



Maeda Corporation

# MTRCL Contract C3840-13C Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

Monthly EM&A Report (November 2015)

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MTRCL Contract C3840-13C Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

## Monthly EM&A Report (November 2015)

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Report No	EB001340R00292	
Date	10 December 2015	

This Monthly EM&A Report (November 2015) is prepared for Maeda Corporation in accordance with the terms and conditions of appointment dated 30 October 2013. Hyder Consulting Limited (Company Number 126012) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

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#### 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. Kenneth Chow / Environmental Engineer II

14 December 2015

Dear Sirs

#### Consultancy Agreement A130-13 Independent Environmental Checker for CRS and LTS CRS - Verification for 21st Monthly Environmental Monitoring and Audit (EM&A) Report (November 2015) (Report No.: EB001340R00292)

We refer to the 21st Monthly EM&A Report (November 2015) received under cover of the email from the Environmental Team, Hyder Consulting Limited (HCL), dated on 7 December 2015.

We have no further comment and have verified the captioned report (Report No.: EB001340R00292).

Should you have any queries, please feel free to contact the undersigned at 3922 9529.

Yours faithfully AECOM Consulting Services Ltd

Rodney Ip Independent Environmental Checker

DCYO/wwsc

cc Hyder Consulting Limited (Attn.: Mr. F. N. Wong) via email Maeda Corporation (Attn.: Ms. Cecilia Lee) via email



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## **EXECUTIVE SUMMARY**

#### BREACHES OF ACTION AND LIMIT LEVELS

- ES01 No Notice of Exceedance and the associated investigation and follow-up actions were required as the environmental monitoring results registered no exceedances of Action/ Limit Levels of air quality and construction noise during the Reporting Period.
- ES02 No corrective action were required as the environmental audit during the Reporting Period observed:
  - 1) No deficiencies with major environmental significance of the required environmental mitigation measures;
  - 2) No non-compliance with the required waste management; and
  - 3) No adverse environmental impacts on the sensitive receivers environed with the site of the Project.

ENVIRONMENTAL COMPLAINTS

ES03 No environmental complaints were recorded during the Report Period.

NOTIFICATION OF SUMMONS & SUCCESSFUL PROSECUTIONS

ES04 No notification of summons and successful prosecutions were recorded during the Reporting Period.

#### REPORTING CHANGES

ES05 No major reporting changes were made during the Reporting Period.

#### FUTURE KEY ISSUES

ES06 Full implementations of the environmental mitigation measures, which are required in the EM&A Plan and summarised in the Implementation Schedule, are recommended. Whenever necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.

#### **Construction Noise**

ES07 Particular attention should be paid to construction noise mitigation measures, especially during piling works during the coming construction period to ensure full compliance with statutory and non-statutory requirements and guidelines. Proactive review of working methods, careful selection and arrangement of the noisy equipment as well as effective noise mitigation measures are strongly recommended.

#### Water Quality

ES08 In addition, compliance with water quality mitigation measures remains one of the key environmental issues within the construction period, especially when water usage is high.

Air Quality

- ES09 Furthermore, implying of construction dust suppression measures are recommended during dusty activities under dry and windy conditions.
- ES10 Where appropriate, construction dust suppression measures including decking over the excavation areas, watering of exposed site surface and covering of all excavated and stockpiles of dusty material by impervious sheeting or similar materials are reminded.



## 1 INTRODUCTION

## 1.1 THE REPORTING PERIOD

- 1.1.1 This is the 21<sup>st</sup> monthly EM&A report (hereinafter referred as 'This Report') covering construction period from 1 to 30 November 2015 (hereinafter referred as 'the Reporting Period').
- 1.1.2 This Report has been written in accordance with the *Environmental Monitoring and Audit Plan* (hereinafter referred as 'the EM&A Plan') enclosed in the *Project Profile MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works*, which is registered in the Environmental Permit No. EP-440/2012 (hereinafter referred as 'the EP') (Register No.: PP-462/2012).

### 1.2 PROJECT BACKGROUND

- 1.2.1 In order to improve the appearance of Carnarvon Road Entrance D1 and D2 of Tsim Sha Tsui (hereafter referred as 'TST') Station and to provide a more comfortable walking environment nearby, MTR Corporation Limited (hereafter referred as 'MTRC' or 'the Corporation') has commissioned Meada Corporation (hereinafter referred as 'MC') the contract MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works (hereafter referred as 'the Project'). The Project is proposed to rebuild the existing Entrance D1 and D2 and construct a new Entrance D3 at the basement B2 level of the K11 Art Mall to connect to the TST station by a subway, which extends from the Entrance D1 and D2 and runs approximately 80m along Carnarvon Road and across the Bristol Avenue to the Entrance D3. The Project was commenced in March 2014 and is anticipated to be completed in September 2017.
- 1.2.2 The existing TST Station had been in operation before the *Environmental Impact Assessment Ordinance* (hereafter referred as 'EIAO') comes into effect on 1 April 1998. It constitutes an exempted Designated Project (hereinafter referred as 'DP') according to Section 9(2) (g) of the EIAO (Cap. 499). As the Project involves a material change to an exempted DP which may have potential environmental impacts, an environmental permit is required prior to the commencement of the modification works. The Project Profile has been developed to provide information for direct application of an environmental permit. The EP has been granted since 18 July 2012, after the Project Profile and the associated *EM&A Plan* were registered.
- 1.2.3 Site map, works area and locations of the environmental monitoring under the Project are illustrated in *Site Location Plan* of *Appendix A*. Management structure of the Project, including organization chart, lines of communication and contact names and telephone numbers of key personnel, is demonstrated in *Appendix B*. Construction programme is shown in *Appendix C*, whereas implementation schedule for the recommended environmental mitigation measures (hereinafter referred as 'the Implementation Schedule') are summarised in *Appendix D*, which fine tunes the construction activities and shows interrelationships with the environmental protection/ mitigation measures for the construction period.

### 1.3 ENVIRONMENTAL STATUS

- 1.3.1 As required in the EP, AECOM Consulting Services Limited has been appointed as the Independent Environmental Checker under the Project (hereinafter referred as 'the IEC'), whereas Hyder Consulting Limited has been appointed as the Environmental Team under the Project (hereinafter referred as 'Hyder' or 'the ET').
- 1.3.2 According to the EP Condition 3.2 (a) under Environmental Monitoring and Audit (EM&A) during the Construction Period, baseline monitoring has been completed and the required Baseline Monitoring Report has been submitted to EPD on 14 February 2014 prior to commencement of the works under the Project.

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1.3.3 Status of relevant environmental permits, licences, and/or notifications on environmental protection for the Project is summarised in *Table 1-3* below. They are detailed in *Appendix E*.

Item	Description	License/Permit Status
1	Air Pollution Control (Construction Dust)	Notification Ref. 365953 acknowledged on 21 Oct 2013.
2	Water Pollution Control Ordinance (Discharge License)	The discharge license (Ref No. WT00019722-2014) was granted on 01 Sep 2014 superseding the previous license (Ref No. WT00018229-2014).
3	Billing Account for Disposal of Construction Waste	A/C Ref. 7018523 granted on 25 Oct 2013
4	Chemical Waste Producer Registration	Registration Ref. 5213-2214-M2446-16 granted on 4 Mar 2014
5	Noise Control Ordinance	The Noise Permit Ref No.GW-RE0558-15 granted on 3 June 2015 which is in effective on 23 June 2015 superseded the Noise Permit GW-RE1475-14.

 TABLE 1-3
 SUMMARY OF STATUS OF ENVIRONMENTAL LICENSES AND PERMITS

## 1.4 CONSTRUCTION ACTIVITIES

1.4.1 Construction activities undertaken during the Reporting Period and the following month are summarised in *Table 1-4*:

#### TABLE 1-4 CONSTRUCTION ACTIVITIES

Cons	truction Activities Undertaken during the Reporting Period		
1	Excavation of top layer for UU identification and support tailoring at G3-4		
2	Construction of temporary staircase reinforced concrete structure		
3	Rock breaking and excavation at vertical shaft		
4	Excavation of trial trench for UU identification at D2		
Cons	truction Activities to be Undertaken in the Up-Coming Month		
1	Construction of temporary staircase reinforced concrete structure		
2	Rock breaking and excavation at vertical shaft		
3	Excavation of top layer for UU identification and support tailoring at G3-4		
4	Excavation of trial trench for UU identification at D2		
5	Commencement of ABWF works for the temporary staircase		

## 2 EM&A REQUIREMENTS



## 2.1 AIR QUALITY

#### Monitoring Parameters and Frequency

- 2.1.1 24-Hour Total Suspended Particulates (hereinafter referred as '24-Hr TSP') is required to be monitored once a week during construction period of the Project.
- 2.1.2 1-Hour Total Suspended Particulates (hereinafter referred as '1-Hr TSP') is required to be monitored when exceedances of 24-Hr TSP occur, following the Event and Action Plan presented in *Appendix F*.
- 2.1.3 Schedules for 24-Hr TSP monitoring for the Reporting Period and the month following the Reporting Period were prepared and submitted to MTRC, IEC and MC prior to implementation via e-mail and / or facsimile for ease of necessary inspection. If amendment is necessary under ad hoc conditions, including actual and broadcast adverse weather, accidental instrument failures, etc., notification will be given at least 24 hours prior to implementation or as practical as possible. The monitoring schedules are enclosed in *Appendix G*.

#### **Monitoring Location**

- 2.1.4 According to the EM&A Plan, Mirador Mansion was designated to be the air quality monitoring station of the Project. As the access to the air monitoring location designated in the EM&A Plan has been denied by the owner of the property, the ET proposes an alternative monitoring location on the roof-top above the 4/F of the commercial complex of K11 (hereinafter referred as 'K11'), which has been agreed among MTRC, IEC and MC, and the associated access to K11 has been granted by the management office of K11 prior to the commencement of the baseline monitoring in January 2014.
- 2.1.5 Air quality monitoring location is summarised in *Table 2-1-1* below and illustrated in *Appendix A*.

#### TABLE 2-1-1 AIR QUALITY MONITORING LOCATION

Location ID	Name of Premises	Description
K11	K11 Art Mall	Rooftop, 4/F

#### **Monitoring Equipment**

2.1.6 The air quality monitoring equipment to be used for construction air impact monitoring is shown in *Table* **2-1-2** below:

#### TABLE 2-1-2AIR QUALITY MONITORING EQUIPMENT AT K11

Equipment Type	Model	Serial Number	Calibration Orifice Number
High Volume Air Sampler	TE5005X	1713	1785
Sibata Digital Dust Monitor	LD-3B	296098	Not Applicable

- 2.1.7 High Volume Air Sampler (hereinafter referred as 'the HVAS') is used for monitoring 24-Hr TSP, following the standard sampling method set out in High Volume Method for Total Suspended Particulates, Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA (hereinafter referred as 'the USEPA High Volume Method').
- 2.1.8 Weather information including wind speeds and wind directions is obtained from King's Park Weather Station. The weather information is used as weather conditions during the Reporting Period. They are presented in *Appendix H*.

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#### **Calibration of Monitoring Equipment**

- 2.1.9 The HVAS is calibrated before commencement of monitoring using standard orifice 5-points calibration method with orifice calibrator to determine the actual flow rate of each HVAS. A calibration Kit (Model TE5025A) is used for calibration of the HVAS. At least once every 12 months, recalibration of the calibration kit is carried out during its maintenance.
- 2.1.10 Calibration of the HVAS is conducted following the manufacturer's instruction manual. Initial calibration of the equipment is conducted upon installation and thereafter at quarterly intervals throughout the period of impact monitoring. The transfer standard should be traceable to the internationally recognised primary standard and be calibrated annually.
- 2.1.11 The Sibata Digital Dust Monitor LD-3B for 1-hour TSP monitoring is calibrated annually and the calibration certificates of the equipment will be presented in *Appendix I* if 1-hour TSP monitoring is conducted.

#### Monitoring Methodology – 24-Hr TSP

2.1.12 Air quality monitoring (24-Hr TSP) will be conducted once a week under typical weather conditions (with no adverse weather such as typhoon signal or rain storm warning).

#### Installation of HVAS

- 2.1.13 When positioning the HVAS, the following points will be noted:
  - a) A horizontal platform with appropriate support to secure the samplers against gusty wind will be provided;
  - b) No two samplers will be placed less than 2 m apart;
  - c) The distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler where possible;
  - d) A minimum of 2 m of separation from walls, parapets and penthouses is required for rooftops samplers;
  - e) A minimum of 2 m of separation from any supporting structure, measured horizontally is required;
  - f) No furnace or incinerator flue or building vent is nearby;
  - g) Airflow around the sampler is unrestricted;
  - h) The sampler is more than 20 m from the drip line;
  - i) Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring;
  - j) Permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
  - k) A secured supply of electricity is needed to operate the samplers.

#### Preparation of Filter Papers and Laboratory Analysis

- 2.1.14 Sufficient pieces of filter paper should be labelled before sampling. It should be a clean filter paper with no pinholes, and should be conditioned in a humidity-controlled chamber for over 24-hour and be preweighed before use for the sampling. The preferred room temperature is around 25 °C ±3 °C with relative humidity (hereinafter referred as 'the RH') less than 50% ± 5%, preferably 40%.
- 2.1.15 Preparation of filters and subsequent laboratory analysis of the collected 24-Hr TSP samples were performed by ALS Technetiem (HK) Pty Ltd (hereinafter referred as 'ALS'), a local laboratory which have been accredited under Hong Kong Laboratory Accreditation Scheme (HOKLAS).
- 2.1.16 All the collected samples should be kept by the ET in standard office conditions for 6 months before disposal.

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#### Field Monitoring Procedures

- 2.1.17 Procedures for field monitoring are as follows:
  - 1) Check power supply to ensure the HVAS works properly.
  - 2) Clean the filter holder and the area surrounding the filter.
  - 3) Remove the filter holder by loosening the four bolts and carefully align a new filter, with stamped number upward, on a supporting screen.
  - 4) Align the filter properly on the screen so that the gasket forms an airtight seal on the outer edges of the filter.
  - 5) Fasten the swing bolts to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.
  - 6) Close the shelter lid and secure with the aluminium strip.
  - 7) Warmed-up the HVAS for about 5 minutes to establish run-temperature conditions.
  - 8) Set a new flow rate record sheet into the flow recorder.
  - 9) Checked and adjust the flow rate of the HVAS at around 1.1 m<sup>3</sup> per minute. (The range specified in the EM&A Plan is between 0.6-1.7 m<sup>3</sup> per minute.)
  - 10) Set the programmable timer for a sampling period of 24 hours, and record the starting time, weather condition and the filter number.
  - 11) Record the initial elapsed time.
  - 12) At the end of sampling, remove the sampled filter carefully and fold it in half-length so that only surfaces with collected particulate matter are in contact.
  - 13) Place the sampled filter in a clean plastic envelope and seal.
  - 14) Record all monitoring information on a Field Data Sheet as shown in Appendix J.
  - 15) Send the filters to ALS for analysis.

#### Monitoring Methodology – 1-hr TSP

#### Field Monitoring

- 2.1.18 The procedures for measurement of 1-Hr TSP follow Manufacturer's Instruction Manual, which is summarised as follows:
  - 1) Turn on the power.
  - 2) Close the air collecting opening cover.
  - 3) Set the "TIME SETTING" switch to [BG].
  - 4) Press "START/STOP" switch to perform background measurement.
  - 5) Turn the knob at SENSI ADJ position.
  - 6) Leave the equipment upon "SPAN CHECK" is indicated in the display.
  - 7) Press "START/STOP" switch to perform automatic sensitivity adjustment.
  - 8) Turn the knob at MEASURE position.
  - 9) Set time period of 1 hour for the 1-hour TSP measurement.
  - 10) Press "START/STOP" to start the 1-hour TSP measurement.
  - 11) Check the time period to ensure monitoring time of 1 hour.
  - 12) Record all monitoring information on a Field Data Sheet as shown in *Appendix J*.

#### Maintenance and Calibration

- 2.1.19 The procedures for maintenance and calibration of 1-Hr TSP follow Manufacturer's Instruction Manual as follows:
  - 1) The Sibata is calibrated at 1-year intervals.
  - 2) Calibration records for the Sibata Digital Dust Monitor direct dust meters are shown in *Appendix I*.

