Maeda Corporation

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

Baseline Monitoring Report (February 2014)

(Version 1.0)

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Maeda Corporation

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Baseline Monitoring Report (February 2014)

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Report No	EB001340R0022	
Date	13 February 2014	

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

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EXECUTIVE SUMMARY

MTR Corporation Limited (MTRC) has awarded the contract for the MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works (hereafter called the "Project") to Maeda Corporation (MC). MC had appointed Hyder Consulting Limited (HCL) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works in accordance with the EM&A Plan (Appendix VII of the Project Profile, PP-462/2012).

According to the EM&A Plan, the air quality and noise monitoring station of the Project was proposed to be set up at Mirador Mansion. However, as the property owner of the potential monitoring location at Mirador Mansion refused to grant access, an alternative monitoring location at K11 was identified to carry out baseline monitoring and agreed by the IEC. The monitoring station was set up at the roof-top above the 4/F of the commercial complex. Access to the proposed monitoring location has been granted by the management office of K11.

Baseline Air Quality and Noise Monitoring

The baseline monitoring of air quality was carried out between 10 January and 24 January 2014. The baseline monitoring of noise was also carried out between 10 January and 24 January 2014. The weather was sunny during most of the baseline monitoring period.

For the baseline air quality monitoring, 24-hour Total Suspended Solid (TSP) level was ranged from 75.2 to 229.1 μg/m^3, and 1-hour TSP level was ranged from 77.0 to 365.0 μg/m^3.

For the baseline noise monitoring, $L_{eq(30min)}$ ranged from 60.1 dB(A) to 72.3 dB(A).

The proposed Action and Limit Levels (AL levels) for air quality and noise at the monitoring location were derived from the baseline monitoring data; they will be adopted for impact monitoring during the construction stage of the Project.

1 INTRODUCTION

1.1 Background

MTR Corporation Limited (the Corporation) has proposed to rebuild the entrances D1 and D2 of Tsim Sha Tsui (TST) Station and to construct a new entrance D3 at the basement B2 level of the K11 Art Mall connected to the TST station by a subway. The Project, Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works, will improve the appearance of Carnarvon Road entrances D1 and D2 of TST Station and provide a more comfortable walking environment nearby.

The Subway is about 80 m long, extending from the Entrances D1 and D2 at the middle of the TST Station, running along Carnarvon Road, across the Bristol Avenue to the basement B2 level (at -4.5 mPD) of the K11 Art Mall (Figure 1-1)

1.2 Purpose of the Report

Environmental Permit (EP) (Permit No. EP-440/2012) of the Project has been obtained under the Environmental Impact Assessment Ordinance (EIAO). Baseline environmental monitoring and subsequent EM&A programme are carried out in accordance to the requirements of the EP (clauses 3.2(a) and 3.2(b)) and the EM&A Plan in the Project Profile (Register no. PP-462/2012).

MC has appointed HCL as the Contractor's ET for the contract during the construction period. Baseline air quality and noise monitoring are required in the EM&A Plan (as Appendix VII of the approved Project Profile, PP-462/2012). The baseline monitoring requirement, location and frequency are illustrated in this report. The main construction works is scheduled to begin on 1 March 2014 (Appendix A).

