



AUES PROJECT NO. TCS/00704/14

**CONTRACT NO. MTRC6593-13C –
WAN CHAI STATION LEE TUNG STREET SUBWAY**

**21ST ENVIRONMENTAL MONITORING AND AUDIT
(EM&A) MONTHLY REPORT – MAY 2016**

**PREPARED FOR
KADEN CONSTRUCTION LIMITED**

Quality Index

Date	Reference No.	Prepared By	Approved By
10 June 2016	TCS00704/14/600/R0098v2	 Martin Li Assistant Environmental Consultant	 T.W. Tam Environmental Team Leader

Version	Date	Description
1	10 June 2016	First Submission
2	10 June 2016	Amended against IEC's comment on 10 June 2016

Your Ref:
Our Ref: 40032976/452236

By Email and Post

MTR Corporation Limited
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Attn.: Mr. Kenneth Chow / Environmental Engineer II

10 June 2016

Dear Sirs

**Consultancy Agreement A130-13
Independent Environmental Checker for CRS and LTS
LTS - Verification for 21st Monthly Environmental Monitoring and Audit (EM&A) Report
(May2016) (Report No.: TCS00704/14/600/R0098v2)**

We refer to the 21st Monthly EM&A Report (May 2016) received under cover of the email from the Environmental Team, AUES, dated on 10 June 2016.

Further to our comments provided on 10 June 2016 and subsequent revision of the Report by AUES on 10 June 2016, we have no further comment and have verified the captioned report (Report No.: TCS00704/14/600/R0098v2).

Should you have any queries, please feel free to contact the undersigned at 3922 9366.

Yours faithfully
AECOM Consulting Services Ltd



Y. W. Fung
Independent Environmental Checker

LLMC/wwsc

cc Kaden Consturction Limited (Attn.: Mr. Ronald Fung) via email
AUES (Attn.: Ms. Nicola Hon) via email

EXECUTIVE SUMMARY

ES01 This is the 21st monthly EM&A Report presenting the monitoring results and inspection findings for the period from **1 to 31 May 2016** (hereinafter ‘the Reporting Period’).

SUMMARY OF ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES02 The monitoring and audit activities during the Reporting Period are summarized in below:-

Environmental Aspect	Environmental Monitoring Parameters / Inspection	Reporting Period	
		Number of Monitoring Location	Total Occasions
Air Quality	24-hour TSP	1	5
Construction Noise	L _{eq(30min)} Daytime	2	10
Site Inspection Audit	Weekly inspection with ET, the Contractor and RE	--	4
	Monthly joint inspection with ET, the Contractor, RE and IEC	--	1

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES03 In the Reporting Period, no air quality and noise monitoring exceedances were registered. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	24-hour TSP	0	0	0	0	0
Construction Noise	L _{eq(30min)} Daytime	0	0	0	0	0

ENVIRONMENTAL COMPLAINT

ES04 No public complaint was received in the Reporting Period.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES05 No environmental summons or successful prosecutions were recorded in the Reporting Period.

REPORTING CHANGE

ES06 No reporting changes were made in the Reporting Period.

SITE INSPECTION

ES07 In the Reporting Period, weekly site inspection by the MTRC, ET and Contractor was carried out on **4, 13, 18 and 25 May 2016** and the IEC was joined the site inspection on **18 May 2016**. No non-compliance but five (5) observations were recorded during the site inspection.

FUTURE KEY ISSUES

ES08 Construction noise is the key environmental issue during construction work of the Project as there are residential buildings nearby. Noise mitigation measures should be fully implemented in accordance with the EM&A requirement.

ES09 Special attention should be paid on the potential construction dust impact as the construction site is located near the residential area. The Contractor should fully implement the construction dust mitigation measures properly.

ES010 The Contractor should prevent muddy water and other water pollutants via site surface water runoff get into public areas and implement water quality mitigation measures properly. Any discharge water should be strictly complied with wastewater discharge license requirement.

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1 INTRODUCTION

PROJECT BACKGROUND

- 1.01 **KADEN CONSTRUCTION LIMITED** (hereinafter ‘KCL’) has been awarded by the MTR Corporation Limited (MTRCL) the Contract No. *MTRC6593-13C – Wan Chai Station Lee Tung Street Subway* (hereinafter “the Project”), which is a Designated Project to be implemented under Environmental Permit EP-444/2012 (hereinafter referred as “the EP-444/2012” or “the EP”).
- 1.02 The Project includes redevelopment of the Lee Tung Street area to improve pedestrian networking by enhancing the accessibility, connectivity and circulation of human traffic north-south from Queen’s Road East area to Wan Chai MTR Station, and providing a safe and attractive means for pedestrian crossing of Johnston Road. The Project site layout plan is shown in *Appendix A* and works under the Project comprise of:
- (i) Construction of a pedestrian subway link between Urban Renewal Authority’s Redevelopment at Site H15 (the Development) and Wan Chai Station (WAC);
 - (ii) Construction of two ventilation shafts; and
 - (iii) Modification works of some of the station concourse.
- 1.03 The Project is expected to be undertaken for 36 months. In order to effectively implement the environmental protection measures as stipulated in the Particular Specification (PS), an Environmental Monitoring and Audit Plan (EMAP) which enclosed in the Project Profile (PP) was prepared to guide the setup of the environmental monitoring and audit (EM&A) programme of the Project.
- 1.04 Action-United Environmental Services and Consulting (AUES) has been commissioned by the KCL as the independent environmental team (ET) to implement the relevant EM&A programme for the Project.
- 1.05 The baseline monitoring program was carried out between 3 June 2014 and 19 June 2014 at the proposed monitoring locations by the ET according to the approved EMAP. The “Baseline Monitoring Report (R0010 Version 4)” has been verified by IEC submitted to the EPD on *15 July 2014* before commencement of major construction works. The construction of the Project was commenced on 28 August 2014 as notified by KCL. Accordingly, relevant EM&A programme was started on 28 August 2014.
- 1.06 This is **21st** monthly EM&A report presenting the monitoring results and inspection findings in the Reporting Period from **1 to 31 May 2016**.

REPORT STRUCTURE

- 1.07 This Report is structured into the following sections:-
- Section 1 Introduction*
 - Section 2 Project Organization*
 - Section 3 Environmental Impact Monitoring Requirement*
 - Section 4 Monitoring Results*
 - Section 5 Waste Management*
 - Section 6 Site Inspections*
 - Section 7 Environmental Complaint and Non-Compliance*
 - Section 8 Implementation Status of Mitigation Measures*
 - Section 9 Conclusions and Recommendations*

2 PROJECT ORGANIZATION AND SUBMISSION

PROJECT ORGANIZATION

2.01 The project organization is shown in *Appendix B*. The responsibilities of respective parties are:

MTR Corporation Limited (MTRCL)

2.02 MTRCL is the Project Proponent and the Permit Holder of the EP of the development of the Project and will assume overall responsibility for the project. Also, an Independent Environmental Checker (IEC) should be employed by MTRCL to audit the results of the EM&A work conducted by Environmental Team.

Environmental Protection Department (EPD)

2.03 EPD is the statutory enforcement body for environmental protection matters in Hong Kong.

Resident Engineer (RE)

2.04 The RE is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the ER with respect to EM&A are:

- Monitor the Contractor's compliance with Contract Specifications, including the effective implementation and operation of the environmental mitigation measures;
- Inform the Contractor when action is required to reduce impacts in accordance with the Event and Action Plans;
- Participate in site inspections undertaken by the ET; and
- Co-operate with the ET in providing all the necessary information and assistance for completion of the complaint investigation works.

Independent Environmental Checker (IEC)

2.05 The IEC should advise the ET and RE on environmental issues related to the project. The IEC should audit from an independent viewpoint on the environmental performance during the construction of the project. The IEC should be a person who has relevant professional qualifications in environmental control and at least 7 years' experience in EM&A and environmental management. The duties and responsibilities of the IEC are:

- Review and audit in an independent, objective and professional manner in all aspects of the EM&A programme;
- Validate and confirm the accuracy of monitoring results, appropriateness of monitoring equipment, monitoring locations with reference to the locations of the nearby sensitive receivers, and monitoring procedures;
- Carry out random sample check and audit on monitoring data and sampling procedures, etc;
- Conduct random site inspection;
- Review the effectiveness of environmental mitigation measures and project environmental performance;
- On an as-need basis, verify and certify the environmental acceptability of the construction methodology (both temporary and permanent works), relevant design plans and submissions under the environmental permit. Where necessary, the IEC should agree in consultation with the ET and the Contractor least impact alternative;
- Check complaint cases and the effectiveness of corrective measures;
- Verify EM&A report certified by the ET Leader; and
- Feedback audit results to RE/ET according to the Event/Action Plan.

Environmental Team (ET)

2.06 The ET should conduct the EM&A programme and ensure the Contractor's compliance with the project's environmental performance requirements during construction. The ET should plan, organize and manage the implementation of the EM&A programme and ensure that the EM&A works are undertaken to the required standard.

2.07 The ET should be led and managed by the ET Leader. The ET Leader should have relevant

professional qualifications in environmental control and possess at least 7 years' experience in EM&A. The ET Leader should be responsible for the implementation of the EM&A programmes in accordance with the EM&A requirements. The duties and responsibilities of the ET include:

- Sampling, analysis and statistical evaluation of monitoring parameters;
- Environmental site surveillance;
- Inspection and audit of compliance with environmental protection, and pollution prevention and control regulations;
- Assess the effectiveness of the environmental mitigation measures implemented;
- Monitor compliance with the environmental protection clauses/specifications in the Contract;
- Review construction programme and comment as necessary;
- Review work methodologies which may affect the extent of environmental impact during the construction phase and comment as necessary;
- Complaint investigation, evaluation and identification of corrective measures;
- Liaison with the IEC on all environmental performance matters, and timely submission of all relevant EM&A proforma for IEC's approval; and
- Advice to Contractor on environmental improvement, awareness and enhancement matters etc.

The Contractor

- 2.08 The Contractor should report to the RE. The duties and responsibilities of the Contractor are:
- Comply with the relevant contract conditions and specifications on environmental protection
 - Participate in the site inspections undertaken by the ET;
 - Provide assistance to ET to carry out monitoring;
 - Provide requested information to the ET in the event of any exceedance in the environmental criteria (Action/Limit levels);
 - Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event / Action Plans; and
 - Cooperate with the ET in providing all the necessary information and assistance for completion of the complaint investigation works. If mitigation measures are required following the investigation, the Contractor should promptly carry out these measures.

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

- 2.09 In accordance with the EP stipulation, the required documents and submission status to EPD are listed in Table 2-1.

Table 2-1 Submission/Set-up Status of the EP Requirements

EP Condition	Submission	Status
2.3	Management Organization of Main Construction Companies	Submitted
2.7	Landscape Plan	Submitted
3.3	Baseline Monitoring Report (TCS00704/14/600/R0010v4)	Submitted
4.2	Internet website	live

- 2.10 Summary of environmental permits, licenses, and relevant notifications on environmental protection for the Project are presented in **Table 2-2**.

Table 2-2 Status of Environmental Licenses and Permits of the Project

Item	Description	License/Permit Status
1	Air Pollution Control (Construction Dust) Regulation	Notified EPD.
2	Chemical Waste Producer Registration - Waste Producers Number	WPN:5213-131-K3099-01 Approved on 14/05/2014
3	Water Pollution Control Ordinance - Discharge License	License no.: WT00019539-2014 Approved on 16/07/2014 Valid to: 31/07/2019
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account no.: 7019837 Approved on 30/04/2014

Item	Description	License/Permit Status
5	Construction Noise Permit under Noise Control Ordinance	GW-RS0164-16 obtained on 11 Mar 2016 Valid from 11 Mar 2016 to 10 Sep 2016
		GW-RS0165-16 obtained on 14 Mar 2016 Valid from 14 Mar 2016 to 13 Sep 2016

CONSTRUCTION PROGRESS

2.11 The construction activities conducted in the Reporting Period are listed in below. Moreover, the master construction program is shown in *Appendix B*.

- Construction of main beam and traffic deck, reinstatement of site area at Eastbound
- Construction of main beam for mini piles and bulk excavation at Westbound footpath
- Modification of steel decking platform at Children Playground
- ABWF for external finishing at WAC Station

3 ENVIRONMENTAL IMPACT MONITORING REQUIREMENT

3.01 The ET will implement the EM&A programme in accordance with the requirements in EMAP. Details of the EM&A programme are presented in the following sub-sections.

MONITORING PARAMETERS

3.02 The EM&A impact monitoring program covers the following environmental aspects:

- Air quality; and
- Construction noise

3.03 A summary of the monitoring parameters is presented in *Table 3-1*:

Table 3-1 Summary of the monitoring parameters of EM&A Requirements

Environmental Issue	Parameters
Air Quality	<ul style="list-style-type: none"> • 24-hour Total Suspended Particulate (hereinafter '24-hour TSP') • 1-hour TSP monitoring (*)
Construction Noise	<ul style="list-style-type: none"> • A-weighted equivalent continuous sound pressure level (30min) (hereinafter 'L_{eq(30min)}') during the normal working hours

Remarks:

(*) *In case 24-hour TSP exceed the air quality criteria to be carried out*

MONITORING LOCATIONS

3.04 According to Sections 2.3 and 3.4 of the EMAP which enclosed in the Project Profile (Register No. PP-472/2012), construction noise and air quality monitoring locations are required to be set up at Hennessy Building and Chiu Hin Mansion. In early May 2014, site visit was conducted to select suitable locations to carry out relevant noise and air monitoring for the EM&A Programme. It was noted that both Hennessy Building and Chiu Hin Mansion are residential buildings and only the 1/F to 2/F of the buildings could be accessed which are commercial premises. It is not possible to set up the monitoring station at upper floors inside the residential apartment which will cause nuisance to the residents. Finally, two locations at lower floor were selected which access were successfully granted by the premises occupiers. The monitoring stations proposed for the Project are summarized in *Table 3-2* and illustrated in *Appendix C*.

Table 3-2 Air and Noise Monitoring Locations

Aspect	Monitoring Location	Location ID	Address	Description
Air Quality	Chiu Hin Mansion	A1	balcony at 1/F of Chiu Hin Mansion	ASR close to the Project site
Construction Noise	Hennessey Building	N1	2/F floor of Hennessey Building	NSR facing to the Project site
	Chiu Hin Mansion	N2	balcony at 1/F of Chiu Hin Mansion	NSR facing to the Project site

MONITORING FREQUENCY AND PERIOD

3.05 The requirements of impact monitoring as stipulated in the EMAP are presented in following.

Air Quality

3.06 Frequency of impact air quality monitoring:

- 24-hour TSP Once every 6 days during course of works.

3.07 In case of non-compliance with the air quality criteria, a more frequent monitoring exercise adopting 1-hour TSP monitoring undertaken when the highest dust impact occurs, as specified in the Event and Action Plan, should be conducted within 24 hours after the result is obtained. This additional monitoring should be continued until excessive dust emission or the deterioration in air quality is rectified.

Construction Noise

- 3.08 One set of $L_{eq(30min)}$ as 6 consecutive $L_{eq(5min)}$ between 0700-1900 hours on normal weekdays and once every week during course of works. If construction work necessary to carry out at other time periods, i.e. restricted time period (19:00 to 07:00 the next morning and whole day on public holidays) (hereinafter referred as “the restricted hours”), 3 consecutive $L_{eq(5min)}$ measurement will be depended on CNP requirements to undertake. Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.

MONITORING EQUIPMENT

Air Quality Monitoring

- 3.09 The 24-hour TSP shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B (USEPA)*. A direct reading dust meter is used to measure 1-hour TSP air quality, in case of non-compliance of air quality criteria occurred in 24-hour TSP measurement.
- 3.10 The filter paper sample collected in 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory. All equipments to be used for air quality monitoring are listed in **Table 3-3**.

Table 3-3 Air Quality Monitoring Equipment

Equipment	Model
<i>24-hour TSP</i>	
High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
Calibration Kit	TISCH Model TE-5025A
<i>1- hour TSP</i>	
Portable Dust Meter	TSI Model 8520 DustTrak Aerosol Monitor / Aerocet 531 Handheld Particle Mass Profiler & Counter / Sibata LD-3A Laser Dust Monitor

- 3.11 According to the EMAP, wind data monitoring equipment shall be provided and set up for logging wind speed and wind direction near the dust monitoring locations. The equipment installation location shall be proposed by the ET and agreed with the IEC. For installation and operation of wind data monitoring equipment, the following points shall be observed:
- 1) The wind sensors should be installed 10 m above ground so that they are clear of obstructions or turbulence caused by buildings.
 - 2) The wind data should be captured by a data logger. The data shall be downloaded for analysis at least once a month.
 - 3) The wind data monitoring equipment should be re-calibrated at least once every six months.
 - 4) Wind direction should be divided into 16 sectors of 22.5 degrees each.
- 3.12 Although ET was successful granted HVS installation premises, the owners rejected to install wind data monitoring equipment.
- 3.13 In this situation, the ET proposed to adopt the meteorological information from King’s Park Weather Station from the Hong Kong Observatory as the representative wind data. King’s Park Station provided all useful from information such as humidity, rainfall, and air pressure and temperature etc.
- 3.14 Although there are other closer weather stations, King’s Park Station was selected as it is the nearest weather station that measures all the relevant parameters mentioned above. Moreover, the ET has compared the data among the stations, and concluded that there is minimal difference between meteorological data collected at the King’s Park station and other stations.

Construction Noise Monitoring

- 3.15 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind

speed shall be checked with a portable wind speed meter capable of measuring the wind speed in ms^{-1} . Furthermore, an acoustic calibrator and sound level meter shall be calibrated yearly.

- 3.16 Noise monitoring equipment to be used for monitoring is listed in *Table 3-4*.

Table 3-4 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	B&K Type 2238
Calibrator	Rion NC-73 / B&K Type 4231/ Cesva CB-5
Portable Wind Speed Indicator	Testo Anemometer

MONITORING METHODOLOGY

24-hour TSP

- 3.17 The equipment used for 24-hour TSP measurement is a Tisch Environmental, Inc. Model TE-5170 TSP high volume air sampling system, which complied with USEPA Code of Federal Regulation, Appendix B to Part 50. The High Volume Air Sampler (HVS) consists of the following:
- An anodized aluminum shelter;
 - A 8”x10” stainless steel filter holder;
 - A blower motor assembly;
 - A continuous flow/pressure recorder;
 - A motor speed-voltage control/elapsed time indicator;
 - A 7-day mechanical timer, and
 - A power supply of 220v/50 hz
- 3.18 The HVS is calibrated in accordance with the manufacturer’s instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5028A). The 24-hour TSP monitoring using the HVS is also processed in accordance with the manufacturer’s Operations Manual. The valid calibration certificate of the calibration kit with the certificate of HVS calibrated is shown in *Appendix D*.
- 3.19 24-hour TSP is collected on filters of the HVS and quantified by a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (ALS), upon receipt of the samples. The ET will keep all the sampled 24-hour TSP filters in normal air conditioned room conditions, i.e. 70% HR (Relative Humidity) and 25°C, for six months prior to disposal. HOKLAS-accreditation certificate of ALS Technichem (HK) Pty Ltd (ALS) is provided in *Appendix E*.

