

AUES PROJECT NO. TCS/00704/14

CONTRACT NO. MTRC6593-13C – Wan Chai Station Lee Tung Street Subway

8th Environmental Monitoring and Audit (EM&A) Monthly Report – April 2015

PREPARED FOR KADEN CONSTRUCTION LIMITED

Quality Index

Date	Reference No.	Prepared By	Approved By
14 May 2015	TCS00704/14/600/R0048v2	Anh	Phin
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Version	Date	Description
1	11 May 2015	First Submission
2	14 May 2015	Amended according to the IEC's comments on 14 May 2015

ΔΞΟΟΜ

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By Email and Post

14 May 2015

MTR Corporation Limited Fo Tan Railway House No. 9, Lok King Street, Fo Tan Shatin, N.T., Hong Kong Your Ref.:

Our Ref.:

40032976/441056

Attention: Mr. Kenneth Chow / Environmental Engineer II

Dear Sir,

Consultancy Agreement A130-13 Independent Environmental Checker for CRS and LTS LTS - Verification for Eighth Monthly Environmental Monitoring and Audit (EM&A) Report (April 2015) (Report No.: TCS00704/14/600/R0048v2)

We refer to the Eighth Monthly EM&A Report (April 2015) received under cover of the email from the Environmental Team, AUES, dated on 11 May 2015.

Further to our comments provided on 14 May 2015 and subsequent revision of the Report by AUES on 14 May 2015, we have no further comment and have verified the captioned report (Report No.: TCS00704/14/600/R0048v2).

Should you have any queries, please feel free to contact the undersigned at 2410 3750 or our Dr. Alex Cheung at 2410 3796.

Yours faithfully AECOM Consulting Services Ltd

Rodney Ip

Independent Environmental Checker

ACWH/wwsc

cc Kaden Construction Limited AUES

(Attn.: Mr. Ronald Fung) via email (Attn.: Ms. Nicola Hon) via email



EXECUTIVE SUMMARY

ES01 This is the 8th monthly EM&A Report presenting the monitoring results and inspection findings for the period from 1 to 30 April 2015 (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:-

		Reportin	g Period
Environmental Aspect	Environmental Monitoring Parameters / Inspection	Number of Monitoring Location	Total Occasions
Air Quality	24-hour TSP	1	5
Construction Noise	L _{eq(30min)} Daytime	2	8
Site Inspection /	Joint with ET, the Contractor and RE		5
Audit	Joint with IEC, ET, the Contractor and RE		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	Monitoring	Action Limit		Event & Action		
Aspect	Monitoring Parameters	Level		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 **2**, **8**, **16**, **23 and 30 April 2015** and the IEC was joined the site inspection on **16 April 2015**. No non-compliance was observed 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 8th monthly EM&A report presenting the monitoring results and inspection findings in the Reporting Period from 1 to 30 April 2015.

REPORT STRUCTURE

1.07 This Report is structured into the following sections:-

P	
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.

<u>Resident Engineer (RE)</u>

- 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.

EP ConditionSubmissionStatus2.3Management Organization of Main Construction CompaniesSubmitted2.7Landscape PlanSubmitted3.3Baseline Monitoring Report (TCS00704/14/600/R0010v4)Submitted4.2Internet websitelive

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

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

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

Item	Description	License/Permit Status
1	Air pollution Control (Construction Dust) Regulation	Notified EPD.
C	Chemical Waste Producer Registration - Waste	WPN:5213-131-K3099-01
Δ.	Producers Number	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	GW-RS0290-15 obtained on 18
	Ordinance	March 2015
		Valid from 19:00 of 19 March 2015
		to 07:00 of 11 September 2015
		GW-RS1453-14 obtained on 24
		December 2014
		Valid from 19:00 of 27 December
		2014 to 06:00 of 23 June 2015
		GW-RS1249-14 obtained on 10
		November 2014
		Valid from 01:30 of 17 November
		2014 to 04:30 of 16 May 2015

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*.
 - Installation of waling and strut
 - Excavation
 - Excavation on tram tracks
 - Blinding layer
 - Installation of waterproofing membrane
 - Steel reinforcement
 - Concreting



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	 24-hour Total Suspended Particulate (hereinafter '24-hour TSP') 1-hour TSP monitoring ^(*)
Construction Noise	• A-weighted equivalent continuous sound pressure level (30min) (hereinafter 'L _{eq(30min})' during the normal working hours

Remarks:

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*.

Aspect	Monitoring Location	Location ID	Address	Description
Air Quality	Chiu Hin	A1	balcony at 1/F of Chiu	ASR close to the Project
Air Quanty	Mansion	AI	Hin Mansion	site
	Hennessey	N1	2/F floor of	NSR facing to the Project
Construction	Building	INI	Hennessey Building	site
Noise	Chiu Hin	NO	balcony at 1/F of Chiu	NSR facing to the Project
	Mansion	N2	Hin Mansion	site

Table 3-2Air and Noise Monitoring Locations

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.

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

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*.

Equipment	Model	
24-hour TSP		
High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170	
Calibration Kit	TISCH Model TE-5028A	
1- hour TSP		
	TSI Model 8520 DustTrak Aerosol Monitor / Aerocet 531	
Portable Dust Meter	Handheld Particle Mass Profiler & Counter / Sibata LD-3A	
	Laser Dust Monitor	

Table 3-3Air Quality Monitoring Equipment

- 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 3-4Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	B&K Type 2238 or Rion NL-14
Calibrator	Rion NC-73 / B&K Type 4231
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:
 - a. An anodized aluminum shelter;
 - b. A 8"x10" stainless steel filter holder;
 - c. A blower motor assembly;
 - d. A continuous flow/pressure recorder;
 - e. A motor speed-voltage control/elapsed time indicator;
 - f. A 7-day mechanical timer, and
 - g. 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.

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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 Level	ls for Air Qual	ity Monitoring

Monitoring Station	Action Lev	vel (µg /m ³)	Limit Level (µg/m ³)		
Monitoring Station	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP	
A1	290	162	500	260	

Table 3-6Action and Limit Levels for Construction Noise

Monitoring Station	0700-1900 hours on normal weekdays			
Monitoring Station	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*.

Date	24-hour TSP (μg/m³)	Action Level	Limit Level
8-Apr-15	99		
14-Apr-15	64		
20-Apr-15	154		
25-Apr-15	124	162	260
30-Apr-15	140		
Average	116		
(Range)	(64-154)		

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

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, **8** 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 4-2Noise 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}
9-Apr-15	10:40	73.2	73.4	74.4	74.2	75.0	72.9	74
14-Apr-15	13:41	74.3	73.7	74.9	73.7	74.8	73.3	74
21-Apr-15	10:27	69.3	67.4	69.7	69.6	68.4	67.4	69
28-Apr-15	10:43	70.9	69.8	69.1	70.6	71.5	69.4	70
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)
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Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Le _{q30min}
9-Apr-15	11:17	68.6	68.4	66.1	67.9	67.2	67.0	68
14-Apr-15	14:18	67.7	67.6	66.6	65.5	66.8	66.3	67
21-Apr-15	11:11	75.6	74.2	74.4	74.5	74.6	75.2	75
28-Apr-15	11:24	75.7	75.5	75.6	76.5	75.7	76.5	76
Limit Level of Construction Noise					75 B(A	A)		

4.05 Referred to above tables, no noise measurement result is higher than 75dB(A) was recorded at N1, but one occasion of noise measurement result higher than 75dB(A) were recorded at N2. As reviewed the baseline noise monitoring data of N2, high background noise is already exist. In order to find the actual construction noise, the exceeded noise measurement results were adjusted by the baseline monitoring data show in *Table 4-4*.

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Table 4-4Adjustment of Construction Noise Level for N2, dB(A)

	3		, ()		
Time		Leq30min	Average	Actual	
Date	Period	Measurement Record	Background Noise	Construction Noise	
Period		at the Receiver	at the Receiver	of the Project	
28-Apr-15	11:24	76	71 (11:00 – 12:00)	74	
E	1	101 (10A/10 10B/10)			

Equation of Adjustment: $C = 10log(10^{A/10} - 10^{B/10})$

Where:

- A is noise level measurement at the receiver position;
- *B* is average background noise at the measurement time at the receiver position; and
- C is actual construction noise.
- 4.06 After the correction, the construction noise of the Project were indicated not exceed 75dB. No Notifications of Exceedances (NOEs) therefore was issued to the RE, IEC and the Main Contractor.
- 4.07 Furthermore, there is no noise complaint (Action Level exceedance) received by the MTRC and Contractor or EPD in the Reporting Period.
- 4.08 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)	0.07772	-
Reused in this Contract (Inert) (m ³)	0	-
Reused in other Projects (Inert) (m ³)	0	-
Disposal as Public Fill (Inert) (m ³)	0.07772	TKO 137

Table 5-2Summary 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)	0.04404	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, **five (5)** occasions of weekly site inspections to evaluate site environmental performance was carried out by the RE, ET and the Contractor on 2, 8, 16, 23 and 30 April 2015 and the IEC was joined the site inspection on 16 April 2015.
- 6.03 No non-compliance was noted. However, two (2) observations and two (2) reminders were recorded by the ET. The findings / deficiencies observed during the weekly site inspections are listed in *Table 6-1*.

Date	Findings / Deficiencies	Follow-Up Status
2 April 2015	• The Contractor should provide proper label for the waste skip and disposal the waste in regular basis.	• Label has been provided for the waste skip and waste has been cleared as observed during site inspection on 16 April 2015
8 April 2015	No specific findings were observed.	NA
16 April 2015	No specific findings were observed.	NA
23 April 2015	 Mixing of chemical wastes was observed inside the chemical waste storage area, the Contractor should provide individual container for each kind of chemical waste with proper labelling. The Contractor was reminded to cover the stockpile after drying. 	 Proper labelling for chemical waste has been provide as observed during site inspection on 7 May 2015. Not required for reminded.
30 April 2015	• The Contractor was reminded that construction works and movement of plants should be undertaken away from the retained tree with site boundary.	• Not required for reminded.

Table 6-1Site Observations

- 6.04 In the Reporting Period, the Contractor was reminded to provide proper label for the waste and chemical storage area.
- 6.05 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

	Environmental Complaint Statistics						
Reporting Period	Energy energy	requency Cumulative Air		Complaint Nature			
	Frequency			Noise	Water	Others	
28 Aug 2014 – 31 Mar 2015	0	0	NA	NA	NA	NA	
1-30 Apr 2015	0	0	NA	NA	NA	NA	

Table 7-2 Statistical Summary of Environmental Summons

		Environme	ental Summ	nons Statis	tics							
Reporting Period	Encorrection	Cumulativa	Complaint Nature									
	Frequency	Cumulative	Air	Noise	Water	Others						
28 Aug 2014 – 31 Mar 2015	0	0	NA	NA	NA	NA						
1-30 Apr 2015	- 30 Apr 2015 0		NA	NA	NA	NA						

Table 7-3 Statistical Summary of Environmental Prosecution

		Environmental Prosecution Statistics												
Reporting Period	Enggyonay	Cumulativa	Complaint Nature											
	Frequency	Cumulative	Air	Noise	Water	Others								
28 Aug 2014 – 31 Mar 2015	0	0	NA	NA	NA	NA								
1- 30 Apr 2015	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 Env	ironmental Mitigation	Measures
---------------	-----------------------	----------

0.000	
Issues	Environmental Mitigation Measures
Air Quality	• 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	• 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	Wastewater were appropriately treated by treatment facilities;
Quality	• Drainage channels were provided to convey run-off into the treatment facilities; and
	• Drainage systems were regularly and adequately maintained.
Waste and Chemical Management	• 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	• 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	• 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:



- Waterproofing works for Bay 1 & 2 top slab
- Bay 3A base slab & slide wall steel reinforcement
- Scaffolding and roof slab steel reinforcement
- Formwork installation
- Concreting
- Installation and diversion of E&M Service
- Excavation on tram tracks & Tram Track RC Deck
- Reinstatement of Southern Basketball Court
- Sheet piling of Stage 2 ELS
- Grout Curtain of stage 2 ELS

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 **8th** monthly EM&A report presenting the monitoring results and inspection findings in the Reporting Period from 1 to **30 April 2015**.
- 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 **8** occasions of noise measurement was conducted at N1 and N2. No noise measurement result is higher than 75dB(A) was recorded at N1, but one occasion of noise measurement result higher than 75dB(A) were recorded at N2. As reviewed the baseline noise monitoring data of N2, high background noise is already exist. In order to find the actual construction noise, the exceeded noise measurement results were adjusted by the baseline monitoring data. After correction, the construction noise levels of the Project were indicated below 75dB(A). No Notifications of Exceedances (NOEs) or the associated corrective actions were therefore issued. Furthermore, no noise complaint (which is an Action Level exceedance) was received.
- 9.04 No environmental complaint, notification of summons or successful prosecution was received in the Reporting Period.
- 9.05 Five (5) occasions of weekly site inspections to evaluate site environmental performance was carried out by the RE, ET and the Contractor on 2, 8, 16, 23 and 30 April 2015 and the IEC was joined the site inspection 16 April 2015. No non-compliance was noted but two (2) observations and two (2) reminders were recorded by the ET.
- 9.06 In the Reporting Period, no site inspection was undertaken by external parties i.e. EPD.

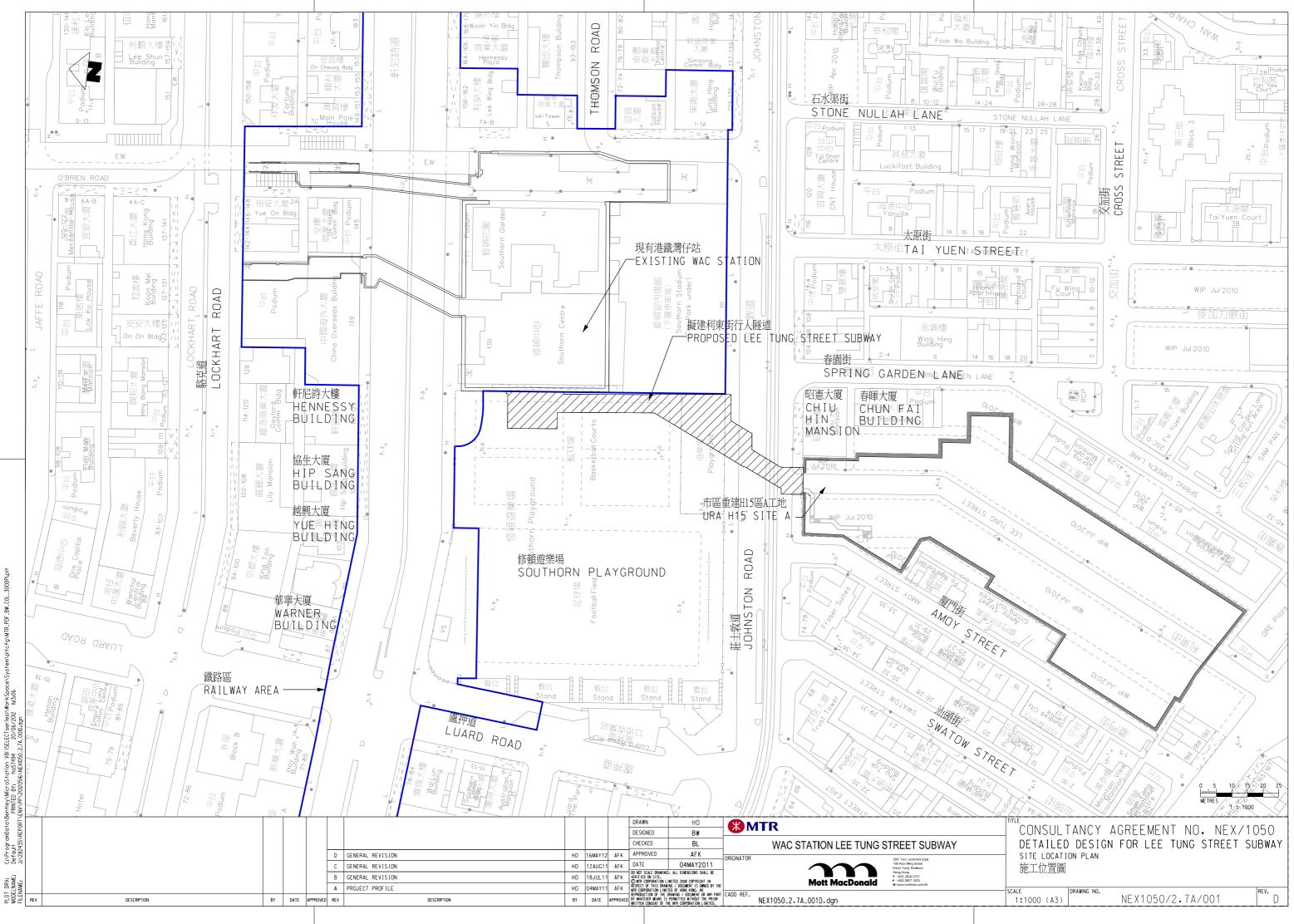
RECOMMENDATIONS

- 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 provide proper label for the waste and chemical storage area. In addition, mosquito control should be kept to prevent mosquito breeding on site.



