AUES PROJECT NO. TCS/00704/14

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

FINAL ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REVIEW REPORT

PREPARED FOR
BUILD KING CONSTRUCTION LIMITED

Quality Index Date	Reference No.	Prepared By	Certified by
16 July 2018	TCS00704/14/600/R0204v3	Martin Li Assistant Environmental Consultant	T.W. Tam Environmental Team Leader

Version	Date	Description
1	22 June 2018	First submission
2	9 July 2018	Amended against IEC's comment
3	16 July 2018	Amended against IEC's comment

AECOM
8/F, Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, Hong Kong
香港新界沙田鄉事會路 138 號新城
市中央廣場第 2 座 8 樓
www.aecom.com

+852 3922 9000 tel
+852 3922 9797 fax

Your Ref:
Our Ref: 60453136.40032976/2018000354E

By Email and Post

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

Attn.: Mr. Alfa Liu

20 July 2018

Dear Sirs,

Consultancy Agreement A130-13
Independent Environmental Checker for CRS and LTS
LTS - Verification for Final Environmental Monitoring and Audit (EM&A) Review Report (Report No.: TCS00704/14/600/R0204v3)

We refer to the Final EM&A Review Report received under cover of the email from the Environmental Team, AUES, dated on 29 June 2018.

Further to our comments provided on 4 July 2018 and 11 July 2018 and subsequent revisions of the Report by AUES on 9 July 2018 and 16 July 2018, we have no further comment and have verified the captioned report (Report No.: TCS00704/14/600/R0204v3).

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

Yours faithfully
AECOM Consulting Services Ltd

Y. W. Fung
Independent Environmental Checker

LLMC/wwsc

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

EXECUTIVE SUMMARY

ES.01. **BUILD KING CONSTRUCTION LIMITED** (hereinafter 'BKCL') 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").

ES.02. 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.

ES.03. 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 EM&A plan. 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 BKCL. Accordingly, relevant EM&A programme was started on 28 August 2014.

ES.04. As informed by the Contractor (Build King Construction Limited), the major civil works of the project will be substantially completed on 31 December 2017 and part of the ground site area would be returned to related government department on 2 January 2018. In view of the remaining landscape work would not arising adverse dust and noise impact, termination of all monitoring locations was proposed to be effective from 1 January 2018. In this regards, an associated letter ref. TCS00704/14/300/L0184 date 29 December 2017 has been issued for approval and no adverse comment was received. Therefore, no air and noise monitoring was carried out since January 2018.

ES.05. During the joint site audit with MTRC and IEC on 27 February 2018, it was confirmed that the major construction work were completed and there were no adverse environmental issues observed. In view of the remaining landscape work would not arising adverse environmental impact, termination of EM&A programme was proposed to be effective from 15 March 2018. In this regards, an associated letter ref. TCS00704/14/300/L0200 date 13 March 2018 was issued for approval and no adverse comment was received.

ES.06. This is the Final EM&A Review Report for the Construction Phase under EP-444/2012 which summarises the key environmental monitoring results throughout the construction phase between 28th August 2014 and 14th March 2018 (hereinafter the "Construction Phase").

ES.07. The impact EM&A programme was undertaken in accordance with the relevant EM&A Plan. A summary of the monitoring activities in the Construction Phase is listed in the following table:

Aspects	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	24-Hour TSP	212 events
Construction Noise	$L_{eq(30min)}$ Daytime	348 events
Regular Weekly Site Inspection	ET, the Contractor and MTRC Representative joint site environmental inspection and auditing	183 events

ES.08. In this Construction Period, no exceedance was recorded in air quality and construction noise monitoring. The summary of breaches of all environmental performance is shown below.

Parameter		Total Monitoring Occasions	Number of Exceedances				Source of Exceedances
			A/L		L/L		
			Number	%	Number	%	
Air Quality	24-Hr TSP	212	0	0	0	0	N/A
Noise	Leq (30min)	348	0	0	0	0	N/A

ES.09. Monitoring results in general consistently fluctuated below the corresponding A/L Levels, implying the implemented EM&A program for air quality and construction noise was effective to generate data carrying necessary statistical power to reflect ambient environmental trends of the area throughout the whole construction period of the Project.

ES.10. No works-related exceedances were registered during the construction period of the Project, indicating no adverse environmental impacts of air quality and construction noise was generated from the construction activities under the Project.

ES.11. One noise complaint was received in March 2017 during the Construction Phase. Also, there were no documented notifications of summons and successful prosecutions received during the Construction Phase.

ES.12. In general, monitoring results indicated that the implemented environmental mitigation measures were effective to alleviate adverse environmental impacts generated from the construction of the Project, confirming that the predictions in project profile on the environmental impacts and the associated recommendations on the environmental mitigation measures were precise.

ES.13. The management of liquid and solid waste generated from the construction under the Project complied with the liquid and solid waste regulations or guidelines as well as the Contractor's Environmental Management Plan and the associated Waste Management Plan approved by the Engineer prior to implementation.

ES.14. The environmental protection performance of the construction works under the Project was in general satisfactory.

TABLE OF CONTENTS

1 INTRODUCTION 1
PROJECT BACKGROUND 1
2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS 2
PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE 2
WORKS UNDERTAKEN DURING THE CONSTRUCTION PHASE 2
SUMMARY OF ENVIRONMENTAL SUBMISSIONS 2
3 SUMMARY OF IMPACT MONITORING REQUIREMENTS 4
MONITORING PARAMETERS 4
MONITORING LOCATIONS 4
MONITORING FREQUENCY 4
MONITORING EQUIPMENT 5
QUALITY ASSURANCE PROCEDURES AND DATA MANAGEMENT 7
ENVIRONMENTAL QUALITY PERFORMANCE LIMITS 7
EVENT ACTION PLAN 7
ENVIRONMENTAL MITIGATION MEASURES 7
4 MONITORING RESULTS AND DISCUSSION 8
24-HOUR TSP AIR QUALITY MONITORING 8
CONSTRUCTION NOISE MONITORING 8
DISCUSSION 9
5 WASTE MANAGEMENT 11
6 SITE INSPECTIONS 12
7 NON-COMPLIANCE, ENVIRONMENTAL COMPLAINT, NOTIFICATIONS OF SUMMONS AND PROSECUTION 13
NON-COMPLIANCE 13
ENVIRONMENTAL COMPLAINT 13
NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS 13
8 IMPLEMENTATION STATUS OF MITIGATION MEASURES 14
9 CONCLUSIONS 15

LIST OF TABLES

TABLE 2-1 STATUS OF ENVIRONMENTAL LICENSES AND PERMITS
TABLE 2-2 SUBMISSIONS STATUS UNDER EP REQUIREMENTS
TABLE 3-1 SUMMARY OF EM&A IMPACT MONITORING REQUIREMENTS
TABLE 3-2 AIR AND NOISE MONITORING LOCATIONS
TABLE 3-3 AIR QUALITY MONITORING EQUIPMENT
TABLE 3-4 CONSTRUCTION NOISE MONITORING EQUIPMENT
TABLE 3-5 ACTION AND LIMIT LEVELS FOR AIR QUALITY MONITORING
TABLE 3-6 ACTION AND LIMIT LEVELS FOR CONSTRUCTION NOISE
TABLE 4-1 AIR QUALITY MONITORING RESULTS AT A1
TABLE 4-2 AIR QUALITY MONITORING RESULTS AT A1A
TABLE 4-3 SUMMARY OF THE 24-HOUR TSP AIR QUALITY ACTION/LIMIT LEVEL EXCEEDANCES
TABLE 4-4 CONSTRUCTION NOISE MONITORING RESULTS AT N1, dB(A)
TABLE 4-5 CONSTRUCTION NOISE MONITORING RESULTS AT N2, dB(A)
TABLE 4-6 CONSTRUCTION NOISE MONITORING RESULTS AT N2A, dB(A)
TABLE 4-7 SUMMARY OF THE CONSTRUCTION AIR AND NOISE ACTION/LIMIT LEVEL EXCEEDANCES
TABLE 5-1 SUMMARY OF QUANTITIES OF INERT C&D MATERIALS
TABLE 5-2 SUMMARY OF QUANTITIES OF C&D WASTES
TABLE 6-1 SUMMARY OF THE NUMBER OF FINDINGS/DEFICIENCIES OBSERVED IN THE CONSTRUCTION PERIOD
TABLE 7-1 STATISTICAL SUMMARY OF ENVIRONMENTAL COMPLAINTS
TABLE 7-2 STATISTICAL SUMMARY OF ENVIRONMENTAL SUMMONS
TABLE 7-3 STATISTICAL SUMMARY OF ENVIRONMENTAL PROSECUTION
TABLE 8-1 ENVIRONMENTAL MITIGATION MEASURES
TABLE 9-1 SUMMARY OF EXCEEDANCES OF A/L LEVELS

LIST OF APPENDICES

APPENDIX A PROJECT SITE LAYOUT PLAN
APPENDIX B PROJECT ORGANIZATION STRUCTURE AND CONTACT DETAILS OF RELEVANT PARTIES
APPENDIX C A MASTER CONSTRUCTION PROGRAM
APPENDIX D MONITORING LOCATIONS
APPENDIX E EVENT AND ACTION PLAN
APPENDIX F IMPLEMENTATION SCHEDULE FOR ENVIRONMENTAL MITIGATION MEASURES (ISEMM)
APPENDIX G GRAPHICAL PLOT OF NOISE MONITORING RESULTS.
APPENDIX H MONTHLY SUMMARY WASTE FLOW TABLE

1 INTRODUCTION

Project Background

1.01 **BUILD KING CONSTRUCTION LIMITED** (hereinafter 'BKCL') 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 Action-United Environmental Services and Consulting (AUES) has been commissioned by the BKCL as the independent environmental team (ET) to implement the relevant EM&A programme for the Project.

1.04 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 BKCL. Accordingly, relevant EM&A programme was started on 28 August 2014.

1.05 As informed by the Contractor (Build King Construction Limited), the major civil works of the project will be substantially completed on 31 December 2017 and part of the ground site area would be returned to related government department on 2 January 2018. In view of the remaining landscape work would not arising adverse dust and noise impact, termination of all monitoring locations was proposed to be effective from 1 January 2018. In this regards, an associated letter ref. TCS00704/14/300/L0184 date 29 December 2017 has been issued for approval and no adverse comment was received. Therefore, no air and noise monitoring was carried out since January 2018.

1.06 During the joint site audit with MTRC and IEC on 27 February 2018, it was confirmed that the major construction work were completed and there were no adverse environmental issues observed. In view of the remaining landscape work would not arising adverse environmental impact, termination of EM&A programme was proposed to be effective from 15 March 2018. In this regards, an associated letter ref. TCS00704/14/300/L0200 date 13 March 2018 was issued to EPD for approval and no adverse comment was received.

1.07 This is the Final EM&A Review Report for the Construction Phase under EP-444/2012 which summarises the key environmental monitoring results throughout the construction phase between 28th August 2014 and 14th March 2018 (hereinafter the "Construction Phase").

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

Project Organization and Management Structure

2.01 Organization structure and contact details of relevant parties with respect to on-site environmental management are shown in ***Appendix B***.

Works Undertaken During the Construction Phase

2.02 The master construction program is enclosed in ***Appendix C***.

Summary of Environmental Submissions and Submissions under EP Requirement

2.03 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in ***Table 2-1***. Summary of submissions under EP Requirement is presented in ***Table 2-2.***

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air pollution Control (Construction Dust) Regulation	Notified EPD.
2	Chemical Waste Producer Registration	WPN:5213-131-K3099-01 Approved on 14/05/2014
3	Water Pollution Control Ordinance	License no.: WT00019539-2014 Approved on 16/07/2014 Valid to: 31/07/2019
		License no.: WT00022835-2015 (superseded Discharge License no.: WT00019539-2014) Approved on 6/11/2015 Valid to: 31/07/2018
4	Waste Disposal Regulation	Account no.: 7019837 Approved on 30/04/2014
5	Construction Noise Permit	Permit No. GW-RS0290-15
6		Permit No. GW-RS1453-14
7		Permit No. GW-RS1249-14
8		Permit No. GW-RS0600-15
9		Permit No. GW-RS0656-15
10		Permit No. GW-RS0923-15
11		Permit No. GW-RS0970-15
12		Permit No. GW-RS0164-16
13		Permit No. GW-RS0165-16
14		Permit No. GW-RS0530-16
15		Permit No. GW-RS0928-16
16		Permit No. GW-RS0929-16
17		Permit No. GW-RS1213-16
18		Permit No. GW-RS0197-17
19		Permit No. GW-RS0190-17
20		Permit No. GW-RS0512-17
21		Permit No. GW-RS0750-17

Table 2-2 Submissions Status under EP Requirements

EP Condition	Submission	Status
2.3	Management Organization of Main Construction Companies	Submitted
2.7	Landscape Plan	Submitted
2.9	Fixed Plant Noise Audit Report	Submitted
3.3	Baseline Monitoring Report (*TCS00704/14/600/R0010v4*)	Submitted
4.2	Internet website	live
3.1	Termination of Air Quality and Noise Monitoring	Submitted
3.1	Termination of EM&A Programme	Submitted

3 SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.01 The ET was 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*** as below.

Table 3-1 Summary of EM&A Impact Monitoring 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:
(*) In case 24-hour TSP exceed the air quality criteria to be carried out

Monitoring Locations

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

3.05 However, dust monitoring station A1 and noise monitoring station N2 at Chiu Hin Mansion were removed on 8 March 2017 as per the apartment owner's request and are no longer available as dust and noise monitoring station, alternative locations A1a and N2a were proposed to EPD. Dust and noise monitoring originally at A1 and N2 were carried out at the proposed alternative locations A1a and N2a starting from 14 March 2017. The monitoring stations proposed for the Project are summarized in ***Table 3-2*** and illustrated in ***Appendix D***.

Table 3-2 Air and Noise Monitoring Locations

Aspect	Monitoring Location	Location ID	Address	Description
Air Quality	Chiu Hin Mansion	A1	balcony at 1/F of Chiu Hin Mansion	ASR close to the Project site
	Site area	A1a	Southern Playground works area	Within the Project site
Construction Noise	Hennessey Building	N1	2/F floor of Hennessey Building	NSR facing to the Project site
	Chiu Hin Mansion	N2	balcony at 1/F of Chiu Hin Mansion	NSR facing to the Project site
	Chiu Hin Mansion	N2a	Rooftop of Chiu Hin Mansion	NSR facing to the Project site

Monitoring Frequency

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

Air Quality

3.07 Frequency of impact air quality monitoring:

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

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

Construction Noise

3.09 One set of Leq(30min) as 6 consecutive Leq(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 Leq(5min) measurement will be depended on CNP requirements to undertake. Supplementary information for data auditing, statistical results such as L10 and L90 shall also be obtained for reference.

Monitoring Equipment

Air Quality Monitoring

3.10 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.

3.11 The filter paper sample collected in 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory. All equipments to be used for air quality monitoring are listed in ***Table 3-3***.

Table 3-3 Air Quality Monitoring Equipment

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

3.12 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.

3.13 Although ET was successful granted HVS installation premises, the owners rejected to install wind data monitoring equipment.

3.14 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.

3.15 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

3.16 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.

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

Table 3-4 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	B&K Type 2238 / Rion NL-31
Calibrator	B&K Type 4231/ Rion NC-74/ Cesva CB-5
Portable Wind Speed Indicator	Testo Anemometer

Monitoring Procedure

24-hour TSP

3.18 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

3.19 The HVS is calibrated in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). The 24-hour TSP monitoring using the HVS is also processed in accordance with the manufacturer's Operations Manual. All calibration certificates of HVS were reported in monthly reports.

3.20 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 25oC, for six months prior to disposal. HOKLAS-accreditation certificate of ALS Technichem (HK) Pty Ltd (ALS) were reported in monthly reports.

Noise

3.21 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). All calibration certificates of sound level meters were reported in monthly reports.

3.22 The noise measurement is performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq). Leq(30min) in six consecutive Leq(5min) measurements were used as the monitoring parameter.

3.23 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 N2a are conducted 1 m from the exterior of the building façade.

3.24 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.

Quality Assurance Procedures and Data Management

3.25 The all monitoring data were handled by the ET's in-house data recording and management system.

3.26 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.

3.27 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.

Environmental Quality Performance Limits

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

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

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

Table 3-6 Action and Limit Levels for Construction Noise

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

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

Event Action Plan

3.29 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in ***Appendix E***.

Environmental Mitigation Measures

3.30 The Implementation Schedule for Environmental Mitigation Measures (ISEMM) such as air quality, construction noise, water quality and landscape & visual, as recommended by the Project Profile has been shown in ***Appendix F***.

3.31 In the event of complaints, or non-compliance / area of improvement is observed, the ET and the Contractor should be responsible for reviewing the effectiveness of these mitigation measures and for proposing to the Project Manager for approval, designing and implementing alternative or additional mitigation measures as appropriate.

4 MONITORING RESULTS AND DISCUSSION

4.01 Air Quality and construction noise monitoring results obtains during the construction phase of EM&A programme from 1st August 2014 and 14th March 2018 are graphically presented in ***Appendix G***. The meteorological information during the construction phase impact monitoring were summarized in the submitted Monthly EM&A reports.

24-Hour TSP Air Quality Monitoring

4.02 24-Hour TSP air quality monitoring was carried out at location A1 from 28th August 2014 to 13th March 2017 and at location A1a from 14th March 2017 to 31st December 2017.

Monitoring Results

4.03 A summary of the monitoring results and breaches of air quality A/L Levels during the Construction Phase are summarized in ***Table 4-1, 4-2 and 4-3***. The graphic plots of the monitoring results for both A1 and A1a are shown in ***Appendix G***.

Table 4-1 Air Quality Monitoring Results at A1 (μg/m³)

Time Period	A1			
	Min	Max	Mean	Total Events
2014	23	144	86	26
2015	13	154	71	63
2016	17	162	57	64
2017*	55	127	55	11

*From 1st January 2017 to 13th March 2017

Table 4-2 Air Quality Monitoring Results at A1a (μg/m³)

Time Period	NM2			
	Min	Max	Mean	Total Events
2017*	5	160	61	52

*From 14th March 2017 to 31st December 2017

Table 4-3 Summary of the 24-Hour TSP Air Quality Action/Limit Level exceedances

Location	Action Level Exceedance	Limit Level Exceedance	Total Exceedance
A1	0	0	0
A1a	0	0	

Construction Noise Monitoring

4.04 Construction noise monitoring had been carried out at location N1 from 28th August 2014 to 31st December 2017, at location N2 from 28th August 2014 to 13th March 2017 and at location N2a from 14th March 2017 to 31st December 2017.

Monitoring Results

4.05 A summary of the monitoring results and breaches of noise A/L Levels during the Construction Phase are summarized in ***Table 4-4, 4-5, 4-6 and 4-7***. The graphic plots of the monitoring results for both N1, N2 and N2a are shown in ***Appendix G***.

Table 4-4 Construction Noise Monitoring Results at N1, dB(A)

Time Period	N1 (Leq30min)			
	Min	Max	Mean	Total Events
2014	67	74	70	18
2015	66	77 (#70)	73	52
2016	65	75	71	52
2017	69	75	71	52

#Adjusted noise measurement results due to high background noise was recorded during the baseline noise monitoring

Table 4-5 Construction Noise Monitoring Results at N2, dB(A)

Time Period	N2 (Leq30min)			
	Min	Max	Mean	Total Events
2014	66	76 (#74)	73	18
2015	66	76 (#74)	71	52
2016	67	75	71	52
2017*	69	72	70	10

*From 1st January 2017 to 13th March 2017

#Adjusted noise measurement results due to high background noise was recorded during the baseline noise monitoring

Table 4-6 Construction Noise Monitoring Results at N2a, dB(A)

Time Period	N2a (Leq30min)			
	Min	Max	Mean	Total Events
2017*	69	75	73	42

*From 14th March 2017 to 31st December 2017

Table 4-7 Summary of the Construction Noise Action/Limit Level exceedances

Location	Action Level Exceedance	Limit Level Exceedance	Total Exceedance
N1	0 (Noise complaint)	0	0
N2		0	
N2a		0	

4.06 During the Construction Phase, no environmental complaint against construction noise within 0700-1900 hours on normal weekdays was registered, indicating no Action Level exceedance was documented. Most of the construction noise measurements were below 75dB(A) for N1, N2 and N2a. Some of the noise measurement results higher than 75 dB(A) were adjusted due to high background noise was recorded during the baseline noise monitoring so the measured result were below 75dB(A). Neither NOE nor the associated remedial actions were required for construction noise during the Construction Period.

Discussion

4.07 As stated in the Project Profile, it is predicted that with implementation of the recommended environmental mitigation measures, adverse environmental impacts can be eliminated or mitigated to acceptable levels, i.e. levels of the measured parameters will not exceed the environmental quality performance criteria (i.e. A/L Levels) as stipulated and summarized in the EM&A Plan. As shown in Table 4-4, there were no 24-Hour TSP A/L Levels exceedance recorded at the designated monitoring location throughout the construction phase. Although several noise measurement result higher than 75 dB(A) were recorded, the corresponding calculated construction noise levels based on the average background noise obtained from the baseline noise monitoring did not exceeded 75dB (A) and therefore not considered as exceedances. In comparison with the prediction from Project Profile and the compliance of the Project with the environmental quality performance criteria (i.e. A/L Levels) demonstrated that the prediction from Project Profile was in general precise: the monitoring results in general consistently fluctuated below the corresponding A/L Levels, with occasional higher peaks synchronizing with the peak period of the construction activities and the variations of the ambient conditions, such as the traffic noise and adverse weather condition.

4.08 According to the Project Profile Section 5.1.1 and Table 5.4, the predicted construction noise level with provided mitigation measures during the construction phase at N1 Hennessy Building is 57dB(A) – 67 dB(A) and at N2 Chiu Hin Mansion is 61dB(A) - 75dB(A). Compared with the prediction of construction noise level, the measured impact noise levels at N1 were all above the predicted noise level while at N2/N2a are within the predicted noise level (i.e. 61 dB(A) to 75 dB(A) throughout the construction phase. The measured construction noise level higher than the predicted construction noise level at N1 may due to the traffic noise generated from Lockhart Road. With the absence of exceedance on construction noise it implies that the implemented environmental mitigation measures were effective to alleviate adverse environmental impacts generated from the

construction of the Project. Therefore, the prediction from Project Profile and the environmental mitigation measures recommended in the Project Profile are proven to be precise and cost-effective.

4.09 The monitoring results carried necessary statistical power to categorically identify or confirm the absence of adverse environmental impacts attributable to the works throughout the whole construction phase of the Project. The implemented EM&A program and the associated methodology for air quality and construction noise are therefore considered effective.