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#### Action and Limit Levels

2.1.20 The Action and Limit levels (hereinafter referred as 'the A/L Levels) at K11 have been established in the Baseline Monitoring Report in accordance with the derivation criteria specified in Section 3.7 of the EM&A Plan, which are summarised in **Table 2-1-3** as follows:

#### TABLE 2-1-3 DERIVATION OF ACTION AND LIMIT LEVELS FOR AIR QUALITY, µg /M<sup>3</sup>

Parameter	Action Level	Limit Level
24-Hr TSP	For baseline level ≤200, Action level = (130% of baseline level + Limit level)/2; For baseline level >200, Action level = Limit level	260
1-Hr TSP	For baseline level ≤384, Action level = (130% of baseline level + Limit level)/2; For baseline level >384, Action level = Limit level	500

2.1.21 The established A/L Levels for 24-Hr and 1-Hr TSP are summarised in *Table 2-1-4* as follows:

#### TABLE 2-1-4 ACTION AND LIMIT LEVELS FOR AIR QUALITY AT K11, µg /M<sup>3</sup>

Parameter	Action Level	Limit Level
24-Hr TSP	222	260
1-Hr TSP	373	500

#### Event and Action Plan

2.1.22 In case exceedances of Action and/or Limit levels for air quality occur, Event and Action Plan for Air Quality enclosed in Appendix F will be implemented.

#### Environmental Mitigation Measures for Air Quality

- 2.1.23 Although most of the construction works would be carried out underground, appropriate dust mitigation measures as stipulated in the EP, Project Profile, related environmental regulation including Air Pollution Control (Construction Dust) Regulation as well as those recommended in the Implementation Schedule should be implemented to control fugitive dust emission. The following key dust suppression measures are recommended:
  - 1) Decking over the excavation areas;
  - 2) Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather;
  - 3) Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;
  - 4) Cover all excavated or stockpiles of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet;
  - 5) Provision of vehicle washing facilities at the exit points of the site; and
  - 6) Provision of tarpaulin covering for any dusty materials on a vehicle leaving the site.
- 2.1.24 Details of the implementation schedule for the required environmental mitigation measures are presented in *Appendix D*.

## 2.2 CONSTRUCTION NOISE

#### **Monitoring Parameters and Frequency**

2.2.1 **Table 2-2-1** summarizes the monitoring parameters and frequency for construction noise:

#### TABLE 2-2-1 NOISE MONITORING PARAMETERS AND FREQUENCY

Parameters	Frequency
L <sub>eq</sub> in 30 minutes	Once a week

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2.2.2 Monitoring schedules for construction noise for the Reporting Period and the next Reporting Period are prepared and submitted to MTRC, IEC and MC prior to implementation via e-mail and / or facsimile for ease of necessary inspection. Where amendment is necessary under ad hoc conditions, including actual and broadcast adverse weather, accidental instrument failures, etc., advanced notification is given at least 24 hours prior to implementation or as practical as possible.

#### **Monitoring Equipment**

2.2.3 With reference to the Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications (both publications have been withdrawn and replaced by 61672:2003) are used for carrying out the noise monitoring. The equipment used in the construction noise monitoring is summarized in the following **Table 2-2-2** and the associated certificates of the calibration of the sound level meters and their respective calibrators are as shown in **Appendix I**:

<b>TABLE 2-2-2</b>	CONSTRUCTION NOISE MONITORING EQUIPMENT
--------------------	---

ltem	Equipment Name	Model
1	Sound Level Meter	B&K 2238 (Serial no. 2562782)
2	Acoustic Calibrator	B&K 4231 (Serial no. 2699361)

#### **Monitoring Location**

- 2.2.4 As stated in previous Section 2.1.4, the alternative air quality monitoring location K11 which is proposed by the ET and agreed among MTRC, IEC and MC, i.e. on the roof-top above the 4/F of the commercial complex of K11, is used for the construction noise monitoring location.
- 2.2.5 The access to K11 has been granted by the management office of the K11 prior to the commencement of the baseline monitoring in January 2014.
- 2.2.6 **Table 2-2-3** summarizes the recommended alternative noise monitoring location, which is illustrated in **Appendix A**.

#### TABLE 2-2-3NOISE MONITORING LOCATION

Location ID	Name of Premises	Description
K11	K11 Art Mall	Rooftop, 4/F

### Monitoring Methodology

#### Field Monitoring

- 2.2.7 Procedures for noise monitoring summarised as follows:
  - 1) The microphones of the Sound Level Meter are about 1 m from the exterior of the building façade.
  - 2) The battery condition is checked to ensure the correct functioning of the meter.
  - 3) Parameters such as frequency weighting, the time weighting, the measurement time and monitoring frequency are set as follows:
    - i. Frequency weighting: A
    - ii. Time weighting: Fast
    - iii. Time measurement: 30 minutes intervals (between 0700-1900 on normal weekdays)
  - 4) Monitoring frequency: one set of measurement on a weekly basis.
  - 5) Prior to and after each noise measurement, the meter is calibrated using a Calibrator for 94 dB at 1 kHz. If the difference in the calibration level before and after measurement is more than 1 dB, the measurement should be considered invalid and the measurement repeated after recalibration or repair of the equipment.

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- 6) During the monitoring period, the Leq (30 min) is recorded.
- 7) Record all monitoring information on a Field Data Sheet as shown in *Appendix J*.
- 8) Maintenance and Calibration.
- 9) The meter and calibrator are sent to the supplier or HOKLAS laboratory to check and calibrate prior to the monitoring. Calibration records are presented in *Appendix I*.

#### Weather Condition

2.2.8 The wind speeds and directions during the monitoring period are recorded and shown in *Appendix H.* 

#### Action and Limit Levels

2.2.9 The Action and Limit levels (hereinafter referred as 'the A/L Levels) at K11 have been established in the Baseline Monitoring Report. They are summarised in *Table 2-2-4* as follows:

#### TABLE 2-2-4 ACTION AND LIMIT LEVELS FOR CONSTRUCTION NOISE

Time Period	Action Level	Limit Level
0700-1900 hours on normal weekdays	When one valid documented complaint is received.	75*

Note: \*70 dB(A) for schools and 65 dB(A) during school examination periods. If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

#### **Event and Action Plan**

2.2.10 In case exceedances of Action and/or Limit levels for construction noise occur, the Event and Action Plan enclosed in *Appendix F* will be triggered.

#### **Mitigation Measures for Construction Noise**

- 2.2.11 Although no residual noise impact would be generated after the proposed mitigation measures are in place, the general construction noise control measures stipulated in the EP, Project Profile as well as those recommended in the Implementation Schedule should be fully implemented in order to minimise noise impacts during the construction phase. They are summarised as follows:
  - 1) 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;
  - 2) The statutory and non-statutory requirements and guidelines shall be complied with;
  - 3) Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work;
  - 4) 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;
  - 5) Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical;
  - 6) Unused equipment shall be turned off;
  - PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided;
  - 8) All plant and equipment shall be maintained regularly;
  - 9) Material stockpiles and other structures shall be effectively utilised as noise barriers, whenever practicable; and
- 2.2.12 Details of the implementation schedule for the mitigation measures are presented in *Appendix D*.

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## 3 MONITORING RESULTS

## 3.1 AIR QUALITY

#### **Monitoring Results**

- 3.1.1 24-Hr TSP monitoring during the Reporting Period was conducted following the agreed monitoring schedule.
- 3.1.2 24-Hr TSP results of the Reporting Period are summarised in the following **Table 3-1**. Graphical plots of the parameter are illustrated in **Appendix K**.

Monitoring Date	24-Hr TSP	Action Level	Limit Level										
3-Nov-15	41.6												
10-Nov-15	34.0	222	260										
17-Nov-15	20.2		200										
24-Nov-15	27.2												
Mean (I	Mean (Min – Max): 30.8 (20.2 – 41.6 )												

#### TABLE 3-1 SUMMARY OF 24-HR TSP MONITORING RESULTS, µg/M<sup>3</sup>

#### Discussion

- 3.1.3 **Table 3-1** demonstrates that all 24-Hr TSP results of the Reporting Period fluctuated well below the A/L Levels of the parameter, i.e. neither Action Level nor Limit Level exceedances were recorded.
- 3.1.4 No Notice of Exceedances (thereinafter referred as 'NOE') and the associated NOE Investigation as well as remedial actions was required during the Reporting Period.

## 3.2 CONSTRUCTION NOISE

#### **Monitoring Results**

- 3.2.1 Construction noise monitoring during the Reporting Period was conducted following the agreed monitoring schedule.
- 3.2.2 Construction noise monitoring results of the Reporting Period are summarised in the following **Table 3-2**. Graphical plots of the parameter are illustrated in **Appendix K**.

			<u></u>
Monitoring Date	L <sub>eq</sub> (30 min)	A/L Levels	
3-Nov-15	70.9	Limit Level: 75	
10-Nov-15	67.2		
17-Nov-15	68.9	Action Level: Any documented c	omplaint
24-Nov-15	70.9	against construction	on noise.
	Mean (Min – Max):	69.7 (67.2 – 70.9)	

TABLE 3-2 SUMMARY OF CONSTRUCTION NOISE MONITORING RESULTS, dB(A)

#### Discussion

3.2.3 No environmental complaint against construction noise was registered during the Reporting Period, whereas *Table 3-2* demonstrates that all construction noise results of the Reporting Period were fell below the Limit Level of the parameter. Neither exceedances of Action Level nor exceedances of Limit Level were recorded.



- 3.2.4 Neither NOE nor NOE investigation and the associated remedial actions were required during the Reporting Period.
- 3.2.5 The Contractor's attention is drawn to certain noisy construction activities, which were scheduled to be conducted during the coming month as listed in **Table 1-4** under **Section 1.4**: Construction Activities Undertaken during the Reporting Period and Up-Coming Month.
- 3.2.6 It is re-instated that adequate mitigation measures should be implemented during the noisy construction activities in order to alleviate noise nuisance generated from the Project related construction activities.

#### Weather Conditions

- 3.2.7 No weather conditions and any other factors were identified to have significant effects on the air and noise monitoring results within the Reporting Period.
- 3.2.8 Weather information during the Reporting Period which is extracted from Hong Kong Observatory King's Park Weather Station and enclosed for reference in *Appendix H*.

### 3.3 CONCLUSIONS AND RECOMMENDATIONS

#### Conclusions

- 3.3.1 No exceedances of A/L Levels of air quality and construction noise were registered during the Reporting Period.
- 3.3.2 No NOE and the associated NOE Investigation and corrected actions were required during the Reporting Period.

#### Recommendations

- 3.3.3 Full implementation of the environmental mitigation measures, which are required in the EM&A Plan and summarised in Implementation Schedule of *Appendix D*, is recommended. Where necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.
- 3.3.4 Nevertheless, construction dust shall be suppressed during dusty construction activities under dry and windy conditions.
- 3.3.5 In addition, construction noise shall be eliminated to avoid adverse impacts on the nearby sensitive receivers.



## 4 ENVIRONMENTAL AUDIT

## 4.1 SITE INSPECTION

- 4.1.1 Weekly site inspections during the Reporting Period were conducted by MTRC, MC and ET, whereas the monthly site inspection of the Reporting Period was jointly conducted by the IEC, MTRC, MC and ET. The site inspection follows strictly to the agreed Site Inspection Checklist, which covers all the site audit requirements stipulated in the EM&A Plan, PS and all relevant environmental laws.
- 4.1.2 The completed Site Inspection Checklists are distributed to relevant parties upon completion of the site inspection for agreement and signature of the relevant parties and, where appropriate, for implementation of the recommended corrected actions to promptly rectify the situation.
- 4.1.3 The site inspections during the Reporting Period were conducted on 3, 10, 17 and 24 November 2015. Deficiencies or findings of the site audit and the associated follow up actions are summarised in the following **Table 4-1**:

Date	Observations/Findings	Follow-Up
	Follow-up item(s) of Last Inspection:	Netropying
03 November 2015	No follow-up item.	Not required
03 November 2015	Observations of this Inspection:	Not required
	No deficiency was observed on site.	Not required
	Follow-up item(s) of Last Inspection:	Not required
10 November 2015	No follow-up item.	Not required
10 November 2015	Observations of this Inspection:	Not required
	No deficiency was observed on site.	Not required
	Follow-up item(s) of Last Inspection:	Not required
17 November 2015	No follow-up item.	Not required
17 November 2015	Observations of this Inspection:	Not required
	No deficiency was observed on site.	Not required
	Follow-up item(s) of Last Inspection:	Not required
04 November 0015	No follow-up item.	Not required
24 November 2015	Observations of this Inspection:	Netropying
	No deficiency was observed on site.	Not required

TABLE 4-1 SUMMARY OF FINDINGS AND FOLLOW-UP ACTIONS

4.1.4 As shown in *Table 4-1*, no major deficiencies or non-compliance of environmental mitigation measures or adverse environmental impacts were observed during the Reporting Period.



## 4.2 COMPLIANCE WITH LEGAL/CONTRACTUAL REQUIREMENT

4.2.1 Construction activities under the Project must comply with all environmental protection and pollution control laws in Hong Kong, as well as the contractual requirements of the Project. *Table 4-2* summarizes breaches of legal and contractual requirements.

TABLE 4-2 SUMMARY OF BREACHES OF LEGAL AND CONTRACTUAL REQUIREMENTS

Month	No. of Breach(s)	Cumulative no. from March 2014 to the Reporting Period
November 2015	0	0

## 4.3 ENVIRONMENTAL COMPLAINTS

4.3.1 Environmental complaints are handled following closely the flow chart of complaint response procedure which is enclosed in *Appendix L*.

#### 4.3.2 Environmental complaints registered during the reporting period are summarised in *table 4-3* below: TABLE 4-3 SUMMARY OF COMPLAINT

Month	No. of Complaint(s)	Cumulative no. from March 2014 to the Reporting Period
November 2015	0	4

## 4.4 NOTIFICATION OF SUMMONS/SUCCESSFUL PROSECUTIONS

4.4.1 Notification of summons and successful prosecutions registered during the Reporting Period are summarised in *Table 4-4* below:

#### TABLE 4-4 SUMMARY OF SUMMON AND SUCCESSFUL PROSECUTIONS

Month	No. of Summons and Successful Prosecutions	Cumulative no. from March 2014 to the Reporting Period
November 2015	0	0



## 5 CONSTRUCTION WASTE

## 5.1 WASTE MANAGEMENT

5.1.1 Waste management under the Project is performed in accordance with the Waste Management Plan, which has been prepared for implementation of the construction waste mitigation measures in compliance with the requirements stipulated in the EM&A Plan, PS, Waste Disposal Ordinance and the associated subsidiary regulations.

### 5.2 WASTE MANAGEMENT STATUS AND RECORD

- 5.2.1 Updated waste management status is detailed in *Appendix M*, where the 3-R status of the construction waste generated from construction of the Project during the Reporting Period is presented.
- 5.2.2 Despite small scale of the Project and the amount of C&D material that needs to be hauled off site and disposed of is anticipated not to be significant, 3-R (Reduce, Reuse and Recycle) waste management has been adopted in order to minimize adverse environmental impacts to be generated from construction of the Project.



## 6 FUTURE ENVIRONMENTAL ISSUES

### 6.1 KEY ENVIRONMENTAL ISSUES

- 6.1.1 Future key environmental issues include:
  - 1) Air quality in particular construction dust during dusty construction activities, e.g. demolishment of the Entrance D2 and excavation works, under dry and windy conditions;
  - 2) Construction noise during noisy activities; and
  - 3) Site surface water run-off and construction wastewater discharge.

### 6.2 MITIGATION MEASURES

- 6.2.1 To avoid potential adverse environmental impacts of the future key environmental issues stated above, full implementation of the mitigation measures as stipulated in the Implementation Schedule shown in *Appendix D* is required.
- 6.2.2 Mitigation measures for air quality, construction noise and water quality implemented to date shall be properly maintained.
- 6.2.3 Where appropriate, improvement of the implemented mitigation measures is reminded to ensure effectiveness of the mitigation measures.