Appendix A

Project Site Layout Plan



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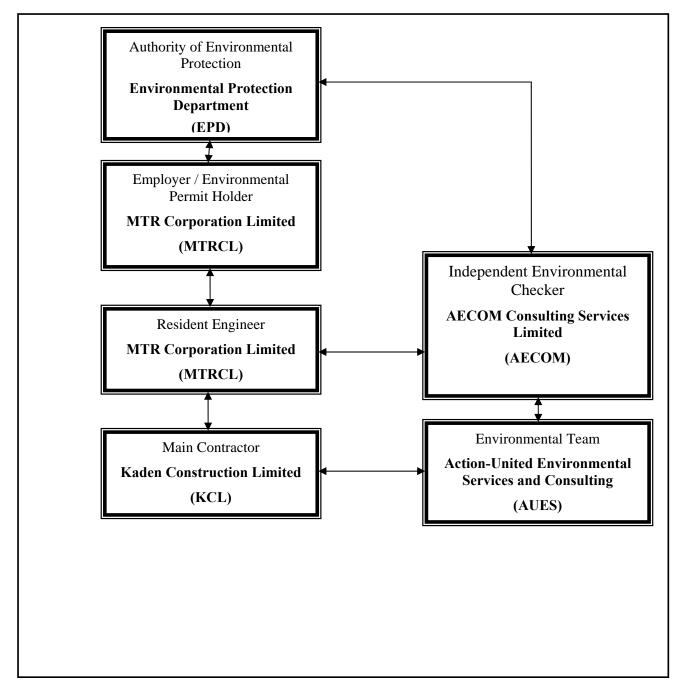
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Appendix B

Organization of the Project and Master Construction Programme







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. Rodney Ip	2410 3750	2428 9922
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

Contact Details of Key Personnel for the Project

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

Key Dates Commenceme KDCOMM KDCOMP Specified Part KD2A KD2B Programme D INF.AFC INF.H15 INF.SAMS Site Area Posse	WAC Station Lee Tung Street Subway Rev.B (30-Sep'14) ent and Completion Commencement of the Works (14-Apr'14) Completion of the Whole of the Works, No.Cal.Wk. 150 (26-Feb'17) ts of the Works 2A - SBC Complete backfill, resurfacing, fencing, utilities, lighting and return to LCSD (28-Jun'15) 2B - Complete all works at the 2 new Shop Kiosks and hand over to the Employer (1-May'16) Data / Interface Key Dates Interface Access for AFC, C&C DC in new AFC Audit Room inside WAC, Concourse Level (27-Apr'15) Interface Access for Contract H15, All Levels, No.Cal.Wk. 120 (25-Ju1'16) Interface Access for SAMS, Comms, MCS to All Areas, All Levels and Locations (10-Oct'16)		0.00 14-Apr-14 08:00 0.00 0.00	26-Feb-17 18:00	Float 0.00	2014 M J J	ASO	П	FM/	201 A M J	JAS	OND	JFM		2016 JJJA	<u>s</u> o	ND
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 KD2B Programme Date INF.AFC INF.H15 INF.SAMS Site Area Poss Site Area Poss 	2B - Complete all works at the 2 new Shop Kiosks and hand over to the Employer (1-May'16) Data / Interface Key Dates Interface Access for AFC, C&C DC in new AFC Audit Room inside WAC, Concourse Level (27-Apr'15) Interface Access for Contract H15, All Levels, No.Cal. Wk. 120 (25-Jul'16)			28-Jun-15 18:00	0.00											111	1
 Programme D INF.AFC INF.H15 INF.SAMS Site Area Poss Site Area Poss 	Data / Interface Key Dates Interface Access for AFC, C&C DC in new AFC Audit Room inside WAC, Concourse Level (27-Api'15) Interface Access for Contract H15, All Levels, No.Cal. Wk. 120 (25-Jul'16)			01-May-16 18:00	0.00	1111							6113	•	11		
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 INF.H15 INF.SAMS Site Area Poss Site Area Poss 	Interface Access for Contract H15, All Levels, No.Cal.Wk. 120 (25-Jul 16)		0.00 27-Apr-15 08:00		0.00					•		لياييا	لسلسلسا				
 INF.SAMS Site Area Poss Site Area Poss 			0.00 25-Jul-16 08:00		0.00					111					•		1
Site Area Posse			0.00 10-Oct-16 08:00		0.00					111						٠	
	session and Return Dates		4600-10							111							
					0.00	•				111			. 1 1 1				
	Works Area 6593.W1, Within 3 months from commencement of works (14-Jul/14)		0.00 14-Jul-14 08:00 0.00 14-Jan-15 08:00		0.00	+-+++								ŀ			······
	Works Area 6593.W2, Within 9 months from commencement of works (14-Jan'15)		0.00 08-Dec-16 08:00		1.00	1111				111	111						
Site Area Retur	Works Area 6593.W3, No later than 1 month after completion of resinstatement works at Works Area 65	1000.001	0.00 00 000 10 00.00		1.00					111	111	111	(1
	Works Area 6593.W1, Within 36 months from commencement of works (14-Apr'17)		0.00	07-Dec-16 18:00	1.00					111	111						٠
	Works Area 6593.W2, Within 36 months from commencement of works (14-Apr'17)	(61 C. M.	07-Dec-16 18:00	81.00				11	111	1.1.1						•
	Works Area 6593.W3, Within 2 months after possession date of Works Area 6593.W3	(0.00	24-Feb-17 18:00	2.00						1	111					1
Hilestone Sch	nedule										111						1
Milestones A				00 4 44 40 00	020.00								(111				1
	A1 Approval of Preliminary Master Program, ICE, TTA, ELS & Temporay decking (3-Aug'14)		0.00	02-Aug-14 18:00 01-Nov-14 18:00	939.00 848.00	1111											1
	A2 Approval of Design of Mined Tunnel ESS; Hoarding phase/plan; TW under TramTrack; QP, SAP, PM			24-Jan-15 18:00	764.00	+-+-+-+				+++-						1-1-1-	
MSA03	A3 Satisfactory Implementation of Specified Plans (25-Jan'15)		AND	02-May-15 18:00	666.00	1111				•	111				11		-
	A4 Approval of excavation method under Tram Track; Satisfactory Implementation of PMS (3-May'15) A5 Approval of WAC D-wall demolition; Satisfactory Implementation of Specified Plans (2-Aug'15)			01-Aug-15 18:00	575.00					111							
the second s	A6 Satisfactory Implementation of PMS (1-Nov/15)			31-Oct-15 18:00	484.00					111	111	•	.				1
	A7 Satisfactory Implementation of Specified Plans (31-Jan'16)			30-Jan-16 18:00	393.00	1111					111		•			LLL	1
	A8 AIP for T&C of BS and ABWF works; Satisfactory Implementation of PMS (1-May'16)			30-Apr-16 18:00	302.00	1111				TTT				+		TT	1
	A9 Satisfactory Implementation of Specified Plans (31-Jul'16)	(0.00	30-Jul-16 18:00	211.00						111						
	A10 AIP of Draft O&M manual and Draft As-built Drawings; Satisfactory Implementation of PMS (30-Oc	ct'16) (0.00	29-Oct-16 18:00	120.00					111						111	1
	A11 Approval of O&M manual and As-built drawings for the Works (26-Feb'17)		0.00	06-Jan-17 18:00	51.00	1111				111							
 Milestones B 				04 11 44 40.00	848.00												
	B1 Excavate to +2.5 of Southern Basketball Court & Jonhston Road Westbound utilities support/diversion		0.00	01-Nov-14 18:00 31-Dec-14 18:00	848.00 788.00												1
	B2 SBC RC base slab, JR NFP & EB carriageway works (33%), underpinning of tram track completed (2		0.00	14-Apr-15 18:00	684.00					.111	111						
	B3 SBC RC roof slab, JR North footpath and EB carriageway works completed (3-May'15) B4 SBC return to LCSD, North Basket ball court takeover, JR footpath&EB Carriageway formation level		0.00	15-Jul-15 18:00	592.00	1111						111					1
	B5 NBC cofferdam, base slab under JR footpath and EB carriageway completed (1-Nov'15)		0.00	09-Oct-15 18:00	506.00	1111				111		•					1
	B6 NBC Formation excavation, TramTrack Mined tunnel; JR WB Car'way&SFP Formation & H15 Openi		0.00	19-Jan-16 18:00	404.00	TTT				TTT			•				1
	B7 NBC Roof slab; JR NFP & EB Carriageway; Under Tram Track; JR WB and SFP RC completed (1-N			30-Apr-16 18:00	302.00	1111				111	111	111		+			1
	B8 ABWF degree 1; NBC- Resurfacing & reinstatement works completed (31-Jul'16)		0.00	03-May-16 18:00	299.00					111	111		.	•			1
	B9 ABWF degree 3; Road reinstatement in JR & Hennessy Road completed (30-Oct'16)	0	0.00	17-Oct-16 18:00	132.00					111	111	111			11/	•	1
MSB10	B10 All works in Cost Centre B satisfactorily completed (26-Feb'17)	0	0.00	07-Dec-16 18:00	81.00											⊢ ∔∔-	
Milestones C										111							1
	C1 AIP BS detail design (2-Nov'14)	1	0.00	08-Sep-14 18:00	902.00	1111		•		111					11		1
	C2 AIP BS shop drawings (25-Jan'15)			20-Nov-14 18:00 09-Jan-15 18:00	829.00 779.00					111		111					
	C3 Order all BS equiptment and materials (3-May'15)			27-May-15 18:00	641.00					1.	111				117		
	C4 Complete all factory acceptence testings (29-Nov'15)			22-Mar-16 18:00	341.00					$\uparrow\uparrow\uparrow\uparrow$	111		•		++++	rrr	
	C5 Complete all delivery to site for ECS plant room (31-Jul'16) C6 Complete all installation, T&C for New Subway (4-Dec'16)			07-Oct-16 18:00	142.00					111	111	111			111	•	1
	C7 Complete and pass all statutory inspections, Operations Team (26-Feb'17)			07-Dec-16 18:00	81.00					111				11	111		
Milestones D						1 1 1 1				111					111		1
	D1 New AFC Audit Room construction completed (3-May'15)	0	0.00	24-Nov-14 18:00	825.00			•									
	D2 Old AFC Audit Room and Maxim's/ Circle K kiosks demolished (31-Jan'16)		0.00	18-Nov-15 18:00	466.00							٠					1
	D3 Breakthrought into WAC (29-May'16)			15-Mar-16 18:00	348.00	[]]]				111	111		٠				
MSD04	D4 All works in Cost Centre D satisfactorily completed (31-Jul'16)	0	0.00	21-Apr-16 18:00	311.00					111			111		11/		1
Milestones E			0.00	22 Dec 15 19:00	432.00					111	111		111	11	11/		1
	E1-AFC gates and barrier relocation works completed (3-Jan'16)			22-Dec-15 18:00 29-Oct-16 18:00	432.00										+++-	•	
MSE02	E2-All structural A&A works for TIM completed (30-Od'16)	0	5.00	23-00-10 10.00	120.00	1 1 1 1			1.1	1 1 1					<u> </u>		-
Actual Level of	f Effort Proli	minary Master	Program	ne (Rev]	3)												
Actual Work	1101	manual y 17103101	. i ogi anni	no (neorol	-)							-	Ka	1			7
Remaining Wor	vrk	Page	1 of 9										50	16	P	n	
Critical Remaini		, ugo	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1										10				

Appendix M. PMP - Rev. B.



an de la la	A still its Nome		Original Planned Start	Planned Finish	Total	-	-			-						_
vity ID	Activity Name				Float	20	14			2015 A M J J			FIMIA	2016	AISIO	NT
MSE03	E3- All works in milestone E completed (26-Feb'17)		0.00	29-Oct-16 18:00	120.00		JAO				1100					
	inaries and General Items								1111							
	E, Submission and Approval															
Design, ICE	. BD Submission and Approval		19.00 14-Apr-14 08:00	10-May-14 18-00	3.00				+		·			•		
 A01.ELS10 A01.ELS11 			28.00 12-May-14 08:00		3.00											
A01.ELS11			14.00 14-Jun-14 08:00		3.00		-								111	
A01.ELS13			28.00 02-Jul-14 08:00	02-Aug-14 18:00	3.00		•		1111						111	1
A01.ELS20	A1 - ELS - Verification (based on 4 additinal SI. AD-01 to AD-04), ICE		20.00 25-Jul-14 08:00		18.00	4		Į								
A01.ELS21			28.00 18-Aug-14 08:00		18.00	-			1							
A04.MIT10		n to BD/ GEO for Approval	39.00 14-Apr-14 08:00 60.00 05-Jun-14 08:00		28.00											
 A04.MIT20 A04.MIT30 		esubmission (if required)	24.00 15-Aug-14 08:00		28.00										111	1
A04.MIT30			30.00 13-Sep-14 08:00		28.00											
	C. TMLG Submission and Approval															
A01.TTM10	TTMS - Submission to Members of TMLG for Approval, ref. ITT 6.2		4.00 14-Apr-14 08:00		13.00											
A01.TTM20			55.00 22-Apr-14 08:00	27-Jun-14 18:00	13.00	TT										
Contractor	Submission and Approval															
A01 PMP08	ng, Specified Plans and Hoarding Plan 80 Submission schedule - Preparation & submission		22.00 14-Apr-14 08:00	14-May-14 18:00	780.00											1
	81 Submission schedule - Review & Approval		24.00 15-May-14 08:00	12-Jun-14 18:00	780.00										111	1
	82 Submission schedule - Preparation for Re-submission (If Require)		12.00 13-Jun-14 08:00		780.00										111	
A01.PMP08			12.00 27-Jun-14 08:00		780.00				1				111		111	
	90 Initial Three Month Rolling Program - Preparation & submission		10.00 14-Apr-14 08:00		792.00				+							·
	91 Initial Three Month Rolling Program - Review & Approval		24.00 29-Apr-14 08:00 12.00 29-May-14 08:00		792.00										111	
	92 Initial Three Month Rolling Program - Preparation for Re-submission (If Require) 93 Initial Three Month Rolling Program - Review and Approval (If Require)		12.00 13-Jun-14 08:00		792.00	1										
A01.PMP09 A01.PMP10			47.00 14-Apr-14 08:00		75.00				1							
A01.PMP11			14.00 14-Jun-14 08:00		75.00											
A01.PMP12	2 A1 Preliminary Master Program - Preparation for Re-submission (If Require)		14.00 02-Jul-14 08:00		75.00										111	1
A01.PMP13			14.00 18-Jul-14 08:00		75.00		-						111	111	111	
A01.SPP10			27.00 14-Apr-14 08:00		107.00										111	
A01.SPP20			30.00 21-May-14 08:00 22.00 14-Apr-14 08:00		780.00				1111							1
A01.SPP210 A01.SPP212			24.00 15-May-14 08:00		780.00	行首			\dagger							
	Environmental management plan - Preparation for Re-submission (If Require)		12.00 13-Jun-14 08:00		780.00											
	B Environmental management plan - Review and Approval (If Require)		12.00 27-Jun-14 08:00	11-Jul-14 18:00	780.00	ļ									111	
A01.SPP220			22.00 14-Apr-14 08:00		780.00										111	1
A01.SPP22	21 Appoint Environmental team - Review & Approval		24.00 15-May-14 08:00		780.00				÷							
C A01.SPP222	1.		12.00 13-Jun-14 08:00		780.00							111			1	
A01.SPP22			12.00 27-Jun-14 08:00 22.00 14-Apr-14 08:00		780.00	1 1 7									111	
 A01.SPP230 A01.SPP230 			24.00 15-May-14 08:00		780.00				1111							
A01.SPP232			12.00 13-Jun-14 08:00		780.00										4.4.4	
A01.SPP23			12.00 27-Jun-14 08:00		780.00	Ĺ								111	111	
B A01.SPP240			22.00 14-Apr-14 08:00		780.00									111	111	1
A01.SPP24 [*]			24.00 15-May-14 08:00		780.00 780.00								111		111	1
A01.SPP242			12.00 13-Jun-14 08:00 12.00 27-Jun-14 08:00	1	780.00								111		111	
 A01.SPP243 A01.SPP250 			22.00 14-Apr-14 08:00		780.00				*****		<u> </u>	-+++	111		+++	
A01.SPP25			24.00 15-May-14 08:00		780.00							111				1
A01.SPP252			12.00 13-Jun-14 08:00		780.00											
A01.SPP25			12.00 27-Jun-14 08:00		780.00	1 1 4			1111						111	1
A02.HRD100	00 A2 Hoarding phase - Preparation & submission		12.00 14-Apr-14 08:00		14.00				┟┅┝╍┝						+-+-+	
A02.HRD10			24.00 02-May-14 08:00		14.00								111		111	1
A02.HRD102			12.00 31-May-14 08:00 12.00 16-Jun-14 08:00		14.00 14.00								111		111	1
	A2 Hoarding phase - Review and Approval (If Require)		12.00 10-0011-14 00.00	20-001-14 10.00	14.00							111			111	-
A02.SPP11			0.00	01-Nov-14 18:00	0.00			•								
A02.SPP12	2 A2 Satisfactory Implementation of Quality Plan		0.00	01-Nov-14 18:00	0.00			٠				111	111			
A02.SPP13			0.00	01-Nov-14 18:00	0.00	111		•							111	1
Actual Leve	rel of Effort	Preliminary Maste	Program	me (Row	B)											1
Actual Wor	and an analysis	1 I Chimar y Maste	a riogram	me (mev.	U)							**		1		
Remaining		Pa	ge 2 of 9										0	de	10	E
	maining Work	10											al			
ontioal riel													-		-	