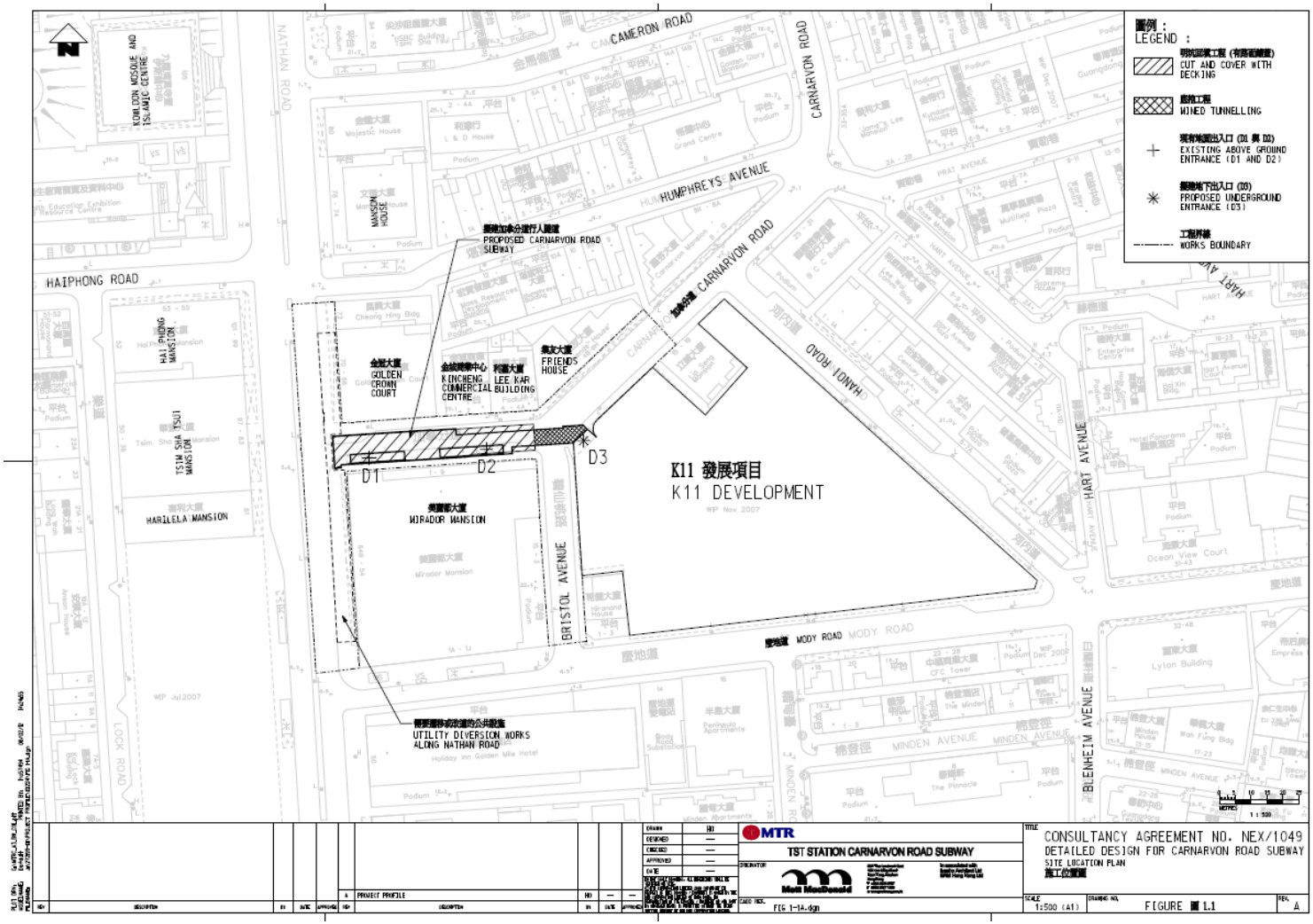


Figure 1-1 Site Location Plan

2 AIR QUALITY

2.1 Monitoring Requirements

In accordance with the EM&A Plan, baseline 1-hour and 24-hour TSP levels at the air quality monitoring station are to be established, baseline monitoring were carried out for 14 consecutive days from 10 January 2014 to 24 January 2014 to determine the ambient 1-hour and 24-hour TSP levels at the monitoring locations prior to the commencement of the Project work.

2.2 Monitoring Equipment

24-hour TSP air quality monitoring was conducted using a High Volume Air Sampler (HVAS) located at a designated monitoring location shown in Appendix B. The HVAS meets all the requirements stated in Section 3.2 of the EM&A Plan. Portable direct reading dust meter was adopted to carry out the 1-hour TSP monitoring. The sampling was carried out according to the procedures specified in the EM&A Plan. Table 2-1 and Table 2-2 summarise the equipment used in the baseline air quality monitoring. Copies of the calibration certificates for the HVAS and portable dust meter are attached in Appendix C.

Equipment Type	Model
High volume air sampler	TISCH TE-5005X (Serial no. 1713)

Table 2-1 24-hour TSP Monitoring Equipment

Equipment Type	Model
Portable direct reading dust meter	SIDEPAK Personal Aerosol Monitor AM510

Table 2-2 1-hour TSP Monitoring Equipment

2.3 Monitoring Parameters, Frequency and Duration

Table 2-3 summarizes the monitoring parameters, frequency and duration of baseline TSP monitoring. Baseline 1-hour and 24-hour TSP monitoring was scheduled from 10 January 2014 to 24 January 2014 for 14 consecutive days. Detailed baseline air quality monitoring schedule is provided in Appendix D.

Monitoring Station	Parameter	Frequency and Duration
K11	24-hour TSP	Daily, for 14 consecutive days
	1-hour TSP	3 times a day, for 14 consecutive days

Table 2-3 Air Quality Monitoring Parameters, Frequency and Duration

2.4 Monitoring Locations

According to the EM&A Plan of the approved Project Profile (PP-462/2012), the air quality monitoring station of the Project was proposed to be set up at Mirador Mansion. However, as the property owner of the potential monitoring location at Mirador Mansion refused to grant access, an alternative monitoring location at K11 was identified to carry out baseline monitoring and agreed by the IEC. The monitoring station was set up at the roof-top above the 4/F of the commercial complex. Appendix B provides the location of the monitoring station. Appendix H includes a table that provides chronological records of site search of monitoring location and liaison, meeting and communication with the stakeholders since 31 October 2013. Access to the proposed monitoring location has been granted by the management office of K11.

2.5 Monitoring Methodology

24-hour TSP Monitoring

Installation

When positioning the samplers, the following points were noted:

- A horizontal platform with appropriate support to secure the samplers against gusty wind will be provided;
- No two samplers will be placed less than 2 m apart;
- 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;
- A minimum of 2 m of separation from walls, parapets and penthouses is required for rooftops samplers;
- A minimum of 2 m of separation from any supporting structure, measured horizontally is required;
- No furnace or incinerator flue or building vent is nearby;
- Airflow around the sampler is unrestricted;
- The sampler is more than 20 m from the dripline;
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring;
- Permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- A secured supply of electricity is needed to operate the samplers.

Preparation of Filter Papers

Glass fibre filters were labelled and sufficient filters that were clean and without pinholes were prepared. All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C with relative humidity (RH) less than 50% and was not variable by more than ±5%. A convenient working RH was 40%. All preparation of filters and subsequent analysis were done by Hong Kong Laboratory Accreditation Scheme (HOKLAS) accredited laboratory (ALS Technichem (HK) Pty Ltd).

Field Monitoring Procedures

- The power supply was checked to ensure the HVAS works properly.
- The filter holder and the area surrounding the filter were cleaned.
- The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
- The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.
- The shelter lid was closed and was secured with the aluminium strip.
- The HVAS was warmed-up for about 5 minutes to establish run-temperature conditions.
- A new flow rate record sheet was set into the flow recorder.
- The flow rate of the HVAS was checked and adjusted at around 1.1 m^3 per minute. The range specified in the EM&A Plan was between 0.6-1.7 m^3 per minute.
- The programmable timer was set for a sampling period of 24 hours, and the starting time, weather condition and the filter number were recorded.
- The initial elapsed time was recorded.
- At the end of sampling, the sampled filter was removed carefully and folded in half-length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed.
- All monitoring information was recorded on a standard data sheet.
- Filters were sent to a Hong Kong Laboratory Accreditation Scheme (HOKLAS) accredited laboratory for analysis.

Calibration

Calibration of HVAS is conducted as specified by the manufacturer. Initial calibration of the dust monitoring equipment was conducted upon installation (and thereafter at bi-monthly intervals during impact monitoring). The transfer standard should be traceable to

the internationally recognized primary standard and be calibrated annually. The calibration certificates are shown in Appendix C.