## 7 CONCLUSIONS & RECOMMENDATIONS

### 7.1 CONCLUSIONS

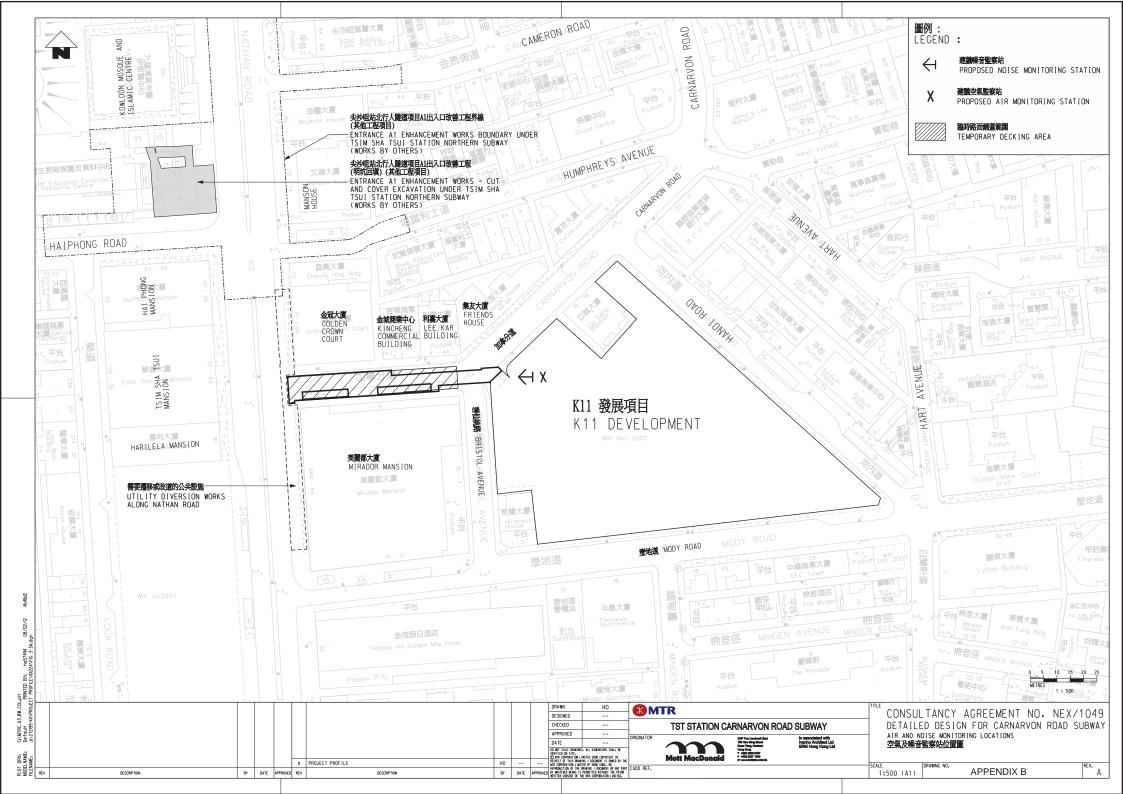
- 7.1.1 Neither NOE & the associated NOE investigation nor follow-up actions were required as the environmental monitoring results registered no exceedances of A/L Levels of air quality and construction noise during the Reporting Period.
- 7.1.2 No corrective actions were required as the environmental audit during the Reporting Period observed:
  - 1) No deficiencies with major environmental significance of the required environmental mitigation measures;
  - 2) No non-compliance with the required waste management; and
  - 3) No adverse environmental impacts on the sensitive receivers environed with the site of the project.
- 7.1.3 In addition, no remedial actions were required as no notification of summons and successful prosecutions were reported during the Reporting Period.
- 7.1.4 Nevertheless, occasional observations of inadequacies of proactive environmental mitigation measures were recorded during the regular site inspection and audit. They were rectified in situ or before the following site audit upon identification or notification.

## 7.2 RECOMMENDATIONS

- 7.2.1 Full implementation of the environmental mitigation measures stipulated in the EM&A Plan and summarised in the *Implementation Schedule* of *Appendix D*, are recommended. Where necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.
- 7.2.2 As noisy construction activities such as piling works were being conducted during the Reporting Period, adequate mitigation measures should be implemented in order to alleviate noise nuisance.
- 7.2.3 In addition, suppression of construction dust is reminded during dusty construction activities under dry and windy conditions.
- 7.2.4 Furthermore, monitoring of site water runoff is reminded to prevent any direct water discharge off site, especially when water usage is high during the construction period. When necessary, the Contractor is reminded to apply additional precautionary measures to prevent any possible environmental deficiency.

Appendix A

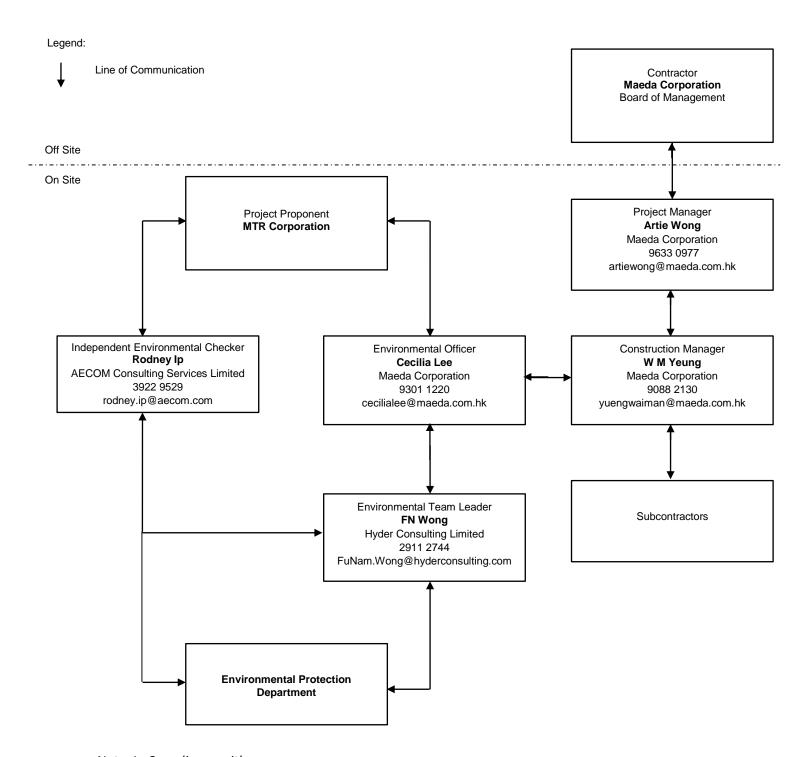
Site Location Plan



Appendix B

Management Structure

## **Project Organization Chart in Environmental Management (Rev.02)**





Appendix C

**Construction Programme** 

<b>MTR</b>		CONTRACT C3840-13C Tsim Sha Tsui Station, Carnarvon Road Subway																		ļ											
Mty D Activity Name	Orig	Planned Start	Planned Finish	Total Ficat				1. 1.	2014	1.1			1.51		20	5		1.1				2016				1.1		2017			T
Preliminary Master Programme Revision 2		14-001-13		00	od N	DJe	FM	Apr M	1 14	AS	Oct N	D Ja		M Apr	M J	A	5 00		D Jan	F M	or M	1 14	A S	Od N	0 10	n F A	Apr M	1 14	AS	Det N	Ŧ
Preliminaries	8276	14-0cl-13	31-Jul-16	06																											ł
Contract Key Dates		14-0ct-13		04												ļ															ļ
			(Percentio																												ł
CI3840-CID-20 Date of Commencement		14-0cl-13		05		of Com	Tercera	*								ł															ł
Specified Degrees of Completion	04	31-Jul-16	31-Jul-18	04																											
C3840-CD-2A Complete to Deg. 1 status for all cM engineering works and ADWF in Subwr K11 Lot Boundary (31 Jul 16)	wy outside Od		31-Jul-16	08		1	†-†-	†-†-	17	11-	†- -	+-+-	11	-†-†	-†-†			11		-1-†		ſ	• Comp	inte te D	eg. 1 abi	tus for al	aM engir	wering we	rka und/	UWF in	ħ
Possession of Works Area Aa PS Clause P8 & PS Appendix G	04	31-Oct-13	31-065-13	06																											
G3840-AD-20 Access Date for Works Area 3840.W1 (subject to SLG/TMLG Approval)	06	31-0el-13		06	þ,	ces D	n fo W	lette Area	3840.W	(***	a to sug	m.c.		•																	ł
Initial Site Survey	354	31-0cl-13	10-Dec-13	06																											ł
C3840-55-20 Wildele the survey record and carry out any necessary additional survey at	Works 35d	31-0cl-13	10-Dec-13	06	-	- Vile	ale the s		and and a	carry out					tWorks	Area 3	540.1V1	a we													
Areas 3640.W1 & W2		16-001-15	31.04.13	06	Įſ.	Ţ	+-+-	∔-}-	++-	+-+-	+	+							-4-4				<b>↓</b>	╞┥╴	<u>+</u> +	4	╪╬┈	∔∔-	┝╌┝╴╵		4
Temporary Works Design & Approval Process (Incl. Demolition)																															ł
Temporary Traffic Mangament Scherne (TTM)	124	16-001-13																													
G3843-TTM-100 Appoint Traffic Consultant	06		16-0d-13	08	P.P	phint That	Consu	fort																							ł
C384G-TTM-110 Pepare & submit review by Eng Outline TTM Schemes as per PS P20.4	64	17-0d-13	23-0ct-13	08	P	are i s	dent vev		Outine	TTMSd	terrete a	s per PS	120.4																		ł
C3846-TTM-120 Eng review Outline TTM Schemes	4d	24-0cl-13	28-Oct-13	06	ŀ	ng nen lew	0.0	TM Bch	-																						
C3840-TTM-130 Prepare Detailed TTMS	54	24-0cl-13	29-0d-13	06	ţ,	tepane D		MS	╉╋	╋╋	┿┿	+-+-	-+-+	-+-+	-†-†		┝╌┽╴	+-+-	-+-+	-+-+	-+-+	┝╺╬┿╸	╋╋	╉	╋╋	++-	╆╋┅	╆┿╸	┝╌┾╼╵	-+-	ł
G3843-TTM-140 Discussion and agree in principle at TMLG Meeting	1d	30-0cl-13	30-Oct-13	08	H,	Incumbr	andag	ee in prin	National 1		at ing																				
Carnarvon Road Subway and Entrances	7694	14-Nov-13	22-Jun-16	86												ł															ļ
	196	14-Nov-13	(Children I.d.	84																											ł
Open Cut Bequence 1 (Advance Ground Works & Ming Works)																															
Advance Oround Works		14-Nov-13	05-745-14																												ļ
C3840-AGW-020 Trial PMrench excernetion	696	14-Nov-13	08-Feb-14	08	٦	<u>1</u>	7%	PMnenct	tected	<b>e</b> n	ΤT	ΤΤ	ΤT	TT	-1-1		T-T-	11	11	77	רד		IΤ	77-	ŢΤ	TT	ŢΤ	TΤ		T	Ţ
C3840-AGW-040 Pre-drilling works	246	27-Dec-13	24-Jan-14	08		1-	n a	ing work																							İ
Piles & Grouting for Vertical Shaft	51d	27-Feb-14	02-May-14	86																											
C3840-EV5-010 Mobilization for Pling Rg and Setup	40	27-Feb-14	03-Mar-14	06			Ŀ,		on for Pile	Rigan	Sello																				İ
C3840-EV5-020 52 nos. pije ples with 1m. to 2.2m. minimum rock socket	386	04-Mar-14	14-Apr-14	06				121	nge, ppe	ples with	1m.1p2		mumip	ckaccu																	ļ
C3843-EVS-G30 Grouting for Vertical Sheft Bulk Head	104	17-Mar-14	07-Apr-14	86		<u></u>	- <b> -</b>  _	Gro	ting for V	Artical Sh		Head	-+-+	-+-+	-+-+		┝-┼-	╬	-+			┝╺╫╸	╞┼╴	╟╢	╪╬	++-	╪╬┈	╞┿╴	<b>├-</b> ┣-		+
C3840-EV5-040 Curtain Grouting vertical shaft		08-Apr-14	03.88m.14	86					L.							ł															ļ
••••••					Į į			17	П	П	П	11																			ł
Tunnel (Vertical Shaft Excavation)		03-May-14		ad												ĺ															Ì
C3840-5H-100 Pump Test	246	03-May-14	31-May-14	86					Pump	Test																					
C3840-5H-110 Excavation for 1et layer 140m3 50m3/day	3d	03-Jun-14	05-Jun-14	86					Ec.	vition for	tet bye	140131	50-343	Y.																	İ
C3843-5H-120 Install 1st welling, strut & legging well	40	05-Jun-14	10-Jun-14	86		<u></u>	÷+	╪╌┾┺	nap	d tetwa	+	& legate	-+-+	-†-†	-†-†		-+-	++	-+-+	-1-†		-+-	┼┼	┢╉╴	╈╋	++-	╈╋	<u>+</u> +-	╞╼┾╼╵		t
C3846-SH-130 Shotzvele fat leyer	28	11-Jun-14	12-Jun-14	86					•	teretel 1st	ayes																				
				ta Date: 1	1.00																										_
Actual Work   Remaining Work			08			-12				1	Preli	mina	ry N	faste	er Pr	ogra	mm	e			$\vdash$	Da	te		Revisi		PMP/2 Ch	ecked		Appro	we
Critical Remaining Work				Page 1	of 3																27-	Feb-1	4	RE	V 2		BG		AW		_
												Extr	act (	Critic	al Pa	th l															

	88 MTR					(	CONT	RAC	CT C3	840-	-13C	Tsim	Sha	Tsui	Sta	tion,	Can	narv	on F	load	Sul	oway	'													
Activ	dy Name	Dur	Planned Start	Finish	5 Total	Picet	et N C	l Jarl	r Inda		2014		t lost	NIP	Jac I	1.0	ard 14	201	5 11 8	50	et 16	0.0		Mar	1	2016	1	s lo-		1 300	r 1 M	áce -	201	7	50	a e
C3840-511-140 Exce	wation for 2nd layer 190m3 50m3id	40	13-Jun-14	17-Jun	-14	°≊					50	ander		bryer 19	0-35	34	44							-		1		5 00				~ .		~	-	an
C3840-5H-150 Insta	d 2nd weing, strut & legging well	40	18-Jun-14	21-Jun	-14	œ					5	<b>612</b> 61	-	ere 81		-																				
C3840-5H-160 Shot	brels 2nd layer	28	23-Jun-14	24-Jun	-14	86					-	-	20.00	•																						
C3840-5H-170 Insta	I Decking with Subframe to cover all area	44	25-Jun-14	28-Jun	-14	86		-1-1	-††		i les s	abal des	-	th Subit		-	l a sa	t-t		-1-	1-1	-†-	11		11	- 11	1-†		什十	-1-1	-1-1	<u>-</u>	$^{++}$			-†-
C3840-5H-180 Exce	wation for 3rd layer 380m3 50m3id	78	30-Jun-14	08-Jul-	14	86					4	Decembra	or for D	nd Bryer	380-13	-																				
C3840-5H-190 Insta	el 3rd weiing, strut & legging weil	54	09-Jul-14	14-344	14	86					4	netel 3		g, etnet	6 <b>1</b> 00																					
C3840-5H-200 Shot	brele 3rd layer	28	15-Jul-14	16-Jul-	14	86					•	Boltre	ete 3rd 1	-																						
C3840-SH-210 Exce	evation for 4th layer117m3 (soli) 🇶 50m3/d, 205m3 (rock) 3m3/d	71d	17-Jul-14	10-Oct	-14	86					1 -	+ +	<b>*</b>		e tor e	hleyeri	17103 ()	••	50-34	, 2054	13 (190	0 343	4													
C3840-5H-230 Shot	tonelie 40h layer	28	11-Oct-14	13-0ct	-14	∞		╞╌╂	++		++-	+-+-	₽₽			-+-+	-†-	┞─╀			Ļ_Ļ.	-+-	┥┥			-	┼┼		$\uparrow \uparrow$	╞╌╂		<b>⊢</b> -⊦.	++			-+-
C3840-5H-240 Male	e formation and Dilinding	28	14-Oct-14	15-045	-14	86							h	take for		and Di	ang																			
C3840-5H-250 Mod	By walling and strut	3d	16-Oct-14	18-Oct	-14	œ							þ	****		-																				
C3840-5H-280 Adju	abible Steel Patiform Setup for Grouting & Pling Works)	128	20-Oct-14	01-Nov	-14	86								Agent	cie Di	Pad	ormi Sal	up ter	Grouter	9 & PN	w.	<b>5</b> 8)														
C3840-5H-270 Horb	zontal Grouting (48 Nos. Grout Holes)	276	03-Nov-14	03-Dec	-14	84							14	<b>-</b>	ortzolat	•	ng (40	Nos C	irost H	<b>(m)</b>																
C3840-5H-280 Hors	zontal Pipe Roofing (59 Nos. Pipe Pile)	276	04-Dec-14	07-Jan	-15	86	╋	┼-┼	-++		++	┝-┼-	++	L.	-		ip Ro		9 Nos	PpeP		-†-	++	-+-	++	-#	++		┝┿	+-+	-+-+	┝╼┝╵	++			+
C3840-5H-290 Hors	contail Re-grouting	14d	08-Jan-15	23-Jan	-15	86								ļ	•	10 200	110-9	ung																		
C3840-5H-300 Insta	d Portal Frame	3d	24-Jan-15	27-Jan	-15	86									Þ	-	and Po																			
C3840-591-310 Cut I	Pipe Pie	40	28-Jan-15	31-Jan	-15	86									ľ	Cat Pp	P																			
lannel (ELS, Excevation & Con	nstruction of Tannel)	400d	02-Feb-15	22-Jun	-16	(Bel																								11						
C3840-TU-100 Exce	wation, shotorete & install steel harnework support for 1st 6m	708	02-Feb-15	02-Mary	-15	86	╋	+-†	-++		++-	+-+-	++	-+	┆╘╞	+-+	-	t= t	in, she	crefe (		ate di	++	rk nap	÷.	r 1983	1-+		ŀŦ	+-+	-1-1	╞╌┝╵	$^{++}$			-†-
C3840-TU-110 Exce	wation, shotcrete & install steel themework support for next 7m	756	04-May-15	5 01-Aug	-15	86				ł							Ļ		-		n, sha	crete 8	instal	steel t	┿╍┿	ark weg	-	rnet7						1		
C3840-TU-120 Exce	evation, shotonete & install steel framework support for last 7m	756	03-Aug-15	31-Oct	-15	86				ł				ł			ł		-		•	-	-	ne a		-	+-+	nk supp	on fr	int 7m				1		ł
C3840-TU-130 Insta	I intermediate portal frame	36	02-Nov-15	04-Nov	-15	86															-	stall the	┿╍┿	the post	<b>*</b> •••	-										
C3840-TU-140 Insta	il intermediate horizontal pipe roofing incl. mobilization $\delta$ demobilization	195	05-Nov-15	25-Nov	-15	86				l				l			l				ŀ	Instal	bern			-		g incl. m		•••		ittori		ł		l
C3840-TU-150 Hors	contral re-grouting for intermediate section	6d	27-Nov-15	03-Dec	-15	æ		11	-††		11	11	††	-†	t-t	11	-†-	†-†	1-1		h	Hart	t	gout	1010	-		ector	$\uparrow\uparrow$	11	11	<b></b>	$\dagger \dagger$			-†-
C3840-TU-150 Insta	I Support, excernition & shotcret for intermediate section	336	04-Dec-15	5 14-Jan	-16	84															14	+		Suppo	1.00	na tr	4 shet	crei for		-	ction					
C3840-TU-180 Insta	il dowel bans & concrete collar beams	108	15-Jan-16	25-Jan	-16	86																Ļ		11 0000	• • • •	a per	-	oller be	-							
C3840-TU-210 Brea	kthrough (core & saw out) into KH Lot & associated works	104	27-Jan-16	19-Feb	-16	æ																ļ	Þ	ire kt		(con l	-	out) into	K11 La	****	-	ecrite				
C3840-TU-220 Cons	struct Siab 2 Bays (2 pours)	128	20-Feb-16	04-Mar	-16	86																		Cons	eluct (P	at 25	<b>99</b> (2	pours)								ĺ
C3840-TU-230 Com	struct Wall & Roof (incl. removal of struts) 2 Bays (8 pours)	646	05-Mar-16	25-May	-16	86	++-	+-†	-++		11	†-†-	++	-†	t-t	-†-†	-†-	t-t		-+-	1-1	-†-	14	- <u>+</u> -		Constr	uct We	d & Roc	f (ind.	-	of stru	s) 28	<b>ya (</b> 8 p	ours)		-†-
C3840-TU-240 Curb	na	108	25-May-16	5 06-Jun	-16	86																			ŀ	- Curte	•									
C3840-TU-250 Dier	nartie falsework	108	31-May-16	5 11-Jun-	-16	86																				╍╬┥		-	*							
C3840-TU-250 Gros	uting into void above	64	13-Jun-16	18-Jun	-16	86	11	1				1 1			11			11					11		14	g ide	-	to vot	abous	11						