4.10 In comparison with the baseline monitoring data and the trends of graphical plots of the monitored parameters construction noise, the return of the ambient environmental conditions was evident along the whole construction phase.

4.11 In conclusion, the overall effectiveness of EM&A programme and the efficiency of recommended mitigation measures from the Project Profile are cost-effective. With the implementation of the mitigation measures by the Contractor, the monitored parameters fluctuated below the corresponding A/L Levels and no exceedance of construction noise was recorded during the construction phase. Hence, the prediction from Project Profile are proven to be cost-effective and no shortcoming in the EIA was found.

5 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 Where possible, construction materials should be reused on-site as far as practicable to reduce the construction waste, which should then be sorted or classified on site for proper recycling and disposal as recommended in the Environmental Management Plan and the associated Waste Management Plan.

5.04 The quantities of waste for disposal in this Construction Phase are summarized in ***Tables 5-1*** and ***5-2*** and the Monthly Summary Waste Flow Table is shown in ***Appendix H***. Whenever possible, materials were reused on-site as far as practicable.

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

Type of Waste	Quantity						Disposal Location
	2014	2015	2016	2017	2018	Total	
Total C&D Materials (Inert & Non-Inert) ('000m^3)	3.0713	7.12317	3.62648	1.0441	0	14.86505	TKO 137
Reused in this Contract (Inert) ('000m^3)	0	0	0	0	0	0	Nil
Reused in other Projects (Inert) ('000m^3)	0	0	0	0	0	0	Nil
Disposal as Public Fill (Inert) ('000m^3)	3.0713	7.12317	3.62648	1.0441	0	14.86505	TKO 137

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

Type of Waste	Quantity						Disposal Location
	2014	2015	2016	2017	2018	Total	
Metals ('000kg)	0	0	0	0	0	0	Nil
Paper / Cardboard Packing ('000kg)	0	0	0	0	0	0	Nil
Plastics ('000kg)	0	0	0	0	0	0	Nil
Chemical Wastes ('Litre	0	0	1.2	0	0	1.2	Nil
General Refuses ('000m^3)	0.00962	0.1332	0.012	0.20175	0	0.35657	SENT

6 SITE INSPECTIONS

6.01 According to the Environmental Monitoring and Audit Plan, weekly environmental site inspections was carried out by ET joined with the Contractor and ER to confirm the environmental performance.

6.02 During the Construction Phase, 183 events of joint site inspections were undertaken by the MTRC, Contractor and ET to evaluate the site environmental performance. No adverse environmental impacts were registered, indicating that mitigation measures implemented were effective and sufficient for the construction activities undertaken. Minor deficiencies found during site inspections and audit were rectified by specified deadlines. The site inspection checklists can be found in their relevant EM&A monthly reports. A statistical summary of the frequency of reminders and deficiencies observed is shown in ***Table 6-1***.

Table 6-1 Summary of the number of findings/deficiencies observed in the Construction Phase

Number of Findings in the Month	**2014**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Count
	-	-	-	-	-	-	-	3	8	9	3	5	23
Number of Findings in the Month	**2015**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Count
	3	1	2	4	5	5	6	6	4	4	2	7	42
Number of Findings in the Month	**2016**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Count
	2	3	7	6	6	7	6	4	5	4	5	6	55
Number of Findings in the Month	**2017**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Count
	8	7	1	3	5	8	9	7	4	3	3	3	58
Number of Findings in the Month	**2018**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Count
	2	0	0	-	-	-	-	-	-	-	-	-	2

Remark: Repeated items are not added up in the table.

6.03 According to Table 6-1, the average findings/deficiencies observed in the Construction Phase was 4.57 per month and 1.10 per week. All deficiencies were generally rectified within the specified deadlines.

7 NON-COMPLIANCE, ENVIRONMENTAL COMPLAINT, NOTIFICATIONS OF SUMMONS AND PROSECUTION

Non-Compliance

7.01 No non-compliance was identified during regular site inspection and environmental audit. No associated remedial actions were recommended.

Environmental Complaint

7.02 During the Construction Phase, one environmental complaint was received in March 2017 during the Construction Phase. Summary of environmental complaint is presented in ***Table 7-1*** below.

Table 7-1 Statistical Summary of Environmental Complaints

Time Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
2014	0	0	N/A
2015	0	0	N/A
2016	0	0	N/A
2017	1	1	N/A
2018	0	1	N/A

Notifications of Summons and Successful Prosecutions

7.03 No notifications of summons and successful prosecutions were recorded during the Construction Phase. No associated remedial actions were recommended. Summary of environmental summons and prosecutions are presented in ***Table 7-2 & 7-3*** below.

Table 7-2 Statistical Summary of Environmental Summons

Time Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
2014	0	0	N/A
2015	0	0	N/A
2016	0	0	N/A
2017	0	0	N/A
2018	0	0	N/A

Table 7-3 Statistical Summary of Environmental Prosecution

Time Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
2014	0	0	N/A
2015	0	0	N/A
2016	0	0	N/A
2017	0	0	N/A
2018	0	0	N/A

8 IMPLEMENTATION STATUS OF MITIGATION MEASURES

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 F.***

8.02 The Contractor had been implementing the required environmental mitigation measures according to the Environmental Monitoring and Audit Plan. Environmental mitigation measures implemented during the Construction Period are summarized in ***Table 8-1***.

Table 8-1 Environmental Mitigation Measures in the Construction Phase

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

9 CONCLUSIONS

9.01 During the joint site audit with MTRC and IEC on 27 February 2018, it was confirmed that the major construction work were completed and there were no adverse environmental issues observed. In view of the remaining landscape work would not arising adverse environmental impact, termination of EM&A programme was proposed to be effective from 15 March 2018. In this regards, an associated letter ref. TCS00704/14/300/L0200 date 13 March 2018 was issued to EPD for approval and no adverse comment was received.

9.02 ***Table 9-1*** summarizes the exceedances of the A/L Levels recorded during the Construction Phase of the Project.

Table 9-1 Summary of Exceedances of A/L Levels

Parameter		Total Monitoring Occasions	Number of Exceedances				Source of Exceedances
			A/L		L/L		
			Number	%	Number	%	
Air Quality	24-Hr TSP	212	0	0	0	0	N/A
Noise	Leq (30min)	348	0	0	0	0	N/A

9.03 The overall effectiveness of EM&A programme and the efficiency of recommended mitigation measures from the Project Profile are cost-effective and precise. With the implementation of the mitigation measures by the Contractor, the monitored parameters fluctuated below the corresponding A/L Levels and no exceedance of air quality and construction noise was recorded during the construction phase. Furthermore, no non-compliance with regard to air quality, water quality and landscape and visual were recorded during the regularly site inspection and audit throughout the construction phase. Hence, the prediction from Project Profile are proven to be cost-effective and no shortcoming in the Project Profile was found.

9.04 During the Construction Phase, there were no notifications of summons and successful prosecutions was recorded. However, one environmental complaint about noise nuisance arising from the construction site on 13 March 2017 was received.

9.05 In the Construction Phase, there were no incidence of non-compliance recorded by the ET, and 201 observations of minor deficiencies were found during regular site inspections or monthly site audits. The average deficiencies per month is 4.57 and the average deficiencies found per week is 1.10. All deficiencies were generally rectified within the specified deadlines.

END OF TEXT

Appendix A

Project Site Layout Plan

現有港鐵灣仔站
EXISTING WAC STATION

擬建利東街行人隧道
PROPOSED LEE TUNG STREET SUBWAY

市區重建局H15區A工地
URA H15 SITE A

修頓遊樂場
SOUTHORN PLAYGROUND

鐵路區
RAILWAY AREA

軒尼詩大樓
HENNESSY BUILDING

協生大廈
HIP SANG BUILDING

越興大廈
YUE HING BUILDING

華寧大廈
WARNER BUILDING

昭憲大廈
CHIU HIN MANSION

春暉大廈
CHUN FAI BUILDING

THOMSON ROAD

JOHNSTON ROAD
莊士敦道

LOCKHART ROAD
駱克道

JAFFE ROAD

O'BRIEN ROAD

LUARD ROAD
盧押道

STONE NULLAH LANE
石水渠街

CROSS STREET
交加街

TAI YUEN STREET
太原街

SPRING GARDEN LANE
春園街

LEE TUNG STREET

AMOY STREET
廈門街

SWATOW STREET
汕頭街

SAM PAN STREET
三板街

WIP Jul 2010

0 5 10 15 20 25
METRES
1 : 1000

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

DRAWN	HO
DESIGNED	BW
CHECKED	BL
APPROVED	AFK
DATE	04MAY2011

MTR

WAC STATION LEE TUNG STREET SUBWAY

ORIGINATOR

Mott MacDonald
20/F Two Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk

CADD REF. NEX1050_2.7A_001D.dgn

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

SCALE 1:1000 (A3)

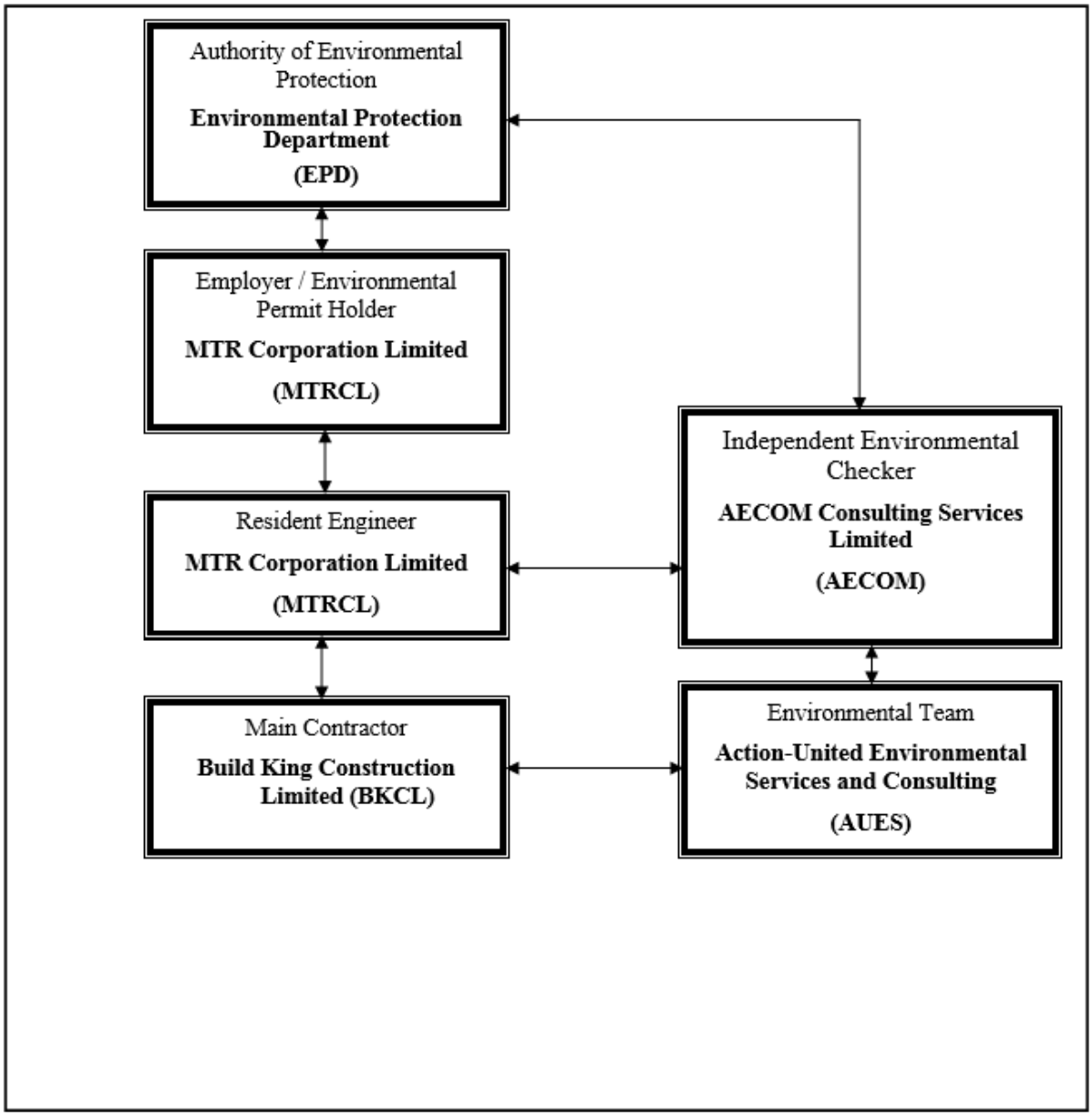
DRAWING NO. NEX1050/2.7A/001

REV. D

PLOT DRV: C:\Programdata\Bentley\MicroStation V8i\SELECTSeries\WorkSpace\System\pltcfg\MTR_PDF_BW_COL_300DPI.plt
MODELNAME: Default
FILENAME: J:\282435\REPORT\LEW\PPT\20120516\NEX1050_2.7A_000.dgn
PRINTED BY: hos7494 20/06/2012 10:35:06

Appendix B

Project Organization Structure and Contact Details of Relevant Parties


Authority of Environmental Protection
Environmental Protection Department
(EPD)
Employer / Environmental Permit Holder
MTR Corporation Limited
(MTRCL)
Resident Engineer
MTR Corporation Limited
(MTRCL)
Main Contractor
Build King Construction Limited (BKCL)
Independent Environmental Checker
AECOM Consulting Services Limited
(AECOM)
Environmental Team
Action-United Environmental Services and Consulting
(AUES)

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
MTRCL	Senior Construction Engineer	Mr. Sky Yip	3163 8630	3163 8699
AECOM	Independent Environmental Checker	Mr. Y. W. Fung	3922 9366	3922 9797
KCL	Project Manager	Mr. Vincent, Kwan Chun Yin	9833 1313	2770 4278
KCL	Site Agent	Mr. Chan Kam Chuen	6462 8910	2770 4278
KCL	Environmental Officer	Ms. Ricci Poon Wai Tin	9533 1115	2770 4278
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Mr. Ben Tam	2959 6059	2959 6079
AUES	Assistant Environmental Consultant	Mr. Martin Li	2959 6059	2959 6079

Legend:

MTRCL (Employer) – MTR Corporation Limited

MTRCL (Resident Engineer) – MTR Corporation Limited

BKCL (Main Contractor) – Build King Construction Limited

AECOM (IEC) – AECOM Consulting Services Limited

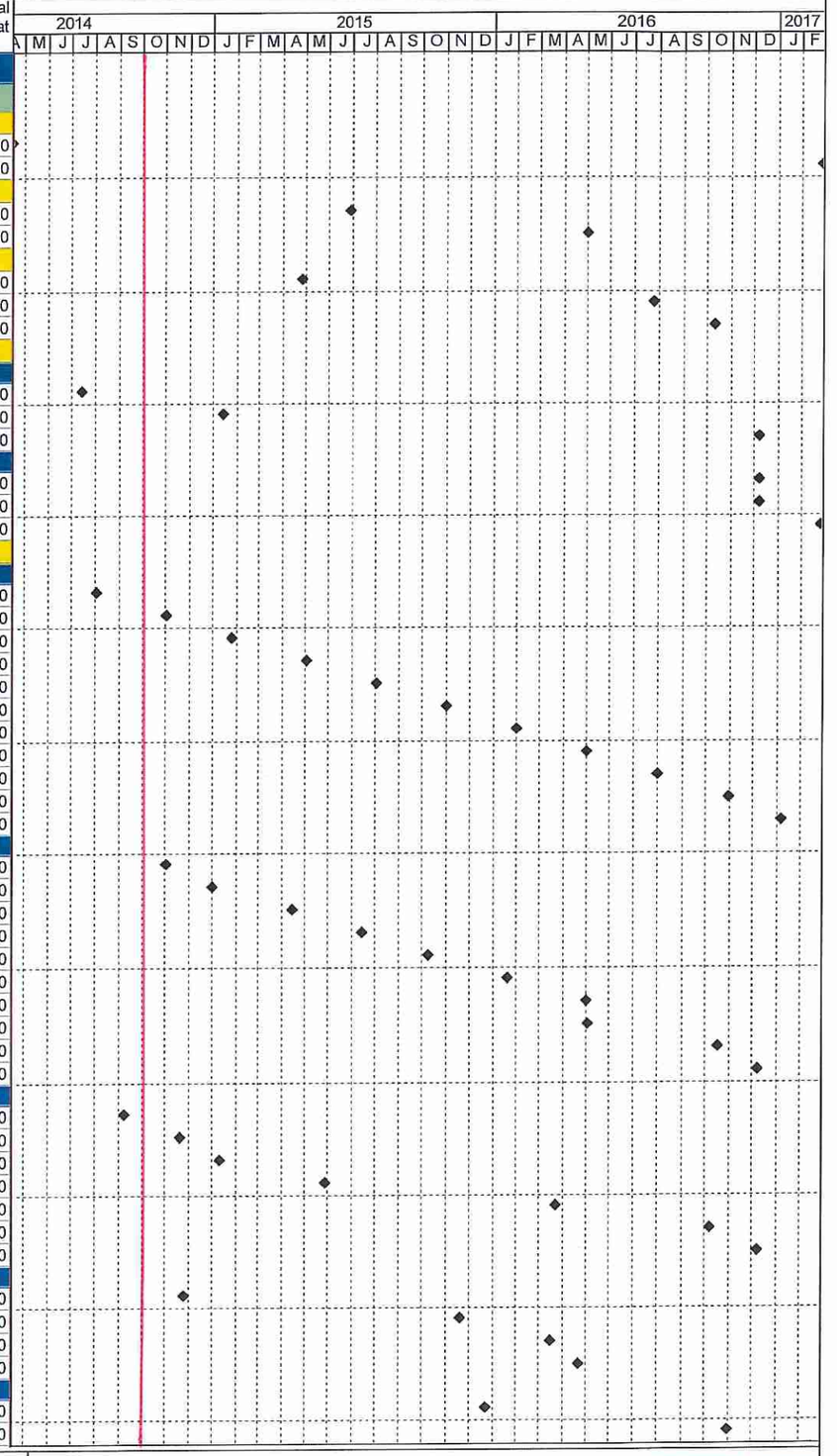
AUES (ET) – Action-United Environmental Services & Consulting

Appendix C

Master Construction Programme

Appendix M.
PMP - Rev.B.

Activity ID	Activity Name	Original Duration	Planned Start	Planned Finish	Total Float
C6593-13C WAC Station Lee Tung Street Subway Rev.B (30-Sep'14)					
Key Dates					
Commencement and Completion					
KDCOMM	Commencement of the Works (14-Apr'14)	0.00	14-Apr-14 08:00		0.00
KDCOMP	Completion of the Whole of the Works, No.Cal.Wk. 150 (26-Feb'17)	0.00		26-Feb-17 18:00	0.00
Specified Parts of the Works					
KD2A	2A - SBC Complete backfill, resurfacing, fencing, utilities, lighting and return to LCSD (28-Jun'15)	0.00		28-Jun-15 18:00	0.00
KD2B	2B - Complete all works at the 2 new Shop Kiosks and hand over to the Employer (1-May'16)	0.00		01-May-16 18:00	0.00
Programme Data / Interface Key Dates					
INF.AFC	Interface Access for AFC, C&C DC in new AFC Audit Room inside WAC, Concourse Level (27-Apr'15)	0.00	27-Apr-15 08:00		0.00
INF.H15	Interface Access for Contract H15, All Levels, No.Cal.Wk. 120 (25-Jul'16)	0.00	25-Jul-16 08:00		0.00
INF.SAMS	Interface Access for SAMS, Comms, MCS to All Areas, All Levels and Locations (10-Oct'16)	0.00	10-Oct-16 08:00		0.00
Site Area Possession and Return Dates					
Site Area Possession Date					
WAPW1	Works Area 6593.W1, Within 3 months from commencement of works (14-Jul'14)	0.00	14-Jul-14 08:00		0.00
WAPW2	Works Area 6593.W2, Within 9 months from commencement of works (14-Jan'15)	0.00	14-Jan-15 08:00		0.00
WAPW3	Works Area 6593.W3, No later than 1 month after completion of resinstatement works at Works Area 6539.W1	0.00	08-Dec-16 08:00		1.00
Site Area Return Date					
WARW1	Works Area 6593.W1, Within 36 months from commencement of works (14-Apr'17)	0.00		07-Dec-16 18:00	1.00
WARW2	Works Area 6593.W2, Within 36 months from commencement of works (14-Apr'17)	0.00		07-Dec-16 18:00	81.00
WARW3	Works Area 6593.W3, Within 2 months after possession date of Works Area 6593.W3	0.00		24-Feb-17 18:00	2.00
Milestone Schedule					
Milestones A					
MSA01	A1 Approval of Preliminary Master Program, ICE, TTA, ELS & Temporay decking (3-Aug'14)	0.00		02-Aug-14 18:00	939.00
MSA02	A2 Approval of Design of Mined Tunnel ESS; Hoarding phase/plan;TW under TramTrack; QP, SAP, PMP, H&SP, EMP (2-Nov'14)	0.00		01-Nov-14 18:00	848.00
MSA03	A3 Satisfactory Implementation of Specified Plans (25-Jan'15)	0.00		24-Jan-15 18:00	764.00
MSA04	A4 Approval of excavation method under Tram Track; Satisfactory Implementation of PMS (3-May'15)	0.00		02-May-15 18:00	666.00
MSA05	A5 Approval of WAC D-wall demolition; Satisfactory Implementation of Specified Plans (2-Aug'15)	0.00		01-Aug-15 18:00	575.00
MSA06	A6 Satisfactory Implementation of PMS (1-Nov'15)	0.00		31-Oct-15 18:00	484.00
MSA07	A7 Satisfactory Implementation of Specified Plans (31-Jan'16)	0.00		30-Jan-16 18:00	393.00
MSA08	A8 AIP for T&C of BS and ABWF works; Satisfactory Implementation of PMS (1-May'16)	0.00		30-Apr-16 18:00	302.00
MSA09	A9 Satisfactory Implementation of Specified Plans (31-Jul'16)	0.00		30-Jul-16 18:00	211.00
MSA10	A10 AIP of Draft O&M manual and Draft As-built Drawings; Satisfactory Implementation of PMS (30-Oct'16)	0.00		29-Oct-16 18:00	120.00
MSA11	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
Milestones B					
MSB01	B1 Excavate to +2.5 of Southern Basketball Court & Jonhston Road Westbound utilities support/diversions (2-Nov'14)	0.00		01-Nov-14 18:00	848.00
MSB02	B2 SBC RC base slab, JR NFP & EB carriageway works (33%), underpinning of tram track completed (25-Jan'15)	0.00		31-Dec-14 18:00	788.00
MSB03	B3 SBC RC roof slab, JR North footpath and EB carriageway works completed (3-May'15)	0.00		14-Apr-15 18:00	684.00
MSB04	B4 SBC return to LCSD, North Basket ball court takeover,JR footpath&EB Carriageway formation level reached (2-Aug'15)	0.00		15-Jul-15 18:00	592.00
MSB05	B5 NBC cofferdam,base slab under JR footpath and EB carriageway completed (1-Nov'15)	0.00		09-Oct-15 18:00	506.00
MSB06	B6 NBC Formation excavation, TramTrack Mined tunnel; JR WB Car'way&SFP Formation & H15 Opening completed (31-Jan'16)	0.00		19-Jan-16 18:00	404.00
MSB07	B7 NBC Roof slab; JR NFP & EB Carriageway; Under Tram Track; JR WB and SFP RC completed (1-May'16)	0.00		30-Apr-16 18:00	302.00
MSB08	B8 ABWF degree 1; NBC- Resurfacing & reinstatement works completed (31-Jul'16)	0.00		03-May-16 18:00	299.00
MSB09	B9 ABWF degree 3; Road reinstatement in JR & Hennessy Road completed (30-Oct'16)	0.00		17-Oct-16 18:00	132.00
MSB10	B10 All works in Cost Centre B satisfactorily completed (26-Feb'17)	0.00		07-Dec-16 18:00	81.00
Milestones C					
MSC01	C1 AIP BS detail design (2-Nov'14)	0.00		08-Sep-14 18:00	902.00
MSC02	C2 AIP BS shop drawings (25-Jan'15)	0.00		20-Nov-14 18:00	829.00
MSC03	C3 Order all BS equiptment and materials (3-May'15)	0.00		09-Jan-15 18:00	779.00
MSC04	C4 Complete all factory acceptence testings (29-Nov'15)	0.00		27-May-15 18:00	641.00
MSC05	C5 Complete all delivery to site for ECS plant room (31-Jul'16)	0.00		22-Mar-16 18:00	341.00
MSC06	C6 Complete all installation, T&C for New Subway (4-Dec'16)	0.00		07-Oct-16 18:00	142.00
MSC07	C7 Complete and pass all statutory inspections, Operations Team (26-Feb'17)	0.00		07-Dec-16 18:00	81.00
Milestones D					
MSD01	D1 New AFC Audit Room construction completed (3-May'15)	0.00		24-Nov-14 18:00	825.00
MSD02	D2 Old AFC Audit Room and Maxim's/ Circle K kiosks demolished (31-Jan'16)	0.00		18-Nov-15 18:00	466.00
MSD03	D3 Breakthrought into WAC (29-May'16)	0.00		15-Mar-16 18:00	348.00
MSD04	D4 All works in Cost Centre D satisfactorily completed (31-Jul'16)	0.00		21-Apr-16 18:00	311.00
Milestones E					
MSE01	E1- AFC gates and barrier relocation works completed (3-Jan'16)	0.00		22-Dec-15 18:00	432.00
MSE02	E2- All structural A&A works for TIM completed (30-Oct'16)	0.00		29-Oct-16 18:00	120.00