Noise

- 3.20 Sound level meter complied with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications, as recommended in Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO). The valid of calibration certificates including sound level meter and an acoustic were shown in *Appendix D*.
- 3.21 The noise measurement is performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq(30min)}$ in six consecutive $L_{eq(5min)}$ measurements were used as the monitoring parameter.
- 3.22 During monitoring, the sound level meter mounted at the monitoring locations and oriented such that the microphone pointed to the site with the microphone facing perpendicular to the line of sight. The windshield was fitted for the measurement. For the monitoring, N1 and N2 are conducted 1 m from the exterior of the building façade.
- 3.23 Prior construction noise measurement, the accuracy of the sound level meter checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The calibration level from before and after the noise measurement agrees to within 1.0dB.

DERIVATION OF ACTION/LIMIT (A/L) LEVELS

- 3.24 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. According to EMAP, the air quality and construction noise criteria were set up, namely Action and Limit levels are listed in *Tables 3-5* and *3-6*.

Table 3-5 Action and Limit Levels for Air Quality Monitoring

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
A1	290	162	500	260

Table 3-6 Action and Limit Levels for Construction Noise

Monitoring Station	0700-1900 hours on normal weekdays	
	Action Level	Limit Level
N1 and N2	When one documented complaint is received	75 dB(A)

Note: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the NCA have to be followed.

- 3.25 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan which presented in *Appendix F*.

DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.26 The all monitoring data were handled by the ET's in-house data recording and management system.
- 3.27 The monitoring data recorded in the equipment were downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data were input into a computerized database properly maintained by the ET. The laboratory results were input directly into the computerized database and checked by personnel other than those who input the data.
- 3.28 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

4 MONITORING RESULTS

4.01 The impact air quality and construction noise monitoring schedule is presented in *Appendix G* and the monitoring results are summarized in the following sub-sections.

24-HOUR TSP AIR QUALITY MONITORING RESULTS

4.02 In the Reporting Period, **5** occasions of 24-hours TSP monitoring were carried out at the proposed location A1 and the monitoring results are summarized in *Table 4-1*. The detailed 24-hour TSP monitoring data are presented in *Appendix H* and the relevant graphical plots are shown in *Appendix I*.

Table 4-1 Summary of 24-hour TSP Monitoring Results – A1

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)	Action Level	Limit Level
4-May-16	51	162	260
10-May-16	57		
16-May-16	56		
21-May-16	90		
27-May-16	18		
Average (Range)	54 (18 – 90)		

4.03 As shown in *Table 4-1*, 24-hour TSP monitoring results are fluctuated below Action/ Limit Levels.

NOISE MONITORING RESULTS

4.04 In the Reporting Period, **10** occasions noise measurement were conducted at N1 and N2. The sound level meter was set in 1m from the exterior of the building façade at N1 and N2. Therefore, no façade correction (+3dB(A)) is added according to acoustical principles and EPD guidelines. The noise measurement results at N1 and N2 are listed in *Tables 4-2* and *4-3*. The relevant graphical plots are shown in *Appendix I*.

Table 4-2 Noise Monitoring Results of N1 (2/F floor of Hennessey Building), dB(A)

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	L _{eq30min}
3-May-16	13:26	74.1	74.4	74.5	74.8	74.9	74.2	74
10-May-16	16:56	73.4	74.3	74.6	73.2	73.4	74.3	74
17-May-16	10:49	70.1	68.7	69.4	69.9	70.0	70.5	70
24-May-16	14:48	69.0	72.7	71.6	71.8	68.1	67.4	71
31-May-16	14:56	68.6	66.9	72.0	67.4	66.6	67.5	69
Limit Level of Construction Noise		75 dB(A)						

Table 4-3 Noise Monitoring Results of N2 (balcony at 1/F of Chiu Hin Mansion), dB(A)

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	L _{eq30min}
3-May-16	14:20	71.4	69.9	71.4	70.0	70.1	72.5	71
10-May-16	16:15	70.0	69.3	68.6	69.6	68.6	69.6	69
17-May-16	14:05	68.9	72.4	72.2	74.5	73.9	71.5	73
24-May-16	11:05	72.9	72.6	71.2	73.0	72.3	73.6	73
31-May-16	14:16	73.9	73.2	73.4	74.5	73.5	72.4	74
Limit Level of Construction Noise		75 dB(A)						

4.05 As shown in Tables 4-2 and 4-3, no noise measurement exceedance was recorded at both N1 and N2. Furthermore, there is no noise complaint (Action Level exceedance) received by the MTRCL and Contractor or EPD in the Reporting Period. The meteorological data during the impact monitoring days are shown in *Appendix J*.

5 WASTE MANAGEMENT

GENERAL WASTE MANAGEMENT

5.01 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time.

RECORDS OF WASTE QUANTITIES

5.02 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil.

5.03 The quantities of waste for disposal in this Reporting Period are summarized in *Tables 5-1* and *5-2* and the Monthly Summary Waste Flow Table is shown in *Appendix K*.

Table 5-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity	Disposal Location
Total C&D Materials (Inert) (m ³)	0	-
Reused in this Contract (Inert) (m ³)	0	-
Reused in other Projects (Inert) (m ³)	0	-
Disposal as Public Fill (Inert) (m ³)	0.09171	TKO 137

Table 5-2 Summary of Quantities of Non-Inert C&D Wastes

Type of Waste	Quantity	Disposal Location
Recycled Metal (m ³)	0	-
Recycled Paper / Cardboard Packing (m ³)	0	-
Recycled Plastic (m ³)	0	-
Chemical Wastes (m ³ /L)	0	-
General Refuses (m ³)	0.001	SENT Landfill

5.04 In the Reporting Period, effluent generated from the Project was discharged in accordance with the Wastewater Discharge License.

5.05 Moreover, it is reminded that C&D materials would be reused on-site as far as practicable.

6 SITE INSPECTION

6.01 According to the EMAP, the environmental site inspection shall be formulation by ET Leader. Weekly environmental site inspections should carry out to confirm the environmental performance.

FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

6.02 During the Reporting Period, **Four (4)** occasions of weekly site inspections to evaluate site environmental performance was carried out by the RE, ET and the Contractor on **4, 13, 18 and 25 May 2016** and the IEC was joined the site inspection on **18 May 2016**.

6.03 No non-compliance was noted. However, five (5) observations were recorded by the ET. The findings / deficiencies observed during the weekly site inspections are listed in **Table 6-1**.

Table 6-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
4 May 2016	<ul style="list-style-type: none"> • The Contractor was advised to dispose construction waste and general waste regularly. 	<ul style="list-style-type: none"> • Construction waste was disposed regularly.
13 May 2016	<ul style="list-style-type: none"> • The Contractor was should provide better cover for the grout mixer to reduce dust impact. • The Contractor should block the gaps of water barriers at area H14 to ensure no construction material is outside the construction area. 	<ul style="list-style-type: none"> • Item was followed on 18 May 2016. • Water barriers was covered properly.
18 May 2016	<ul style="list-style-type: none"> • The Contractor was should provide better cover for the grout mixer to reduce dust impact. • The contractor was advised to dispose empty cement bags regularly. 	<ul style="list-style-type: none"> • The grout mixer was removed from site. • The empty cement bags was disposed.
25 May 2016	<ul style="list-style-type: none"> • The contractor was advised to provide proper tree protection zone for retained trees. 	<ul style="list-style-type: none"> • To be follow-up in next reporting period.

6.04 No site inspection was undertaken by external parties i.e. EPD in this Reporting Month.

7 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

7.01 For the Project, no environmental complaint, summons and prosecution was received in the Reporting Period. The statistical summary table of environmental complaint is presented in *Tables 7-1, 7-2 and 7-3.*

Table 7-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics					
	Frequency	Cumulative	Complaint Nature			
			Air	Noise	Water	Others
28 Aug 2014 – 30 Apr 2016	0	0	NA	NA	NA	NA
1– 31 May 2016	0	0	NA	NA	NA	NA

Table 7-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics					
	Frequency	Cumulative	Air	Noise	Water	Others
28 Aug 2014 – 30 Apr 2016	0	0	NA	NA	NA	NA
1– 31 May 2016	0	0	NA	NA	NA	NA

Table 7-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics					
	Frequency	Cumulative	Air	Noise	Water	Others
28 Aug 2014 – 30 Apr 2016	0	0	NA	NA	NA	NA
1– 31 May 2016	0	0	NA	NA	NA	NA

8 IMPLEMENTATION STATUS OF MITIGATION MEASURES

GENERAL REQUIREMENTS

- 8.01 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the EMAP covered the issues of dust, noise, water and waste and they are summarized presented in *Appendix L*.
- 8.02 The Works under the Project shall be implementing the required environmental mitigation measures according to the EMAP as subject to the site condition. Environmental mitigation measures generally to be implemented by the Contractor is listed in *Table 8-1*.

Table 8-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Air Quality	<ul style="list-style-type: none"> • Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather; • Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers; • Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet; • Public areas around the site entrance/exit had been kept clean and free from dust; and • Tarpaulin covering of any dusty materials on a vehicle leaving the site.
Noise	<ul style="list-style-type: none"> • Good site practices to limit noise emissions at the sources; • Use of quiet plant and working methods; • Use of site hoarding or other mass materials as noise barrier to screen the working site; • Use of shrouds/temporary noise barriers to screen noise from relatively static PMEs; and • Limiting as use one construction plant within worksite, where practicable.
Water Quality	<ul style="list-style-type: none"> • Wastewater were appropriately treated by treatment facilities; • Drainage channels were provided to convey run-off into the treatment facilities; and • Drainage systems were regularly and adequately maintained.
Waste and Chemical Management	<ul style="list-style-type: none"> • Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible; • Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner; • The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designed public filling facility and/or landfill; and • Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.
Landscape and Visual	<ul style="list-style-type: none"> • Clear demarcation of works area to prevent damages to existing trees in close proximity; • Protection of all trees planned to be retained onsite; • Preserving all affected trees by transplanting where practical. Tree transplanting application and tree removal application shall be submitted for approval in accordance with ETWB TCW 3/2006; and • Screening of construction works by hoardings/noise barriers around Works area in visually unobtrusive colors.
General	<ul style="list-style-type: none"> • The site was generally kept tidy and clean.

TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

8.03 Construction activities as undertaken in the coming month for the Project lists below:

- Temporary traffic deck of stage 2 ELS on Johnston Road Eastbound Fast Lane
- RC decking of Temp. Tram Deck
- Bulk excavation of stage 2
- ABWF works at completed new LTS subway
- AFC Audit Room external ABWF works
- AFA modification at WAV Station plantroom and concourse

KEY ISSUES FOR THE COMING MONTH

8.04 Key issues to be considered in the coming month of the Project include:

- Implementation of dust suppression measures at all times;
- Potential wastewater quality impact due to surface runoff;
- Potential fugitive dust quality impact due from the dry/loose/exposure soil surface/dusty material;
- Disposal of empty engine oil containers within site area;
- Ensure dust suppression measures are implemented properly;
- Silt removal facilities should be regularly maintained;
- Management of chemical wastes;
- Discharge of site effluent and stockpiling or disposal of materials at this area are prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures

8.05 In addition, mosquito control measures should be continued to prevent mosquito breeding on site.

9 CONCLUSIONS AND RECOMMENDATIONS

CONCLUSION

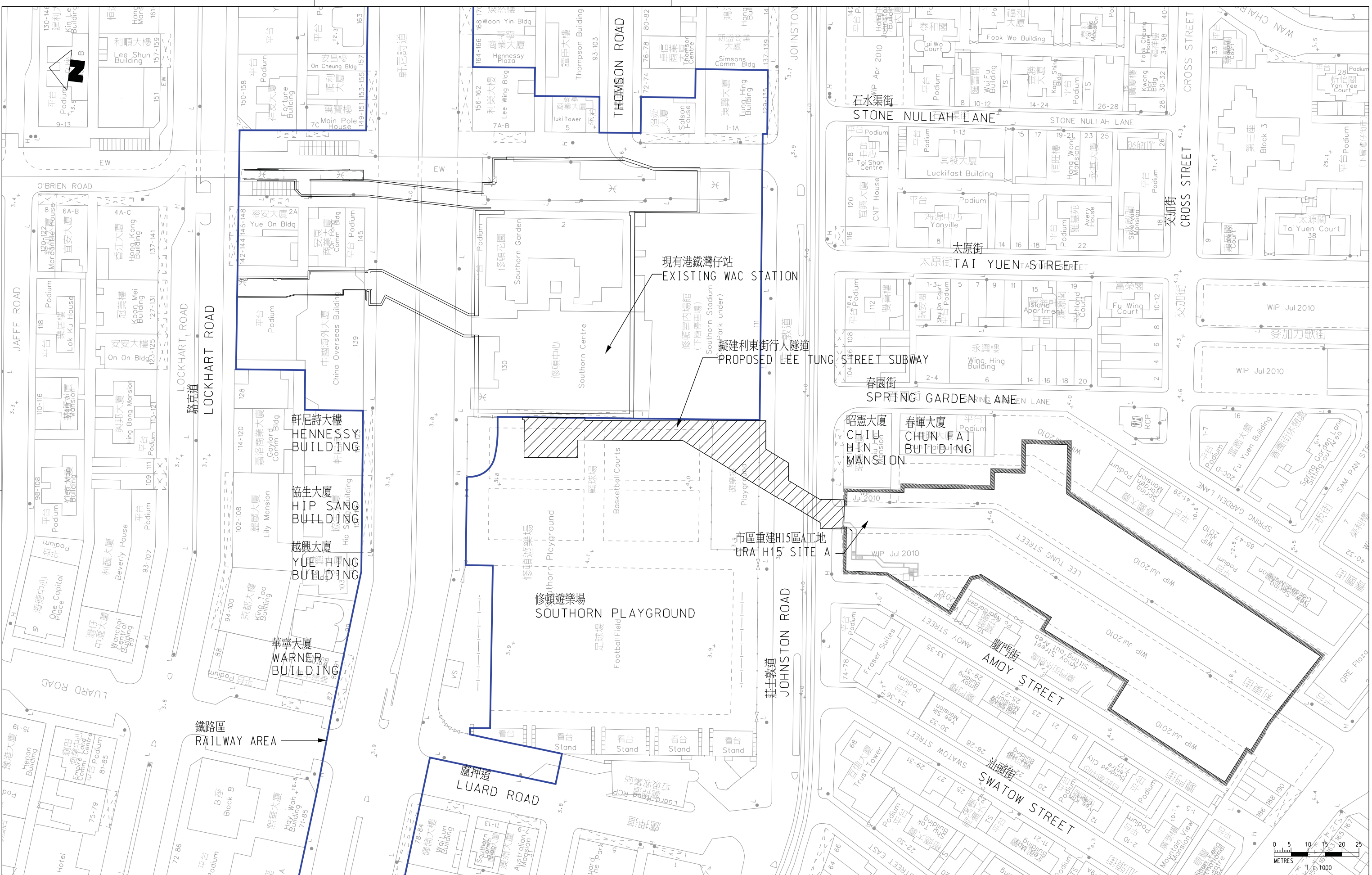
- 9.01 This is the **21st** monthly EM&A report presenting the monitoring results and inspection findings in the Reporting Period from **1 to 31 May 2016**.
- 9.02 In the Reporting Period, **5** occasions of 24-hours TSP monitoring were conducted at A1. The monitoring results are all below the Action/ Limit Level. No Notifications of Exceedances (NOEs) or the associated corrective actions were therefore issued.
- 9.03 In the Reporting Period, total of **10** occasions of noise measurement were conducted at N1 and N2 and no exceedance were recorded.
- 9.04 No environmental complaint, notification of summons or successful prosecution was received in the Reporting Period.
- 9.05 **Four (4)** occasions of weekly site inspections to evaluate site environmental performance was carried out by the RE, ET and the Contractor on **4, 13, 18 and 25 May 2016** and the IEC was joined the site inspection on **18 May 2016**. No non-compliance was noted but five (5) observations were recorded by the ET.
- 9.06 In the Reporting Period, no site inspection was undertaken by external parties i.e. EPD.

RECOMMENDATIONS

- 9.07 Construction noise is the key environmental issue during construction work of the Project as there are residential buildings nearby. Noise mitigation measures should be fully implemented in accordance with the EM&A requirement.
- 9.08 Also, special attention should be paid on the potential construction dust impact as the construction site is located near the residential area. The Contractor should fully implement the construction dust mitigation measures properly.
- 9.09 The Contractor should also prevent muddy water and other water pollutants via site surface water runoff get into public areas. Any discharge water should be strictly complied with wastewater discharge license requirement. As a reminder, water quality mitigation measures should be properly implemented in accordance with the EM&A requirement.
- 9.10 As a reminder, the Contractor should be regular checking and maintenance wastewater treatment facilities ensure compliance with the currently Discharge License stipulation. A warning sign should be provided all the retained trees as remind the workers prevent scratch the trees. In addition, mosquito control should be kept to prevent mosquito breeding on site.