Critical Remaining Work

Page 2 of 9



vity ID	ion Lee Tung Street Subway Rev.B (30-Sep ¹ 14) Activity Name	Original	Planned Start	Planned Finish	Total	1									
		Duration	1.100.00000000		Float	2014	AISIOII	ID JIFI		015	OND.	JFMA	2016 M J J A	ISIOI	ND
A02.SPP14	A2 Satisfactory Implementation of Quality Plan	0.00		01-Nov-14 18:00	0.00		•								
A03.SPP11	A3 Satisfactory Implementation of Quality Plan	0.00		24-Jan-15 18:00	0.00			•	111	111		1111		111	1
A03.SPP12	A3 Satisfactory Implementation of System Assurance Plan	0.00		24-Jan-15 18:00	0.00			•		1		4	·	4.4.4	
A03.SPP13	A3 Satisfactory Implementation of Health and Safety Plan	0.00		24-Jan-15 18:00	0.00	1111		٠							
A03.SPP14	A3 Satisfactory Implementation of Environmental Management Plan	0.00		24-Jan-15 18:00	0.00	1111		•		1111		111			1
A05.SPP11	A5 Satisfactory Implementation of Quality Plan	0.00		01-Aug-15 18:00	0.00	1111	111	1111		11				111	1
A05.SPP12	A5 Satisfactory Implementation of System Assurance Plan	0.00		01-Aug-15 18:00	0.00		111	111	111	III					
A05.SPP13	A5 Satisfactory Implementation of Health and Safety Plan	0.00		01-Aug-15 18:00	0.00									· • • • • • • • • • • • • • • • • • • •	
A05.SPP14	A5 Satisfactory Implementation of Environmental Management Plan	0.00		01-Aug-15 18:00	0.00	1111	111	1111						111	1
A07.SPP11	A7 Satisfactory Implementation of Quality Plan	0.00		30-Jan-16 18:00	0.00		111	1111		1111		IIII		111	1
A07.SPP12	A7 Satisfactory Implementation of System Assurance Plan	0.00		30-Jan-16 18:00	0.00		111	111		1111		I		111	1
A07.SPP13	A7 Satisfactory Implementation of Health and Safety Plan	0.00		30-Jan-16 18:00	0.00	1111	111	1111		1111		III		111	
A07.SPP14	A7 Satisfactory Implementation of Environmental Management Plan	0.00		30-Jan-16 18:00	0.00									·+	
A09.SPP11	A9 Satisfactory Implementation of Quality Plan	0.00	-	30-Jul-16 18:00	0.00	1111		1111						111	1
A09.SPP12	A9 Satisfactory Implementation of System Assurance Plan	0.00		30-Jul-16 18:00	0.00	1111	111	1111	111	1111		1111		111	1
A09.SPP13	A9 Satisfactory Implementation of Health and Safety Plan	0.00		30-Jul-16 18:00	0.00					1111		1111		111	1
A09.SPP14	A9 Satisfactory Implementation of Environmental Management Plan	0.00		30-Jul-16 18:00	0.00	1111	111	1111		1111		1		111	
	on of Programming Management System		and the second second	04 Ne: 44 40.00	0.00	+				+				+-+-+	
A02.PMS10	A2 Satisfactory Implementation of Programming Management System	0.00	-	01-Nov-14 18:00	0.00	1111	111	1111	111			111		111	1
A04.PMS10	A4 Satisfactory Implementation of Programming Management System	0.00		02-May-15 18:00	0.00			1111	111	1111		111		111	1
A06.PMS10	A6 Satisfactory Implementation of Programming Management System	0.00		31-Oct-15 18:00	0.00			1111		1111	TH			111	
A08.PMS10		0.00		30-Apr-16 18:00	0.00	1111				1111				111	
	A10 Satisfactory Implementation of Programming Management System	0.00		29-Oct-16 18:00	0.00	+				+					
	ssions and O&M Manual		14 4	14-Jun-14 18:00	14.00			1111						111	1
A01.HRD00	Hoarding Installation- Preparation of Method Statement, submission & approval				14.00			1111		1111	111	1111		111	1
A01.HRD00a			the second se	28-Jun-14 18:00				1111		1111		1111		111	1
A01.MD010	Treatment of MD (if required) - Proposal & Method Statement - Preparation			17-Jun-14 18:00	27.00	TLI		1111		1111		111		111	1
A01.MD10a	Treatment of MD (if required) - Proposal & Method Statement - Submission & Approval			21-Jul-14 18:00	27.00	十十十十		┿┿┿		÷				+++	
A01.MD10b	Treatment of MD (if required) - Proposal & Method Statement - Preparation for Re-submit	ission (if required) 14.00		06-Aug-14 18:00	27.00	1 1 1 1		1111	111	1111	111	1111		111	1
A01.MD10c	Treatment of MD (if required) - Proposal & Method Statement - Re-submission (if require			08-Sep-14 18:00	27.00			1111		1111		1 1 1 1		111	1
A01.SI005	Site Investigation Works- Preparation of Method Statement, submission			17-Jun-14 18:00	25.00					1111		1111		111	1
A01.SI005a	Site Investigation Works- Preparation of Method Statement, approval		18-Jun-14 08:00		25.00		111			1		1111		111	1
A05.DWD10	A5 WAC D-wall demolition Design- ICE, Preparation for design submission	77777		17-Dec-14 18:00	64.00					<u></u>		+		+-+-+	
A05.DWD11	A5 WAC D-wall demolition- Review & Approval			22-Jan-15 18:00	64.00					1111		1111		111	1
A05.DWD12				07-Feb-15 18:00	64.00	* 1 1 1	111		_	111		1111		111	1
A05.DWD13	A5 WAC D-wall demolition- Review & Approval			16-Mar-15 18:00	64.00					1	111	1111		111	1
A08.ABW10			17-Mar-15 08:00		145.00	1111		1111	111	<u>, i i i</u>		1111		111	
A08.ABW11	A8 AIP for T&C of BS and ABWF works (2nd Batch)			24-Oct-15 18:00	145.00			·····		÷		4-4-4-4		···+··+·	
A08.ABW12	A8 AIP for T&C of BS and ABWF works (Remaining)	3/10/201		13-Feb-16 18:00	145.00					1111	1 1 1	7111			
A10.0MM10	A10 AIP of Draft O&M manual and Draft As-built Drawings	63.00	06-Jul-16 08:00	17-Sep-16 18:00	40.00					1111	111	1111		111	1
A11.0MM10	A11 Approval of O&M manual and As-built drawings for the Works	90.00	19-Sep-16 08:00	06-Jan-17 18:00	40.00	1		1111				1111		1 1 1	1
B02.0010	RC Works- Preparation of Method Statement- Preparation	90.00	23-Jun-14 08:00	09-Oct-14 18:00	9.00			1111	111	111	1 1 1	1111	111	111	1
B02.0010a	RC Works- Preparation of Method Statement- Submission & Approval	14.00	10-Oct-14 08:00	25-Oct-14 18:00	9.00		<u></u>	1.1.1.1				4			
B02.0200	Sheet pile installation- Preparation of Method Statement	40.00	12-May-14 08:00	27-Jun-14 18:00	19.00									111	1
B02.0200a	Sheet pile installation- Preparation of Method Statement, submission & approval	14.00	28-Jun-14 08:00	15-Jul-14 18:00	19.00			1111				1111			1
B02.0201	Pipe pile installation- Preparation of Method Statement, submission & approval	40.00	12-May-14 08:00	27-Jun-14 18:00	27.00		+1	1111				1111	111		1
B02.0305	Excavation works- Preparation of Method Statement, submission & approval	90.00	14-Apr-14 08:00	04-Aug-14 18:00	77.00							1111		111	1
B04.0010	Work below tram track- Preparation of Method Statement, submission & approval	90.00	21-Oct-14 08:00	05-Feb-15 18:00	28.00					1.1.1.1				1	
B6.0005	Break Through Works- Preparation of Method Statement, submission & approval		the second se	01-Jun-15 18:00	64.00										1
B6.0015	Submission to BD for consent of H15 break throughs works	30.00	02-Jun-15 08:00	08-Jul-15 18:00	214.00			1111		\mathbf{P}		1111		111	
E1015	Submit and obtain AIP for Method Statement, EDOC Draft, Permanent Materials	90.00	02-Jun-15 08:00	16-Sep-15 18:00	64.00			1111				1111		1 1 1	1
	and Other Preliminaries						1	1111		1111	111	$\left\{ \left[1 \right] \right\}$		111	
Permit Applic				Contraction of the											4.
A01.PER0130	0 XP Excavtion Permit Application and Permit	44.00	14-Apr-14 08:00	10-Jun-14 18:00	30.00									111	1
Contraction of the local data and the local data an	TRA Tree Removal Application and Permit		14-Apr-14 08:00		6.00			1111		111		1111		111	1
A01.PER030		70.00	14-Apr-14 08:00	11-Jul-14 18:00	19.00			1111				1111			1
	0 Baseline noise monitoring report - Preparation & submission to Engineer and EPD			03-May-14 18:00	30.00							1111			1
	1 Baseline noise monitoring report - Review & Approval	24.00	05-May-14 08:00	03-Jun-14 18:00	30.00									1.1.1.	
A01, PER0402	2 Baseline noise monitoring report - Preparation for Re-submission (If Require)			17-Jun-14 18:00	30.00					1111	111	1111			-
	3 Baseline noise monitoring report - Review and Approval (If Require)	12.00	18-Jun-14 08:00	02-Jul-14 18:00	30.00		1 1	1111				111		111	-
	0 Baseline air monitoring report - Preparation & submission to Engineer and EPD			03-May-14 18:00	30.00				111	1111	111				1
	- Terrenting an mention of the state and a second of a submer of the state					T									-
Actual Level	of Effort	Preliminary Master P	rogram	me (Rev.	B)							100	100		
Actual Work		A A SHAMMAN J MANDER I	- 051 mill	tracis	_)						T	r	1		
Remaining W		Page 3 of	9									0	de	10	F
		rage 5 of													
Critical Rema	aining work														
Milestone						1					Contraction of the second				