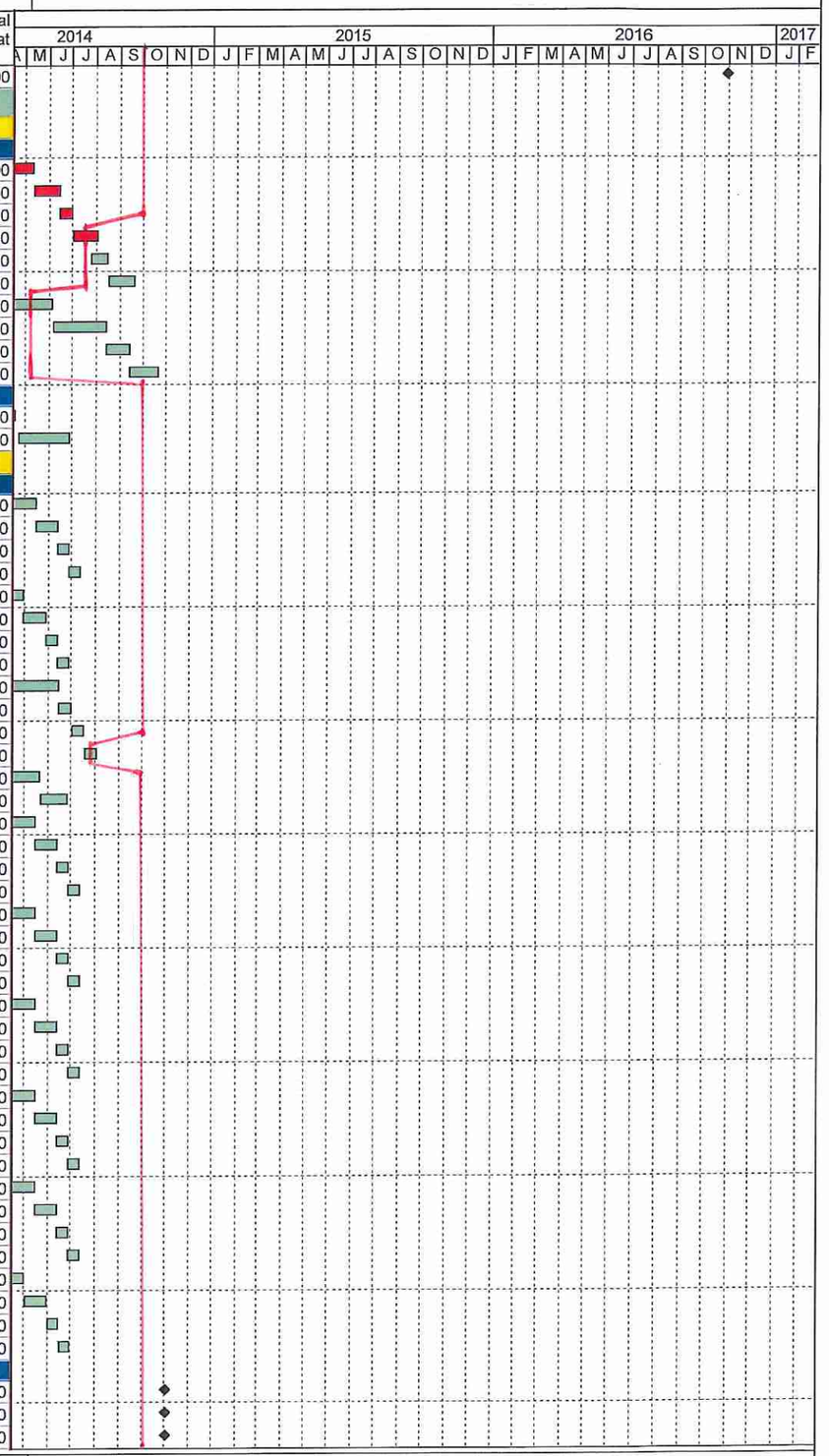


Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Preliminary Master Programme (Rev.B)

Kaden 基利

Activity ID	Activity Name	Original Duration	Planned Start	Planned Finish	Total Float
MSE03	E3- All works in milestone E completed (26-Feb'17)	0.00		29-Oct-16 18:00	120.00
A. Preliminaries and General Items					
Design, ICE, Submission and Approval					
Design, ICE, BD Submission and Approval					
A01.ELS10	A1 - ELS & Temporary Decking - Design, ICE, Submission to BD for Approval	19.00	14-Apr-14 08:00	10-May-14 18:00	3.00
A01.ELS11	A1 - ELS & Temporary Decking - Review the submission	28.00	12-May-14 08:00	13-Jun-14 18:00	3.00
A01.ELS12	A1 - ELS & Temporary Decking - Preparation of re-submission (If Require)	14.00	14-Jun-14 08:00	30-Jun-14 18:00	3.00
A01.ELS13	A1 - ELS & Temporary Decking - BD Review, Resubmission if required, and Approval	28.00	02-Jul-14 08:00	02-Aug-14 18:00	3.00
A01.ELS20	A1 - ELS - Verification (based on 4 additinal SI. AD-01 to AD-04), ICE	20.00	25-Jul-14 08:00	16-Aug-14 18:00	18.00
A01.ELS21	A1 - ELS - Verification (based on 4 additinal SI. AD-01 to AD-04), ICE, Submission & Approval	28.00	18-Aug-14 08:00	19-Sep-14 18:00	18.00
A04.MIT10	A4 - Excavation method under tram track and TW design - Prepare, ICE and submission to BD/ GEO for Approval	39.00	14-Apr-14 08:00	04-Jun-14 18:00	28.00
A04.MIT20	A4 - Excavation method under tram track and TW design - Review submission	60.00	05-Jun-14 08:00	14-Aug-14 18:00	28.00
A04.MIT30	A4 - Excavation method under tram track and TW design - Address comments, ICE & Resubmission (if required)	24.00	15-Aug-14 08:00	12-Sep-14 18:00	28.00
A04.MIT40	A4 - Excavation method under tram track and TW design - Review & Approval (if required)	30.00	13-Sep-14 08:00	20-Oct-14 18:00	28.00
Design, ITC, 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	17-Apr-14 18:00	13.00
A01.TTM20	TTMS - TMLG Meetings and Approval, Resubmission if required, RMO Applicataions	55.00	22-Apr-14 08:00	27-Jun-14 18:00	13.00
Contractor Submission and Approval					
Programming, Specified Plans and Hoarding Plan					
A01.PMP080	Submission schedule - Preparation & submission	22.00	14-Apr-14 08:00	14-May-14 18:00	780.00
A01.PMP081	Submission schedule - Review & Approval	24.00	15-May-14 08:00	12-Jun-14 18:00	780.00
A01.PMP082	Submission schedule - Preparation for Re-submission (If Require)	12.00	13-Jun-14 08:00	26-Jun-14 18:00	780.00
A01.PMP083	Submission schedule - Review and Approval (If Require)	12.00	27-Jun-14 08:00	11-Jul-14 18:00	780.00
A01.PMP090	Initial Three Month Rolling Program - Preparation & submission	10.00	14-Apr-14 08:00	28-Apr-14 18:00	792.00
A01.PMP091	Initial Three Month Rolling Program - Review & Approval	24.00	29-Apr-14 08:00	28-May-14 18:00	792.00
A01.PMP092	Initial Three Month Rolling Program - Preparation for Re-submission (If Require)	12.00	29-May-14 08:00	12-Jun-14 18:00	792.00
A01.PMP093	Initial Three Month Rolling Program - Review and Approval (If Require)	12.00	13-Jun-14 08:00	26-Jun-14 18:00	792.00
A01.PMP10	A1 Preliminary Master Program - Preparation & submission	47.00	14-Apr-14 08:00	13-Jun-14 18:00	75.00
A01.PMP11	A1 Preliminary Master Program - Review & Approval	14.00	14-Jun-14 08:00	30-Jun-14 18:00	75.00
A01.PMP12	A1 Preliminary Master Program - Preparation for Re-submission (If Require)	14.00	02-Jul-14 08:00	17-Jul-14 18:00	75.00
A01.PMP13	A1 Preliminary Master Program - Review and Approval (If Require)	14.00	18-Jul-14 08:00	02-Aug-14 18:00	75.00
A01.SPP10	A1 Specified Plans (QP, SAP, PMS, H&SP, EP) - Submission and Approval	27.00	14-Apr-14 08:00	20-May-14 18:00	107.00
A01.SPP20	A1 Specified Plans - Review, Resubmission if required, and Approval	30.00	21-May-14 08:00	25-Jun-14 18:00	107.00
A01.SPP210	Environmental management plan - Preparation & submission	22.00	14-Apr-14 08:00	14-May-14 18:00	780.00
A01.SPP211	Environmental management plan - Review & Approval	24.00	15-May-14 08:00	12-Jun-14 18:00	780.00
A01.SPP212	Environmental management plan - Preparation for Re-submission (If Require)	12.00	13-Jun-14 08:00	26-Jun-14 18:00	780.00
A01.SPP213	Environmental management plan - Review and Approval (If Require)	12.00	27-Jun-14 08:00	11-Jul-14 18:00	780.00
A01.SPP220	Appoint Environmental team- submit for engineer approval	22.00	14-Apr-14 08:00	14-May-14 18:00	780.00
A01.SPP221	Appoint Environmental team - Review & Approval	24.00	15-May-14 08:00	12-Jun-14 18:00	780.00
A01.SPP222	Appoint Environmental team - Preparation for Re-submission (If Require)	12.00	13-Jun-14 08:00	26-Jun-14 18:00	780.00
A01.SPP223	Appoint Environmental team - Review and Approval (If Require)	12.00	27-Jun-14 08:00	11-Jul-14 18:00	780.00
A01.SPP230	Quality Plan - Preparation & submission	22.00	14-Apr-14 08:00	14-May-14 18:00	780.00
A01.SPP231	Quality Plan - Review & Approval	24.00	15-May-14 08:00	12-Jun-14 18:00	780.00
A01.SPP232	Quality Plan - Preparation for Re-submission (If Require)	12.00	13-Jun-14 08:00	26-Jun-14 18:00	780.00
A01.SPP233	Quality Plan - Review and Approval (If Require)	12.00	27-Jun-14 08:00	11-Jul-14 18:00	780.00
A01.SPP240	Health and Safety Plan - Preparation & submission	22.00	14-Apr-14 08:00	14-May-14 18:00	780.00
A01.SPP241	Health and Safety Plan - Review & Approval	24.00	15-May-14 08:00	12-Jun-14 18:00	780.00
A01.SPP242	Health and Safety Plan - Preparation for Re-submission (If Require)	12.00	13-Jun-14 08:00	26-Jun-14 18:00	780.00
A01.SPP243	Health and Safety Plan - Review and Approval (If Require)	12.00	27-Jun-14 08:00	11-Jul-14 18:00	780.00
A01.SPP250	System Assurance Plan - Preparation & submission	22.00	14-Apr-14 08:00	14-May-14 18:00	780.00
A01.SPP251	System Assurance Plan - Review & Approval	24.00	15-May-14 08:00	12-Jun-14 18:00	780.00
A01.SPP252	System Assurance Plan - Preparation for Re-submission (If Require)	12.00	13-Jun-14 08:00	26-Jun-14 18:00	780.00
A01.SPP253	System Assurance Plan - Review and Approval (If Require)	12.00	27-Jun-14 08:00	11-Jul-14 18:00	780.00
A02.HRD100	A2 Hoarding phase - Preparation & submission	12.00	14-Apr-14 08:00	30-Apr-14 18:00	14.00
A02.HRD101	A2 Hoarding phase - Review & Approval	24.00	02-May-14 08:00	30-May-14 18:00	14.00
A02.HRD102	A2 Hoarding phase - Preparation for Re-submission (If Require)	12.00	31-May-14 08:00	14-Jun-14 18:00	14.00
A02.HRD103	A2 Hoarding phase - Review and Approval (If Require)	12.00	16-Jun-14 08:00	28-Jun-14 18:00	14.00
Implemantation of Specified Plans					
A02.SPP11	A2 Satisfactory Implementation of Quality Plan	0.00		01-Nov-14 18:00	0.00
A02.SPP12	A2 Satisfactory Implementation of Quality Plan	0.00		01-Nov-14 18:00	0.00
A02.SPP13	A2 Satisfactory Implementation of Quality Plan	0.00		01-Nov-14 18:00	0.00

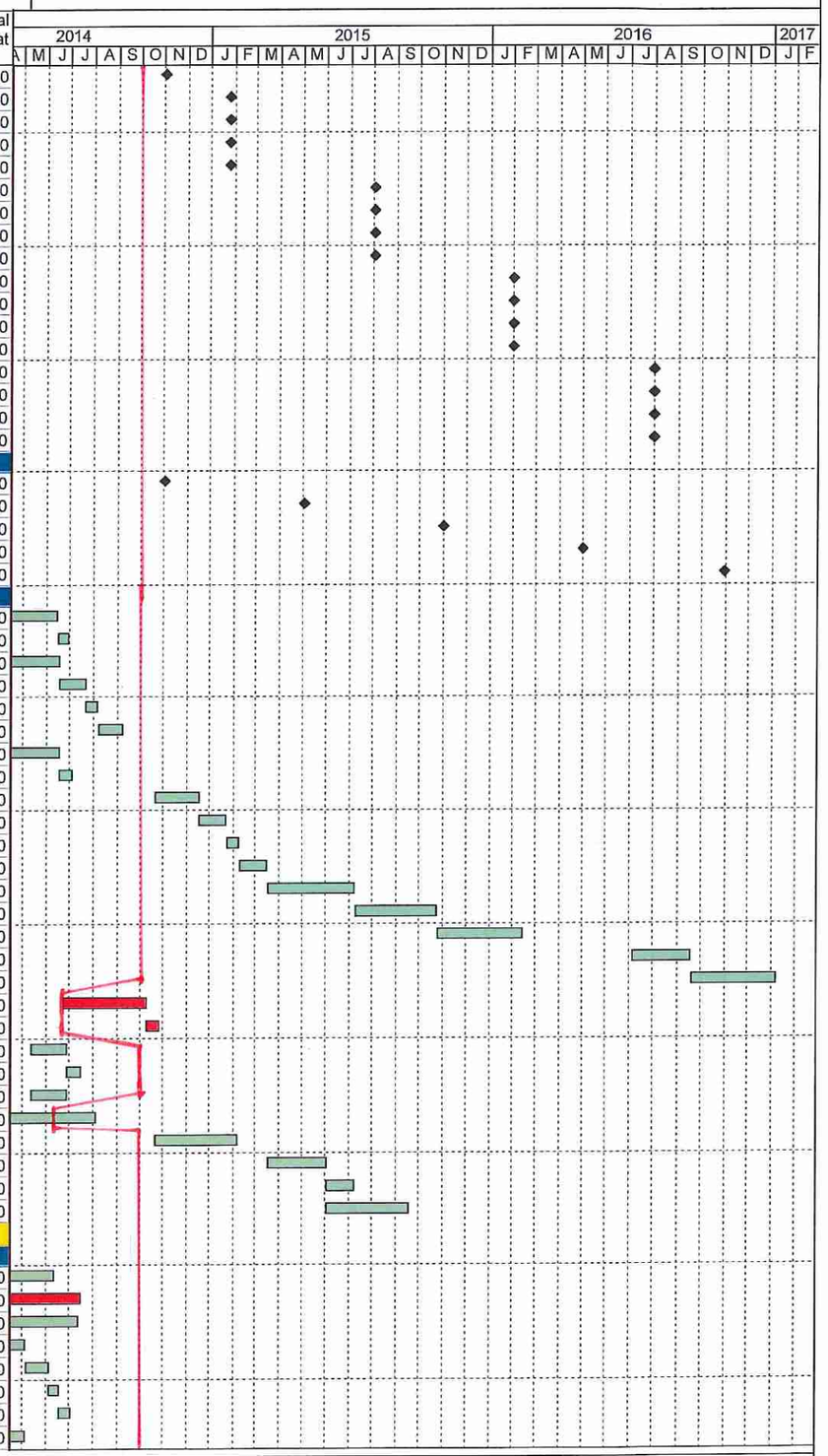


Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Preliminary Master Programme (Rev.B)

Kaden 基利

Activity ID	Activity Name	Original Duration	Planned Start	Planned Finish	Total Float
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
A03.SPP12	A3 Satisfactory Implementation of System Assurance Plan	0.00		24-Jan-15 18:00	0.00
A03.SPP13	A3 Satisfactory Implementation of Health and Safety Plan	0.00		24-Jan-15 18:00	0.00
A03.SPP14	A3 Satisfactory Implementation of Environmental Management Plan	0.00		24-Jan-15 18:00	0.00
A05.SPP11	A5 Satisfactory Implementation of Quality Plan	0.00		01-Aug-15 18:00	0.00
A05.SPP12	A5 Satisfactory Implementation of System Assurance Plan	0.00		01-Aug-15 18:00	0.00
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
A07.SPP11	A7 Satisfactory Implementation of Quality Plan	0.00		30-Jan-16 18:00	0.00
A07.SPP12	A7 Satisfactory Implementation of System Assurance Plan	0.00		30-Jan-16 18:00	0.00
A07.SPP13	A7 Satisfactory Implementation of Health and Safety Plan	0.00		30-Jan-16 18:00	0.00
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
A09.SPP12	A9 Satisfactory Implementation of System Assurance Plan	0.00		30-Jul-16 18:00	0.00
A09.SPP13	A9 Satisfactory Implementation of Health and Safety Plan	0.00		30-Jul-16 18:00	0.00
A09.SPP14	A9 Satisfactory Implementation of Environmental Management Plan	0.00		30-Jul-16 18:00	0.00
Implementation of Programming Management System					
A02.PMS10	A2 Satisfactory Implementation of Programming Management System	0.00		01-Nov-14 18:00	0.00
A04.PMS10	A4 Satisfactory Implementation of Programming Management System	0.00		02-May-15 18:00	0.00
A06.PMS10	A6 Satisfactory Implementation of Programming Management System	0.00		31-Oct-15 18:00	0.00
A08.PMS10	A8 Satisfactory Implementation of Programming Management System	0.00		30-Apr-16 18:00	0.00
A10.PMS10	A10 Satisfactory Implementation of Programming Management System	0.00		29-Oct-16 18:00	0.00
Other Submissions and O&M Manual					
A01.HRD00	Hoarding Installation- Preparation of Method Statement, submission & approval	48.00	14-Apr-14 08:00	14-Jun-14 18:00	14.00
A01.HRD00a	Hoarding Installation- Submission & approval	12.00	16-Jun-14 08:00	28-Jun-14 18:00	14.00
A01.MD010	Treatment of MD (if required) - Proposal & Method Statement - Preparation	50.00	14-Apr-14 08:00	17-Jun-14 18:00	27.00
A01.MD10a	Treatment of MD (if required) - Proposal & Method Statement - Submission & Approval	28.00	18-Jun-14 08:00	21-Jul-14 18:00	27.00
A01.MD10b	Treatment of MD (if required) - Proposal & Method Statement - Preparation for Re-submission (if required)	14.00	22-Jul-14 08:00	06-Aug-14 18:00	27.00
A01.MD10c	Treatment of MD (if required) - Proposal & Method Statement - Re-submission (if required) & Approval	28.00	07-Aug-14 08:00	08-Sep-14 18:00	27.00
A01.SI005	Site Investigation Works- Preparation of Method Statement, submission	50.00	14-Apr-14 08:00	17-Jun-14 18:00	25.00
A01.SI005a	Site Investigation Works- Preparation of Method Statement, approval	14.00	18-Jun-14 08:00	04-Jul-14 18:00	25.00
A05.DWD10	A5 WAC D-wall demolition Design- ICE, Preparation for design submission	50.00	21-Oct-14 08:00	17-Dec-14 18:00	64.00
A05.DWD11	A5 WAC D-wall demolition- Review & Approval	28.00	18-Dec-14 08:00	22-Jan-15 18:00	64.00
A05.DWD12	A5 WAC D-wall demolition- Preparation for re-submission (If require)	14.00	23-Jan-15 08:00	07-Feb-15 18:00	64.00
A05.DWD13	A5 WAC D-wall demolition- Review & Approval	28.00	09-Feb-15 08:00	16-Mar-15 18:00	64.00
A08.ABW10	A8 AIP for T&C of BS and ABWF works (1st Batch)	90.00	17-Mar-15 08:00	08-Jul-15 18:00	145.00
A08.ABW11	A8 AIP for T&C of BS and ABWF works (2nd Batch)	90.00	09-Jul-15 08:00	24-Oct-15 18:00	145.00
A08.ABW12	A8 AIP for T&C of BS and ABWF works (Remaining)	90.00	26-Oct-15 08:00	13-Feb-16 18:00	145.00
A10.OMM10	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
A11.OMM10	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
B02.0010	RC Works- Preparation of Method Statement- Preparation	90.00	23-Jun-14 08:00	09-Oct-14 18:00	9.00
B02.0010a	RC Works- Preparation of Method Statement- Submission & Approval	14.00	10-Oct-14 08:00	25-Oct-14 18:00	9.00
B02.0200	Sheet pile installation- Preparation of Method Statement	40.00	12-May-14 08:00	27-Jun-14 18:00	19.00
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
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
B02.0305	Excavation works- Preparation of Method Statement, submission & approval	90.00	14-Apr-14 08:00	04-Aug-14 18:00	77.00
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
B6.0005	Break Through Works- Preparation of Method Statement, submission & approval	60.00	17-Mar-15 08:00	01-Jun-15 18:00	64.00
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
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
Mobilization and Other Preliminaries					
Permit Applications					
A01.PER0130	XP Excavtion Permit Application and Permit	44.00	14-Apr-14 08:00	10-Jun-14 18:00	30.00
A01.PER020	TRA Tree Removal Application and Permit	73.00	14-Apr-14 08:00	15-Jul-14 18:00	6.00
A01.PER030	Liason with all utility service providers on diversions	70.00	14-Apr-14 08:00	11-Jul-14 18:00	19.00
A01.PER0400	Baseline noise monitoring report - Preparation & submission to Engineer and EPD	14.00	14-Apr-14 08:00	03-May-14 18:00	30.00
A01.PER0401	Baseline noise monitoring report - Review & Approval	24.00	05-May-14 08:00	03-Jun-14 18:00	30.00
A01.PER0402	Baseline noise monitoring report - Preparation for Re-submission (If Require)	12.00	04-Jun-14 08:00	17-Jun-14 18:00	30.00
A01.PER0403	Baseline noise monitoring report - Review and Approval (If Require)	12.00	18-Jun-14 08:00	02-Jul-14 18:00	30.00
A01.PER0500	Baseline air monitoring report - Preparation & submission to Engineer and EPD	14.00	14-Apr-14 08:00	03-May-14 18:00	30.00