Actual Work   Miestone			Da	ata Date: 1	1-Oct-13					Maeda	P/PMP/2	
Remaining Work						Prelim	nary Master Programme		Date	Revision	Checked	Approved
Critical Remaining Work				Page 2	of 3				27-Feb-14	REV 2	BG	AW .
Crister remaining trans						E	stract Critical Path 1					
<b>MTR</b>	.					ACT C3840-13C Tsim Sha Tsu	i Station, Carnarvon Road Subw	ay				
Activity ID Activity Name	Orig	Panned	Panned	Total Float		2014	2015		2016		2017	010

Activity ID	Activity Name		Parred		Total Ploat					20	4						2015								2016							2	87			
		Dur	Start	Finish		Oct N	D Jan I	F M	Apr M		A lui	S Od	t N D	net. C	F M	Apr M	J Ju	A 11	5 0	ct N	D Ja	n F	M Ap	r M	3 30	1 A	5 0	d N	D Jan	F N	Apr	L M	Jul J	A S	Oct N	ND
C3840-TU	-270 Cut Pipe pile at Interface	3d	20-Jun-18	5 22-Jun-16	86																				- 0	d Pipe	pile pit	intertep			1 1					
							11		11	1 1	11		11	1 1	11			11		11		11		1 1	T	71		1 1	1		1 1				11	11
Building Se	rvloes & ABWF Works	708	27-Apr-16	21-Jul-16	86		-r-r	-1	ΤT	ΤT	-r-r	- <b>T</b> -	T-T-	TT	-1-1	[- <u>T</u> -	T-T-	11	-1-	77	-1-	77	-1-	17	T	117		ΤT		[]-	ΤT	T	ΓT	-1-1	ſ-t-	-1-1
BS & ABW	Works at Subway Conc. Level and Plant Room & D3	70d	27-Apr-11	21-Jul-16	0ed																															
																									Ц											11
C3840-85	5-120 ABWF Works to Deg. 1 Completion	708	27-Apr-16	21-Jul-16	86									11										_	_	100	IF VVD	** ¤ P	910	entra parte	1				( L.	17
																																			<u> </u>	

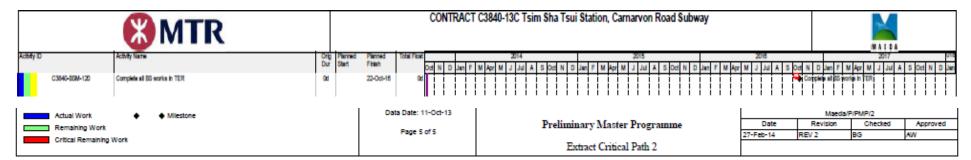
Actual Work   Miestone	Data Date: 11-Oct-13			Maeda/F	P/PMP/2	
Remaining Work		Preliminary Master Programme	Date	Revision	Checked	Approved
Critical Remaining Work	Page 3 of 3		27-Feb-14	REV 2	BG	AW .
Critical Perhanning Work		Extract Critical Path 1				

	MTR							С	ON	TR/	кст	°C3	840-	13C	Tsin	n Sh	a Ts	sui (	Stat	ion,	Car	marv	von	Roa	d Sı	ibwa	y						Τ								
MtyID	Activity Name	Dur	Par Sta	rned rt	Planned	Tot	a Post	~ -						2014	-					L an la		201	5		~					2016			1				20	17		-	T.
Preliminary Master Prog	gramme Revision 2				23-061-1	8	00	οa	N		n F	MA	pr M	1 1	1	5 0	2 N	01	an F		spr M		JU N	1 5	Oct N		an F	MA	pr M	3 35		5 08	N	o pan	F M	Apr	MJ	JULA	50	ACT N	-
Preliminaries		886	1 11-	Ocl-13	23-0ct-1	6	06		ł							ł					ł		ł																		
Contract Key Dates		34	11-	-Oc6-13	14-0:5-1	13	06																																		
C3840-CD-10	Date of Contract Award	06	11-	-Oct-13			8		ate of	-		mind																													
C3840-CD-20	Date of Commencement	04	14	-Oct-13			06	ļ	ate of	Com	meno																														ļ
Specified Degrees of Com	ndetlen -	04	23-	-Oct-16	23-06-1	8	06	-			4-	++		╎┼		-+-		╞╌∔╴				44		4-4		<del>↓</del> ∔				┝∔	<u>∔</u> ∔		<u>∔</u> ∔		-4	∔∔	.+4		╞┼		<b>.</b>
	Complete energiaution of the power isolator in the Telephone Equipment Rm (23 Oct	06			23-0ct-1		04	ļ	Ì	Ì																							Contra							Televit	
	15) As PS Clause P5 & PSAppendix G			Co. 12	31-Oct-1		06	ļ	İ	Ì						ł			ł		ł		ł				ł					Г					Π		Π	T	Γ
																					1						ł														ł
	Access Date for Works Area 3040.W1 (subject to SLG/TMLG Approval)			-0ci-13			06	F				WCO		3640.1	V1 (84	PC 10	scor		Actoro		1																				ł
Initial Site Survey		354	31-	-Oct-13	10-Dec-1	13	08																																		l
C3840-55-20	Wildste the survey record and carry out any necessary additional survey at Works Areas 35401W1 & W2	356	31-	-Oct-13	10-Dec-1	13	06	7	Ŧ	Valk	in th	8 8LTV	eyrecc	and send	carry	utany	races	881) B	dator		my at 1	Works	Areas	35-0.5	VI & V		1		1	IT	11					TT			ΤT	1	T
Procurement of Subcontra	et Packages	41	11-	-Oct-13	16-Oct-1	3	06																																		l
Preliminaries and Utilities	Diversion	41	11-	041-13	16-0d-1	13	06		l	ļ						l			ļ		ļ						ļ														ļ
C3840-PRC-140	Temporary Traffic Diversion (Consultant)	41	11-	Oct-13	16-Oct-1	3	06	ł	in po	my 1	-	Divens	ion (Co	neuter	4	1							1				ł														İ
Temporary Works Design (	5 Approval Process (Incl. Demoltion)	125	15-	-Oci-13	30-06-1	13	06		ł	ļ																															
Temporary Traffic Manger	nent Scheme (TTM)	126	16-	-Oci-13	30-0:1-1	13	04	Ħ	·+-	+-	+-+	┝╋		╏╌╋╴	╊╼╋	-+-		┝╌┽╴	-+-	+-+	-+-	+-+		+-1		1-1	-4			┝╋╸	╉╾╋	-	╋╋			╊╊	-+-1		┢╍┝	-+-	ţ
C3840-TTM-100	Appoint Traffic Consultant	06			16-0ct-1	3	06	ł	(ppain	-	le Co	e.de	ŧ																												ļ
C3840-TTM-110	Pepare & submit review by Eng Outline TTM Schemes as per PS P20.4	84	17-	-Oct-13	23-0ct-1	13	06		Peper	•	ulent	review	by Dry	oun	• <b>TT</b> M	Scher		per P	S 1720.	41			ł				ł														l
C3840-TTM-120	Engreview Outline TTM Schemes	40	24-	-Oct-13	28-Oct-1	13	06	H	Ergr	-		• 11	V Sche																												l
C3840-TTM-130	Prepare Detailed TTMS	54	24-	-Oct-13	29-0ct-1	13	06	ų	Prep		-	тти	5			Ì			Ì		Ì						ļ														ļ
C3840-TTM-140	Discussion and agree in principle at TMLG Meeting	1d	30-	-Oct-13	30-0ct-1	13	06	H	Dec	-	and		in prink		THLO	Meetin	<u>.</u>	╞−∔∙	-+-	╁╌┼	-+-	╉╋		+-+	-+-	<del>ĺ</del> −∔			·	┝┿	<del>┥</del> ┥		<u></u> ∔-∔			╆∔	-+-		┝-┝	-+-	ł
Carnarvon Road Subwa					28-Jun-1		06																				ł														ł
	ay and Entrances				17-Apr-1		04																																		l
Utility Diversion									1	ļ																	1														ļ
	Diversion of Geamain as necessary				17-Apr-1		06				Ī		Che	rsion d	Gant	ain ba	nices	aary																							l
	rance Ground Works & Piling Works)				18-May-1		08			Ĺ																	ĺ														Ĺ
Advance Ground Works			14	Nov-13	08-Feb-1	•	8	Ι	1					T		T			T	ĪĪ	1	ĪĪ	1	T	1	11	1			IT	11					TT			TT	Ī	T
C3840-AGW-020	Trial PMrench excernition	694	14	Nov-13	05-Feb-1	14	R	ľ	+	+	1	rial Pit	Anench	CONC. IN	*																										ł
Plies & Grouting for Vertic	ol Shelt	394	27-	-Feb-14	14-Apr-1	4	06		ł	Ì									ł								ļ														ļ
C3840-EV5-010	Mobilization for Piling Rig and Selup	40	27-	Feb-14	03-Mar-1	14	06		ļ	ļ	ŀ	MB	-	e for Pi	ne Re	and S	•																								ļ
C3840-EV5-020	52 nos. pipe piles with 1m. to 2.2m. minimum rock socket	356	04	-Mar-14	14-Apr-1	4	8	ļ			ļĻ	÷	92 m	e.pp	plan a	th in	621	m. rei	nin un	ocka	oc at																				ļ
Piles & Grouting for Temp	porary Staricase & C&C Subway	593	15-	Apr-14	28-Jun-1	4	06	-	·+-	+-	+-	-+	++	┼╋	╋	-+-		╞╌┽	-+-	┼-┼	-+-	╈	-+-	+-+	-+-					┝┿	┼┼		╆╋			╆╋	++		╆-┢	-+-	t
C3840-ET5-020	70 nos. pipe piles along Grid Line A with 1m, to 3.1m minimum rock accivel	476	15-	Apr-14	14-Jun-1	4	05		ł			ŀ	ļ	<u> </u>	<b>1</b>	-	liong	Grit	UneA	h	. 63	l	nimim	rbck	ocket		ļ											ł			ļ
		1		- 1		Data D	ale: 6		+	+	+		!!	: !!		+	+		+	+ +	+	+ +		+ -	+	+ +	+		+		+ +	+	+ +			+ +			+ +	+	+
Actual Work Remaining Work	Miestone									-						Pr	elin	nin:	ary	Ma	ster	r Pr	ogr	am	me				F	Da	ite		Re	Ma	_	PMP	/2 heck	d	٨	ppro	Ne
Critical Remaining V	Nork					P	age 1	of 5	i -																				27-	Feb-1	4	F	REV 2			BG			AW.		_
									_									Ext	ract	Cn	tica	l Pa	th 2	2																	