Appendix A
Project Site Layout Plan

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REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED
D	GENERAL REVISION		16MAY12	AFK	HD				
C	GENERAL REVISION		12AUG11	AFK	HD				
B	GENERAL REVISION		18JUL11	AFK	HD				
A	PROJECT PROFILE		04MAY11	AFK	HD				

DRAWN	HO
DESIGNED	BW
CHECKED	BL
APPROVED	AFK
DATE	04MAY2011

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ORIGINATOR: MTR

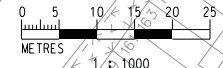
CADD REF.: NEX1050_2.7A_0010.dgn

TITLE: CONSULTANCY AGREEMENT NO. NEX/1050
 DETAILED DESIGN FOR LEE TUNG STREET SUBWAY
 SITE LOCATION PLAN
 施工位置圖

SCALE: 1:1000 (A3)

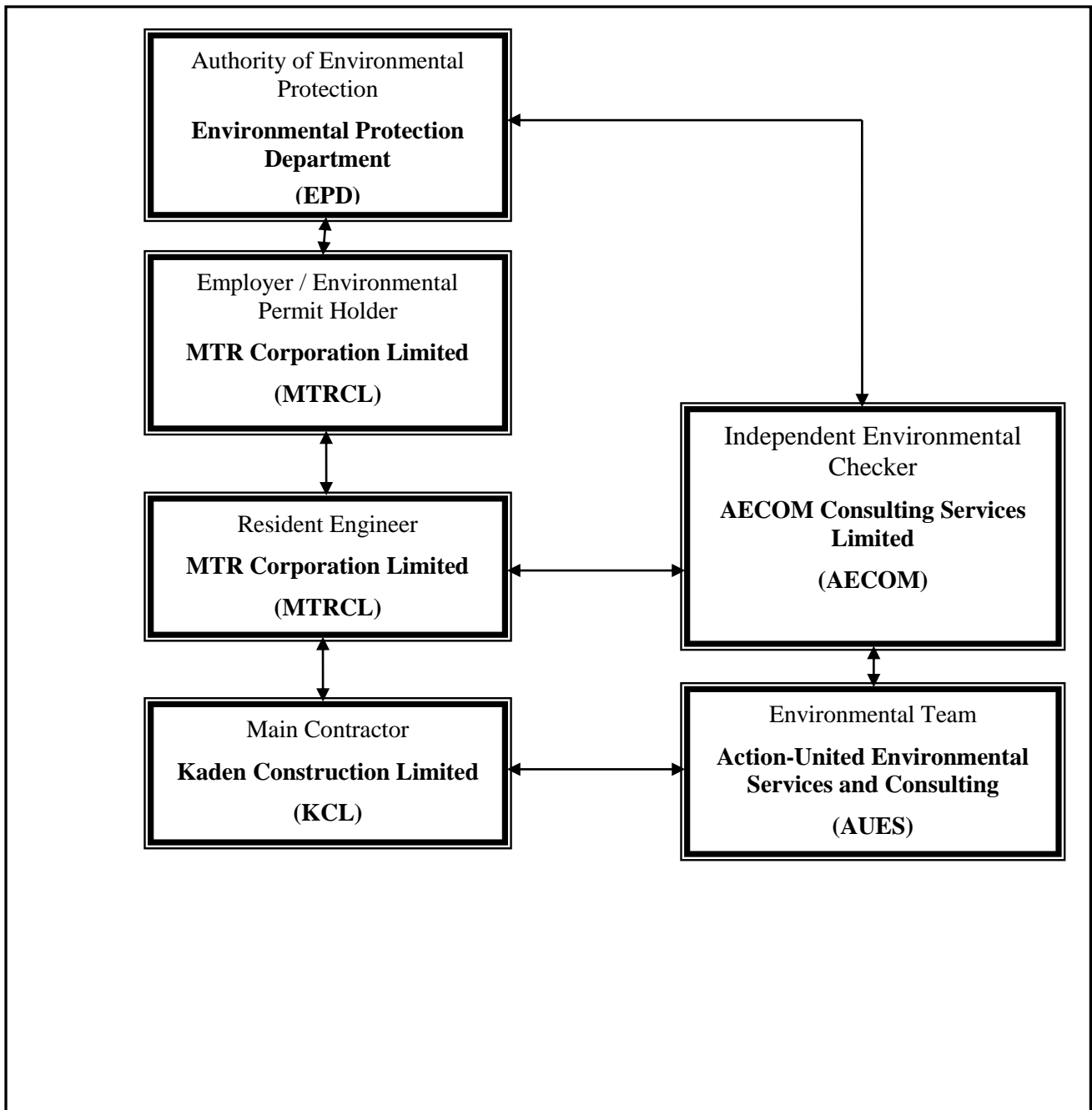
DRAWING NO.: NEX1050/2.7A/001

REV.: D



Appendix B

**Organization of the Project
and
Master Construction Programme**



Contact Details of Key Personnel for the Project

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
MTRCL	Resident Engineer	Mr. Raymond Lee	3547 0002	3547 0090
AECOM	Independent Environmental Checker	Mr. Y. W. Fung	3922 9366	3922 9797
KCL	Project Manager	Mr. Vincent, Kwan Chun Yin	9833 1313	2770 4278
KCL	Site Agent	Mr. Chan Kam Chuen	6462 8910	2770 4278
KCL	Environmental Officer	Ms. Ricci Poon Wai Tin	9533 1115	2770 4278
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Mr. Ben Tam	2959 6059	2959 6079
AUES	Assistant Environmental Consultant	Mr. Martin Li	2959 6059	2959 6079

Legend:

MTRCL (Employer) – MTR Corporation Limited

MTRCL (Resident Engineer) – MTR Corporation Limited

KCL (Main Contractor) – Kaden Construction Limited

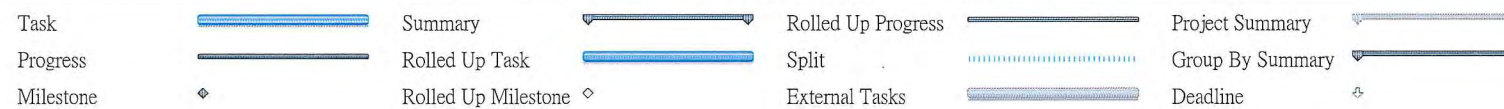
AECOM (IEC) – AECOM Consulting Services Limited

AUES (ET) – Action-United Environmental Services & Consulting

MTR Contract C6593-13C
Wan Chai Station Lee Tung Street Subway
3 Months Rolling Programme

May 2016

ID	Task Name	PMP ID	Cost Centre	Duration	Start	Finish	% Complete	Planned Start Last Month	Planned Finish Last Month	redecessor	Qtr 2, 2016			Qtr 3, 2016	
											May	Jun	Jul	Aug	
1	Stage 2 ELS (Phase 1 Pump test)			422 days	Mon 13/4/15	Fri 9/9/16	83%	Mon 13/4/15	Sat 27/8/16						
20	Mini-piles at Eastbound	JnR.EBC_SS_0050	B5	150 days	Mon 23/11/15	Sat 28/5/16	100%	Mon 23/11/15	Thu 19/5/16						
26	RC works for Main beam and cross beams for RC decking		B5	43 days	Sat 12/3/16	Fri 6/5/16	100%	Sat 12/3/16	Wed 4/5/16	32					
27	Excavation for temporary traffic deck footing		B5	8.2 days	Thu 17/3/16	Mon 16/5/16	100%	Thu 17/3/16	Tue 10/5/16	26					
28	Erect temporary traffic deck		B5	6 days	Sat 21/5/16	Fri 27/5/16	100%	Tue 10/5/16	Wed 18/5/16	27					
29	Implementation of TTA to Eastbound Slow Lane		B5	1 day	Sat 28/5/16	Sat 28/5/16	100%	Wed 18/5/16	Thu 19/5/16	28					
30	Preparation for Phase 1 Pump Test		B6	11 days	Mon 29/2/16	Fri 11/3/16	100%	Mon 29/2/16	Fri 11/3/16						
31	Pump Wells & Observation Wells at Eastbound Footpath	JnR_0020	B6	6 days	Mon 29/2/16	Sat 5/3/16	100%	Mon 29/2/16	Sat 5/3/16						
32	Pump Well & Observation Well at Eastbound	JnR_0020	B6	5 days	Mon 7/3/16	Fri 11/3/16	100%	Mon 7/3/16	Fri 11/3/16	31					
33	Eastbound Footpath & Slow Lane			47 days	Mon 30/5/16	Mon 25/7/16	20%	Thu 19/5/16	Tue 12/7/16						
34	Removal of temporary working platform at Stage 1	NA	B6	6 days	Sat 4/6/16	Sat 11/6/16	50%	Thu 19/5/16	Thu 26/5/16	29					
35	Breaking temporary concrete carriageway at slow lane	NA	B6	6 days	Mon 30/5/16	Sat 4/6/16	100%	Thu 19/5/16	Mon 23/5/16	29					
36	Excavation to existing UU formation	JnR.0050	B6	6 days	Mon 6/6/16	Mon 13/6/16	25%	Mon 23/5/16	Mon 30/5/16	35					
37	Temp. UU supports	JnR.0050	B6	5 days	Tue 14/6/16	Sat 18/6/16	0%	Mon 30/5/16	Sat 4/6/16	36					
38	Excavation to -1.0 mPD	JnR.0050	B6	30 days	Mon 20/6/16	Mon 25/7/16	0%	Sat 4/6/16	Tue 12/7/16	37					
39	Tram Track RC Decking			422 days	Mon 13/4/15	Fri 9/9/16	63%	Mon 13/4/15	Sat 27/8/16						
40	RC cross beams	JnR.TT_0110	B5	35 days	Mon 13/4/15	Sat 23/5/15	100%	Mon 13/4/15	Sat 23/5/15						
41	Coring for grout curtain	JnR.TT_0030	B5	20 days	Wed 13/5/15	Fri 5/6/15	100%	Wed 13/5/15	Fri 5/6/15						
42	Reinstate of concrete surround to rails	JnR.TT_0120	B5	1 day	Sat 6/6/15	Sat 6/6/15	100%	Sat 6/6/15	Sat 6/6/15	40,41					
43	Grouting for TAM pipes	JnR.TT_0030	B5	12 days	Tue 20/10/15	Tue 3/11/15	100%	Tue 20/10/15	Tue 3/11/15						
44	Excavation to +1.0 mPD underneath Trams Deck	JnR.0050	B7	6 days	Tue 26/7/16	Mon 1/8/16	0%	Tue 12/7/16	Tue 19/7/16	75,38					
45	Pre-grouting for Soil Nail	JnR.0050	B7	8 days	Tue 2/8/16	Wed 10/8/16	0%	Tue 19/7/16	Thu 28/7/16	44					
46	Shotcrete and Soil Nail at +1.0 mPD	JnR.0050	B7	8 days	Thu 11/8/16	Fri 19/8/16	0%	Thu 28/7/16	Sat 6/8/16	45					
47	Installation of w/s at 1st layer strut S3	JnR.0050	B7	3 days	Sat 20/8/16	Tue 23/8/16	0%	Sat 6/8/16	Wed 10/8/16	46					
48	Installation of soil nails	JnR.0050	B7	15 days	Wed 24/8/16	Fri 9/9/16	0%	Wed 10/8/16	Sat 27/8/16	47					
61	Westbound Slowlane		B6	40 days	Mon 25/1/16	Mon 14/3/16	100%	Mon 25/1/16	Mon 14/3/16						
68	1st Phase Pumping Test	JnR_0020	B6	5 days	Tue 15/3/16	Sat 19/3/16	100%	Tue 15/3/16	Sat 19/3/16	43,32,67					
69	Mini-piles at Westbound Slowlane			39 days	Thu 24/3/16	Fri 13/5/16	59%	Thu 24/3/16	Fri 13/5/16						
70	Drilling for Mini-piles (1no)	JnR.WBC_0090	B6	8 days	Thu 24/3/16	Wed 6/4/16	100%	Thu 24/3/16	Wed 6/4/16	68					
71	Drilling for Mini-piles (2 no)	JnR.WBC_0090	B6	6 days	Thu 7/4/16	Wed 13/4/16	100%	Thu 7/4/16	Wed 13/4/16	70					
72	Rebar and Grout Tubes installation for mini-piles	JnR.WBC_0100	B6	2 days	Thu 14/4/16	Fri 15/4/16	100%	Thu 14/4/16	Fri 15/4/16	71					
73	Grouting for mini-piles	JnR.WBC_0110	B6	1 day	Sat 16/4/16	Sat 16/4/16	100%	Sat 16/4/16	Sat 16/4/16	72					
74	Post-drill for Mini-piles	JnR.WBC_0110	B6	5 days	Mon 18/4/16	Fri 22/4/16	100%	Mon 18/4/16	Fri 22/4/16	73					
75	RC works for Main beam and cross beams for RC decking	JnR.WBC_0130	B6	17 days	Sat 23/4/16	Fri 13/5/16	6%	Sat 23/4/16	Fri 13/5/16	74					
76	Children Playground			34 days	Wed 27/4/16	Tue 7/6/16	78%	Wed 27/4/16	Thu 2/6/16						
77	Trial soil nail		B7	19 days	Wed 27/4/16	Fri 20/5/16	100%	Wed 27/4/16	Mon 16/5/16						
78	Bulk Excavation to +1.0 mPd		B7	15 days	Sat 21/5/16	Tue 7/6/16	50%	Tue 17/5/16	Thu 2/6/16	77					
79	Stage 3 ELS			66 days	Sat 9/1/16	Fri 1/4/16	100%	Sat 9/1/16	Fri 1/4/16						
80	RC Structures for Stage 3			66 days	Sat 9/1/16	Fri 1/4/16	100%	Sat 9/1/16	Fri 1/4/16						
89	Walls 1st pour			33 days	Mon 25/1/16	Sat 5/3/16	100%	Mon 25/1/16	Sat 5/3/16						
97	Walls 2nd pour and top slab			20 days	Mon 7/3/16	Fri 1/4/16	100%	Mon 7/3/16	Fri 1/4/16						
105	ABWF works inside subway			30 days	Tue 3/5/16	Tue 7/6/16	0%	Tue 3/5/16	Tue 7/6/16						
106	Floor screeding			30 days	Tue 3/5/16	Tue 7/6/16	0%	Tue 3/5/16	Tue 7/6/16						
107	Existing Wan Chai Station (Require work in NTH)			91 days	Mon 21/12/15	Fri 15/4/16	86%	Mon 21/12/15	Fri 15/4/16						
108	New Audit Room			91 days	Mon 21/12/15	Fri 15/4/16	86%	Mon 21/12/15	Fri 15/4/16						
113	Installation and divert E&M Service	WWW.AFC_0030	D1	39 days	Fri 26/2/16	Fri 15/4/16	100%	Fri 26/2/16	Fri 15/4/16	112					
114	ABWF Works	WWW.AFC_0030	D1	26 days	Mon 22/2/16	Tue 22/3/16	80%	Mon 22/2/16	Tue 22/3/16	111					
115	Removal of Hoarding	WWW.AFC_0030	D1	3 days	Wed 23/3/16	Tue 29/3/16	0%	Wed 23/3/16	Tue 29/3/16	114					
116	Reinstatement Works	WWW.AFC_0030	D1	11 days	Wed 30/3/16	Tue 12/4/16	0%	Wed 30/3/16	Tue 12/4/16	115					
117	Design			28 days	Sat 5/3/16	Mon 11/4/16	95%	Sat 5/3/16	Mon 11/4/16						
118	ELS Stage 2 - BD/GEO comments on 5 Mar 16	NA	A1	28 days	Sat 5/3/16	Mon 11/4/16	95%	Sat 5/3/16	Mon 11/4/16						



Activity ID	Activity Name	Original Duration	Start	Finish	BL Project Start	BL Project Finish	Total Float	Free Float	Gantt Chart															
									014	2015					2016					2017			2018	
									J	J	A	S	O	J	J	A	S	O	J	J	A	J	J	A
Key Dates																								
Commencement and Completion																								
KD.COMM	Commencement of the Works (14-Apr'14)	0	14-Apr-14 A		14-Apr-14																			
KD.COMP	Completion of the Whole of the Works, No.Cal.Wk. 150 (26-Feb'17)	0		29-Mar-18*		25-Feb-17	-396	0																
Specified Parts of the Works																								
KD.2A	2A - SBC Complete backfill, resurfacing, fencing, utilities, lighting and return to LCSD (28-Jun'15)	0		11-Aug-15 A		27-Jun-15																		
KD.2B	2B - Complete all works at the 2 new Shop Kiosks and hand over to the Employer (1-May'16)	0		06-Jun-17*		27-Apr-16	-401	296																
Programme Data / Interface Key Dates																								
INF.AFC	Interface Access for AFC, C&C DC in new AFC Audit Room inside WAC, Concourse Level (27-Apr'15)	0	03-Jun-16*		27-Apr-15		269	665																
INF.H15	Interface Access for Contract H15, All Levels, No.Cal.Wk. 120 (31-Jul'16)	0	31-Mar-17*		31-Jul-16		-32	364																
INF.SAMS	Interface Access for SAMS, Comms, MCS to All Areas, All Levels and Locations (10-Oct'16)	0	09-Jun-17*		10-Oct-16		-102	294																
Site Area Possession and Return Dates																								
Site Area Possession Date																								
WAP.W1	Works Area 6593.W1, Within 3 months from commencement of works (14-Jul'14)	0	14-Jul-14 A		14-Jul-14																			
WAP.W2	Works Area 6593.W2, Within 9 months from commencement of works (14-Jan'15)	0	31-May-16*		07-Jul-15		272	668																
WAP.W3	Works Area 6593.W3, No later than 1 month after completion of reinstatement works at Works Area 65	0	02-Apr-17		10-Jan-17		-82	0																
Site Area Return Date																								
WAR.W1	Works Area 6593.W1, Within 36 months from commencement of works (14-Apr'17)	0		08-Mar-17*		16-Dec-16	-82	0																
WAR.W2	Works Area 6593.W2, Within 36 months from commencement of works (14-Apr'17)	0		24-Oct-16*		21-Oct-16	125	521																
WAR.W3	Works Area 6593.W3, Within 2 months after possession date of Works Area 6593.W3	0		19-May-17		26-Feb-17	-82	314																
Milestone Schedule																								
Milestones A																								
MS.A01	A1 Approval of Preliminary Master Program, ICE, TTA, ELS & Temporary decking (3-Aug'14)	0		21-Oct-14 A		02-Aug-14																		
MS.A02	A2 Approval of Design of Mined Tunnel ESS; Hoarding phase/plan;TW under TramTrack; QP, SAP, PMP	0		01-Nov-14 A		01-Nov-14																		
MS.A03	A3 Satisfactory Implementation of Specified Plans (25-Jan'15)	0		24-Jan-15 A		24-Jan-15																		
MS.A04	A4 Approval of excavation method under Tram Track; Satisfactory Implementation of PMS (3-May'15)	0		02-May-15 A		02-May-15																		
MS.A05	A5 Approval of WAC D-wall demolition; Satisfactory Implementation of Specified Plans (2-Aug'15)	0		24-Aug-16		01-Aug-15	186	582																
MS.A06	A6 Satisfactory Implementation of PMS (1-Nov'15)	0		30-Sep-15 A		31-Oct-15																		
MS.A07	A7 Satisfactory Implementation of Specified Plans (31-Jan'16)	0		30-Jan-16 A		30-Jan-16																		
MS.A08	A8 AIP for T&C of BS and ABWF works; Satisfactory Implementation of PMS (1-May'16)	0		27-Apr-17		30-Apr-16	-60	336																
MS.A09	A9 Satisfactory Implementation of Specified Plans (31-Jul'16)	0		30-Jul-16		30-Jul-16	211	607																
MS.A10	A10 AIP of Draft O&M manual and Draft As-built Drawings; Satisfactory Implementation of PMS (30-Oct'	0		26-Oct-17		29-Oct-16	-242	154																
MS.A11	A11 Approval of O&M manual and As-built drawings for the Works (26-Feb'17)	0		22-Feb-18		22-Feb-17	-361	35																
Milestones B																								
MS.B01	B1 Excavate to +2.5 of Southern Basketball Court & Children's Play Area - Cofferdam construction comp	0		01-Nov-14 A		01-Nov-14																		
MS.B02	B2 SBC Excavation satisfactorily completed & Children's Play Area Excavation has reached -1.3mPD (2'	0		24-Jan-15 A		24-Jan-15																		
MS.B03	B3 SBC Roof slab RC, JnR NFP & EBC 67% cofferdam Tram Track support 10%, JnR WBC UU diversit	0		29-Apr-15 A		02-May-15																		
MS.B04	B4 SBC return, NBC Site entry formed, CPA RC base slab, JnR NFP & EBC Cofferdam & traffic decks c	0		11-Aug-15 A		31-Jul-15																		
MS.B05	B5 NBC cofferdam complete, CPA RC & vent shaft 1.2m above ground complete, Tram Tracks Excavati	0		29-Jun-16		31-Oct-15	243	639																
MS.B06	B6 NBC Excavation to formation complete, JnR All Carriageways & Footpaths & Tram Tracks Excavati	0		05-Oct-16		30-Jan-16	145	541																
MS.B07	B7 NBC RC roof slab complete, JnR CW & FP & TT RC construction except temp opening, CPA RC con	0		30-Dec-16		30-Apr-16	59	455																
MS.B08	B8 ABWF Degree 1 achieved, NBC All reinstatement complete, Opening through H15 D-wall formed (31-	0		31-Mar-17		30-Jul-16	-32	364																
MS.B09	B9 ABWF Degree 3 achieved, All road reinstatement in Johnston Road & Hennessy Road complete (30-	0		04-Jul-17		27-Oct-16	-127	269																
MS.B10	B10 All works in Cost Centre B satisfactorily completed (26-Feb'17)	0		19-Oct-17		25-Feb-17	-234	162																
Milestones C																								
MS.C01	C1 AIP BS detail design, suppliers & model types of major BS equipment & materials (2-Nov'14)	0		01-Nov-14 A		01-Nov-14																		
MS.C02	C2 AIP BS shop drawings (25-Jan'15)	0		23-Jan-15 A		23-Jan-15																		
MS.C03	C3 Order all BS equipment and materials (3-May'15)	0		02-May-15 A		02-May-15																		
MS.C04	C4 Complete all factory acceptance testings (29-Nov'15)	0		28-Nov-15 A		28-Nov-15																		
MS.C05	C5 Complete all delivery to site for ECS plant room (31-Jul'16)	0		10-Jun-16		19-Mar-16	261	657																
MS.C06	C6 Complete all installation, T&C for New Subway (4-Dec'16)	0		21-Jul-17		14-Nov-16	-144	252																
MS.C07	C7 Complete and pass all statutory inspections, Operations Team (26-Feb'17)	0		29-Mar-18		25-Feb-17	-396	0																
Milestones D																								
MS.D01	D1 New AFC Audit Room construction completed, including (3-May'15)	0		02-Jun-16		25-Apr-15	269	484																
MS.D02	D2 Old AFC Audit Room and Maxim's/ Circle K kiosks demolished (31-Jan'16)	0		08-Mar-17		28-Jan-16	-10	205																
MS.D03	D3 Breakthrough into WAC (31-Jul'16)	0		01-Sep-17		30-Jul-16	-187	28																
MS.D04	D4 All works in Cost Centre D satisfactorily completed (28-Aug'16)	0		29-Sep-17		27-Aug-16	-215	181																
Milestones E																								
MS.E01	E1- AFC gates and barrier relocation works completed (3-Jan'16)	0		10-Feb-17		02-Jan-16	16	412																
MS.E02	E2- All structural A&A works for TIM completed (30-Oct'16)	0		18-Nov-17		17-Oct-16	-265	131																
MS.E03	E3- All works in milestone E completed (26-Feb'17)	0		14-Mar-18		09-Feb-17	-381	15																