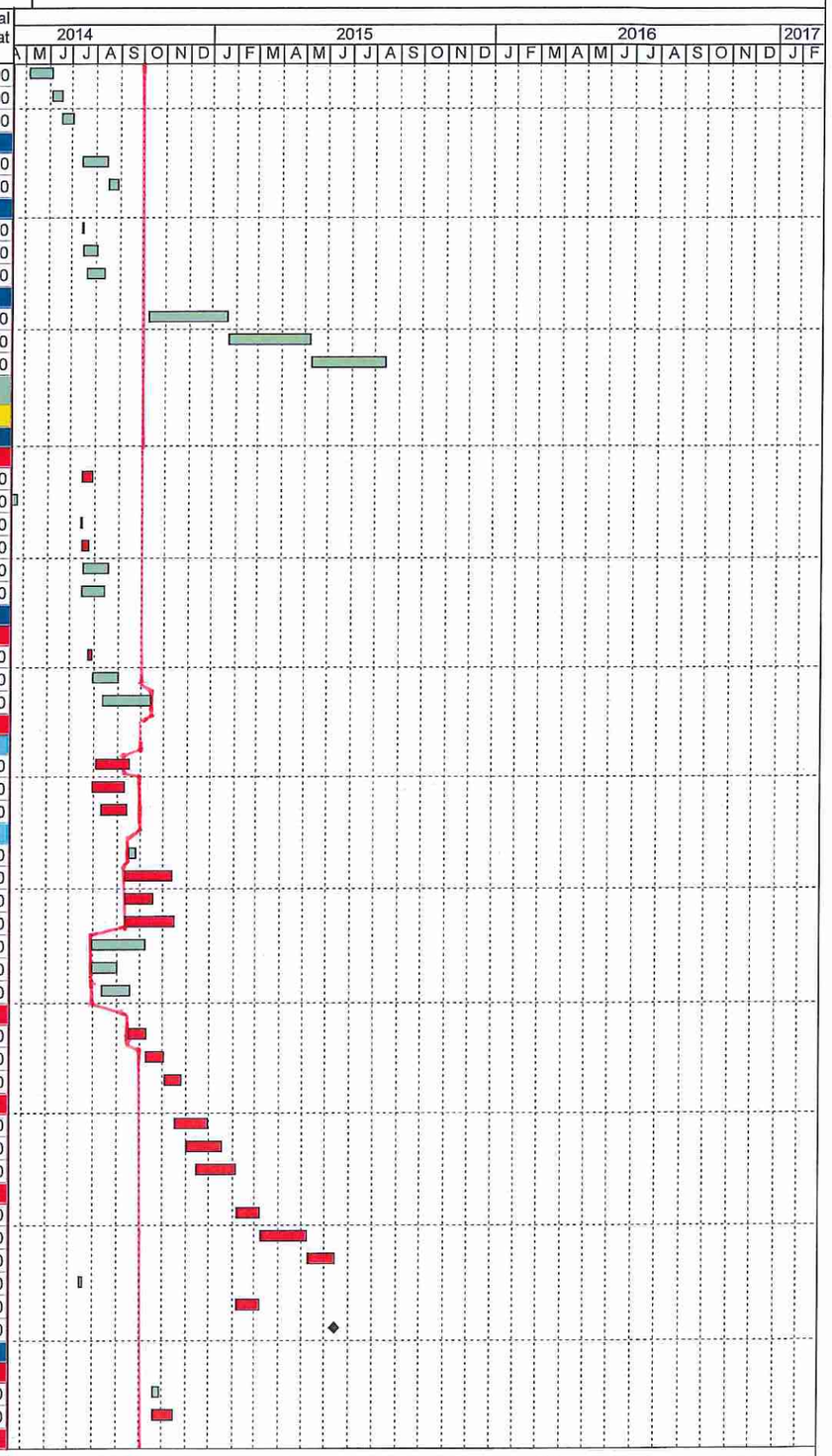


Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Preliminary Master Programme (Rev.B)

Kaden 基利

Activity ID	Activity Name	Original Duration	Planned Start	Planned Finish	Total Float
A01.PER0501	Baseline air monitoring report - Review & Approval	24.00	05-May-14 08:00	03-Jun-14 18:00	30.00
A01.PER0502	Baseline air monitoring report - Preparation for Re-submission (If Require)	12.00	04-Jun-14 08:00	17-Jun-14 18:00	30.00
A01.PER0503	Baseline air monitoring report - Review and Approval (If Require)	12.00	18-Jun-14 08:00	02-Jul-14 18:00	30.00
	Mobilization, Site Office, Temporary Utilities				
A01.PRE010	Mobilization, site office, temporary utilities	30.00	14-Jul-14 08:00	16-Aug-14 18:00	739.00
A01.PRE011	Installation of 3 video cameras (2 at Southorn Playground & 1 at JnR site entry)	10.00	18-Aug-14 08:00	28-Aug-14 18:00	739.00
	Additional Site Investigation				
A01.SI010	Mobilization of SI rigs	2.00	14-Jul-14 08:00	15-Jul-14 18:00	18.00
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
A01.SI030	Additional Site investigation - Lab tests and reports	20.00	21-Jul-14 08:00	12-Aug-14 18:00	18.00
	Treatment of Marine Deposit (If Required)				
A01.MD020	MD- On/Off-site Pilot Trial Treatment, Transport Off-Site, Treatment, Qaulity Test, Back to Site for Filling (1st Batch)	85.00	10-Oct-14 08:00	20-Jan-15 18:00	24.00
A01.MD021	MD- On/Off-site Pilot Trial Treatment, Transport Off-Site, Treatment, Qaulity Test, Back to Site for Filling (2nd Batch)	85.00	21-Jan-15 08:00	08-May-15 18:00	24.00
A01.MD022	MD- On/Off-site Pilot Trial Treatment, Transport Off-Site, Treatment, Qaulity Test, Back to Site for Filling (Remaining)	80.00	09-May-15 08:00	13-Aug-15 18:00	24.00
	B. LTS Subway and Vent Shafts				
	B2 Subway				
	TTM 1 - SBC, Playground				
	Preliminaries, Instrumentation, UU Diversion, etc.				
A01.HRD01	Stage 1 - Erect hoarding 190m, Erect 1 no. gate	12.00	16-Jul-14 08:00	29-Jul-14 18:00	1.00
B01.0090	Pepare & submit review by Eng outline TTM schemes	5.00	14-Apr-14 08:00	22-Apr-14 18:00	67.00
B01.0100	Implement TTM1 and Trial Run	2.00	14-Jul-14 08:00	15-Jul-14 18:00	1.00
B01.0110	Transplant and tree removal	7.00	16-Jul-14 08:00	23-Jul-14 18:00	6.00
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
	TTM 2 - SBC, Playground, JnR Carriageway EB Median Lane & WB				
	Preliminaries, Instrumentation, UU Diversions, etc.				
A01.HRD02	Stage 2 - Erect hoarding 36m, and water infill barriers	5.00	24-Jul-14 08:00	29-Jul-14 18:00	1.00
B02.0100	Implement TTM2, EB Relocate existing bus stop, trial trenches, instrumentation, installation of GIs, etc.	29.00	30-Jul-14 08:00	01-Sep-14 18:00	25.00
B02.0150	Implement TTM2, WB Carraiageway Trial trenches, instrumentation, carriageway UU diversions	51.00	13-Aug-14 08:00	14-Oct-14 18:00	25.00
	Sheet Pile, Pipe Pile, Grouting, Decking				
	At SBC Southern Basketball Court				
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	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
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
	At Johnston Road EB Carriageway Median Lane				
B02.0210	Sheet pile at JnR EB Carriageway Median Lane, 10 x 24m, total 240m, 18t; and King post, 2 nr (1 rigs)	7.00	17-Sep-14 08:00	24-Sep-14 18:00	14.00
B02.0245a	Pipe pile at JnR EB Carriageway Median Lane, 16 x 21m, total 336m (2 rigs)	51.00	11-Sep-14 08:00	11-Nov-14 18:00	1.00
B02.0262	Jet grout soil blocks for mined tunneling at JnR EB Carriageway Median Lane	31.00	11-Sep-14 08:00	18-Oct-14 18:00	1.00
B02.0265	Grouting of pipe pile at JnR EB Carriageway Median Lane	55.00	11-Sep-14 08:00	15-Nov-14 18:00	1.00
B02.0280	Underpinning works, if reuqired	57.00	30-Jul-14 08:00	07-Oct-14 18:00	11.00
B5.0020	TTM2 JnR EB Carriageway Median Lane - Diversion of existing utilities and misc. works	29.00	30-Jul-14 08:00	01-Sep-14 18:00	26.00
B5.0025	TTM2 JnR WB Carriageway - Diversion of existing utilities and misc. works	31.00	13-Aug-14 08:00	18-Sep-14 18:00	25.00
	Pump Test, Excavation, ELS				
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
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
	RC Structures				
B02.0400	SBC RC Slab - Smoothing concrete 250tk, waterproof membrane, cast slab, 350m^3 Concrete, ReBar 18.8T	36.00	17-Nov-14 08:00	30-Dec-14 18:00	3.00
B02.0500	SBC RC Wall - Smoothing concrete 250tkm waterproof membrane, cast wall, 63m^3 Concrete, ReBar 64.6T	38.00	01-Dec-14 08:00	16-Jan-15 18:00	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
	Backfill and Miscellanous Works				
B02.0700	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.	48.00	09-Mar-15 08:00	08-May-15 18:00	3.00
B02.0900	SBC - Joint inspection and handover to LCSD	29.00	09-May-15 08:00	12-Jun-15 18:00	3.00
B7.SBC010	W1 SBC - Excavation 116 m3, remove existing basketball court surface 375 m2	4.00	16-Jul-14 08:00	19-Jul-14 18:00	15.00
B7.SBC020	W1 SBC - Reinstatement - Subgrade, rc slab/light fnd., EPDM surface coat 375m2, furnitures, etc.	24.00	05-Feb-15 08:00	07-Mar-15 18:00	3.00
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, Playground, JnR Carriageway EB Kerb Lane & South Footpath				
	Preliminaries, Instrumentation, UU Diversions, etc.				
A01.HRD03	Stage 3 - Erect hoarding 46m, Remove hoarding 36m, Relocate 1 no. gate, and water infill barriers	8.00	20-Oct-14 08:00	28-Oct-14 18:00	15.00
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
	Sheet Pile, Pipe Pile, Grouting, Decking				

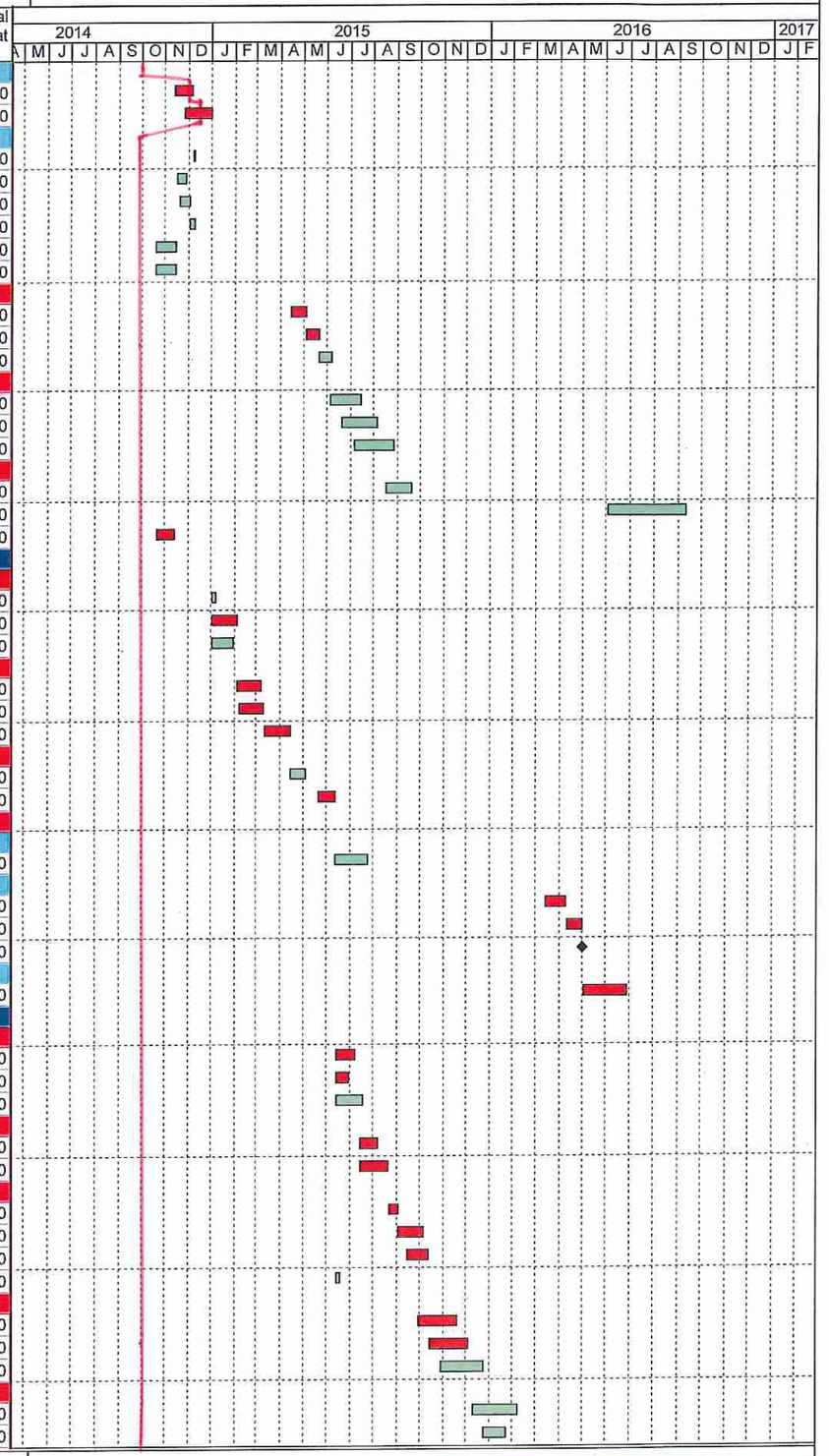


Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Preliminary Master Programme (Rev.B)

Kaden 基利

Activity ID	Activity Name	Original Duration	Planned Start	Planned Finish	Total Float
At Playground					
B03.0200	Sheet pile at Playground, 42 x 16m, 23 x 24m, total no 65, 1224m, 93t, (prebored allowed); king post, 4 nr (About 80%)	20.00	14-Nov-14 08:00	06-Dec-14 18:00	1.00
B03.0270	Temporary decking at Play Area	28.00	27-Nov-14 08:00	31-Dec-14 18:00	1.00
At JnR Carriageway Kerb Lane					
B03.0206	Sheet pile at JnR Carriageway EB Kerb Lane, 10 x 24m, total 240m, 18t	3.00	08-Dec-14 08:00	10-Dec-14 18:00	45.00
B03.0245	Pipe pile at JnR EB Carriageway EB Kerb Lane, 6 x 21m, total 126m	11.00	17-Nov-14 08:00	28-Nov-14 18:00	18.00
B03.0265	Grouting of pipe pile at JnR EB Carriageway Kerb Lane	11.00	20-Nov-14 08:00	02-Dec-14 18:00	18.00
B03.07285	Temporary decking at JnR EB Carriageway Kerb Lane	6.00	03-Dec-14 08:00	09-Dec-14 18:00	18.00
B5.0030	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
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
Pump Test, Excavation, ELS					
B03.0280	Pumping test 2	16.00	15-Apr-15 08:00	04-May-15 18:00	1.00
B03.0300	Play Area - Excavation & ELS, 3700 m3	14.00	05-May-15 08:00	20-May-15 18:00	1.00
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					
B03.0400	RC Slab - Blinding layer concrete 75tk, waterproof membrane, cast slab, 610m^3 Concrete, ReBar 32.9T	33.00	05-Jun-15 08:00	15-Jul-15 18:00	14.00
B03.0500	RC Wall - Smoothing concrete 250tk, waterproof membrane, cast wall, 275m^3 Concrete, ReBar 87.2T	38.00	19-Jun-15 08:00	04-Aug-15 18:00	14.00
B03.0600	RC Top Slab - Cast top concrete slab, 285m^3, ReBar 49.9T	45.00	06-Jul-15 08:00	26-Aug-15 18:00	14.00
Backfill and Miscellanous Works					
B03.0700	Play Area - Backfill to ground level, cut sheet pile 2m depth below ground, surface reinstatemant	30.00	17-Aug-15 08:00	19-Sep-15 18:00	25.00
B03.0710	Play Area - Fencing, utilites, lighting, etc.	83.00	04-Jun-16 08:00	10-Sep-16 18:00	45.00
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, Playground, JnR North Foothpath					
Preliminaries, Instrumentation, UU Diversions, etc.					
A01.HRD04	Stage 4 - Erect hoarding 26m, Remove hoarding 26m, and water infill barriers	5.00	02-Jan-15 08:00	07-Jan-15 18:00	24.00
B04.0100	Implement TTM4, trial trenches, instrumentation, installation of GIs, UU diversions at North Footpath, etc.	28.00	02-Jan-15 08:00	03-Feb-15 18:00	1.00
B5.0040	TTM4 JnR North Footpath - Diversion of existing utilities and misc. works	24.00	02-Jan-15 08:00	29-Jan-15 18:00	30.00
Sheet Pile, Pipe Pile, Grouting, Decking					
B04.0200	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
B04.0260	Grouting of sheet pile at North Footpath	25.00	07-Feb-15 08:00	11-Mar-15 18:00	1.00
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
Pump Test, Excavation, ELS					
B04.0280	Pumping test 3	16.00	15-Apr-15 08:00	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
RC Structures Underneath JnR EB Carriageway & North Footpath					
RC Structures Before Mined Tunnel Construction					
B04.0400	RC Slab - Smoothing concrete 250tk, waterproof membrane, cast slab, 140m^3 Concrete, ReBar 21.1T	36.00	12-Jun-15 08:00	25-Jul-15 18:00	57.00
RC Structtures After Mined Tunnel Construction					
B04.0500	RC Wall - Smoothing concrete 250tkm waterproof membrane, cast wall, 117m^3 Concrete, ReBar 22.5T	20.00	14-Mar-16 08:00	09-Apr-16 18:00	8.00
B04.0600	RC Top Slab - Waterproof membrane, cast top slab, 65m^3 Concrete, ReBar 23.2T	18.00	11-Apr-16 08:00	30-Apr-16 18:00	8.00
MB07p	B7 NBC Roof slab; JR NFP & EB Carriageway; Under Tram Track; JR WB and SFP RC completed -Programmed	0.00		30-Apr-16 18:00	245.00
Backfill and Miscellanous Works					
B04.0700	Backfill to ground level, cut sheet pile 2m depth below ground, road reinstatement	47.00	03-May-16 08:00	28-Jun-16 18:00	8.00
TTM 5 - NBC, Playground, JnR North Footpath					
Preliminaries, Instrumentation, UU Diversions, etc.					
A01.HRD05	Stage 5 - Erect hoarding 127m, Remove hoarding 36m, Rolocate 1 no. gate, and water 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
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
Sheet Pile, Pipe Pile, Grouting, Decking					
B05.0200	Sheet pile at NBC, 70 x 16m, 8 x 24m, total 1312m, 100t; and King post, 1 nr.	21.00	15-Jul-15 08:00	07-Aug-15 18:00	3.00
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
Pump Test, Excavation, ELS					
B05.0280	Pumping test 4	11.00	21-Aug-15 08:00	02-Sep-15 18:00	3.00
B05.0300	NBC Excavation & ELS, 3000 m3	26.00	03-Sep-15 08:00	05-Oct-15 18:00	3.00
B05.0310	NBC Hard core blanket 300tk, blinding layer 75tk, waterproof membrane	23.00	14-Sep-15 08:00	12-Oct-15 18:00	3.00
B7.NBC010	W1 NBC - Excavation 116 m3, remove existing basketball court surface 375 m2	4.00	13-Jun-15 08:00	17-Jun-15 18:00	24.00
RC Structures					
B05.0400	RC Slab - Smoothing concrete 250tk, waterproof membrane, cast slab, 420m^3 Concrete, ReBar 29.4T	42.00	29-Sep-15 08:00	18-Nov-15 18:00	3.00
B05.0500	RC Wall - Smoothing concrete 250tkm waterproof membrane, cast wall, 280m^3 Concrete ReBar 59.3T	44.00	14-Oct-15 08:00	04-Dec-15 18:00	3.00
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
Backfill and Miscellanous Works					
B05.0700	Backfill to ground level, cut sheet pile 2m depth below ground, reinstate foothpath	48.00	10-Dec-15 08:00	06-Feb-16 18:00	46.00
B7.NBC020	W1 NBC - Reinstatement - Subgrade, rc slab/light fnd., EPDM surface coat 375 m2, furnitures, etc.	24.00	24-Dec-15 08:00	23-Jan-16 18:00	58.00