		MTR						CON	TRAC	тс	3840	)-13(	C Ts	im S	Sha	Tsu	i St	atio	on, (	Carr	nan	/on	Roa	ad S	Sub	waj	/																
		Activity Name	Org Dur	Panned Start	Planned Firish	Total Pic	8		1.			2	94								201	5		_	_	_				Z	16					1-1			20	7	_	-	E
	C3840-ET5-030	Curtain Grouting along Grid Line A			4 25-Jun-14	4	≥°	± N	D Jan	FM	Apr N	1				N D			M A;	pr M	1.	Jul 7	5	Oct	N	0 14	n F	MP	or N	1 1	Jul	AS	i Ođ	N	D Jar		M Ap	ar M	1	Jul	A 5	Oct	ť
	C3840-ET5-070	Type III Sheet Pile, 355m along between Grids A & B	84	22-Apr-1	4 28-Apr-14		œ				Ļ,	<b>1</b>	5744	Pia, 3	50m)	iong b		G	58 A 82	C																							
-	C3840-ET5-080	Tee Grouting	ad	29-Apr-1	4 09-May-1	4	œ					тыс	routing						ł				ł			ł			ł								ł			ł			ł
	C3840-ET5-090	Mobilization for Pling Rig and Setup	40	10-May-1	4 14-May-1	4	2	11			1	Mat	icetter i	to Pi	<b>G</b> P	and t	<b>e</b> tep	t-t	-†-	1-	t-t	-1-	†	1-1		-†-		1-1	-1-	11	F1	+	11	-†		†1	+		††		-†-	1-1	t
	C3840-ET5-110	37 nos. pipe piels along Grid Line 8 with 1m. to 1.5m. minimum rock socket	256	15-May-1	4 13-Jun-14	4	œ				╎┡	╡	97 me	ppe p	-	<b>6</b> 10	il Lis	Bw	<b>n</b>   n	101.	m n	nintur	nock	soci	#t												ł						ł
	C3840-ET5-120	Curtain Grouting along Grid Line B	138	14-Jun-1	4 28-Jun-14	4	œ					4	Cun	in Gro	-	stong (	a e u	ne D																									ļ
	Piles & Grouting for Rem	aining Section of Cofferdam at D2	206	24-Apr-1	5 1 <b>8-May-1</b>	5	06																																				ł
-	G3840-ECD-010	Mobilization for Pling Rig and Setup	41	24-Apr-1	5 28-Apr-15		22												ļ.,			lan bi	i and	Re	and Be															Ì			ļ
		23 nos. pipe piles along Grid Line B at D2 with 1m. to 3.2m minimum rock accivit			5 10-May-1			┞┥			╞-┞-	-	╞╌┞	- <u> </u>	<u>+</u> -	- <u>+</u> -	Ļ	<u></u> ∔-∔	-[	1	23 10		1			_1_	BHD	2 with	1m, te	13.2m	minim		0 80		-Ļ-	Ļļ.	. <u>+</u> .		Ļļ		- <u>+</u> -	. <b> </b>	ļ.
0	pen Cut Sequence 2 (Ex	cavation for Temporary Stanicase)	2094	S0-Jun-1	4 11-Mar-11		01																																				
	Excevation		934	30-Jun-1	4 20-061-14		06									ļ						ļ				ļ			ļ			!					ļ						ļ
																																											Į.
	C3840-EXC-100	Pump test prior to excende for temporary staticase Excervation for 1st layer at D1 208m3			4 28-Jul-14		8							Pump 1		bribe bribe		e for		ordery #																							
														I								ļ	1			l			l			İ					ļ			İ			Ì
	C3840-EXC-130	Install 1st weiling $\delta$ strut 21 lon $\delta$ temporary support to underground UUs			4 09-Aug-1-		°"	T				T	7	linital	i 1ata	aling i	et nd	21br	n år er	neora	0	por to	unde	900	nd GI	Ja	1		1	T		Ţ		Ţ		Π	Ţ		ĪĪ	Ī	T	-	ľ
	C3840-EXC-140	Install Trues for Suport Temp D1			4 16-Aug-1-		04						ן ו			sa for i	1	Terty	ρD																								ł
	C3840-EXC-150	Shotorete 1st layer	20	10-Aug-1	4 19-Aug-1-	•	≊						İF	She	ΤT	10.30	Ť I			İ.		İ	İ.			İ			İ						Ì		İ	İ.		İ			İ.
	C3840-EXC-160	Demolsh D1 4m below GL	64	20-Aug-1	4 25-Aug-1-	4	8							D	nola	h D1 4		a GL					ł																				ł
	C3840-EXC-170	Excervation for 2nd layer at D1 230m3	50	27-Aug-1	4 01-Sep-14	4	2							•	in rede	lonilor			t DI 2	31113		İ	ĺ			Ì			Ì			Ì			Ì		Ì			Ì			İ
	C3840-EXC-180	Instell 2nd weiling & atrut 17ton	78	02-Sep-1	4 10-Sep-1-	4	°	TT				1		1	h	2nd wr	ning 8	stra	170	1	Τt	1	†	1-1		1	1		1	Ť		Ť		1		T1	Ť		ΤŤ	Ţ	T	1-1	ŗ
	C3840-EXC-190	Shotorele 2nd kyer	28	11-Sep-1	4 12-Sep-1-		8							F		-																											ł
	C3840-EXC-200	Exceivation for 3rd layer at D1 216m3	56	13-5ep-1	4 18-Sep-1-	4	8							٣	200	with 1	34	<b>baye</b> r	nat 21	216	ŧ I	ł	ł			ł									ł		ł						ļ
	C3840-EXC-210	Install 3rd weiing & strut 15ton	64	19-5ep-1	4 25-Sep-1-	4	œ							þ		<b>1</b> 3d)	wing	5 🕿	ut tik																								ł
	C3840-EXC-220	Shotorete 3rd layer	40	28-Sep-1	4 30-Sep-1-	4	œ								9	torete	3-16	**				ļ	ł			ł	ł		ł						ł		ļ	ł		ł			ł
	C3840-EXC-230	Excevation for 4th layer at D1 166m3	40	03-Oct-1	4 07-Oct-14	4	œ	ĪĪ				1			1	canata	r tar	ith ing	yer ti	D1 18	843		Ī			1	1		1	Ť		Ť		Ť		T1	Ť		ĪĪ	Ī	T		Ī
	C3840-EXC-240	Install channel on opening	3d	08-Oct-1	4 10-Oct-14		8								1	stal ch	-	on op	-	1		ļ				ļ			ļ								ļ			ļ			l
	C3840-EXC-250	Shotorete 4th layer	40		4 15-Oct-14		8								Γ!	holpre						ļ	l														ļ						l
	C3840-EXC-260	Make formation and Bilinding			4 20-0ct-14		8							1	Pi	Value 1		bn sh	d Bini							1														1	ł		ł
	RC Structure (Temporary	(clasm)	1164	21-061-1	4 11-Mar-1	°	•							ļ		ļ						ļ	ĺ			ļ			ļ			ļ		ļ	ļ		ļ	1		l	ļ		ĺ
Γ	C3840-TSC-100	Install Dowelbars (1308)	64	21-Oct-1	4 27-Oct-14	4	œ							1	P	Instal	Elowe	bar	(120	•	Ħt		†			-+-	1			Ť		1		-+			Ť		††		1	Ì	ľ
	C3840-TSC-110	Const. Bey1 : 18m3			4 03-Nov-1-		œ								۲	Cone	t Day	1:13	m3																								ĺ
	C3840-TSC-120	Const. Bey2: 16m3	96	04-Nov-1	4 13-Nov-1-	4	œ								1	¢.	et. De	g2:1	6m8																								ł
	C3840-TSC-130	Const. Bey3 : 6m3	66	14-Nov-1	4 20-Nov-1-	4	œ									i Ca	rist. D	n/3	6m				1												1								ļ
_	Actual Work	Miestone				ata Date	: 11-	Oct-1	3																				T						M	eda/	P/P	MP/2	1		_	_	_
	Remaining Work					Page	2.04	-						I	Prel	imi	nar	уN	Mas	ster	Pr	ogr	am	me	•						Date				visio	n		_	ecke	d	F	Арр	an
	Critical Remaining	Work				1.016	2.0	-								P			<u></u>	tical	D.	a. 1							2	7-Fe	b-14		R	EV 2			BG	•			AV	<u> </u>	_
																E	sua	ict (	Cnt	uca.	i Pa	m 2	5																			_	_

		<b>MTR</b>					(	CON	ITRA	CT	C384	0-13	3C T	sim	Sha	Tsu	ii St	tati	on,	Car	narv	/on	Ro	ad S	Subv	way																	
		Activity Name	Dur	Planned Start	Planned Fitteh	Total Pic	*	4 N	D In	d e la	M Apr	_	2014		LO-	N D	1.1=		M In	er 14	201 J.	5		0-1	N	1		M La-	1.14	201	s ul A		a e	n	here a		Apr	20	87	A I	0	t N	7
ſ	C3840-TSC-150	Const. Bay5 : 35m3		21-Nov-14		4 (	×Ĩ		0 08					~ 0		_	Const			1		100 1		UC1				- 14		-						M	~	-	-	-	00	1	
	C3840-TSC-160	Const. Bay5 : 39m3	156	05-Dec-14	23-Dec-1	4 0	<b>2</b>	╈		÷+	+	+-	+-	┝-┼-	+-	÷	Car	t.	iny6 i	39-3	Ηł	-+-	+-	┼╌┤	-+-	+	┼┼	-+-		F +				╈	-+		┢╋	╈		-+-	╬	÷-	,
	C3840-TSC-170	Const. Bey7 : 34m3	144	16-Dec-14	03-Jan-15	5 (	8										ĥ	enst.	Dry	: Silmi	4	ł	ł												ļ							ł	
	C3840-TSC-180	Const. Bay6 : 4m3	64	31-Dec-14	07-Jan-15	5 (	8										┥	-	De B	: <b>-</b> m3								1														ł	
	C3840-TSC-190	Const. Bay9 : 44m3	146	08-Jan-15	23-Jan-15	5 0	æ										Ļ	Co	at. Be	y5:4	413																					ł	
	C3840-TSC-240	Temporary Statroase Commissioning & open for use	86		11-Mar-15		æ											ļ	• •	mpone	n <b>/</b> 3e)		Com	ilea ka	ningā	open 1	for un	•														ļ	
4	tpen Cut Sequence 3 (Ac	dvance: Ground Works & Ming Works at 02.6 in front of 01)	33d	12-Mar-15	23-Apr-15		×			+-+	++		+-	-+-	+-	-+-	1	t		1-	ŤŤ	-1-	+-	1-1	-4-	+		+-	4					╋	-+	1-1	╞╌┠	++		-	+-	t	•
	C3840-EL5-510	Joht Survey & Remove edeting BS & ABWF Services at D2	66	12-Mar-15	18-Mar-15	5 (	8					ł					į	ŀ	•	in Su	alay k	Ren				BMT	Denvo	es et l	4		Ì		ł		ł					Ì	Ì	Ì	
	C3840-EL5-520	Const Flood Barrier at Concourse and D2	95	19-Mar-15	28-Mar-18	5 (	×					1					i		•	Const	100	Darph	rito	encos	raejar	602		ł							1					l		l	
	C3840-EL5-530	Demolah D2 above GL	125	30-Mar-15	16-Apr-15		œ										į		Ļ	0.0	-	0246		ļ																		l	
	C3840-EL5-540	Set Conc block in D2 opening	64	17-Apr-15	23-Apr-15		×												Ļ	•	eCono		10 02	oper	ing																		
0	pen Cut Sequence 4 (Ex	covation for Subway in front of D1)	1624	27-Jun-15	02-Feb-16	6 (	a	$\dagger$		+-+	╈		+-	-+-	+-	-+-	+	†+	-+-	+-	tt	-†-	+-	†-†		+	$\uparrow$	-†-	1	ŀ†		+-		╈	-+	1-1	╞╌╞	+		+	+-	t	-
	C3840-EL5D1-100	Excevation for 1st layer 378m3, 25m3/day	156	27-Jun-15	15-Jul-15		œ		ł												H	•			1atley	371	-1	Small	4													1	
	C3840-ELSD1-110	Install 1st weiling & strut & USBy Support	246	03-Jul-15	30-Jul-15		œ														ļĻ	ļ	Initial	at w	aling 8	seut i	¢ un	y 5400															
	C3840-ELSD1-130	Instal Decking with Subframe to cover all area	128	31-Jul-15	13-Aug-15	5 (	œ															Ļ	nab	De	kinga	e su	***	1 00	ver al														
	C3840-ELSD1-140	Shotorele fat layer	28	14-Aug-15	15 Aug-1	5 (	8										ł					þ	Sho	trete	1at by	•																	
	C3840-ELSD1-150	Excervation for 2nd layer 421m3 50m3/day	95	17-Aug-15	26-Aug-15	5 (	2	┢╋		t-t	+		+-	<u>-</u> +-	+-		+	t	-+-	-†-	†-†	-	Þ		on for	2nd la	- 4	1000	0-34	TV.		†- <b> </b>		$\dagger$	-+	1-1	t-t	+		-	+-	t	•
	C3840-ELSD1-160	Install 2nd waling & strut	86	21-Aug-15	29-Aug-11	5 0	×					ļ								ļ		-	h	612		n <b>g 8</b> 1	-1	ļ														ļ	
	C3840-EL5D1-170	Shotorele 2nd layer	28	31-Aug-15	01-Sep-1	5 (	æ										i						• 5	oter	68 <b>2</b> 10	leyer																ł	
	C3840-ELSD1-180	Demolsh ediding subway 7.5m below GL	64	02-Sep-15	08-Sep-15	5 (	8															ļ	ŀ	-	ish ed	ing e	ż.	y 7.8m	beiov	GL.					ļ							ĺ	
	C3840-ELSD1-190	Excervation for 3rd layer 421m3, 50m3/d	96	09-Sep-15	18-Sep-1	5 (	8		l			l					i					İ	٣	Des	etten	te 31	bayer	-Cin	3 501	36					l							l	
	C3840-ELSD1-200	Install 3rd weing & strut	86	14-Sep-15	22-5ep-1	5 (	× -	╈		t-t	++	+-	+-	-+-	÷	-+-	÷	ţ-	-+-	-†-	t-t	-†-	5	ine i	a 3 d	u ling	5 #		1-1	++	-+	+-	·+-	++	-+	++	++	÷Ϊ		-+-	+-	t	
	C3840-ELSD1-210	Shotcrets 3rd layer	28	23-5ep-15	24-Sep-15	5 (	×																Ļ	51	torete	3 d bry	┢╽																
	C3840-EL5D1-220	Demolish existing subway 10.5m below GL	84	25-Sep-15	03-Oct-15	5 (	8																ŀ	D	nolat	-00		and 1	06m	niov	GL				ļ							ĺ	
	C3840-ELSD1-230	Excervation for 4th layer 443m3, 50m3/d	96	05-Oct-15	14-0ct-15	5 (	8										ł						ļļ	þ	bear	tion to	-	<b>ye</b> 4	<b>0</b> -1,	50-03	đ											l	
	C3840-ELSD1-240	Instell 4th weiling & strut	ad	09-Oct-15	17-0ct-15	5 (	æ										į						ļ	₩,	netal -	Ra wa	ing is	strat														1	
	C3840-ELSD1-250	Shotzrels 4th layer	28	19-Oct-15	20-0ct-15	s (	× -	╈		÷+	┿╋		+-	-+-	+-	+-	+	÷-	-+-	+-	t-t		÷	5	Shelo	4	i inge	÷		ŀ†		+-	·+-·	┼┼	÷	++	╞╌┝	+		÷	+-	÷-	•
	C3840-ELSD1-250	Excervation for 5th layer 443m3, 50m3/d	94	22-Oct-15	31-Oct-15	5 (	8																	h	Des	witton	br St	h lager	40n	a, 50	a												
	C3840-ELSD1-270	Instell 5th weiling & strut	ād	27-Oct-15	04-Nov-15	5 (	8																	ŀ	Intert	1 561	┉	ā 🖦					l									l	
	C3840-ELSD1-280	Shotorete 5th layer	28	05-Nov-15	06-Nov-15	5 (	×										ł							ļĻ			den løg	*															
	C3840-EL5D1-290	Ecowation Soli for 6th layer 392m3, 50m3/d	ad	07-Nov-15	16-Nov-11	5 (	×																	ļ	9		in Sel	to O	hitiyet	390 m	3, 90m	5id											
	C3840-ELSD1-300	Excevetion Rock (Grade 2) 402m3, 8m3/d	506	17-Nov-15	16-Jan-10	5 (	2						+-		+-			+		-+			+-	+		ſ	Dan				2,400	<b>H3</b> ,	mäld			44		++				+-	
						ata Date:	11-	0.04	13														_									_					PMP			_	_	_	
	Actual Work Remaining Work	<ul> <li>Milestone</li> </ul>												1	Pre	limi	nar	ry)	Ma	ster	r Pr	ogi	am	me						0	ate			Revi				hecke	d	Т	Ap	pro	1
	Critical Remaining	Work				Page	3 of	5																					27-	Feb	14		REV	/2		E	BG			A	N	_	•
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	MTR				CONT	RACT	C3840	0-13C	Tsim	Sha	Tsui	Statio	on, C	arna	rvon	Roa	dSub	way														
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C3840-ELSD1-310	Install 6th waing & strut		n-16 25-Jan-16	06	Od N D	Jan F	M Apr 1	M 1 1	A	S Oct 1	ND	ian F	M Apr	M	1 14	A S	Det N	Dular	F N	Apr Other	M J Ingiā si	Jul A rut	50	Det N	0	an F	MA	çr M	1 1	4 .	S Oct	a N
C3840-EL5D1-320	Shotcrete 6b layer	28 27-Ja	n-16 28-Jan-16	06														ļ	Stot	-	inper											
C3840-ELSD1-330	Make formation and Dinding	4d 29-Ja	n-16 02-Feb-16	06														ļ	Mak	• •	ion and											
Open Cut Sequence 6 (	Construction of Subway & D2)	1154 03-Fe	ds-16 28-Jun-16	06																												
C3840-STR-110	Conet. Beyl : 4m3	6d 03-7w	6-16 12-Feb-16	06	┫╌┞╶┥╌	╊╍╋╸	┝┼╌	-+-+	-⊦-⊦-	·+-ŀ	-+-+	-┼-╢		┼─┼੶	╉╌╉	-+-+		-++	5		1 : <b>9</b> m2	┝┤╴	┼╊		╆╼╊	-+-	┝┼	·	┝┿╵	- <u></u> ├-∤		-+-
C3840-STR-120	Const. Bay2 : 123m3	10d 13-Fe	b-15 24-Feb-15	06																	y2: 12	9m3										
C3840-STR-130	Const. Bey3.1 : 125m3	108 25-74	6-16 07-Mar-16	06															ŀ.	Const	Dep 0.1	125m3										
C3840-STR-140	Conet. Bey3.2 : 120m3	15d 08-M	ar-16 24-Mar-16	06															4	Con	t. Days	2:520	•									
C3840-STR-150	Conel. Bey4 : 29m3	6d 10-M	ar-16 24-Mar-16	06																Con	t. Days	: 29n3										
C3840-STR-160	Const. Bay4.5 : 13m3	6d 23-M	er-15 01-Apr-15	06	┫╌┝╶┥╌╵	╋╌╋╌	┟┽┼	╉	╋	++	-+-+	-∔-	-+	ŧ−ŀ	╉╌╋	-+-+	-+-+	-+	┥╌┥╘		ut. Day	LS : 13	<b>*</b> -		╆╋	-+-	┝╋	-+	┢╋╵	╋		+-
C3840-STR-170	Const. Bay5 : 141m3	10d 31-M	ar-15 12-Apr-15	06																<b> </b>	onet. Be	<b>#3 : 14</b>	<b>1</b> 13									
C3840-STR-180	Const. Bay6.1 : 130m3	12d 13-Ap	x-16 25-Apr-16	06																<b>₽</b>	Const.	byt.1	130-0									
C3840-STR-190	Const. Bay6.2 : 130m3	12d 18-Ap	x-16 30-Apr-16	04																-	Const	Bays 2	13043	•								
C3840-STR-200	Const. Bay5.3 : 130m3	12d 22-Ap	x-16 06-May-16	06																þ	Const	Dep 6.1	130	3								
C3840-STR-210	Const. Bay6.4 : 130m3	12d 27-Ap	x-16 11-May-16	05	┫╼┾╺┥╾╵	╋╍╋╸	┢╅╋	╉	╋	++	-+-+	-+-		<u></u> +−+-	╉╌╉	-+-+	-4-4	-+		╢	done	Baye.	4 13	3	╆╼╊	-+-	-+-		┝╋╵	╊╼╂		÷
C3840-STR-220	Const. Bey6.5 : 130m3	15d 03-M	ny-16 20-May-16	06																	Cor	st. Eny	5:12	-								
C3840-STR-240	Const. Bey7 : 90m3	15d 06-Ma	ny-16 24-May-16	06																1	<b>C</b> o	et. Dey	7:90	3								
C3840-STR-280	Const. Bey6.1 : 104m3	10d 12-M	ey-16 24-May-16	06																14	- 0	net. Bery	61:10	-								
C3840-STR-270	Const. Bey6.2 : 104m3	10d 19-M	ay-15 30-May-15	06														Ì			•	<b>net De</b>	<b>42</b> : 0	0443				ł			l	ļ
C3840-STR-280	Const. Bey6.5 : 39m3 (D2)	15d 25-M	ry-16 11-Jun-16	06		1-1-	TTT	17	-r-r-	TT	-1-1			1-1-	11	11	-1-1	-1-	17	1-1	-	lonat. D	<b>86</b> .5	39m3 (	02)	-	-+		L T	11		T
C3840-STR-290	Curing, remove shut & felsework	14d 13-Ju	n-16 28-Jun-16	06																	۴ <b>-</b>	Curry		-	-	****						
Building Services & /	ABWF Works	533d 05-Ja	n-15 22-0d-15	06																												
BS & ABWF Works at T	emporary Staticase	54d 05-Ja	m-15 11-Mar-15	06																												
C3840-T58A-100	Complete RC works	08	23-Jan-15	06							1	•	rcine R	C work	•																	
C3840-T58A-110	Instellation of BS and ABWF works	40d 05-Ja	n-15 23-Feb-15	05	┫╼┾╺┥╾╵	+-+-	+++	-†+	-†-†-	++	╧╧	÷	- spile	tion of t	Ci and A	DAT w	**	-+	1-1-	<u>†</u> -†	-#-		†- <b>†</b>		$^{++}$	-++	-+		<del>۱</del>	+++		+
C3840-T58A-120	CN&SE access & cable routing connecting to existing TST Station	40d 05-Ja	n-15 23-Feb-15	16							4		CNSSE		• <b>6 ca</b>	nuting	conect	ng io e	<b>912</b> 10 T	sr se	kan											ļ
C3840-T58A-130	тас	66 25-74	6-15 03-Mar-15	06								4	тас																			
C3840-T58A-140	Inspection prior to open for public use	6d 04-Ma	er-15 10-Mar-15	06								14	<b>b</b> ape	ctor p	Nor to op	**	dik un															
C3840-TSBA-150	Open for public use	06	11-Mar-15	06								14	• Oper	tor pu																		
BS & ABWF Works at M	Nil Landing Level & Plant Room	984 25-34	a-16 22-Oct-16	06			f + f	-1-1-		<b>T</b>	-1-1	-†-†		1-1-	1-1-	-†-†	-1-1	-1-	1-1-	11	1				11				L.L.	11		T
C3840-85M-100	BS 1st Fix	56d 29-Ju	n-16 02-Sep-16	06																	-		88	1et Fix								
C3840-85M-110	DS 2nd Fix	40d 03-5e	p-15 22-Oct-16	06																		Ľ		BS	<b>1</b> 10	•						
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Remaining Work				Page 4						Prel	imin	ary l	Mast	ter I	Prog	ramı	ne			þ		Date			Revis			Ch	ecked			opro
Critical Remainin	a Work			raye 4	0.5		1					ract									27-Fe	b-14		REV	2		B	G		/	NW .	