	Actual Level of Effort		Baseline Milestone
	Primary Baseline		Milestone
	Actual Work		
	Remaining Work		
	Critical Remaining Work		

Contract C6593-13C Wan Chai Station Lee Tung Street Subway Master Program (Rev.C)

Progress vs Program (Updated Ending May'16)



Activity ID	Activity Name	Original Duration	Start	Finish	BL Project Start	BL Project Finish	Total Float	Free Float	Gantt Chart (2014-2018)																																																	
									2014		2015			2016			2017			2018																																						
									J	J	A	S	O	N	D	J	F	A	J	J	A	S	O	N	D	J	F	A	J	J	A	S	O	N	D	J	F	A	J	J	A	S	O	N	D	J	F	A	J	J	A	S	O	N	D	J	F	A
A: Preliminaries and General Items																																																										
Cost Centre A- Milestone Schedules																																																										
A1 Approval of Preliminary Master Program, ICE, TTA, ELS & Temporary decking (3-Aug'14)																																																										
A01_0010	Approval of Preliminary Master Program (3-Aug'14)	0		21-Oct-14 A		02-Aug-14			◆	◆																																																
A01_0020	Approval of Specified Plans (3-Aug'14)	0		01-Aug-14 A		01-Aug-14			◆																																																	
A01_0030	Approval of Independent Checking Engineer (3-Aug'14)	0		01-Aug-14 A		01-Aug-14			◆																																																	
A01_0040	Approval of the TTM Scheme by the Relevant Authorities (3-Aug'14)	0		27-Jun-14 A		27-Jun-14			◆																																																	
A01_0050	Approval for the design of ELS systems for cofferdams & temporary decking (3-Aug'14)	0		03-Mar-15 A		01-Aug-14			◆																																																	
A2 Approval Design of Mined Tunnel ESS; Hoarding phase/plan; QP, SAP, PMP, H&SP, EMP (2-Nov'14)																																																										
A02_0010	Approval for the design of excavation support systems of the mined tunnel section (2-Nov'14)	0		16-Jan-15 A		01-Nov-14			◆	◆																																																
A02_0020	Approval of all phasing plans & hoarding arrangements (2-Nov'14)	0		28-Oct-14 A		28-Oct-14			◆																																																	
A02_0030	Approval of all method statements for Part B works (2-Nov'14)	0		30-Oct-14 A		30-Oct-14			◆																																																	
A02_0040	Engineer's confirmation of satisfactory implementation of Quality Plan (2-Nov'14)	0		01-Nov-14 A		01-Nov-14			◆																																																	
A02_0050	Engineer's confirmation of satisfactory implementation of System Assurance Plan (2-Nov'14)	0		01-Nov-14 A		01-Nov-14			◆																																																	
A02_0060	Engineer's confirmation of satisfactory implementation of Programming Management System (2-Nov'14)	0		01-Nov-14 A		01-Nov-14			◆																																																	
A02_0070	Engineer's confirmation of satisfactory implementation of Health & Safety Plan (2-Nov'14)	0		01-Nov-14 A		01-Nov-14			◆																																																	
A02_0080	Engineer's confirmation of satisfactory implementation of Environmental Management Plan (2-Nov'14)	0		01-Nov-14 A		01-Nov-14			◆																																																	
A3 Satisfactory Implementation of Specified Plans (25-Jan'15)																																																										
A03_0010	Engineer's confirmation of satisfactory implementation of System Assurance Plan (25-Jan'15)	0		24-Jan-15 A		24-Jan-15			◆																																																	
A03_0020	Engineer's confirmation of satisfactory implementation of Health & Safety Plan (25-Jan'15)	0		24-Jan-15 A		24-Jan-15			◆																																																	
A03_0030	Engineer's confirmation of satisfactory implementation of Quality Plan (25-Jan'15)	0		24-Jan-15 A		24-Jan-15			◆																																																	
A03_0040	Engineer's confirmation of satisfactory implementation of Environmental Management Plan (25-Jan'15)	0		24-Jan-15 A		24-Jan-15			◆																																																	
A4 Approval of excavation method under Tram Track; Satisfactory Implementation of PMS (3-May'15)																																																										
A04_0010	Approval for method of excavation & support for mined tunnel section beneath tram tracks (3-May'15)	0		21-Apr-15 A		02-May-15			◆																																																	
A04_0020	Engineer's confirmation of satisfactory implementation of Programming Management System (3-May'15)	0		02-May-15 A		02-May-15			◆																																																	
A5 Approval of WAC D-wall demolition; Satisfactory Implementation of Specified Plans (2-Aug'15)																																																										
A05_0010	Approval for method for demolition of WAC Diaphragm Wall (2-Aug'15)	0		21-Jul-15 A		01-Aug-15			◆																																																	
A05_0020	Engineer's confirmation of satisfactory implementation of Specified Plans (2-Aug'15)	0		30-Sep-15 A		01-Aug-15			◆																																																	
A6 Satisfactory Implementation of PMS (1-Nov'15)																																																										
A06_0010	Engineer's confirmation of satisfactory implementation of Programming Management System (1-Nov'15)	0		30-Sep-15 A		31-Oct-15			◆																																																	
A7 Satisfactory Implementation of Specified Plans (31-Jan'16)																																																										
A07_0010	Engineer's confirmation of satisfactory implementation of Specified Plans (31-Jan'16)	0		30-Jan-16 A		30-Jan-16			◆																																																	
A8 AIP for T&C of BS and ABWF works; Satisfactory Implementation of PMS (1-May'16)																																																										
A08_0010	Engineer's confirmation of satisfactory implementation of Programming Management System (1-May'16)	0		03-Mar-16 A		30-Apr-16			◆																																																	
A08_0020	Approval in principle of all procedures for Testing & Commissioning of all Building Services (1-May'16)	0		27-Apr-17		27-Apr-16	-60	0	◆																																																	
A08_0030	Approval in principle of all acceptance procedures of all of the ABWF works (1-May'16)	0		27-Apr-17		27-Apr-16	-60	0	◆																																																	
A9 Satisfactory Implementation of Specified Plans (31-Jul'16)																																																										
A09_0010	Engineer's confirmation of satisfactory implementation of System Assurance Plan (31-Jul'16)	0		30-Jul-16		30-Jul-16	211	0	◆																																																	
A09_0020	Engineer's confirmation of satisfactory implementation of Health & Safety Plan (31-Jul'16)	0		30-Jul-16		30-Jul-16	211	0	◆																																																	
A09_0030	Engineer's confirmation of satisfactory implementation of Quality Plan (31-Jul'16)	0		30-Jul-16		30-Jul-16	211	0	◆																																																	
A09_0040	Engineer's confirmation of satisfactory implementation of Environmental Management Plan (31-Jul'16)	0		30-Jul-16		30-Jul-16	211	0	◆																																																	
A10 AIP Draft O&M manual & Draft As-built Drawings; Satisfactory Implementation of PMS (30-Oct'16)																																																										
A10_0010	Engineer's confirmation of satisfactory implementation of Programming Management System (30-Oct'16)	0		29-Oct-16		29-Oct-16	120	362	◆																																																	
A10_0020	Approval in principle of draft Operating & Maintenance Manuals for the Whole Works (30-Oct'16)	0		26-Oct-17		27-Oct-16	-242	0	◆																																																	
A10_0030	Approval in principle of draft As-built Drawings for the Whole Works (30-Oct'16)	0		26-Oct-17		27-Oct-16	-242	0	◆																																																	
A11 Approval of O&M manual and As-built drawings for the Works (26-Feb'17)																																																										
A11_0010	Approval of Operating & Maintenance Manual for Whole Works (26-Feb'17)	0		22-Feb-18		22-Feb-17	-361	0	◆																																																	
A11_0020	Approval of As-built drawings for Whole Works (26-Feb'17)	0		22-Feb-18		22-Feb-17	-361	0	◆																																																	
Cost Centre A: Preliminaries and General Items																																																										
Design, ICE, Submission and Approval																																																										
Design, ICE, TMLG Submission and Approval																																																										
D.I.T_0010	TTMS - Submission to Members of TMLG for Approval, ref. ITT 6.2	4	14-Apr-14 A	17-Apr-14 A	14-Apr-14	17-Apr-14			█																																																	
D.I.T_0020	TTMS - TMLG Meetings and Approval, Resubmission if required, RMO Applications	55	22-Apr-14 A	27-Jun-14 A	22-Apr-14	27-Jun-14			█																																																	
Design, ICE, BD Submission and Approval																																																										
D.I.T_0030	A1 - ELS & Temporary Decking - Design, ICE, Submission to BD for Approval	30	14-Apr-14 A	11-Aug-14 A	14-Apr-14	23-May-14			█																																																	
D.I.T_0040	A1 - ELS & Temporary Decking - Review the submission	30	12-Aug-14 A	16-Sep-14 A	24-May-14	28-Jun-14			█																																																	
D.I.T_0050	A1 - ELS & Temporary Decking - Preparation of re-submission (If Require)	14	17-Sep-14 A	23-Sep-14 A	30-Jun-14	16-Jul-14			█																																																	
D.I.T_0060	A1 - ELS & Temporary Decking - BD Review, Resubmission if required, and Approval (If Require)	14	24-Sep-14 A	03-Mar-15 A	17-Jul-14	01-Aug-14			█																																																	
D.I.T_0070	A1 - ELS - Verification (based on 4 additional SI. AD-01 to AD-04), ICE	17	29-Jul-14 A	16-Aug-14 A	29-Jul-14	16-Aug-14			█																																																	
D.I.T_0080	A1 - ELS - Verification (based on 4 additional SI. AD-01 to AD-04), ICE, Submission & Approval	24	18-Aug-14 A	15-Sep-14 A	18-Aug-14	15-Sep-14			█																																																	
D.I.T_0090	Independent Checking Engineer - Preparation & Submission for Approval	30	14-Apr-14 A	23-May-14 A	14-Apr-14	23-May-14			█																																																	
D.I.T_0100	Independent Checking Engineer - Review the submission	30	24-May-14 A	28-Jun-14 A	24-May-14	28-Jun-14			█																																																	
D.I.T_0110	Independent Checking Engineer - Preparation of re-submission (If Require)	14	30-Jun-14 A	16-Jul-14 A	30-Jun-14	16-Jul-14			█																																																	

█ Actual Level of Effort ◆ Baseline Milestone
█ Primary Baseline ◆ Milestone
█ Actual Work
█ Remaining Work
█ Critical Remaining Work

Contract C6593-13C Wan Chai Station Lee Tung Street Subway Master Program (Rev.C)

Progress vs Program (Updated Ending May'16)



Activity ID	Activity Name	Original Duration	Start	Finish	BL Project Start	BL Project Finish	Total Float	Free Float	Gantt Chart																
									2014			2015			2016			2017			2018				
									J	J	A	J	J	A	J	J	A	J	J	A	J	J	A		
SPA05_0030	A5 Satisfactory Implementation of Health and Safety Plan	0		01-Aug-15 A		01-Aug-15																			
SPA05_0040	A5 Satisfactory Implementation of Environmental Management Plan	0		01-Aug-15 A		01-Aug-15																			
SPA07_0010	A7 Satisfactory Implementation of Quality Plan	0		30-Jan-16 A		30-Jan-16																			
SPA07_0020	A7 Satisfactory Implementation of System Assurance Plan	0		30-Jan-16 A		30-Jan-16																			
SPA07_0030	A7 Satisfactory Implementation of Health and Safety Plan	0		30-Jan-16 A		30-Jan-16																			
SPA07_0040	A7 Satisfactory Implementation of Environmental Management Plan	0		30-Jan-16 A		30-Jan-16																			
SPA09_0010	A9 Satisfactory Implementation of Quality Plan	0		30-Jul-16*		30-Jul-16	0	0																	
SPA09_0020	A9 Satisfactory Implementation of System Assurance Plan	0		30-Jul-16*		30-Jul-16	0	0																	
SPA09_0030	A9 Satisfactory Implementation of Health and Safety Plan	0		30-Jul-16*		30-Jul-16	0	0																	
SPA09_0040	A9 Satisfactory Implementation of Environmental Management Plan	0		30-Jul-16*		30-Jul-16	0	0																	
Implementation of Programming Management System																									
PMS.A02_0010	A2 Satisfactory Implementation of Programming Management System	0		01-Nov-14 A		01-Nov-14																			
PMS.A04_0010	A4 Satisfactory Implementation of Programming Management System	0		02-May-15 A		02-May-15																			
PMS.A06_0010	A6 Satisfactory Implementation of Programming Management System	0		28-Aug-15 A		31-Oct-15																			
PMS.A08_0010	A8 Satisfactory Implementation of Programming Management System	0		03-Mar-16 A		30-Apr-16																			
PMS.A10_0010	A10 Satisfactory Implementation of Programming Management System	0		29-Oct-16*		29-Oct-16	0	0																	
Other Submissions and O&M Manual																									
OS.OM_0010	Hoarding Installation Method Statement - Preparation & Submission	30	14-Apr-14 A	23-May-14 A	14-Apr-14	23-May-14																			
OS.OM_0020	Hoarding Installation Method Statement - Review & Approval	12	24-May-14 A	07-Jun-14 A	24-May-14	07-Jun-14																			
OS.OM_0030	Hoarding Installation Method Statement - Preparation for Re-submission (if required)	12	09-Jun-14 A	21-Jun-14 A	09-Jun-14	21-Jun-14																			
OS.OM_0040	Hoarding Installation Method Statement - Re-submission (if required) & Approval	12	23-Jun-14 A	23-Jun-14 A	23-Jun-14	07-Jul-14																			
OS.OM_0050	Site Investigation Works Method Statement - Preparation & Submission	30	14-Apr-14 A	23-May-14 A	14-Apr-14	23-May-14																			
OS.OM_0060	Site Investigation Works Method Statement - Review & Approval	12	24-May-14 A	07-Jun-14 A	24-May-14	07-Jun-14																			
OS.OM_0070	Site Investigation Works Method Statement - Preparation for Re-submission (if required)	12	09-Jun-14 A	21-Jun-14 A	09-Jun-14	21-Jun-14																			
OS.OM_0080	Site Investigation Works Method Statement - Re-submission (if required) & Approval	12	23-Jun-14 A	23-Jun-14 A	07-Jul-14 A	07-Jul-14																			
OS.OM_0090	WAC D-wall demolition Design- ICE, Preparation for design submission	90	03-Nov-14 A	18-Feb-15 A	03-Nov-14	18-Feb-15																			
OS.OM_0100	WAC D-wall demolition- Review & Approval	60	23-Feb-15 A	08-May-15 A	23-Feb-15	08-May-15																			
OS.OM_0110	WAC D-wall demolition- Preparation for re-submission (If require)	40	09-May-15 A	26-Jun-15 A	09-May-15	26-Jun-15																			
OS.OM_0120	WAC D-wall demolition- Review & Approval (If require)	30	27-Jun-15 A	01-Aug-15 A	27-Jun-15	01-Aug-15																			
OS.OM_0121	H15 D-wall demolition Design- ICE, Preparation for design submission	24	31-May-16	28-Jun-16			-147	0																	
OS.OM_0122	H15 D-wall demolition- Review & Approval	24	29-Jun-16	27-Jul-16			-147	0																	
OS.OM_0123	H15 D-wall demolition- Preparation for re-submission (If require)	12	28-Jul-16	10-Aug-16			-147	0																	
OS.OM_0124	H15 D-wall demolition- Review & Approval (If require)	12	11-Aug-16	24-Aug-16			-147	0																	
OS.OM_0130	A8 AIP procedures for T&C of BS and ABWF works (1st Batch)	90	31-May-16	14-Sep-16	01-Jun-15	15-Sep-15	-293	0																	
OS.OM_0140	A8 AIP procedures for T&C of BS and ABWF works (2nd Batch)	90	15-Sep-16	04-Jan-17	16-Sep-15	05-Jan-16	-293	0																	
OS.OM_0150	A8 AIP procedures for T&C of BS and ABWF works (Remaining)	90	05-Jan-17	27-Apr-17	06-Jan-16	27-Apr-16	-293	0																	
OS.OM_0160	A10 AIP of Draft O&M manual and Draft As-built Drawings	150	28-Apr-17	26-Oct-17	28-Apr-16	27-Oct-16	-293	0																	
OS.OM_0170	A11 Approval of O&M manual and As-built drawings for the Works	95	27-Oct-17	22-Feb-18	28-Oct-16	22-Feb-17	-293	0																	
OS.OM_0180	RC Works- Preparation of Method Statement- Preparation	60	06-Jan-15 A	06-Feb-15 A	08-Jul-14	16-Sep-14																			
OS.OM_0190	RC Works - Preparation of Method Statement- Submission & Approval	12	06-Feb-15 A	10-Feb-15 A	17-Sep-14	30-Sep-14																			
OS.OM_0200	RC Works - Preparation for Re-submission (if required)	12	10-Feb-15 A	16-Feb-15 A	03-Oct-14	16-Oct-14																			
OS.OM_0210	RC Works - Re-submission (if required) & Approval	12	16-Feb-15 A	16-Feb-15 A	17-Oct-14	30-Oct-14																			
OS.OM_0220	Sheet pile installation- Preparation of Method Statement- Preparation	42	03-Jun-14 A	03-Jul-14 A	14-Apr-14	07-Jun-14																			
OS.OM_0230	Sheet pile installation- Preparation of Method Statement- Submission & Approval	12	03-Jul-14 A	08-Jul-14 A	09-Jun-14	21-Jun-14																			
OS.OM_0240	Sheet pile installation - Preparation for Re-submission (if required)	12	08-Jul-14 A	23-Oct-14 A	23-Jun-14	07-Jul-14																			
OS.OM_0250	Sheet pile installation - Re-submission (if required) & Approval	12	23-Oct-14 A	14-Nov-14 A	08-Jul-14	21-Jul-14																			
OS.OM_0260	Excavation works- Preparation of Method Statement- Preparation	42	22-Aug-14 A	22-Sep-14 A	14-Apr-14	07-Jun-14																			
OS.OM_0270	Excavation works- Preparation of Method Statement- Submission & Approval	12	22-Sep-14 A	21-Oct-14 A	09-Jun-14	21-Jun-14																			
OS.OM_0280	Excavation works- Preparation for Re-submission (if required)	12	21-Oct-14 A	21-Oct-14 A	23-Jun-14	07-Jul-14																			
OS.OM_0290	Excavation works- Re-submission (if required) & Approval	12	21-Oct-14 A	21-Oct-14 A	08-Jul-14	21-Jul-14																			
OS.OM_0300	Work below tram track Method Statement - Preparation	60	23-Feb-15 A	23-Mar-15 A	08-Jul-14	16-Sep-14																			
OS.OM_0310	Work below tram track Method Statement - Submission & Approval	12	23-Mar-15 A	09-Apr-15 A	17-Sep-14	30-Sep-14																			
OS.OM_0320	Work below tram track Method Statement - Preparation for Re-submission (if required)	12	09-Apr-15 A	27-Apr-15 A	03-Oct-14	16-Oct-14																			
OS.OM_0330	Work below tram track Method Statement - Re-submission (if required) & Approval	12	27-Apr-15 A	10-Jun-15 A	17-Oct-14	30-Oct-14																			
OS.OM_0340	H15 & WAC Break Through Method Statement - Preparation	48	11-Jun-15 A	20-Jul-15 A	08-Jul-14	16-Sep-14																			
OS.OM_0350	H15 & WAC Break Through Method Statement - Submission & Approval	12	20-Jul-15 A	21-Jul-15 A	17-Sep-14	30-Sep-14																			
OS.OM_0360	H15 & WAC Break Through Method Statement - Preparation for Re-submission (if required)	12	21-Jul-15 A	21-Jul-15 A	03-Oct-14	16-Oct-14																			
OS.OM_0370	H15 & WAC Break Through Method Statement - Re-submission (if required) & Approval	12	21-Jul-15 A	21-Jul-15 A	17-Oct-14	30-Oct-14																			
OS.OM_0380	BD for consent of H15 break throughs works - Preparation	24	25-Aug-16	22-Sep-16	03-Aug-15	18-Nov-15	-147	0																	
OS.OM_0390	BD for consent of H15 break throughs works - Submission & Approval	24	23-Sep-16	22-Oct-16	19-Nov-15	30-Jan-16	-147	0																	
OS.OM_0400	BD for consent of H15 break throughs works - Preparation for Re-submission (if required)	12	24-Oct-16	05-Nov-16	01-Feb-16	09-Mar-16	-147	0																	
OS.OM_0410	BD for consent of H15 break throughs works - Re-submission (if required) & Approval	12	07-Nov-16	19-Nov-16	10-Mar-16	12-May-16	-147	41																	