1-hour TSP Monitoring

Field Monitoring

The measuring procedures of the 1-hour dust meter were conducted in accordance with the Manufacturer's Instruction Manual as follows:

- 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).
- Push the knob at MEASURE position.
- Push "O-ADJ" button. (Then meter's indication is 0).
- 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.
- Pull out the knob and return it to MEASURE position.
- Push "START" button.

Maintenance and Calibration

- The 1-hour dust meter would be checked at 3-month intervals and calibrated at 1-year intervals throughout all stages of the air quality baseline monitoring.
- Calibration records for direct dust meters are shown in Appendix A.

Weather Condition

- The wind speeds and directions during the monitoring period at the King's Park Weather Station (about 1.7 km to the north of the monitoring station) were collected and presented in Appendix F.

2.6 Results

The baseline air quality monitoring results are summarized in Table 2-4. Detailed 1-hour and 24-hour TSP monitoring results are presented in Appendix E.

During the baseline monitoring period, the weather was mainly fine and sunny. Air temperature varied from 10.3 °C to 21.5 °C and relative humidity from 27% to 91%. Only trace amount of rainfall was recorded during the period.

Monitoring Station	Average 24-hour TSP Concentration (Range in brackets) (μg/m^3)	Average 1-hour TSP Concentration (Range in brackets) (μg/m^3)
K11	140.9	189.9

	(75.2 - 229.1)	(77.0 - 365.0)

Table 2-4 Summary of Average Baseline Air Quality Monitoring Results

2.7 Action and Limit Levels

The Action and Limit levels (AL levels) have been set in accordance with the derivation criteria specified in Section 3.7 of the EM&A Plan. This is shown in Table 2-5.

Parameters	Action	Limit
24-hour TSP ($\mu g/m^3$)	For baseline level ≤200 $\mu g/m^3$, Action level = (130% of baseline level + Limit level)/2 For baseline level >200 $\mu g/m^3$, Action level = Limit level	260
1-hour TSP ($\mu g/m^3$)	For baseline level ≤384 $\mu g/m^3$, Action level = (130% of baseline level + Limit level)/2 For baseline level >384 $\mu g/m^3$, Action level = Limit level	500

Table 2-5 Derivation of Action and Limit Levels for Air Quality

Following the criteria shown in Table 2-5, the AL Levels for 24-hour and 1-hour TSP for the monitoring station are derived and presented in Table 2-6 and Table 2-7, respectively.

Monitoring Station	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
K11	221.6	260

Table 2-6 Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
K11	373.4	500

Table 2-7 Action and Limit Levels for 1-hour TSP

During the baseline monitoring period, construction works at Tsim Sha Tsui MTR Station Northern Subway, which was about 120 m north-west from the monitoring location at K11, was in progress. The Action Level of 24-hour TSP shown in Table 2-6 is similar to the Action Level (derived prior to the construction) for the works at Northern Subway (226 $\mu g/m^3$), which indicates that the influence from the construction works there is not significant.

2.8 Event and Action Plan

In case the Action and Limit Levels are not complied during construction stage, the Event and Action Plan shown in the Table 2-8 should be followed.

Event / Action	ET	IEC	ER	Contractor
Action Level				
Exceedance for one sample	1. Identify source; 2. If valid, inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate
Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and EPD; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial action required; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measure properly implemented.	1. Submit proposals for remedial action to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level				
Exceedance for one sample	1. Identify source; 2. Inform ER and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily;	1. Check monitoring 2. data submitted by ET; 3. Check Contractor's working method; 4. Discuss with ET and the Contractor on	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification;

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

Table 2-8 Event and Action Plan for Air Quality

3 NOISE

3.1 Monitoring Requirements

In accordance with the EM&A Plan for noise, baseline noise monitoring was carried out prior to the commencement of the construction works. Continuous baseline noise monitoring for the A-weighted levels L_{eq}, L_{10} and L_{90} was carried out daily for a period of at least two weeks. The baseline monitoring was conducted from 10 January 2014 to 24 January 2014 (Appendix D). During this period, construction works at Tsim Sha Tsui MTR Station Northern Subway, which was about 120 m north-west from the monitoring location at K11, was in progress. As the monitoring location, which was located at the 4/F of the commercial complex, was screened by the adjacent high rises (Golden Crown Court and Lee Kar Building), baseline noise measurement was considered not affected by the construction works of Northern Subway.

3.2 Monitoring Equipment

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) were 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 Table 3-1.

Monitoring Locations	Equipment Model	
	Integrating Sound Level Meter	Calibrator
K11	Rion NL-52 (Serial no. 00220553)	B&K Type 4231 (Serial no. 2685684)

Table 3-1 Noise Monitoring Equipment

3.3 Monitoring Parameters, Frequency and Duration

Table 3-2 summarizes the monitoring parameters, frequency and duration of noise monitoring. In reference to Section 2.4 of the EM&A Plan, the baseline noise in A-weighted levels L_{eq}, L_{10} and L_{90} were recorded in a 30-minute interval between 0700 and 1900 during the 15-day monitoring period.

Time Period	Parameters	Frequency
10:00 to 19:00, 10 January 2014	L_{eq}, L_{10} and L_{90} in 30 minutes	Every 30 minutes
07:00 to 19:00 between 11 January 2014 and 23 January 2014		
07:00 to 10:00, 24 January 2014		

Table 3-2 Noise Monitoring Parameters, Period and Frequency

3.4 Monitoring Locations

According to the EM&A Plan of the approved Project Profile (PP-462/2012), the noise monitoring station of the Project was proposed to be set up at Mirador Mansion. As the ET failed to acquire assess and permit to conduct monitoring at Mirador Mansion, an alternative monitoring location at K11 was identified to carry out baseline monitoring and agreed by the IEC. The monitoring station was set up at a point 1 m from the exterior of the building facade at the roof-top above the 4/F of the commercial complex. Appendix B shows the location of the monitoring station. Appendix H includes a table that provides chronological records of site search of monitoring location and liaison, meeting and communication with the stakeholders since 31 October 2013. Access to the proposed monitoring location has been granted by the management office of K11.