01-Oct-14 16:1	6
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	LA 10-16 M	Original	Planned Start	Planned Finish	Total		-	-	
ivity ID	Activity Name	Original	Flaimed Start	r laimeu r mion	Float		014		
		Duration				/MJ	JA	SO	ND
	Baseline air monitoring report - Review & Approval		05-May-14 08:00		30.00				
	Baseline air monitoring report - Preparation for Re-submission (If Require)		04-Jun-14 08:00		30.00				
	Baseline air monitoring report - Review and Approval (If Require)	12.00	18-Jun-14 08:00	02-Jul-14 18:00	30.00	11			11
	ite Office, Temporary Utilities Mobilization, site office, temporary utilities	30.00	14-Jul-14 08:00	16-Aug-14 18:00	739.00	11	1		
A01.PRE010	Installation of 3 video cameras (2 at Southorn Playground & 1 at JnR site entry)		18-Aug-14 08:00		739.00	1 1	1 11		11
Additional Site		1		9					
A01.SI010	Mobilization of SI rigs	2.00	14-Jul-14 08:00	15-Jul-14 18:00	18.00		1		
A01.SI020	Additional Site Investigation, 4 nr, AD-01 to AD-04	16.00	16-Jul-14 08:00	02-Aug-14 18:00	18.00	11			
a A01.SI030	Additional Site investigation - Lab tests and reports	20.00	21-Jul-14 08:00	12-Aug-14 18:00	18.00	11			
	arine Deposit (If Required)	05.00		00 los 45 40:00	24.00				11
A01.MD020	MD- On/Off-site Pilot Trial Treatment, Transport Off-Site, Treatment, Qaulity Test, Back to Site for Filling (1st Batch)		10-Oct-14 08:00		24.00	++		+-+-	
A01.MD021	MD- On/Off-site Pilot Trial Treatment, Transport Off-Site, Treatment, Qaulity Test, Back to Site for Filling (2nd Batch)		21-Jan-15 08:00 09-May-15 08:00		24.00	11	11		11
A01.MD022	MD- On/Off-site Pilot Trial Treatment, Transport Off-Site, Treatment, Qaulity Test, Back to Site for Filling (Remaining)	00.00	09-1vray-15 00.00	13-Aug-13 18.00	24.00				
	vay and Vent Shafts					117			
B2 Subway						11			
TTM 1 - SBC, F	Instrumentation, UU Diversion, etc.					1-1-		1-1-1	-+-+
	Stage 1 - Erect hoarding 190m, Erect 1 no. gate	12.00	16-Jul-14 08:00	29-Jul-14 18:00	1.00	11			11
B01.0090	Pepare & submit review by Eng outline TTM schemes			22-Apr-14 18:00	67.00				
B01.0100	Implement TTM1 and Trial Run			15-Jul-14 18:00	1.00	11	1		
B01.0110	Transplant and tree removal	7.00	16-Jul-14 08:00	23-Jul-14 18:00	6.00	L.L.			
B01.0120	Preliminary works, trial trenches, instrutmentation, UU diversion at SBC, installation of GIs, etc.	28.00	17-Jul-14 08:00	18-Aug-14 18:00	38.00				
■ B5.0010	TTM1 Playround SBC & Play Area - Diversion of existing utilities and misc. works	26.00	16-Jul-14 08:00	14-Aug-14 18:00	30.00	111			
	layground, JnR Carriageway EB Median Lane & WB								11
	Instrumentation, UU Diversions, etc.	E 00	24-Jul-14 08:00	29-Jul-14 18:00	1.00				11
	Stage 2 - Erect hoarding 36m, and water infill barriers Implement TTM2, EB Relocate existing bus stop, trial trenches, instrumentation, installation of GIs, etc.			01-Sep-14 18:00	25.00	· · · · · · · · · · · · · · · · · · ·		i	
B02.0100B02.0150	Implement TTM2, WB Carraiageway Trial trenches, instrumentation, carriageway UU diversions		13-Aug-14 08:00		25.00				
	Pile, Grouting, Decking	51.00	107/03 14 00.00	1100011110.00	20.00	1 1 1		1	11
	ern Basketball Court					111			11
B02.0205	Sheet pile at SBC, 22 x 8.45m, 179 x 16m, 30 x 24m total 231 no., 3767m, 287t (1 rigs) (About 90%).	37.00	04-Aug-14 08:00	16-Sep-14 18:00	3.00				
B02.0240	Sheet pile at SBC, 22 x 8.45m, 179 x 16m, 30 x 24m total 231 no., 3767m, 287t (1 rigs) (About 90%). Pipe pile between GL G&H (SBC & Play Area), 16 x 21m, total 336m (No pipe pile for this stage).	36.00	30-Jul-14 08:00	10-Sep-14 18:00	1.00	1 1 1			
B02.0260	Grouting of pipe pile between GL G&H (SBC & Play Area)	28.00	11-Aug-14 08:00	12-Sep-14 18:00	6.00		1		
Handreich At Johnston I	Road EB Carriageway Median Lane		17.0 11.00.00		44.00			1	
B02.0210	Sheet pile at JnR EB Carriageway Median Lane, 10 x 24m, total 240m, 18t; and King post, 2 nr (1 rigs)		17-Sep-14 08:00		14.00	111	6 14	2	11
B02.0245a	Pipe pile at JnR EB Carriageway Median Lane, 16 x 21m, total 336m (2 rigs)		11-Sep-14 08:00 11-Sep-14 08:00		1.00	·			
B02.0262	Jet grout soil blocks for mined tunneling at JnR EB Carriageway Median Lane		11-Sep-14 08:00		1.00	111			
B02.0265B02.0280	Grouting of pipe pile at JnR EB Carriageway Median Lane Underpinning works, if reugired		30-Jul-14 08:00		11.00		E		
B5.0020	TTM2 JnR EB Carriageway Median Lane - Diversion of existing utilities and misc. works		30-Jul-14 08:00		26.00	111			11
B5.0025	TTM2 JnR WB Carriageway - Diversion of existing utilities and misc. works		13-Aug-14 08:00	the second	25.00				
Pump Test, Ex					-	111		511	11
B02.0300	Pumping test 1, pumping test report and submission to BD	18.00	17-Sep-14 08:00	09-Oct-14 18:00	3.00				
B02.0310	SBC Excavation & ELS, 1900 m3	20.00	10-Oct-14 08:00	01-Nov-14 18:00	3.00	111			
B02.0320	SBC Hard core blanket 300tk, blinding layer 75tk, waterproof membrane	20.00	03-Nov-14 08:00	25-Nov-14 18:00	3.00	111			
RC Structures		1				ļļ			
B02.0400	SBC RC Slab - Smoothing concrete 250tk, waterproof membrane, cast slab, 350m^3 Concrete, ReBar 18.8T		17-Nov-14 08:00		3.00				
■ B02.0500	SBC RC Wall - Smoothing concrete 250tkm waterproof membrane, cast wall, 63m^3 Concrete, ReBar 64.6T		01-Dec-14 08:00	the second s	3.00				
B02.0600	SBC RC Top Slab - Waterproof membrane, cast top slab, 163m^3 Concrete, ReBar 15.1T	42.00	15-Dec-14 08:00	04-Feb-15 18:00	3.00	111			
Bockfill and M Bo2.0700	scellanous Works SBC - Backfill to ground level, cut sheet pile 2m depth below ground, reinstate surface	24.00	05-Feb-15 08:00	07-Mar-15 18:00	3.00				
B02.0800	SBC - Fencing, utilites, lighting, etc.		09-Mar-15 08:00		3.00	1			
B02.0900	SBC - Joint inspection and handover to LCSD		09-May-15 08:00		3.00	111			
B7.SBC010	W1 SBC - Excavation 116 m3, remove existing basketball court surface 375 m2		the second se	19-Jul-14 18:00	15.00		0		11
B7.SBC020	W1 SBC - Reinstatement - Subgrade, rc slab/light fnd., EPDM surface coat 375m2, furnitures, etc.		05-Feb-15 08:00		3.00	111			11
G KD2Ap	2A - SBC Complete backfill, resurfacing, fencing, utilities, lighting and return to LCSD - Programmed	0.00		12-Jun-15 18:00	3.00				
TTM 3 - SBC, P	layground, JnR Carriageway EB Kerb Lane & South Footpath								
Preliminaries,	Instrumentation, UU Diversions, etc.	-							11
	Stage 3 - Erect hoarding 46m, Remove hoarding 36m, Relocate 1 no. gate, and water infill barriers		20-Oct-14 08:00	and the second se	15.00		5		
B03.0100	Implement TTM3, trial trenches, instrumentation, installation of GIs, UU diversions at South Footpath, etc.	24.00	20-Oct-14 08:00	15-Nov-14 18:00	1.00			-	11
Sheet Pile, Pir	e Pile, Grouting, Decking		and the second second			11			11
Actual Level of	Effort D. L	ton D			2)				
riordar Lovel O	Effort Preliminary Mas	ster Pl	rogramn	ne (kev.)))				
Actual Mart			U		-				
Actual Work		Page 4 of 9	U		-				

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ty ID	Activity Name			Planned Start	Planned Finish	Total Float		014	1010	
-	201		Duration			A	MJ	JA	SO	ND
At Playgrour B03.0200	Sheet pile at Playground, 42 x 16m, 23 x 24m, total no 65, 1224m, 93t, (prebored al	lowed); king post, 4 nr (About 80%).			06-Dec-14 18:00	1.00				4
B03.0270	Temporary decking at Play Area		28.00	27-Nov-14 08:00	31-Dec-14 18:00	1.00			12	-
	ageway Kerb Lane		2 00	08 Dec 14 08:00	10-Dec-14 18:00	45.00		11		1 4 1
B03.0206	Sheet pile at JnR Carriageway EB Kerb Lane, 10 x 24m, total 240m, 18t				28-Nov-14 18:00	18.00	+++	1-1-		
B03.0245	Pipe pile at JnR EB Carriageway EB Kerb Lane, 6 x 21m, total 126m Grouting of pipe pile at JnR EB Carriageway Kerb Lane				02-Dec-14 18:00	18.00	11	11		1 🖬 1
B03.0265B03.07285	Temporary decking at JnR EB Carriageway Kerb Lane				09-Dec-14 18:00	18.00	11			
B03.07285	TTM3 JnR EB Carriageway Kerb Lane - Diversion of existing utilities and misc. works		24.00	20-Oct-14 08:00	15-Nov-14 18:00	63.00	11			💷
B5.0035	TTM3 JnR South Footpath - Diversion of existing utilities and misc. works		24.00	20-Oct-14 08:00	15-Nov-14 18:00	38.00	11	1.1.		
Pump Test, E						1.00	11			111
B03.0280	Pumping test 2				04-May-15 18:00	1.00	11			111
B03.0300	Play Area - Excavation & ELS, 3700 m3				20-May-15 18:00	1.00				111
B03.0310	Play Area - Hard core blanket 300tk, blinding layer 75tk, waterproof membrane		14.00	21-May-15 08:00	06-Jun-15 18:00	14.00				
RC Structures	BO Blob Blinding laws concerts 75% watermost membrane cost sigh 610mA3 Con	erete BeBar 32 9T	33.00	05-Jun-15 08:00	15-Jul-15 18:00	14.00	11	i i i i i i i i i i i i i i i i i i i		
B03.0400	RC Slab - Blinding layer concrete 75tk, waterproof membrane, cast slab, 610m ³ Con RC Wall - Smoothing concrete 250tk, waterproof membrane, cast wall, 275m ³ Conc	rete, ReBar 87 2T			04-Aug-15 18:00	14.00		11		111
B03.0500B03.0600	RC Top Slab - Cast top concrete slab, 285m^3, ReBar 49.9T				26-Aug-15 18:00	14.00	11			111
	liscellanous Works						11	11		111
B03.0700	Play Area - Backfill to ground level, cut sheet pile 2m depth below ground, surface rei	nstatemant			19-Sep-15 18:00	25.00	1.1.			1.1.1
B03.0710	Play Area - Fencing, utilites, lighting, etc.				10-Sep-16 18:00	45.00	11			
B7.PLA010	Play Area - Excavaton 51 m3, remove equipments incl. footings and foundations, etc.		21.00	21-Oct-14 08:00	13-Nov-14 18:00	1.00				
TTM 4 - SBC, I	Playground, JnR North Foothpath									
	, Instrumentation, UU Diversions, etc.		5.00	02-Jan-15 08:00	07- Jan-15 18:00	24.00	11			U
A01.HRD04	Stage 4 - Erect hoarding 26m, Remove hoarding 26m, and water infill barriers	North Footpath etc			03-Feb-15 18:00	1.00	1-1-	1-1		1
B04.0100	Implement TTM4, trial trenches, instrumentation, installation of GIs, UU diversions at TTM4 JnR North Footpath - Diversion of existing utilities and misc. works	Nonn Poolpain, etc.		02-Jan-15 08:00		30.00				
B5.0040			24.00	02 0011 10 00.00	Lo buil to force					
■ B04.0200	pe Pile, Grouting, Decking Sheet pile at North Footpath, 25 x 24m, total 600m, 47t		25.00	04-Feb-15 08:00	07-Mar-15 18:00	1.00				111
B04.0260	Grouting of sheet pile at North Footpath		25.00	07-Feb-15 08:00	11-Mar-15 18:00	1.00	11.			
B04.0270	Temporary decking and UU support at JnR North Footpath		25.00	12-Mar-15 08:00	14-Apr-15 18:00	1.00				111
Pump Test, E						4.5.00				111
B04.0280	Pumping test 3				04-May-15 18:00	15.00				
B04.0300	Excavation & ELS, 700 m3		18.00	21-May-15 08:00	11-Jun-15 18:00	1.00	11			111
RC Structures	Underneath JnR EB Carriageway & North Footpath		-				+++	1	1	1-1-+
B04.0400	s Before Mined Tunnel Construction RC Slab - Smoothing concrete 250tk, waterproof membrane, cast slab, 140m^3 Conc	rete, ReBar 21.1T	36.00	12-Jun-15 08:00	25-Jul-15 18:00	57.00				111
	es After Mined Tunnel Construction			1						
B04.0500	RC Wall - Smoothing concrete 250tkm waterproof membrane, cast wall, 117m^3 Cond	crete, ReBar 22.5T		14-Mar-16 08:00		8.00				
■ B04.0600	RC Top Slab - Waterproof membrane, cast top slab, 65m^3 Concrete, ReBar 23.2T			11-Apr-16 08:00		8.00		ļ		ļļļ
MB07p	B7 NBC Roof slab; JR NFP & EB Carriageway; Under Tram Track; JR WB and SFP F	RC completed -Programmed	0.00		30-Apr-16 18:00	245.00				
and a local second second start of	Miscellanous Works		47.00	03-May-16 08:00	29 Jun 16 18:00	8.00				
➡ B04.0700	Backfill to ground level, cut sheet pile 2m depth below ground, road reinstatement		47.00	05-Way-16 08.00	20-501-10 10:00	0.00	11			111
TTM 5 - NBC, I	Playground, JnR North Footpath , Instrumentation, UU Diversions, etc.									
A01.HRD05	Stage 5 - Erect hoarding 127m, Remove hoarding 36m, Rolocate 1 no. gate, and wate	er infill barriers	19.00	13-Jun-15 08:00	07-Jul-15 18:00	3.00				
B05.0100	Implement TTM5, trial trenches, instrumentation, UU diversion at NBC, etc.		14.00	13-Jun-15 08:00	30-Jun-15 18:00	3.00	11			111
B5.0050	TTM5 Playround NBC - Diversion of existing utilities and misc. works		28.00	13-Jun-15 08:00	17-Jul-15 18:00	21.00				111
Sheet Pile, Pi	pe Pile, Grouting, Decking					0.00				111
B05.0200	Sheet pile at NBC, 70 x 16m, 8 x 24m, total 1312m, 100t; and King post, 1 nr.				07-Aug-15 18:00	3.00	<u></u>	·		
B05.0240	Pipe pile at GL B (at NBC), 17 x 16m, total 272m		32,00	15-Jul-15 08:00	20-Aug-15 18:00	3.00				111
Pump Test, E			11 00	21 Aug 15 08:00	02-Sep-15 18:00	3.00	11			111
B05.0280	Pumping test 4			03-Sep-15 08:00		3.00	11			111
B05.0300	NBC Excavation & ELS, 3000 m3 NBC Hard core blanket 300tk, blinding layer 75tk, waterproof membrane			14-Sep-15 08:00		3.00				
 B05.0310 B7.NBC010 	W1 NBC - Excavation 116 m3, remove existing basketball court surface 375 m2			13-Jun-15 08:00		24.00	1 T	1		TT
RC Structures		the second s								111
B05.0400	RC Slab - Smoothing concrete 250tk, waterproof membrane, cast slab, 420m^3 Conc	rete, ReBar 29.4T	42.00	29-Sep-15 08:00	18-Nov-15 18:00	3.00				111
B05.0500	RC Wall - Smoothing concrete 250tkm waterproof membrane, cast wall, 280m^3 Conc	crete ReBar 59.3T			04-Dec-15 18:00	3.00	11			
B05.0600	RC Top Slab - Waterproof membrane, cast top slab, 195m^3 Concrete, ReBar 51.1T		48.00	29-Oct-15 08:00	23-Dec-15 18:00	46.00	1.1.		· · · · ·	I
	liscellanous Works	and a state of the second s				40.00				
➡ B05.0700	Backfill to ground level, cut sheet pile 2m depth below ground, reinstate foothpath		-	10-Dec-15 08:00		46.00				
B7.NBC020	W1 NBC - Reinstatement - Subgrade, rc slab/light fnd., EPDM surface coat 375 m2,	rurnitures, etc.	24.00	24-Dec-15 08:00	23-Jan-16 18:00	58.00	11	2 1	-	1 1 1
Actual Level	of Effort	Preliminary Mast	er P	rogram	ne (Rev]	B)				
Actual Work		1 I Chiman y Mast		1 Stann	the (treets)					
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Remaining W	OIK		Page 5 of	3						

