



Maeda Corporation

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

Monthly EM&A Report (November 2014)



8 December 2014

MTR Corporation Limited

No. 9, Lok King Street, Fo Tan

Fo Tan Railway House

Shatin, N.T., Hong Kong

By Mail and Post

Your reference:

Our reference:

40032976/436081

Attention: Mr. Kenneth Chow / Environmental Engineer II

Dear Sir,

Consultancy Agreement A130-13 Independent Environmental Checker for CRS and LTS CRS - Verification for Ninth Monthly Environmental Monitoring and Audit (EM&A) Report (November 2014) (Report No.: EB001340R00132)

We refer to the Ninth Monthly EM&A Report (November 2014) received under cover of the email from the Environmental Team, Hyder Consulting Limited (HCL), dated on 4 December 2014.

HCL revised the Report addressing the comments from Maeda Corporation and provided on 5 December 2014. We have no further comment and have verified the captioned report (Report No.: EB001340R00132).

Should you have any queries, please feel free to contact the undersigned at 24103750 or our Mr. Thomas Wong at 2410 3795.

Yours faithfully URS Hong Kong Ltd

Rodney Ip Independent Environmental Checker, URS

TWKW/wwsc

cc. via email Hyder Consulting Limited Maeda Corporation

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Monthly EM&A Report (November 2014)

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Date 09 December 2014

This **Monthly EM&A Report (Nov 2014)** 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.

Monthly EM&A Report (November 2014)

Hyder Consulting Limited-Company Number 126012

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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 One corrective action was required as the environmental audit during the Reporting Period observed:
 - 1) Chemical containers were observed without drip tray at site, the Contractor was reminded to store them with a drip tray or remove them from site;
 - 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 One noise complaint on construction noise nuisance was recorded during the Reporting 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

General

ES06 Full implementations of the environmental mitigation measures, which are required in the EM&A Plan and summarized 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.

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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 9th monthly EM&A report (hereinafter referred as 'This Report') covering construction period from 1 to 30 November 2014 (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 Figure 1.1 Site Location Plan of *Appendix A*.
- 1.2.4 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*.
- 1.2.5 Construction programme is shown in *Appendix C*, whereas implementation schedule for the recommended environmental mitigation measures (hereinafter referred as 'the Implementation Schedule') are summarized in *Appendix D*, which fine tunes the construction activities and shows inter-relationships with the environmental protection / mitigation measures for the construction period.

1.3 Environmental Status

- 1.3.1 As required in the EP, URS Hong Kong Ltd 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 '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.
- 1.3.3 Status of relevant environmental permits, licences, and/or notifications on environmental protection for the Project is summarized in *Table 1-3-1* 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	Noise Permit no. GW-RE0876-14 granted on 07 Aug 2014

Table 1-3-1 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 summarized in *Table 1-4-1*:

Table 1-4-1 Construction Activities Undertaken during the Reporting Period and Up-Coming Month

ltem	Description
	Construction Activities Undertaken during the Reporting Period
1	Re-alignment of the site hoarding
2	Pipe piling for the cut and cover (C&C) tunnel
3	Pipe piling for the temporary staircase
4	Curtain grout for the temporary staircase and C&C tunnel
5	Driving sheet piling (stage 2) at Nathan Road
6	Toe grout at the sheet piling at Nathan Road
7	Lower the level to expose the utilities at Excavation Lateral Support (ELS)
8	Installation of support for decking at ELS
	Construction Activities to be Undertaken in the Up-Coming Month
1	Pumping test
2	Pipe piling for the cut and cover tunnel
3	Pipe piling for the temporary staircase and C&C tunnel
4	Curtain Grout for the temporary staircase
5	Lower the level to expose the utilities at ELS
6	Excavation (Stage 1) at ELS

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 next month 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 summarized 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 2-1-2 Air Quality Monitoring Equipment

Equipment Type	Model	Serial Number	Calibration Orifice Number	Location
High Volume Air Sampler	TE5005X	1713	1785	K11
Sibata Digital Dust Monitor	LD-3B	296098	Not Applicable	K11

- 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, which is about 1.7 km to the north of the monitoring station K11. The weather information is used as weather conditions during the Reporting Period. They are presented in *Appendix H*.

Calibration of Monitoring Equipment

- 2.1.9 The HVAS is calibrated before commencement of monitoring using standard orifice 5points 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 bimonthly intervals throughout the period of impact monitoring. The transfer standard should be traceable to the internationally recognized 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 are shown in *Appendix I*.

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 pre-weighed 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.

Field Monitoring Procedures

- 2.1.17 Procedures for field monitoring are as follows:
 - a) Check power supply to ensure the HVAS works properly.
 - b) Clean the filter holder and the area surrounding the filter.
 - c) Remove the filter holder by loosening the four bolts and carefully align a new filter, with stamped number upward, on a supporting screen.
 - d) Align the filter properly on the screen so that the gasket forms an airtight seal on the outer edges of the filter.
 - e) 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.
 - f) Close the shelter lid and secure with the aluminium strip.
 - g) Warmed-up the HVAS for about 5 minutes to establish run-temperature conditions.
 - h) Set a new flow rate record sheet into the flow recorder.
 - i) Checked and adjust the flow rate of the HVAS at around 1.1 m3 per minute. (The range specified in the EM&A Plan is between 0.6-1.7 m3 per minute.)
 - j) Set the programmable timer for a sampling period of 24 hours, and record the starting time, weather condition and the filter number.
 - k) Record the initial elapsed time.
 - I) 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.
 - m) Place the sampled filter in a clean plastic envelope and seal.
 - n) Record all monitoring information on a Field Data Sheet as shown in *Appendix J*.

o) 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:
 - a) Set power to "ON", push BATTERY button, make sure that the meter's indicator is in the range with a red line and allow the instrument to stand for about 3 minutes (Then, the air sampling inlet has been capped).
 - b) Push the knob at MEASURE position.
 - c) Push "O-ADJ" button. (Then meter's indication is 0).
 - d) Push the knob at SENSI ADJ position and set the meter's indication to S value described on the Test Report using the trimmer for SENSI ADJ.
 - e) Pull out the knob and return it to MEASURE position.
 - f) Push "START" button.
 - g) 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:
 - a) The Sibata is checked at 3-month intervals and calibrated at 1-year intervals throughout the whole construction period.
 - b) Calibration records for the Sibata Digital Dust Monitor direct dust meters are shown in *Appendix I*.

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:

Parameter	Action Level	Limit Level
	For baseline level ≤200 µg/m³, Action level	
24-Hr TSP	= (130% of baseline level + Limit level)/2	260
	For baseline level >200 μ g/m ³ , Action level = Limit level	
	For baseline level ≤384 µg/m³, Action level	
1-Hr TSP	= (130% of baseline level + Limit level)/2	500
	For baseline level >384 µg/m ³ , Action level = Limit level	

Table 2-1-3 Derivation of Action and Limit Levels for Air Quality at K11, µg/m³

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

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

Table 2-1-4 Action & Limit Levels for Air Quality at K11, µg/m3

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:
 - a) Decking over the excavation areas;
 - b) Regular watering to reduce dust emissions from all exposed site surface, particularly
 - c) During dry weather;
 - d) Frequent watering for particularly dusty construction areas and areas close to air
 - e) Sensitive receivers;
 - f) Cover all excavated or stockpiles of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet;
 - g) Provision of vehicle washing facilities at the exit points of the site; and
 - h) 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_{eq} in 30 minutes	Once a week

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 details of the calibration of the sound level meters and their respective calibrators are as shown in the following **Table 2-2-2**:

Table 2-2-2 Construction Noise Monitoring Equipment

ltem	Equipment Name	Model
1	Sound Level Meter	B&K 2238 (Serial no. 2562782)
2	Acoustic Calibrator	Larson Davis CAL200 (Serial no. 10929)

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. 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.
- 2.2.5 **Table 2-2-3** summarizes the recommended alternative noise monitoring location, which is illustrated in **Appendix A**.

Table 2-2-3 Noise Monitoring Location

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

Monitoring Methodology

Field Monitoring

- 2.2.6 Procedures for noise monitoring summarized as follows:
 - a) The microphones of the Sound Level Meter are about 1 m from the exterior of the building façade.
 - b) The battery condition is checked to ensure the correct functioning of the meter.
 - c) 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)
- iv. Monitoring frequency: one set of measurement on a weekly basis
- d) 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 re-calibration or repair of the equipment.
- e) During the monitoring period, the Leq(30 min) are recorded.
- f) Record all monitoring information on a Field Data Sheet as shown in *Appendix J*.
- g) Maintenance and Calibration
- h) 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

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

Action and Limit Levels

2.2.8 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*
Noto: *70 dP(A) for poboolo or	A = A = A = A	rriad out

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

2.2.9 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

- 2.2.10 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 summarized as follows:
 - 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;
 - j) The statutory and non-statutory requirements and guidelines shall be complied with;
 - k) 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;
 - 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;
 - m) Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical;
 - n) Unused equipment shall be turned off;
 - o) PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided;
 - p) All plant and equipment shall be maintained regularly;
 - q) Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable; and
 - r) Enclosure of Entrance D1 with acoustic mat during demolition.
- 2.2.11 Details of the implementation schedule for the mitigation measures are presented in *Appendix D*.

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 summarized in the following *Table 3-1-1*. Graphical plots of the parameter are illustrated in *Appendix K*.

Mean (Min – Max)	79.3 (59.9 – 97.1)		
24-Nov-2014	64.8	_	
17-Nov-2014	95.5	222	260
10-Nov-2014	59.9	_	
3-Nov-2014	97.1	_	
Monitoring Date	24-Hr TSP	Action Level	Limit Leve

Table 3-1-1 Summary of 24-Hr TSP Monitoring Results, ug/m3

Discussion

- 3.1.3 **Table 3-1-1** 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 summarized in the following *Table 3-2-1*. Graphical plots of the parameter are illustrated in *Appendix K*.

Table 3-2-1 Summary of Construction Noise Monitoring Results at K11, dB(A)

Monitoring Date	L _{eq (30 min)}	A/L Levels
4-Nov-2014	72.0	Limit Level: 75
11-Nov-2014	69.1	-
18-Nov-2014	71.7	Action Level:
25-Nov-2014	67.8	Any documented
Mean (Min – Max), <i>Leq</i> (30 min)	70.5 (67.8 – 72.0)	complaint against construction noise.

3.3 Discussion

- 3.3.1 Table 3-2-1 demonstrates that all construction noise results of the Reporting Period were fell below the Limit Level of the parameter. One construction noise complaint at Carnarvon Road was received on 07 November 2014.
- 3.3.2 A complaint investigation was carried out by the ET, in responding to the noise complaint stated in Section 3.3.1 during the Reporting Period. Details of the complaint are included in Section 4.3.
- 3.3.3 The Contractor was reminded to pay extra attention to noisy construction activities within the Reporting Month and the coming month, which were listed in **Table 1-2** under **Section 1.1.1:** Construction Activities Undertaken during the Reporting Period and Up-Coming Month. The ET will liaise closely with the Contractor on any unusual level of noise recorded in the upcoming month.
- 3.3.4 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

- 3.3.5 No weather conditions and any other factors were identified to have significant effects on the air and noise monitoring results within the Reporting Period.
- 3.3.6 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*.

3.4 Conclusions and Recommendations

Conclusions

- 3.4.1 No exceedances of A/L Levels of air quality and construction noise were registered during the Reporting Period.
- 3.4.2 One noise complaint investigation was conducted during the Reporting Period.

Recommendations

- 3.4.3 Full implementation of the environmental mitigation measures, which are required in the EM&A Plan and summarized in Implementation Schedule of *Appendix D*, is recommended. Where necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.
- 3.4.4 Nevertheless, as high noise levels were occasionally recorded during the Reporting Period, adequate mitigation measures should be implemented prior to noisy construction activities, in particular piling work, in order to alleviate noise nuisance generated from noisy construction activities under the Project.

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 4, 11, 18 and 25 November 2014. Deficiencies or findings of the site audit and the associated follow up actions are summarized in the following **Table 4-1**:

Date	Deficiencies or findings	Follow-Up Action				
	Follow-up item(s)					
4-Nov-2014	A gully was found covered at site. The Contractor was requested to construct a bund next to the gully to further prevent any surface run-off from site.	Closed. A bund was constructed surrounding to the mentioned gully.				
	Observation(s) on the day of inspection					
_	No deficiency was observed on site.	Not required.				
	Follow-up item(s)					
-	No follow-up item.	Not required.				
11-Nov-2014 -	Observation(s) on the day of inspection					
-	No deficiency was observed on site.	Not required.				
	Follow-up item(s)					
_	No follow-up item.	Not required.				
-	Observation(s) on the day of inspection					
18-Nov-2014	Chemical containers were observed without drip tray at site, the Contractor was reminded to store them with a drip tray or remove them from site.	To be followed-up on the nex site inspection.				
-	Reminder(s) on the day of inspection					
_	Stagnant water was observed in an idle water tank at site, the Contractor was reminded to remove any stagnant water from site or apply larvicide to prevent mosquito breeding, whenever possible.	Not required.				
	Follow-up item(s)					
25-Nov-2014	Chemical containers were observed without drip tray at site, the Contractor was reminded to store them with a drip tray or remove them from site.	Closed, the chemical containers were not observed at site.				
_	Observation(s) on the day of inspection					
-	No deficiency was observed on site.	Not required.				

Table 4-1-1 Summary of Findings and Follow-Up Actions of the Site Inspection

4.1.4 As shown in *Table 4-1-1*, 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 4-2-1* summarizes breaches of legal and contractual requirements.