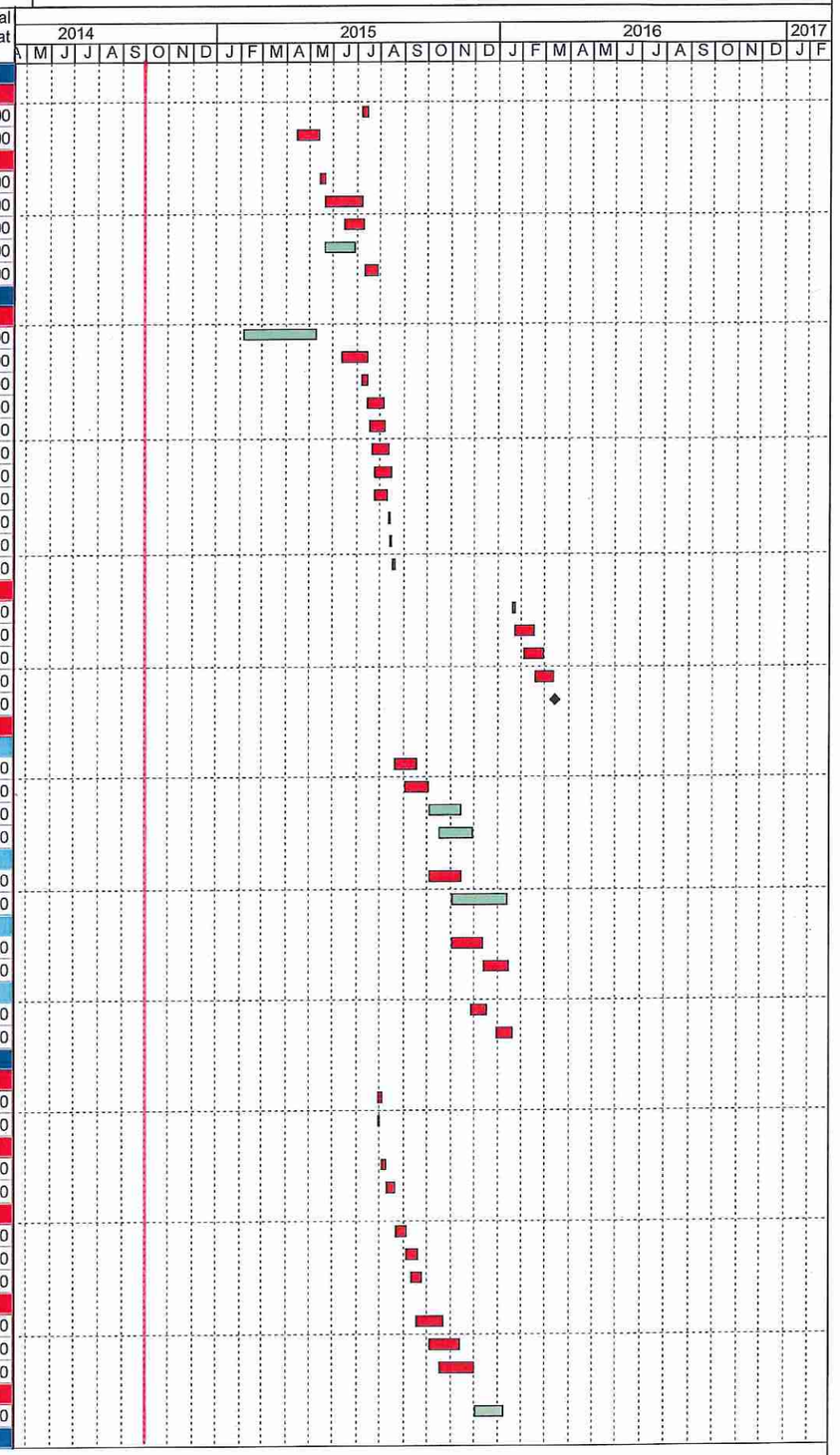


Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Preliminary Master Programme (Rev.B)

Kaden 基利

Activity ID	Activity Name	Original Duration	Planned Start	Planned Finish	Total Float
TTM 6 - NBC, Playground, JnR North Footpath, Carriageway WB					
Preliminaries, Instrumentation, UU Diversions, etc.					
A01.HRD06	Stage 6 - Erect hoarding 52m, and water infill barriers	6.00	08-Jul-15 08:00	14-Jul-15 18:00	3.00
B06.0100	Implement TTM6, trial trenches, instrumentation, UU diversions at North Footpath, etc.	24.00	15-Apr-15 08:00	13-May-15 18:00	6.00
Sheet Pile, Pipe Pile, Grouting, Decking					
B06.0200	Sheet pile at JnR WB Carriageway, 23 x 21m, total 483m, 37t	6.00	14-May-15 08:00	20-May-15 18:00	6.00
B06.0240	Pipe pile at Johnston Road WB Carriageway, 17 x 21m, total 357m	38.00	21-May-15 08:00	07-Jul-15 18:00	6.00
B06.0260	Grouting of pipe pile at JnR WB Carriageway	21.00	15-Jun-15 08:00	10-Jul-15 18:00	6.00
B06.0265	Jet grout soil blocks for mined tunneling at JnR WB Carriageway	31.00	21-May-15 08:00	27-Jun-15 18:00	16.00
B06.0270	Temporary decking at JnR WB Carriageway	15.00	11-Jul-15 08:00	28-Jul-15 18:00	6.00
Mined Tunnel Underneath Tram Track					
Preliminaries, Horizontal Pipe Piles and Grouting					
MIT.TW004	2 Months notification to HKT prior to construction of mined tunneling works	72.00	06-Feb-15 08:00	09-May-15 18:00	28.00
MIT.TW006	3mT TAM Grout to 1.6m-extent from tunnel temporary extrados	26.00	12-Jun-15 08:00	14-Jul-15 18:00	1.00
MIT.TW020	Break through pipe piles & flame cut holes in sheet H pile	6.00	08-Jul-15 08:00	14-Jul-15 18:00	1.00
MIT.TW030	Drilling full periphery for grouting, approx. 12mL	18.00	15-Jul-15 08:00	04-Aug-15 18:00	1.00
MIT.TW040	1.6mT TAM grouting surrounding extrados of proposed steel tube periphery, approx. 12mL	18.00	18-Jul-15 08:00	07-Aug-15 18:00	1.00
MIT.TW050	Install steel tube for full periphery	18.00	22-Jul-15 08:00	11-Aug-15 18:00	1.00
MIT.TW060	Pressure grouting to fill steel tube and drilled voids around steel periphery	18.00	25-Jul-15 08:00	14-Aug-15 18:00	1.00
MIT.TW070	Weld steel rib in front of pipe pile/ sheet pile wall & within steel periphery	14.00	25-Jul-15 08:00	10-Aug-15 18:00	1.00
MIT.TW080	Remove sheet H pile sections and strutting for tunnel heading excavation	3.00	11-Aug-15 08:00	13-Aug-15 18:00	1.00
MIT.TW090	Measure ground water flow and supplementary grouting	2.00	14-Aug-15 08:00	15-Aug-15 18:00	1.00
MIT.TW100	Install tempoaray face support works	3.00	17-Aug-15 08:00	19-Aug-15 18:00	1.00
RC Structures					
MIT.CS0010	Blinding layer, smooth concrete and waterproofing, 2 bays	3.00	20-Jan-16 08:00	22-Jan-16 18:00	1.00
MIT.CS0100	RC Base Slabs - Smoothing concrete 250tk, waterproof membrane, cast slab, 68m^3 Concrete, ReBar 10.5T	18.00	23-Jan-16 08:00	16-Feb-16 18:00	1.00
MIT.CS0200	RC Walls - Smoothing concrete 250tkm waterproof membrane, cast wall, 26m^3 Concrete, ReBar 22.3T	18.00	04-Feb-16 08:00	27-Feb-16 18:00	1.00
MIT.CS0300	RC Top Slabs - Waterproof membrane, cast top slab, 23m^3 Concrete, ReBar 10.5T	20.00	19-Feb-16 08:00	12-Mar-16 18:00	1.00
MIT.CS0900	Completion of Mined Tunnel Structure & completion of whole tunnel structure	0.00	14-Mar-16 08:00		1.00
Mined Tunnel Excavation					
Top Bench					
MIT.EX0110	Excavate 1st 1/4 top bench 12x1m advance heading, shotcrete face, install steel frame/beam/column@1000c/c (135m3)	24.00	20-Aug-15 08:00	16-Sep-15 18:00	1.00
MIT.EX0120	Excavate 2nd 1/4 top bench 12x1m advance heading, shotcrete face, install steel frame/beam/column@1000c/c (135m3)	24.00	03-Sep-15 08:00	02-Oct-15 18:00	1.00
MIT.EX0140	Excavate 3rd 1/4 top bench 12x1m advance heading, shotcrete face, install steel frame/beam/column@1000c/c (135m3)	36.00	03-Oct-15 08:00	14-Nov-15 18:00	13.00
MIT.EX0150	Excavate last 1/4 top bench 12x1m advance heading, shotcrete face, install steel frame/beam/column@1000c/c (135m3)	36.00	17-Oct-15 08:00	28-Nov-15 18:00	13.00
Middle Bench					
MIT.EX0155	Excavate 1st 1/2 middle bench 12x1m advance heading, shotcrete face, install steel frame/beam/column@1000c/c (270m3)	36.00	03-Oct-15 08:00	14-Nov-15 18:00	1.00
MIT.EX0160	Excavate last 1/2 middle bench 12x1m advance heading, shotcrete face, install steel frame/beam/column@1000c/c (270m3)	60.00	02-Nov-15 08:00	13-Jan-16 18:00	13.00
Bottom Bench					
MIT.EX0170	Excavate 1st 1/2 bottom bench 12x1m advance heading, shotcrete face, install steel frame/beam/column@1000c/c (270m3)	36.00	02-Nov-15 08:00	12-Dec-15 18:00	1.00
MIT.EX8874	Excavate 1st last 1/2 bottom bench 12x1m advance heading, shotcrete face, install steel frame/beam/column@1000c/c(270m3)	25.00	14-Dec-15 08:00	14-Jan-16 18:00	1.00
Break Through Pipe Pile Wall					
MIT.EX8878	Break through 1st 1/2 pipe piles & flame cut sheet H pile	18.00	27-Nov-15 08:00	17-Dec-15 18:00	9.00
MIT.EX8882	Break through remaining 1/2 pipe piles & flame cut sheet H pile	17.00	30-Dec-15 08:00	19-Jan-16 18:00	1.00
TTM 7 - NBC, Playground, JnR North & South Footpath					
Preliminaries, Instrumentation, UU Diversions, etc.					
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
B07.0100	Implement TTM7	2.00	29-Jul-15 08:00	30-Jul-15 18:00	6.00
Sheet Pile, Pipe Pile, Grouting, Decking					
B07.0200	Sheet pile at JnR South Footpath, 10 x 21m, total 210m, 16t	5.00	04-Aug-15 08:00	08-Aug-15 18:00	6.00
B07.0270	Temporary decking at JnR South Footpath	10.00	10-Aug-15 08:00	20-Aug-15 18:00	6.00
Pump Test, Excavation, ELS					
B07.0280	Pumping test 5	12.00	21-Aug-15 08:00	03-Sep-15 18:00	6.00
B07.0300	Excavation & ELS, 700 m3	14.00	04-Sep-15 08:00	19-Sep-15 18:00	6.00
B07.0310	Hard core blanket 300tk, blinding layer 75tk, waterproof membrane	12.00	10-Sep-15 08:00	23-Sep-15 18:00	6.00
RC Structures					
B07.0400	RC Slab - Smoothing concrete 250tk, waterproof membrane, cast slab, 120m^3 Concrete, ReBar 6.0T	28.00	17-Sep-15 08:00	22-Oct-15 18:00	6.00
B07.0500	RC Wall - Smoothing concrete 250tkm waterproof membrane, cast wall, 55m^3 Concrete, ReBar 19.3T	34.00	03-Oct-15 08:00	12-Nov-15 18:00	6.00
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
Backfill and Miscellanous Works					
B07.0700	Backfill to ground level, cut sheet pile 2m depth below ground, reinstate road & footpath 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					

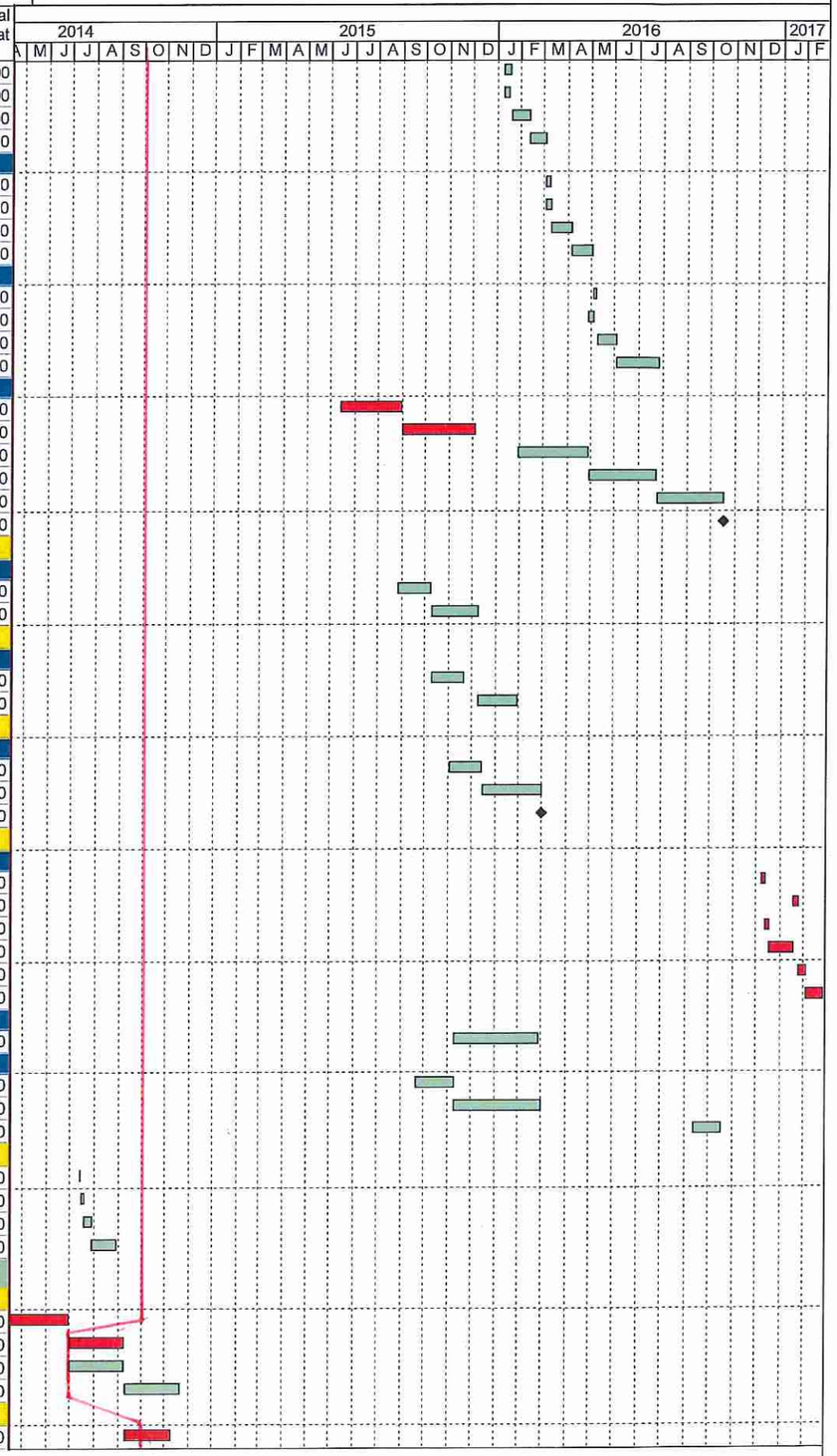


Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Preliminary Master Programme (Rev.B)

Kaden 基利

Activity ID	Activity Name	Original Duration	Planned Start	Planned Finish	Total Float
A01.HRD08	Stage 8 - Erect hoarding 55m, Remove hoarding 24m, Relocate 1 no. gate, and water infill barriers	8.00	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
B08.0200	Cut down sheetpiles at JnR Carriageway EB Kerb Lane & pipe piles at JnR Carriageway WB 2m below ground	18.00	19-Jan-16 08:00	11-Feb-16 18:00	45.00
B08.0700	Backfill and reinstate	18.00	12-Feb-16 08:00	03-Mar-16 18:00	45.00
TTM 9 - NBC, Playground, JnR Carriageway EB Median Lane					
A01.HRD09	Stage 9 - Erect hoarding 14m, Remove hoarding 37m, Relocate 1 no. gate, and water infill barriers	4.00	04-Mar-16 08:00	08-Mar-16 18:00	47.00
B09.0100	Implement TTM9	6.00	04-Mar-16 08:00	10-Mar-16 18:00	45.00
B09.0200	Cut down sheetpiles and pipe piles 2 m below ground at JnR Carriageway EB Median Lane and JnR Carriageway WB	19.00	11-Mar-16 08:00	06-Apr-16 18:00	45.00
B09.0700	Backfill and reinstate	22.00	07-Apr-16 08:00	03-May-16 18:00	45.00
TTM 10 - NBC, Playground					
A01.HRD10	Stage 10 - Remove hoarding 32m, and remove water infill barriers	3.00	05-May-16 08:00	07-May-16 18:00	45.00
B10.0100	Implement TTM10	6.00	27-Apr-16 08:00	04-May-16 18:00	45.00
B10.0200	Cut down sheetpiles and pipe piles 2 m below ground at NBC and Playround	22.00	09-May-16 08:00	03-Jun-16 18:00	45.00
B10.0700	Backfill and reinstate - NBC	42.00	04-Jun-16 08:00	25-Jul-16 18:00	176.00
Subway ABWF Works					
BAF.0010	Subway ABWF works - Degree 1 (1st Batch)	65.00	13-Jun-15 08:00	29-Aug-15 18:00	3.00
BAF.0011	Subway ABWF works - Degree 1 (Remaining Batch) (31-Jul'14)	80.00	31-Aug-15 08:00	04-Dec-15 18:00	3.00
BAF.0030	Subway ABWF works - Degree 3 (1st Batch)	70.00	30-Jan-16 08:00	28-Apr-16 18:00	107.00
BAF.0031	Subway ABWF works - Degree 3 (2nd Batch)	70.00	29-Apr-16 08:00	23-Jul-16 18:00	107.00
BAF.0032	Subway ABWF works - Degree 3 (Remaining Batch)(30-Oct'16)	70.00	25-Jul-16 08:00	17-Oct-16 18:00	107.00
MB09p	B9 ABWF degree 3 - Programmed	0.00		17-Oct-16 18:00	107.00
B3 Fresh Air Intake Facility					
Structure and ABWF					
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
B3.0100	Fresh Air Intake ABWF works, Waterproof membrane 45 m2, Tiling roof+wall&column 9+45m2, kerb 12m, louvre 3 nr.	50.00	10-Oct-15 08:00	08-Dec-15 18:00	107.00
B4 Smoke Extraction Facility					
Structure and ABWF					
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
B4.0100	Smoke Extraction ABWF works, Waterproof membrane 70 m2, Tiling roof+wall&column 9+45m2, kerb 12m, louvre 1 nr.	42.00	09-Dec-15 08:00	29-Jan-16 18:00	107.00
B6 URA H15 Breakout					
Structure and ABWF					
B6.0010	Preparation and Breaking out at URA H15, 7.5mW x 4.5mH	36.00	03-Nov-15 08:00	14-Dec-15 18:00	117.00
B6.0020	URA H15 ABWF, Prepare surface 25m, plastering+screeding 25+8m2, tiling 17m2, kerb 2m, ceiling 8m3, cladding 9m2	60.00	15-Dec-15 08:00	29-Feb-16 18:00	117.00
INF.H15p	Interface Access for Contract H15, All Levels, No.Cal.Wk. 131	0.00		29-Feb-16 18:00	117.00
B7 Reprovisioning Works to Southorn Playground					
NBC and SBC at Works Area 6593.W3 (Stage 11 & Stage 12)					
A01.HRD11	Stage 11 - Erect hoarding 66m, Erect 1 no. gate (Reinstatement NBC)	4.00	08-Dec-16 08:00	12-Dec-16 18:00	1.00
A01.HRD12	Stage 12 - Erect hoarding, 58m, Remove hoarding 58m (Reinstatement SBC)	6.00	18-Jan-17 08:00	24-Jan-17 18:00	1.00
B7.NBC310	W3 NBC - Excavaton 116 m3, remove existing basketball court surface 375 m2	4.00	13-Dec-16 08:00	16-Dec-16 18:00	1.00
B7.NBC320	W3 NBC - Reinstatement - Subgrade, rc slab/light fnd., EPDM surface coat 375m2, furnitures, etc.	24.00	17-Dec-16 08:00	17-Jan-17 18:00	1.00
B7.SBC310	W3 SBC - Excavaton 116 m3, remove existing basketball court surface 375 m2	6.00	25-Jan-17 08:00	03-Feb-17 18:00	1.00
B7.SBC320	W3 SBC -Reinstatement - Subgrade, rc slab/light fnd., EPDM surface coat 375m2, furnitures, etc.	18.00	04-Feb-17 08:00	24-Feb-17 18:00	1.00
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 Works					
B7.LDS200	Play Area - RC wall & footing, finish to match existing 160m, planter wall 197m, etc.	40.00	21-Sep-15 08:00	09-Nov-15 18:00	25.00
B7.LDS300	Play Area - Landscaping, Shrubs 1198 nr, tree 17 nr.	90.00	10-Nov-15 08:00	29-Feb-16 18:00	204.00
B7.LDS900	Playground - Joint inspection and handover to LCSD	28.00	12-Sep-16 08:00	17-Oct-16 18:00	45.00
B8 Ground Investigation Works					
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
B00.0111	Mobilization of SI rigs	4.00	15-Jul-14 08:00	18-Jul-14 18:00	35.00
B00.0120	Site Investigation, PH01	8.00	19-Jul-14 08:00	28-Jul-14 18:00	35.00
B00.0130	Site Investigation, Lab tests and report, and submission	28.00	29-Jul-14 08:00	29-Aug-14 18:00	35.00
C. Subway Building Services Works					
Design, Shop Drawings, Materials & Equipments Submission and Approval					
C1.0010	BS Works - Design, Materials and Equipments - Submisssion & 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 - Submisssion & AIP (Remaining)	60.00	30-Jun-14 08:00	08-Sep-14 18:00	6.00
C2.0010	BS Works - Shop drawings - Submisssion & AIP (1st Batch)	60.00	30-Jun-14 08:00	08-Sep-14 18:00	53.00
C2.0015	BS Works - Shop drawings - Submisssion & AIP (Remaining)	60.00	10-Sep-14 08:00	20-Nov-14 18:00	53.00
Procurement and Delivery of Materials and Equipments					
C3.0010	BS Works - Procurement of all major building service equipments and materials (1st Batch)	50.00	10-Sep-14 08:00	08-Nov-14 18:00	6.00