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Looga-13C WAC Stat	ion Lee Tung Street Subway Rev.B (30-Sep'14)		10	Diana LOL L	Diseased Firster	Tatal					
Activity ID	Activity Name		Original	Planned Start	Planned Finish	Total Float		2014	-		-
	and the second s		Duration			A	M	JJ	AS	101	I D
	Playground, JnR North Footpath, Carriageway WB					_	11				
president and an address of the second	s, Instrumentation, UU Diversions, etc. Stage 6 - Erect hoarding 52m, and water infill barriers		6.00	08-Jul-15 08:00	14-Jul-15 18:00	3.00	TT		1		1
 A01.HRD06 B06.0100 	Implement TTM6, trial trenches, instrumentation, UU diversions at North Footpath	etc.			13-May-15 18:00	6.00		11			1
	Pipe Pile, Grouting, Decking							11			1
B06.0200	Sheet pile at JnR WB Carriageway, 23 x 21m, total 483m, 37t				20-May-15 18:00	6.00	11	11	1		11
📾 B06.0240	Pipe pile at Johnston Road WB Carriageway, 17 x 21m, total 357m			21-May-15 08:00		6.00	4+				+
📾 B06.0260	Grouting of pipe pile at JnR WB Carriageway			15-Jun-15 08:00		6.00 16.00	11	11	1		
📾 B06.0265	Jet grout soil blocks for mined tunneling at JnR WB Carriageway				27-Jun-15 18:00 28-Jul-15 18:00	6.00	11				1
🚍 B06.0270	Temporary decking at JnR WB Carriageway		15.00	11-Jul-15 08.00	20-501-15 10:00	0.00					
Mined Tunne	I Underneath Tram Track s, Horizontal Pipe Piles and Grouting										1
MIT.TW004			72.00	06-Feb-15 08:00	09-May-15 18:00	28.00					
■ MIT.TW006			26.00	12-Jun-15 08:00	14-Jul-15 18:00	1.00			. :		1
MIT.TW020					14-Jul-15 18:00	1.00	11		1		
😑 MIT.TW030					04-Aug-15 18:00	1.00	11		1		
MIT.TW040	1.6mT TAM grouting surrounding extrados of proposed steel tube periphery, approx	x. 12mL			07-Aug-15 18:00	1.00				+	+
MIT.TW050	Install steel tube for full periphery				11-Aug-15 18:00	1.00	11				11
MIT.TW060					14-Aug-15 18:00	1.00		11	1		
MIT.TW070					10-Aug-15 18:00 13-Aug-15 18:00	1.00					1
MIT.TW080					15-Aug-15 18:00	1.00	11	11			1
■ MIT.TW090					19-Aug-15 18:00	1.00	tt			17	1
■ MIT.TW100			3.00	17-Aug-15 00.00	19-Aug-10-10.00	1.00					
RC Structur	Blinding layer, smooth concrete and waterproofing, 2 bays		3.00	20-Jan-16 08:00	22-Jan-16 18:00	1.00			1		1
MIT.CS010		n^3 Concrete, ReBar 10.5T	18.00	23-Jan-16 08:00	16-Feb-16 18:00	1.00	11	1			
MIT.CS0200		Concrete, ReBar 22.3T	18.00	04-Feb-16 08:00	27-Feb-16 18:00	1.00					
MIT.CS0300			20.00	19-Feb-16 08:00	12-Mar-16 18:00	1.00		1			
MIT.CS0900			0.00	14-Mar-16 08:00		1.00	11	11	1		1
Mined Tunn								11	1		
Top Bench		(hour (asking @1000a/a (125m2)	24.00	20 Aug 15 08:00	16-Sep-15 18:00	1.00		1 1	1		1
MIT.EX011	Excavate 1st 1/4 top bench 12x1m advance heading, shotcrete face, install steel fr	ame/beam/column@1000c/c (135m3)			02-Oct-15 18:00	1.00	++-				1
MIT.EX012	0 Excavate 2nd 1/4 top bench 12x1m advance heading, shotcrete face, install steel f	rame/beam/column@1000c/c (135m3)			14-Nov-15 18:00	13.00		1			
MIT.EX014	 Excavate 3rd 1/4 top bench 12x1m advance heading, shotcrete face, install steel fi Excavate last 1/4 top bench 12x1m advance heading, shotcrete face, install steel f 	rame/beam/column@1000c/c (135m3)	ALC: NOT ALC	The second s	28-Nov-15 18:00	13.00	11	11			1
Mildle Ben		Tamer beam conditining record of (recently)	00100					1	1		
MIT FX015	5 Excavate 1st 1/2 middle bench 12x1m advance heading, shotcrete face, install ste	el frame/beam/column@1000c/c (270m3)	36.00	03-Oct-15 08:00	14-Nov-15 18:00	1.00			1		
MIT.EX016	0 Excavate last 1/2 middle bench 12x1m advance heading, shotcrete face, install ste	el frame/beam/column@1000c/c (270m3)	60.00	02-Nov-15 08:00	13-Jan-16 18:00	13.00	11		1		
Bottom Ber	ich .							1			1
🖨 MIT.EX017	Excavate 1st 1/2 bottom bench 12x1m advance heading, shotcrete face, install ste	el frame/beam/column@1000c/c (270m3)			12-Dec-15 18:00	1.00		11			1
	Excavate 1st last 1/2 bottom bench 12x1m advance heading, shotcrete face, instal	I steel frame/beam/column@1000c/c(270m3)	25.00	14-Dec-15 08:00	14-Jan-16 18:00	1.00		1			
📲 Break Thro	ugh Pipe Pile Wall		18.00	27-Nov-15 08:00	17-Dec-15 18:00	9.00	1-1-	-1-1		1-1-	1-1
MIT.EX887	8 Break through 1st 1/2 pipe piles & flame cut sheet H pile				19-Jan-16 18:00	1.00	11	11			1 1
	Break through remaining 1/2 pipe piles & flame cut sheet H pile Playground, JnR North & South Footpath		11.00	00 000 10 00.00	To cuit to totoo			1 1	1		
Preliminarie	s, Instrumentation, UU Diversions, etc.						11	1 1	1		1
a01.HRD07	Stage 7 - Erect hoarding 18m, Remove hoarding 32m, and water infill barriers		5.00	29-Jul-15 08:00	03-Aug-15 18:00	6.00	11			1.	1
B07.0100	Implement TTM7		2.00	29-Jul-15 08:00	30-Jul-15 18:00	6.00		11			
Sheet Pile,	Pipe Pile, Grouting, Decking					0.00		11			
B07.0200	Sheet pile at JnR South Footpath, 10 x 21m, total 210m, 16t				08-Aug-15 18:00	6.00		1			
📾 B07.0270	Temporary decking at JnR South Footpath		10.00	10-Aug-15 08:00	20-Aug-15 18:00	6.00	11	1			
	Excavation, ELS	and the second	12 00	21_Aug_15_08:00	03-Sep-15 18:00	6.00	1-+-				+
B07.0280	Pumping test 5				19-Sep-15 18:00	6.00		1			1 1
B07.0300	Excavation & ELS, 700 m3 Hard core blanket 300tk, blinding layer 75tk, waterproof membrane			the second s	23-Sep-15 18:00	6.00					
B07.0310			12.00	to oup to sales			11				
B07.0400	RC Slab - Smoothing concrete 250tk, waterproof membrane, cast slab, 120m^3 Co	oncrete, ReBar 6.0T	28.00	17-Sep-15 08:00	22-Oct-15 18:00	6.00	11	1.1			
B07.0500	RC Wall - Smoothing concrete 250tkm waterproof membrane, cast wall, 55m^3 Co	oncrete, ReBar 19.3T	34.00	03-Oct-15 08:00	12-Nov-15 18:00	6.00		1			
B07.0600	RC Top Slab - Waterproof membrane, cast top slab, 55m^3 Concrete, ReBar 9.0T		38.00	17-Oct-15 08:00	01-Dec-15 18:00	6.00		11			
	Miscellanous Works					15.00		1	1		
	Backfill to ground level, cut sheet pile 2m depth below ground, reinstate road & for	otpath at EB & WB footpaths	30.00	02-Dec-15 08:00	08-Jan-16 18:00	45.00					
TTM 8 - NBC	Playground, JnR Carriageway EB Kerb Lane & WB						1 1	; (:	1 1	1 1
			1. 20-	CARL STATE	-	-	T			-	
Actual Leve	of Effort	Preliminary Mas	ster P	rogram	me (Rev.	3)					
Actual Work		J	Contraction and	0		-					

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Remaining Work

0593-13C WAC Stati	on Lee Tung Street Subway Rev.B (30-Sep'14)		_		1						
ctivity ID	Activity Name		Original	Planned Start	Planned Finish	Total Float	2	2014			-
			Duration			Fluar			AS	ON	D
A01.HRD08	Stage 8 - Erect hoarding 55m, Remove hoarding 24m, Relocate 1 no. gate, and w	ater infill barriers		09-Jan-16 08:00	18-Jan-16 18:00	45.00					
B08.0100	Implement TTM8		6.00	09-Jan-16 08:00	15-Jan-16 18:00	45.00		11	1		
B08.0200	Cut down sheetpiles at JnR Carriageway EB Kerb Lane & pipe piles at JnR Carriageway EB Kerb & pipe piles at JnR	geway WB 2m below ground	18.00	19-Jan-16 08:00	11-Feb-16 18:00	45.00		11	1		
B08.0700	Backfill and reinstate		18.00	12-Feb-16 08:00	03-Mar-16 18:00	45.00	11	11	1		
	Playground, JnR Carriageway EB Median Lane							1			
A01.HRD09	Stage 9 - Erect hoarding 14m, Remove hoarding 37m, Relocate 1 no. gate, and w	ater infill barriers	1	04-Mar-16 08:00		47.00		11			1
🖨 B09.0100	Implement TTM9			04-Mar-16 08:00		45.00	11	11	1		1
■ B09.0200	Cut down sheetpiles and pipe piles 2 m below ground at JnR Carriageway EB Med	ian Lane and JnR Carriageway WB		11-Mar-16 08:00		45.00	11	11	1		
B09.0700	Backfill and reinstate		22.00	07-Apr-16 08:00	03-May-16 18:00	45.00	11	11	1		-
TTM 10 - NBC			2.00	05 May 16 09:00	07 May 16 19:00	45.00	+-+-				
A01.HRD10	Stage 10 - Remove hoarding 32m, and remove water infill barriers				07-May-16 18:00 04-May-16 18:00	45.00		1 1			
📾 B10.0100	Implement TTM10			09-May-16 08:00		45.00		1 1	1		
■ B10.0200	Cut down sheetpiles and pipe piles 2 m below ground at NBC and Playround			04-Jun-16 08:00		176.00		11	1		1
➡ B10.0700	Backfill and reinstate - NBC		42.00	04-Jun-16 08:00	29-301-10 18.00	170.00	11	1 1	1		-
Subway ABW	F Works Subway ABWF works - Degree 1 (1st Batch)		65.00	13-Jun-15 08:00	29-Aug-15 18:00	3.00	11	1			
BAF.0010	Subway ABWF works - Degree 1 (Remaining Batch) (31-Jul'14)			31-Aug-15 08:00		3.00		11	1		1
BAF.0011	Subway ABWF works - Degree 3 (1st Batch)			30-Jan-16 08:00		107.00	11	11			1
BAF.0030	Subway ABWF works - Degree 3 (1st Batch) Subway ABWF works - Degree 3 (2nd Batch)			29-Apr-16 08:00		107.00		11	1		
BAF.0031			and the second se		17-Oct-16 18:00	107.00	11	11	1		1
BAF.0032	Subway ABWF works - Degree 3 (Remaining Batch)(30-Oct'16) B9 ABWF degree 3 - Programmed		0.00		17-Oct-16 18:00	107.00	1-1-	1			
MB09p			0.00		17 001 10 10.00	101.00	11	11	1		1
B3 Fresh Air Structure and							11		-		1
B3.0010	Fresh Air Intake Structure, 40D/20 14 m3, formwork 79 m2, reebar 2t		36.00	27-Aug-15 08:00	09-Oct-15 18:00	14.00	11				1
B3.0100	Fresh Air Intake ABWF works, Waterproof membrane 45 m2, Tiling roof+wall&colu	mn 9+45m2, kerb 12m, louvre 3 nr.		10-Oct-15 08:00		107.00	11				1
and the second se	traction Facility	and a construction of the second							1		;
Structure and							1 1	1 1	1		-
B4.0010	Smoke Extraction Structure, 40D/20 16 m3, formwork 127 m2, rebar 2t		36.00	10-Oct-15 08:00	21-Nov-15 18:00	14.00		11	1		1
B4.0100	Smoke Extraction ABWF works, Waterproof membrane 70 m2, Tiling roof+wall&co	lumn 9+45m2, kerb 12m, louvre 1 nr.	42.00	09-Dec-15 08:00	29-Jan-16 18:00	107.00					1
B6 URA H15	Breakout						1.1.	11			
Structure and	ABWF							11	1		1
🖨 B6.0010	Preparation and Breaking out at URA H15, 7.5mW x 4.5mH			03-Nov-15 08:00		117.00					1
■ B6.0020	URA H15 ABWF, Prepare surface 25m, plastering+screeding 25+8m2, tiling 17m2	, kerb 2m, ceiling 8m3, cladding 9m2		15-Dec-15 08:00		117.00	11	1			1
INF.H15p	Interface Access for Contract H15, All Levels, No.Cal.Wk. 131		0.00		29-Feb-16 18:00	117.00	11				
🖶 B7 Reprovisi	oning Works to Southorn Playground						ļ				
	at Works Area 6593.W3 (Stage 11 & Stage 12)		4.00	08-Dec-16 08:00	12 Dec 16 19:00	1.00			11		1
A01.HRD11	Stage 11 - Erect hoarding 66m, Erect 1 no. gate (Reinstatement NBC)			18-Jan-17 08:00		1.00	1 1	1 1	1		-
A01.HRD12	Stage 12 - Erect hoarding, 58m, Remove hoarding 58m (Reinstatement SBC)			13-Dec-16 08:00		1.00			1		
B7.NBC310	W3 NBC - Excavaton 116 m3, remove existing basketball court surface 375 m2	6		17-Dec-16 08:00		1.00	11	11			1
B7.NBC320	W3 NBC - Reinstatement - Subgrade, rc slab/light fnd., EPDM surface coat 375m2	, turnitures, etc.		25-Jan-17 08:00		1.00	1				
B7.SBC310	W3 SBC - Excavaton 116 m3, remove existing basketball court surface 375 m2	furnitures als		04-Feb-17 08:00		1.00			1		
B7.SBC320	W3 SBC -Reinstatement - Subgrade, rc slab/light fnd., EPDM surface coat 375m2	Turnitules, etc.	10.00	04-1 60-17 00.00	24-1 60-17 10.00	1.00					1
Play Area B7.PLA020	Play Area - Reinstatement - Install equipments, safety mat 330 m2, etc.		88.00	10-Nov-15 08:00	26-Feb-16 18:00	206.00			-		-
Landscaping								1	1		1
B7.LDS200	Play Area - RC wall & footing, finish to match existing 160m, planter wall 197m, etc	C.	40.00	21-Sep-15 08:00	09-Nov-15 18:00	25.00		11			-
B7.LDS300	Play Area - Landscaping, Shrubs 1198 nr, tree 17 nr.			10-Nov-15 08:00		204.00	1 1	1 1	1	11	1
B7.LDS900	Playground - Joint inspection and handover to LCSD		28.00	12-Sep-16 08:00	17-Oct-16 18:00	45.00		11			1
	vestigation Works									11	
B00.0110	Confirmation of location of SI, PH01, by the Engineer		1.00	14-Jul-14 08:00	14-Jul-14 18:00	35.00		11	1	11	1
B00.0111	Mobilization of SI rigs				18-Jul-14 18:00	35.00		1	1		-
B00.0120	Site Investigation, PH01			19-Jul-14 08:00	28-Jul-14 18:00	35.00		. 0		11	-
B00.0130	Site Investigation, Lab tests and report, and submission			29-Jul-14 08:00		35.00	11	; ¢		11	1
	Building Services Works				Construction of the second			11		11	-
	Drawings, Materials & Equipments Submission and Approval								1	11	1
C1.0010	BS Works - Design, Materials and Equipments - Submission & AIP (1st Batch)		60.00	14-Apr-14 08:00	28-Jun-14 18:00	6.00					
C1.0015	BS Works - Design, Materials and Equipments - Submission & AIP (Remaining) BS Works - Design, Materials and Equipments - Submission & AIP (Remaining)			30-Jun-14 08:00		6.00				11	-
C2.0010	BS Works - Shop drawings - Submisssion & AIP (1st Batch)			30-Jun-14 08:00		53.00		1		1	1
C2.0015	BS Works - Shop drawings - Submission & AIP (Remaining)			10-Sep-14 08:00		53.00					-
	and Delivery of Materials and Equipments		1		a second constant			1	-	11	-
C3.0010	BS Works - Procurement of all major building service equipments and materials (1s	t Batch)	50.00	10-Sep-14 08:00	08-Nov-14 18:00	6.00		11			1
											_
Actual Level	of Effort	Preliminary M	actor D	rogrom	no (Dour]	R)					
Actual Work		1 i cininal y WI	asici I	i ugi aiiii	me (mearl	(U)					
	lork		Dens 7.4	0							
			Page 7 of	5							
Critical Rema											