Table 4-2-1 Summary of Breaches of Legal and Contractual Requirements

Month	No. of Breach(s)	Cumulative no. from March to the Reporting Period
November 2014	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 One complaint was received on 07 November 2014 during the Reporting Month.
- 4.3.3 A complaint regarding construction noise nuisance generated from Carnarvon Road was received on 07 November 2014 by the Environmental Protection Department (EPD). The ET conducted a complaint investigation on 12 November 2014 and additional noise measurement and inspection was considered as not applicable, it is because the complaint was related to work in restricted hour (after 19:00). The noise nuisance was concluded to be non-project related and was logged for record purpose only. The complaint was closed on 12 November 2014. Details of the complaint investigation can be referred to *Appendix N*.
- 4.3.4 Environmental complaints registered during the Reporting Period are summarised in *Table 4-3-1* below:

Table 4-3-1 Summary of Complaint

Month	No. of Complaint(s)	Cumulative no. from March to the Reporting Period
November 2014	1	2

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 4-4-1* below:

Table 4-4-1	Summar	y of Summon and Successful Prosecutions
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Month	No. of Breach(s)	Cumulative no. from March to the Reporting Period
November 2014	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

- 5.1.2 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.
- 5.1.3 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 waste management i.e. Reduce, Reuse and Recycle, is 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:
 - Air quality in particular construction dust during dusty construction activities, e.g. demolishment of the Entrance D1 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

- 6.1.2 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.
- 6.1.3 Mitigation measures for air quality, construction noise and water quality implemented to date shall be properly maintained.
- 6.1.4 Where appropriate, improvement of the implemented mitigation measures is reminded to ensure effectiveness of the mitigation measures.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

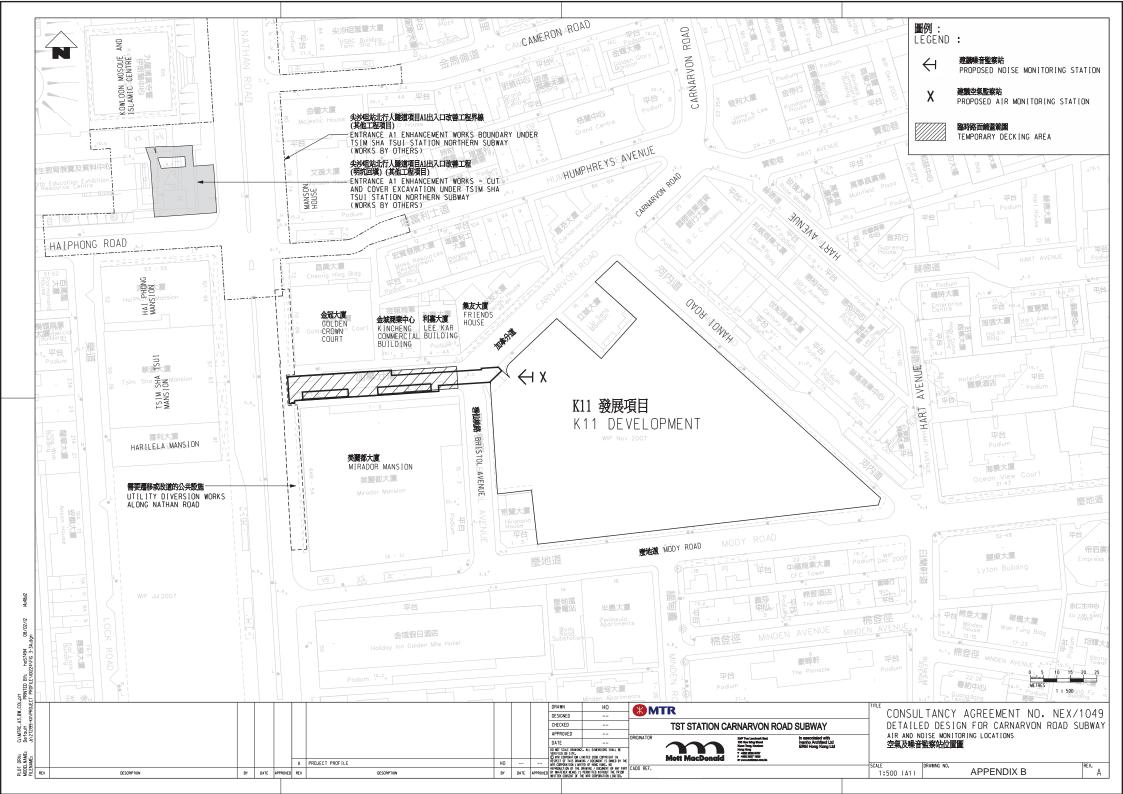
- 7.1.1 A complaint investigation was required as an exceedance of Noise Action Level due to a received noise complaint during the Reporting Period. The investigation report can be referred to *Appendix N* of this Report. The investigation on the noise complaint was started on 12 November 2014. It has concluded that the complaint was non-project related, with solid evidence provided shown no contraction works on site during restricted hour and the complaint was closed on 12 November 2014.
- 7.1.2 Base on the findings listed in *Table 4.1* within the Reporting Period, one corrective action is required:
 - 1) The Contractor was reminded to provide drip tray for storage of any chemicals on site.
- 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, high noise levels and inadequacies of environmental mitigation measures were occasionally noted during the EM&A and regular site inspection and audit. Special attention is therefore drawn to proactive mitigation measure to avoid adverse environmental impacts generated from the Project.

7.2 Recommendations

- 7.2.1 Full implementation of the environmental mitigation measures stipulated in the EM&A Plan and summarized 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

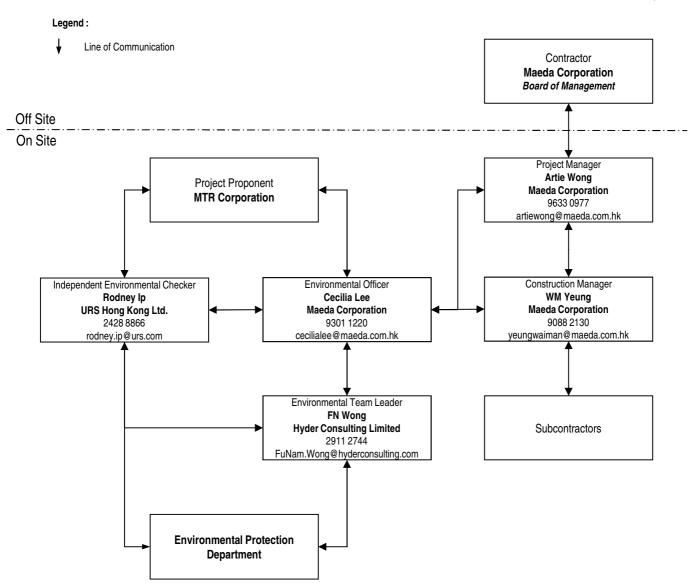


Appendix B

Management Structure

Project Organization Chart in Environmental Management (Rev.01)

Effective Date: 2 Apr 2014



Note: In compliance with

i) Clause. 1.3 of Environmental Monitoring and Audit Manual (Appendix VII of Project Profile PP462/2012)

Appendix C

Construction Programme

	MTR					CONTRACT C3840-13C Tsim Sha Tsui Station, Carnarvon Road Subway						
ty ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Total Fl	2014 2015 2016 2017 Oct N D Jan F M Apr M J Jul A S Oct N D Jan F M Apr M J Jul A S Oct N D Jan F M Apr M J Jul A S Oct N D Jan F M Apr M J Jul A S Oct N D Jan F M Apr M J Jul A S Oct N D Jul A Jul A Jul <th>S Oct N L</th>	S Oct N L					
Preliminary Master Pre	ogramme Revision 2	827d	14-Oct-13	31-Jul-16			3 000 N 1					
Preliminaries		827d	14-Oct-13	31-Jul-16	; ;							
Contract Key Dates		Od	14-Oct-13	3 14-Oct-13	3							
C3840-CD-20	Date of Commencement	0d	14-Oct-13	3		▶ Date¦of Commencement						
Specified Degrees of Co	ompletion	Od	31-Jul-16	31-Jul-16	i							
C3840-CD-2A	Complete to Deg. 1 status for all civil engineering works and ABWF in Subway outside	0d		31-Jul-16	;	r⊷♦ Complete to Deg. 1 status for all civil engineering works ar	and ABWF in S					
Possession of Works Ar	K11 Lot Boundary (31 Jul 16) ea As PS Clause P8 & PS Appendix G	Od	31-Oct-13	31-Oct-1	3							
C3840-AD-20	Access Date for Works Area 3840.W1 (subject to SLG/TMLG Approval)		31-Oct-13			Access Date for Works Area 3840.W1 (subject to SLG/TMLG Approval)						
	ALLESS Date for Works Area 3040.WT (Subject to SLO/TWILG Approval)											
Initial Site Survey				10-Dec-1								
C3840-SS-20	Validate the survey record and carry out any necessary additional survey at Works Areas 3840.W1 & W2	35d	31-Oct-13	10-Dec-1	3	Validate the survey record and carry out any necessary additional survey at Works Areas 3840. W1 & W2						
Temporary Works Desig	n & Approval Process (Incl. Demolition)	12d	16-Oct-13	30-Oct-13	3							
Temporary Traffic Mang	gement Scheme (TTM)	12d	16-Oct-13	30-Oct-1	3							
C3840-TTM-100	Appoint Traffic Consultant	0d		16-Oct-13	3	Appóint Traffic Cohsultant						
C3840-TTM-110	Pepare & submit review by Eng Outline TTM Schemes as per PS P20.4	6d	17-Oct-13	3 23-Oct-13	3	Pepare & submit review by Eng Outline TTM Schemes as per PS F20.4						
C3840-TTM-120	Eng review Outline TTM Schemes	4d	24-Oct-13	8 28-Oct-13	3							
C3840-TTM-130	Prepare Detailed TTMS	5d	24-Oct-13	29-Oct-13	3	Prepare Detailed TTMS						
C3840-TTM-140	Discussion and agree in priniciple at TMLG Meeting	1d	30-Oct-13	30-Oct-13	3	Discussion and agree in priniciple at TMLG Meeting						
Carnarvon Road Sub	way and Entrances	769d	14-Nov-13	3 22-Jun-16	6							
	Ndvance Ground Works & Piling Works)	135d	14-Nov-13	3 02-May-1	4							
Advance Ground Works				3 08-Feb-1								
C3840-AGW-020	Trial Pit/trench excavation			3 08-Feb-14		Trial Pit/trenct; excavation						
C3840-AGW-040	Pre-drilling works	24d	27-Dec-1	3 24-Jan-14	4	Pre-drilling works						
Piles & Grouting for Ver	rtical Shaft	51d	27-Feb-14	02-May-1	4							
C3840-EVS-010	Mobilization for Piling Rig and Setup	4d	27-Feb-14	4 03-Mar-14	4	Mobilization for Piling Rig and Setup						
C3840-EVS-020	52 nos. pipe piles with 1m. to 2.2m. minimum rock socket	35d	04-Mar-14	4 14-Apr-14	4	52 nos. pipe piles with 1m. to 2.2m. minimum rock; socket						
C3840-EVS-030	Grouting for Vertical Shaft Bulk Head	18d	17-Mar-14	4 07-Apr-14	4	Grouting for Vertical Shaft Bulk Head						
C3840-EVS-040	Curtain Grouting vertical shaft	18d	08-Apr-14	02-May-1	4	empered ortain Grouting vertical shaft						
Tunnel (Vertical Shaft Ex	icavation)	226d	03-May-1	4 31-Jan-18	5							
C3840-SH-100	Pump Test	24d	03-May-14	4 31-May-1	4	Pump Test						
C3840-SH-110	Excavation for 1st layer 140m3 50m3/day	3d	03-Jun-14	05-Jun-14	4	L Excavation for 1st layer 140m3 50m3/day						
C3840-SH-120	Install 1st waling, strut & legging wall			10-Jun-14		Install 1st waling, strut & legging wall						
C3840-SH-130	Shotcrete 1st layer			12-Jun-14		Shotcrete 1st layer						
00040-011-130		Zu		12-3011-14	•							
Actual Work	♦ ♦ Milestone				Data Date	11-Oct-13 Maeda/P/PMP/2						
Remaining Work				_		Preliminary Master Programme Date Revision Checked	Approv					
Critical Remaining					Page	of 3 27-Feb-14 REV 2 BG A	AW					