3.5 Monitoring Methodology

Field Monitoring

- The microphones of the Sound Level Meter were about 1 m from the exterior of the building façade.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

  - Frequency weighting: A

  - Time weighting: Fast

  - Time measurement: 30 minutes intervals (0700-1900 daily)

- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1 kHz. If the difference in the calibration level before and after measurement was more than 1 dB, the measurement would be considered invalid and has to be repeated after re-calibration or repair of the equipment.
- During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded.

Maintenance and Calibration

- The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate prior to the monitoring. Calibration records are shown in Appendix A.

Weather Condition

- The wind speeds and directions during the monitoring period were recorded and provided in Appendix G.

3.6 Results

The noise monitoring results are summarized in Table 3-3. Detailed noise monitoring results are presented in Appendix F.

During the baseline monitoring period, the weather was mainly fine and sunny. Air temperature varied from 10.3 °C to 21.5 °C and relative humidity from 27% to 91%. Only trace amount of rainfall was recorded during the period.

Monitoring Location	Mean & Range of Noise Levels (0700 - 1900 hours), dB(A)		
	$L_{eq\ (30\ min)}$, dB(A)	L_{10}, dB(A)	L_{90}, dB(A)
K11	65 (60 – 72)	67 (62 – 73)	63 (57 – 68)

Table 3-3 Summary of Baseline Noise Monitoring Results

3.7 Action and Limit Levels

The Action and Limit Levels (AL levels) for construction noise ($L_{eq(30\ min)}$), as proposed in the EM&A Plan, is shown in Table 3-4.

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

Table 3-4 Action and Limit Levels for Construction Noise

3.8 Event and Action Plan

In case the Action and Limit Levels are not complied during the construction stage, the Event and Action Plan shown in Table 3-5 should be followed.

Event / Action	ET	IEC	ER	Contractor
Action Level	1. Notify IEC and Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and Contractor. 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analyzed result submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC 2. Implement noise mitigation proposals
Limit Level	1. Notify IEC, ER, EPD and Contractor, and	1. Discuss amongst ER, ET and Contractor on the	1. Confirm receipt of notification of exceedances	1. Take immediate action to avoid further

Event / Action	ET	IEC	ER	Contractor
	follow other actions 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Check Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD, ER informed of the results 8. If exceedance stops, cease additional monitoring	potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly 3. Supervise the implementation of remedial measures	2. Notify Contractor 3. Require Contractor to propose remedial measures 4. Ensure remedial measures are properly implemented 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notifications 3. Implement the agreed proposals 4. Revise and resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Table 3-5 Event and Action Plan for Construction Noise

4 COMMENTS AND CONCLUSIONS

Baseline monitoring was carried out between 10 and 24 January 2014 prior to the commencement of construction works for air quality (dust) and noise in accordance with the requirements in the EM&A Plan for the Project. The weather was sunny in general during the baseline monitoring period. All the monitoring equipment used were properly calibrated and with calibration certificates.

Air quality monitoring was conducted at one air quality monitoring station for 14 consecutive days. There were no major observations during monitoring. The major dust sources were from road traffic at Carnarvon Road and Bristol Avenue next to the construction site. An enhancement works was operating at the nearby Tsim Sha Tsui Station Northern Subway during the monitoring period, which could be another source. The measured results are considered representative of the ambient air quality conditions prior to the commencement of works.

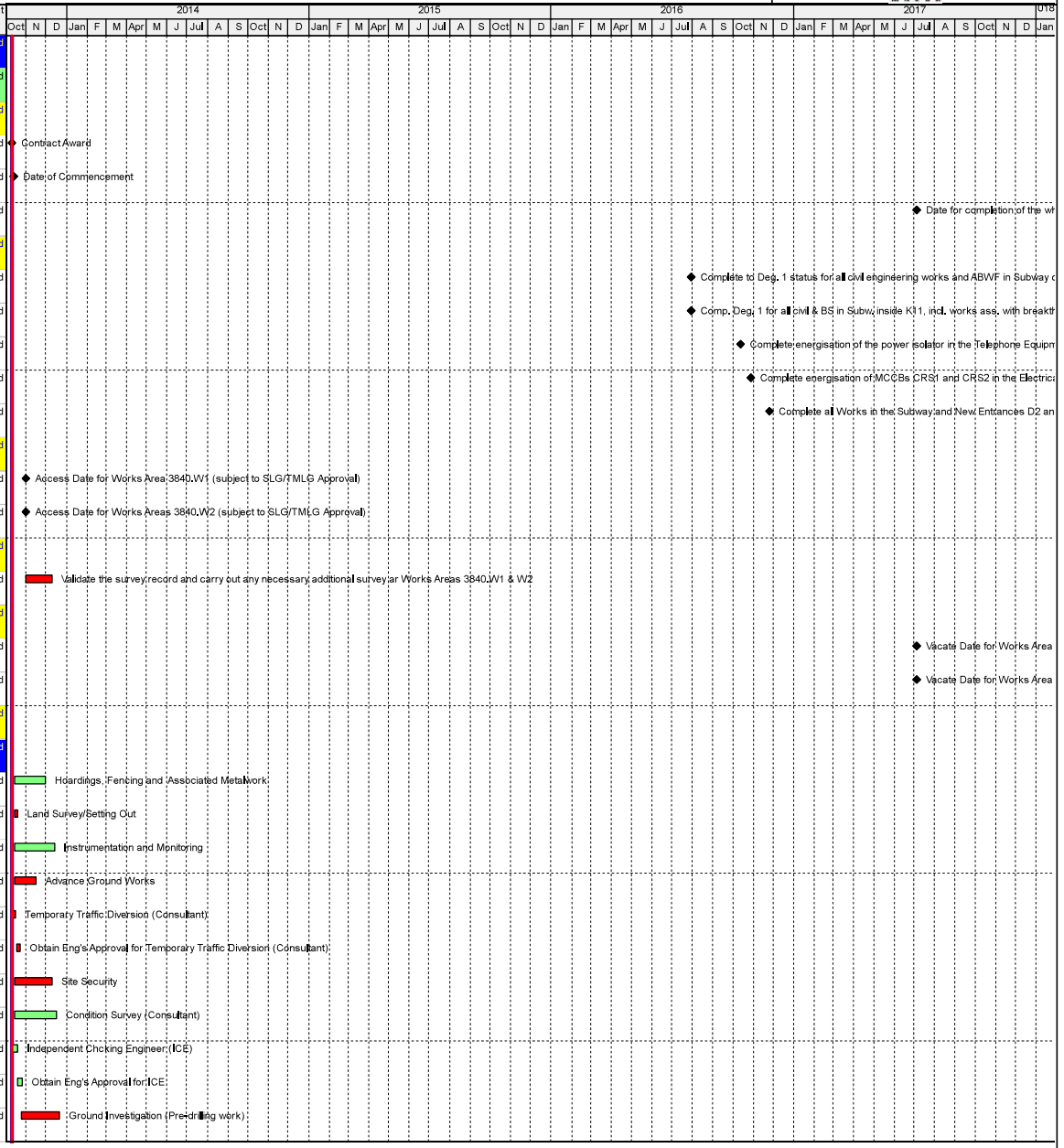
Noise monitoring was carried out at the same monitoring station for 15 consecutive days. The major noise source was from the road traffic noise generated at Carnarvon Road and Bristol Avenue next to the construction site. Domestic activities from surrounded buildings could also be contributed to the noise source. The measured results are considered representative of the ambient background noise conditions prior to the commencement of works.