Appendix D

Implementation Schedule

## Implementation Schedule

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
S.3.1	Noise Impact Use of quieter plant	To minimise construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control Ordinance
8.3.1	<ul> <li>Use of noise enclosure and movable barrier</li> <li>movable barrier can achieve a 5 dB(A) reduction for movable PME and 10 dB(A) reduction for stationary PME;</li> <li>noise enclosure can achieve 15dB(A) reduction for PME;</li> <li>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;</li> <li>Barrier material of surface mass in excess of 7kg/m<sup>2</sup> shall be required to achieve the maximum screening effect (and minimum 10kg/m<sup>2</sup> for noise enclosure);</li> <li>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.</li> </ul>	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93, Noise Control Ordinance and EIAO Guidance Note NO. 9/2010
S.3.1	General Construction Noise Control Measures • The Code of Practice on Good Management Practice	To minimize construction noise	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control
	<ul> <li>to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD shall be adopted;</li> <li>The statutory and non-statutory requirements and guidelines shall be complied with;</li> <li>Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work;</li> <li>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;</li> <li>Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical;</li> <li>Unused equipment shall be turned off;</li> <li>PME should be kept to a minimum and the parallel use of noisy equipment shall be maintained regularly; and</li> <li>Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable.</li> </ul>	emissions				Ordinance
S.3.2	Air Quality Impact Construction Dust Control Measures	To minimise the	Contractor	Work site	Construction	Air Pollution
	<ul> <li>Decking will be provided subsequent to the completion of surface excavation works. The duration</li> </ul>	dust impacts			Stage	Control (Construction

	of decking is around 13 months after surface	construction works				Dust) Regulation
	<ul> <li>excavation works;</li> <li>Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather;</li> <li>Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;</li> <li>Cover all excavated or stockpile of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet;</li> <li>Provision of vehicle washing facilities at the exit points of the site; and</li> <li>Provision of tarpaulin covering of any dusty materials on a vehicle leaving the site.</li> </ul>					
S.3.3	Water Quality Impact	Touristic	Contractor	Work Site	Construction	ProPECC
0.3.3	<ul> <li>Construction Water Quality Impact Measures</li> <li>The Contractor should design and implement all the mitigation measures and practices specified in the ProPECC PN 1/94 "Construction Site Drainage" and "Recommended Pollution Control Clauses for Construction Contracts" issued by EPD.</li> <li>All runoffs arising from the construction site should be properly collected and treated to ensure the discharge standards as stipulated in WPCO are met. Silt trap and oil interceptor should be provided to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before being pumped to the public stormwater drainage system. The silt traps and oil interceptors should be cleaned and maintained regularly.</li> </ul>	To reduce water quality impact induced by the construction work	Contractor	WOR SILP	Construction Stage	PN1/94; Water Pollution Control Ordinance
	<ul> <li>Any foul effluent should not be discharged into any public sewer and stormwater drain, unless an effluent</li> </ul>					
	<ul> <li>Site toilet facilities, if needed, should be chemical toilets or should have the foul water effluent directed</li> </ul>					
	to a foul sewer.					
	Waste Management	-				
S.3.4	<ul> <li>Waste Management</li> <li>Construction Waste Management Measures</li> <li>Excavated material should be reused on site as far as possible to minimise off-site disposal. Scrap metals or abandoned equipment should be recycled if possible.</li> <li>Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner.</li> <li>The Contractor should adopt a trip ticket system for the disposal of C&amp;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.</li> <li>Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.</li> <li>All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminium cans, plastic bottles etc. should be provided to facilitate reuse or</li> </ul>	To adopt waste management measures in the way of avoiding, minimising, reusing and recycling so as to reduce waste generation	Contractor	Work Site	Construction Stage	Waste Disposal Ordinance (Cap. 54); Waste Disposal (Chemical Waste) (General) Regulation; ETWB TCW No. 31/2004; ETWB TCW No. 19/2005.
S.3.4	<ul> <li>Waste Management</li> <li>Construction Waste Management Measures</li> <li>Excavated material should be reused on site as far as possible to minimise off-site disposal. Scrap metals or abandoned equipment should be recycled if possible.</li> <li>Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner.</li> <li>The Contractor should adopt a trip ticket system for the disposal of C&amp;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.</li> <li>Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.</li> <li>All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminium cans, plastic</li> </ul>	management measures in the way of avoiding, minimising, reusing and recycling so as to reduce waste generation	Contractor	Work Site		Ordinance (Cap. 54); Waste Disposal (Chemical Waste) (General) Regulation; ETWB TCW No. 31/2004; ETWB TCW No.
	<ul> <li>Waste Management Construction Waste Management Measures <ul> <li>Excavated material should be reused on site as far as possible to minimise off-site disposal. Scrap metals or abandoned equipment should be recycled if possible.</li> <li>Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner.</li> <li>The Contractor should adopt a trip ticket system for the disposal of C&amp;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.</li> <li>Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.</li> <li>All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminium cans, plastic bottles etc. should be provided to facilitate reuse or recycling of materials and their proper disposal.</li> </ul> </li> </ul>	management measures in the way of avoiding, minimising, reusing and recycling so as to reduce waste generation			Stage	Ordinance (Cap. 54); Waste Disposal (Chemical Waste) (General) Regulation; ETWB TCW No. 31/2004; ETWB TCW No. 19/2005.
S.3.5	<ul> <li>Waste Management Construction Waste Management Measures         <ul> <li>Excavated material should be reused on site as far as possible to minimise off-site disposal. Scrap metals or abandoned equipment should be recycled if possible.</li> <li>Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner.</li> <li>The Contractor should adopt a trip ticket system for the disposal of C&amp;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.</li> <li>Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.</li> <li>All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminium cans, plastic bottles etc. should be provided to facilitate reuse or recycling of materials and their proper disposal.</li> </ul> <li>Landscape and Visual Impact</li> <li>Landscape and Visual Measures</li> <li>Screening of construction works by hoardings/noise barriers around works area with visually unobtrusive colours</li> </li></ul>	management measures in the way of avoiding, minimising, reusing and recycling so as to reduce waste generation	Contractor	Work Site Work Site		Crdinance (Cap. 54); Waste Disposal (Chemical Waste) (General) Regulation; ETWB TCW No. 31/2004; ETWB TCW No. 19/2005.
	Waste Management         Construction Waste Management Measures         Excavated material should be reused on site as far as possible to minimise 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 designated public filling facility and/or landfill. Independent audits of the Contractor and resident site staff will be undertaken to ensure that the correct procedures are being followed.         • Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.         • All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminium cans, plastic bottles etc. should be provided to facilitate reuse or recycling of materials and their proper disposal.         Landscape and Visual Impact         Landscape and Visual Measures         • Screening of construction works by hoardings/noise barriers around works area with visually unobtrusive	To reduce visual		Temporary Storage Area at Salisbury	Stage	Ordinance (Cap. 54); Waste Disposal (Chemical Waste) (General) Regulation; ETWB TCW No. 31/2004; ETWB TCW No. 19/2005.



Appendix E

Status of Environmental Licenses and Permits



Maeda Corporation

Contract No. C3840-13C Tsim Sha Tsui Station Carnarvon Road Subway

# Licence Summary

ltem No.	Our Ref.	Govt. Ord.	Type? (License / Permit / Account / Notification / Registration & etc.)	, Description	Submission	Ref. No	Date of Submission (to EPD) (DD-MM-YYYY)	Date of Approval / Receipt (from EPD) (DD-MM-YYYY)	Date of Activation (DD-MM-YYYY)	Date of Expiry (DD-MM-YYYY) Green = expire next mth; Yellow = expire this wk; Red = Expired	Description R	lemarks
000	000	EIAO	Permit	Environmental Permit	N/A	AEP-440/2012	N/A	N/A	18 - 07 - 2012	N/A	Baseline, Air & Noise Impact Monitoring	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 02 - 2014	01 - 10 - 2016	Demolition of a Building	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 08 - 2014	01 - 08 - 2016	Work carried out in any part of a tunnel that is within 100m of any exit to the open air	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 01 - 2016	01 - 03 - 2017	Construction of the Superstructure of a Building	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 11 - 2016	10 - 09 - 2017	Road Construction Work	
002	002	WDO	Account	Construction Waste Billing Account	EPD-211 (Form 1) Application for a Billing Account for Disposal of Construction Waste	7018523	18 - 10 - 2013	25 - 10 - 2013	25 - 10 - 2013	N/A		opplication No. VFG12765
003	003 WPCO #002	WPCO	Licence	Water Discharge Licence	EPD-117 (Form A) Application for a Licence of Water Discharge	WT00019722-2014	24 - 07 - 2014	01 - 09 - 2014	01 - 09 - 2014	31 - 03 - 2019	Quarterly Report FlowRate 25m3/d, pH 6-9, SS 30mg/L, COD 80mg/L	
004	004 CWP#001	WDO	Registration	Chemical Waste Producer	EPD-129 Application for Registration as a Chemical Waste Producer	5213-2214-M2446-16	15 - 01 - 2014	04 - 03 - 2014	04 - 03 - 2014	N/A	Surplus paint, spent lubrucating oil, spent battery	
006	005 CNP#003	NCO	Permit	Construction Noise Permit	EPD74A(s) Form 1 - Application for a Construction Noise Permit	Application: 389338 Permit: GW-RE0558-15	27 - 05 - 2015	03 - 06 - 2015	23 - 06 - 2015	22 - 12 - 2015	Apply for 4nos Submersible Water pump (Electric) w/ new area to be included	

Appendix F

**Event and Action Plan** 

# **CONSTRUCTION NOISE**

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

# **AIR QUALITY**

Event Action Level	=	IEC	ER	Action Contractor
Exceedance for one sample	<ol> <li>Identify source;</li> <li>If valid, inform IEC and ER;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method.</li> </ol>	1. Notify Contractor	<ol> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate</li> </ol>

# AIR QUALITY (Continued)

Exceedance for two or more consecutive samples	<ol> <li>Identify source;</li> <li>Inform IEC and EPD;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial action required;</li> <li>If exceedance continues, arrange meeting with IEC and ER;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial	of notification of allure in writing; Notify Contractor; Ensure 2 remedial	<ol> <li>Submit proposals for remedial action to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ol>
Limit Level Exceedance for one sample	<ol> <li>Identity source;</li> <li>Inform ER and EPD;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol>	data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and the Contractor on percential	of notification of allure in writing; Notify Contractor; : Ensure remedial measures property mplemented.	<ol> <li>Take Immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ol>
Exceedance for two or more consecutive samples	Notity IEC, ER, Contractor and EPD;     Identity sources;     Repeat measurement to confirm findings;     Increase monitoring	ER, ET and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions	of notification of allure in writing; Notify	<ol> <li>Take Immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of</li> </ol>
	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.	necessary to assure their effectiveness and advise the ET accordingly. 3. Supervise the implementation of remedial measures. 5.	the remedial measures to be implemented; Ensure remedial measures property	notification; 3. Implement the agreed proposals; 4. Resubmit problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.