C3840-TU-230 Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) 64 05-Mar-16 25-May-16 8d C3840-TU-240 Curing 10d 26-May-16 06-Jun-16 8d		MTR	CONTRACT C3840-13C Tsim Sha Tsui Station, Carnarvon Road Subway																					
Child Work Provide Variant Varia		Activity Name					t N F) Jan E	MAprin			S Oct		lan	F M A	or M		AS			lan F	MAr		2016 J Jul
Characterization Control Cont	C3840-SH-140	Excavation for 2nd layer 190m3 50m3/d	4d	13-Jun-14	17-Jun-14				in i pi i												oun i			
Construction A	C3840-SH-150	Install 2nd waling, strut & lagging wall	4d	18-Jun-14	1 21-Jun-14	8d				Ŀ	Install 2	nd waling	strut &	lagging	wall									
Base And Bulker 2010 Shows A A A A A A BAD 5-100 Bad 2014 Bulker 2010 Shows A A A A BAD 5-100 Bad 2014 Bulker 2010 Shows A A A A BAD 5-100 Bad 2014 Bulker 2010 Shows A B A A A BAD 5-100 Bad 2014 Bulker 2010 Shows A B A A A BAD 5-100 Bad 2014 Bulker 2010 Shows A B A A A BAD 5-100 Bad 2014 Bulker 2010 Shows A B A A A BAD 5-100 Bad 2014 Bulker 2010 Shows A A A A A BAD 5-100 Bad 2014 Bulker 2010 Shows A A A A A BAD 5-100 Max 5 Shows A A A A A A BAD 5-100 Max 5 Shows A A A A A A BAD 5-100 Max 5 Shows A A A A A BAD 5-100 Max 5 Shows A A A A A BAD 5-100 Max 5 Shows A A A A	C3840-SH-160	Shotcrete 2nd layer	2d	23-Jun-14	4 24-Jun-14	8d				Ŀ	Shotor	te 2nd la	/er											
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Ab3-Bit-10 Cur Pipe Pile Ab Bb-Jan-15 B1-Jan-15 Add Ab3-Bit-10 Econstruction of Tummel) State State Add Ab0.11-100 Econstruction of Tummel, support for 181 fm 70 G4-Bit State State </td <td></td> <td>Γ</td> <td></td>														Γ										
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Bits Securation, shotcrete & hastal steel framework support for tail on 700 02-Feb:-16 02-40p-15 0.64 640-TU-100 Excensition, shotcrete & hastal steel framework support for next 7m 750 04-May-15 01-40p-15 06-6 640-TU-120 Excensition, shotcrete & hastal steel framework support for last 7m 750 04-May-15 01-00-15 06-6 640-TU-120 Install intermediate portal frame 30 02-Nov-16 04-Nov-15 06-6 640-TU-100 Install intermediate portal frame 30 02-Nov-16 04-Nov-15 06-6 640-TU-100 Install intermediate portal frame 06 02-Nov-16 04-Nov-15 06-6 640-TU-100 Install intermediate section 06 02-Nov-16 04-Nov-15 06-6 640-TU-100 Install intermediate section 30 02-Nov-16 14-Jav-16 06-6 640-TU-100 Install intermediate section 30 02-Nov-15 14-Jav-16 06-6 640-TU-100 Install intermediate section 30 02-Nov-16 14-Jav-16 06-6 640-TU-200 Construct Skb 2 Bays (2 pours) 12 27-Jav-16 1														Γ	Cutripe									
B40-TU-110 Exclusion, shotcrete & install steel framework support for next 7m 75d 04-May 15 01-Aug 15 6dd B40-TU-120 Execution, shotcrete & install steel framework support for test 7m 75d 03-Mag 15 01-Out 15 6dd B40-TU-130 Install intermediate britzontal piper rooting incl. mobilization 3d 02-Nov 15 04-Nov 15 6dd B40-TU-140 Install intermediate horizontal piper rooting incl. mobilization 19d 05-Nov 13 05-Nov 15 06d B40-TU-160 Install intermediate horizontal piper rooting incl. mobilization 6d 27-Nov 16 03-Doc 15 06d B40-TU-160 Install steef framework support for intermediate section 3di 02-Nov 16 04-Doc 15 06d B40-TU-160 Install steef framework support for intermediate section 3di 02-Nov 16 04-Doc 15 06d B40-TU-160 Install steef framework support for intermediate section 3di 02-Doc 15 06d 06d B40-TU-160 Install steef framework support for intermediate section 3di 05-Doc 15 06d 0di B40-TU-210 Presit/Tu-00 (root & Saw cut) into X11 Lot & Sasocialid works 18di 05-Fu-16																								
B49-TU-120 Excavation, shotcrete & install steel framework support for last 7m 75d 03-Aug-15 31-Oct-15 8d B49-TU-120 Install intermediate portal frame 3d 02-Nov-15 04-Nov-15 8d B40-TU-140 Install intermediate portal frame 3d 02-Nov-15 04-Nov-15 8d B40-TU-150 Horizontal re-grouing for intermediate section 6d 27-Nov-15 03-Dec-15 8d B40-TU-150 Horizontal re-grouing for intermediate section 6d 27-Nov-15 03-Dec-15 8d B40-TU-150 Install dowel bars & concrete colar beama 100 15-Jan-16 8d 8d B40-TU-220 Construct Nait & Roof (nct. removal of struts) 2 Bays (B pours) 10d 26-Aun-16 8d B40-TU-220 Construct Wall & Roof (nct. removal of struts) 2 Bays (B pours) 10d 26-Aun-16 8d B40-TU-220 Dismante faisework 10d 31-May-16 16-May-16 8d B40-TU-220 Construct Wall & Roof (nct. removal of struts) 2 Bays (B pours) 6d 04-May-16 8d B40-TU-220 Dismante faisework 10d 31-May-16 11-Jun-16 8d														-		Exc	avation,							
0-TU-130 Install intermediate portal frame 3d 02-No+15 04-No+15 86 0-TU-140 Install intermediate portal frame 190 05-No+15 28-No+15 04 0-TU-150 Horizontal re-grouting for intermediate section 6d 27-No+15 03-Dec-15 08d 0-TU-160 Install Support, excavation & shotcret for intermediate section 6d 27-No+15 03-Dec-15 08d 0-TU-160 Install Support, excavation & shotcret for intermediate section 3d 04-Dec-15 14-Jaa-16 08d 0-TU-160 Install Support, excavation & shotcret for intermediate section 3d 04-Dec-15 14-Jaa-16 08d 0-TU-160 Install Movel bars & concrete colar beams 10d 15-Jaa-16 08d 04-Mar-16 08d 0-TU-200 Construct Sub 2 Bays (2 pours) 12d 20-Feb-16 04-Mar-16 08d 04-Mar-16 08d 0-TU-200 Construct Wall & Root (ncl. removal of struts) 2 Bays (8 pours) 04d 05-Jan-16 08d 04-Jan-16 08d 0-TU-200 Demantle falsework 10d 31-May-16 12-Jan-16 08d 04-Jan-16 08d </td <td>)-TU-110</td> <td>Excavation, shotcrete & install steel framework support for next 7m</td> <td>75d</td> <td>04-May-18</td> <td>5 01-Aug-15</td> <td>8d</td> <td></td> <td>Т</td> <td>Excav</td> <td>ation, s</td> <td>hotcret</td> <td>te & inst</td> <td>all steel f</td> <td>ramewo</td> <td>k sup</td>)-TU-110	Excavation, shotcrete & install steel framework support for next 7m	75d	04-May-18	5 01-Aug-15	8d											Т	Excav	ation, s	hotcret	te & inst	all steel f	ramewo	k sup
B40-TU-140 Install intermediate horizontal pipe roofing incl. mobilization & demobilization 194 05-Nov-15 84 B40-TU-150 Horizontal re-grouting for intermediate section 6d 27-Nov-15 03-Dec-15 8d B40-TU-160 Install Support, excavation & shotcret for intermediate section 334 04-Dec-15 14-Jan-16 8d B40-TU-160 Install dowel bars & concrete collar beams 10d 15-Jan-16 8d	840-TU-120	Excavation, shotcrete & install steel framework support for last 7m	75d	03-Aug-15	5 31-Oct-15	8d											-		Г	Excava	ation, sh	otcrete 8	insta∥ s	teel fra
B40-TU-150 Horizontal re-grouting for intermediate section 6d 27-Nov-15 03-Dec-15 8d For and the provide section 6d 27-Nov-15 03-Dec-15 8d For and the provide section 6d 27-Nov-15 03-Dec-15 8d For and the provide section 6d 27-Nov-15 03-Dec-15 8d For and the provide section 6d 27-Nov-15 8d For and the provide section 6d 26-Dec-15 14-Jan-16 8d B40-TU-180 Install dowel bars & concrete color beams 10d 15-Jan-16 26-Jan-16 8d 8d 8d For and the provide section 6d 26-Jan-16 8d 8d 8d For and the provide section	3840-TU-130	Install intermediate portal frame	3d	02-Nov-15	5 04-Nov-15	8d														Install	interme	diate por	tal frame	,
Cardo-TU-160 Install Support, excavation & shotcret for intermediate section 33d 04-Dec-15 14-Jan-16 8dd C3840-TU-180 Install dowel bars 10d 15-Jan-16 8dd 8dd 8dd 8dd 9dd	:3840-TU-140	Install intermediate horizontal pipe roofing incl. mobilization & demobilization	19d	05-Nov-15	5 26-Nov-15	8d														lns	tall inter	mediate	horizoht	al pipe
3840-TU-180 Install dowel bars & concrete collar beams 10d 15-Jan-16 26-Jan-16 8dd 3840-TU-210 Breakthrough (core & saw cut) into K11 Lot & associated works 18d 27-Jan-16 19-Feb-16 8dd 3840-TU-220 Construct Slab 2 Bays (2 pours) 12d 20-Feb-16 04-Mar-16 8dd 3840-TU-230 Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) 64d 05-Mar-16 25-May-16 8dd 3840-TU-230 Curing 10d 26-May-16 06-Jun-16 8dd 3840-TU-230 Curing 10d 26-May-16 06-Jun-16 8dd 3840-TU-230 Curing 10d 31-May-16 11-Jun-16 8dd 3840-TU-240 Dismantle falsework 10d 31-May-16 18-Jun-16 8dd 3840-TU-250 Dismantle falsework 10d 31-May-16 18-Jun-16 8dd Actual Work Milestone Data Date: 11-Oct-13 Data Date: 11-Oct-13 Data Date: 11-Oct-13	3840-TU-150	Horizontal re-grouting for intermediate section	6d	27-Nov-15	5 03-Dec-15	8d -														►¶ He	orizonta	l re-grou	ting for ir	ıterme
Breakthrough (core & saw cut) into K11 Lot & associated works 18d 27-Jan-16 19-Feb-16 8d B40-TU-220 Construct Slab 2 Bays (2 pours) 12d 20-Feb-16 04-Mar-16 8d B40-TU-230 Construct Wal & Roof (incl. removal of struts) 2 Bays (8 pours) 6d 05-Mar-16 25-May-16 8d B40-TU-240 Curing 10d 26-May-16 06-Jun-16 8d B40-TU-250 Dismantle falsework 10d 31-May-16 11-Jun-16 8d B40-TU-260 Grouting into wold above 6d 13-Jun-16 18-Jun-16 8d	3840-TU-160	Install Support, excavation & shotcret for intermediate section	33d	04-Dec-18	5 14-Jan-16	8d															ns Ins	tall Suppo	ort, exca	vation
124 20-Feb-16 04-Mar-16 8d 1840-TU-220 Construct Wal & Roof (incl. removal of struts) 2 Bays (8 pours) 64d 05-Mar-16 25-May-16 8d 1840-TU-230 Curing 10d 26-May-16 6d 8d 10d 8d 1840-TU-240 Curing 10d 26-May-16 6d 8d 10d 10d 8d 1840-TU-250 Dismantie falsework 10d 31-May-16 11-Jun-16 8d 8d 11-Jun-16 8d 1840-TU-260 Grouting into void above 6d 13-Jun-16 8d 8d 11-Jun-16 8d Actual Work Milestone Data Date: 11-Oct-13	3840-TU-180	Install dowel bars & concrete collar beams	10d	15-Jan-16	6 26-Jan-16	8d														l	►∎ Ir	istall dow	el bars	& con
33840-TU-230 Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) 64d 05-Mar-16 25-May-16 8dd Image: Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) 64d 05-Mar-16 26-May-16 8dd Image: Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) 10d 26-May-16 06-Jun-16 8dd Image: Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) 10d 31-May-16 11-Jun-16 8dd Image: Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) 10d 31-May-16 11-Jun-16 8dd Image: Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) 10d 31-May-16 11-Jun-16 8dd Image: Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) 10d 31-May-16 11-Jun-16 8dd Image: Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) 10d 31-May-16 18-Jun-16 8dd Image: Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours) Image: Construct Wall & Roof (1mage: Construt & Roof (1mage: Construct & Roof (1mage:	C3840-TU-210	Breakthrough (core & saw cut) into K11 Lot & associated works	18d	27-Jan-16	6 19-Feb-16	8d															┕╍┢═	Breakt	hrough (care 8
3840-TU-240 Curing 10d 26-May-16 06-Jun-16 8d 3840-TU-250 Dismantle falsework 10d 31-May-16 11-Jun-16 8d 3840-TU-260 Grouting into void above 6d 13-Jun-16 8d 18-Jun-16 8d Actual Work	3840-TU-220	Construct Slab 2 Bays (2 pours)	12d	20-Feb-16	6 04-Mar-16	8d																Cons	struct Sk	ab 2 B
340-TU-250 Dismantle falsework 10d 31-May-16 11-Jun-16 8d 340-TU-260 Grouting into void above 6d 13-Jun-16 8d 10d 11-Jun-16 8d 10d 10d </td <td>340-TU-230</td> <td>Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours)</td> <td>64d</td> <td>05-Mar-16</td> <td>6 25-May-16</td> <td>- 8d</td> <td></td> <td> </td> <td>-</td> <td></td> <td>Constr</td>	340-TU-230	Construct Wall & Roof (incl. removal of struts) 2 Bays (8 pours)	64d	05-Mar-16	6 25-May-16	- 8d															 	-		Constr
Actual Work ♦ Milestone 06 13-Jun-16 80 Data Date: 11-Oct-13	3840-TU-240	Curing	10d	26-May-16	6 06-Jun-16	8d																	╘╸	Curin
Actual Work Milestone Data Date: 11-Oct-13	3840-TU-250	Dismantle falsework	10d	31-May-16	6 11-Jun-16	8d																		Dism
	3840-TU-260	Grouting into void above	6d	13-Jun-16	6 18-Jun-16	8d																		Gro
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Dualiminany Mastan Duagnamma	Actual Work	Milestone			Data	Date: 11-	Oct-13	3				_												
Remaining Work Page 2 of 3 Preliminary Master Programme	Remaining Work	Υ.				Page 2 of	3					Pre	limi	nary	7 Ma	ster	Prog	ram	me				27-F	Da

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MTR				CONTRACT C3840-13C Tsim Sha Tsui Station, Carnarvon Road Subway																					
Activity ID	Activity Name	Orig	rig Planned	Planned	Total Float	2014				2015				2016				2017 018							
		Dur	Start	Finish		Oct N	D Jan	F M Apr	M J	Jul A	S Oct N	D Jar	n F M Apr	M J Jul	A S	Oct N	D Jan	F M Apr M	1 J Jul	A S	GOct N D Ja	in F M	Apr M 🕔	J Jul A	S Oct N D
	C3840-TU-270 Cut Pipe pile at interface	3d	20-Jun-16	22-Jun-16	8d														- Cut	Pipe pile	le at interface				
Bu	uilding Services & ABWF Works	70d	27-Apr-16	21-Jul-16	8d																				
E	BS & ABWF Works at Subway Conc. Level and Plant Room & D3	70d	27-Apr-16	21-Jul-16	8d																				
	C3840-BSS-120 ABWF Works to Deg. 1 Completion	70d	27-Apr-16	21-Jul-16	8d													-		ABWF	Works to Deg. 1	Completion			

ctual Work	♦ Milestone	Data Date: 11-Oct-13		
emaining Work			Preliminary Master Programme	Date
ritical Remaining Work		Page 3 of 3		27-Feb-14
			Extract Critical Path 1	