Action and Limit Levels of the relevant parameters at each monitoring location were derived from the baseline monitoring results and these will be adopted for impact environmental monitoring. In conclusion, the Contractor is advised to be aware of any site practice that may give rise to significant pollution to the existing environment. Implementation of necessary remedial measures should be instigated to rectify the potential impact on sensitive receivers located in the vicinity of the construction area.

Appendix A

Construction Programme

Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Total Float
Preliminary Master Programme		1118d	11-Oct-13	24-Jul-17	42d
Preliminaries		1102d	11-Oct-13	04-Jul-17	58d
Contract Key Dates		1363d	11-Oct-13	04-Jul-17	67d
C3840-CD-10	Contract Award	0d	11-Oct-13		0d
C3840-CD-20	Date of Commencement	0d	14-Oct-13		1d
C3840-CD-30	Date for completion of the whole of the Works (10 Sep 17)	0d		04-Jul-17	67d
Specified Degrees of Completion		118d	29-Jul-16	24-Nov-16	80d
C3840-CD-2A	Complete to Deg. 1 status for all civil engineering works and ABWF in Subway outside K11 Lot Boundary (31 Jul 16)	0d		29-Jul-16	2d
C3840-CD-2B	Comp. Deg. 1 for all civil & BS in Subw. inside K11, incl. works ass. with breakthro & make good K11 D. wall (11 Sep 16)	0d		29-Jul-16	44d
C3840-CD-2C	Complete energisation of the power isolator in the Telephone Equipment Rm (23 Oct 16)	0d		13-Oct-16	11d
C3840-CD-2D	Complete energisation of MCCBs CRS1 and CRS2 in the Electrical Rm (20 Nov 16)	0d		27-Oct-16	24d
C3840-CD-2E	Complete all Works in the Subway and New Entrances D2 and D3 (12 Feb 17)	0d		24-Nov-16	80d
Possession of Works Area As PS Clause P8 & PS Appendix G		0d	31-Oct-13	31-Oct-13	1d
C3840-AD-20	Access Date for Works Area 3840.W1 (subject to SLG/TMLG Approval)	0d	31-Oct-13		1d
C3840-AD-30	Access Date for Works Areas 3840.W2 (subject to SLG/TMLG Approval)	0d	31-Oct-13		1d
Initial Site Survey		35d	31-Oct-13	10-Dec-13	1d
C3840-SS-20	Validate the survey record and carry out any necessary additional survey ar Works Areas 3840.W1 & W2	35d	31-Oct-13	10-Dec-13	1d
Vacation of Works Areas as PS Clause P8 and PS Appendix G		0d	04-Jul-17	04-Jul-17	67d
C3840-VD-20	Vacate Date for Works Area 3840.W1 (subject to SLG/TMLG Approval)	0d		04-Jul-17	67d
C3840-VD-30	Vacate Date for Works Area 3840.W2 (subject to SLG/TMLG Approval)	0d		04-Jul-17	67d
Procurement of Subcontract Packages		1041d	11-Oct-13	19-Apr-17	58d
Preliminaries and Utilities Diversion		60d	11-Oct-13	20-Dec-13	21d
C3840-PRC-100	Hoardings, Fencing and Associated Metalwork	40d	15-Oct-13	29-Nov-13	11d
C3840-PRC-110	Land Survey/Setting Out	5d	15-Oct-13	19-Oct-13	10d
C3840-PRC-120	Instrumentation and Monitoring	53d	15-Oct-13	14-Dec-13	17d
C3840-PRC-130	Advance Ground Works	28d	15-Oct-13	15-Nov-13	7d
C3840-PRC-140	Temporary Traffic Diversion (Consultant)	4d	11-Oct-13	16-Oct-13	1d
C3840-PRC-150	Obtain Eng's Approval for Temporary Traffic Diversion (Consultant)	6d	17-Oct-13	23-Oct-13	1d
C3840-PRC-160	Site Security	48d	15-Oct-13	09-Dec-13	3d
C3840-PRC-170	Condition Survey (Consultant)	55d	15-Oct-13	17-Dec-13	24d
C3840-PRC-200	Independent Chcking Engineer (ICE)	6d	11-Oct-13	18-Oct-13	37d
C3840-PRC-210	Obtain Eng's Approval for ICE	6d	19-Oct-13	25-Oct-13	37d
C3840-PRC-220	Ground Investigation (Pre-drilling work)	50d	24-Oct-13	20-Dec-13	5d



