in this Manual shall be recorded in the monthly EM&A reports .....*".

Hence, you may consider including the Revised TN in the next Monthly EM&A Report, perhaps as an appendix, with a summarized gist in the main text.

Yours sincerely,

Sustainability Development Department	
SD#	
Recd On:	2 JUN 2010 Encl ☒
Copy To:	
To:	

(Steve T.S. LI)
Acting Senior Environmental Protection Officer
for Director of Environmental Protection

C.C. RDO/HyD (Attn: Mr. Cyrus Y.K. Wong) Fax: 2714 5297

Internal AD(EA) – f.i.
P(MA), P(RA), S(RA)5, S(RS)1 - f.i. EP2/G/A/138
Ax(1) to EP2/G/A/138

MTR Corporation Limited
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www.mtr.com.hk

MTR

Environmental Protection Department
Branch Office
28/F Southorn Centre
130 Hennessy Road
Wanchai, Hong Kong

Attn. Victor Yeung

Your ref:

Our ref: NEX1042-COR-HSD-ENV-030129

19 May 2010

BY FAX & POST
2591 0558

Dear Mr. Yeung,

Hazard Assessment on MTR's Railway Project

Further to the letter from EPD dated 22nd April 2009, we have reviewed the information used in the WIL Hazard Assessment (HA) and EIA Report and the potential impacts on the findings and conclusions of this study.

The WIL HA report was based on similar methodologies followed in previous studies including the methodologies and frequencies in the DNV (1997) study which, in turn, is based on the calculations from the Moreton report (1993). This approach of referring to previous studies is in accordance with the EIAO TM (Cap. 499, S.16) and the WIL Study Brief No. ESB-130/2005, Section 3.4.6 Hazard to Life, bullet (v).

During the WIL ESMG meeting on 12th September 2008, the ESMG members recommended to carry out a similar comprehensive study as that undertaken in 1997 by EPD to update the methodologies and the frequencies to take into account recent incident information as well as technical knowledge on explosives behaviour based on current experience and research.

Accordingly, this review was completed for the XRL HA study with the involvement of international experts and taking account of the latest incident data and current knowledge on explosives behaviour upon impact and fire. A number of changes to the assumptions contained in the previous methodologies were required as a result of this process. During this review, it was also found that one of the calculation methods adopted for frequency derivation based on the Moreton report (1993) was not appropriate and therefore this aspect was also corrected in the revised methodology.

We do acknowledge your concerns with regard to the impact on the results and conclusions of the WIL study following this review during the subsequent XRL study.

We have now carried out a revision of the WIL results based on the new accident frequency adopted in the XRL study and also considering the latest information on actual explosives quantities proposed to be used for the WIL project instead of the preliminary design estimates which were slightly conservative. We now find that the results are broadly the same

..../Page 2

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Direct Fax: 2993-7577

and the conclusions that 'the overall risk of storage, transport and use of explosives for the WIL project lies within the acceptable region' remains unchanged.

In reference to your letter dated 30 April 2010, we are now re-submitting the Technical Note and the response to comments

Please contact this undersign should additional information be needed.

Yours sincerely,

Glenn Frommer

Dr Glenn Frommer
Head of Sustainability Development

Enc 1.
c.c.

EPD	-	John Wrigley (Fax: 2574 6571)
DM-WIL	-	Steve Hamill
PM-XRL Tunnels	-	Alan Morris
EEI	-	Eric Leung

GF/JT/ic

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Environmental Resources Management

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Ref/Project number	0107343
Subject	Technical Note of Re-examination for West Island Line Hazard to Life
Date	18 May 2010

BACKGROUND

In 2008, ERM was commissioned by MTR Corporation (MTR) to conduct a Hazard to Life (HtL) Assessment of the Transport, Storage and Use of Explosives for the West Island Line (WIL) Project as part of the Environmental Impact Assessment (EIA) study (referred to as the WIL 2008 study hereafter) (ERM, 2008). This WIL 2008 study was conducted in accordance with previous explosives studies in Hong Kong and was approved by the relevant government departments in late 2008. The societal risk results (F-N Curve) are shown in *Figure 1*.