	Maeda/F	P/PMP/2	
e	Revision	Checked	Approved
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MTR	CONTRACT	C3840-13C Tsim Sha Tsui Station, Carnarvon Road Subway	
Activity ID Activity Name	Orig Planned Planned Total Float Dur Start Finish Oct N. D. Jan F.	2014 2015 M Apr M J Jul A S Oct N D Jan F M Apr M J Jul A S Oct N D Jan F M	2016 2017 01
Preliminary Master Programme Revision 2	898d 11-Oct-13 23-Oct-16 0d		
Preliminaries	898d 11-Oct-13 23-Oct-16 Od		
Contract Key Dates	3d 11-Oct-13 14-Oct-13 Od		
C3840-CD-10 Date of Contract Award	0d 11-Oct-13 0d ❤ Date of Contract A	ward	
C3840-CD-20 Date of Commencement	0d 14-Oct-13 0d Date of Commence	ement	
Specified Degrees of Completion	0d 23-Oct-16 23-Oct-16 0d		
C3840-CD-2C Complete energisation of the power isolator in the Telephone Equipment Rm (23 Oct	0d 23-Oct-16 0d		Complete energisation of the power isolator in the Telephone Equ
16) Possession of Works Area As PS Clause P8 & PS Appendix G	0d 31-Oct-13 31-Oct-13 0d		
C3840-AD-20 Access Date for Works Area 3840.W1 (subject to SLG/TMLG Approval)		r Works Area 3840.W1 (subject to SLG/TMLG Approval)	
Initial Site Survey	35d 31-Oct-13 10-Dec-13 0d		
C3840-SS-20 Validate the survey record and carry out any necessary additional survey at Works Areas 3840.W1 & W2	35d 31-Oct-13 10-Dec-13 0d	e survey record and carry out any necessary additional survey at Works Areas 3840.W1 & W2	
Procurement of Subcontract Packages	4d 11-Oct-13 16-Oct-13 0d		
Preliminaries and Utilities Diversion	4d 11-Oct-13 16-Oct-13 0d		
C3840-PRC-140 Temporary Traffic Diversion (Consultant)	4d 11-Oct-13 16-Oct-13 0d 1 Temporary Traffic	Diversion (Consultant)	
Temporary Works Design & Approval Process (Incl. Demolition)	12d 16-Oct-13 30-Oct-13 0d		
Temporary Traffic Mangement Scheme (TTM)	12d 16-Oct-13 30-Oct-13 0d		
C3840-TTM-100 Appoint Traffic Consultant	0d 16-Oct-13 0d ➡ Appoint Traffic Co	nsultant	
C3840-TTM-110 Pepare & submit review by Eng Outline TTM Schemes as per PS P20.4	6d 17-Oct-13 23-Oct-13 0d • 17 Pepare & submit	review by Eng Outline TTM Schemes as per PS P20.4	
C3840-TTM-120 Eng review Outline TTM Schemes	4d 24-Oct-13 28-Oct-13 0d Eng review Outi	ne TTM Schemes	
C3840-TTM-130 Prepare Detailed TTMS	5d 24-Oct-13 29-Oct-13 0d Fl Prepare Detailed		
C3840-TTM-140 Discussion and agree in priniciple at TMLG Meeting		agree in priniciple at TMLG Meeting	
Carnarvon Road Subway and Entrances	774d 14-Nov-13 28-Jun-16 0d		
Utility Diversion	57d 10-Feb-14 17-Apr-14 0d		
C3840-UTD-290 Diversion of Gasmain as necessary	57d 10-Feb-14 17-Apr-14 Od	Diversion of Gasmain as necessary	
Open Cut Sequence 1 (Advance Ground Works & Piling Works)	444d 14-Nov-13 18-May-15 Od		
Advance Ground Works	69d 14-Nov-13 08-Feb-14 0d		
C3840-AGW-020 Trial Pit/trench excavation	69d 14-Nov-13 08-Feb-14 Od	irial Bit/trench excavation	
Piles & Grouting for Vertical Shaft	39d 27-Feb-14 14-Apr-14 0d		
C3840-EVS-010 Mobilization for Piling Rig and Setup	4d 27-Feb-14 03-Mar-14 0d	Mobilization for Piling Rig and Setup	
C3840-EVS-020 52 nos. pipe piles with 1m. to 2.2m. minimum rock socket	35d 04-Mar-14 14-Apr-14 0d	52 nos. ppe piles with 1 m. to 2.2 m. minimum rock;socket	
Piles & Grouting for Temporary Staricase & C&C Subway	59d 15-Apr-14 28-Jun-14 0d		
C3840-ETS-020 70 nos. pipe piles along Grid Line A with 1m. to 3.1m minimum rock socket	47d 15-Apr-14 14-Jun-14 0d	Image: Provide the state of	
	Data Date: 11-Oct-13		Maeda/P/PMP/2
Actual Work Milestone Remaining Work		Preliminary Master Programme	Date Revision Checked Approved
Critical Remaining Work	Page 1 of 5		27-Feb-14 REV 2 BG AW
		Extract Critical Path 2	

		MTR	CONTRAC	Г C3840-13C Tsim Sha Tsui Station, Carnarvon Road Subway	
Activity ID		Activity Name	Orig Planned Planned Total Float	2014 2015 M Apr M J Jul A S Oct N D Jan F M Apr M J Jul A S Oct N Apr M Apr A S Oct N Apr A	2016 2017 018
	C3840-ETS-030	Curtain Grouting along Grid Line A	24d 29-May-14 26-Jun-14 2d		
	C3840-ETS-070	Type III Sheet Plle, 355m along between Grids A & B	6d 22-Apr-14 28-Apr-14 0d	Type III Sheet Plle, 355m along between Grids A & B	
	C3840-ETS-080	Toe Grouting	8d 29-Apr-14 09-May-14 0d	Top Grouting	
	C3840-ETS-090	Mobilization for Piling Rig and Setup	4d 10-May-14 14-May-14 0d	Applization for Piling Rig and Setup	
	C3840-ETS-110	37 nos. pipe piels along Grid Line B with 1m. to 1.5m. minimum rock socket	25d 15-May-14 13-Jun-14 0d	37 nos. pipe piels along Grid Line B with 1m. to 1.5m. minimum rock socket	
	C3840-ETS-120	Curtain Grouting along Grid Line B	13d 14-Jun-14 28-Jun-14 0d	Curtain Grouting along Grid Line B	
	Piles & Grouting for Ren	naining Section of Cofferdam at D2	20d 24-Apr-15 18-May-15 0d		
	 C3840-ECD-010	Mobilization for Piling Rig and Setup	4d 24-Apr-15 28-Apr-15 0d	r-1 Mobilization for Piling Rig and Setup	
	C3840-ECD-020	23 nos. pipe piles along Grid Line B at D2 with 1m. to 3.2m minimum rock socket	16d 29-Apr-15 18-May-15 0d	23 nos. pipe piles along Grid Line B at D2 with 1m.	to 3.2m minimumi rock socket
	nen Cut Sequence 2 (F	xcavation for Temporary Staricase)	209d 30-Jun-14 11-Mar-15 0d		
	Excavation		93d 30-Jun-14 20-Oct-14 00		
	C3840-EXC-100	Pump test prior to excavate for temporary staricase	24d 30-Jun-14 28-Jul-14 Od	Pump test prior to excavate for temporary staricase	
	C3840-EXC-120	Excavation for 1st layer at D1 208m3	4d 29-Jul-14 01-Aug-14 0d	Excavation for 1st layer at D1 208h3	
	C3840-EXC-130	Install 1st waling & strut 21ton & temporary support to underground UUs	7d 02-Aug-14 09-Aug-14 0d	Install 1st waling & strut 21ton & emporary support to underground UUs	
	C3840-EXC-140	Install Truss for Suport Temp D1	6d 11-Aug-14 16-Aug-14 0d	nstall Truss for Suport Temp D	
	C3840-EXC-150	Shotcrete 1st layer	2d 18-Aug-14 19-Aug-14 Od	Shotcrete 1st layer	
	C3840-EXC-160	Demolish D1 4m below GL	6d 20-Aug-14 26-Aug-14 0d	Demolish D1 4m,below G1	
	C3840-EXC-170	Excavation for 2nd layer at D1 230m3	5d 27-Aug-14 01-Sep-14 0d	Excavation for 2nd layer at D1 230m3	
	C3840-EXC-180	Install 2nd waling & strut 17ton	7d 02-Sep-14 10-Sep-14 0d	Install 2nd waling & strut 17ton	
	C3840-EXC-190	Shotcrete 2nd layer	2d 11-Sep-14 12-Sep-14 0d	Shotçrete 2nd layer	
	C3840-EXC-200	Excavation for 3rd layer at D1 216m3	5d 13-Sep-14 18-Sep-14 0d	Excavation for 3rd layer at D1 216m3	
	C3840-EXC-210	Install 3rd waling & strut 15ton	6d 19-Sep-14 25-Sep-14 0d	Install 3rd waling & strut 1Ston	
	C3840-EXC-220	Shotcrete 3rd layer	4d 26-Sep-14 30-Sep-14 0d	Shotcrete 3rd layer	
	C3840-EXC-230	Excavation for 4th layer at D1 166m3	4d 03-Oct-14 07-Oct-14 0d	Excavation for 4th layer at D1 166 n3	
	C3840-EXC-240	Install channel on opening	3d 08-Oct-14 10-Oct-14 0d	Instalt channel on opening	
	C3840-EXC-250	Shotcrete 4th layer	4d 11-Oct-14 15-Oct-14 0d	Shotprete 4th layer	
	C3840-EXC-260	Make formation and Blinding	4d 16-Oct-14 20-Oct-14 Od	Make formation and Binding	
	RC Structure (Temporar	y Staricase)	116d 21-Oct-14 11-Mar-15 0d		
	C3840-TSC-100	Install Dowel bars (130#)	6d 21-Oct-14 27-Oct-14 0d	Install Dowel bars (130#)	
	C3840-TSC-110	Const. Bay1 : 18m3	6d 28-Oct-14 03-Nov-14 0d	Const. Bayl : 18m3	
	C3840-TSC-120	Const. Bay2 : 16m3	9d 04-Nov-14 13-Nov-14 0d	Const. Bay2 :16m3	
	C3840-TSC-130	Const. Bay3 : 6m3	6d 14-Nov-14 20-Nov-14 0d	Const. Bay3: 6m3	
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	Actual Work	♦ Milestone	Data Date: 11-Oct-13	Preliminary Master Programme	Maeda/P/PMP/2 Date Revision Checked Approved
	Remaining WorkCritical Remaining	Work	Page 2 of 5		27-Feb-14 REV 2 BG AW
				Extract Critical Path 2	

		MTR				CONTRAC	CT C3840-13C Tsim	Sha Tsui S	station,	Carna	arvon R	Road S	ubwa	y									
Activity ID		Activity Name	Orig Dur	Planned Start	Planned Finish	Total Float	2014 F M Apr M J Jul A S	S Oct N D Ja			2015 J Jul A	S Oct	NDJ	an FM	Apr M	2016 J Jul A	ASC	Oct N D	Jan F	M Apr N	2017	S Oct N	
	C3840-TSC-150	Const. Bay5 : 35m3	13d	21-Nov-14	05-Dec-14	Od			st. Bay5 : 35														
	C3840-TSC-160	Const. Bay6 : 39m3	15d	06-Dec-14	23-Dec-14	Od		Co	onst. Bay6	39m3													
	C3840-TSC-170	Const. Bay7 : 34m3	14d	16-Dec-14	03-Jan-15	Od			Const, Bay	': 34m3													
	C3840-TSC-180	Const. Bay8 : 4m3	6d	31-Dec-14	07-Jan-15	Od		_	Const. Bay	8 : 4m3													
	C3840-TSC-190	Const. Bay9 : 44m3	14d	08-Jan-15	23-Jan-15	Od			Const. Ba	ay9 : 44m	3												
	C3840-TSC-240	Temporary Staircase Commissioning & open for use	0d		11-Mar-15	0d			1	emporary	Staircase C	ommissiqn	ning & ope	n for use									
	Open Cut Sequence 3 (A	Advance Ground Works & Piling Works at D2 & in front of D1)	33d	12-Mar-15	23-Apr-15	Od																	
	C3840-ELS-510	Joint Survey & Remove existing BS & ABWF Services at D2	6d	12-Mar-15	18-Mar-15	Od				loint Surv	ey & Remove	e existing E	BS & ABW	F Services	at D2								
	C3840-ELS-520	Const Flood Barrier at Concourse and D2	9d	19-Mar-15	28-Mar-15	Od			-	Const FI	ood Barrier a	at Concour	se and D	2									
	C3840-ELS-530	Demolish D2 above GL	12d	30-Mar-15	16-Apr-15	Od				Demo	ish D2 abov	/e GL											
_	C3840-ELS-540	Set Conc block in D2 opening	6d	17-Apr-15	23-Apr-15	Od				Set C	oric black ir	1 D2 openii	ng										
	Open Cut Sequence 4 (E	Excavation for Subway in front of D1)	182d	27-Jun-15	02-Feb-16	Od																	
	C3840-ELSD1-100	Excavation for 1st layer 378m3, 25m3/day	15d	27-Jun-15	15-Jul-15	Od					- Exca	vation for	1st layer 3	78m3, 25m	i3/daly								
	C3840-ELSD1-110	Install 1st waling & strut & Utility Support	24d	03-Jul-15	30-Jul-15	0d					ns	stall 1st wa	ıling & stru	it & Utility S	upport								
	C3840-ELSD1-130	Install Decking with Subframe to cover all area	12d	31-Jul-15	13-Aug-15	Od						nstall Decl	king with s	Subframe to	cover a	area							
	C3840-ELSD1-140	Shotcrete 1st layer	2d	14-Aug-15	15-Aug-15	0d					Ę	Shotcrete	1st layer										
	C3840-ELSD1-150	Excavation for 2nd layer 421m3 50m3/day	9d	17-Aug-15	26-Aug-15	Od						Excavatio	on for 2nd	layer 421m	3 50m3/	day							
	C3840-ELSD1-160	Install 2nd waling & strut			29-Aug-15	0d					Γ	Install 2r											
	C3840-ELSD1-170	Shotcrete 2nd layer			01-Sep-15	0d					Γ	Shotcre											
	C3840-ELSD1-180	Demolish existing subway 7.5m below GL			08-Sep-15	0d								subway 7	.5m belo	v GL							
	C3840-ELSD1-190	Excavation for 3rd layer 421m3, 50m3/d			18-Sep-15	Od						T I I		Brd layer 42									
	C3840-ELSD1-200	Install 3rd waling & strut			22-Sep-15	0d						- Insta											
	C3840-ELSD1-210	Shotcrete 3rd layer			22-Sep-13	Od						Shot											
	C3840-ELSD1-210	·										Γ			10 0								
		Demolish existing subway 10.6m below GL			03-Oct-15	Od								sting subwa									
	C3840-ELSD1-230	Excavation for 4th layer 443m3, 50m3/d			14-Oct-15	0d						[for 4th laye		b/B/m∪c							
	C3840-ELSD1-240	Install 4th waling & strut			17-Oct-15	Od								valing & str	ψτ								
	C3840-ELSD1-250	Shotcrete 4th layer			20-Oct-15	Od						Г	Shotcrete										
	C3840-ELSD1-260	Excavation for 5th layer 443m3, 50m3/d			31-Oct-15	Od						ſ				i3, 50m3/d							
	C3840-ELSD1-270	Install 5th waling & strut			04-Nov-15	Od						Γ		h waling & :									
	C3840-ELSD1-280	Shotcrete 5th layer			06-Nov-15	Od						Γ		te 5th layer									
	C3840-ELSD1-290	Excavation Soil for 6th layer 392m3, 50m3/d	8d	07-Nov-15	16-Nov-15	0d							Excav			r 392m3, 50							
	C3840-ELSD1-300	Excavation Rock (Grade 2) 402m3, 8m3/d	50d	17-Nov-15	16-Jan-16	0d								Excavati	on Rock	(Grade 2) 4	02m3, 8n	m3/d					
					Det	a Date: 11-Oct-13		· · ·		· ·				· ·	1				Maad	/P/PMP/2	<u>, , , , , , , , , , , , , , , , , , , </u>		
	Actual WorkRemaining Work	♦ Milestone			Dai			Prelimina	ry Ma	ster l	Progra	mme				Date			vision	Cł	z necked	Appro	oved
	Critical Remaining					Page 3 of 5		Extr	act Cri	itical	Path 2				27	-Feb-14		REV 2		BG		AW	
							1								1								