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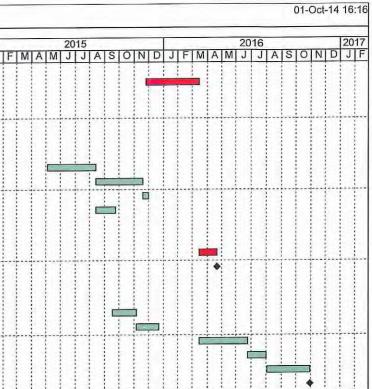
ivity ID	Activity Name		Original Planned Start	Planned Finish	Total	2014	1	2015			2016	
			Duration		Float	MJJAS	JNDJFM	AMJJA	SONDJ	FMAM	JJAS	SON
C3.0011	BS Works - Procurement of all major building service equipments and materials (Remaining)		50.00 10-Nov-14 08:00		6.00							
C3.00210	BS Works - Place Order for Air Handling Unit		3.00 24-Nov-14 08:00		74.00							
C3.00211	BS Works - Manufacture of Air Handling Unit		73.00 27-Nov-14 08:00		74.00							111
C3.00212	BS Works - Delivery of Air Handling Unit		3.00 27-Feb-15 08:00		74.00			h			·	
C3.00220	BS Works - Place Order for In-line Centrifugal Fan		3.00 15-Dec-14 08:00		74.00							111
C3.00221	BS Works - Manufacture of In-line Centrifugal Fan		55.00 18-Dec-14 08:00		74.00							111
C3.00222	BS Works - Delivery of In-line Centrifugal Fan		3.00 27-Feb-15 08:00		74.00		1					111
C3.00230	BS Works - Place Order for Smoke Extraction Fan		3.00 15-Dec-14 08:00		74.00							1 1 1
C3.00231	BS Works - Manufacture of Smoke Extraction Fan		55.00 18-Dec-14 08:00		74.00							+-+
C3.00232	BS Works - Delivery of Smoke Extraction Fan		3.00 27-Feb-15 08:00 3.00 15-Dec-14 08:00		74.00		1					111
C3.00240	BS Works - Order for Fan Coil Unit		55.00 18-Dec-14 08:00		74.00							111
C3.00241	BS Works - Manufacture of Fan Coil Unit		3.00 27-Feb-15 08:00		74.00							111
C3.00242	BS Works - Delivery of Fan Coil Unit		3.00 27-Oct-14 08:00		74.00		11111					111
C3.00250	BS Works - Order for Smoke & Fire damper		97.00 30-Oct-14 08:00		74.00							TIT
C3.00251	BS Works - Manufacture of Motorized Smoke & Fire damper		3.00 27-Feb-15 08:00		74.00							1 1 1
C3.00252	BS Works - Delivery of Motorized Smoke & Fire damper		50.00 10-Jan-15 08:00		6.00							1 1 1
C4.0010	BS Works - FATs for all major building service equipments and materials (1st Batch)		59.00 13-Mar-15 08:00									111
C4.0011	BS Works - FATs for all major building service equipments and materials (Remaining)		90.00 10-Jan-15 08:00									111
C5.0000	Exchange of Design Information with Designated and Interfacing Contractors BS Works - Delivery of all major equipments for the ECS plant room (1st Batch)		70.00 28-May-15 08:00	and the second se	6.00							TIT
C5.0010	BS Works - Delivery of all major equipments for the ECS plant room (1st Bach) BS Works - Delivery of all major equipments for the ECS plant room (2nd Batch)		86.00 20-Aug-15 08:00		6.00		1111					111
C5.0015	BS Works - Delivery of all major equipments for the ECS plant room (And Datch) BS Works - Delivery of all major and others equipments for the ECS plant room (Remaining)		90.00 02-Dec-15 08:00									1 1 1
C5.0016				Ten mer te teter								
the state of the second st	of Building Services Electrical - Within Stn, Distribution equip. 16 nr, cable tray & trunk 420m, lighting fitting 81nr,	earthing tape 276m	43.00 05-Dec-15 08:00	27-Jan-16 18:00	3.00							
C6.0110	Electrical - Vultrin Stri, Distribution equip. To hi, cable tray & train 420m, light fit 91nr, earth 170n Electrical - Subway, D.eq.82nr, cable tray&trunk 803m, cable 2200m, light fit 91nr, earth 170n	m sign 42nr connection(1)	75.00 28-Jan-16 08:00				TTTT					TII
C6.0120	Electrical - Subway, D.eq.82nr, cable traystrunk 803m, cable 2200m, light fit 91nr, earth 170n Electrical - Subway, D.eq.82nr, cable traystrunk 803m, cable 2200m, light fit 91nr, earth 170n	m sign 42nr, connection(7)	75.00 04-May-16 08:00		7.00							
C6.0125	Electrical - Subway, D.eq.82nr, cable trayatrunk obsin, cable 2200m, light in 9 mi, earn 170m ECS - Within WAC Stn, Grille 6 nr, air duct 115m2, damper 7 nr.	in, agn 42m, connection(2)	33.00 28-Jan-16 08:00		4.00		11111					111
C6.0210	ECS - Vultnin WAC Stri, Ghile 6 III, an duct rishiz, damper 7 III. ECS - Subway, Pipe/insul.75m, fan 12nr, grille 45nr, airduct 1106m2, paint 60m2, damper 36	Sor control Ann etc. (1st)	60.00 10-Mar-16 08:00									111
C6.0220	ECS - Subway, Pipe/insul.75m, fan 12m, grille 45m, airduct 1106m2, paint 60m2, damper 60m ECS - Subway, Pipe/insul.75m, fan 12m, grille 45m, airduct 1106m2, paint 60m2, damper 36m	Snr control 4nr etc. (2nd)	60.00 26-May-16 08:00		4.00		11111			111		111
C6.0225	FS Works - Within H15, Pipe 59m, dectector 7 nr, hose reel 1 nr		30.00 14-Mar-16 08:00		1.00		TTTT					TIT
C6.0310	FS Works - Subway, Pipe 155m, valve 2 nr, detectors 38 nr, hose reel 1 nr, fire extinguisher 4	4 pr connection etc.	90.00 22-Apr-16 08:00		1.00							111
C6.0320	Drainage System - Waste - Existing WSC Stn, 35 m pipe, 2 valve, 4 pit, 1 switch/ control par	nel 1 power supply system	60.00 28-Jan-16 08:00		3.00							111
C6.0410	Drainage System - Waste - Eusting WSC Stit, 35 m pile, 2 value, 4 pit, 1 Switch Ball Drainage System - Waste - Subway, Pipe DI/CI 257+18m, 7 joint, 6 OTC	iner, i pener cappi, sjerem	90.00 15-Apr-16 08:00		3.00		11111					111
C6.0420	Drainage System - Waste - Subway, The Diror 257 Flohr, 7 John, 6 6 Fo Drainage System - Rainwater Discharge, Cl pipe, 8+18m above/below ground, 2 manholes		59.00 16-May-16 08:00		3.00							
C6.0430	Cleansing Water System - Within WAC Station, 137m copper pipe, 3 gate valve, 2 stopcock,	2 water meter	48.00 15-Apr-16 08:00		11.00							111
C6.0510	Cleansing Water System - Subway, 87m copper pipe, 1 gate valve, 1 joint		27.00 14-Jun-16 08:00	the second second second second second second second second second second second second second second second se	11.00							111
C6.0520	Remaining BS Works.		28.00 29-Jun-16 08:00		8.00		1			1		111
C6.0521	Installation of flood gate		28.00 23-Oct-15 08:00		8.00		11111		—			111
INF.SAMSp	Interface Access for SAMS, Comms, MCS to All Areas, All Levels and Locations (25-Jul'16)		0.00	09-Aug-16 18:00	40.00		1111				•	
and the second sec	Commissioning											111
C9.BS31TC	T&C ECS - Tests on Ventilation Fans, Air Balancing, Equipment & System, Control, Noise &	Sound, etc.	35.00 06-Aug-16 08:00	15-Sep-16 18:00	4.00							
C9.BS32TC	T&C - SAT of HV Sw Boards/ TX, LV Sw Boards & MCC, Lighting Control, etc.		35.00 03-Aug-16 08:00		7.00		1 1 1 1 1					
C9.BS32TC	T&C Fire Services - Performance Test/FH & HR System/ Auto Fire Alam System		35.00 10-Aug-16 08:00		1.00							4 1 1
C9.BS34TC	T&C Plumbing and Drainage - P&D Pumps, Control System		30.00 26-Jul-16 08:00		3.00							
C9.BS34TC	T&C ELV System - Contol Systems		30.00 03-Aug-16 08:00		12.00		11111			111		111
C9.BSFSI	FSI - Integrated Test		14.00 21-Sep-16 08:00		1.00							a
	spection and Approval		· ·				11111					111
C9.S10020	DSD/ WSD Inspection and Connection		30.00 30-Aug-16 08:00	05-Oct-16 18:00	3.00		11111					- 11
C9.SI0025	Connection for electricity		30.00 16-Mar-16 08:00		138.00							
C9.S10030	Submit Forms FS 314 & FS 501		2.00 08-Oct-16 08:00	11-Oct-16 18:00	1.00		11111					1
C9.S10030	FS Inpection / Re-inspection		12.00 12-Oct-16 08:00		1.00		11111			111		
C9.510040	FS Defect Rectification and Approval		18.00 27-Oct-16 08:00		1.00							
C9.510050	Obtain FS Certification		1.00 17-Nov-16 08:00	17-Nov-16 18:00	1.00							1 1 1
C9.S10065	OP Inpection/ Re-inspection		10.00 18-Nov-16 08:00	29-Nov-16 18:00	1.00							
C9.S10000	Obtain OP		1.00 30-Nov-16 08:00	30-Nov-16 18:00	1.00							111
C9.SIHO	Joint Inspection and Handover to Operation Team for the BS of the New Subway		6.00 01-Dec-16 08:00		1.00							
MSB10p	Complete & pass all statutory, joint Inspection & handover to Operation Team for the BS of ne	new Subway- Programmed	0.00	07-Dec-16 18:00	1.00							
	ation Modification Works (Part B Works)						11111					
	s & Misc Works		60.00 19-Nov-15 08:00	30-Jan-16 18:00	71.00		777777					
D3080	ABWF - Plaster & titling 29 m2, baffling ceiling 10 m2, metal cladding 9 m2		00.00 13-100-10 00.00	100 001110 10.00	71.00			1 1. Y. A.				
-		D 11 1 35	/ D	(1)	10)						-	-
 Actual Level 	of Effort	Preliminary Ma	ster Program	me (Kev.	В)				La same	ad	-	
Actual Work			U						17		1 march	
Remaining V	Nork		Page 8 of 9							20	1 AT	
Critical Rem	aining Work									100		



C6593-13C WAC Sta	tion Lee Tung Street Subway Rev.B (30-Sep'14)				
Activity ID	Activity Name	Original Planned Start Duration	Planned Finish	Total Float	
📲 Breaking O	ut WAC Station	90.00 25-Nov-15 08:0	0 15-Mar-16 18:00	8.00	
🚍 D2070	Breaking out WAC Station - Form opening, core holes 72 nr, chain cut 1225 x 900mm block 55 nr.	90.00 23-100-13 00.0	0 13 14141 10 10:00	0.00	
	n Modification Works	90.00 14-Apr-14 08:0	0 04-Aug-14 18:00	121.00	
D1001	Liaison with MTR and relevance parties for works in WAC station	12.00 05-Aug-14 08:0		121.00	
📼 D1002	Preparation works for works in WAC station	12.00 19-Aug-14 08:0		121.00	
📾 D1010	Internal Hoarding in WAC station (NTH)	69.00 02-Sep-14 08:0		121.00	
📾 D1020	Construct new AFC/Audit Room next to Entrance B1, B2, ABWF & BS Works (NTH)	84.00 05-May-15 08:0		13.00	
🖨 D1030	Modification Works to existing AFC/Audit, Store & Kiosk 3 & 5 (NTH)	80.00 14-Aug-15 08:0		13.00	
🖨 D1040	Modification to existing Kiosk 2 (NTH)	10.00 19-Nov-15 08:0		93.00	
📾 D1050	Relocate 4 Advertising Panels (NTH)		The second second second second second second second second second second second second second second second se	57.00	
📾 D1060	Install New Telephone Booth and associated works (NTH)	36.00 14-Aug-15 08:0		153.00	
INF.AFCp	Interface Access for AFC, C&C DC in new AFC Audit Room inside WAC, Concourse Level, No.Cal.Wk. 55 - Programmed	0.00	24-Nov-14 18:00	155,00	
Testing and	Commissioning		0 04 4 40 49:00	8.00	
D4090	Testing and Commissioning	28.00 16-Mar-16 08:0			
📾 KD2Bp	Specified Part 2B - Complete all works at the 2 new Shop Kiosks and hand over to the Employer - Programmed	0.00	21-Apr-16 18:00	8.00	
E. WAC St	ation Imporvement Works (Part C Works)				
Improvement	nt Works to WAC Station		0 05 Nov 45 19:00	94.00	
🚍 E1020	Modify, provide & install new glass barrier to suit new AFC gates (NTH)	40.00 17-Sep-15 08:0			
📾 E1030	Provide and install additional AFC gates (NTH)	40.00 06-Nov-15 08:0		94.00	
📾 E1040	Provide builder works for TIMS relocation (NTH)	80.00 16-Mar-16 08:0		28.00	
📾 E1050	T&C by Designated Contractor for TIMS (NTH)	30.00 25-Jun-16 08:0	A REAL PROPERTY OF A REAL PROPER	28.00	
📾 E1060	Make Good builder works for TIMS (NTH)	75.00 01-Aug-16 08:0		28.00	
MSE03p	E3- All works in milestone E completed - Programmed	0.00	29-Oct-16 18:00	28.00	

-		Actual Level of Effort
1		Actual Work
		Remaining Work
		Critical Remaining Work
٠	•	Milestone