ERM subsequently undertook the HtL Assessment for Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) (ERM, 2009) another MTR railway extension project with a similar scope to the WIL 2008 study. As part of the XRL HtL Assessment, a review of the explosives risk assessment methodology has been undertaken to bring up to date the most recent knowledge on the subject. One significant outcome of this review is that the probability of *Explosion during the Transport of Explosives* has been revised with a more conservative figure in line with recent knowledge and experience gathered about the explosive properties. Since the probability of explosion during explosive transport has been revised, the Environmental Protection Department (EPD) expressed the concern that the conclusion of the 2008 study could be changed.

Since the initial assessment in 2008, the explosives quantities and delivery planning were further studied by the prospective contractors. It was generally found that the overall explosive quantities required for the project are significantly lower than the explosive quantities initially anticipated during the course of the 2008 HtL assessment. It is therefore expected that this reduction in explosive quantities would result in a significantly lower risk.

MTR commissioned ERM to re-examine the WIL 2008 study taking into account the reduced explosive quantities and the revised explosion frequency related to explosive transportation. All other assumptions made for the QRA in the 2008 study were still considered valid at this stage of the project. This technical note provides the background, results and conclusions of this study.

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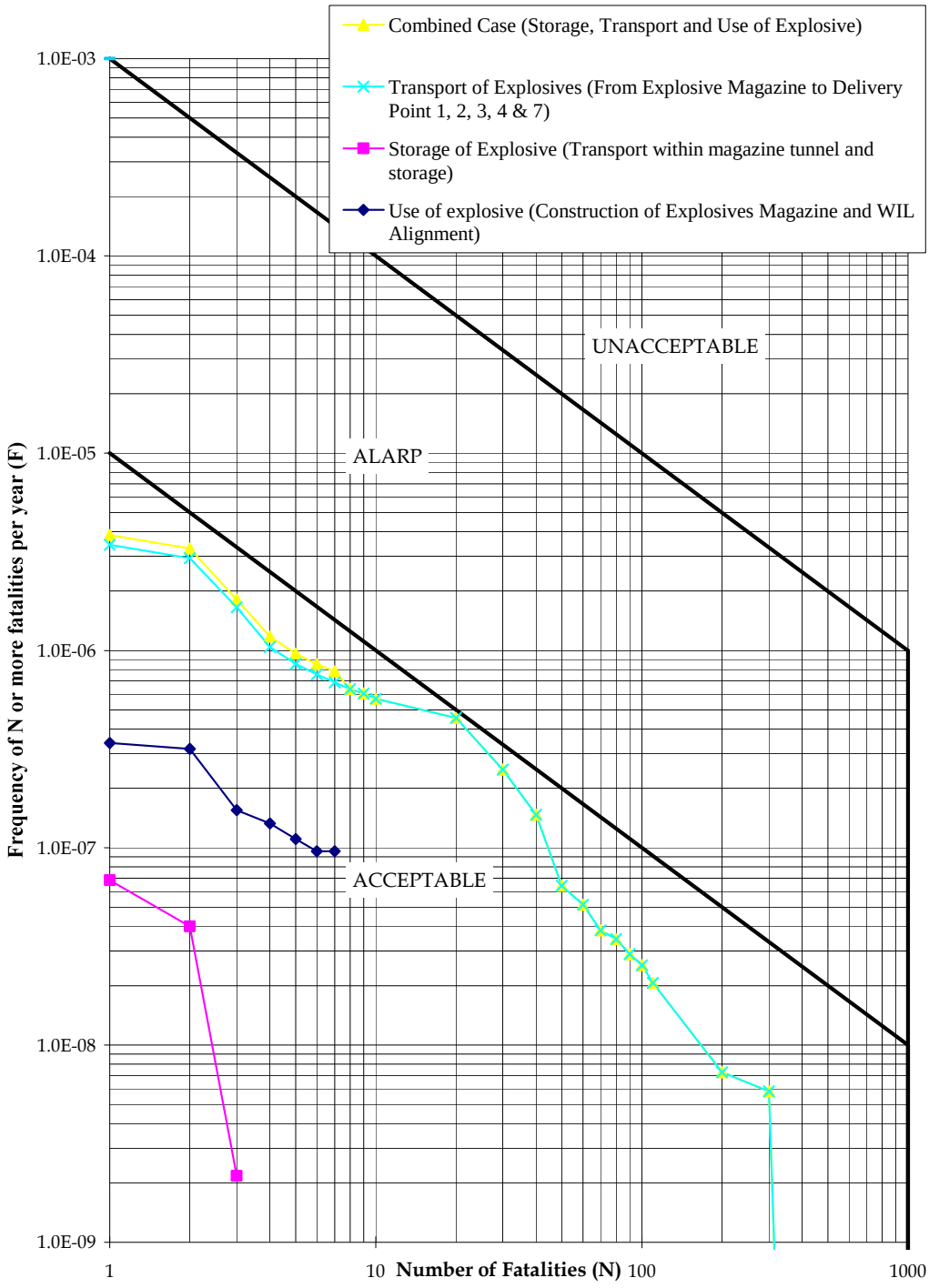
21/F Lincoln House
979 King's Road
Taikoo Place
Island East
Hong Kong