MTR			CONTRACT	C3840-13C Tsim Sha Tsu	i Station, Carnarvon Road Subwa	ay		MAED	A
Activity ID Activity Name Original Dur	Planned Start	Planned Finish	Total Float	2014 M Apr M J Jul A S Oct N D	2015 Jan F M Apr M J Jul A S Oct N D	Ian F M An	2016 r M I I IIII A S	2017	018
C3840-ELSD1-310 Install 6th waling & strut 8d	18-Jan-16	26-Jan-16	Od Od			Install 6th v			
C3840-ELSD1-320 Shotcrete 6th layer 2d	27-Jan-16	28-Jan-16	Od			Shotcrete	6th layer		
C3840-ELSD1-330 Make formation and Blinding 4d	29-Jan-16	02-Feb-16	Od			Make forr	nation and Blinding		
Open Cut Sequence 5 (Construction of Subway & D2) 1160	d 03-Feb-16	28-Jun-16	Od						
C3840-STR-110 Const. Bay1 : 4m3 6d	03-Feb-16	12-Feb-16	Od			Const. E	3ay1 : 4m3		
C3840-STR-120 Const. Bay2 : 123m3 10d	13-Feb-16	24-Feb-16	Od			Const.	Bay2 : 123m3		
C3840-STR-130 Const. Bay3.1 : 125m3 10d	25-Feb-16	07-Mar-16	Od			Cons	st. Bay3.1 : 125m3		
C3840-STR-140 Const. Bay3.2 : 120m3 15d	08-Mar-16	24-Mar-16	Od				on¦st. Bay3,2 : 1/20m3		
C3840-STR-150 Const. Bay4 : 29m3 6d	18-Mar-16	24-Mar-16	Od			- Co	onist. Bay4 : 29m3		
C3840-STR-160 Const. Bay4.5 : 13m3 6d	23-Mar-16	01-Apr-16	Od				Const. Bay4.5 : 13m3		
C3840-STR-170 Const. Bay5 : 141m3 10d	31-Mar-16	12-Apr-16	Od				Const. Bay5 : 141m3		
C3840-STR-180 Const. Bay6.1 : 130m3 12d	13-Apr-16	26-Apr-16	Od				Const. Bay6.1 : 130)mB	
C3840-STR-190 Const. Bay6.2 : 130m3 12d	18-Apr-16	30-Apr-16	Od				Const. Bay6.2 : 130	Dn 1 3	
C3840-STR-200 Const. Bay6.3 : 130m3 12d	22-Apr-16	06-May-16	Od			-	Const. Bay6.3 : 13	30in3	
C3840-STR-210 Const. Bay6.4 : 130m3 12d	27-Apr-16	11-May-16	Od				Const. Bay6.4 : 1	30m3	
C3840-STR-220 Const. Bay6.5 : 130m3 15d	03-May-16	20-May-16	Od			ļ	Const. Bay6.5 :	1\$0m3	
C3840-STR-240 Const. Bay7 : 90m3 15d	06-May-16	24-May-16	Od			l	Const. Bay7: 9	10 m 3	
C3840-STR-260 Const. Bay8.1 : 104m3 10d	12-May-16	24-May-16	Od				Const. Bay8.1 :	1104mj3	
C3840-STR-270 Const. Bay8.2 : 104m3 10d	19-May-16	30-May-16	Od				Const. Bay8.2	: 04m3	
C3840-STR-280 Const. Bay8.5 : 39m3 (D2) 15d	25-May-16	11-Jun-16	Od				► Çonst. Bay8.	5 39m3 (D2)	
C3840-STR-290 Curing, remove strut & falsework 14d	13-Jun-16	28-Jun-16	Od				Curing, re	move strut & falsework	
Building Services & ABWF Works 5330	d 05-Jan-15	22-Oct-16	Od						
	05-Jan-15	11-Mar-15	Od						
C3840-TSBA-100 Complete RC works 0d		23-Jan-15	Od		⊷ Complete RC works				
C3840-TSBA-110 Installation of BS and ABWF works 40d	05-Jan-15	23-Feb-15	Od		Installation of BS and ABWF works				
C3840-TSBA-120 CN&SE access & cable routing connecting to existing TST Station 40d	05-Jan-15	23-Feb-15	1d		CN&SE access & cable routing connecting	to existing TST S	itation		
C3840-TSBA-130 T&C 6d	25-Feb-15	03-Mar-15	Od		T&C				
C3840-TSBA-140 Inspection prior to open for public use 6d	04-Mar-15	10-Mar-15	Od		Inspection prior to open for public use				
C3840-TSBA-150 Open for public use 0d		11-Mar-15	Od						
	29-Jun-16	22-Oct-16	Od						
	29-Jun-16	02-Sep-16	Od					BS 1st Fix	
	03-Sep-16		0d					BS 2nd Fix	
Actual Work Milestone		Data	a Date: 11-Oct-13					Maeda/P/PMP/2	
Remaining Work			Page 4 of 5	Prelimi	nary Master Programme		Date	Revision Checked	Approved
Critical Remaining Work				Ех	stract Critical Path 2		27-Feb-14	REV 2 BG	AW

Activity ID Activity Name Orig Planned Planned Finsh Total Float Column <	MTR					CON	IIRAG	GT C3	340-1	3C IS	sim Sr	ha Tsu	ii Sta	ition,	Carr	arvon	n Roa	d Sub	oway											
	vity ID Activity Name	Orig			Total Floa	at				2014						2015						2016						2017		
C3840-BSM-120 Complete all BS works in TER Od 22-Oct-16 Od 22-Oct-16 Od		Dur	Start	Finish		Oct N	D Jan	FMA	pr M -	JJul	A S O	Oct N D	Jan F	FM	Apr M	J Jul	A S	Oct N	D Jan	FMA	or M	J Jul A	S	Oct N	D Jan	FM	Apr M	J Jul	A S O	ct N D
	C3840-BSM-120 Complete all BS works in TER	0d		22-Oct-16	0	d																	Ľ	Con	plete all	BS work	s in TER			
																										<u> </u>				

Actual Work Milestone	Data Date: 11-Oct-13		
Remaining Work	/-	Preliminary Master Programme	Date
Critical Remaining Work	Page 5 of 5	· c	27-Feb-14
		Extract Critical Path 2	

	Maeda/F	P/PMP/2	
е	Revision	Checked	Approved
1	REV 2	BG	AW

Appendix D

Implementation Schedule

Appendix VIII

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
	Noise Impact					
S.3.1	Use of quieter plant	To minimise construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control Ordinance
S.3.1	 Use of noise enclosure and movable barrier movable barrier can achieve a 5 dB(A) reduction for movable PME and 10 dB(A) reduction for stationary PME; noise enclosure can achieve 15dB(A) reduction for PME; A typical design barrier with a steel frame of vertical / cantilever type would be adopted and located close to the noise generating part of PME; Barrier material of surface mass in excess of 7kg/m² shall be required to achieve the maximum screening effect (and minimum 10kg/m² for noise enclosure); The length of barrier should generally be at least five times greater than its height and the minimum height of a barrier should be such that no part of the noise source will be visible from the noise sensitive receiver being protected. 	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93, Noise Control Ordinance and EIAO Guidance Note NO. 9/2010
S.3.1	General Construction Noise Control MeasuresThe Code of Practice on Good Management Practice	To minimize construction noise	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control

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
	 to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD shall be adopted; The statutory and non-statutory requirements and guidelines shall be complied with; Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work; Working methods to minimize the noise impact on the surrounding NSRs shall be formulated and executed, and the implementation of these methods shall be monitored by experienced personnel with suitable training; Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical; Unused equipment shall be turned off; PME should be kept to a minimum and the parallel use of noisy equipment shall be maintained regularly; and Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable. 	emissions				Ordinance
	Air Quality Impact	· - · · · ·				
S.3.2	 Construction Dust Control Measures Decking will be provided subsequent to the completion of surface excavation works. The duration 	To minimise the dust impacts arising from the	Contractor	Work site	Construction Stage	Air Pollution Control (Construction

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
	 of decking is around 13 months after surface excavation works; Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather; Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers; Cover all excavated or stockpile of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet; Provision of vehicle washing facilities at the exit points of the site; and Provision of tarpaulin covering of any dusty materials on a vehicle leaving the site. 	construction works				Dust) Regulation
	Water Quality Impact					
S.3.3	 Construction Water Quality Impact Measures 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. 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. 	To reduce water quality impact induced by the construction work	Contractor	Work Site	Construction Stage	ProPECC PN1/94; Water Pollution Control Ordinance

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	 Any foul effluent should not be discharged into any public sewer and stormwater drain, unless an effluent discharge permit is obtained under the WPCO by the Contractor. Site toilet facilities, if needed, should be chemical toilets or should have the foul water effluent directed to a foul sewer. 					
	Waste Management					
S.3.4	 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 	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.

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
	recycling of materials and their proper disposal.					
	Landscape and Visual Impact					
S.3.5	 Landscape and Visual Measures Screening of construction works by hoardings/noise barriers around works area with visually unobtrusive colours 	To reduce visual impact by construction works.	Contractor	Temporary Storage Area at Salisbury Road	Construction Stage	EIAO
S.3.5	 Reinstating the affected amenity planting area at Salisbury Road after the completion of works 	To prevent loss of planter after construction	Contractor	Temporary Storage Area at Salisbury Road	Operation Stage	ETWB TCW No. 2/2004



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	Remarks
000	000	EIAO		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 - 11 - 2013	01 - 12 - 2014	Site Formation	
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	Disposal of C&D Waste	Application No. WFG12765
003	003 WPCO #001	WPCO	Licence	Water Discharge Licence	EPD-117 (Form A) Application for a Licence of Water Discharge	WT00018229-2014	09 - 01 - 2014	04 - 03 - 2014	04 - 03 - 2014	31 - 08 - 2014	Self Monitoring Only FlowRate 9m3/d, pH 6-9, SS 50mg/L, COD 100mg/L	Superseded by WT00019722-2014
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#00 1	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	
005	005 CNP#001	NCO	Permit	Construction Noise Permit	EPD74A(s) Form 1 - Application for a Construction Noise Permit	377352	29 - 07 - 2014	07 - 08 - 2014	11 - 08 - 2014	10 - 02 - 2015	Apply for 4nos Submersible Water pump (Electric)	

Appendix F

Event and Action Plan

Event and Action Plan for Air Quality

In case the Action and Limit Levels are not complied during construction stage, the Event and Action Plan shown below should be followed.

Event / Action	ET	IEC	ER	Contractor
Action Level Exceedance for one sample	 Identify source; If valid, inform IEC and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily. 	 Check monitoring data submitted by ET; Check Contractor's working method. 	1. Notify Contractor	 Rectify any unacceptable practice; Amend working methods if appropriate
Exceedance for two or more consecutive samples	 Identify source; Inform IEC and EPD; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial action required; If exceedance continues, arrange meeting with IEC and ER; If exceedance stops, cease additional monitoring. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measure properly implemented. 	 Submit proposals for remedial action to IEC within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
Limit Level Exceedance for one sample	 Identify source; Inform ER and EPD; Repeat measurement to confirm finding; Increase 	 Check monitoring data submitted by ET; Check Contractor's working 	 Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC

Action	ET	IEC	ER	Contractor
	monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	 method; 4. Discuss with ET and the Contractor on possible remedial measures; 5. Advise the ER on the effectiveness of the proposed remedial measures; 6. Supervise implementation of remedial measures. 	measures properly implemented.	within 3 worki days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	 Notify IEC, ER, Contractor and EPD; Identify sources; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and ER to discuss the remedial actions to be taken; Assess the effectiveness of Contractor's remedial actions and keep IEC, EPD and ER 	 Discuss amongst ER, ET and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly. Supervise the implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; In consultation with IEC, agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	 Take immedia action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 workid days of notification; Implement the agreed proposals; Resubmit proposals if problem still r under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action	ET	IEC	ER	Contractor	
	results;				
	8. If exceedan stops, ceas additional monitoring.				

Event and Action Plan for Construction Noise

In case the Action and Limit Levels are not complied during the construction stage, the Event and Action Plan shown below should be followed.