Actual Work | Critical Remaining Work | Remaining Work | Milestone

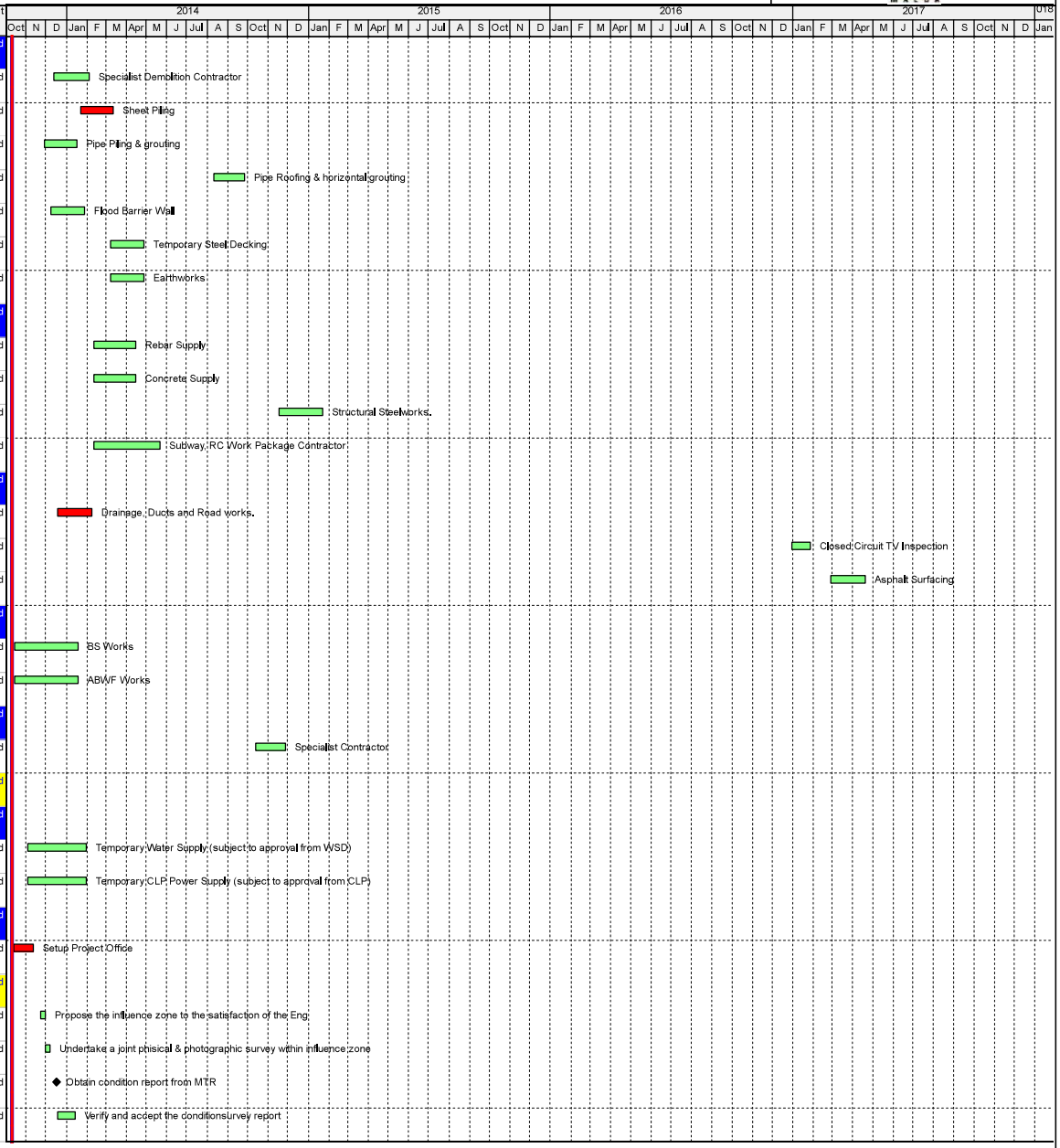
Data Date: 11-Oct-13

Preliminary Master Programme

Maeda/P/PMP/0

Date	Revision	Checked	Approved
06-Dec-13	REV 0	BG	AW

Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Total Float
Temporary Works, ELS & Earthworks		245d	28-Nov-13	26-Sep-14	24d
C3840-PRC-240	Specialist Demolition Contractor	40d	13-Dec-13	04-Feb-14	21d
C3840-PRC-250	Sheet Piling	40d	22-Jan-14	12-Mar-14	6d
C3840-PRC-260	Pipe Piling & grouting	40d	28-Nov-13	16-Jan-14	18d
C3840-PRC-270	Pipe Roofing & horizontal grouting	40d	11-Aug-14	26-Sep-14	24d
C3840-PRC-280	Flood Barrier Wall	40d	09-Dec-13	27-Jan-14	16d
C3840-PRC-290	Temporary Steel Decking	40d	08-Mar-14	28-Apr-14	14d
C3840-PRC-300	Earthworks	40d	08-Mar-14	28-Apr-14	13d
Permanent Works		283d	11-Feb-14	22-Jan-15	511d
C3840-PRC-310	Rebar Supply	54d	11-Feb-14	15-Apr-14	125d
C3840-PRC-320	Concrete Supply	54d	11-Feb-14	15-Apr-14	125d
C3840-PRC-330	Structural Steelworks.	54d	18-Nov-14	22-Jan-15	511d
C3840-PRC-340	Subway, RC Work Package Contractor	80d	11-Feb-14	21-May-14	99d
External Works		984d	18-Dec-13	19-Apr-17	58d
C3840-PRC-350	Drainage, Ducts and Road works.	40d	18-Dec-13	08-Feb-14	2d
C3840-PRC-360	Closed Circuit TV Inspection	24d	29-Dec-16	27-Jan-17	58d
C3840-PRC-370	Asphalt Surfacing	40d	27-Feb-17	19-Apr-17	58d
ABWF & Building Services.		80d	15-Oct-13	18-Jan-14	47d
C3840-PRC-380	BS Works	80d	15-Oct-13	18-Jan-14	47d
C3840-PRC-390	ABWF Works	80d	15-Oct-13	18-Jan-14	47d
Removal of Existing Escalator		40d	13-Oct-14	27-Nov-14	44d
C3840-PRC-400	Specialist Contractor	40d	13-Oct-14	27-Nov-14	44d
Site Establishment		110d	14-Oct-13	31-Jan-14	14d
Apply Utilities		90d	03-Nov-13	31-Jan-14	14d
C3840-AU-100	Temporary Water Supply (subject to approval from WSD)	90d	03-Nov-13	31-Jan-14	14d
C3840-AU-110	Temporary CLP Power Supply (subject to approval from CLP)	90d	03-Nov-13	31-Jan-14	14d
Contractor's Site Office		30d	14-Oct-13	12-Nov-13	1d
C3840-OS-100	Setup Project Office	30d	14-Oct-13	12-Nov-13	1d
Condition Survey		53d	23-Nov-13	14-Jan-14	31d
C3840-CS-20	Propose the influence zone to the satisfaction of the Eng	7d	23-Nov-13	29-Nov-13	42d
C3840-CS-30	Undertake a joint phisical & photographic survey within influence zone	7d	30-Nov-13	06-Dec-13	42d
C3840-CS-35	Obtain condition report from MTR	0d		17-Dec-13	31d
C3840-CS-40	Verify and accept the conditionsurvey report	28d	18-Dec-13	14-Jan-14	31d



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Environmental Management Plan and Quality Plan		112d	11-Oct-13	30-Jan-14	1318d
C3840-EQ-100	EMP (G5.1.10) - Prepare and submit for Eng approval	28d	11-Oct-13	07-Nov-13	195d
C3840-EQ-110	EMP - Eng comment and approve	14d	08-Nov-13	21-Nov-13	195d