Page 9 of 9

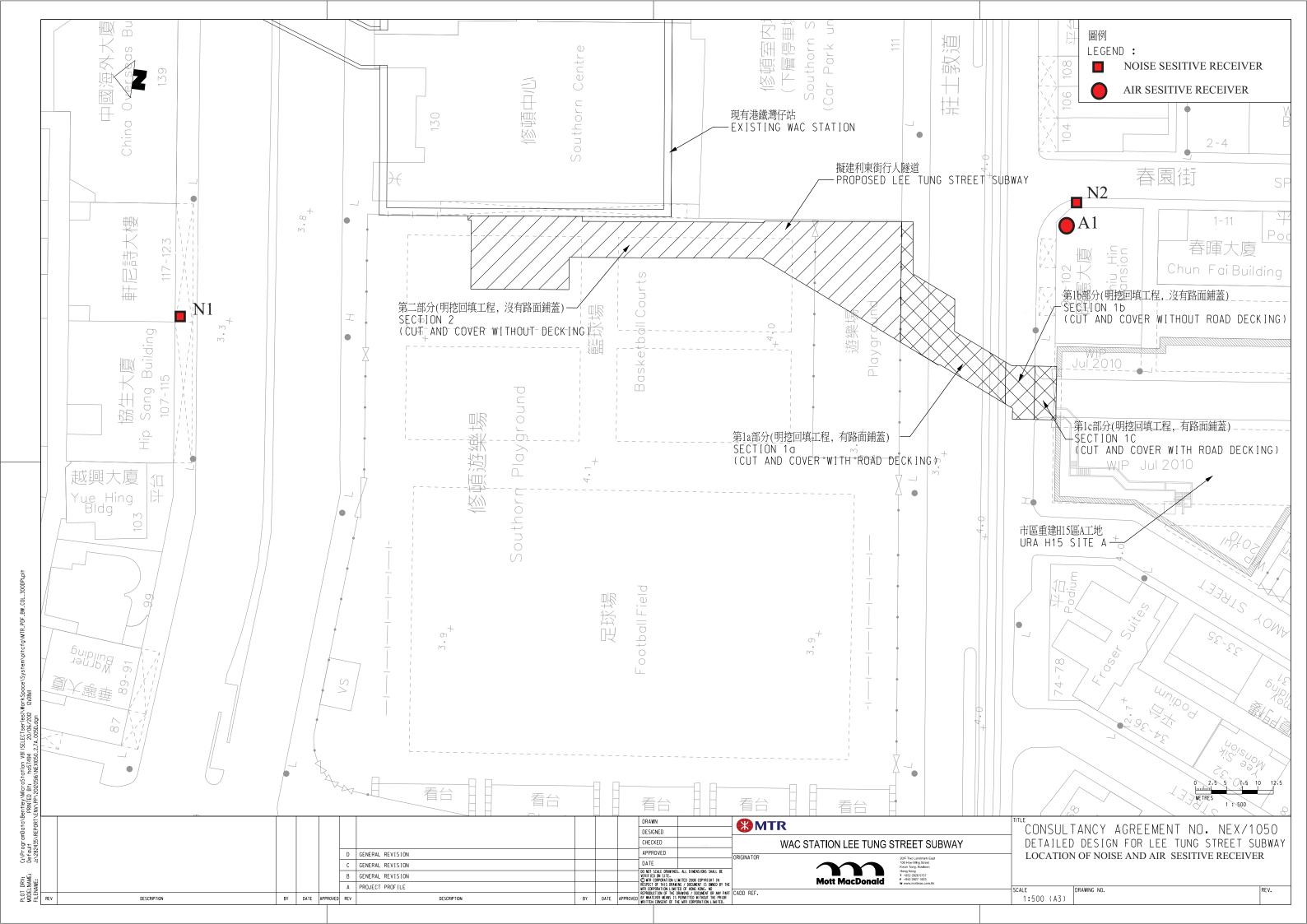






Appendix C

Monitoring Locations





Appendix D

Calibration Certificate of Monitoring Equipment

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location		n Mansio	on						ration: 10-F				
Location	ID:	A1]			Date: 10-A				
								Fechr	nician: Mr.	Ben Tar	n		
					С	ONDI	TIONS						
	C	т 1 т	`	(1.D.)	1	1001 5	1		Q (1 D		(11	7((105
	Se	a Level I				1021.5			Corrected P				
		Temp	erature	(°C)		19.4			Temp	erature	(K)		292
				CA	LIB	RATIC	ON ORIFICE						
				Make->	TIS	СН			Qstd S	lope ->		2.0075	7
				Model->					Qstd Inter	cept ->		-0.0162	28
				Serial # ->	161	2							
					C	ALIBR	ATION						
Plate	H20 (L)	H2O (R)	H20	Qstd		Ι	IC			LINE	AR		
No.	(in)	(in)	(in)	(m3/min)	(c	hart)	corrected		R	EGRES	SION		
18	6.1	6.1	12.2	1.772		53	54.23		, ,	Slope =	30.6609)	
13	4.6	4.6	9.2	1.539		45	46.05		Inte	ercept =	-0.4323	5	
10	3.5	3.5	7	1.344		40	40.93		Corr. c	coeff. =	0.9991		
7	2.5	2.5	5	1.137		34	34.79						
5	1.4	1.4	2.8	0.853		25	25.58						
Calculatio	ons :								FLOW RAT	Е СНАБ	эт		
Qstd = 1/r		20(Pa/Ps)	td)(Tstd	/Ta))-hl		60.	00						ר
IC = I[Sq]				14)) 0]								۶	
		.)(1000011				50.	00					/	
Qstd = sta	undard flo	w rate											
IC = correction			es										
I = actual	chart res	ponse				(2 40.	00			/	*		-
m = calibat	rator Qsta	d slope				onse				•			
b = calibr	ator Qstd	intercep	t			30.0	00						
	-		_	oration (deg	-	art							
Pstd = act	tual press	ure durin	g calibra	ation (mm I	Ig	al ch			•				
For subs	oquent c	alculatio	n of san	pler flow:		Actual chart response (IC)	00						
1/m((I)[-			-									
1/111((1)[)	5411(270)	147/147	//00/] [<i>')</i>		10.	00						-
m = samp	ler slope												
b = samp	-	ept				0							
I = chart I						0.0	00 +	0.50	00 1.0	000	1.500	2.	000
Tav = dai	ly averag	e temper	ature					S	tandard Flow	Rate (m3/	/min)		
Pav = dai	ly averag	e pressur	e		L								



TISCH ENVIRONMENTAL, INC. 145 SOUTH MIAMI AVE VILLAGE OF CLEVES, OH 45002 513.467.9000 877.263.7610 TOLL FREE 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - A <u>p</u> Operator		Rootsmeter Orifice I.I		438320 1612	Ta (K) - Pa (mm) -	294 742.95
PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1 2 3 4 5	NA NA NA NA NA	NA NA NA NA	1.00 1.00 1.00 1.00 1.00	1.3940 0.9790 0.8800 0.8350 0.6910	3.2 6.4 7.8 8.8 12.7	2.00 4.00 5.00 5.50 8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9866 0.9823 0.9804 0.9791 0.9739	0.7077 1.0034 1.1140 1.1726 1.4094	1.4077 1.9908 2.2258 2.3345 2.8155		0.9957 0.9914 0.9894 0.9881 0.9829	0.7142 1.0127 1.1243 1.1834 1.4224	0.8896 1.2581 1.4066 1.4753 1.7793
Qstd slo intercep coeffici y axis =	t (b) = ent (r) =	2.00757 -0.01628 0.99989 Pa/760) (298/1	 (a)]	Qa slope intercept coefficie v axis =	t (b) =	1.25710 -0.01029 0.99989

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 = $1/m\{ [SQRT(H2O(Ta/Pa)] - b \}$

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location	: Chiu Hi	in Mansio	on				Date of C	alibr	ation: 9-Ap	pr-15			
Location	ID:	A1				ľ	Next Calibra	ation	Date: 9-Ju	n-15			
							Т	'echn	ician: Mr.	Ben Tan	1		
					C		TIONS						
				г			1						
	Se	a Level I	Pressure	(hPa)		1017.8		(Corrected F	Pressure	(mm Hg	g) 76	3.35
		Temp	erature	(°C)		18.0			Temp	perature	(K)		291
				CA	LIB	RATIO	N ORIFICE						
				Make->	TIS	СН]		Qstd S	Slope ->		2.1026	5
				Model->	502	5A			Qstd Inter	rcept ->		-0.003	35
				Serial # ->	194	1							
					C	ALIBR	ATION						
Plate	H20 (L)	H2O (R)	H20	Qstd		Ι	IC			LINEA	AR		
No.	(in)	(in)	(in)	(m3/min)	(c	hart)	corrected		R	EGRES	SION		
18	6.2	6.2	12.4	1.700		51	52.34			Slope =	28.211	7	
13	4.7	4.7	9.4	1.480		46	47.21		Inte	ercept =	4.8749	9	
10	3.5	3.5	7	1.278		40	41.05		Corr.	coeff. =	0.9992	2	
7	2.6	2.6	5.2	1.101		35	35.92						
5	1.3	1.3	2.6	0.779		26	26.68						
Calculatio	one ·								LOW RAT		т		
Qstd = 1/r		$2 \Omega (P_2/P_2)$	td)(Tstd	/Ta))-b]		60.0	00		LOWINAI				ר
IC = I[Sq;				/1 <i>u))</i> =0]									
10 1[04	11(1 4/1 500	<i>x)</i> (1500/1	u)]			50.0	00					▶	
Qstd = sta	andard flo	ow rate				00.0					•		
IC = correction			es										
I = actual		-				වු 40.0	00			- /			-
m = calib	rator Qsto	d slope				nse				×			
b = calibr	ator Qstd	intercep	t			esbo 30.0	0		/				
Ta = actu	al temper	ature dur	ing calil	oration (deg	g K								
Pstd = act	tual press	ure durin	g calibra	ation (mm I	Ig	l ch							
						Actual chart response (IC) 20.05 actual chart response (IC)	00						-
	-			pler flow:		٩							
1/m((I)[Sqrt(298/	Tav)(Pav	r/760)]-t))		40.4							
	_					10.0							1
m = samp													
b = samp		ept				0.0	00]
I = chart I	-						0.000	0.50		000	1.500	2.	.000
Tav = dai								St	andard Flow	Rate (m3/i	min)		
Pav = dai	ly averag	e pressur	e		_								



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ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Ma Operator		5 Rootsmeter Orifice I.I	0/11	138320 1941	Ta (K) - Pa (mm) -	292 - 756.92
====== OR Run # 1 2 3 4 5	VOLUME START (m3) NA NA NA NA NA NA	VOLUME STOP (m3) NA NA NA NA NA NA	DIFF VOLUME (m3) 1.00 1.00 1.00 1.00 1.00	DIFF TIME (min) 1.4880 1.0510 0.9360 0.8920 0.7360	METER DIFF Hg (mm) 3.2 6.4 7.9 8.8 12.7	ORFICE DIFF H2O (in.) 2.00 4.00 5.00 5.50 8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0121 1.0078 1.0057 1.0046 0.9993	0.6802 0.9589 1.0745 1.1262 1.3578	1.4258 2.0163 2.2543 2.3644 2.8515		0.9958 0.9916 0.9895 0.9884 0.9832	0.6692 0.9434 1.0571 1.1080 1.3358	0.8784 1.2422 1.3888 1.4566 1.7568
Qstd slop intercep coefficie v axis =	t (b) = ent (r) =	2.10265 -0.00335 0.99999 Pa/760)(298/5	1	Qa slop intercep coefficio v axis =	t (b) =	1.31664 -0.00206 0.99999 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 = $1/m\{ [SQRT H2O(Ta/Pa)] - b \}$



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.: C142871 證書編號

ITEM TESTED / 送檢項目 Description / 儀器名稱 : Manufacturer / 製造商 : Model No. / 型號 : Serial No. / 編號 : Supplied By / 委託者 :	(Job No. / 序引編號: IC14-0853) Integrating Sound Level Meter (EQ006) Brüel & Kjær 2238 2285762 Action-United Environmental Services an Unit A, 20/F., Gold King Industrial Build 35-41 Tai Lin Pai Road, Kwai Chung, N.	ling,
TEST CONDITIONS / 測記 Temperature / 溫度 : (23 Line Voltage / 電壓 :		Relative Humidity / 相對濕度 : (55±20)%

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 13 May 2014

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).

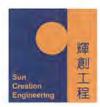
The test equipment used for calibration are traceable to National Standards via :

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

Tested By 測試	;	K C/Lee Project Engineer			
Certified By 核證	:	K M Wu Engineer	Date of Issue 簽發日期	1	15 May 2014

The sext 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.

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Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C142871 證書編號

Certificate No.

C140016

DC130171

- 1. 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.
- 2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- 3. The results presented are the mean of 3 measurements at each calibration point.
- 4. Test equipment :

Equipment IDDescriptionCL28040 MHz Arbitrary Waveform GeneratorCL281Multifunction Acoustic Calibrator

- 5. Test procedure : MA101N.
- 6. Results :
- 6.1 Sound Pressure Level
- 6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

	UUT	Setting	Applied	UUT		
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
50 - 130	LAFP	A	F	94.00	1	94.3

6.1.1.2 After Self-calibration

	UUT	Setting		Applie	d Value	UUT	IEC 60651	
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Type 1 Spec. (dB)	
50 - 130	LAFP	A	F	94.00	1	94.0	± 0.7	

6.1.2 Linearity

	UUT	Γ Setting		Applied	d Value	UUT
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
50 - 130	LAFP	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		113.9

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

本設計所載校正用之測試器材均可溯源至國際標準。局部復印本設書需先獲本實驗所書面批准。

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.



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C142871 證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

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

6.2.2 Tone Burst Signal (2 kHz)

	UUT	Setting	· · · · · · · · · · · · · · · · · · ·	App	lied Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration	Reading (dB)	Type 1 Spec. (dB)
30 - 110	LAFP	A	F	106.0	Continuous	106.0	Ref.
	LAFMax				200 ms	105.0	-1.0 ± 1.0
-	LASP		S		Continuous	106.0	Ref.
	L _{ASMax}				500 ms	102.0	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

	UUT	Setting		Appli	ed Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)
50 - 130	L _{AFP}	A	F	94.00	31.5 Hz	55.1	-39.4 ± 1.5
				63 Hz	68.0	-26.2 ± 1.5	
				125 Hz	77.9	-16.1 ± 1.0	
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	$+1.2 \pm 1.0$
					4 kHz	95.0	$+1.0 \pm 1.0$
			8 kHz	92.9	-1.1 (+1.5 ; -3.0)		
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

本意思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。

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Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C142871 證書編號

6.3.2 C-Weighting

	UUT	Setting		Appli	ed Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.4	-3.0 ± 1.5
				63 Hz	93.3	-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	91.0	-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					IEC 60804
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
30 - 110	LAcq	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
1					1. 1. 1.	1/10 ²		90	89.5	±0.5
			60 sec.	1		1/103		80	79.2	± 1.0
			5 min.			1/104		70	69.1	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2812705

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

- Uncertainties of Applied Value :	94 dB : 31.5 Hz - 125 Hz 250 Hz - 500 Hz 1 kHz 2 kHz - 4 kHz 8 kHz 12.5 kHz 104 dB : 1 kHz 114 dB : 1 kHz Burst equivalent level	: $\pm 0.35 \text{ dB}$: $\pm 0.30 \text{ dB}$: $\pm 0.20 \text{ dB}$: $\pm 0.35 \text{ dB}$: $\pm 0.45 \text{ dB}$: $\pm 0.70 \text{ dB}$: $\pm 0.10 \text{ dB}$ (Ref. 94 dB) : $\pm 0.10 \text{ dB}$ (Ref. 94 dB) : $\pm 0.2 \text{ dB}$ (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.

本意自所被校正用之測試器材均可溯源至國際標準。局部復印本意自需先獲本實驗所書面批准。

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.



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.: C142872 證書編號

ITEM TESTED / 送檢項 Description / 儀器名稱 : Manufacturer / 製造商 : Model No. / 型號 : Serial No. / 編號 : Supplied By / 委託者 :	目 (Job No. / 序引編號: IC14-0853) Integrating Sound Level Meter (EQ008 Brüel & Kjær 2238 2285690 Action-United Environmental Services Unit A, 20/F., Gold King Industrial Bui 35-41 Tai Lin Pai Road, Kwai Chung, I	and Consulting ilding,
TEST CONDITIONS / 淇		
Temperature / 溫度 : Line Voltage / 電壓 :	(23 ± 2)°C	Relative Humidity / 相對濕度 : (55 ± 20)%
TEST SPECIFICATION Calibration check	S/測試規範	
DATE OF TEST / 測試日]期 : 13 May 2014	
TEST RESULTS / 測試約	吉果	
The results apply to the pa All results are within many The results are detailed in		
The test equipment used for - The Government of The - Rohde & Schwarz Labo - Fluke Everett Service Co - Agilent Technologies, U	enter, USA	dards via : 1 Standard & Calibration Laboratory
Tested By : 測試	K C Lee Project Engineer	
Certified By : 核證		tte of Issue : 15 May 2014 F發日期

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Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C142872 證書編號

- 1. 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.
- 2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- 3. The results presented are the mean of 3 measurements at each calibration point.
- 4. Test equipment :

Equipment IDDescriptionCertificate No.CL28040 MHz Arbitrary Waveform GeneratorC140016CL281Multifunction Acoustic CalibratorDC130171

- 5. Test procedure : MA101N.
- 6. Results :
- 6.1 Sound Pressure Level
- 6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

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

6.1.1.2 After Self-calibration

	UUT Setting			Applie	d Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Type 1 Spec. (dB)
50 - 130	L _{AFP}	А	F	94.00	1	94.1	± 0.7

6.1.2 Linearity

	UU	Γ Setting		Applied Value		UUT	
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	
50 - 130	L _{AFP}	A	F	94.00	1	94.1 (Ref.)	
				104.00		104.1	
				114.00		114.0	

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

本證書所服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而批准一

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.



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C142872 證書編號

Time Weighting 6.2

Continuous Signal 6.2.1

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

Tone Burst Signal (2 kHz) 6.2.2

	UUT	Setting		Applied Value		UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration	Reading (dB)	Type 1 Spec. (dB)
30 - 110	LAFP	A	F	106.0	Continuous	106.0	Ref.
	LAFMax		1		200 ms	105.0	-1.0 ± 1.0
	LASP		S	1	Continuous	106.0	Ref.
	L _{ASMax}				500 ms	102.0	-4.1 ± 1.0

Frequency Weighting 6.3

A-Weighting 6.3.1

	UUT	Setting		Appli	ed Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)
50 - 130	LAFP	A	F	94.00	31.5 Hz	54.8	-39.4 ± 1.5
		1.00		63 Hz	67.9	-26.2 ± 1.5	
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	$+1.2 \pm 1.0$
					4 kHz	95.1	$+1.0 \pm 1.0$
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-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. 本這習所載按正用之測試器材均可溯源至國際標準。局部被印本意書需先獲本實驗所書面批准。



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C142872 證書編號

6.3.2 C-Weighting

	UUT	Setting		Appli	ed Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.2	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
	1				8 kHz	91.1	-3.0 (+1.5 ; -3.0)
					12.5 kHz	88.0	-6.2 (+3.0 ; -6.0)

6.4

Time Averaging

	UUT	Setting			Aj		UUT	IEC 60804		
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
30 - 110	LAcq	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			$1/10^{2}$		90	89.7	± 0.5
			60 sec.			1/103		80	79.8	± 1.0
			5 min.			1/104		70	69.8	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2812706

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

- Uncertainties of Applied Value :	94 dB : 31.5 Hz - 125 Hz 250 Hz - 500 Hz 1 kHz 2 kHz - 4 kHz 8 kHz 12.5 kHz 104 dB : 1 kHz	
	114 dB : 1 kHz Burst equivalent level	$\pm 0.10 \text{ dB} (\text{Ref. 94 dB})$ $\pm 0.2 \text{ dB} (\text{Ref. 110 dB})$ 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.