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

Event / Action	ET	IEC	ER	Contractor	
	remedial actions and keep IEC, EPD, ER informed of the results				
	8. If exceedance stops, cease additional monitoring				



Appendix G

Monitoring Schedule

C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works Tentative Monitoring Schedule for November 2014

	N	over	nber	201	4	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3 24-hr TSP	4 Noise Weekly Site Audit	5	6	7	8
9	10 24-hr TSP	11 Noise Weekly Site Audit	12	13	14	15
16	17 24-hr TSP	18 Noise Weekly Site Audit	19	20	21	22
23	24 24-hr TSP	25 Noise Weekly Site Audit	26	27	28	29
30						

This schedule may be subject to change due to unexpected circumstances (e.g. adverse weather)

C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works Tentative Monitoring Schedule for December 2014

	December 2014							
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		
	1 24-hr TSP	2 Noise Weekly Site Audit	3	4	5	6		
7	8 24-hr TSP	9 Noise Weekly Site Audit	10	11	12	13		
14	15 24-hr TSP	16 Noise Weekly Site Audit	17	18	19	20		
21	22 24-hr TSP	23 Noise Weekly Site Audit	24	25	26	27		
28	29 24-hr TSP	30 Noise Weekly Site Audit	31					

This schedule may be subject to change due to unexpected circumstances (e.g. adverse weather)



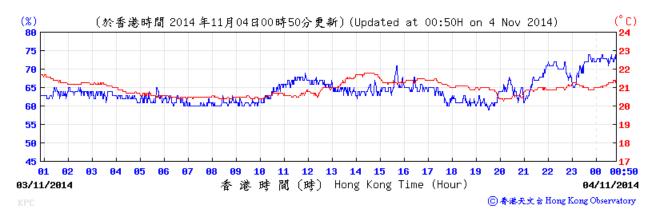
Appendix H

Weather Information Extracted from HK Observatory

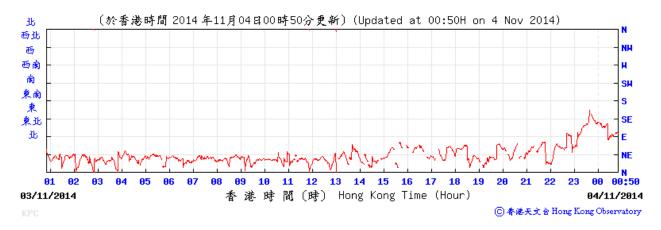
Day	Nov	24-hr TSP	Noise	Remarks
1	-			
2	-			
3	-	1		
4	-		~	No rainfall recorded on site during No Monitoring
5	-			
6	0.4			
7	8.8			
8	17.3			
9	-			
10	-	✓		
11	-		~	No rainfall recorded on site during N Monitoring
12	-			
13	0.1			
14	0.1			
15	0.3			
16	-			
17	-	✓		
18	-		~	No rainfall recorded on site during N Monitoring
19	-			
20	-			
21	-			
22	-			
23	-			
24	-	~		
25	-		~	No rainfall recorded on site during N Monitoring
26	-			
27	0.4			
28	-			
29	0.2			
30	0.2			
Total	27.8			

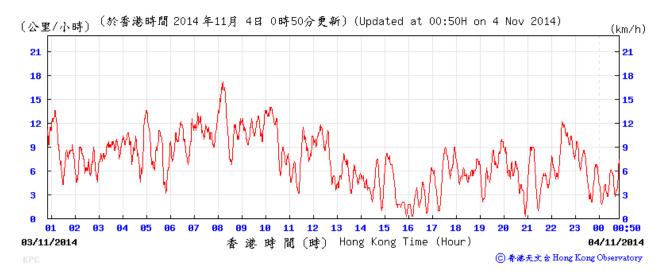
King's Park Weather Station – 4 November 2014

Temperature and Humidity:



Wind Direction:



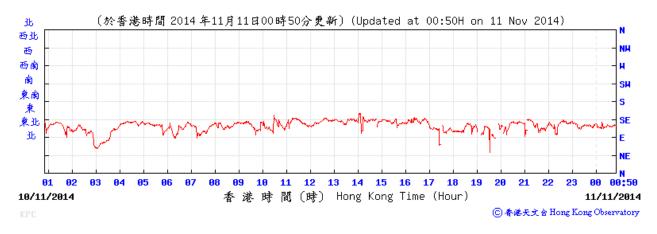


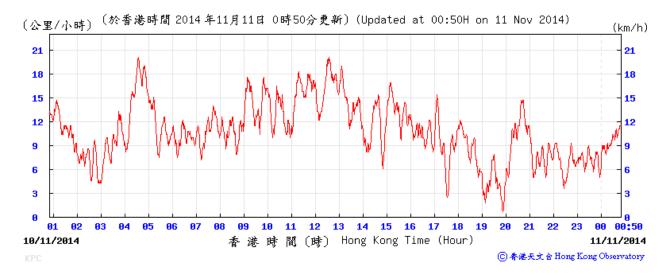
King's Park Weather Station – 11 November 2014

Temperature and Humidity:



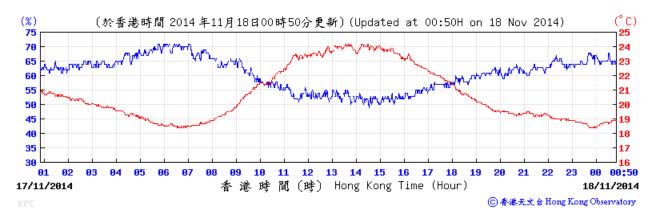
Wind Direction:



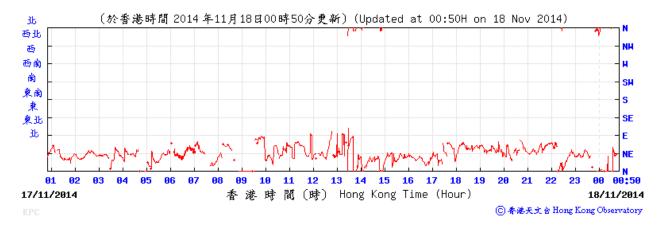


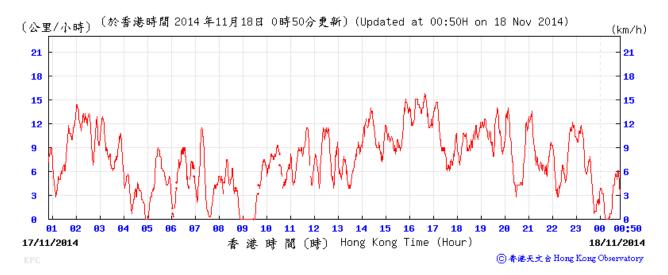
King's Park Weather Station – 18 November 2014

Temperature and Humidity:



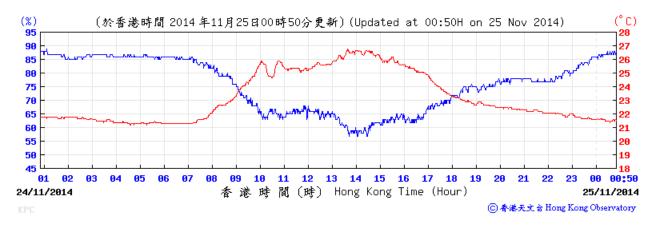
Wind Direction:





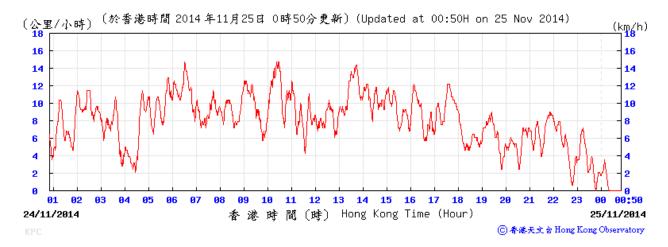
King's Park Weather Station – 25 November 2014

Temperature and Humidity:



Wind Direction:





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 STAL	NDARD CERT	IFICATION	WORKSHEET	FE-5025A
Date - Ma Operator		A Rootsmeter Orifice I.I		438320 1785	Ta (K) - Pa (mm) -	293 - 758.19
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	1.4150 0.9940 0.8890 0.8490 0.7020	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)
1.0103 1.0061 1.0040 1.0030 0.9977	0.7140 1.0122 1.1293 1.1814 1.4213	1.4245 2.0146 2.2524 2.3623 2.8491		0.9958 0.9916 0.9895 0.9885 0.9833	0.7037 0.9976 1.1130 1.1643 1.4008	0.8791 1.2433 1.3900 1.4579 1.7583
Qstd slop intercept coefficie	: (b) =	2.01484 -0.01898 0.99991		Qa slope intercept coefficie	t (b) =	1.26166 -0.01171 0.99991
y axis =	SQRT [H2O (P	a/760) (298/1	:a)]	y axis =	SQRT (H2O (1	[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 = $1/m\{[SQRT(H2O(Ta/Pa)] - b\}$

TSP Sampler Calibration

SITE			
Location: Tsim Sha Tsui	Date:	January 10, 2014	
Sampler:	Tech:	Sam Wong	

	CONDITIONS						
Barometric Pressure	(in Hg):	40.35	Corrected Pressure (mm Hg):	102			
Temperature	(deg F):	59	Temperature (deg K):	28			
Average Press.	(in Hg):	40.35	Corrected Average (mm Hg):	102			
Average Temp.	(deg F):	59	Average Temp. (deg K):	28			

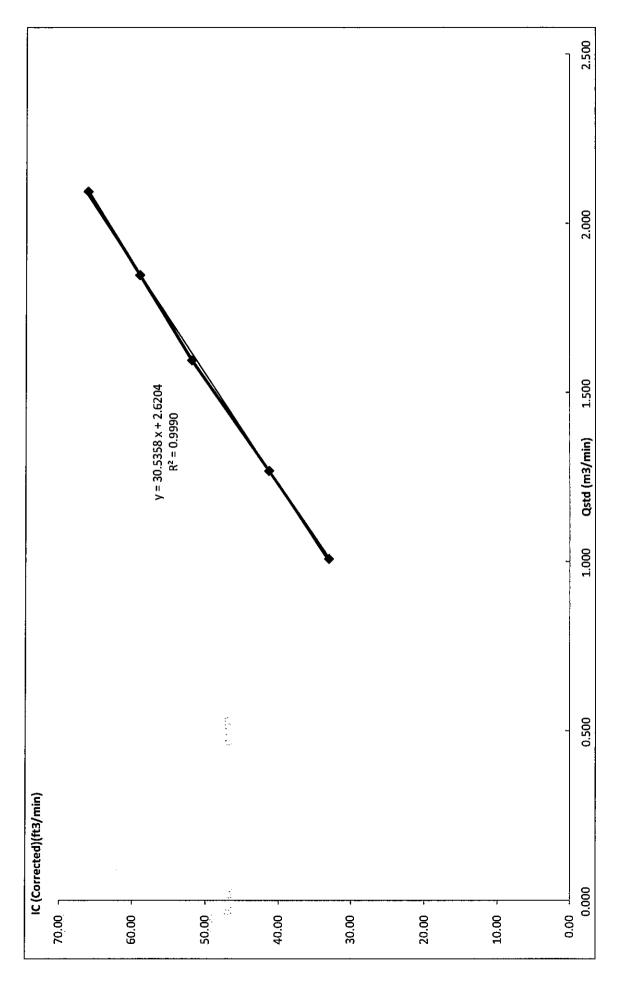
		CALIBRATION ORIFICE	
Make:	Tisch	Qstd Slope:	2.00979
Model:	TE-5025A	Qstd Intercept:	-0.01403
Serial#:	1785	Date Certified:	April 9, 2013

			C2	LIBRATIONS		
Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	12.60	2,093	56.0	66.15	Slope ⇔	30.5358
2	9.80	1.847	50.0	59.06	Intercept =	2.6204
3	7.30	1.595	44.0	51.98	Corr. coeff.=	0.9995
4	4.60	1.268	35.0	41.34	•	
5	2.90	1.008	28.0	33.08	<pre># of Observations:</pre>	5

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b] IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)] Qstd = standard flow rate IC = corrected chart response I = actual chart response m = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pa = actual pressure during calibration (mm Hg) Tstd = 298 deg K Pstd = 760 mm Hg For subsequent calculation of sampler flow: 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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



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 11-Nov-14 11-Jan-15 14:40

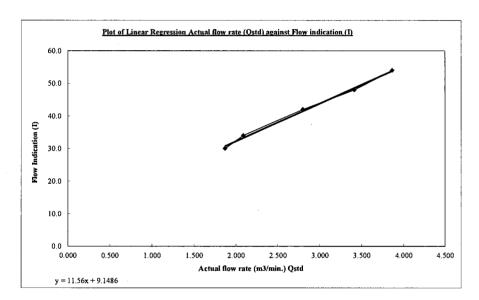
Sampler Model:	BM2000HX	
Serial No.:	587	
Calibrator Orifice no.:	1785	
Slope (m):	1.26166	
Intercept (b):	-0.01171	
Correction coeff. (r)	0.99991	
Standard pressure (mmHg) Pstd:	276.0	
Standard temp. (K) Tstd:	298.0	
Calibration pressure (mmHg) Pa:	762.8	
Calibration temp. (K) Ta:	299.2	

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

$$2std = \frac{1}{m} \times (\sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b$$

Sample no.	Pressure Drop (H), inch	Flow (corrected), m ³ /min	Actual flow rate (Qstd), m ³ /min	Flow indication (I), arbitrary
1	8.6	4.866	3.866	54.0
2	6.7	4,295	3.413	48.0
3	4.5	3.520	2.799	42.0
4	2.5	2.624	2.089	34.0
5	2.0	2.347	1.869	30.0

Correlation Coefficient: 0.9978



Remark 1 hPa = 0.750062 mmHg

Calibrated by:

Chi Sun Tung in,

(

Checked by: Kelvin Chiang (Hanching .)

Date: 11 Nov 2014

Date: 11 Nov 2014



Certificate of Calibration and Conformance

Certificate Number 2014-185777

Instrument Model CAL200, Serial Number 10929, was calibrated on 29 Jan 2014. The instrument meets factory specifications per Procedure D0001.8190, IEC 60942:2003.

New Instrument Date Calibrated: 29 Jan 2014 Calibration due:

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO
Larson Davis	2900	0661	12 Months	8 Apr 2014	2013-172252
Larson Davis	2559	2506	12 Months	13 Jun 2014	29027
Larson Davis	MTS1000/2201	0111	12 Months	22 Aug 2014	SM082213
Larson Davis	PRM902	0480	12 Months	23 Aug 2014	2013-178669
Hewlett Packard	34401A	3146A10352	12 Months	3 Sep 2014	6214490
PCB	1502C02FJ15PSIA	1429	12 Months	2 Oct 2014	3463562806
Larson Davis	PRM915	0112	12 Months	9 Oct 2014	2013-180644

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Environmental test conditions as shown on calibration report.