Contract C6593-13C Wan Chai Station Lee Tung Street Subway
Master Program (Rev.C)
 Progress vs Program (Updated Ending May'16)



Activity ID	Activity Name	Original Duration	Start	Finish	BL Project Start	BL Project Finish	Total Float	Free Float	Gantt Chart											
									2014	2015	2016	2017	2018							
ABWF.D1_1.070	1.7- Structural & blockwork E&M openings formed & survey complete	0		29-Mar-17		28-Jul-16	-30	0	[Gantt Bar]											
ABWF.D1_1.080	1.8- Movement joints & stitch strips complete	0		29-Mar-17		28-Jul-16	-30	0	[Gantt Bar]											
ABWF.D1_1.090	1.9- Drainage system & discharge connections complete with temporary pumps operational	0		28-Mar-17		27-Jul-16	-29	1	[Gantt Bar]											
ABWF.D1_1.100	1.10- Escalator zones & pits complete; survey reference lines accepted	0		29-Mar-17		28-Jul-16	-30	0	[Gantt Bar]											
ABWF.D1_1.110	1.11- Earthing mat, earthing rods & earthing pits complete & test results accepted	0		29-Mar-17		28-Jul-16	-30	0	[Gantt Bar]											
ABWF.D1_1.120	1.12- Underground pipework complete including manholes, ductworks & drawpits	0		29-Mar-17		28-Jul-16	-30	0	[Gantt Bar]											
ABWF.D1_1.130	1.13- Civil & building provisions for designated & interfacing contractors complete	0		31-May-16		14-Apr-14	272	302	[Gantt Bar]											
ABWF Works - Degree 2																				
ABWF.D2_2.010	2.1- Permanent door frames installed with temporary doors and locks	0		24-May-17		15-Sep-16	-86	8	[Gantt Bar]											
ABWF.D2_2.020	2.2- Floor finishes & wall tiling in plant rooms for Designated Contractors complete	0		01-Jun-17		23-Sep-16	-94	0	[Gantt Bar]											
ABWF.D2_2.030	2.3- Glazing & Balustrade support installed	0		13-Apr-17		11-Aug-16	-45	49	[Gantt Bar]											
ABWF.D2_2.040	2.4- Metal staircases, cat-ladders & catwalks complete	0		24-May-17		15-Sep-16	-86	8	[Gantt Bar]											
ABWF.D2_2.050	2.5- External louvers installed	0		24-May-17		15-Sep-16	-86	8	[Gantt Bar]											
ABWF.D2_2.060	2.6- Framework for final finishes installed	0		24-May-17		15-Sep-16	-86	8	[Gantt Bar]											
ABWF.D2_2.070	2.7- Water tightness testing to water tanks passed	0		24-May-17		15-Sep-16	-86	8	[Gantt Bar]											
ABWF Works - Degree 3																				
ABWF.D3_3.010	3.1- All finishes complete including permanent doors, ironmongery	0		04-Jul-17		27-Oct-16	-127	0	[Gantt Bar]											
ABWF.D3_3.020	3.2- Balustrade installed	0		04-Jul-17		27-Oct-16	-127	0	[Gantt Bar]											
ABWF.D3_3.030	3.3- Signage hangers & supports installed	0		29-Jun-17		24-Oct-16	-122	5	[Gantt Bar]											
ABWF.D3_3.040	3.4- Roller shutters, fire shutters & smoke barriers installed	0		29-Jun-17		24-Oct-16	-122	5	[Gantt Bar]											
ABWF.D3_3.050	3.5- Acoustic treatment applied	0		29-Jun-17		24-Oct-16	-122	5	[Gantt Bar]											
ABWF.D3_3.060	3.6- Louvres & grilles installed	0		29-Jun-17		24-Oct-16	-122	5	[Gantt Bar]											
ABWF.D3_3.070	3.7- All openings & Penetrations sealed	0		29-Jun-17		24-Oct-16	-122	5	[Gantt Bar]											
Southern Playground Reprovision works																				
RW_0010	LCSD handover Northern Basket Ball Court 1	1	09-Mar-17	09-Mar-17	17-Dec-16	17-Dec-16	-64	0	[Gantt Bar]											
RW_0020	Fence off the site	2	10-Mar-17	11-Mar-17	19-Dec-16	20-Dec-16	-64	0	[Gantt Bar]											
RW_0030	Expose the surface	6	13-Mar-17	18-Mar-17	21-Dec-16	29-Dec-16	-64	0	[Gantt Bar]											
RW_0040	Resurfacing works	14	20-Mar-17	05-Apr-17	30-Dec-16	16-Jan-17	-64	0	[Gantt Bar]											
RW_0050	Hand over to LCSD, additional remedial if require	5	06-Apr-17	11-Apr-17	17-Jan-17	21-Jan-17	-64	0	[Gantt Bar]											
RW_0060	LCSD handover Southern Basket Ball Court 2	1	12-Apr-17	12-Apr-17	23-Jan-17	23-Jan-17	-64	0	[Gantt Bar]											
RW_0070	Fence off the site	2	13-Apr-17	18-Apr-17	24-Jan-17	25-Jan-17	-64	0	[Gantt Bar]											
RW_0080	Expose the surface	6	19-Apr-17	25-Apr-17	26-Jan-17	04-Feb-17	-64	0	[Gantt Bar]											
RW_0090	Resurfacing works	13	26-Apr-17	12-May-17	06-Feb-17	20-Feb-17	-64	0	[Gantt Bar]											
RW_0100	Hand over to LCSD, additional remedial if require	5	13-May-17	18-May-17	21-Feb-17	25-Feb-17	-64	1	[Gantt Bar]											
Cost Centre B: Part A Works, Civil and Structural Works for the New Subway																				
B_RC_Comp	RC Structure completed for the new subway	0		30-Dec-16		30-Apr-16	-240	0	[Gantt Bar]											
Site Preliminary Works																				
SPW_0010	LCSD handover SBC & Play's Area	3	14-Apr-14 A	16-Apr-14 A	14-Apr-14	16-Apr-14			[Gantt Bar]											
SPW_0020	Fence off the Site area for SBC & Play's Area	3	17-Apr-14 A	23-Apr-14 A	17-Apr-14	23-Apr-14			[Gantt Bar]											
SPW_0030	Employ security guard & security booth delivery	3	24-Apr-14 A	26-Apr-14 A	24-Apr-14	26-Apr-14			[Gantt Bar]											
SPW_0040	Removal of existing furniture for SBC & Play's Area as require	6	28-Apr-14 A	05-May-14 A	28-Apr-14	05-May-14			[Gantt Bar]											
SPW_0050	Trial trenches and expose existing UU service in SBC & Play's area	40	14-Apr-14 A	05-Jun-14 A	14-Apr-14	05-Jun-14			[Gantt Bar]											
SPW_0060	Setting up site office & misc.	50	07-May-14 A	05-Jul-14 A	07-May-14	05-Jul-14			[Gantt Bar]											
SPW_0070	Form site access for vehicle	12	07-Jul-14 A	19-Jul-14 A	07-Jul-14	19-Jul-14			[Gantt Bar]											
SPW_0080	Diversion of existing utilities & misc. works if require for SBC & Play's Area	24	09-Jun-14 A	07-Jul-14 A	09-Jun-14	07-Jul-14			[Gantt Bar]											
SPW_0090	Erect hoarding for SBC	12	16-Jul-14 A	29-Jul-14 A	08-Jul-14	21-Jul-14			[Gantt Bar]											
SPW_0100	Ground/ Site Investigation in SBC & Play's Area	18	08-Jul-14 A	28-Jul-14 A	08-Jul-14	28-Jul-14			[Gantt Bar]											
SPW_0110	Transplant and tree removal	72	24-Apr-14 A	21-Jul-14 A	24-Apr-14	21-Jul-14			[Gantt Bar]											
Northern Basket Ball Court																				
NBC_0010	Liaison with relevance parties for TTM	80	02-Apr-15 A	02-Jul-15 A	02-Apr-15	13-Jul-15			[Gantt Bar]											
NBC_0020	LCSD handover Northern Basket Ball Court for LTS construction works	6	11-Aug-15 A	11-Aug-15 A	29-Jun-15	06-Jul-15			[Gantt Bar]											
NBC_0030	Preparation works for NBC site access	4	11-Aug-15 A	11-Aug-15 A	07-Jul-15	10-Jul-15			[Gantt Bar]											
NBC_0040	Implementation of TTM	3	11-Aug-15 A	11-Aug-15 A	14-Jul-15	16-Jul-15			[Gantt Bar]											
NBC_0050	Relocation of metal fence access door for public	6	11-Aug-15 A	11-Aug-15 A	11-Jul-15	17-Jul-15			[Gantt Bar]											
NBC_0060	Hoarding installation, installation of site entry on Hennessy Road	5	11-Aug-15 A	15-Aug-15 A	18-Jul-15	31-Jul-15			[Gantt Bar]											
NBC_0070	Expose UU & trial trench for sheet piles works	12	17-Aug-15 A	20-Aug-15 A	01-Aug-15	14-Aug-15			[Gantt Bar]											
NBC_0080	Phase 3 ELS- Sheet Piles Installation [104 no. x 24m]	48	24-Aug-15 A	23-Sep-15 A	15-Aug-15	12-Oct-15			[Gantt Bar]											
NBC_0090	Curtain Grouting and remedial works for sheet piles not reaching to design toe level	15	30-Sep-15 A	13-Oct-15 A	13-Oct-15	30-Oct-15			[Gantt Bar]											
NBC_0100	Phase 3 ELS- Pumping Test preparation works	12	09-Oct-15 A	26-Oct-15 A	13-Oct-15	27-Oct-15			[Gantt Bar]											
NBC_0110	Phase 3 ELS- Pumping Test	6	27-Oct-15 A	01-Nov-15 A	31-Oct-15	06-Nov-15			[Gantt Bar]											
NBC_0120	Phase 3 ELS- Pumping Test Report Preparation and submission to BD	6	02-Nov-15 A	02-Nov-15 A	07-Nov-15	13-Nov-15			[Gantt Bar]											
NBC_0130	Bulk Excavation (Removal of hard paving on ground surface) & excavation for layer 1 to +2.5mPD [500m]	9	04-Nov-15 A	10-Nov-15 A	14-Nov-15	24-Nov-15			[Gantt Bar]											

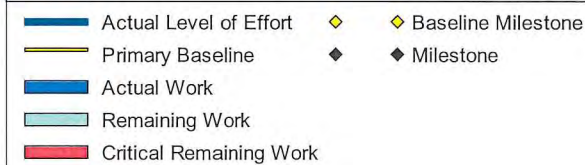
■ Actual Level of Effort ◆ Baseline Milestone
■ Primary Baseline ◆ Milestone
■ Actual Work
■ Remaining Work
■ Critical Remaining Work

**Contract C6593-13C Wan Chai Station Lee Tung Street Subway
Master Program (Rev.C)**

Progress vs Program (Updated Ending May'16)