C3840-EQ-150	Environmental Team Leader (ET) (P22.14) - Appoint and submit for Eng approval	30d	14-Oct-13	12-Nov-13	15d
C3840-EQ-160	ET - Eng comment and approve	14d	13-Nov-13	26-Nov-13	15d
C3840-EQ-170	Confirm monitiroing location & setup noise monitoring deivices	30d	27-Nov-13	26-Dec-13	15d
C3840-EQ-180	Baseline noise monitoring	14d	27-Dec-13	09-Jan-14	15d
C3840-EQ-190	Prepare baseline noise monitoring report & submit to Eng, ICE and EPD	7d	10-Jan-14	16-Jan-14	15d
C3840-EQ-200	Baseline noise monitoring report review and approved by Eng, ICE and EPD	14d	17-Jan-14	30-Jan-14	15d
C3840-EQ-210	Confirm monitoring location & setup air monitoring deivices	30d	27-Nov-13	26-Dec-13	15d
C3840-EQ-220	Baseline air monitoring	14d	27-Dec-13	09-Jan-14	15d
C3840-EQ-230	Prepare baseline air monitoring report & submit to Eng, ICE and EPD	7d	10-Jan-14	16-Jan-14	15d
C3840-EQ-240	Baseline air monitoring report review and approved by Eng, ICE and EPD	14d	17-Jan-14	30-Jan-14	15d
C3840-EQ-320	Quality Plan (G9.2.1) - Prepare and submit for Eng approval	28d	11-Oct-13	07-Nov-13	195d
C3840-EQ-330	Quality Plan - Eng comment and approve	14d	08-Nov-13	21-Nov-13	195d
C3840-EQ-350	Prepare and Submit for Acceptance the Subcontract Management Plan	82d	14-Oct-13	03-Jan-14	1345d
Health & Safety Plan		74d	11-Oct-13	23-Dec-13	195d
C3840-HS-100	Health and Safety Plan (G3.6.1) - Prepare and submit for Eng approval	60d	11-Oct-13	09-Dec-13	195d
C3840-HS-110	Health and Safety Plan - Eng comment and approve	14d	10-Dec-13	23-Dec-13	195d
C3840-HS-130	System Assurance Plan as per App. K of PS - Prepare and submit for Eng approval	28d	11-Oct-13	07-Nov-13	195d
C3840-HS-140	System Assurance Plan - Eng comment and approve	14d	08-Nov-13	21-Nov-13	195d
Programme Management		143d	11-Oct-13	02-Mar-14	1287d
C3840-PM-100	Initial Three Month Rolling Programme (G4.8.1) - Prepare and submit for Eng approval	14d	11-Oct-13	24-Oct-13	1388d
C3840-PM-110	Initial Three Month Rolling Programme (G4.8.1) - Eng comment and approve	28d	25-Oct-13	21-Nov-13	1388d
C3840-PM-130	Preliminary Master Programme (G4.6.1) - Prepare and submit for Eng approval	60d	11-Oct-13	09-Dec-13	104d
C3840-PM-140	Preliminary Master Programme (G4.6.1) - Eng comment, resubmit and approve	83d	10-Dec-13	02-Mar-14	104d
C3840-PM-150	Preliminary Design Programme (PS App Q)	14d	11-Oct-13	24-Oct-13	1388d
C3840-PM-160	Preliminary Design Programme - Eng comment and approve	28d	25-Oct-13	21-Nov-13	1388d
C3840-PM-170	Submission Schedule (G12.11.1) - Prepare and submit for Eng approval	28d	11-Oct-13	07-Nov-13	1388d
C3840-PM-180	Submission Scheduel (G4.11.1) - Eng comment and approve	14d	08-Nov-13	21-Nov-13	1388d
Temporary Works Design & Approval Process (Incl. Demolition)		1070d	15-Oct-13	28-May-17	88d
Hoarding Plan		67d	15-Oct-13	03-Jan-14	20d
C3840-TD-100	Prepare Hoarding Plan	27d	15-Oct-13	14-Nov-13	20d