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Provo Engineering & Manufacturing Center. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

Sianed: Technician: Scott Montgomer

Page 1 of 1



Larson Davis CAL200 Acoustic Calibrator, SN: 10929 Certificate of Measured Output

F	Performance at Reference Conditions				
	Nominal Level (dB SPL):	94		114	
	Measured Level (dB SPL):	94.01		114.02	
	Expanded Uncertainty (dB):	0.137		0.135	
	Level Error Limit (dB):	±0.34		±0.33	
	Nominal Frequency (Hz):	1000		1000	
	Measured Frequency (Hz):	1000.	2	1000.2	
	Expanded Uncertainty (Hz):	0.2		0.2	
	Frequency Error Limit (Hz):	±10.0		±10.0	
	Measured Distortion (%):	0.43		0.34	
	Expanded Uncertainty (%):	0.45		0.25	
	Distortion Limit (%):	2.0		2.0	
	Distortion Linit (76).	2.0		2.0	
	The data is aquired by the insert vo	Itage calibi	ation method	using the refe	rence microphone's open circuit sensitivity.
	Environmental Conditions				
	Temperature (°C):	25		24	
	Relative Humidity (%):	31		32	
	Static Pressure (kPa):	101.2		101.0	
·	Static Flessure (KFa).	101.2		101.0	
	Reference Microphone				
	Model: Larson Davis 2559				
	Serial Number: 2506				
	Open Circuit Sensitivity: 12.230 mV	/Pascal			
	Uncertainty: 0.110 dB				
L	• ·				
I	nfluence of Static Pressure				
1	Nominal Level (dB SPL):		114		
	Nominal	Level	Frequency		
	Pressure Pressure	Change	Change	Distortion	
	(kPa) (kPa)	(dB)	(Hz)	(%)	
		<u> </u>	<u> </u>	· · · ·	

Pressure (kPa)	Pressure (kPa)	Change (dB)	Change (Hz)	Distortion (%)
108.0	108.1	-0.02	-0.00	0.34
101.3	101.5	0.00	0.00	0.33
92.0	91.9	0.02	0.00	0.33
83.0	83.1	0.01	-0.00	0.34
74.0	74.1	-0.02	-0.01	0.37
65.0	65.0	-0.10	-0.01	0.42
Expanded Uncertainty:	1.0	0.04	0.20	0.25
Limit:		±0.30	±10.0	2.0
Reference microphone	corrections	applied.		
nvironmental Condition	s			
Temperature (°C):			23	
Relative Humidity (%):			33	
eference Microphone				
Model: Larson Davis 25	59			
Serial Number: 2506				

Static pressure was measured with a calibrated Motorola pressure sensor MPX2100AP. Temperature and humidity was measured with a calibrated Fluke 1620A sensor. Expanded uncertainty of environmental measurements: 0.3 °C, 3 %RH, 1.0 kPa Uncertainty values are given at 95% confidence level (k = 2).

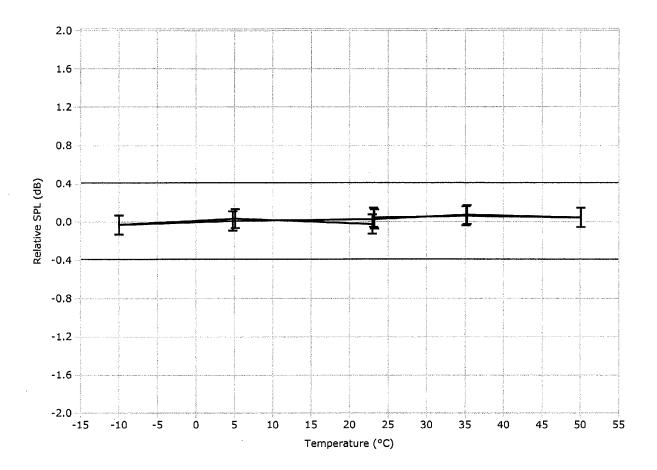
A Sound Level Meter can be calibrated to a level (L) defined as: L = measured level + pressure sensitivity or if a Sound Level Meter is calibrated using the nominal level, the adjustments to data (X) are defined as: X = measured level - nominal level - pressure sensitivity



Model CAL200 Relative SPL vs. Temperature

Larson Davis Model CAL200 Serial Number: 10929

Model CAL200 Relative SPL vs. Temperature at 50% RH. A 2559 Mic (SN: 2980) with a PRM901 Preamp (SN: 0205), station 24 was used to check the levels.



Test Date: 09 Jan 2014 1:22:36 PM

0.1dB expanded uncertainty at ~95% confidence level (k=2)

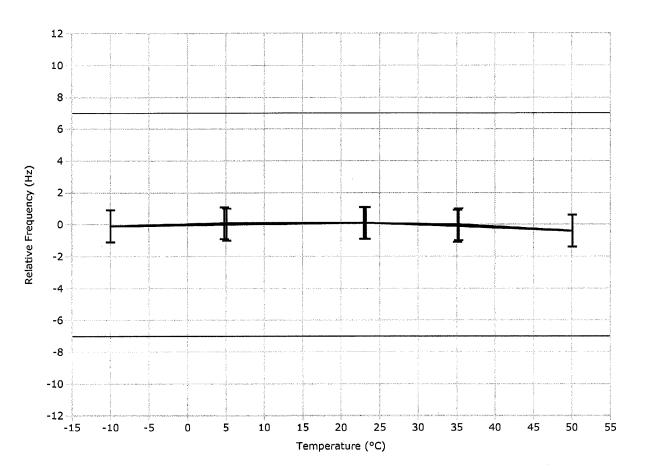
Test Location: Larson Davis, a division of PCB Piezotronics, Inc. 1681 West 820 North, Provo, Utah 84601 Tel: 716 684-0001 www.LarsonDavis.com

Page 1 of 2



Model CAL200 Relative Frequency vs. Temperature Larson Davis Model CAL200 Serial Number: 10929

Model CAL200 Relative Frequency vs. Temperature at 50% RH. A 2559 Mic (SN: 2980) with a PRM901 Preamp (SN: 0205), station 24 was used to check the levels.



Test Date: 09 Jan 2014 1:22:36 PM

1.0 Hz expanded uncertainty at ~95% confidence level (k=2)

Test Location: Larson Davis, a division of PCB Piezotronics, Inc. 1681 West 820 North, Provo, Utah 84601 Tel: 716 684-0001 www.LarsonDavis.com

Page 2 of 2



Calibration Certificate

Certificate No.	. 401114		Page	1 of	3 Pages		
Customer :	Hyder Consulting Limited						
Address :	47/F., Hopewell Centre, 183 Q	ueens Road East, W	/anchai, Hong Ko	ng			
Order No. :	Q40515		Date of receipt : 25-Feb-14				
Item Tested							
Description Manufacturer	: Sound Level Meter : B&K						
	: 2238		Serial No.	: 256	2782		
Test Condit	ions						
			Supply Voltag	e :			
Date of Test :	6-Mar-14		ouppiy voitag	• •	Relative Humidity : (50 ± 25) %		
Ambient Temp	perature : (23 ± 3)°C				± 25) %		
Ambient Temp Test Specifi	perature : (23 ± 3)°C				± 25) %		
Ambient Temp Test Specifi Calibration che	perature : (23 ± 3)°C	804.			± 25) %		
Ambient Temp Test Specifi Calibration che Ref. Document	berature : (23 ± 3)°C ications ck. /Procedure: Z01, IEC 651, IEC	804.			± 25) %		
Ambient Temp Test Specifi Calibration che Ref. Document Test Result	berature : (23 ± 3)°C ications ck. /Procedure: Z01, IEC 651, IEC		Relative Humi		± 25) %		
Ambient Temp Test Specifi Calibration che Ref. Document Test Results All results were	ck. /Procedure: Z01, IEC 651, IEC		Relative Humi		± 25) %		
Ambient Temp Test Specifi Calibration che Ref. Document Test Results All results were The results are	berature : $(23 \pm 3)^{\circ}$ C ications ck. /Procedure: Z01, IEC 651, IEC s within the IEC 651 Type 1, IEC shown in the attached page(s).		Relative Humi		± 25) %		
Ambient Temp Test Specifi Calibration che Ref. Document Test Results All results were The results are Main Test equi	erature : (23 ± 3)°C ications ck. /Procedure: Z01, IEC 651, IEC s within the IEC 651 Type 1, IEC shown in the attached page(s).		Relative Humi				
Test Result	erature : (23 ± 3)°C ications ck. /Procedure: Z01, IEC 651, IEC s within the IEC 651 Type 1, IEC shown in the attached page(s).	804 Type 1 specifica	Relative Humi	dity : (50	l <u>e to</u>		

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration 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 : 210 Approved by : **Dorothy Cheuk** Alan Chu This Certificate is issued by: Date: 6-Mar-14 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



Calibration Certificate

Certificate No. 401114

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Results :

1. SPL Accuracy

	UU	T Setting	Applied Value	UUT Reading	
Range	Range Freq. Wgt. Bandwith Center Freq.		(dB)	(dB)	
20~100	A	BB/F		94.0	94.1
	A	BB/S			94.1
	С	BB/F			94.1
40~120	A	BB/F		94.0	94.1
	A	BB/F		114.0	114.1

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 : ± 0.01 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	114.1	0.0	± 0.7 dB
130	104.0	104.1	0.0	
120	94.0	94.1 (Ref.)		
110	84.0	84.1	0.0	
100	74.0	74.1	0.0	
90	64.0	64.1	0.0	
80	54.0	54.1	0.0	

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



Calibration Certificate

Certificate No. 401114

Page 3 of 3 Pages

3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.0	-0.1	± 0.4 dB
	94.0	94.1 (Ref.)		
	95.0	95.0	0.0	± 0.2 dB

Uncertainty : ± 0.1 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	-16.3	- 16.1 dB, ± 1 dB
250 Hz	-8.7	- $8.6 dB, \pm 1 dB$
500 Hz	-3.3	- $3.2 dB, \pm 1 dB$
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, $+3 \text{ dB} \sim -\infty$

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	40.0	± 0.5 dB
$1/10^{2}$	40.0	39.9	
$1/10^{3}$	40.0	40.0	± 1.0 dB
1/10 ⁴	40.0	40.0	

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 : 1 007 hPa.



Appendix J

Field Record Sheets

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

Data Sheet for TSP Monitoring

Monitoring Location	 ו	KI	
Details of Location		4/F Roof top, KII	
Sampler Identificati	on	1713	
Date & Time of Sar	npling	3/11/2014,00:00 a.m	
Elapsed-time	Start (min.)	7564.93	
Meter Reading	Stop (min.)	7588.94	
Total Sampling Tim	e (min.)	1440.6	
Weather Conditions	5	Over cast	
Site Conditions		Nil	
	Pi (mm Hg)	762.8	
Initial Flow	Ti (°C)	22,0	
Rate, Qsi	Hi (in.)		
	Qsi (Std. m ³)	1.23	
	Pf (mm Hg)	763.2	
Final Flow	Tf (°C)	21.0	
Rate, Qsf	Hf (in.)		
	Qsf (Std. m ³)	1,23	
Average Flow Rate	(Std. m ³)	1,23	
Total Volume (Std.	m ³)	1777.11	
Filter Identification I	No.	034067	
Initial Weight. of Filt	ter (g)	2.7162	
Final Weight of Filte	er (g)	2.8887	
Measured TSP Leve	el (μg/m³)	97,1	

	Name & Designation	<u>Signature</u>	<u>Date</u>
Field Operator Laboratory	: <u>C.S.</u> Ting	Sun	4/11/2014
Staff	:		
Checked by	: <u>Kelvin Chrang</u>	the	4/11/2014

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

Data Sheet for TSP Monitoring

Monitoring Location		KII
Details of Location	· · · · · · · · · · · · · · · · · · ·	
		4/F Roof top, KII
Sampler Identification	on	1713
Date & Time of San	npling	10/11/2014, 00:00 a.m.
Elapsed-time	Start (min.)	7588,94
Meter Reading	Stop (min.)	7612.94
Total Sampling Tim	e (min.)	1440
Weather Conditions	;	Overcast
Site Conditions		N:1
	Pi (mm Hg)	763.2
Initial Flow	Ti (°C)	22.7
Rate, Qsi	Hi (in.)	
	Qsi (Std. m ³)	1.31
	Pf (mm Hg)	762.7
Final Flow	Tf (°C)	22.4
Rate, Qsf	Hf (in.)	
	Qsf (Std. m ³)	1.31
Average Flow Rate	(Std. m ³)	1.31
Total Volume (Std. I	m ³)	1889.24
Filter Identification N	١٥.	034068
Initial Weight. of Filt	er (g)	2,7118
Final Weight of Filte	r (g)	2,8250
Measured TSP Leve	el (μg/m³)	59.9

		Name & Designation	<u>Signature</u>	<u>Date</u>
Field Operator Laboratory	:	C.S. Tung	Sun	11/11/2014
Staff	:			
Checked by	:	Kelvin Chiang		11/11/2014

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

Data Sheet for TSP Monitoring

.

Monitoring Location		KII	
Details of Location		4/F Roof top, KII	
Sampler Identification	on	1713	
Date & Time of San	npling	17/11/2014,00:00a.m	
Elapsed-time	Start (min.)	7612,94	
Meter Reading	Stop (min.)	763694	
Total Sampling Tim	e (min.)	1440	
Weather Conditions	6	Sunny	
Site Conditions		Nil /	
	Pi (mm Hg)	763.4	
Initial Flow	Ti (°C)	21.3	
Rate, Qsi	Hi (in.)		
	Qsi (Std. m ³)	1.19	
	Pf (mm Hg)	765.4	
Final Flow	Tf (°C)	18.5	
Rate, Qsf	Hf (in.)		
	Qsf (Std. m ³)	1,23	
Average Flow Rate	(Std. m ³)	1.21	
Total Volume (Std. I	m ³)	1748.15	
Filter Identification N	No.	034069	
Initial Weight. of Filt	er (g)	2,7151	
Final Weight of Filte	er (g)	2.8820	
Measured TSP Leve	el (μg/m³)	95,5	

		Name & Designation	<u>Signature</u>	Date
Field Operator	:	C.S. Ting	Sun	18/11/2014
Laboratory Staff	:			
Checked by	:	Kelvin Chiang	Vale	18/11/2014

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

Data Sheet for TSP Monitoring

Monitoring Location		VII		
Details of Location	<u> </u>	4/F Roof top, KII		
Sampler Identification		17F Noo1 100 , KII		
Date & Time of San		24/11/2014,00:00a.m		
Elapsed-time	Start (min.)	76 36.14		
Meter Reading	Stop (min.)	76 60,94		
Total Sampling Tim	e (min.)	1440		
Weather Conditions		Sunny		
Site Conditions		Nil		
	Pi (mm Hg)	762.7		
Initial Flow Rate, Qsi	Ti (°C)	21.8		
	Hi (in.)	:		
	Qsi (Std. m ³)	1.19		
	Pf (mm Hg)	761.1		
Final Flow	Tf (°C)	21.6		
Rate, Qsf	Hf (in.)			
	Qsf (Std. m ³)	1.23		
Average Flow Rate	(Std. m ³)	1.21		
Total Volume (Std. ı	m ³)	1748.15		
Filter Identification No.		034070		
Initial Weight. of Filter (g)		2,7215		
Final Weight of Filte	er (g)	2,8347		
Measured TSP Leve	el (µg/m³)	64.8		

		Name & Designation	<u>Signature</u>	<u>Date</u>
Field Operator	:	C.S. Tung	Sun	25/11/2014
Laboratory Staff	:			
Checked by	:	Kehnin Chiong	-Mrs	25/11/2014