Offices worldwide

Figure 1 F-N curve of the approved WIL 2008 Study



HISTORICAL DEVELOPMENT OF THE PROBABILITY OF EXPLOSION DURING TRANSPORT OF EXPLOSIVES IN HONG KONG

In 1994, EPD commissioned a Quantitative Risk Assessment (QRA) study for the transport of hazardous materials in Hong Kong, EPD CE63/94 (DNV, 1997). This study was undertaken by DNV and completed in 1997. As part of this study, a QRA was conducted for the Transport of Explosives in Hong Kong. This QRA was a territory wide QRA mainly addressing the risks associated with CEDD Mines Division explosives trucks operation. This study was heavily based on a previous UK study conducted from 1991 to 1995 referred to as the ACDS study (ACDS, 1995) and the work done by the authors of the ACDS study (Moreton, 1993).

The WIL study makes reference to the frequency data used in the DNV (1997) study which, in turn, is based on the calculations from the Moreton report (1993). The WIL 2008 study logically applied the same explosives transport explosion frequency as reported in the DNV (1997) study, except for a correction to remove conservatism for the assessment of 'unsafe explosives' which resulted in a lower explosion frequency value than in the DNV study (DNV, 1997).

In the course of the WIL 2008 study, at the second EMSG meeting, representatives from Mines Division requested, for future MTR projects, a review of the explosion frequency during transport to ensure that the figures reflect current Hong Kong conditions and recent historical experience in Hong Kong and worldwide. This review has been undertaken by MTR and ERM in association with international experts from risk and explosives industries as part of the XRL HtL study in mid-2009. This review resulted in two main findings:

(a) the explosive were considered to be more sensitive to fire compared to previous studies;
(b) the frequency derivation based on the Moreton report (1993) was not appropriate, which led to a full review of the derivation of the explosive frequency and further modelling refinements.

As a result of the review, two main modifications were made to the explosion probability associated with the transport of explosives:

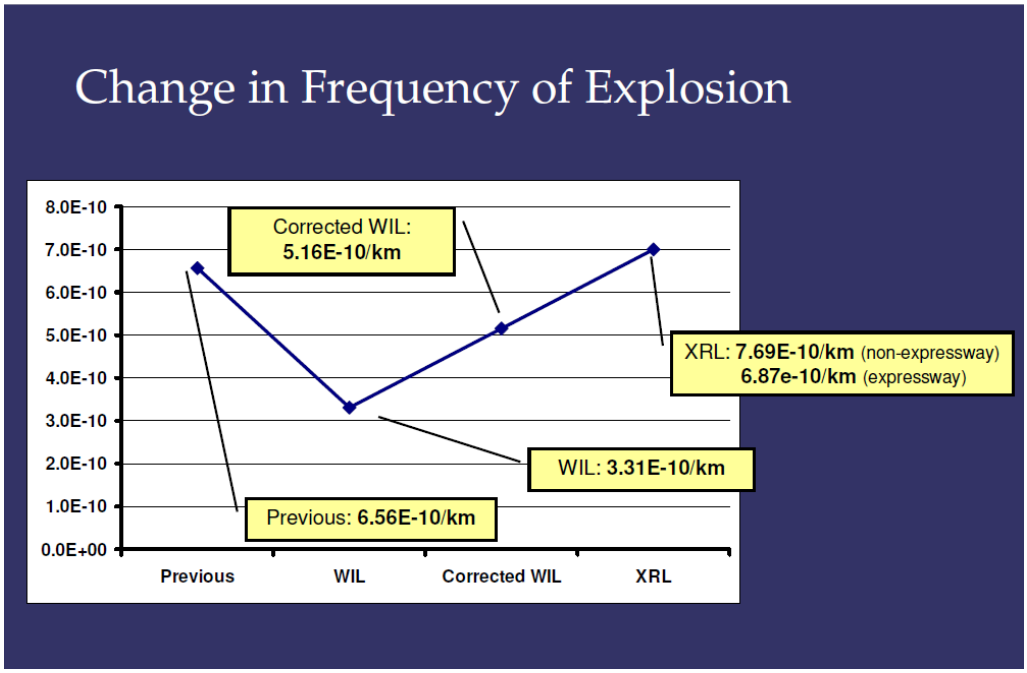
- Use of Hong Kong specific data (as opposed to UK data used in previous studies). The modification was made to reflect Hong Kong conditions and also to correct the inaccuracy carried through from Moreton (1993) relating to UK data; and

- Increase in the probability of explosion under fire condition during transport. The change was driven by further review with explosives experts who confirmed that based on the current knowledge of explosive

properties when compared to the 1990's, the probability of explosion under fire condition should be much higher.

Based on the above changes, although elements of conservatism were also reviewed, the overall explosion probability during transport has been increased by approximately a factor of 2 as compared to the frequency used in the WIL 2008 study although the new value is similar to the one reported in the DNV study, as shown in Figure 2. The outcome of this review has set a standardized approach for subsequent EIAs, such as the studies for the South Island Line (East), Kwun Tong Line Extension, Shatin-Central Link, etc.

Figure 2 Change in Frequency of Explosion for Transport of Explosives



Notes:
(1) "WIL" refers to frequency revised to account for a much reduced probability of explosion due to unsafe conditions when compared to the original studies.
(2) "Corrected WIL" is the "WIL" frequency revised to correct the various calculation inaccuracies from the 1997 study.
(3) "XRL" is the most up-to-date frequency accounting for HK specific data, explosives properties and transport conditions.
(4) "Previous" is the frequency as referenced from Moreton (1993).

BASIS AND RESULTS FOR THIS STUDY

As discussed above, the probability of explosion associated with the transportation of explosives was taken from the XRL study.
Regarding the reduced explosive requirements, the basis for this study is described below.

According to the latest explosives delivery planning, 2 representative scenarios are considered in order to appropriately capture the variation of explosives consumption during the construction period. Case 1 covers the predicted peak consumption at the delivery points 3 and 4 which is expected in the first year of construction from September 2010 to August 2011. Case 2 covers the predicted peak consumption at the delivery points 1, 3 and 7 which is expected from April 2011 to March 2012.

Also, based on the actual logistical planning, the explosives deliveries for delivery points 3 and 4 are combined in the assessment – the same truck going to delivery point 3 unloads explosives there and then goes on to delivery point 4 without returning to the magazine. This change significantly reduces the distance travelled to delivery point 4.

The WIL 2008 study has been re-examined with the WIL explosives delivery schedule described above and the XRL road explosion frequency (ie. 7.69e-10/km). The societal risk results for Case 1 and Case 2 are shown in *Figure 3* and *Figure* 4 respectively. As can be seen, Case 1 shows a higher risk than Case 2 because of much higher rate of delivery at site 4. These results show consistency with the original assessment that the risk associated with explosives transport to delivery point 4 was identified as one of the main risk contributors. Despite a more conservative frequency being used, the risks from both Case 1 and Case 2 remain within the acceptable region of the HKRG as originally concluded in the WIL 2008 study. This can be accounted for by the conservative explosives schedule considered in the original 2008 study.