Activity ID	Activity Name	Original Duration	Start	Finish	BL Project Start	BL Project Finish	Total Float	Free Float	Gantt Chart (014, 2015, 2016, 2017, 2018)														
NBC_0140	Bulk excavation & layer 2 strut & preloading [500m³]	15	11-Nov-15 A	21-Nov-15 A	25-Nov-15	11-Dec-15			[Gantt bar for NBC_0140]														
NBC_0150	Bulk excavation & layer 3 strut & preloading [500m³]	18	23-Nov-15 A	03-Dec-15 A	12-Dec-15	05-Jan-16			[Gantt bar for NBC_0150]														
NBC_0160	Bulk excavation & layer 4 strut & preloading [500m³]	21	04-Dec-15 A	04-Jan-16 A	06-Jan-16	29-Jan-16			[Gantt bar for NBC_0160]														
NBC_0170	Plate load test	6	05-Jan-16 A	08-Jan-16 A	30-Jan-16	05-Feb-16			[Gantt bar for NBC_0170]														
NBC_0180	Plate load test- Preparation of report & submission to BD	6	09-Jan-16 A	31-Jan-16 A	06-Feb-16	16-Feb-16			[Gantt bar for NBC_0180]														
NBC_0190	Base Slab- Waterproofing & RC construction [Concrete 490m³] & [Re-Bar 29.5 T]	15	13-Jan-16 A	22-Jan-16 A	17-Feb-16	04-Mar-16			[Gantt bar for NBC_0190]														
NBC_0200	Wall- Waterproofing & RC construction [Concrete 300m³] & [Re-Bar 54 T]	21	20-Feb-16 A	08-Mar-16 A	05-Mar-16	01-Apr-16			[Gantt bar for NBC_0200]														
NBC_0210	Top Slab- Waterproofing & RC construction [Concrete 180m³] & [Re-Bar 42.7 T]	24	17-Mar-16 A	01-Apr-16 A	02-Apr-16	30-Apr-16			[Gantt bar for NBC_0210]														
NBC_0220	Construction of flood light footing [2 nos.]	12	29-Mar-16 A	01-Apr-16 A	03-May-16	17-May-16			[Gantt bar for NBC_0220]														
NBC_0230	Reinstatement and installation of flood light [2nos.]	6	29-Mar-16 A	02-Jun-16	18-May-16	24-May-16	101	0	[Gantt bar for NBC_0230]														
NBC_0240	Backfilling for Northern Basketball Court	12	05-May-16 A	10-Jun-16	25-May-16	07-Jun-16	101	0	[Gantt bar for NBC_0240]														
NBC_0250	Reinstate hard paving of Northern Basketball Court	18	11-Jun-16	02-Jul-16	08-Jun-16	29-Jun-16	101	0	[Gantt bar for NBC_0250]														
NBC_0260	Reinstate surface coating of Northern Basketball Court	12	04-Jul-16	16-Jul-16	30-Jun-16	14-Jul-16	101	0	[Gantt bar for NBC_0260]														
NBC_0270	Hand over to LCSD, additional remedial if require	12	18-Jul-16	30-Jul-16	15-Jul-16	28-Jul-16	101	0	[Gantt bar for NBC_0270]														
NBC_0280	Reinstate road surface on Hennessy Road	70	01-Aug-16	24-Oct-16	29-Jul-16	21-Oct-16	101	0	[Gantt bar for NBC_0280]														
Southern Basket Ball Court																							
SBC_0010	Phase 1 ELS- Sheet Piles Installation [184n. x 24m]	65	22-Jul-14 A	15-Nov-14 A	22-Jul-14	08-Oct-14			[Gantt bar for SBC_0010]														
SBC_0020	Curtain Grouting and remedial works for sheet piles not reaching to design toe level	15	15-Oct-14 A	15-Nov-14 A	09-Oct-14	25-Oct-14			[Gantt bar for SBC_0020]														
SBC_0030	Bulk Excavation (Removal of hard paving on ground surface) & excavation for layer 1 to +2.5mPD [800m]	21	09-Oct-14 A	01-Nov-14 A	09-Oct-14	01-Nov-14			[Gantt bar for SBC_0030]														
SBC_0040	Phase 1 ELS- Pumping Test preparation works	15	16-Oct-14 A	08-Nov-14 A	09-Oct-14	25-Oct-14			[Gantt bar for SBC_0040]														
SBC_0050	Phase 1 ELS- Pumping Test	11	17-Nov-14 A	28-Nov-14 A	27-Oct-14	07-Nov-14			[Gantt bar for SBC_0050]														
SBC_0060	Phase 1 ELS- Pumping Test Report Preparation and submission to BD	6	04-Dec-14 A	19-Jan-15 A	08-Nov-14	14-Nov-14			[Gantt bar for SBC_0060]														
SBC_0070	Bulk excavation & layer 2 strut & preloading [800m³]	28	15-Nov-14 A	17-Dec-14 A	15-Nov-14	17-Dec-14			[Gantt bar for SBC_0070]														
SBC_0080	Bulk excavation & layer 3 strut & preloading [800m³]	30	18-Dec-14 A	24-Jan-15 A	18-Dec-14	24-Jan-15			[Gantt bar for SBC_0080]														
SBC_0090	Plate load test	6	26-Jan-15 A	31-Jan-15 A	26-Jan-15	31-Jan-15			[Gantt bar for SBC_0090]														
SBC_0100	Temporary Traffic Deck construction	12	10-Jan-15 A	28-Jan-15 A	26-Jan-15	07-Feb-15			[Gantt bar for SBC_0100]														
SBC_0110	Plate load test- Preparation of report & submission to BD	12	12-Feb-15 A	16-Mar-15 A	02-Feb-15	14-Feb-15			[Gantt bar for SBC_0110]														
SBC_0120	Base Slab- Waterproofing & RC construction [Concrete 420m³] & [Re-Bar 25.3 T]	15	04-Sep-15 A	04-Sep-15 A	16-Feb-15	07-Mar-15			[Gantt bar for SBC_0120]														
SBC_0130	Wall- Waterproofing & RC construction [Concrete 280m³] & [Re-Bar 50.4 T]	21	02-Mar-15 A	17-Mar-15 A	09-Mar-15	01-Apr-15			[Gantt bar for SBC_0130]														
SBC_0140	Top Slab- Waterproofing & RC construction [Concrete 210m³] & [Re-Bar 50 T]	22	28-Mar-15 A	02-Apr-15 A	02-Apr-15	02-May-15			[Gantt bar for SBC_0140]														
SBC_0150	Construction of flood light footing (2 nos.)	7	14-May-15 A	21-May-15 A	04-May-15	11-May-15			[Gantt bar for SBC_0150]														
SBC_0160	Reinstatement and installation of flood light (2nos.)	3	05-Jun-15 A	05-Jun-15 A	12-May-15	14-May-15			[Gantt bar for SBC_0160]														
SBC_0170	Backfilling for Southern Basketball Court	6	18-May-15 A	16-Jun-15 A	15-May-15	21-May-15			[Gantt bar for SBC_0170]														
SBC_0180	Reinstate hard paving of Southern Basketball Court	9	16-Jun-15 A	18-Jun-15 A	22-May-15	02-Jun-15			[Gantt bar for SBC_0180]														
SBC_0190	Reinstate surface coating of Southern Basketball Court	9	20-Jun-15 A	29-Jun-15 A	03-Jun-15	12-Jun-15			[Gantt bar for SBC_0190]														
SBC_0200	Hand over to LCSD, additional remedial if require	12	30-Jun-15 A	11-Aug-15 A	13-Jun-15	27-Jun-15			[Gantt bar for SBC_0200]														
Children's Play Area																							
CPA_0010	Phase 1 ELS- Sheet Piles Installation [123 No. x 24m]	65	22-Jul-14 A	15-Nov-14 A	22-Jul-14	08-Oct-14			[Gantt bar for CPA_0010]														
CPA_0020	Curtain Grouting and remedial works for sheet piles not reaching to design toe level	15	15-Oct-14 A	15-Nov-14 A	09-Oct-14	25-Oct-14			[Gantt bar for CPA_0020]														
CPA_0030	Phase 1 ELS- Pumping Test preparation works	15	16-Oct-14 A	08-Nov-14 A	09-Oct-14	25-Oct-14			[Gantt bar for CPA_0030]														
CPA_0040	Bulk Excavation (Removal of hard paving on ground surface) & excavation for layer 1 to +2.5mPD [680m]	32	27-Oct-14 A	02-Dec-14 A	27-Oct-14	02-Dec-14			[Gantt bar for CPA_0040]														
CPA_0050	Phase 1 ELS- Pumping Test	11	17-Nov-14 A	28-Nov-14 A	27-Oct-14	07-Nov-14			[Gantt bar for CPA_0050]														
CPA_0060	Phase 1 ELS- Pumping Test Report Preparation and submission to BD	6	04-Dec-14 A	19-Jan-15 A	08-Nov-14	14-Nov-14			[Gantt bar for CPA_0060]														
CPA_0070	Bulk excavation & layer 2 strut & preloading to -1.3 mPD [680m³]	30	18-Dec-14 A	24-Jan-15 A	18-Dec-14	24-Jan-15			[Gantt bar for CPA_0070]														
CPA_0080	Play's Area Temporary Traffic Deck construction	12	10-Jan-15 A	28-Jan-15 A	26-Jan-15	07-Feb-15			[Gantt bar for CPA_0080]														
CPA_0090	Bulk excavation & layer 3 strut & preloading [680m³]	40	09-Feb-15 A	28-Feb-15 A	09-Feb-15	30-Mar-15			[Gantt bar for CPA_0090]														
CPA_0100	Bulk excavation & layer 4 strut & preloading [680m³]	50	01-Mar-15 A	27-Mar-15 A	31-Mar-15	03-Jun-15			[Gantt bar for CPA_0100]														
CPA_0110	Plate load test	6	30-Mar-15 A	02-Apr-15 A	04-Jun-15	10-Jun-15			[Gantt bar for CPA_0110]														
CPA_0120	Plate load test- Preparation of report & submission to BD	12	08-Apr-15 A	23-May-15 A	11-Jun-15	25-Jun-15			[Gantt bar for CPA_0120]														
CPA_0130	Base Slab- Waterproofing & RC construction [Concrete 395m³] & [Re-Bar 23.8 T]	30	23-Apr-15 A	17-Jul-15 A	26-Jun-15	31-Jul-15			[Gantt bar for CPA_0130]														
CPA_0140	Wall- Waterproofing & RC construction [Concrete 210m³] & [Re-Bar 37.8 T]	18	18-Jun-15 A	06-Aug-15 A	01-Aug-15	21-Aug-15			[Gantt bar for CPA_0140]														
CPA_0150	Top Slab- Waterproofing & RC construction [Concrete 185m³] & [Re-Bar 43.8 T]	20	07-Aug-15 A	11-Sep-15 A	22-Aug-15	14-Sep-15			[Gantt bar for CPA_0150]														
CPA_0160	Ventilation Shaft Below Ground- Waterproofing & RC construction [Concrete 35m³] & [Re-Bar 6.3 T]	20	22-Aug-15 A	14-Sep-15 A	15-Sep-15	09-Oct-15			[Gantt bar for CPA_0160]														
CPA_0170	Ventilation Shaft 1.2m Above Ground- Waterproofing & RC construction [Concrete 25m³] & [Re-Bar 4.5 T]	18	14-Sep-15 A	10-Jun-16	10-Oct-15	31-Oct-15	-64	0	[Gantt bar for CPA_0170]														
CPA_0180	Ventilation Shaft - Waterproofing & RC construction reach +7.40 & +9.50mPD [Concrete 50m³] & [Re-E	30	11-Jun-16	16-Jul-16	21-Mar-16	28-Apr-16	-64	0	[Gantt bar for CPA_0180]														
CPA_0190	Site cleaning for Play Area reinstatement & Landscape works	12	18-Jul-16	30-Jul-16	29-Apr-16	13-May-16	-64	0	[Gantt bar for CPA_0190]														
CPA_0200	Reinstatement works for Plays Area	66	01-Aug-16	19-Oct-16	16-May-16	02-Aug-16	-64	0	[Gantt bar for CPA_0200]														
CPA_0210	Landscape works	66	20-Oct-16	07-Jan-17	03-Aug-16	21-Oct-16	-64	0	[Gantt bar for CPA_0210]														
CPA_0220	Hand over to LCSD, additional remedial if require	48	09-Jan-17	08-Mar-17	22-Oct-16	16-Dec-16	-64	0	[Gantt bar for CPA_0220]														
Johnston Road																							
JnR_0010	All Sheet Piles on JnR & 1st layer mini piles below Tram track completed	0		31-May-16		09-Sep-15	-243	0	[Gantt bar for JnR_0010]														
JnR_0020	Phase 2 ELS- Pumping Test 1 for 1st layer	6	17-Mar-16 A	21-Mar-16 A	10-Sep-15	16-Sep-15			[Gantt bar for JnR_0020]														



Contract C6593-13C Wan Chai Station Lee Tung Street Subway Master Program (Rev.C)

Progress vs Program (Updated Ending May'16)



Activity ID	Activity Name	Original Duration	Start	Finish	BL Project Start	BL Project Finish	Total Float	Free Float	Gantt Chart											
									2014			2015			2016			2017		
ABWF.D2_0060	Install Framework for final finishes	42	29-Mar-17	24-May-17	29-Jul-16	15-Sep-16	-188	0												
ABWF.D2_0070	Water tightness testing to water tanks & acceptance	42	29-Mar-17	24-May-17	29-Jul-16	15-Sep-16	-188	0												
ABWF Works - Degree 3																				
ABWF.D3_0010	Inatall & apply all remaining finishes including permanent doors, ironmongery	27	01-Jun-17	04-Jul-17	24-Sep-16	27-Oct-16	-191	0												
ABWF.D3_0011	Installation of VE Panel [591m^2]	33	24-May-17	04-Jul-17	17-Sep-16	27-Oct-16	-101	0												
ABWF.D3_0012	Installation of Ceiling Panel [565 m^2]	33	24-May-17	04-Jul-17	17-Sep-16	27-Oct-16	-101	0												
ABWF.D3_0013	Installation of floor finishing [565 m^2]	27	01-Jun-17	04-Jul-17	24-Sep-16	27-Oct-16	-101	0												
ABWF.D3_0020	Install Balustrade	27	01-Jun-17	04-Jul-17	24-Sep-16	27-Oct-16	-191	0												
ABWF.D3_0030	Install Signage hangers & supports	30	24-May-17	29-Jun-17	17-Sep-16	24-Oct-16	-188	0												
ABWF.D3_0040	Install smoke barriers	30	24-May-17	29-Jun-17	17-Sep-16	24-Oct-16	-188	0												
ABWF.D3_0050	Apply Acoustic treatment	30	24-May-17	29-Jun-17	17-Sep-16	24-Oct-16	-188	0												
ABWF.D3_0060	Install Louvres & grilles	30	24-May-17	29-Jun-17	17-Sep-16	24-Oct-16	-188	0												
ABWF.D3_0070	Seal All openings & Penetrations	30	24-May-17	29-Jun-17	17-Sep-16	24-Oct-16	-188	0												
C: Building Services																				
Design, Shop Drawings, Materials & Equipments Submission and Approval																				
BS.DS_0010	BS Works- Preparation and submission for detailed design of BS works	128	14-Apr-14 A	18-Sep-14 A	14-Apr-14	18-Sep-14														
BS.DS_0020	BS Works- Review and approval for detailed design of BS works	12	19-Sep-14 A	04-Oct-14 A	19-Sep-14	04-Oct-14														
BS.DS_0030	BS Works- Preparation and re-submission for detailed design of BS works (If require)	12	06-Oct-14 A	18-Oct-14 A	06-Oct-14	18-Oct-14														
BS.DS_0040	BS Works- Review and approval for detailed design of BS works (If require)	12	20-Oct-14 A	01-Nov-14 A	20-Oct-14	01-Nov-14														
BS.DS_0050	BS Works- Contractor prepare & submit the propose suppliers & model types of major BS equipment & r	128	14-Apr-14 A	18-Sep-14 A	14-Apr-14	18-Sep-14														
BS.DS_0060	BS Works- Review & approval the propose suppliers & model types of major BS equipment & materials	12	19-Sep-14 A	04-Oct-14 A	19-Sep-14	04-Oct-14														
BS.DS_0070	BS Works- Contractor prepare & re-submit propose suppliers & model types of major BS equipment & m	12	06-Oct-14 A	18-Oct-14 A	06-Oct-14	18-Oct-14														
BS.DS_0080	BS Works- Review the propose suppliers & model types of major BS equipment & materials (If require)	12	20-Oct-14 A	01-Nov-14 A	20-Oct-14	01-Nov-14														
BS.DS_0090	BS Works- Preparation and submission of BS shop drawings	32	03-Nov-14 A	09-Dec-14 A	03-Nov-14	09-Dec-14														
BS.DS_0100	BS Works- Review and approval of BS shop drawings	12	10-Dec-14 A	23-Dec-14 A	10-Dec-14	23-Dec-14														
BS.DS_0110	BS Works- Preparation and re-submission of BS shop drawings (If require)	12	24-Dec-14 A	09-Jan-15 A	24-Dec-14	09-Jan-15														
BS.DS_0120	BS Works- Review and approval of BS shop drawings (If require)	12	10-Jan-15 A	23-Jan-15 A	10-Jan-15	23-Jan-15														
BS.DS_0130	Exchange of Design Information with Designated and Interfacing Contractors	100	24-Jan-15 A	30-May-15 A	24-Jan-15	30-May-15														
Procurement and Delivery of Materials and Equipments																				
BS.PD_0010	All Major building service equipments & materials - Manufacture & fabrication - Procurement	50	03-Nov-14 A	02-Jan-15 A	03-Nov-14	02-Jan-15														
BS.PD_0020	Others Major building service equipments & materials - Place order	95	03-Jan-15 A	02-May-15 A	03-Jan-15	02-May-15														
BS.PD_0030	Others Major building service equipments & materials - Manufacture & fabrication	90	04-May-15 A	19-Aug-15 A	04-May-15	19-Aug-15														
BS.PD_0040	Others Major building service equipments & materials - Factory acceptance testing	24	20-Aug-15 A	16-Sep-15 A	20-Aug-15	16-Sep-15														
BS.PD_0050	Others Major building service equipments & materials - Remedial works (If require)	36	17-Sep-15 A	31-Oct-15 A	17-Sep-15	31-Oct-15														
BS.PD_0060	Others Major building service equipments & materials - Factory acceptance (If require)	24	02-Nov-15 A	18-Nov-15 A	02-Nov-15	18-Nov-15														
BS.PD_0070	Others Major building service equipments & materials - Delivery to site/ ECS Room	90	30-Nov-15 A	19-Mar-16 A	30-Nov-15	19-Mar-16														
BS.PD_0080	Air Handling Unit - Place Order	95	03-Jan-15 A	05-Jan-15 A	03-Jan-15	02-May-15														
BS.PD_0090	Air Handling Unit - Manufacture & fabrication	90	04-May-15 A	19-Aug-15 A	04-May-15	19-Aug-15														
BS.PD_0100	Air Handling Unit - Factory acceptance testing	24	20-Aug-15 A	16-Sep-15 A	20-Aug-15	16-Sep-15														
BS.PD_0110	Air Handling Unit - Remedial works (If require)	36	17-Sep-15 A	31-Oct-15 A	17-Sep-15	31-Oct-15														
BS.PD_0120	Air Handling Unit - Factory acceptance testing (If require)	24	02-Nov-15 A	28-Nov-15 A	02-Nov-15	28-Nov-15														
BS.PD_0130	Air Handling Unit - Delivery to site/ ECS Room	90	30-Nov-15 A	19-Mar-16 A	30-Nov-15	19-Mar-16														
BS.PD_0140	In-line Centrifugal Fan - Place Order	95	03-Jan-15 A	05-Jan-15 A	03-Jan-15	02-May-15														
BS.PD_0150	In-line Centrifugal Fan - Manufacture & fabrication	90	04-May-15 A	19-Aug-15 A	04-May-15	19-Aug-15														
BS.PD_0160	In-line Centrifugal Fan - Factory acceptance testing	24	20-Aug-15 A	16-Sep-15 A	20-Aug-15	16-Sep-15														
BS.PD_0170	In-line Centrifugal Fan - Remedial works (If require)	36	17-Sep-15 A	31-Oct-15 A	17-Sep-15	31-Oct-15														
BS.PD_0180	In-line Centrifugal Fan - Factory acceptance testing (If require)	24	02-Nov-15 A	28-Nov-15 A	02-Nov-15	28-Nov-15														
BS.PD_0190	In-line Centrifugal Fan - Delivery to Site/ ECS Room	90	30-Nov-15 A	19-Mar-16 A	30-Nov-15	19-Mar-16														
BS.PD_0200	Smoke Extraction Fan - Place Order	95	03-Jan-15 A	05-Jan-15 A	03-Jan-15	02-May-15														
BS.PD_0210	Smoke Extraction Fan - Manufacture & fabrication	90	04-May-15 A	19-Aug-15 A	04-May-15	19-Aug-15														
BS.PD_0220	Smoke Extraction Fan - Factory acceptance testing	24	20-Aug-15 A	16-Sep-15 A	20-Aug-15	16-Sep-15														
BS.PD_0230	Smoke Extraction Fan - Remedial works (If require)	36	17-Sep-15 A	31-Oct-15 A	17-Sep-15	31-Oct-15														
BS.PD_0240	Smoke Extraction Fan - Factory acceptance testing (If require)	24	02-Nov-15 A	28-Nov-15 A	02-Nov-15	28-Nov-15														
BS.PD_0250	Smoke Extraction Fan - Delivery to site/ ECS Room	90	30-Nov-15 A	19-Mar-16 A	30-Nov-15	19-Mar-16														
BS.PD_0260	Fan Coil Unit - Place order	95	03-Jan-15 A	05-Jan-15 A	03-Jan-15	02-May-15														
BS.PD_0270	Fan Coil Unit - Manufacture & fabrication	90	04-May-15 A	19-Aug-15 A	04-May-15	19-Aug-15														
BS.PD_0280	Fan Coil Unit - Factory acceptance testing	24	20-Aug-15 A	16-Sep-15 A	20-Aug-15	16-Sep-15														
BS.PD_0290	Fan Coil Unit - Remedial works (If require)	36	17-Sep-15 A	31-Oct-15 A	17-Sep-15	31-Oct-15														
BS.PD_0300	Fan Coil Unit - Factory acceptance testing (If require)	24	02-Nov-15 A	28-Nov-15 A	02-Nov-15	28-Nov-15														
BS.PD_0310	Fan Coil Unit - Delivery to site/ ECS Room	90	30-Nov-15 A	19-Mar-16 A	30-Nov-15	19-Mar-16														
BS.PD_0320	Motorized Smoke & Fire damper - Place order	95	03-Jan-15 A	05-Jan-15 A	03-Jan-15	02-May-15														

■ Actual Level of Effort ◆ Baseline Milestone
■ Primary Baseline ◆ Milestone
■ Actual Work
■ Remaining Work
■ Critical Remaining Work

Contract C6593-13C Wan Chai Station Lee Tung Street Subway Master Program (Rev.C)

Progress vs Program (Updated Ending May'16)