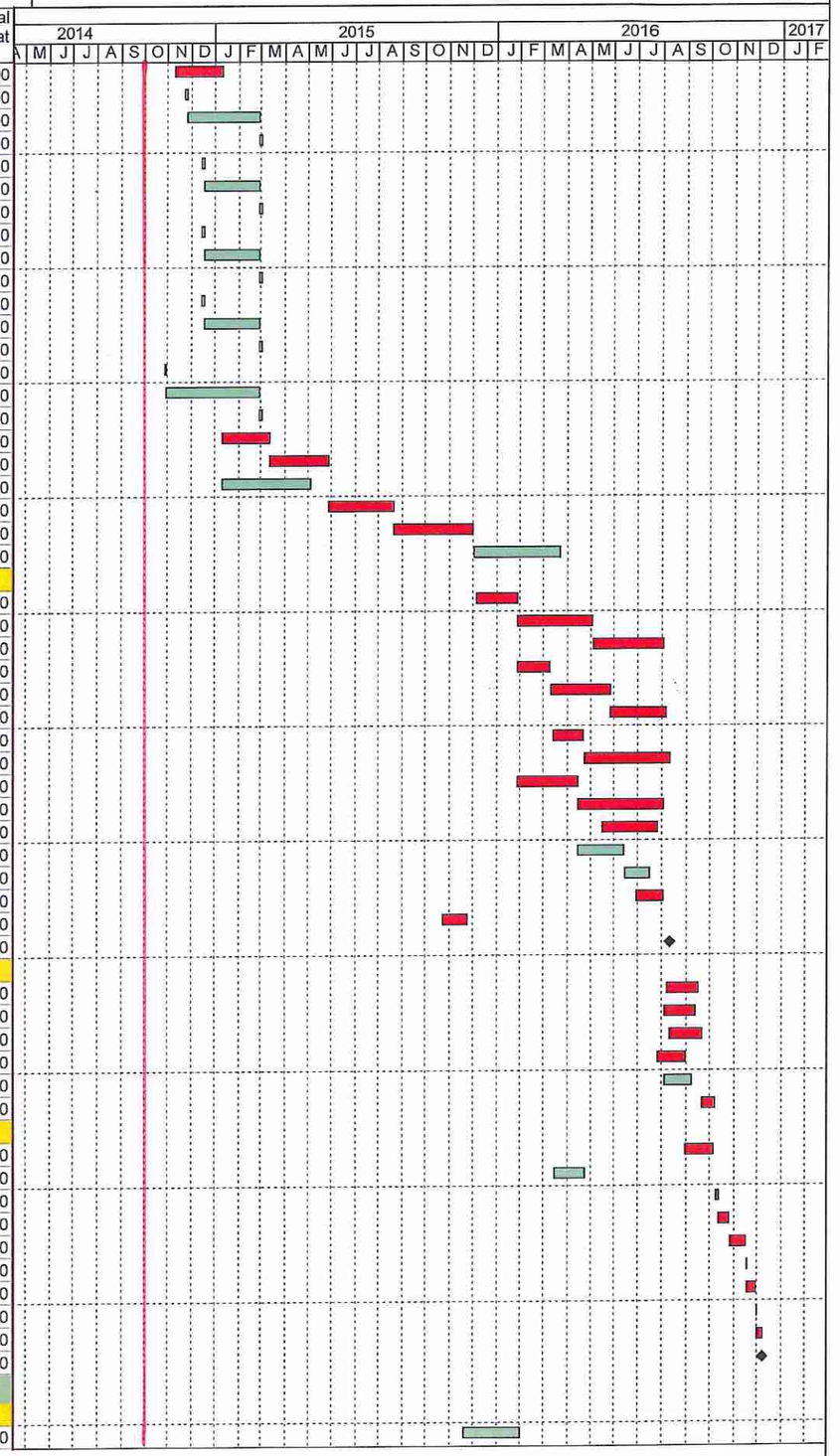


Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Preliminary Master Programme (Rev.B)

Kaden 基利

Activity ID	Activity Name	Original Duration	Planned Start	Planned Finish	Total Float
C3.0011	BS Works - Procurement of all major building service equipments and materials (Remaining)	50.00	10-Nov-14 08:00	09-Jan-15 18:00	6.00
C3.00210	BS Works - Place Order for Air Handling Unit	3.00	24-Nov-14 08:00	26-Nov-14 18:00	74.00
C3.00211	BS Works - Manufacture of Air Handling Unit	73.00	27-Nov-14 08:00	26-Feb-15 18:00	74.00
C3.00212	BS Works - Delivery of Air Handling Unit	3.00	27-Feb-15 08:00	02-Mar-15 18:00	74.00
C3.00220	BS Works - Place Order for In-line Centrifugal Fan	3.00	15-Dec-14 08:00	17-Dec-14 18:00	74.00
C3.00221	BS Works - Manufacture of In-line Centrifugal Fan	55.00	18-Dec-14 08:00	26-Feb-15 18:00	74.00
C3.00222	BS Works - Delivery of In-line Centrifugal Fan	3.00	27-Feb-15 08:00	02-Mar-15 18:00	74.00
C3.00230	BS Works - Place Order for Smoke Extraction Fan	3.00	15-Dec-14 08:00	17-Dec-14 18:00	74.00
C3.00231	BS Works - Manufacture of Smoke Extraction Fan	55.00	18-Dec-14 08:00	26-Feb-15 18:00	74.00
C3.00232	BS Works - Delivery of Smoke Extraction Fan	3.00	27-Feb-15 08:00	02-Mar-15 18:00	74.00
C3.00240	BS Works - Order for Fan Coil Unit	3.00	15-Dec-14 08:00	17-Dec-14 18:00	74.00
C3.00241	BS Works - Manufacture of Fan Coil Unit	55.00	18-Dec-14 08:00	26-Feb-15 18:00	74.00
C3.00242	BS Works - Delivery of Fan Coil Unit	3.00	27-Feb-15 08:00	02-Mar-15 18:00	74.00
C3.00250	BS Works - Order for Smoke & Fire damper	3.00	27-Oct-14 08:00	29-Oct-14 18:00	74.00
C3.00251	BS Works - Manufacture of Motorized Smoke & Fire damper	97.00	30-Oct-14 08:00	26-Feb-15 18:00	74.00
C3.00252	BS Works - Delivery of Motorized Smoke & Fire damper	3.00	27-Feb-15 08:00	02-Mar-15 18:00	74.00
C4.0010	BS Works - FATs for all major building service equipments and materials (1st Batch)	50.00	10-Jan-15 08:00	12-Mar-15 18:00	6.00
C4.0011	BS Works - FATs for all major building service equipments and materials (Remaining)	59.00	13-Mar-15 08:00	27-May-15 18:00	6.00
C5.0000	Exchange of Design Information with Designated and Interfacing Contractors	90.00	10-Jan-15 08:00	04-May-15 18:00	13.00
C5.0010	BS Works - Delivery of all major equipments for the ECS plant room (1st Batch)	70.00	28-May-15 08:00	19-Aug-15 18:00	6.00
C5.0015	BS Works - Delivery of all major equipments for the ECS plant room (2nd Batch)	86.00	20-Aug-15 08:00	01-Dec-15 18:00	6.00
C5.0016	BS Works - Delivery of all major and others equipments for the ECS plant room (Remaining)	90.00	02-Dec-15 08:00	22-Mar-16 18:00	275.00
Installation of Building Services					
C6.0110	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
C6.0120	Electrical - Subway, D.eq.82nr, cable tray&trunk 803m, cable 2200m, light fit 91nr, earth 170m, sign 42nr, connection(1)	75.00	28-Jan-16 08:00	03-May-16 18:00	7.00
C6.0125	Electrical - Subway, D.eq.82nr, cable tray&trunk 803m, cable 2200m, light fit 91nr, earth 170m, sign 42nr, connection(2)	75.00	04-May-16 08:00	02-Aug-16 18:00	7.00
C6.0210	ECS - Within WAC Stn, Grille 6 nr, air duct 115m2, damper 7 nr.	33.00	28-Jan-16 08:00	09-Mar-16 18:00	4.00
C6.0220	ECS - Subway, Pipe/insul.75m, fan 12nr, grille 45nr, airduct 1106m2, paint 60m2, damper 36nr, control 4nr, etc. (1st)	60.00	10-Mar-16 08:00	25-May-16 18:00	4.00
C6.0225	ECS - Subway, Pipe/insul.75m, fan 12nr, grille 45nr, airduct 1106m2, paint 60m2, damper 36nr, control 4nr, etc. (2nd)	60.00	26-May-16 08:00	05-Aug-16 18:00	4.00
C6.0310	FS Works - Within H15, Pipe 59m, dectector 7 nr, hose reel 1 nr	30.00	14-Mar-16 08:00	21-Apr-16 18:00	1.00
C6.0320	FS Works - Subway, Pipe 155m, valve 2 nr, detectors 38 nr, hose reel 1 nr, fire extinguisher 4 nr, connection, etc.	90.00	22-Apr-16 08:00	09-Aug-16 18:00	1.00
C6.0410	Drainage System - Waste - Existing WSC Stn, 35 m pipe, 2 valve, 4 pit, 1 switch/ control panel, 1 power supply system	60.00	28-Jan-16 08:00	14-Apr-16 18:00	3.00
C6.0420	Drainage System - Waste - Subway, Pipe DI/CI 257+18m, 7 joint, 6 OTC	90.00	15-Apr-16 08:00	02-Aug-16 18:00	3.00
C6.0430	Drainage System - Rainwater Discharge, CI pipe, 8+18m above/below ground, 2 manholes	59.00	16-May-16 08:00	25-Jul-16 18:00	3.00
C6.0510	Cleansing Water System - Within WAC Station, 137m copper pipe, 3 gate valve, 2 stopcock, 2 water meter	48.00	15-Apr-16 08:00	13-Jun-16 18:00	11.00
C6.0520	Cleansing Water System - Subway, 87m copper pipe, 1 gate valve, 1 joint	27.00	14-Jun-16 08:00	15-Jul-16 18:00	11.00
C6.0521	Remaining BS Works.	28.00	29-Jun-16 08:00	01-Aug-16 18:00	8.00
C6.0522	Installation of flood gate	28.00	23-Oct-15 08:00	24-Nov-15 18:00	8.00
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
Testing and Commissioning					
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	12-Sep-16 18:00	7.00
C9.BS33TC	T&C Fire Services - Performance Test/ FH & HR System/ Auto Fire Alam System	35.00	10-Aug-16 08:00	20-Sep-16 18:00	1.00
C9.BS34TC	T&C Plumbing and Drainage - P&D Pumps, Control System	30.00	26-Jul-16 08:00	29-Aug-16 18:00	3.00
C9.BS36TC	T&C ELV System - Contol Systems	30.00	03-Aug-16 08:00	06-Sep-16 18:00	12.00
C9.BSFSI	FSI - Integrated Test	14.00	21-Sep-16 08:00	07-Oct-16 18:00	1.00
Statutory Inspection and Approval					
C9.SI0020	DSD/ WSD Inspection and Connection	30.00	30-Aug-16 08:00	05-Oct-16 18:00	3.00
C9.SI0025	Connection for electricity	30.00	16-Mar-16 08:00	23-Apr-16 18:00	138.00
C9.SI0030	Submit Forms FS 314 & FS 501	2.00	08-Oct-16 08:00	11-Oct-16 18:00	1.00
C9.SI0040	FS Inpection / Re-inspection	12.00	12-Oct-16 08:00	25-Oct-16 18:00	1.00
C9.SI0050	FS Defect Rectification and Approval	18.00	27-Oct-16 08:00	16-Nov-16 18:00	1.00
C9.SI0060	Obtain FS Certification	1.00	17-Nov-16 08:00	17-Nov-16 18:00	1.00
C9.SI0065	OP Inpection/ Re-inspection	10.00	18-Nov-16 08:00	29-Nov-16 18:00	1.00
C9.SI0070	Obtain OP	1.00	30-Nov-16 08:00	30-Nov-16 18:00	1.00
C9.SIHO	Joint Inspection and Handover to Operation Team for the BS of the New Subway	6.00	01-Dec-16 08:00	07-Dec-16 18:00	1.00
MSB10p	Complete & pass all statutory, joint Inspection & handover to Operation Team for the BS of new Subway- Programmed	0.00		07-Dec-16 18:00	1.00
D. WAC Station Modification Works (Part B Works)					
ABWF Works & Misc Works					
D3080	ABWF - Plaster & titling 29 m2, baffling ceiling 10 m2, metal cladding 9 m2	60.00	19-Nov-15 08:00	30-Jan-16 18:00	71.00

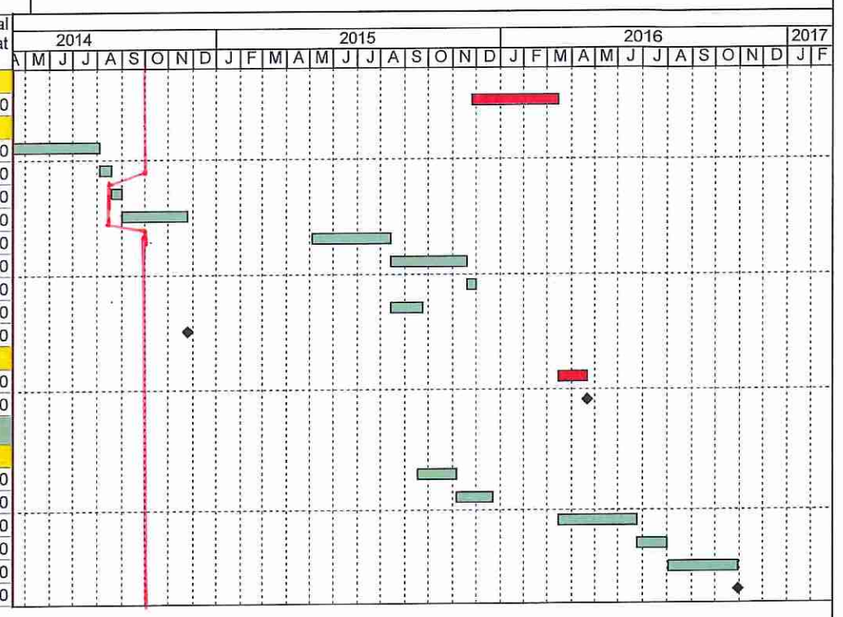


Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Preliminary Master Programme (Rev.B)

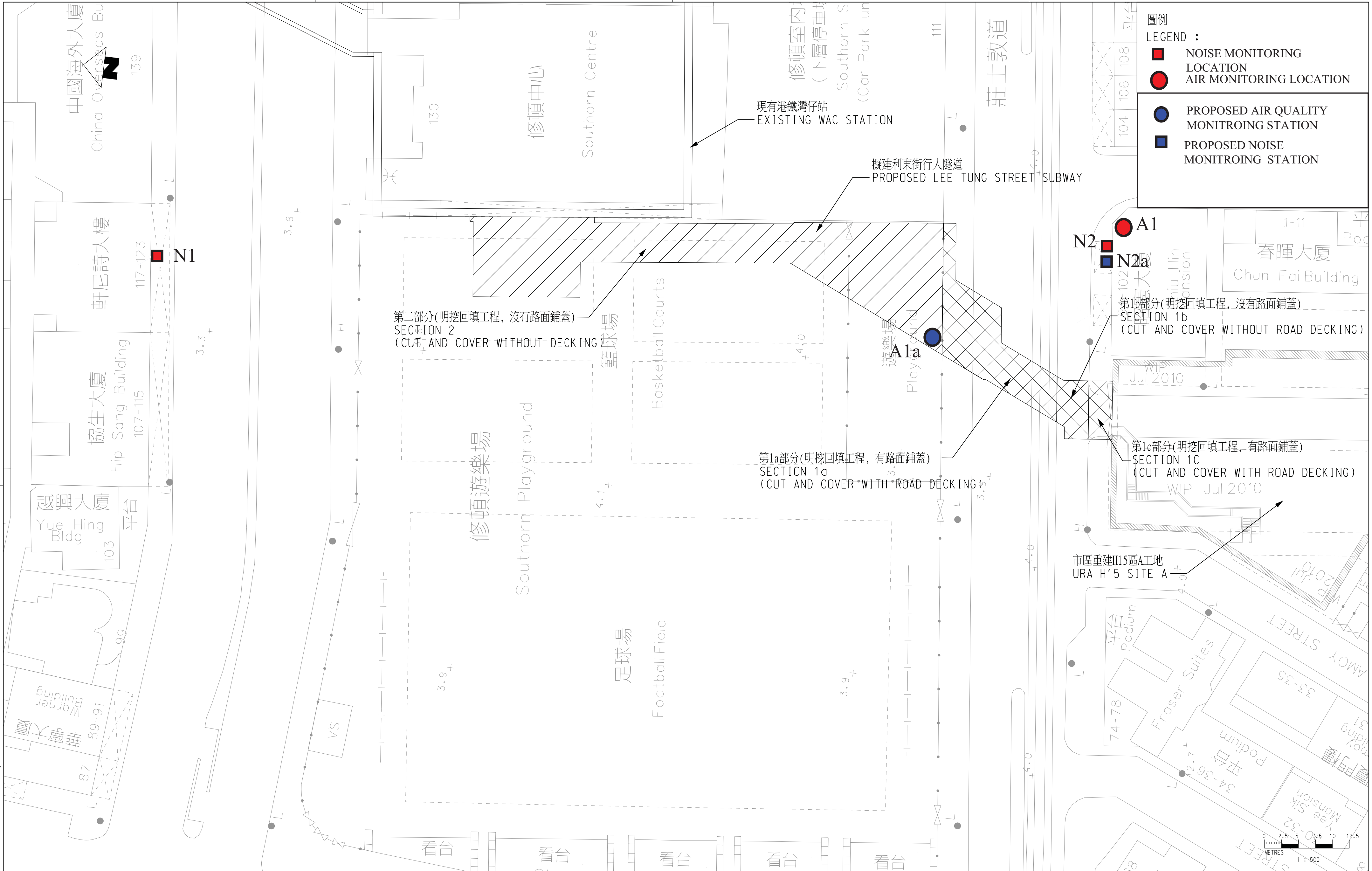
Kaden 基利

Activity ID	Activity Name	Original Duration	Planned Start	Planned Finish	Total Float
Breaking Out WAC Station					
D2070	Breaking out WAC Station - Form opening, core holes 72 nr, chain cut 1225 x 900mm block 55 nr.	90.00	25-Nov-15 08:00	15-Mar-16 18:00	8.00
WAC Station Modification Works					
D1001	Liaison with MTR and relevance parties for works in WAC station	90.00	14-Apr-14 08:00	04-Aug-14 18:00	121.00
D1002	Preparation works for works in WAC station	12.00	05-Aug-14 08:00	18-Aug-14 18:00	121.00
D1010	Internal Hoarding in WAC station (NTH)	12.00	19-Aug-14 08:00	01-Sep-14 18:00	121.00
D1020	Construct new AFC/Audit Room next to Entrance B1, B2, ABWF & BS Works (NTH)	69.00	02-Sep-14 08:00	24-Nov-14 18:00	121.00
D1030	Modification Works to existing AFC/Audit, Store & Kiosk 3 & 5 (NTH)	84.00	05-May-15 08:00	13-Aug-15 18:00	13.00
D1040	Modification to existing Kiosk 2 (NTH)	80.00	14-Aug-15 08:00	18-Nov-15 18:00	13.00
D1050	Relocate 4 Advertising Panels (NTH)	10.00	19-Nov-15 08:00	30-Nov-15 18:00	93.00
D1060	Install New Telephone Booth and associated works (NTH)	36.00	14-Aug-15 08:00	24-Sep-15 18:00	57.00
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	153.00
Testing and Commissioning					
D4090	Testing and Commissioning	28.00	16-Mar-16 08:00	21-Apr-16 18:00	8.00
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 Station Imporvement Works (Part C Works)					
Improvement Works to WAC Station					
E1020	Modify, provide & install new glass barrier to suit new AFC gates (NTH)	40.00	17-Sep-15 08:00	05-Nov-15 18:00	94.00
E1030	Provide and install additional AFC gates (NTH)	40.00	06-Nov-15 08:00	22-Dec-15 18:00	94.00
E1040	Provide builder works for TIMS relocation (NTH)	80.00	16-Mar-16 08:00	24-Jun-16 18:00	28.00
E1050	T&C by Designated Contractor for TIMS (NTH)	30.00	25-Jun-16 08:00	30-Jul-16 18:00	28.00
E1060	Make Good builder works for TIMS (NTH)	75.00	01-Aug-16 08:00	29-Oct-16 18:00	28.00
MSE03p	E3- All works in milestone E completed - Programmed	0.00		29-Oct-16 18:00	28.00



Appendix D

Monitoring Locations



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

DRAWN
DESIGNED
CHECKED
APPROVED
DATE

DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED ON SITE.

MTR

WAC STATION LEE TUNG STREET SUBWAY

ORIGINATOR

Mott MacDonald

20/F Two Landmark East, 100 How Ming Street, Kwun Tong, Kowloon, Hong Kong

CADD REF.