It is verified that the overall conclusions and recommendations from the original WIL 2008 study remain unchanged when taking into account the revised transport frequency (as per the XRL project) and the envisaged explosives quantities and delivery schedule from the prospective contractors.

Table 1 Case 1 of Assessment (September 2010 to August 2011)

Contractor	Delivery Point	AM		PM		Remarks
		Maximum Load per trip, kg	**Average No. of Trips, per day in AM period (per yr)**	**Maximum Load per trip, kg**	**Average No. of Trips, per day in PM period (per yr)**	
B	1 – Ex-police-quarters, Kennedy Town	80	0.5 (156)	0	0	2 trips in AM, June to August 2011 (3months)
	2 – Kennedy Town Swimming Pool	0	0	0	0	Point 2 will not be used as a delivery point
C	3 –Kennedy Town Praya	200	1 (313)	200	1 (313)	
	4 –end of South Lane	120	0.67 (209)	120	0.67 (209)	1 trip in AM and 1 in PM, September 2010 to April 2011 (8months). 120kg assumed throughout the period although the programme indicates some months will require less at 80kg
D	7 –Sai Woo Lane	80	0.42 (130)	0	0	1 trip in AM, April to August 2011 (5months)

Table 2 Case 2 of Assessment (April 2011 to March 2012)

Contractor	Delivery Point	AM		PM		Remarks
		Maximum Load per trip, kg	**Average No. of Trips, per day in AM period (per yr)**	**Maximum Load per trip, kg**	**Average No. of Trips, per day in PM period (per yr)**	
B	1 – Ex-police-quarters, Kennedy Town	80	1.67 (522)	0	0	2 trips in AM, June 2011 to March 2012 (10months)
	2 – Kennedy Town Swimming Pool	0	0	0	0	Point 2 will not be used as a delivery point
C	3 –Kennedy Town Praya	200	1 (313)	200	1	
	4 –end of South Lane	120	0.083 (26)	120	0.083 (26)	1 trip in AM and 1 in PM, April 2011 (1month).
D	7 –Sai Woo Lane	80	0.75 (235)	0	0	1 trip in AM, April to December 2011 (9months).