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

Noise Monitoring Field Record Sheet

Monitoring Location		KII			
Description of Location		4/F Roof top, KII			
Date of Monitoring		4/11/2014			
Measurement Start Time (h	nh:mm)	11:03			
Measurement Time Length (min.)		30			
Noise Meter Model / Identifica	ation	B&K 2238			
Calibrator Model / Identification	on	Larson Davis CAL 200			
	L ₉₀ (dB (A))	67.5			
Measurement Results	L ₁₀ (dB (A))	76.0			
	L _{eq} (dB (A))	72.0			
Major Construction Noise So Monitoring	urce(s) during	On-site powered mechanical equipment			
Other Noise Source(s) during	Monitoring	Aircaft and Traffic noise			
Remarks		Wind speed: 1.2 m/S			

		Name & Designation	Signature	Date
Recorded By	:	C.S. Tung	Sim	4/11/2014
Checked by	:	Kelvin Chimig	_hk	5/11/2014

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

Noise Monitoring Field Record Sheet

Monitoring Location		KII		
Description of Location		4/F Roof top, KII		
Date of Monitoring		11/11/2014		
Measurement Start Time (h	ıh:mm)	14:36		
Measurement Time Length (r	nin.)	30		
Noise Meter Model / Identifica	ation	B&K 2238		
Calibrator Model / Identification		Larson Davis CAL 200		
	L ₉₀ (dB (A))	65.0		
Measurement Results	L ₁₀ (dB (A))	70.0		
	L _{eq} (dB (A))	69.1		
Major Construction Noise So Monitoring	urce(s) during	On-site powered mechanical equipment		
Other Noise Source(s) during) Monitoring	Aircaft & Traffic noise		
Remarks		Wind speed: 0.6 m/S		

Name & Designation Signature

Date

Recorded By

Checked by

: <u>C.S. Tung</u> San <u>11/11/2014</u> : <u>Kelvin Chiang</u> <u>Julos</u> <u>11/11/2014</u>

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

Noise Monitoring Field Record Sheet

Monitoring Location		KII		
Description of Location		4/F Roof top, KII		
Date of Monitoring		18/11/2014		
Measurement Start Time (hh:mm)		11:15		
Measurement Time Length (min.)		30		
Noise Meter Model / Identifica	ation	B&K 2238		
Calibrator Model / Identification	on	Larson Davis CAL 200		
	L ₉₀ (dB (A))	67.0		
Measurement Results	L ₁₀ (dB (A))	73.0		
	L _{eq} (dB (A))	71.7		
Major Construction Noise Sou Monitoring	urce(s) during	On-site powered mechanical equipment		
Other Noise Source(s) during	Monitoring	Traffic noise		
Remarks		Wind speed: 0.8 m/s		

	<u> </u>	Name & Designation	<u>Sign</u>	ature	Date	
Recorded By	:	C.S. Ing		Sin	18/11/2014	
Checked by	:	Kelvin Chiang		Jalo	18/11/2014	

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

Noise Monitoring Field Record Sheet

Monitoring Location		KII		
Description of Location		4/F Roof top, KII		
Date of Monitoring		25/11/2014		
Measurement Start Time (h	nh:mm)	10=18		
Measurement Time Length (r	min.)	30		
Noise Meter Model / Identific	ation	B&K 2238		
Calibrator Model / Identificati	on	Larson Davis CAL 200		
	L ₉₀ (dB (A))	645		
Measurement Results	L ₁₀ (dB (A))	69.0		
	L _{eq} (dB (A))	67-8		
Major Construction Noise So Monitoring	urce(s) during	On-site powered mechanical equipment		
Other Noise Source(s) during	Monitoring	Traffic noise		
Remarks		Wind speed: O.b.m/s		

	<u>Name & Des</u>	ignation Signature	e <u>Date</u>	
Recorded By	: <u> </u>	Tung S	m 25/11/2014	
Checked by	: Kelvin (Chiang de	25/11/2014	-



Appendix K

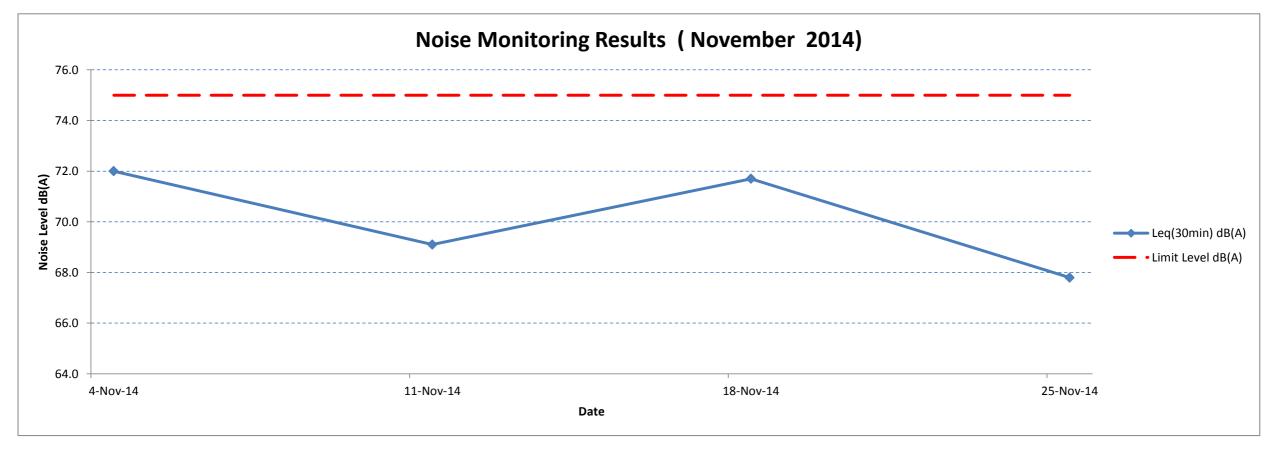
Monitoring Results and Plots

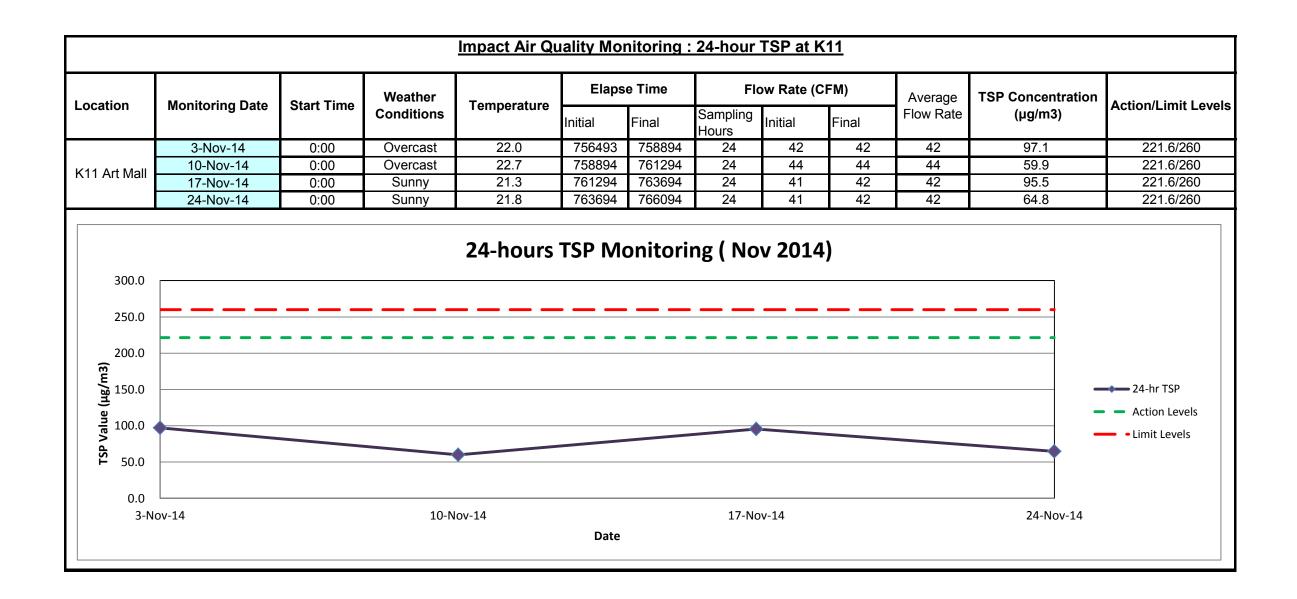
Noise Impact Monitoring Results at K11

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	4-Nov-14	Overcast	1.2	11:03	11:33	65.3	75	72.0	76.0	67.5
	11-Nov-14	Cloudy	0.6	14:36	15:06	65.3	75	69.1	72.0	65.0
	18-Nov-14	Sunny	0.8	11:15	11:45	65.3	75	71.7	73.0	67.0
	25-Nov-14	Sunny	0.6	10:18	10:48	65.3	75	67.8	69.0	64.5

Note:

The limit level of NSR1 is 65dB(A) during school examination period. **Red Bold indicates an exceedance of Limit Level**

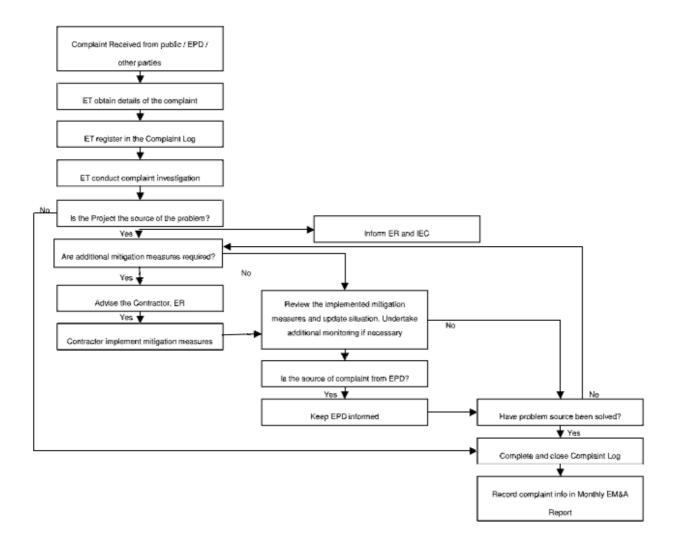




Appendix L

Flow Chart for Handling Environmental Complaints

Complaint Response Procedure





Appendix M

Waste Management Records

Monthly Summary Waste Flow Table for 2014 (year)

Contract No:C3840-13C Tsim Sha Tsui Station Carnarvon Road SubwayDate Reported:3-December-2014

		Actual Qua	ntities of Inert C&I	O Materials Generate	ed Monthly		Ac	tual Quantities of N	on-inert C&D Was	stes Generated Mont	hly
Month	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 ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000m ³ /tonne)
Jan	0.0206	-	-	-	0.0206	-	-	-	-	-	-
Feb	0.0233	-	-	-	0.0233	-	-	-	-	-	-
Mar	0.0120	-	-	-	0.0120	-	-	-	-	-	-
Apr	0.0281	-	-	-	0.0281	-	-	-	-	-	0.0035
May	0.0059	-	-	-	0.0059	-	-	-	-	-	-
June	0.0322	-	-	-	0.0322	-	-	-	-	-	-
Sub-total	0.1221	-	-	-	0.1221	-	-	-	-	-	0.0035
July	0.0250	-	-	-	0.0250	-	-	-	-	-	-
Aug	0.0515	-	-	-	0.0515	-	-	-	-	-	-
Sept	0.0708	-	-	-	0.0708	-	-	-	-	-	-
Oct	0.0775	-	-	-	0.0775	-	-	-	-	-	-
Nov	0.2396	-	-	-	0.2396	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-
Total	0.5865	-	-	-	0.5865	-	-	-	-	-	0.0035

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.



Appendix N

Complaint Investigation Report

Complaint Investigation Report

Contractor:	Maeda Corporation	Complaint Received Date: 7 November 2014	Ref: CIR - 02	
Project: C38	340-13C MTRCL Tsim Sha T	sui Station Carnarvon Road Subway and Entrances Modific	ation Works	
COMPLAINA	ANT			
Name:	Undisclosed	Address: Undisclosed		
Tel:	Undisclosed			
Fax:	Undisclosed			
COMPLAINT	T INVESTIGATION			
Description	(cause of impact, type of in	mpact and location, etc.)		

Details of the Complaint

A complaint was forwarded to the Environmental Team (ET) via e-mail dated 12 November 2014 by the Contractor, who received by e-mail on 10 November 2014 regarding the complaint against drilling work within restricted hours (7pm to 7am) at the junction of Carnarvon Road and Nathan Road on 06 November 2014 received by the Environmental Protection Department (EPD) on 07 November 2014.

Construction Activities during the Complaint Period

According to the information provided by the Contractor, site cleaning works and emergency vehicle access (EVA) were completed before 19:00hr at site on 06 Nov 2014. All the powered mechanical equipment (PME) had finished mobilization and park well on site to allow the starting of site cleaning activities. Thus, it is considered that no construction works were carried out after 19:00hr on the date of complaint (06 Nov 2014). Please refer to the photos attached in this report provided by the main contractor, proving that all PME were stopped and all the workers were cleared from site before 19:00hr, which has been strictly controlled under the existing site clearance and reporting mechanism that requires the contractor to send photos of the site after cleaned and access is cleared for EVA via WhatsApp to MTR on daily basis in order to avoid illegal night work after 19:00.

EM&A Findings and Observations

The complaint investigation was carried out by the ET on 12 Nov 2014 and additional noise measurement and inspection was considered as not applicable, it is because the complaint was made out of the Contractor's site operation time. Since no construction was carried out by the Contractor on site after 19:00hr, it is considered the noise nuisance complaint was not related to the project.

Conclusion / Recommendation

It is concluded that the noise nuisance is non-project related, with no further complaint received on the date of report. It is considered that the complaint is closed.

FOLLOW UP ACTION(S)

No further action is considered necessary. Nevertheless, the ET will keep a close eye on the condition of the site during the routine site inspections and audit to ensure proper function of the construction noise mitigation measures implemented on site, and where appropriate advise the Contractor to be vigilant and tailor mitigation measures in advance of future planned site work activities. This complaint case will be reported as an action level exceedance on construction noise and registered in the complaint log in the monthly EM&A Report (November 2014).

Prepared & Confirmed by:

Name: Fu Nam Wong (ET Leader)	Signature:	Date: 12 November 2014
	SP -	
ATTACHMENT(S): Photos taken at the construction site on 06 November 2014.		

Photo(s) taken at the construction site on 06 November 2014