Appendix G

Monitoring Schedule

	C3840-13C MTRCL - Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works								
	Environmental Monitoring & Audit Schedule November 2015 (Rev-0)								
Sunday	Monday			Thursday	/	Saturday			
1	2	<b>3</b> Noise 24-hr TSP Weekly Site Audit	4	5	6	7			
8	9	<b>10</b> Noise 24-hr TSP Weekly Site Audit	11	12	13	14			
15	16	<b>17</b> Noise 24-hr TSP Weekly Site Audit	18	19	20	21			
22	23	24 Noise 24-hr TSP Weekly Site Audit	25	26	27	28			
29	30	1	2	<b>3</b> umstances (e.g. adv	4	5			

	C3840-13C MTRCL - Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works Environmental Monitoring & Audit Schedule								
		Decemb	er 2015	5 (Rev-0)					
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
29 <u>NOVEM</u>	30 BER 2015	1 Noise 24-hr TSP Weekly Site Audit	2	3	4	5			
6	7	8 Noise 24-hr TSP Weekly Site Audit	9	10	11	12			
13	14	15 Noise 24-hr TSP Weekly Site Audit	16	17	18	19			
20	21	22 Noise 24-hr TSP Weekly Site Audit	23	24	25 <u>PUBLIC</u>	26 HOLIDAY			
27	28	29 Noise 24-hr TSP Weekly Site Audit	30	31	1 JANUA	2 <u>RY 2016</u>			



Appendix H

Weather Information Extracted from HK Observatory

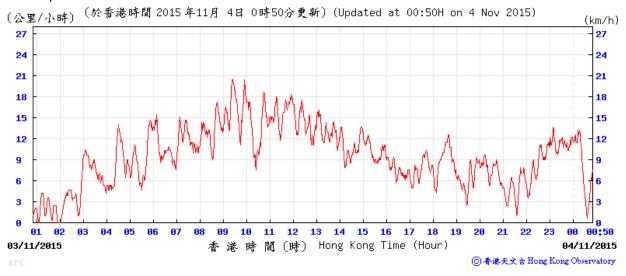
Daily	Daily Total Rainfall at King's Park HKO Weather Monitoring Station - November 2015								
Day	Total Rainfall, mm	24-hr TSP	Noise	Remarks					
1	0								
2	Trace								
3	Trace	✓	*	No rainfall perceiveded on site during Noise Monitoring					
4	Trace								
5	Trace								
6	Trace								
7	0.3								
8	Trace								
9	Trace								
10	0.3	√	√	No rainfall perceiveded on site during Noise Monitoring					
11	1.1								
12	0.3								
13	10.4								
14	Trace								
15	6.5								
16	3.9								
17	0	✓	√	No rainfall perceiveded on site during Noise Monitoring					
18	0								
19	Trace								
20	Trace								
21	0								
22	Trace								
23	0								
24	Trace	✓	√	No rainfall perceiveded on site during Noise Monitoring					
25	0								
26	0								
27	0								
28	0								
29	0								
30	Trace								
Mean/Total	22.8								

### King's Park Weather Station – November 2015

### 03 November 2015



Wind Speed:

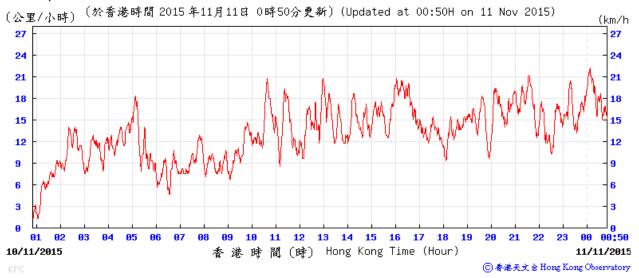


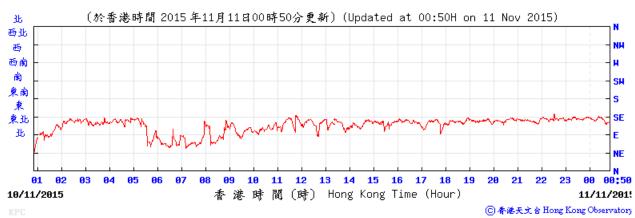


## 10 November 2015



Wind Speed:

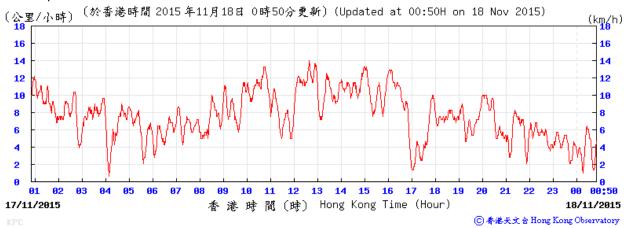


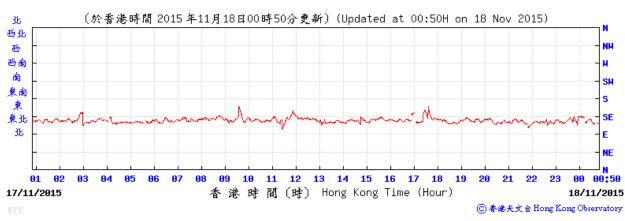


### 17 November 2015







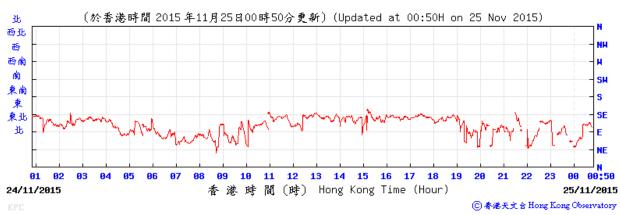


## 24 November 2015



Wind Speed:





Appendix I

Certificate of Laboratory and Equipment Calibration



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

#### ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Ma Operator	A .	5 Rootsmeter Orifice I.I	•	438320 1785	Ta (K) - Pa (mm) -	297 750.57
PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1 2 3 4 5	NA NA NA NA NA	NA NA NA NA NA	1.00 1.00 1.00 1.00 1.00 1.00	1.3860 0.9870 0.8800 0.8390 0.6940	3.2 6.4 7.9 8.7 12.6	2.00 4.00 5.00 5.50 8.00

#### DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9867 0.9825 0.9804 0.9794 0.9742	0.7119 0.9954 1.1141 1.1674 1.4038	1.4078 1.9909 2.2259 2.3345 2.8156		0.9957 0.9915 0.9894 0.9884 0.9832	0.7184 1.0045 1.1243 1.1781 1.4167	0.8896 1.2581 1.4066 1.4752 1.7792
Qstd slop intercept coefficie	(b) = ent (r) =	2.03254 -0.03728 0.99997		Qa slope intercept coefficie	t (b) =	1.27274 -0.02356 0.99997
y axis =	SQRT [H2O (F	Pa/760) (298/9	[a)]	y axis =	SQRT [H20 (7	[a/Pa)]

#### CALCULATIONS

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

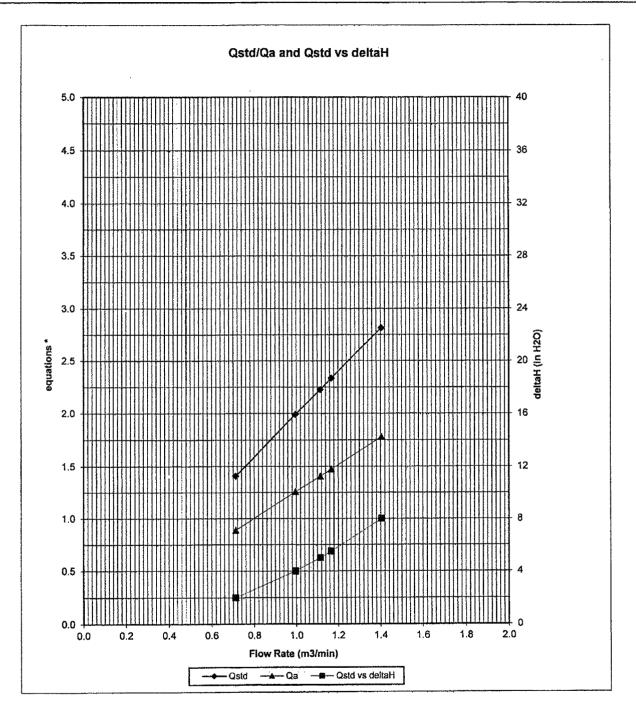
Va = Diff Vol [(Pa-Diff Hg)/Pa] Qa = Va/Time

For subsequent flow rate calculations:

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

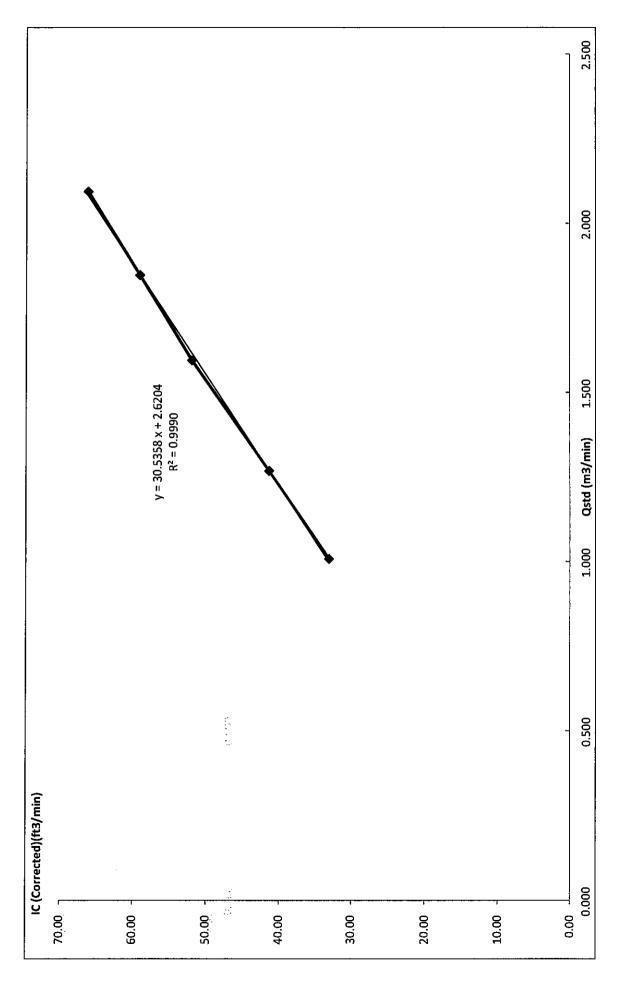
Model: TE-5025 SN:1785

2005



\* y-axis equations: Tstd Pa Qstd series:  $\mathbf{H}$ Pstd Ta  $\sqrt{(\Delta H(Ta / Pa))}$ Qa series:

Page 2 of 2



#### High Volume Air Sampler Calibration Worksheet

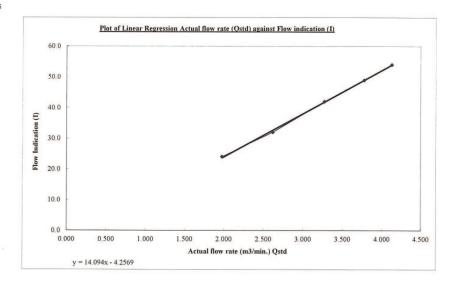
Project Title: Monitoring Location: Calibration Date: Calibration Due Date Time: MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works K11 Commercial Complex 14-Sep-15 14-Dec-15 15:15

Sampler Model:	BM2000HX	
Serial No.:	587	
Calibrator Orifice no.:	1785	1
Slope (m):	1.27274	
Intercept (b):	-0.02356	
Correction coeff. (r)	0.99997	
Standard pressure (mmHg) Pstd:	276.0	
Standard temp. (K) Tstd:	298.0	
Calibration pressure (mmHg) Pa:	755.3	
Calibration temp. (K) Ta:	328.0	

 $Flow(corrected) = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$  $Qstd = \frac{1}{m} \times (\sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b)$ 

Sample no.	Pressure Drop (H), inch	Flow (corrected), m <sup>3</sup> /min	Actual flow rate (Qstd), m3/min	Flow indication (I), arbitrary
1	11.0	5.230	4.127	54.0
2	9.2	4.783	3.776	49.0
- 3	6.9	4.142	3.273	42.0
4	4.4	3.308	2.617	32.0
5	2.5	2.493	1.977	24.0

Correlation Coefficient: 0.9995



Remark 1 hPa = 0.750062 mmHg

Calibrated by: C. S. Tung Date: 14 September 2015 ( ) Date: 14 September 2015 ( ) Date: 14 September 2015



Certificate No	. 501362		Page 1 of 3 Pages
Customer :	Hyder Consulting Limited		
Address :	47/F., Hopewell Centre, 183 C	Queens Road East, W	anchai, Hong Kong
Order No. :	Q50521		Date of receipt : 26-Feb-15
Item Tested			
Manufacturer	: Sound Level Meter : B&K : 2238		Serial No. : 2562782
Test Condit	ions		
Date of Test : Ambient Temp			Supply Voltage : Relative Humidity : (50 ± 25) %
Test Specifi	ications		
Calibration che Ref. Document	ck. /Procedure: Z01, IEC 651, IEC	804.	
Test Results	S		
All results were	within the IEC 651 Type 1, IEC	804 Type 1 specifica	tion.
The results are	shown in the attached page(s).		
Main Test equip	oment used:		
Equipment No.		<u>Cert. No.</u>	Traceable to
S017	Multi-Function Generator	C147450	SCL-HKSAR
S240	Sound Level Calibrator	500563	NIM-PRC & SCL-HKSAR
will not include allov overloading, mis-ha	wance for the equipment long term drift	t, variations with environme boratory to repeat the mea	the time of the test and any uncertainties quoted intal changes, vibration and shock during transportation, surement. Hong Kong Calibration Ltd. shall not be liable
	used for calibration are traceable to In oly to the above Unit-Under-Test only	ternational System of Units	; (SI).

Calibrated by : \_\_\_\_\_\_ Dorothy Cheuk Approved by : \_

Steve Kwan

Date: 28-Feb-15

This Certificate is issued by: Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong. Tel: 2425 8801 Fax: 2425 8646

Е



#### Certificate No. 501362

Page 2 of 3 Pages

Results :

#### 1. SPL Accuracy

	UU	T Setting		Applied Value	UUT Reading
Range	Freq. Wgt.	Bandwith	Center Freq.	(dB)	(dB)
20~100	A	BB/F		94.0	94.3
	А	BB/S			94.3
	С	BB/F			94.3
40~120	A	BB/F		94.0	94.3
	A	BB/F		114.0	114.3

IEC 651 Type 1 Spec. :  $\pm$  0.7 dB Uncertainty :  $\pm$  0.1 dB

 Level Stability : 0.0 dB IEC 651 Type 1 Spec. : ± 0.3 dB Uncertainty : ± 0.1 dB

#### 3. Linearity

3.1 Level Linearity

UUT Range	Applied	UUT Reading	Variation	IEC 651 Type 1 Spec.
(dB)	Value (dB)	(dB)	(dB)	(Primary Indicator Range)
140	114.0	114.3	0.0	± 0.7 dB
130	104.0	104.3	0.0	
120	94.0	94.3 (Ref.)		
110	84.0	84.3	0.0	
100	74.0	74.4	+0.1	
90	64.0	64.4	+0.1	
80	54.0	54.3	0.0	

Uncertainty :  $\pm 0.1 \text{ dB}$ 



#### Certificate No. 501362

Page 3 of 3 Pages

#### 3.2 Differential level linearity

UUT Range	Applied	UUT Reading		
(dB)	Value (dB)	(dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.3	0.0	± 0.4 dB
	94.0	94.3 (Ref.)		
	95.0	95.3	0.0	± 0.2 dB

Uncertainty :  $\pm 0.1 \text{ dB}$ 

#### 4. Frequency Weighting

#### A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.4	- 39.4 dB, ± 1.5 dB
63 Hz	- 26.2	- 26.2 dB, ± 1.5 dB
125 Hz	- 16.2	- 16.1 dB, ± 1 dB
250 Hz	- 8.7	- $8.6 \text{ dB}, \pm 1 \text{ dB}$
500 Hz	- 3.2	- $3.2 \text{ dB}, \pm 1 \text{ dB}$
1 kHz	0.0 (Ref)	$0 \text{ dB}, \pm 1 \text{ dB}$
2 kHz	+ 1.2	$+ 1.2 \text{ dB}, \pm 1 \text{ dB}$
4 kHz	+ 0.9	$+ 1.0 \text{ dB}, \pm 1 \text{ dB}$
8 kHz	- 1.2	- 1.1 dB, + 1.5 dB ~ -3 dB
16 kHz	- 6.7	- 6.6 dB, + 3 dB $\sim$ - $\infty$

Uncertainty :  $\pm 0.1 \text{ dB}$ 

#### 5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	
1/10	40.0	39.9	± 0.5 dB
$1/10^{2}$	40.0	39.9	
1/10 <sup>3</sup>	40.0	39.8	± 1.0 dB
1/10 <sup>4</sup>	40.0	39.8	

Uncertainty :  $\pm 0.1 \text{ dB}$ 

Remarks : 1. UUT : Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. Atmospheric pressure : 1 010 hPa.
- 4. The UUT was adjusted with the supplied sound calibrator at the reference sound pressure level before the calibration.

----- END -----



Certificate No.	409134		Page	1 of 2 Pages
Customer :	Hyder Consulting Limited			
Address :	47/F., Hopewell Centre, 183 Qu	eens Road East, W	anchai, Hong Kong	
Order No. :	Q43957		Date of receipt	: 8-Dec-14
Item Tested				
Manufacturer :	Sound Level Calibrator B&K Type 4231		Serial No.	: 2699361
Test Conditi	ons			
Date of Test : Ambient Temp			Supply Voltage Relative Humidit	: y:(50 ± 25) %
Test Specifie	cations			
Calibration chec Ref. Document/	k. Procedure : F21, Z02, IEC 942.			
Test Results	6			
	within the IEC 942 Class 1 spec shown in the attached page(s).	ification.		
Main Test equip				
Equipment No.	Description	<u>Cert. No.</u>		<u>raceable to</u>
S014	Spectrum Analyzer	405316		NIM-PRC & SCL-HKSAR
S205	Ref. Sound Level Calibrator	PHCO40002		SCL-HKSAR
S041	Universal Counter	405317		SCL-HKSAR
S206	Sound Level Meter	405322	S	SCL-HKSAR
S031	61/2 dgt. Multimeter	39256	Ν	NIM-PRC
The values given in will not include allow	this Calibration Certificate only relate to vance for the equipment long term drift,	the values measured at variations with environm	the time of the test and ental changes, vibration	any uncertainties quoted and shock during transportation,

overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI). The test results apply to the above Unit-Under-Test only

Calibrated by :

Dorothy Cheuk

Approved by :

Steve Kwan

Date: 30-Dec-14

This Certificate is issued by: Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong. Tel: 2425 8801 Fax: 2425 8646

E



#### Certificate No. 409134

Page 2 of 2 Pages

Results :

#### 1. Level Accuracy

UUT Nominal Value	Measured Value (dB)		IEC 942
(dB)	Before Adjust. After Adjust.		Class 1 Spec.
94	94.3	94.0	± 0.3 dB
114	114.3	114.0	

Uncertainty :  $\pm 0.1 \text{ dB}$ 

#### 2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.000 kHz	± 2 %

Uncertainty :  $\pm$  3.6 x 10<sup>-6</sup>

- Level Stability : 0.0 dB IEC 942 Class 1 Spec. : ± 0.1 dB Uncertainty : ± 0.01 dB
- 4. Total Harmonic Distortion : < 0.4 % IEC 942 Class 1 Spec. : < 3 % Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1010 hPa.