TITLE

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

SCALE 1:500 (A3)

DRAWING NO.

REV.

PLOT DRV: C:\ProgramData\Bentley\MicroStation V8i (SELECTseries)\WorkSpace\System\plotcfg\MTR_PDF_BW_COL_3000P.plt
MODELNAME: Default PRINTED BY: mo57494 20/06/2012 12:08:18
FILENAME: J:\282435\REPORT\ENV\PP\20120516\NEX1050_2.7A.0050.dgn

Appendix E

Event and Action Plan

Event and Action Plan for Construction Noise

Event	Action			
	ET	**IEC**	**ER**	**Contractor**
Action Level	1. Notify IEC and Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and Contractor. 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analyzed result submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analyzed noise problem 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC 2. Implement noise mitigation proposals
Limit Level	1. Notify IEC, ER, EPD and Contractor, and follow other actions 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Check Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD, ER informed of the results 8. If exceedance stops, cease additional monitoring	1. Discuss amongst ER, ET and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly 3. Supervise the implementation of remedial measures	1. Confirm receipt of notification of exceedances 2. Notify Contractor 3. Require Contractor to propose remedial measures 4. Ensure remedial measures are properly implemented 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notifications 3. Implement the agreed proposals 4. Revise and resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Air Quality

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

Appendix F

Implementation Schedule for Environmental Mitigation Measures (ISEMM)

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
NOISE IMPACT						
S.5.1.1	**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	**Use of noise enclosure and movable barrier** • movable barrier can achieve a 5 dB(A) reduction for movable PME and 10 dB(A) reduction for stationary PME; • noise enclosure can achieve 15dB(A) reduction for PME; • noise enclosure is proposed to be built after open excavation in order to minimize the noise impact due to further excavation work and construction of subway. The enclosure should either be provided with acoustic door for access purpose which should be kept closed during the construction works or should be designed with no direct line of sight from the open side to the NSRs; • A typical design barrier with a steel frame of vertical / cantilever type would be adopted and located close to the noise generating part of PME; • Barrier material of surface mass in excess of 7kg/m^2 shall be required to achieve the maximum screening effect (and minimum 10kg/m^2 for noise enclosure); • The length of barrier should generally be at least five times greater than its height and the minimum height of a barrier should be such that no part of the noise source will be visible from the noise sensitive receiver being protected.	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93, Noise Control Ordinance and EIAO Guidance Note NO. 9/2010
S.5.1.1	**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	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control Ordinance

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
	Engineer before commencing any work; • Working methods to minimize the noise impact on the surrounding NSRs shall be formulated and executed, and the implementation of these methods shall be monitored by experienced personnel with suitable training; • Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical; • Unused equipment shall be turned off; • PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided; • All plant and equipment shall be maintained regularly; and • Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable.					
AIR QUALITY IMPACT						
S.5.1.2	**Construction Dust Control Measures** • 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	To minimize the dust impacts arising from the construction works	Contractor	Work site	Construction Stage	Air Pollution Control (Construction Dust) Regulation

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
	avoid any dust nuisance arising					
WATER QUALITY IMPACT						
S.5.1.3	**Construction Water Quality Impact Measures** • Collection of wastewater into a sedimentation tank for treatment before discharge into the public drainage system; • Provision of silt trap and oil interceptor to remove the oil, lubricants, grease, silt, grit and debris from the wastewater prior to discharge to the public stormwater system. The silt traps and oil interceptors should be cleaned and maintained regularly; • Installation of wheel washing facilities to minimize muddy runoff; • Regular maintenance and inspection of drainage systems and erosion control and silt removal facilities; • Management and monitoring of sewage treatment facilities (if any); • Any foul effluent should not be discharged into any public sewer and stormwater drain, unless an effluent discharge permit is obtained under the WPCO by the Contractor; • Coverage of stockpiles of C&D materials (if any) during rainstorms; and • Site toilet facilities, if needed, should be chemical toilets or should have the sewage discharge directed to a foul sewer.	To reduce water quality impact induced by the construction work	Contractor	Work site	Construction Stage	ProPECC PN1/94; Water Pollution Control Ordinance
WASTE MANAGEMENT						
S.5.1.4	**Construction Waste Management Measures** • Scrap metals or abandoned equipment should be recycled if possible; • Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner; • The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill. Independent audits of the Contractor and resident site staff will be undertaken to ensure that the correct procedures are being followed; • Chemical waste shall be handled in accordance with the Code of Practice	To adopt waste management measures in the way of avoiding, minimizing, reusing and recycling so as to reduce waste generation	Contractor	Work site	Construction Stage	Waste Disposal Ordinance (Cap. 354); Waste Disposal (Chemical Waste) (General) Regulation; DEVB TCW No. 6/2010; ETWB TCW No. 19/2005.

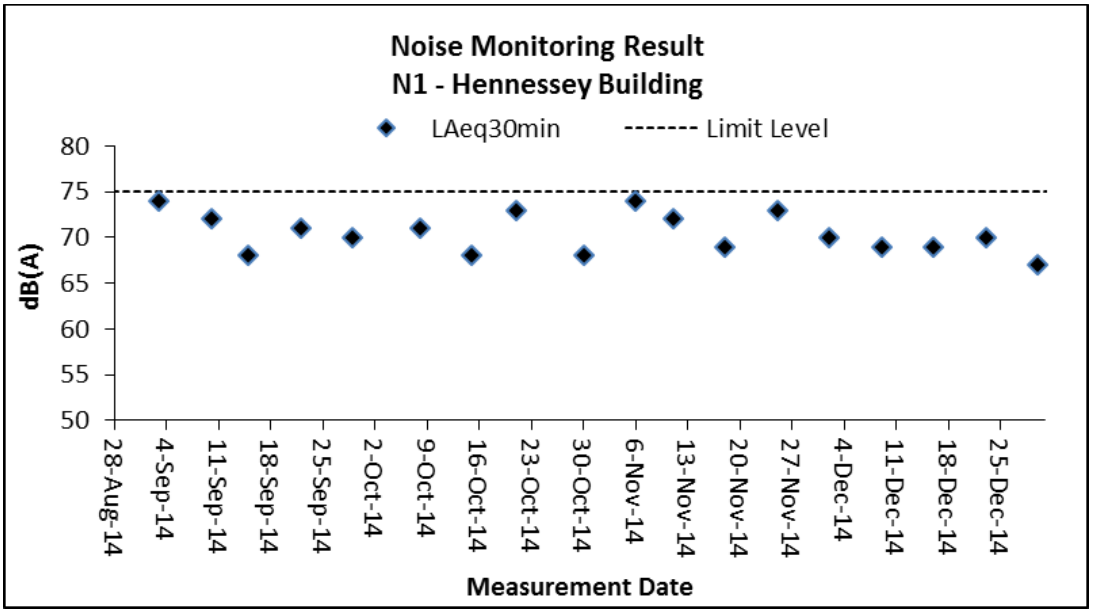
Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	on the Packaging, Handling and Storage of Chemical Wastes; and • All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminum cans, plastic bottles etc. should be provided to facilitate reuse or recycling of materials and their proper disposal.					
LANDSCAPE AND VISUAL IMPACT						
S.5.1.5	**Landscape and Visual Measures** • Clear demarcation of works area to prevent damages to existing trees in close proximity; • Protection of all trees planned to be retained onsite; • Preserving all affected trees by transplanting where practical. Tree transplanting application and tree removal application shall be submitted for approval in accordance with ETWB TCW 3/2006; and • Screening of construction works by hoardings/noise barriers around Works area in visually unobtrusive colors.	To reduce landscape and visual impact by construction works.	Contractor	Work Site and nearby playground	Construction Stage	EIAO; ETWB TCW No. 3/2006.

Appendix G

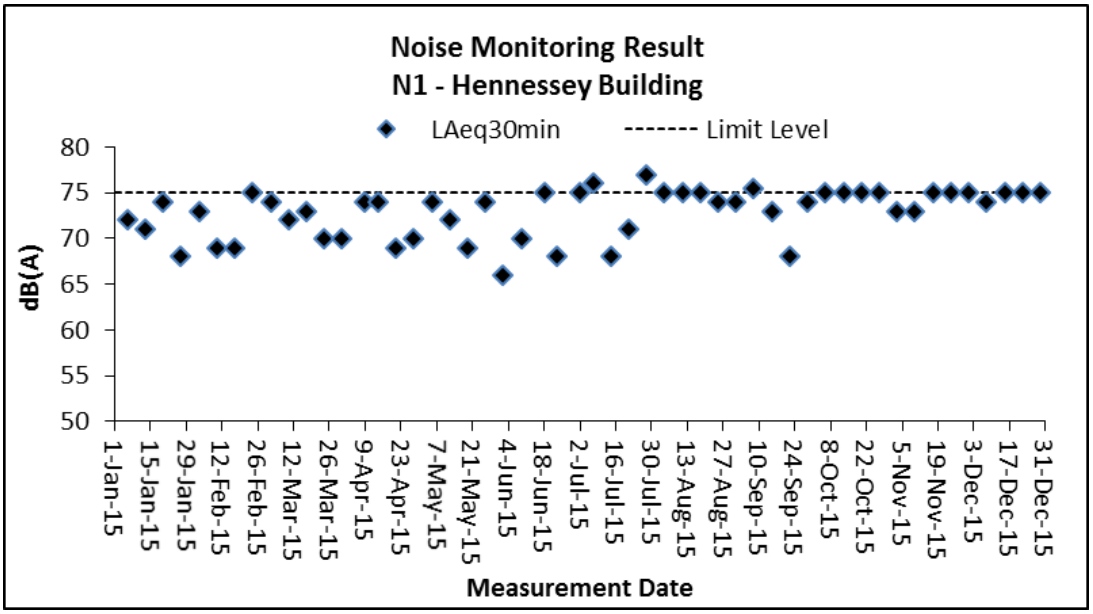
Graphical Plot of Monitoring Results

Construction Noise – (N1)

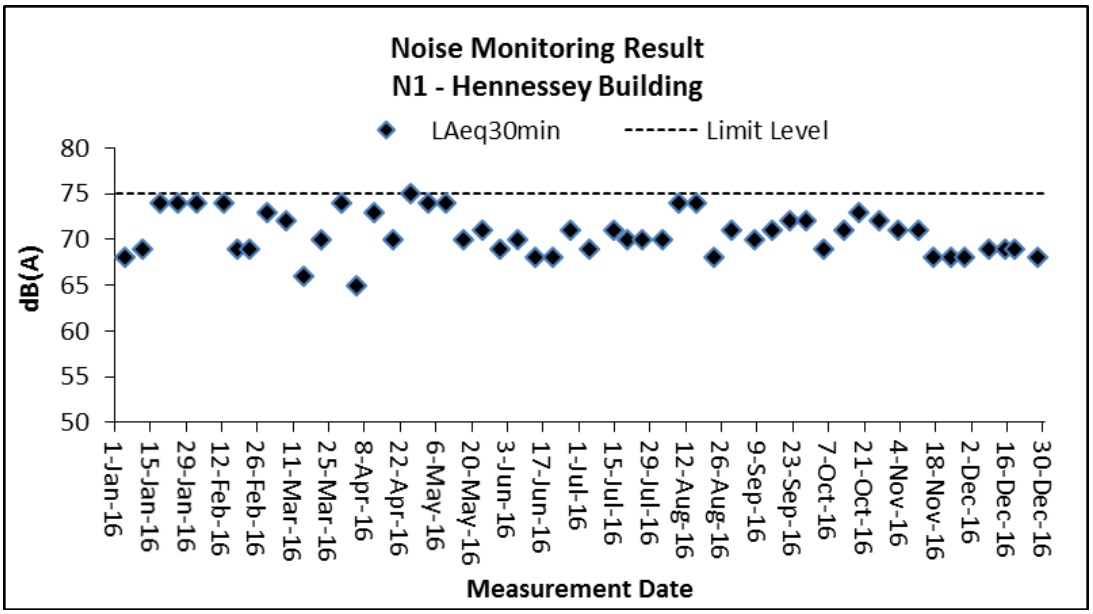
2014



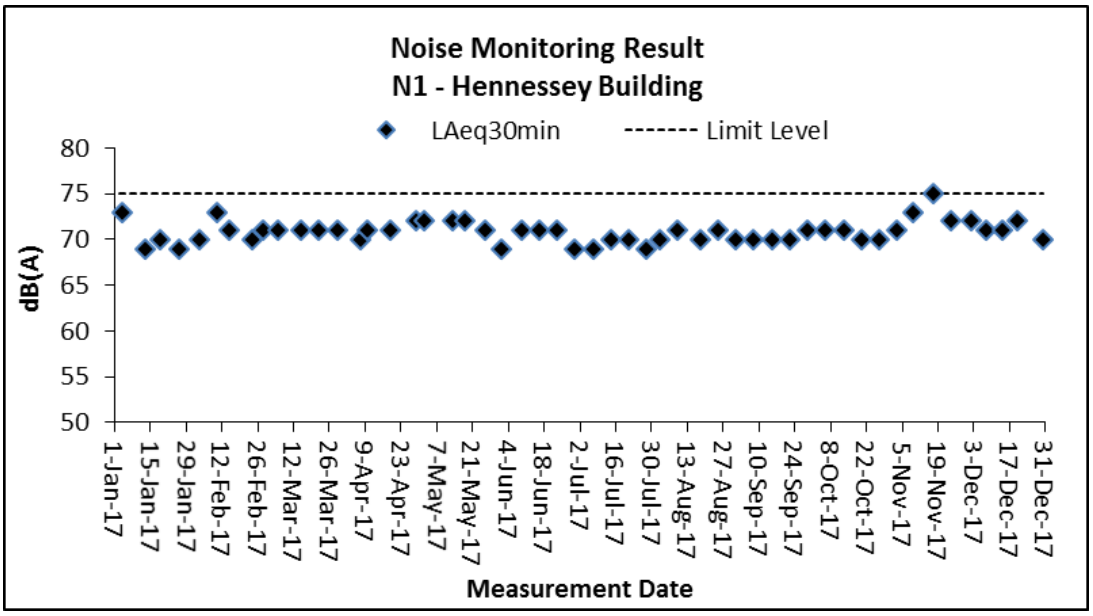
2015



2016

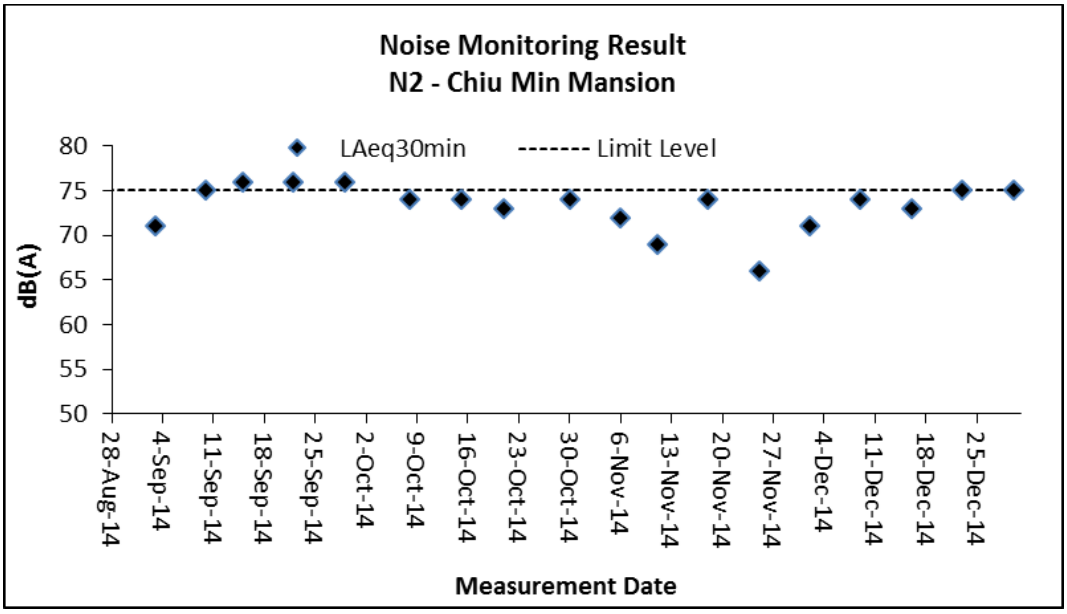

Noise Monitoring Result
N1 - Hennessey Building
LAeq30min
Limit Level
dB(A)
80
75
70
65
60
55
50
1-Jan-16
15-Jan-16
29-Jan-16
12-Feb-16
26-Feb-16
11-Mar-16
25-Mar-16
8-Apr-16
22-Apr-16
6-May-16
20-May-16
3-Jun-16
17-Jun-16
1-Jul-16
15-Jul-16
29-Jul-16
12-Aug-16
26-Aug-16
9-Sep-16
23-Sep-16
7-Oct-16
21-Oct-16
4-Nov-16
18-Nov-16
2-Dec-16
16-Dec-16
30-Dec-16
Measurement Date

2017

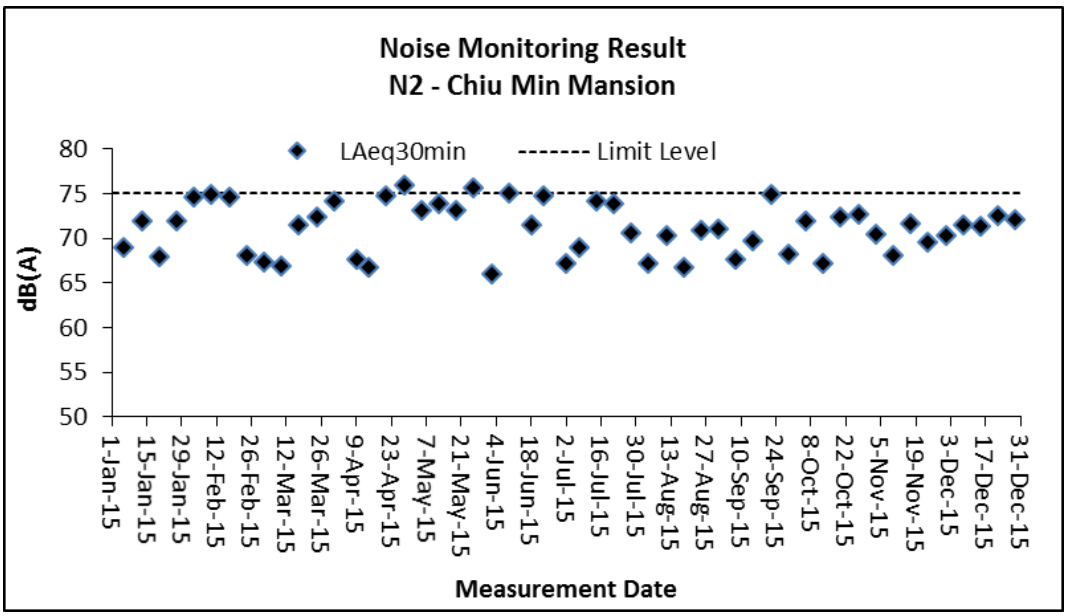

Noise Monitoring Result
N1 - Hennessey Building
LAeq30min
Limit Level
dB(A)
80
75
70
65
60
55
50
1-Jan-17
15-Jan-17
29-Jan-17
12-Feb-17
26-Feb-17
12-Mar-17
26-Mar-17
9-Apr-17
23-Apr-17
7-May-17
21-May-17
4-Jun-17
18-Jun-17
2-Jul-17
16-Jul-17
30-Jul-17
13-Aug-17
27-Aug-17
10-Sep-17
24-Sep-17
8-Oct-17
22-Oct-17
5-Nov-17
19-Nov-17
3-Dec-17
17-Dec-17
31-Dec-17
Measurement Date

Construction Noise – (N2)