Figure 3 *FN Curve for Case 1 (September 2010 to August 2011)*

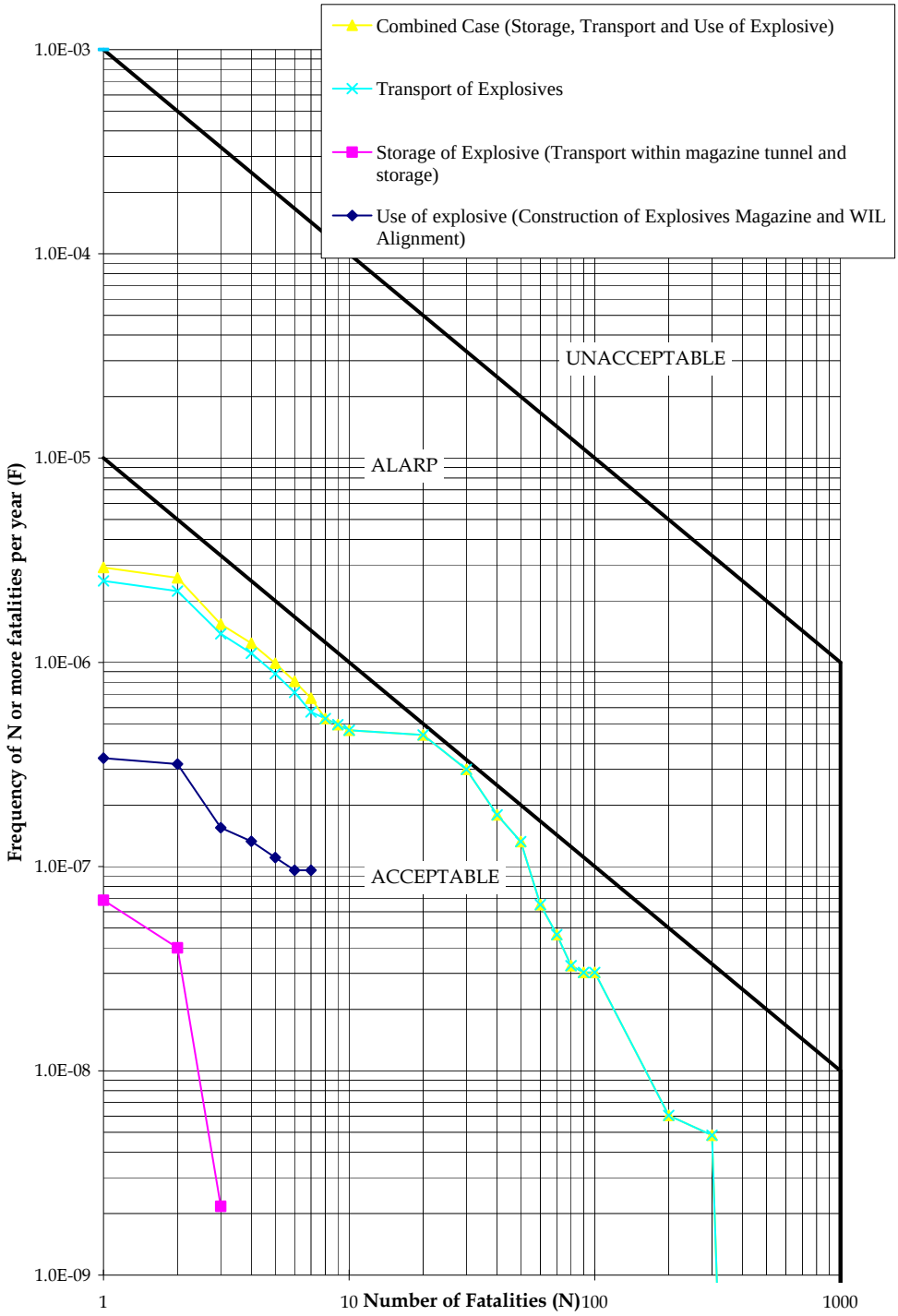
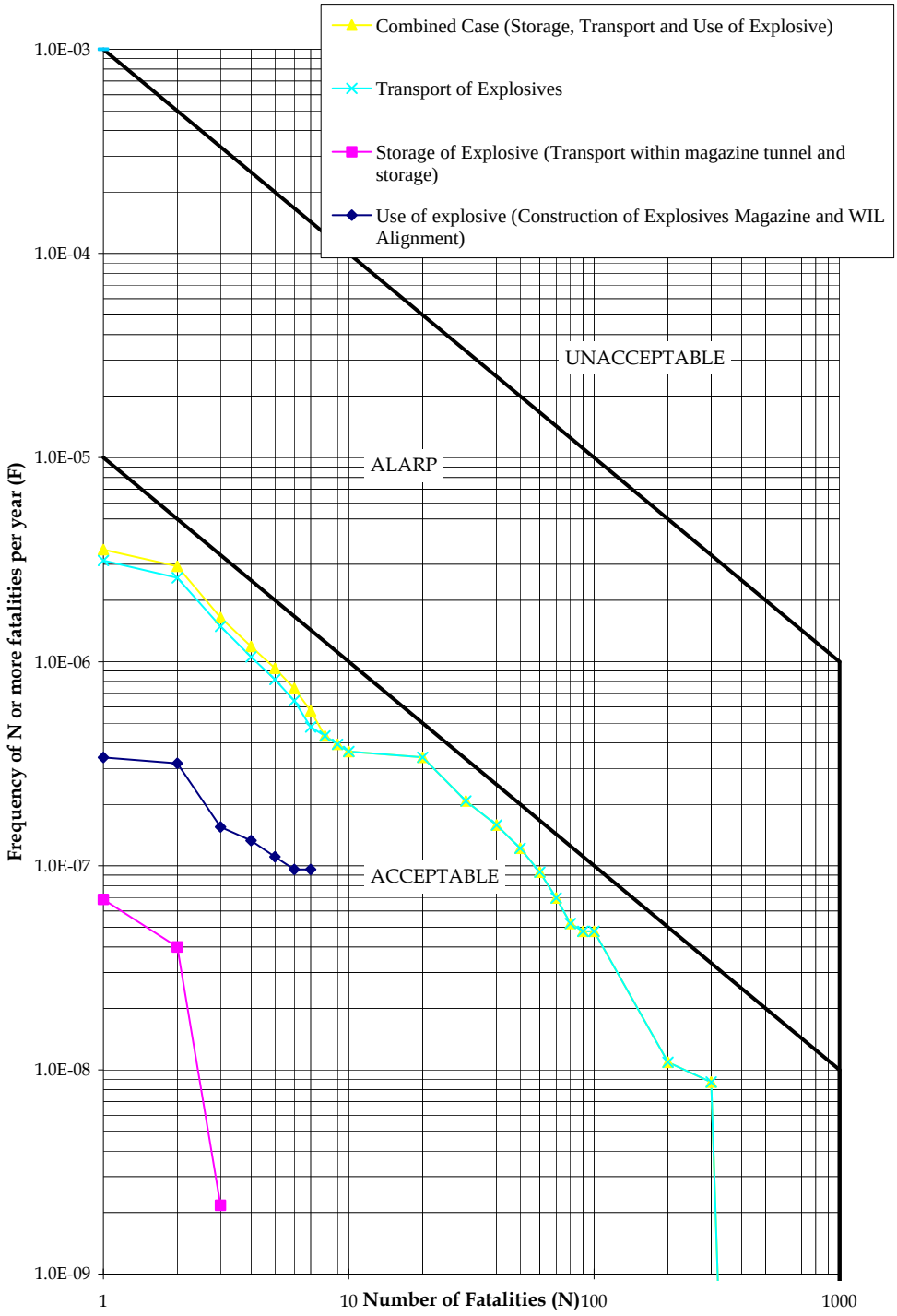