----- END -----

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Appendix J

Field Record Sheets

# C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

Monitoring Location	1	K11	
Details of Location		4/F Roof top, K11	
Sampler Identification		1713	
Date & Time of San	npling	3/11/2015, 10=43 a.m.	
Elapsed-time	Start (hrs)	8824.01	
Meter Reading	Stop (hrs)	8848.01	
Total Sampling Time	e (hrs)	24	
Weather Conditions	3	Sunny	
Site Conditions		Nil	
	Pi (mm Hg)	765,4	
Initial Flow	Ti (°C)	23.8	
Rate, Qsi	Hi (in.)		
	Qsi (Std. m <sup>3</sup> /min)	2,75	
	Pf (mm Hg)	763.8	
Final Flow	Tf (°C)	25.1	
Rate, Qsf	Hf (in.)	,	
	Qsf (Std. m <sup>3</sup> /min)	2.82	
Average Flow Rate (Std. m <sup>3</sup> /min)		2,78	
Total Volume (Std. m <sup>3</sup> )		4010	
Filter Identification No.		034121	
Initial Weight. of Filter (g)		2.88 37	
Final Weight of Filte	r (g)	3.0505	
Measured TSP Leve	el (μg/m³)	41.6	

Conducted by:	C. S. Tung	Signature:	×
Checked by:	F. N. Wong	Signature:	um o
			And V

# C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

Monitoring Locatio	n	K11	
Details of Location		4/F Roof top, K11	
Sampler Identification		1713	
Date & Time of Sar	mpling	10/11/2015, 10:28 a.m.	
Elapsed-time	Start (hrs)	8848.01	
Meter Reading	Stop (hrs)	8872.01	
Total Sampling Tim	ie (hrs)	24	
Weather Condition	S	Overcast	
Site Conditions		Ni	
	Pi (mm Hg)	763.6	
Initial Flow	Ti (°C)	24	
Rate, Qsi	Hi (in.)		
	Qsi (Std. m <sup>3</sup> /min)	2.61	
	Pf (mm Hg)	764.5	
Final Flow	Tf (°C)	23.3	
Rate, Qsf	Hf (in.)		
	Qsf (Std. m <sup>3</sup> /min)	5.89	
Average Flow Rate (Std. m <sup>3</sup> /min)		2.75	
Total Volume (Std. m <sup>3</sup> )		3958	
Filter Identification No.		200149	
Initial Weight. of Filter (g)		2.7994	
Final Weight of Filte	er (g)	2.9340	
Measured TSP Lev	el (µg/m <sup>3</sup> )	34.0	

Checked by: F. N. Wong Signature:	Conducted by:	C. S. Tung	Signature:	$\mathcal{T}$
	Checked by:	F. N. Wong	Signature:	$cm^{2}$

# C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

Monitoring Location		K11		
Details of Location		4/F Roof top, K11		
Sampler Identification	วท	1713		
Date & Time of Sam	npling	17/11/2015, 10:35am		
Elapsed-time	Start (hrs)	8872.01		
Meter Reading	Stop (hrs)	8896.01		
Total Sampling Time	e (hrs)	24		
Weather Conditions		Sunny		
Site Conditions		Nil		
	Pi (mm Hg)	761.2		
Initial Flow	Ti (°C)	27.6		
Rate, Qsi	Hi (in.)			
	Qsi (Std. m <sup>3</sup> /min)	2722.61		
	Pf (mm Hg)	762.7		
Final Flow	Tf (°C)	28.5		
Rate, Qsf	Hf (in.)			
	Qsf (Std. m <sup>3</sup> /min)	2.82		
Average Flow Rate	(Std. m <sup>3</sup> /min)	222 2.71		
Total Volume (Std. m <sup>3</sup> )		4061		
Filter Identification No.		200150		
Initial Weight. of Filter (g)		2,7987		
Final Weight of Filter (g)		2.8717		
Measured TSP Leve	el (μg/m <sup>3</sup> )	20.2		

Conducted by:	C. S. Tung	Signature:	Å
Checked by:	F. N. Wong	Signature:	2720

# C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

Monitoring Location		K11		
Details of Location		4/F Roof top, K11		
Sampler Identification	on	1713		
Date & Time of Sam	npling	24/11/2015, 10:31		
Elapsed-time	Start (hrs)	8896.01		
Meter Reading	Stop (hrs)	8920.01		
Total Sampling Time	e (hrs)	24		
Weather Conditions		Sunny		
Site Conditions		Nil		
	Pi (mm Hg)	763.8		
Initial Flow	Ti (°C)	25.5		
Rate, Qsi	Hi (in.)			
	Qsi (Std. m <sup>3</sup> /min)	2.15		
	Pf (mm Hg)	763.8		
Final Flow	Tf (°C)	23.6		
Rate, Qsf	Hf (in.)			
	Qsf (Std. m <sup>3</sup> /min)	2.89		
Average Flow Rate	(Std. m <sup>3</sup> /min)	5.85		
Total Volume (Std. m <sup>3</sup> )		4061		
Filter Identification No.		200151		
Initial Weight. of Filter (g)		2.8123		
Final Weight of Filter (g)		2.9226		
Measured TSP Level (µg/m <sup>3</sup> )		27-2		

Conducted by:	C. S. Tung	Signature:	
Checked by:	F. N. Wong	Signature:	ap20

Monitoring Location		K11	
Description of Location		4/F Roof top, K11	
Date of Monitoring		3/11/2015	
Measurement Start Time (	hh:mm)	10:51	
Measurement Time Length	(min.)	30	
Noise Meter Model / Identific	cation	B & K 2238	
Calibrator Model / Identification		B & K 4231	
	L <sub>eq</sub> (dB (A))	70.8	
Measurement Results	L <sub>10</sub> (dB (A))	68.5	
	L <sub>90</sub> (dB (A))	6515	
Major Construction Noise Source(s) during Monitoring		On-site powered mechanical equipment	
Other Noise Source(s) during Monitoring		Traffic Noise (ambulance)	
Remarks		Traffic Noise (ambulance) Weather Condition: Sunny Wind Speed : 2.9m/s	

Conducted by:	C. S. Tung	Signature:	L
Checked by:	F. N. Wong	Signature:	cm2

Monitoring Location		K11		
Description of Location		4/F Roof top, K11		
Date of Monitoring		10/11/2015		
Measurement Start Time (	hh:mm)	10:19		
Measurement Time Length	(min.)	30		
Noise Meter Model / Identific	cation	B & K 2238		
Calibrator Model / Identification		B & K 4231		
	L <sub>eq</sub> (dB (A))	67.2		
Measurement Results	L <sub>10</sub> (dB (A))	68.5		
	L <sub>90</sub> (dB (A))	65.5		
Major Construction Noise Source(s) during Monitoring		On-site powered mechanical equipment		
Other Noise Source(s) during Monitoring		Traffic Noise		
Remarks		Weather Condition :		
		Wind Speed : 37 m/S		

Conducted by:	C. S. Tung	Signature:	Ser
Checked by:	F. N. Wong	Signature:	STY 2

Monitoring Location		K11	
Description of Location		4/F Roof top, K11	
Date of Monitoring		17/11/2015	
Measurement Start Time (	hh:mm)	10=30	
Measurement Time Length	(min.)	30	
Noise Meter Model / Identific	cation	B & K 2238	
Calibrator Model / Identification		B & K 4231	
	L <sub>eq</sub> (dB (A))	68.9	
Measurement Results	L <sub>10</sub> (dB (A))	70.0	
	L <sub>90</sub> (dB (A))	67.0	
Major Construction Noise Source(s) during Monitoring		On-site powered mechanical equipment	
Other Noise Source(s) during Monitoring		Aircraft and Trafficnoise	
Remarks		Weather Condition :	
		Wind Speed : $0.2m/s$	

Conducted by:	C. S. Tung	Signature:	X
Checked by:	F. N. Wong	Signature:	and a
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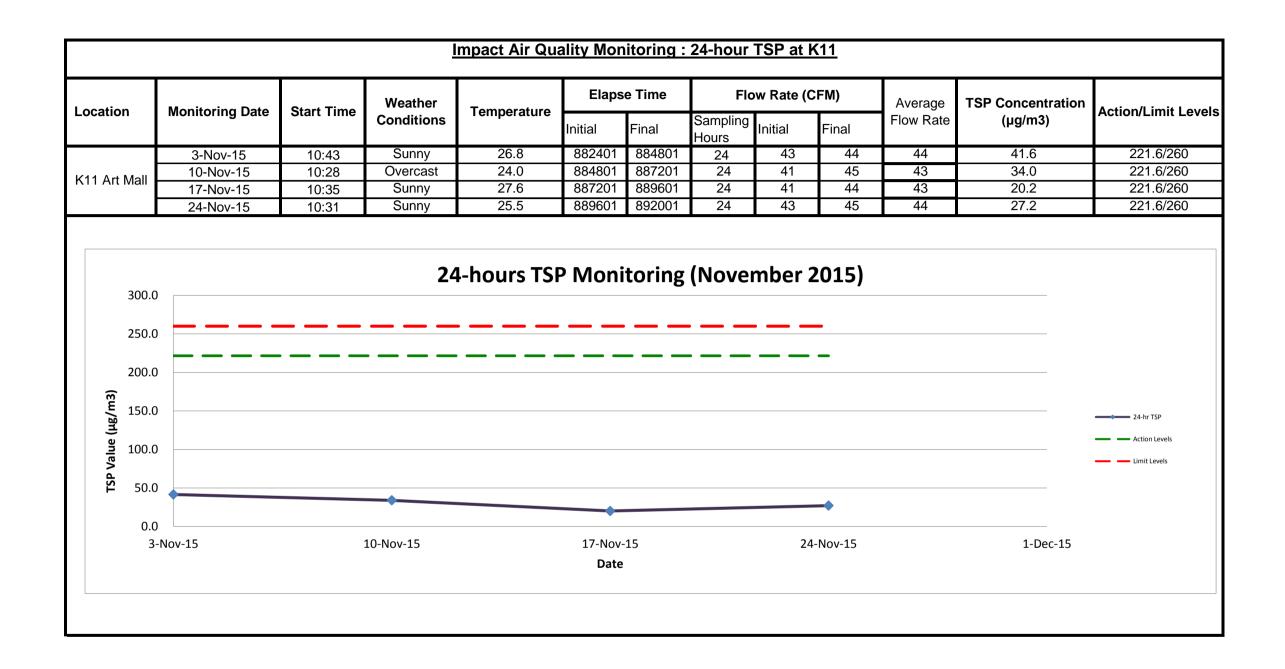
Monitoring Location		K11	
Description of Location		4/F Roof top, K11	
Date of Monitoring		24/11/2015	
Measurement Start Time (	hh:mm)	1:28	
Measurement Time Length (	(min.)	30	
Noise Meter Model / Identific	cation	B & K 2238	
Calibrator Model / Identification		B & K 4231	
L <sub>eq</sub> (dB (A))		70.9	
Measurement Results	L <sub>10</sub> (dB (A))	75.0	
	L <sub>90</sub> (dB (A))	65.0	
Major Construction Noise Source(s) during Monitoring		On-site powered mechanical equipment	
Other Noise Source(s) during Monitoring		Aircraft, Jackhammer and Traffic Noise	
Remarks		Weather Condition : Sunny Wind Speed : 2,4 m/s	

Conducted by:	C. S. Tung	Signature:	
Checked by:	F. N. Wong	Signature:	ANY C



# Appendix K

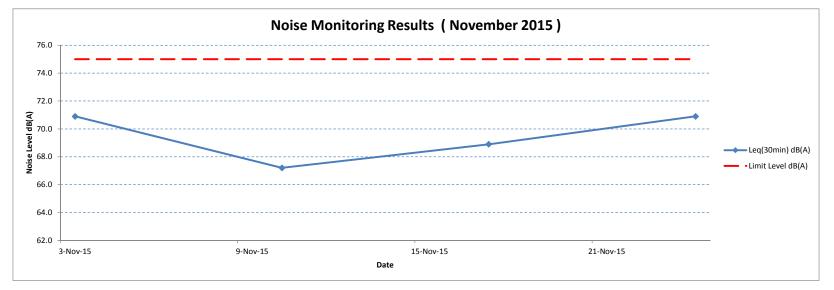
Monitoring Results and Plots



#### Noise Impact Monitoring Results at K11

Monitoring Locations	Date	Weather Conditions	Wind Speed (m/s)	Start Time	End Time	Background Level dB(A)	Limit Level dB(A)	Leq(30min) dB(A)	L10(30min) dB(A)	L90(30min) dB(A)
K11 Art Mall	3-Nov-15	Sunny	2.9	10:51	11:21	65.3	75	70.9	68.5	65.5
	10-Nov-15	Overcast	3.7	10:19	10:49	65.3	75	67.2	68.5	65.5
	17-Nov-15	Sunny	0.2	10:30	11:00	65.3	75	68.9	70.0	67.0
	24-Nov-15	Sunny	2.4	11:28	11:58	65.3	75	70.9	75.0	65.0

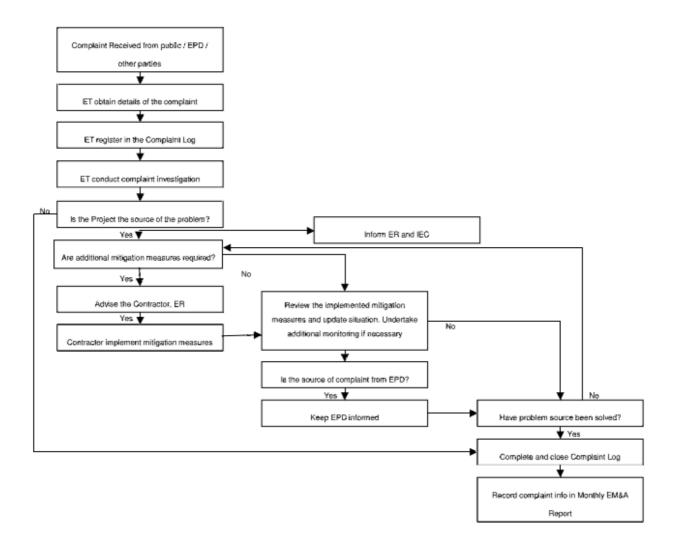
#### Red Bold indicates an exceedance of Limit Level



Appendix L

Flow Chart for Handling Environmental Complaints

## **Complaint Response Procedure**





Appendix M

Waste Management Records

## Monthly Summary Waste Flow Table for 2015 (year)

# Contract No:C3840-13C Tsim Sha Tsui Station Carnarvon Road SubwayDate Reported:2-December-2015

Month		Actual Qua	ntities of Inert C&I	O Materials Generate	Actual Quantities of Non-inert C&D Wastes Generated Monthly						
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
		(See Note 3)							(see Note 2)		
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000m3/tonne)
Carried from 2014	0.9342	-	-	-	0.9342	-	-	-	-	-	0.0035
Jan	0.0682	-	-	-	0.0682	-	-	-	-	-	-
Feb	0.0418	-	-	-	0.0418	-	-	-	-	-	-
Mar	0.2563	-	-	-	0.2563	-	-	-	-	-	0.0020
Apr	0.2182	-	-	-	0.2182	-	-	-	-	-	-
May	0.1011	-	-	-	0.1011	-	-	-	-	-	-
June	0.2604	-	-	-	0.2604	-	-	-	-	-	-
Sub-total	0.9460	-	-	-	0.9460	-	-	-	-	-	0.0020
July	0.1806	-	-	-	0.1806	-	-	-	-	-	-
Aug	0.1006	-	-	-	0.1006	-	-	-	-	-	-
Sept	0.0937	-	-	-	0.0937	-	-	-	-	-	0.0011
Oct	0.0591	-	-	-	0.0591	-	-	-	-	-	0.0061
Nov	0.0958	-	-	-	0.0958	-	-	-	-	-	0.0060
Dec	-	-	-	-	-	-	-	-	-	-	-
Total	1.4758	-	-	-	1.4758	-	-	-	-	-	0.0152
Acc. Total	2.4100	(accumulated quar	ntity of the project :	= carried amount + t	his year amount)	0.0187					

#### Notes:

(1) The performance targets are given below:

- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;

- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.
- (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

(4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.