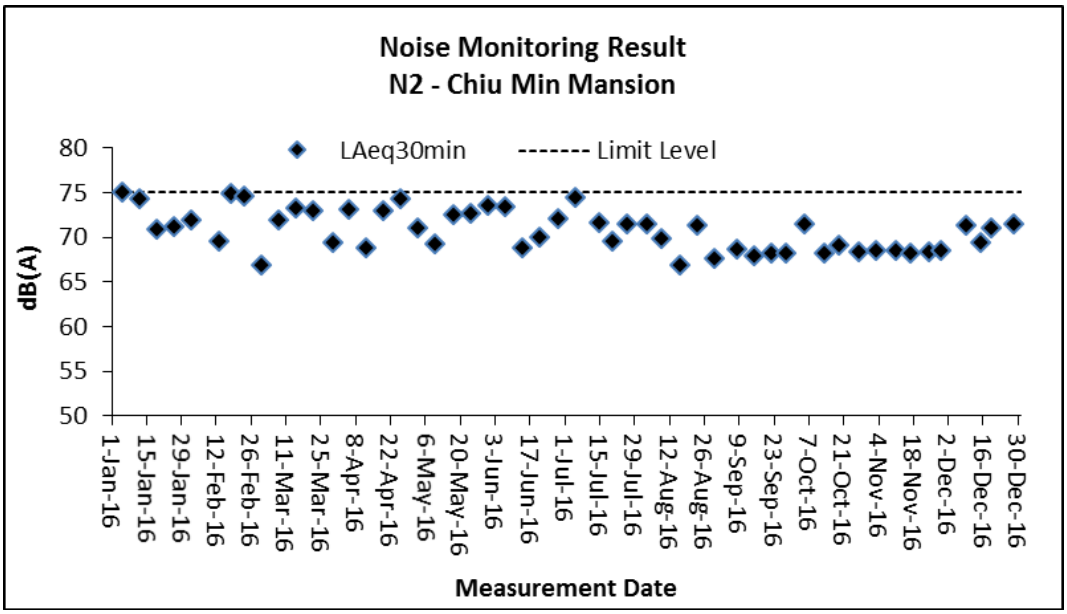
2014



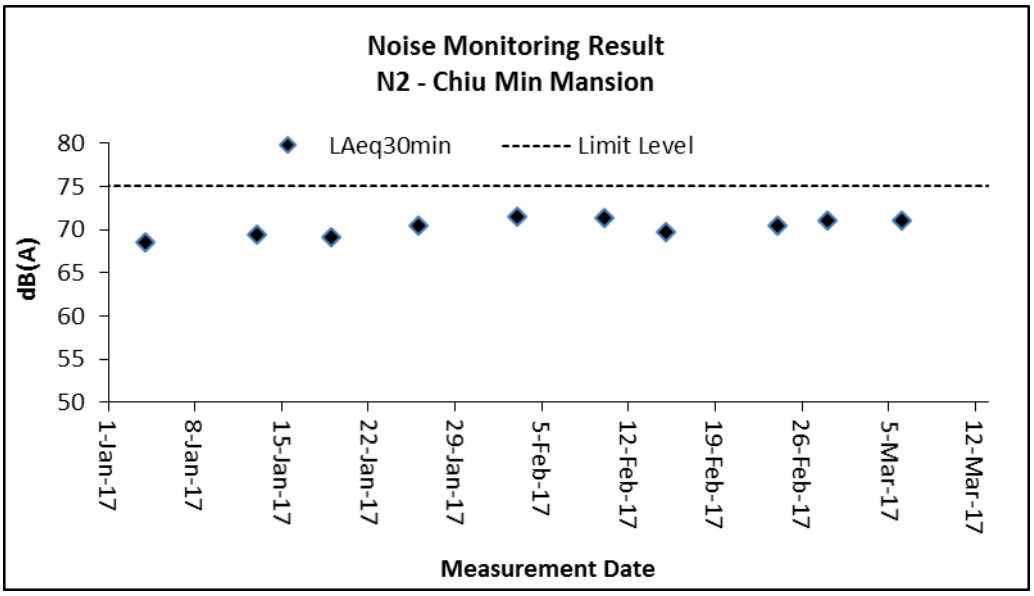
2015



2016

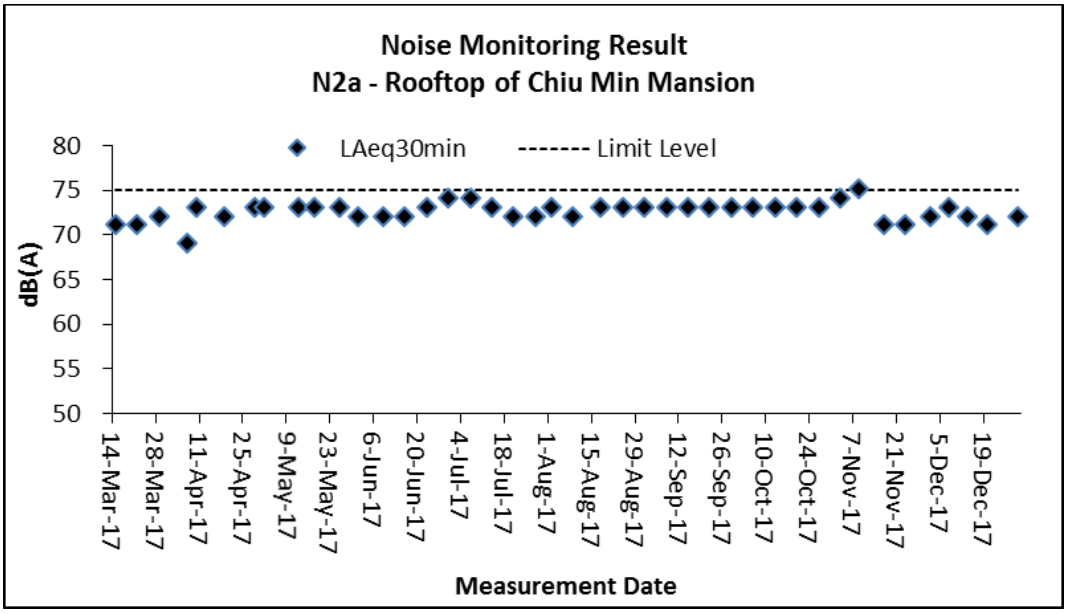

Noise Monitoring Result
N2 - Chiu Min Mansion
LAeq30min
Limit Level
dB(A)
80
75
70
65
60
55
50
1-Jan-16
15-Jan-16
29-Jan-16
12-Feb-16
26-Feb-16
11-Mar-16
25-Mar-16
8-Apr-16
22-Apr-16
6-May-16
20-May-16
3-Jun-16
17-Jun-16
1-Jul-16
15-Jul-16
29-Jul-16
12-Aug-16
26-Aug-16
9-Sep-16
23-Sep-16
7-Oct-16
21-Oct-16
4-Nov-16
18-Nov-16
2-Dec-16
16-Dec-16
30-Dec-16
Measurement Date

2017


Noise Monitoring Result
N2 - Chiu Min Mansion
LAeq30min
Limit Level
dB(A)
80
75
70
65
60
55
50
1-Jan-17
8-Jan-17
15-Jan-17
22-Jan-17
29-Jan-17
5-Feb-17
12-Feb-17
19-Feb-17
26-Feb-17
5-Mar-17
12-Mar-17
Measurement Date

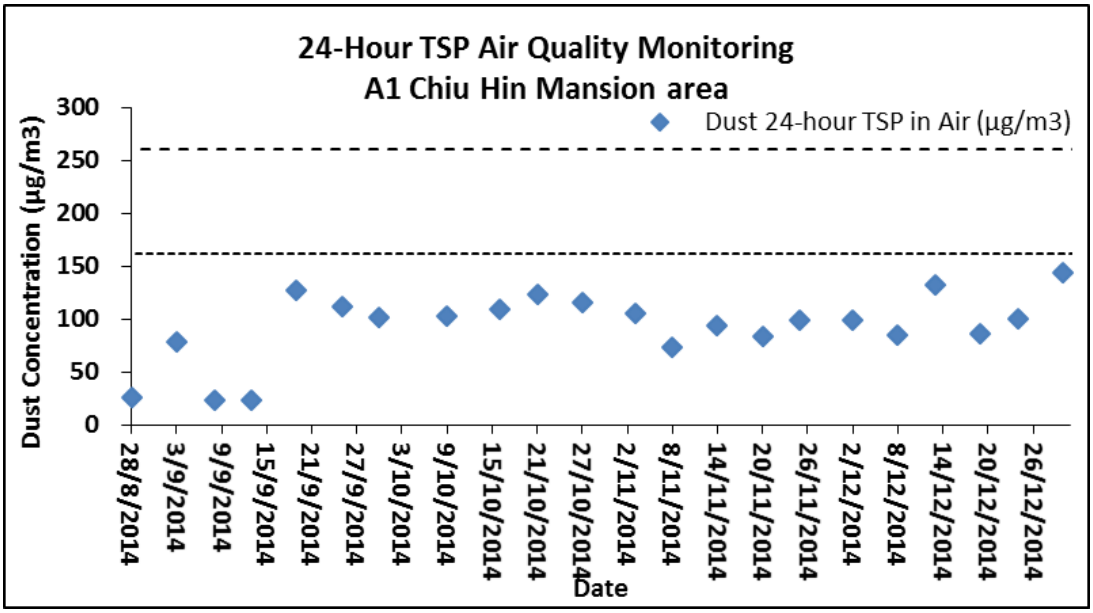
Construction Noise – (N2a)

2017

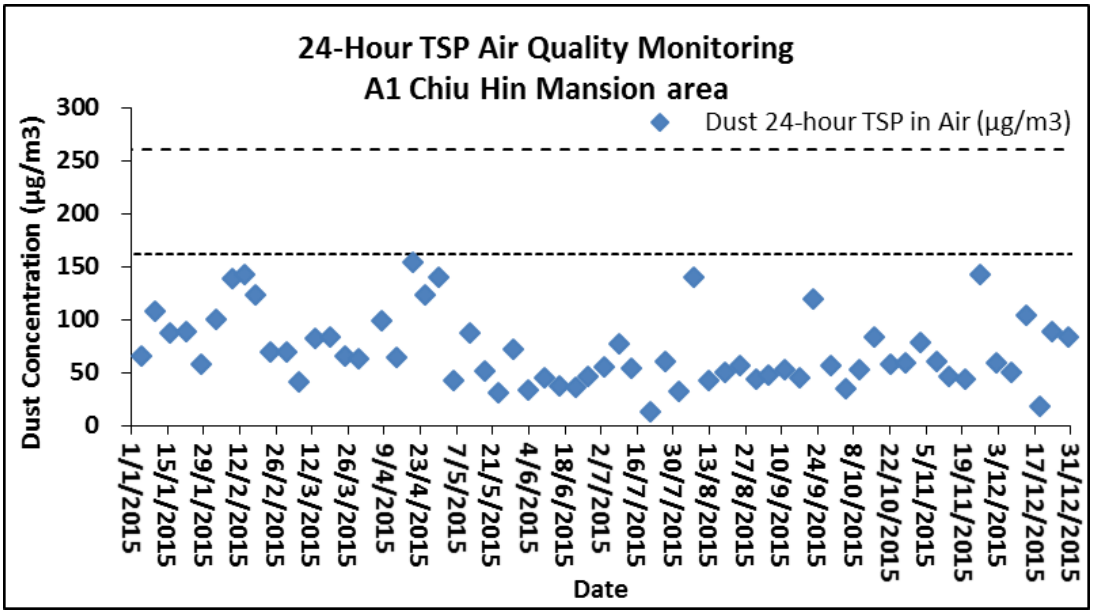


24 Hour TSP – (A1)

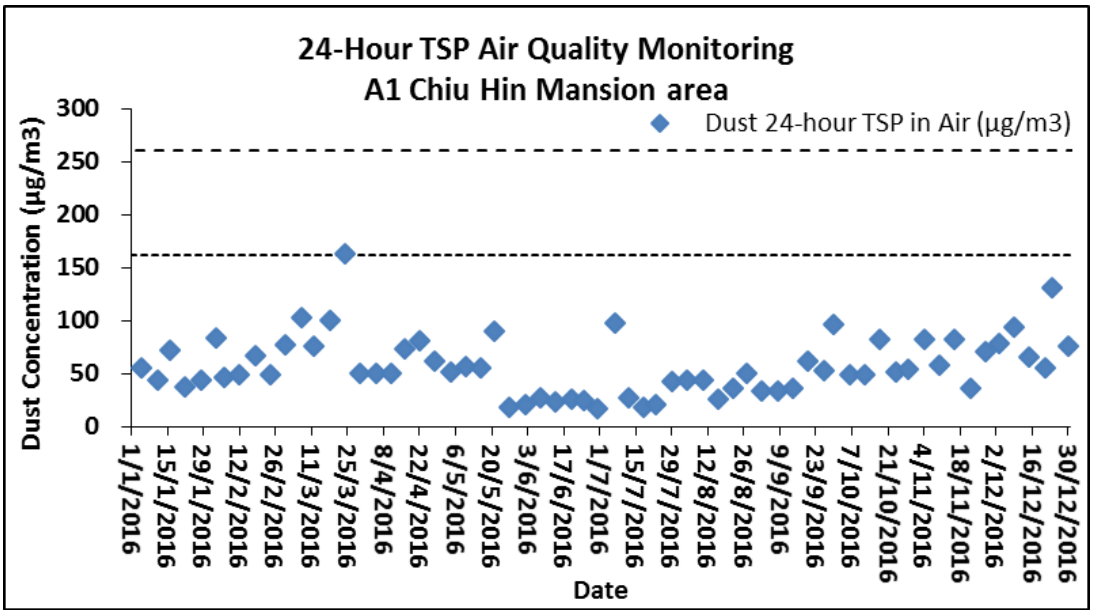
2014



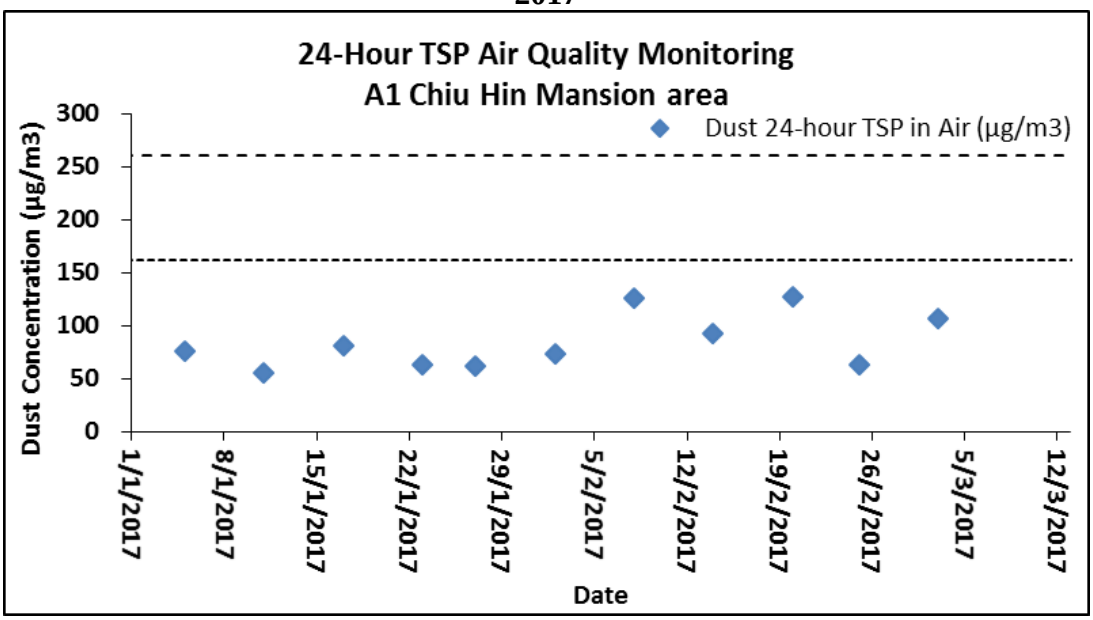
2015



2016

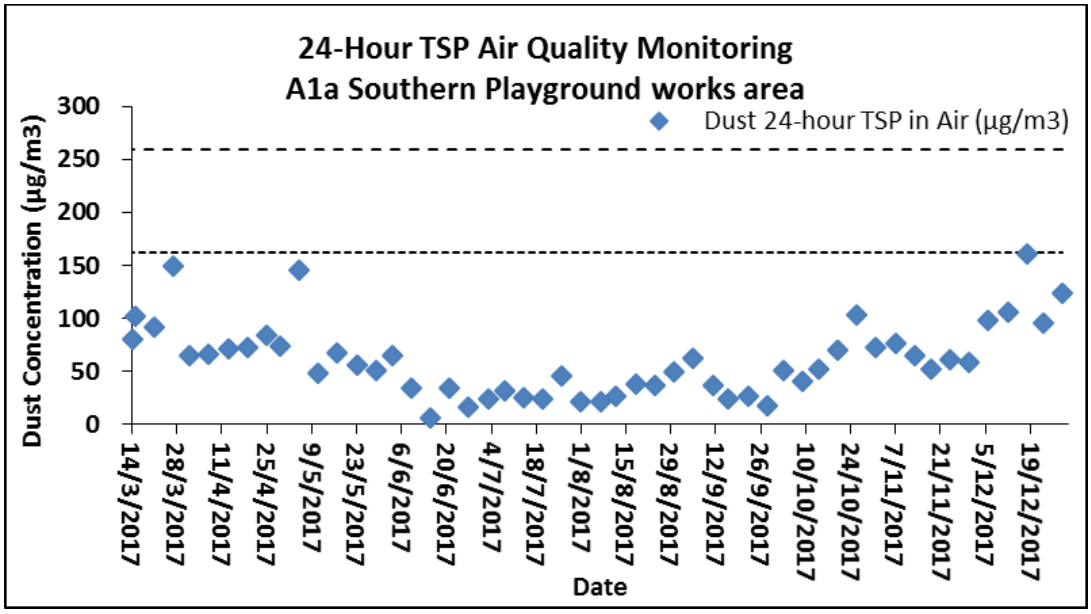

24-Hour TSP Air Quality Monitoring
A1 Chiu Hin Mansion area
Dust 24-hour TSP in Air (µg/m3)
Dust Concentration (µg/m3)
300
250
200
150
100
50
0
1/1/2016
15/1/2016
29/1/2016
12/2/2016
26/2/2016
11/3/2016
25/3/2016
8/4/2016
22/4/2016
6/5/2016
20/5/2016
3/6/2016
17/6/2016
1/7/2016
15/7/2016
29/7/2016
12/8/2016
26/8/2016
9/9/2016
23/9/2016
7/10/2016
21/10/2016
4/11/2016
18/11/2016
2/12/2016
16/12/2016
30/12/2016
Date

2017


24-Hour TSP Air Quality Monitoring
A1 Chiu Hin Mansion area
Dust 24-hour TSP in Air (µg/m3)
Dust Concentration (µg/m3)
300
250
200
150
100
50
0
1/1/2017
8/1/2017
15/1/2017
22/1/2017
29/1/2017
5/2/2017
12/2/2017
19/2/2017
26/2/2017
5/3/2017
12/3/2017
Date

24 Hour TSP – (A1a)

2017



Appendix H

Monthly Summary Waste Flow Table

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

Monthly Summary Waste Flow Table for 2014

Name of Employer: MTR Corporation Limited											Contract No.: C65931-13C				
Month	Actual Quantities of Inert C&D Materials Generated Monthly										Actual Quantities of Non-Inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Building Debris	Mixed Rock & Soil	Bentonite	Rubbish	Slurry	Rock	Soil	Reused in this Project	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in Litre)	(in 000m^3)
Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May	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	0.4	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0.00067
Oct	0.27663	0	0	0	0	0	0	0	0.27663	0	0	0	0	0	0
Nov	0.15499	0	0	0	0	0	0	0	0.15499	0	0	0	0	0	0.00743
Dec	2.23968	0	0	0	0	0	0	0	2.23968	0	0	0	0	0	0.00152
Total	3.0713	0	0	0	0	0	0	0	3.0713	0	0	0	0	0	0.00962

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

Monthly Summary Waste Flow Table for 2015

Name of Employer: MTR Corporation Limited											Contract No.: C65931-13C				
Month	Actual Quantities of Inert C&D Materials Generated Monthly										Actual Quantities of Non-Inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Building Debris	Mixed Rock & Soil	Bentonite	Rubbish	Slurry	Rock	Soil	Reused in this Project	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in Litre)	(in 000m^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
May	0.15078	0.13574	0	0	0	0	0	0	0.01504	0	0	0	0	0	0.01186
Jun	0.13793	0.01113	0	0	0	0	0	0	0.1268	0	0	0	0	0	0.01913
Jul	0.09909	0	0	0	0	0	0	0	0.09909	0	0	0	0	0	0.01298
Aug	0.06101	0.01301	0	0	0.048	0	0	0	0	0	0	0	0	0	0.00731
Sep	0.1235	0.04577	0	0	0.06148	0	0	0	0.01625	0	0	0	0	0	0.00343
Oct	0.014	0	0	0	0	0	0	0	0.00235	0	0	0	0	0	0.01165
Nov	1.29848	0	0	0	0	0	0	0	1.29848	0	0	0	0	0	0
Dec	0.65503	0	0	0	0	0	0	0	0.63413	0	0	0	0	0	0.0209
Total	7.12317	0.26737	0	0	0.10948	0	0	0	6.71367	0	0	0	0	0	0.1332

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

Monthly Summary Waste Flow Table for 2016

Name of Employer: MTR Corporation Limited											Contract No.: C65931-13C				
Month	Actual Quantities of Inert C&D Materials Generated Monthly										Actual Quantities of Non-Inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Building Debris	Mixed Rock & Soil	Bentonite	Rubbish	Slurry	Rock	Soil	Reused in this Project	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in 000m³)	(in 000m³)	(in 000m³)	(in 000m³)	(in 000m³)	(in 000m³)	(in 000m³)	(in 000m³)	(in 000m³)	(in 000m³)	(in 000m³)	(in 000m³)	(in 000m³)	(in Litre)	(in 000m³)
Jan	0.02	0	0	0	0	0	0	0	0.01559	0	0	0	0	0	0.03
Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01
Mar	0.03685	0	0	0	0	0	0	0	0.03685	0	0	0	0	0	0.015
Apr	0.03399	0	0	0	0	0	0	0	0.03399	0	0	0	0	1.2	0.005
May	0.09171	0	0	0	0	0	0	0	0.09171	0	0	0	0	0	0.015
Jun	0.90981	0	0	0	0	0	0	0	0.90981	0	0	0	0	0	0.005
Jul	0.36411	0	0	0	0	0	0	0	0.36411	0	0	0	0	0	0.015
Aug	0.12377	0	0	0	0	0	0	0	0.12377	0	0	0	0	0	0
Sep	0.13455	0	0	0	0	0	0	0	0.13455	0	0	0	0	0	0.01
Oct	0.26495	0	0	0	0	0	0	0	0.26495	0	0	0	0	0	0
Nov	0.61515	0	0	0	0	0	0	0	0.61515	0	0	0	0	0	0.01
Dec	1.036	0	0	0	0	0	0	0	1.036	0	0	0	0	0	0.005
Total	3.62648	0	0	0	0	0	0	0	3.62648	0	0	0	0	1.2	0.12

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

Monthly Summary Waste Flow Table for 2017

Name of Employer: MTR Corporation Limited											Contract No.: C65931-13C				
Month	Actual Quantities of Inert C&D Materials Generated Monthly										Actual Quantities of Non-Inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Building Debris	Mixed Rock & Soil	Bentonite	Rubbish	Slurry	Rock	Soil	Reused in this Project	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in 000m^3)	(in Litre)	(in 000m^3)
Jan	0.463	0	0	0	0	0	0	0	0.463	0	0	0	0	0	0
Feb	0.267	0	0	0	0	0	0	0	0.267	0	0	0	0	0	0
Mar	0.0126	0	0	0	0	0	0	0	0.0126	0	0	0	0	0	0.00655
Apr	0.0184	0	0	0	0	0	0	0	0.0184	0	0	0	0	0	0.03648
May	0.01735	0	0	0	0	0	0	0	0.01735	0	0	0	0	0	0.03014
Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04588
Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0225
Aug	0.05982	0	0	0	0	0	0	0	0.05982	0	0	0	0	0	0.03772
Sep	0.1293	0	0	0.1293	0	0	0	0	0	0	0	0	0	0	0.01051
Oct	0.05532	0	0	0.05532	0	0	0	0	0	0	0	0	0	0	0.00435
Nov	0.01631	0	0	0.01631	0	0	0	0	0	0	0	0	0	0	0.00498
Dec	0.005	0	0	0.005	0	0	0	0	0	0	0	0	0	0	0.00264
Total	1.0441	0	0	0.20593	0	0	0	0	0.83817	0	0	0	0	0	0.20175

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

Monthly Summary Waste Flow Table for 2018

Name of Employer: MTR Corporation Limited																Contract No.: C65931-13C				
Month	Actual Quantities of Inert C&D Materials Generated Monthly										Actual Quantities of Non-Inert C&D Wastes Generated Monthly					Actual Quantities of Non-Inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Building Debris	Mixed Rock & Soil	Bentonite	Rubbish	Slurry	Rock	Soil	Reused in this Project	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m^3)	(in m3/ Litre)	(in m^3)	(in ton)	(in ton)	(in ton)	(in Litre)	(in ton)
Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apr																				
May																				
Jun																				
Jul																				
Aug																				
Sep																				
Oct																				
Nov																				
Dec																				
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0