Figure 4 FN Curve for Case 2 (April 2011 to March 2012)



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West Island Line

SUBMISSION REVIEW FORM

REVIEWER : **EPD** DELIVERABLE : Technical Note of Re-examination for West Island Line Hazard to Life REVISION : **A** ISSUE DATE : 30 April 2010

TYPE : **DOC** PAGE : 1 of 1

ITEM NO.	REVIEWER	DOCUMENT REFERENCE	REVIEWER'S COMMENT	CONSULTANT'S RESPONSE	CLOSE DATE
1.	EPD	2nd and 3rd paragraph on page 3 of the Technical Note	Please note the "previous" explosives transport explosion frequency (5.8E-10 per vehicle.km) used in Ocean Park EIA (121/2006) was referenced from Disney Theme Park EIA (41/2000) and originally taken from FSD (2000), not DNV (1997) which was based on UK data. Therefore, it is incorrect that *"the Ocean Park EIA Report refers directly to the DNV study, especially the explosives transport explosion frequency was extracted from the DNV study and re-applied without any modification.*" Please rewrite the 2nd and 3rd paragraph. *(Such amendment is also applicable to the 3rd paragraph in the MTR's letter.)*	Noted. The Technical Note and letter have been revised to reflect the inaccuracy introduced into the assessment by way of the Moreton (1993) study.	
2.	EPD	~ item (b) on page 3 and 1st bullet on page 4	The inappropriate frequency data was originated from the calculation given in Moreton Report (1993) and DNV (1997) just referenced Moreton Report (1993). Please amend the Technical Note with respect to the calculation in the Moreton Report (1993). *(Such amendment is also applicable to the 5th paragraph in the MTR's letter)*	Technical Note and letter amended accordingly.	
3.	EPD	Figure 2	Change in Frequency of Explosion for Transport of Explosives on page 4, there is no reference in the text regarding Figure 2. Please add the description for *"Previous"* in the *"Notes"* of Figure 2, noting our Comment No.1 that previous EIAO explosives transport frequency data 5.8E-10 per vehicle.km originates from FSD (2000) not DNV (1997).	Reference to Figure 2 introduced into the text, and description for "Previous" with reference to the Moreton (1993) study introduced into the "Notes".	
4.	EPD	4th paragraph on page 5	Please note that the societal risk results for Case 1 and Case 2 are shown in Figure 3 and Figure 4 (not Figure 2 and Figure 3), respectively.	Noted and revised accordingly	