Activity ID	Activity Name	Original Duration	Start	Finish	BL Project Start	BL Project Finish	Total Float	Free Float	2014	2015	2016	2017	2018																																													
									J	J	A	S	O	N	D	J	F	A	J	J	A	S	O	N	D	J	F	A	J	J	A	S	O	N	D	J	F	A	J	J	A	S	O	N	D	J	F	A	J	J	A	S	O	N	D	J	F	A
WMW.AFC_0010	Preparation works for works in WAC station	10	28-Dec-15 A	02-Jan-16 A	13-Jan-15	23-Jan-15																																																				
WMW.AFC_0020	Internal Hoarding in WAC station (NTH)	12	04-Jan-16 A	09-Jan-16 A	24-Jan-15	06-Feb-15																																																				
WMW.AFC_0030	Construct new AFC/Audit Room next to Entrance B1, B2, ABWF & BS Works (NTH)	60	28-Dec-15 A	02-Jun-16	07-Feb-15	25-Apr-15	-324	0																																																		
Existing AFC Audit Room, Maxim's & Circle K Kiosks																																																										
WMW.K_0010	Liaison with MTR/ relevance parties for modification works of existing Kiosks & Audit Room	36	03-Jun-16	16-Jul-16	27-Apr-15	09-Jun-15	-324	0																																																		
WMW.K_0020	Internal Hoarding in WAC station (NTH)	12	18-Jul-16	30-Jul-16	10-Jun-15	24-Jun-15	-324	0																																																		
WMW.K_0030	Modification Works to existing AFC/Audit, Store & Kiosk 3 & 5 (NTH)	90	01-Aug-16	16-Nov-16	25-Jun-15	10-Oct-15	-324	0																																																		
WMW.K_0040	Modification to existing Kiosk 2 (NTH)	90	17-Nov-16	08-Mar-17	12-Oct-15	28-Jan-16	-324	0																																																		
ABWF Works & Misc Works																																																										
WMW.ABWF_0010	ABWF - Plaster & tiling 29 m2, baffling ceiling 10 m2, metal cladding 9 m2	70	09-Mar-17	06-Jun-17	29-Jan-16	27-Apr-16	-324	0																																																		
Breaking Out WAC Station																																																										
WMW.BO_0010	Installation protection measurement for break through	2	07-Jun-17	08-Jun-17	03-May-16	04-May-16	-323	0																																																		
WMW.BO_0020	Breaking out WAC Station - Form opening, core holes & wire cut, 60 no. x 0.9m x 0.9m x 1m blocks	54	09-Jun-17	11-Aug-17	05-May-16	09-Jul-16	-323	0																																																		
WMW.BO_0030	Breaking out WAC Station - Installation of temporary steel propping	30	15-Jun-17	20-Jul-17	11-May-16	16-Jun-16	-304	19																																																		
WMW.BO_0040	Breaking out WAC Station - Construct the portal frame	12	12-Aug-17	25-Aug-17	11-Jul-16	23-Jul-16	-323	0																																																		
WMW.BO_0050	Demolish the propping steel members	6	26-Aug-17	01-Sep-17	25-Jul-16	30-Jul-16	-323	0																																																		
Testing and Commissioning																																																										
WMW.C_0010	Testing and Commissioning	30	03-Apr-17	13-May-17	26-Feb-16	05-Apr-16	-305	19																																																		
WMW.K_Comp	Specified Part 2B - Complete all works at the 2 new Shop Kiosks and hand over to the Employer - Progr	0		06-Jun-17		27-Apr-16	-401	0																																																		
E. WAC Station Improvement Works (Part C Works)																																																										
Improvement Works to WAC Station																																																										
WIW_0010	Modify, provide & install new glass barrier to suit new AFC gates (NTH)	34	17-Nov-16	28-Dec-16	12-Oct-15	20-Nov-15	13	0																																																		
WIW_0020	Provide and install additional AFC gates (NTH)	34	29-Dec-16	10-Feb-17	21-Nov-15	02-Jan-16	13	0																																																		
WIW_0030	Provide builder works for TIMS relocation (NTH)	40	30-Sep-17	18-Nov-17	29-Aug-16	17-Oct-16	-323	0																																																		
WIW_0040	T&C by Designated Contractor for TIMS (NTH)	40	20-Nov-17	08-Jan-18	18-Oct-16	02-Dec-16	-323	0																																																		
WIW_0050	Make Good builder works for TIMS (NTH)	53	09-Jan-18	14-Mar-18	03-Dec-16	09-Feb-17	-323	0																																																		
WIW_Comp	E3- All works in milestone E completed - Programmed	0		14-Mar-18		09-Feb-17	-397	0																																																		

- Actual Level of Effort ◆ Baseline Milestone
- Primary Baseline ◆ Milestone
- Actual Work
- Remaining Work
- Critical Remaining Work

**Contract C6593-13C Wan Chai Station Lee Tung Street Subway
Master Program (Rev.C)**

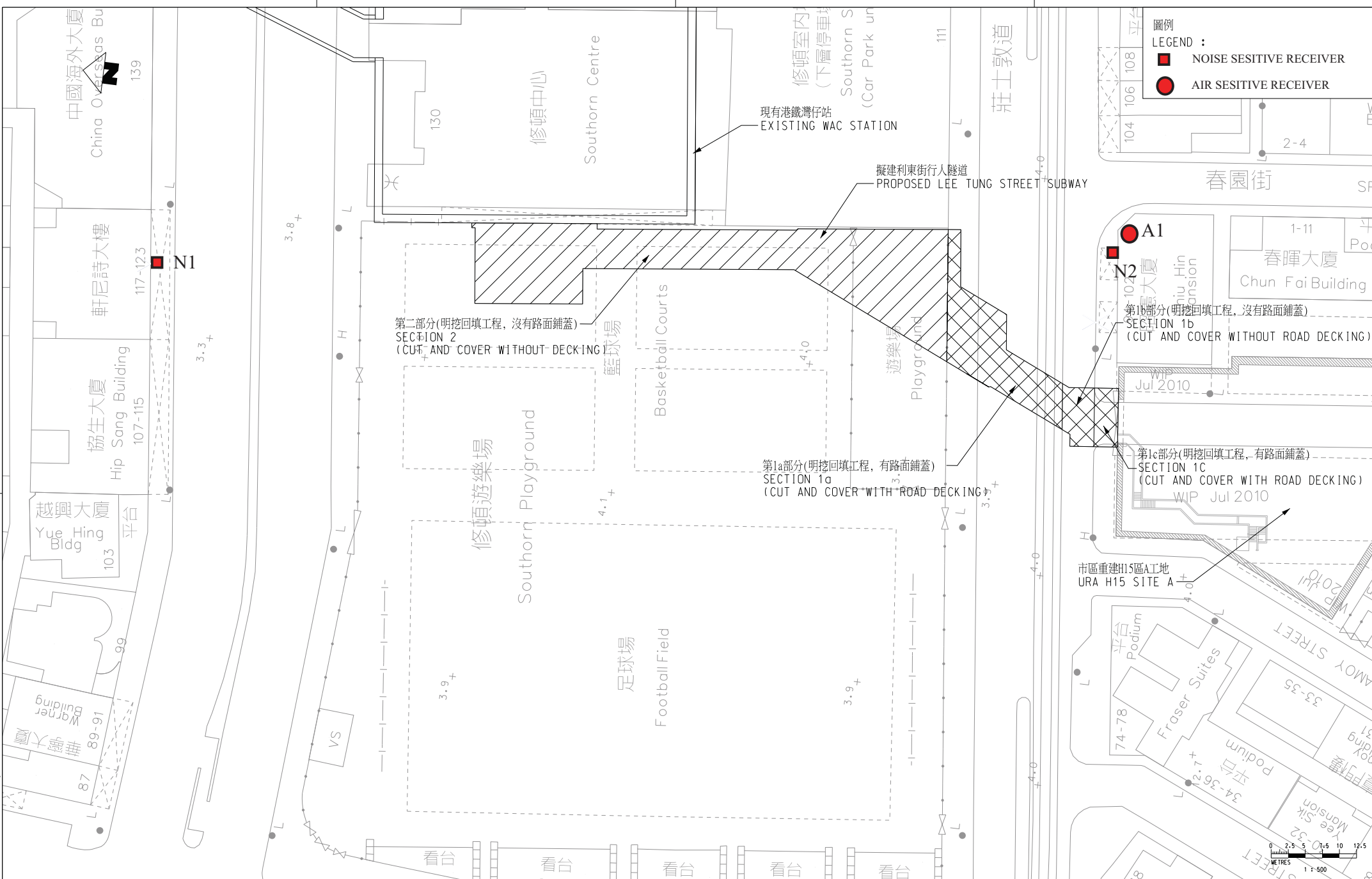
Progress vs Program (Updated Ending May'16)



Appendix C

Monitoring Locations

Ca:\Programs\Bentley\MicroStation\18\SELECTseries\WorkSpace\System\trcg\WTR_PDF_BM_COA_3000P.dwg
 04/2024/5/REP/REP1/CON/PT/000000000000_27A_000000000000.dwg
 FILENAME: 4/2024/5/REP/REP1/CON/PT/000000000000_27A_000000000000.dwg



圖例
LEGEND :
 ■ NOISE SENSITIVE RECEIVER
 ● AIR SENSITIVE RECEIVER

TITLE
 CONSULTANCY AGREEMENT NO. NEX/1050
 DETAILED DESIGN FOR LEE TUNG STREET SUBWAY
 LOCATION OF NOISE AND AIR SENSITIVE RECEIVER

SCALE 1:500 (A3) DRAWING NO. REV.

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED
D	GENERAL REVISION								
C	GENERAL REVISION								
B	GENERAL REVISION								
A	PROJECT PROFILE								

DRAWN
 DESIGNED
 CHECKED
 APPROVED
 DATE

MTR

WAC STATION LEE TUNG STREET SUBWAY

ORIGINATOR

Mott MacDonald

25F Two Landmark East
 100 Tsim Sha Tsui Street
 Kowloon, Hong Kong
 Tel: +852 2182 0000
 Fax: +852 2182 0001
 www.mottmacdonald.com.hk

CADD REF.

Appendix D

**Calibration Certificate of
Monitoring Equipment**

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Chiu Hin Mansion
 Location ID : A1

Date of Calibration: 13-Apr-16
 Next Calibration Date: 13-Jun-16
 Technician: Mr. Ip Ka Hing

CONDITIONS

Sea Level Pressure (hPa)	1005.5	Corrected Pressure (mm Hg)	754.125
Temperature (°C)	21.8	Temperature (K)	295

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.00411
Model->	5025A	Qstd Intercept ->	-0.03509
Serial # ->	1612		

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.805	52	52.36	Slope = 31.3535 Intercept = -4.2430 Corr. coeff. = 0.9982
13	5.2	5.2	10.4	1.629	47	47.33	
10	4.3	4.3	8.6	1.483	42	42.29	
7	2.8	2.8	5.6	1.200	32	32.22	
5	1.4	1.4	2.8	0.854	23	23.16	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

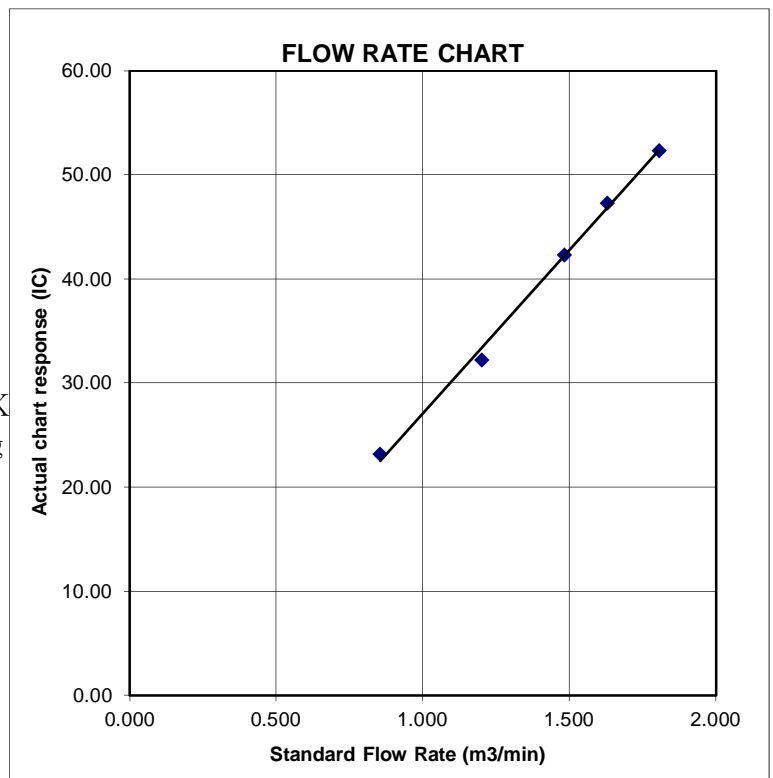
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart responses
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

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

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



ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 14, 2016 Rootsmeter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 1612 Pa (mm) - 745.49

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3770	3.2	2.00
2	NA	NA	1.00	0.9710	6.4	4.00
3	NA	NA	1.00	0.8710	7.8	5.00
4	NA	NA	1.00	0.8310	8.7	5.50
5	NA	NA	1.00	0.6860	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9866	0.7165	1.4078	0.9957	0.7231	0.8896
0.9824	1.0117	1.9909	0.9914	1.0210	1.2581
0.9804	1.1256	2.2259	0.9894	1.1360	1.4066
0.9793	1.1785	2.3345	0.9883	1.1893	1.4753
0.9741	1.4200	2.8155	0.9830	1.4330	1.7792
Qstd slope (m) = 2.00411			Qa slope (m) = 1.25494		
intercept (b) = -0.03059			intercept (b) = -0.01933		
coefficient (r) = 0.99995			coefficient (r) = 0.99995		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol [(Pa-Diff. Hg)/760] (298/Ta)
 Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
 Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{ [SQRT(H2O(Pa/760) (298/Ta))] - b}
 Qa = 1/m{ [SQRT H2O(Ta/Pa)] - b}



Certificate of Calibration

校正證書

Certificate No. : C153244
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-0720) Date of Receipt / 收件日期 : 11 June 2015
Description / 儀器名稱 : Integrating Sound Level Meter (EQ009)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2285722
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 June 2015

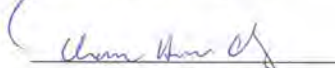
TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By : 
測試 : K C Lee
Project Engineer

Certified By : 
核證 : H C Chan
Engineer

Date of Issue : 16 June 2015
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C153244
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

- Test procedure : MA101N.

- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFF}	A	F	94.00	1	94.2

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFF}	A	F	94.00	1	94.0	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFF}	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited - Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 - 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C153244
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.0	Ref.
	L _{ASP}		S			94.1	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	104.9	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		101.9	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{AFP}	A	F	94.00	31.5 Hz	54.4	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.8	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C153244
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	90.8	-3.0 ± 1.5
					63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)	
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)			
30 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5	
								90	89.7	± 0.5	
			60 sec.					1/10 ³	80	79.2	± 1.0
			5 min.					1/10 ⁴	70	69.2	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2812707

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB : 31.5 Hz - 125 Hz	: ± 0.35 dB
250 Hz - 500 Hz	: ± 0.30 dB
1 kHz	: ± 0.20 dB
2 kHz - 4 kHz	: ± 0.35 dB
8 kHz	: ± 0.45 dB
12.5 kHz	: ± 0.70 dB
104 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level	: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準 - 局部複印本證書需先獲本實驗室所書面批准



Certificate of Calibration 校正證書

Certificate No. : C153052
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-0720)

Date of Receipt / 收件日期 : 15 May 2015

Description / 儀器名稱 : Acoustical Calibrator (EQ082)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 4231
Serial No. / 編號 : 2713428
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : $(55 \pm 20)\%$

TEST SPECIFICATIONS / 測試規範

Calibration check

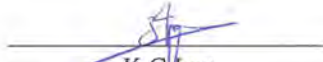
DATE OF TEST / 測試日期 : 4 June 2015

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By : 
測試 : K C Lee
Project Engineer

Certified By : 
核證 : K M Wu
Engineer

Date of Issue : 5 June 2015
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。



Certificate of Calibration 校正證書

Certificate No. : C153052
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C143868
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

- Test procedure : MA100N.

- Results :

- 5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.0		

- 5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Appendix E

HOKLAS-Accreditation Certificate of the Testing Laboratory



Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong
香港新界葵涌永業街1-3號忠信針織中心11樓

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
為香港認可處執行機關根據認可諮詢委員會建議而接受的

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as listed in the HOKLAS Directory of Accredited Laboratories within the test category of
此實驗所符合ISO / IEC 17025 : 2005 – 《測試及校正實驗所能力的通用規定》所訂的要求，獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定
測試或校正工作

Environmental Testing
環境測試

This laboratory is accredited in accordance with the recognised International Standard ISO / IEC 17025 : 2005.
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).
這項認可資格演示在指定範疇所需的技術能力及實驗所質量管理體系的運作
(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator
執行幹事 陳成城
Issue Date : 5 May 2009
簽發日期：二零零九年五月五日

Registration Number : **HOKLAS 066**
註冊號碼：

Date of First Registration : 15 September 1995
首次註冊日期：一九九五年九月十五日



Appendix F

Event and Action Plan

Event and Action Plan for Construction Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify IEC and Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and Contractor. 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the analyzed result submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analyzed noise problem 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC 2. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify IEC, ER, EPD and Contractor, and follow other actions 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Check Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD, ER informed of the results 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 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 ET accordingly 3. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedances 2. Notify Contractor 3. Require Contractor to propose remedial measures 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. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notifications 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

Event and Action Plan for Air Quality

Event	Action			
	ET	IEC	ER	Contractor
Action Level				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source; 2. If valid, inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and EPD; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial action required; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervisor implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial Measure properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial action to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source; 2. Inform ER 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. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and the Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify sources; 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. 	<ol style="list-style-type: none"> 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 ET accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with 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 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix G

Monitoring Schedule

Monitoring Schedule in the Reporting Period – May 2016

DATE		AIR QUALITY	NOISE
		24-HOUR TSP	L _{EQ} 30MIN
Sun	1-May-16		
Mon	2-May-16		
Tue	3-May-16		✓
Wed	4-May-16	✓	
Thu	5-May-16		
Fri	6-May-16		
Sat	7-May-16		
Sun	8-May-16		
Mon	9-May-16		
Tue	10-May-16	✓	✓
Wed	11-May-16		
Thu	12-May-16		
Fri	13-May-16		
Sat	14-May-16		
Sun	15-May-16		
Mon	16-May-16	✓	
Tue	17-May-16		✓
Wed	18-May-16		
Thu	19-May-16		
Fri	20-May-16		
Sat	21-May-16	✓	
Sun	22-May-16		
Mon	23-May-16		
Tue	24-May-16		✓
Wed	25-May-16		
Thu	26-May-16		
Fri	27-May-16	✓	
Sat	28-May-16		
Sun	29-May-16		
Mon	30-May-16		
Tue	31-May-16		✓

✓	Monitoring Day
	Sunday or Public Holiday

Air Quality Monitoring Location

A1 - balcony at 1/F of Chiu Hin Mansion

Construction Noise Monitoring Location:

N1 - 2/F floor of Hennessey Building

N2 - balcony at 1/F of Chiu Hin Mansion

Monitoring Schedule for the Coming Month – June 2016

DATE		AIR QUALITY	NOISE
		24-HOUR TSP	L _{EQ} 30MIN
WED	1-JUNE-16		
THU	2-JUNE-16	✓	
FRI	3-JUNE-16		
SAT	4-JUNE-16		
SUN	5-JUNE-16		
MON	6-JUNE-16		
TUE	7-JUNE-16		✓
WED	8-JUNE-16	✓	
THU	9-JUNE-16		
FRI	10-JUNE-16		
SAT	11-JUNE-16		
SUN	12-JUNE-16		
MON	13-JUNE-16		
TUE	14-JUNE-16	✓	✓
WED	15-JUNE-16		
THU	16-JUNE-16		
FRI	17-JUNE-16		
SAT	18-JUNE-16		
SUN	19-JUNE-16		
MON	20-JUNE-16	✓	
TUE	21-JUNE-16		✓
WED	22-JUNE-16		
THU	23-JUNE-16		
FRI	24-JUNE-16		
SAT	25-JUNE-16	✓	
SUN	26-JUNE-16		
MON	27-JUNE-16		
TUE	28-JUNE-16		✓
WED	29-JUNE-16		
THU	30-JUNE-16	✓	