本證書所報授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否面批准。



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 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, of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as 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 listed in the HOKLAS Directory of Accredited Laboratories within the test category of 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 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 quality management system (see joint IAF-ILAC-ISO Communiqué). (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 : HCKLAS 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

∟ 000552



Appendix F

Event and Action Plan



Event and Action Plan for Construction Noise

E		Action		
Event	ET	IEC	ER	Contractor
Action Level	 Notify IEC and Contractor. Carry out investigation. Report the results of investigation to the IEC and Contractor. Discuss with the Contractor and formulate remedial measures Increase monitoring frequency to check mitigation effectiveness. 	 Review the analyzed result submitted by ET. Review the proposed remedial measures by the Contractor and advise the ER accordingly. Supervise the implementation of remedial measures. 	 Confirm receipt of notification of exceedance Notify Contractor Require Contractor to propose remedial measures for the analyzed noise problem Ensure remedial measures are properly implemented. 	 Submit noise mitigation proposals to IEC Implement noise mitigation proposals
Limit Level	 Notify IEC, ER, EPD and Contractor, and follow other actions Identify source Repeat measurement to confirm findings Increase monitoring frequency Check Contractor's working procedures to determine possible mitigation to be implemented Inform IEC, ER and EPD the causes and actions taken for the exceedances Assess effectiveness of Contractor's remedial actions and keep IEC, EPD, ER informed of the results If exceedance stops, cease additional monitoring 	 Discuss amongst ER, ET and Contractor on the potential remedial actions Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly Supervise the implementation of remedial measures 	 Confirm receipt of notification of exceedances Notify Contractor Require Contractor to propose remedial measures Ensure remedial measures are properly implemented 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. 	 Take immediate action to avoid further exceedance Submit proposals for remedial actions to IEC within 3 working days of notifications Implement the agreed proposals Revise and resubmit proposals if problem still not under control 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		
Event	ЕТ	IEC	ER	Contractor
Action Leve			1	1
Exceedance for one sample	 Identify source; If valid, inform IEC and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily 	 Check monitoring data submitted by ET; Check Contractor's working method. 	1. Notify Contractor	 Rectify any unacceptable practice; Amend working methods if appropriate
Exceedance for two or more consecutive samples	 Identify source; Inform IEC and EPD; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial action required; If exceedance continues, arrange meeting with IEC and ER; If exceedance stops, cease additional monitoring. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervisor implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial Measure properly implemented. 	 Submit proposals for remedial action to IEC within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
Limit Level				<u> </u>
Exceedance for one sample	 Identify source; Inform ER and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and the Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented. 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
Exceedance for two or more consecutive samples	 Notify IEC, ER, Contractor and EPD; Identify sources; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and ER to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; If exceedance stops cease additional monitoring. 	 Discuss amongst ER, ET and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly. Supervise the implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; In consultation with IEC, agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; 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 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated.



Appendix G

Monitoring Schedule



	DATE	AIR QUALITY	NOISE
		24-HOUR TSP	L _{eo} 30min
WED	1-Apr-15		
THU	2-Apr-15		
Fri	3-APR-15		
SAT	4-Apr-15		
SUN	5-Apr-15		
Mon	6-Apr-15		
TUE	7-Apr-15		
WED	8-Apr-15	✓	
THU	9-Apr-15		\checkmark
Fri	10-Apr-15		
SAT	11-Apr-15		
SUN	12-Apr-15		
Mon	13-Apr-15		
TUE	14-Apr-15	✓	✓
WED	15-Apr-15		
THU	16-Apr-15		
Fri	17-Apr-15		
SAT	18-Apr-15		
SUN	19-Apr-15		
Mon	20-Apr-15	✓	
TUE	21-Apr-15		\checkmark
WED	22-Apr-15		
THU	23-Apr-15		
Fri	24-Apr-15		
SAT	25-Apr-15	✓	
SUN	26-Apr-15		
Mon	27-Apr-15		
TUE	28-Apr-15		✓
WED	29-Apr-15		
THU	30-Apr-15	\checkmark	

Monitoring Schedule in the Reporting Period – April 2015

✓	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



	DATE	AIR QUALITY	NOISE
		24-HOUR TSP	L _{eq} 30min
Fri	1-MAY-15		
SAT	2-MAY-15		
SUN	3-MAY-15		
Mon	4-MAY-15		
TUE	5-MAY-15		\checkmark
WED	6-MAY-15	\checkmark	
Thu	7-MAY-15		
Fri	8-MAY-15		
SAT	9-MAY-15		
SUN	10-MAY-15		
Mon	11-MAY-15		
TUE	12-MAY-15	\checkmark	\checkmark
WED	13-MAY-15		
Thu	14-MAY-15		
Fri	15-MAY-15		
SAT	16-MAY-15		
SUN	17-MAY-15		
Mon	18-MAY-15	✓	
TUE	19-MAY-15		✓
WED	20-MAY-15		
Thu	21-MAY-15		
Fri	22-MAY-15		
SAT	23-MAY-15	✓	
SUN	24-MAY-15		
Mon	25-MAY-15		
TUE	26-MAY-15		
WED	27-MAY-15		✓
Thu	28-MAY-15		
Fri	29-MAY-15	✓	
SAT	30-MAY-15		
SUN	31-MAY-15		

Monitoring Schedule for the Coming Month - May 2015

✓	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



Appendix H

Database of Monitoring Results



Result of 24-hour TSP Monitoring

Location: A	ocation: A1 (balcony at 1/F of Chiu Hin Mansion)														
Date	Sample Number	Elapsed Time			Chart Reading		Ave.	Standard			Filter Weight (g)		Weight	Dust 24-hour	
		Initial	Final	Actual (min)	Min	Max	Ave	Тетр. (°С)	Ave. Press. (hPa)	Flow Rate (m ³ /min)	Air Volume (std m ³)	Initial	Final	Dust Collected (g)	TSP in Air (μg/m³)
8-Apr-15	27853	16126.90	16150.95	1443.00	39	40	39.5	21.8	1013.1	1.31	1889	2.8441	3.0317	0.1876	99
14-Apr-15	27892	16150.95	16174.47	1411.20	44	46	45.0	21.9	1013.6	1.43	2019	2.7500	2.8793	0.1293	64
20-Apr-15	27910	16174.47	16198.37	1434.00	44	46	45.0	23.7	1011.5	1.42	2042	2.7241	3.0381	0.3140	154
25-Apr-15	208953	16198.37	16222.58	1452.60	44	46	45.0	23.8	1012.6	1.42	2070	2.8038	3.0592	0.2554	124
30-Apr-15	27940	16222.58	16246.68	1446.00	42	44	43.0	24.7	1011.2	1.35	1953	2.8591	3.1338	0.2747	140

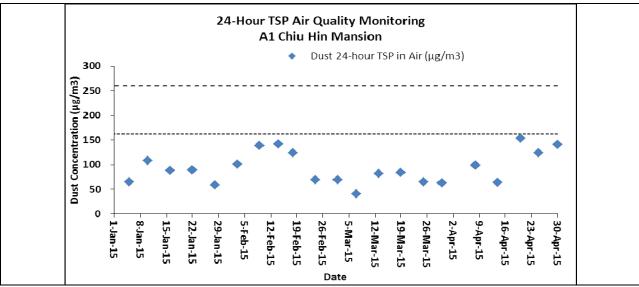


Appendix I

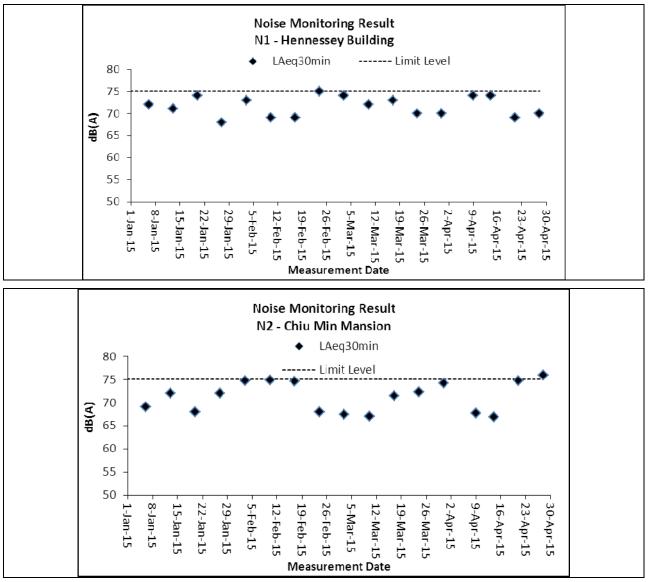
Graphical Plots



<u>Air Quality</u>



Construction Noise





Appendix J

Meteorological Information

Contract No. MTRC6593-13C – Wan Chai Station Lee Tung Street Subway 8th Environmental Monitoring and Audit Monthly Report – April 2015

		Meteorological Data downloaded from HF	KO in the F	Reporting P			
			Total			Park Station	I
Date	•	Weather	Rainfall (mm)	Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Apr-15	Wed	It will be fine. Very dry in the afternoon. Moderate north to northeasterly winds, fresh at times.	0	24.4	6.5	85.7	E/SE
2-Apr-15	Thu	Fine and very dry. Light to moderate northeasterly winds.	0	25.8	6.5	80.7	S/SW
3-Apr-15	Fri	Fine and very dry. Light to moderate northeasterly winds.	Trace	25.6	5.7	83.5	S/SW
4-Apr-15	Sat	Fine and very dry. Light to moderate northeasterly winds.	0	26.7	6.5	80	S
5-Apr-15	Sun	Fine and very dry. Light to moderate northeasterly winds.	0	25.9	8	78.2	E/SE
6-Apr-15	Mon	Fine and very dry. Light to moderate northeasterly winds.	Trace	26.2	6	78.7	W/NW
7-Apr-15	Tue	Cloudy and cooler with one or two rain patches. Moderate to fresh north to northeasterly winds.	0.1	23.7	10.5	82.2	SE
8-Apr-15	Wed	Cloudy and cooler with one or two rain patches. Moderate to fresh north to northeasterly winds.	10	18.1	10.7	73	N/NE
9-Apr-15	Thu	Cloudy with a few rain patches and relatively low visibility. Moderate east to northeasterly winds.	1.3	16.9	7.5	90	E/SE
10-Apr-15	Fri	Cloudy with a few rain patches. Moderate northeasterly winds.	0.7	17.6	5	88	E/NE
11-Apr-15	Sat	Cloudy to overcast with rain patches at first. Moderate north to northeasterly winds.	52	16.5	7.1	93.7	E/NE
12-Apr-15	Sun	Cloudy to overcast with rain patches at first. Moderate north to northeasterly winds.	0.2	19.1	6.1	80	N/NW
13-Apr-15	Mon	It will be fine. Very dry in the afternoon. Moderate north to northeasterly winds, fresh at times.	0	22.4	6.5	56.5	NE
14-Apr-15	Tue	Fine and very dry. Light to moderate northeasterly winds.	0	21	8.9	34.7	E/NE
15-Apr-15	Wed	It will be fine. Very dry in the afternoon. Light winds.	0	22.1	7	52.5	S/SW
16-Apr-15	Thu	Fine and dry. Hot in the afternoon. Light winds.	0	22.3	7.2	69	W/NW
17-Apr-15	Fri	Mainly fine. Light to moderate southeasterly winds.	0	23.8	8.2	70	S/SE
18-Apr-15	Sat	Mainly fine. Light to moderate southeasterly winds.	Trace	25.5	8.9	84.2	S/SW
19-Apr-15	Sun	Fine and dry. Hot in the afternoon. Light winds.	Trace	26.5	8	82.2	W/SW
20-Apr-15	Mon	Mainly cloudy. Moderate north to northeasterly winds, fresh at times.	0.2	25.6	7	84.7	W/NW
21-Apr-15	Tue	Mainly cloudy. Moderate north to northeasterly winds, fresh at times.	Trace	24	5.5	73.7	N/NE
22-Apr-15	Wed	Sunny periods in the afternoon. Cloudy tonight. Moderate east to northeasterly winds, fresh at times.	Trace	23.3	9	75	E/SE
23-Apr-15	Thu	Mainly fine in the afternoon. Cloudy periods tonight. Moderate easterly winds.	Trace	22.2	11.7	59.5	E/SE
24-Apr-15	Fri	Mainly fine in the afternoon. Cloudy periods tonight. Moderate easterly winds.	0	24.4	6.5	67	SE
25-Apr-15	Sat	Mainly fine in the afternoon. Moderate east to southeasterly winds.	0	23.8	8.9	83.5	E/SE
26-Apr-15	Sun	Mainly fine in the afternoon. Moderate east to southeasterly winds.	0	24	8.4	74.5	E/SE
27-Apr-15	Mon	Mainly fine in the afternoon. Moderate east to southeasterly winds.	0	24.7	7.6	74.5	SE
28-Apr-15	Tue	Mainly cloudy. Sunny intervals in the afternoon. Light to moderate southeasterly winds.	0	25.2	8.2	80.5	W/NW
29-Apr-15	Wed	Mainly cloudy. Moderate southerly winds.	0	26.5	6.5	81	W/NW
30-Apr-15	Thu	Mainly sunny during the day and becoming cludy overnight. Moderate south to southeasterly winds.	0	27.6	6	79	W/NW



Appendix K

Monthly Summary Waste Flow Table

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

Monthly Summary Waste Flow Table for 2015

Name of Emp	ne of Employer: MTR Corporation Limited												Contract No.: C65931-13C				
				Actual Quantitie	s of Inert C&D	Materials Ge	nerated Month	ly			Actual Quantities of Non-Inert C&D Wastes Generated Monthly						
Month	Total Quantity	Broken Concrete	Building Debris	Mixed Rock & Soil	Bentonite	Rubbish	Slurry	Rock	Soil	Reused in this Project	Metals	Paper/ cardboard	Plastics	Chemical Waste	Others, e.g. general		
	(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 m3/ Litre)	(in m ³)		
Jan	1.69784	0	0	0	0	0	0	0	1.69784	0	0	0	0	0	0.0009		
Feb	1.14858	0	0	0	0	0	0	0	1.14848	0	0	0	0	0	0.0001		
Mar	1.65921	0	0	0	0	0	0	0	1.65921	0	0	0	0	0	0.0009		
Apr	0.07772	0.06172	0	0	0	0	0	0	0.016	0	0	0	0	0	0.04404		
Мау	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total	4.58335	0.06172	0	0	0	0	0	0	4.52153	0	0	0	0	0	0.04594		



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 IM	NOISE IMPACT								
S.5.1.1	Use of quieter plant	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> 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; 	to on or ks he pe to se its of	Contractor	Work site	Construction Stage	ProPECC PN2/93, Noise Control Ordinance and EIAO Guidance Note NO. 9/2010			
	 noise enclosure can achieve 15dB(A) reduction for FME, 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.								
S.5.1.1	 General Construction Noise Control Measures 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			

Contract No. MTRC6593-13C – Wan Chai Station Lee Tung Street Subway 8th Environmental Monitoring and Audit Monthly Report – April 2015

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
	• 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 QUAI	LITY IMPACT		1			
S.5.1.2	Construction Dust Control Measures	To minimize the dust impacts arising from the construction works	Contractor	Work site	Construction Stage	Air Pollution Control (Construction Dust) Regulation
	• 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					

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Project Profile Ref.	Recommended Mitigation Measures UALITY IMPACT	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	
S.5.1.3		To reduce water	Contractor	Work site	Construction	ProPECC PN1/94;	
5.5.1.5	 <u>Construction Water Quality Impact Measures</u> Collection of wastewater into a sedimentation tank for treatment before discharge into the public drainage system; 	quality impact induced by the construction work	Contractor	work site	Construction Stage	Water Pollution Control Ordinance	
	• 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.						
WASTE M	ANAGEMENT						
S.5.1.4	Construction Waste Management Measures	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	
	• 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;		of avoiding, ninimizing, reusing				Disposal (Chemical Waste) (General)
	• 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;				Regulation; DEVB TCW No. 6/2010; ETWB TCW No. 19/2005.		
	• Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes; and						

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
	• 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.					
LANDSCA	PE AND VISUAL IMPACT				•	
S.5.1.5	 Landscape and Visual Measures Clear demarcation of works area to prevent damages to existing trees in close proximity; 	To reduce landscape and visual impact by construction works.	Contractor	Work Site and nearby playground	Construction Stage	EIAO; ETWB TCW No. 3/2006.
	• 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 colours.					