✓	Monitoring Day
	Sunday or Public Holiday

Remarks:

Designated Location for Impact noise measurement:

- N1 Hennessey Building; and
- N2 Chiu Hin Mansion

Designated Location for Impact air quality monitoring

- A1 Chiu Hin Mansion

Appendix H

Database of Monitoring Results

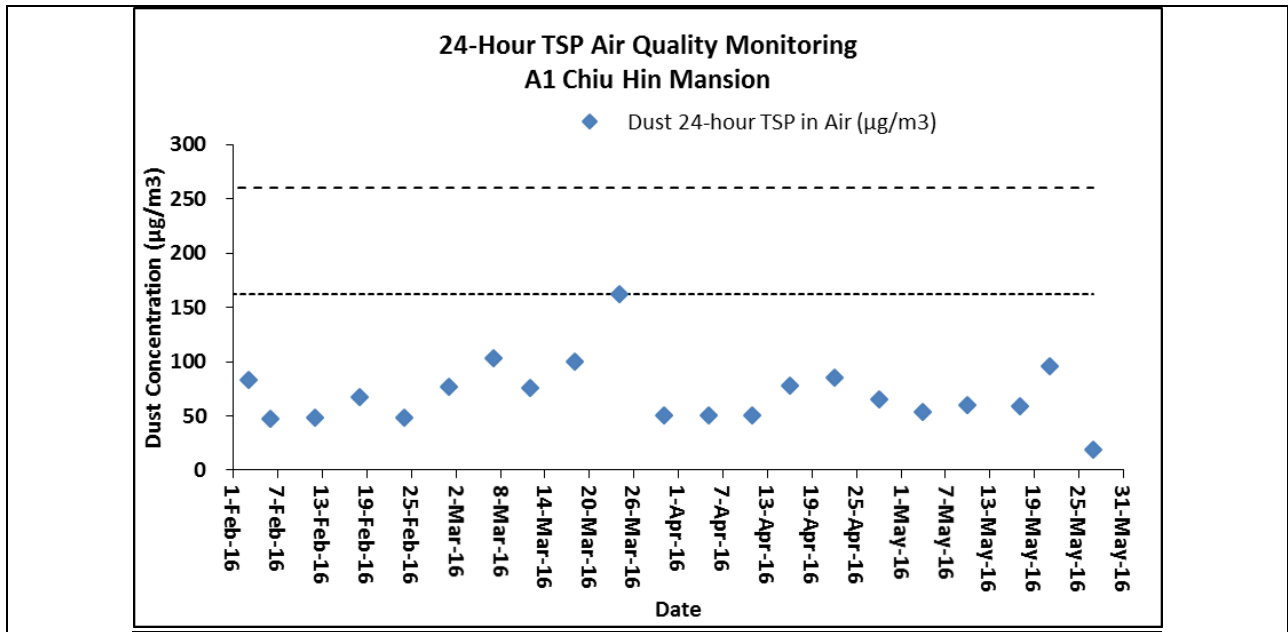
Result of 24-hour TSP Monitoring

Location: A1 (balcony at 1/F of Chiu Hin Mansion)															
Date	Sample Number	Elapsed Time			Chart Reading			Ave. Temp. (°C)	Standard			Filter Weight (g)		Weight Dust Collected (g)	Dust 24-hour TSP in Air (µg/m ³)
		Initial	Final	Actual (min)	Min	Max	Ave		Ave. Press. (hPa)	Flow Rate (m ³ /min)	Air Volume (std m ³)	Initial	Final		
4-May-16	29277	17847.91	17872.04	1447.80	38	40	39.0	25.8	1011.4	1.38	1993	2.8463	2.9472	0.1009	51
10-May-16	29740	17872.04	17896.27	1453.80	39	39	39.0	25.7	1010.3	1.38	2000	2.8362	2.9494	0.1132	57
16-May-16	29472	17896.27	17920.40	1447.80	41	43	42.0	26.1	1009.4	1.47	2128	2.8322	2.9509	0.1187	56
21-May-16	29473	17920.40	17944.57	1450.20	41	43	42.0	26.1	1008.3	1.47	2130	2.8174	3.0087	0.1913	90
27-May-16	29548	17944.57	17968.58	1440.60	41	41	41.0	26.8	1008.2	1.44	2068	2.8535	2.8904	0.0369	18

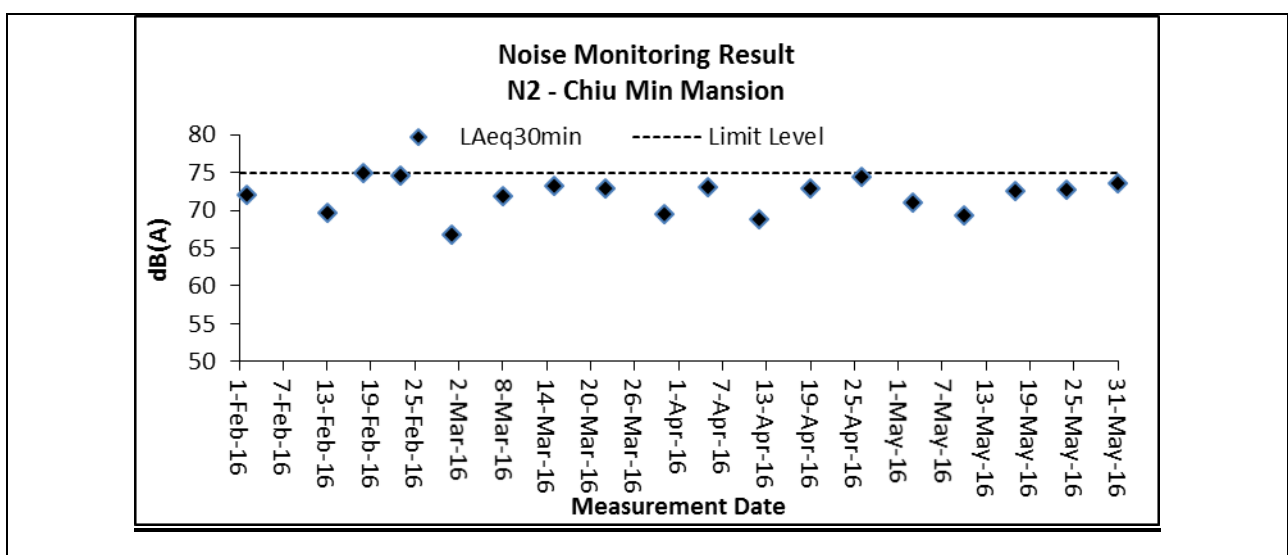
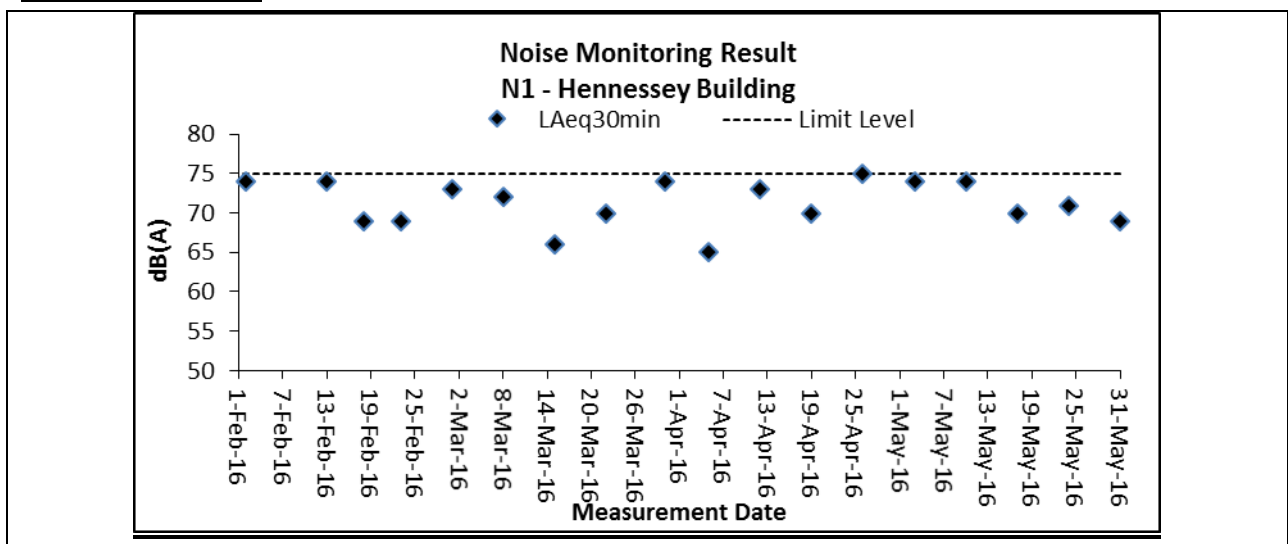
Appendix I

Graphical Plots

Air Quality



Construction Noise



Appendix J

Meteorological Information

Meteorological Data downloaded from HKO in the Reporting Period							
Date		Weather	Total Rainfall (mm)	Kings Park Station			
				Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-May-16	Sun	Cloudy with a few showers	3.1	21.8	6.8	89.8	W/NW
2-May-16	Mon	Mainly cloudy with showers.	0.3	25.4	7.2	87.2	W/NW
3-May-16	Tue	Mainly cloudy with showers.	30.7	26.7	7	80.7	W/NW
4-May-16	Wed	Mainly cloudy with isolated showers.	Trace	25.7	7.7	83	SE
5-May-16	Thu	Hot with sunny intervals during	0	28	7.5	82.2	S/SW
6-May-16	Fri	Hot with sunny periods and a few showers.	0	28.8	7.5	81	S/SW
7-May-16	Sat	Hot with sunny intervals during	0	29	8	80.5	S/SE
8-May-16	Sun	Hot with sunny periods and a few showers.	0	28.8	8.5	79.2	S/SE
9-May-16	Mon	Hot with sunny periods and a few showers.	0	28.1	8.5	79.2	S
10-May-16	Tue	Cloudy with a few showers	60.3	25.1	7.5	88.5	SW
11-May-16	Wed	Hot with sunny periods and a few showers.	0	25.8	9.5	70	E/SE
12-May-16	Thu	Cloudy with a few showers	Trace	25.1	13	76.7	SE
13-May-16	Fri	Mainly cloudy. Sunny intervals in the afternoon.	Trace	25.7	11.5	77.5	SE
14-May-16	Sat	Cloudy with a few showers	4.7	25.4	9.1	83	E/SE
15-May-16	Sun	Mainly cloudy. Sunny intervals in the afternoon.	1	27.1	8.3	81	E/SE
16-May-16	Mon	Cloudy with a few showers	0.3	24.6	8.2	71.5	N/NE
17-May-16	Tue	cloudy with one or two rain	1.2	23.3	14.7	83	E/SE
18-May-16	Wed	cloudy with one or two rain	0	24.5	14.5	71.5	E/SE
19-May-16	Thu	Cloudy with a few showers	Trace	25.6	8.9	80.7	E/SE
20-May-16	Fri	Mainly fine and hot. Light to moderate east to southeasterly winds.	16.1	25	8.5	91.2	E/SE
21-May-16	Sat	Mainly fine and hot. Light to moderate east to southeasterly winds.	37.6	26.2	8.1	87	E/SE
22-May-16	Sun	Mainly fine and hot. Light to moderate east to southeasterly winds.	0	27.6	6.9	82	E/NE
23-May-16	Mon	Mainly fine and hot. Light to moderate east to southeasterly winds.	Trace	27.3	5.5	74.5	E/NE
24-May-16	Tue	Mainly fine and hot. Light to moderate east to southeasterly winds.	Trace	28.2	9.6	80	SE
25-May-16	Wed	Mainly fine and hot. Light to moderate east to southeasterly winds.	Trace	28	9.6	80	SE
26-May-16	Thu	Mainly cloudy with a few showers. Moderate to fresh easterly winds.	0.1	27.6	12.5	82.5	E/SE
27-May-16	Fri	Mainly fine and very hot.	14.4	27.1	14	88.7	E/SE
28-May-16	Sat	Mainly fine and very hot.	62.9	26.9	8	89.8	E/SE
29-May-16	Sun	Mainly fine and very hot.	0.8	28.9	7.9	82.5	W/SW
30-May-16	Mon	Mainly fine and very hot.	0.1	29.5	9.1	81.5	W/NW
31-May-16	Tue	Mainly fine and very hot.	0	30.1	8	77.2	W/NW

Appendix K

Monthly Summary Waste Flow Table

Wan Chai Station Lee Tung Street Subway- C6593-13C

Monthly Summary Waste Flow Table for 2016

Name of Employer: MTR Corporation Limited											Contract No.: C65931-13C									
Month	Actual Quantities of Inert C&D Materials Generated Monthly										Actual Quantities of Non-Inert C&D Wastes Generated Monthly					Actual Quantities of Non-Inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Building Debris	Mixed Rock & Soil	Bentonite	Rubbish	Slurry	Rock	Soil	Reused in this Project	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³ / Litre)	(in m ³)	(in ton)	(in ton)	(in ton)	(in Litre)	(in ton)
Jan	0.01559	0	0	0	0	0	0	0	0.01559	0	0	0	0	0.001	0	0	0	0	0	0
Feb	0.007	0	0	0	0	0	0	0	0	0	0	0	0	0.007	0	0	0	0	0	0
Mar	0.03685	0	0	0	0	0	0	0	0.03685	0	0	0	0	0.001	0	0	0	0	0	0
Apr	0.03399	0	0	0	0	0	0	0	0.03399	0	0	0	0	0.001	0	0	0	1.2	0	0
May	0.09171	0	0	0	0	0	0	0	0.09171	0	0	0	0	0.001	0	0	0	0	0	0
Jun																				
Jul																				
Aug																				
Sep																				
Oct																				
Nov																				
Dec																				
Total	0.18514	0	0	0	0	0	0	0	0.17814	0	0	0	0	0.011	0	0	0	1.2	0	0

Appendix L

Implementation Schedule for Environmental Mitigation Measures (ISEMM)

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
NOISE IMPACT						
S.5.1.1	<u>Use of quieter plant</u>	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control Ordinance
S.5.1.1	<u>Use of noise enclosure and movable barrier</u> <ul style="list-style-type: none"> • movable barrier can achieve a 5 dB(A) reduction for movable PME and 10 dB(A) reduction for stationary PME; • noise enclosure can achieve 15dB(A) reduction for PME; • noise enclosure is proposed to be built after open excavation in order to minimize the noise impact due to further excavation work and construction of subway. The enclosure should either be provided with acoustic door for access purpose which should be kept closed during the construction works or should be designed with no direct line of sight from the open side to the NSRs; • A typical design barrier with a steel frame of vertical / cantilever type would be adopted and located close to the noise generating part of PME; • Barrier material of surface mass in excess of 7kg/m² shall be required to achieve the maximum screening effect (and minimum 10kg/m² for noise enclosure); • The length of barrier should generally be at least five times greater than its height and the minimum height of a barrier should be such that no part of the noise source will be visible from the noise sensitive receiver being protected. 	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93, Noise Control Ordinance and EIAO Guidance Note NO. 9/2010
S.5.1.1	<u>General Construction Noise Control Measures</u> <ul style="list-style-type: none"> • The Code of Practice on Good Management Practice to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD shall be adopted; • The statutory and non-statutory requirements and guidelines shall be complied with; • Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work; 	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control Ordinance

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	<ul style="list-style-type: none"> • Working methods to minimize the noise impact on the surrounding NSRs shall be formulated and executed, and the implementation of these methods shall be monitored by experienced personnel with suitable training; • Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical; • Unused equipment shall be turned off; • PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided; • All plant and equipment shall be maintained regularly; and • Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable. 					
AIR QUALITY IMPACT						
S.5.1.2	<p><u>Construction Dust Control Measures</u></p> <ul style="list-style-type: none"> • Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather; • Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers; • Covering of stockpile of excavated dusty materials, if any, with impervious sheeting or spraying with water to maintain the entire surface wet; • Provision of vehicle washing facilities at the entry and exit points of site; • Tarpaulin covering of any dusty materials being transported to and from site by vehicle; • Positioning of construction plant at maximum practicable distance from air sensitive receivers; and • Due to the small size of the works sites and lack of space for stockpiling, excavated materials should be hauled off-site almost immediately. However, in the event of any stockpiled excavated materials, they should be covered with tarpaulin and be removed offsite as soon as practicable to avoid any dust nuisance arising 	To minimize the dust impacts arising from the construction works	Contractor	Work site	Construction Stage	Air Pollution Control (Construction Dust) Regulation

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WATER QUALITY IMPACT						
S.5.1.3	<p><u>Construction Water Quality Impact Measures</u></p> <ul style="list-style-type: none"> • Collection of wastewater into a sedimentation tank for treatment before discharge into the public drainage system; • Provision of silt trap and oil interceptor to remove the oil, lubricants, grease, silt, grit and debris from the wastewater prior to discharge to the public stormwater system. The silt traps and oil interceptors should be cleaned and maintained regularly; • Installation of wheel washing facilities to minimize muddy runoff; • Regular maintenance and inspection of drainage systems and erosion control and silt removal facilities; • Management and monitoring of sewage treatment facilities (if any); • Any foul effluent should not be discharged into any public sewer and stormwater drain, unless an effluent discharge permit is obtained under the WPCO by the Contractor; • Coverage of stockpiles of C&D materials (if any) during rainstorms; and • Site toilet facilities, if needed, should be chemical toilets or should have the sewage discharge directed to a foul sewer. 	To reduce water quality impact induced by the construction work	Contractor	Work site	Construction Stage	ProPECC PN1/94; Water Pollution Control Ordinance
WASTE MANAGEMENT						
S.5.1.4	<p><u>Construction Waste Management Measures</u></p> <ul style="list-style-type: none"> • Scrap metals or abandoned equipment should be recycled if possible; • Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner; • The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill. Independent audits of the Contractor and resident site staff will be undertaken to ensure that the correct procedures are being followed; • Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes; and 	To adopt waste management measures in the way of avoiding, minimizing, reusing and recycling so as to reduce waste generation	Contractor	Work site	Construction Stage	Waste Disposal Ordinance (Cap. 354); Waste Disposal (Chemical Waste) (General) Regulation; DEVB TCW No. 6/2010; ETWB TCW No. 19/2005.

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	<ul style="list-style-type: none"> All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminum cans, plastic bottles etc. should be provided to facilitate reuse or recycling of materials and their proper disposal. 					
LANDSCAPE AND VISUAL IMPACT						
S.5.1.5	<p><u>Landscape and Visual Measures</u></p> <ul style="list-style-type: none"> Clear demarcation of works area to prevent damages to existing trees in close proximity; Protection of all trees planned to be retained onsite; Preserving all affected trees by transplanting where practical. Tree transplanting application and tree removal application shall be submitted for approval in accordance with ETWB TCW 3/2006; and Screening of construction works by hoardings/noise barriers around Works area in visually unobtrusive colors. 	To reduce landscape and visual impact by construction works.	Contractor	Work Site and nearby playground	Construction Stage	EIAO; ETWB TCW No. 3/2006.