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C3840-TD-110	Hoarding plan review by ICE and Eng/MTRC	40d	15-Nov-13	03-Jan-14	20d
C3840-TD-160	Obtain Final Approval	0d		03-Jan-14	24d
Flood Protection Wall		69d	04-Nov-13	25-Jan-14	17d
C3840-TD-170	Prepare Temporary Work Design	24d	04-Nov-13	30-Nov-13	20d
C3840-TD-180	Design review by ICE, Eng/MTRC	56d	01-Dec-13	25-Jan-14	24d
C3840-TD-210	Obtain Final Approval	0d		25-Jan-14	24d
Temporary Works Design for Temporary Traffic Decking		80d	22-Jan-14	03-May-14	28d
C3840-TD-270	Prepare Temporary Work Design	24d	22-Jan-14	21-Feb-14	28d
C3840-TD-280	Design review by ICE and Eng/MTRC	56d	22-Feb-14	03-May-14	28d
C3840-TD-310	Obtain Final Approval	0d		03-May-14	36d
Temporary Work Design for Utilities Supports		80d	21-Feb-14	31-May-14	35d
C3840-TD-320	Prepare Temporary Work Design	24d	21-Feb-14	20-Mar-14	35d
C3840-TD-330	Design review by ICE and Eng/MTRC	56d	21-Mar-14	31-May-14	35d
C3840-TD-370	Obtain Final Approval	0d		31-May-14	44d
Demolition Plan for Existing D1, D2 and Subway		80d	14-Nov-13	21-Feb-14	6d
C3840-DMD-100	Develop Demolition Plan, Temporary Works Design, Risk Assessment & Method Statement	24d	14-Nov-13	11-Dec-13	6d
C3840-DMD-110	Demolition plan review by ICE, Eng/MTRC and BD consultation	56d	12-Dec-13	21-Feb-14	6d
C3840-DMD-190	Final approval for demolition to commence granted	0d		21-Feb-14	7d
Submission/Approval for Demolition & Modification Works at Basement Wall of K11		142d	19-Mar-14	10-Sep-14	407d
C3840-DMD-400	Develop Demolition Plan, Temporary Works Design, Risk Assessment & Method Statement	24d	19-Mar-14	16-Apr-14	404d
C3840-DMD-430	Review by ICE and Eng/MTRC	56d	17-Apr-14	11-Jun-14	499d
C3840-DMD-440	Submit Dem. Plan, Structural Survey Report, Precautionary Measures to BD	1d	12-Jun-14	12-Jun-14	407d
C3840-DMD-450	BD Approval/No Objection	60d	13-Jun-14	11-Aug-14	499d
C3840-DMD-470	BA 8 Submission to BD for Consent	1d	12-Aug-14	12-Aug-14	408d
C3840-DMD-480	BD Process BA 8 Submission	28d	13-Aug-14	09-Sep-14	500d
C3840-DMD-490	BD Consent or Notice of No Objection for Demolition to Commence Granted	0d		10-Sep-14	407d
ELS Design for Tunnel (Vertical Shaft)		80d	26-Oct-13	30-Jan-14	57d
C3840-ED-100	Prepare Temporary Work Design	24d	26-Oct-13	22-Nov-13	57d
C3840-ED-110	Design review by ICE, Eng/MTRC, GEO and BD consutation	56d	23-Nov-13	30-Jan-14	57d
C3840-ED-170	Obtain Final Approval	0d		30-Jan-14	71d
ELS Design for Subway and Temporary Staircase		80d	02-Dec-13	11-Mar-14	71d
C3840-ED-180	Prepare ELS Design	24d	02-Dec-13	31-Dec-13	71d
C3840-ED-190	Design review by ICE, Eng/MTRC, GEO and BD consultation	56d	02-Jan-14	11-Mar-14	71d

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C3840-ED-250	Obtain Final Approval	0d		11-Mar-14	91d
ELS Design for Tunnel (Horizontal Pipe Piling)		149d	04-Jan-14	09-Jul-14	109d
C3840-ED-260	Prepare Temporary Work Design	24d	04-Jan-14	04-Feb-14	105d
C3840-ED-270	Design review by ICE, Eng/MTRC and GEO	56d	05-Feb-14	11-Apr-14	105d
C3840-ED-300	Design submission for BD approval	1d	12-Apr-14	12-Apr-14	105d
C3840-ED-310	BD & GEO review and approval	60d	12-Apr-14	10-Jun-14	131d
C3840-ED-320	BA 8 submission to BD for consent	1d	11-Jun-14	11-Jun-14	108d
C3840-ED-330	BD process BA 8 submission & BD issue consent	28d	12-Jun-14	09-Jul-14	131d
ELS Design for Subway and D2		80d	29-Sep-14	05-Jan-15	138d
C3840-ED-340	Prepare ELS Design	24d	29-Sep-14	28-Oct-14	138d
C3840-ED-350	Design review by ICE, Eng/MTRC, GEO and BD consultation	56d	29-Oct-14	05-Jan-15	138d
C3840-ED-410	Obtain Final Approval	0d		05-Jan-15	172d
Temporary Traffic Mangement Scheme (TTM)		47d	16-Oct-13	10-Dec-13	2d
C3840-TTM-100	Appoint Traffic Consultant	0d		16-Oct-13	1d
C3840-TTM-110	Pepare & submit review by Eng Outline TTM Schemes as per PS P20.4	6d	17-Oct-13	23-Oct-13	1d
C3840-TTM-120	Eng review Outline TTM Schemes	4d	24-Oct-13	28-Oct-13	1d
C3840-TTM-130	Prepare Detailed TTMS	5d	24-Oct-13	29-Oct-13	1d
C3840-TTM-140	Discussion and agree in priniciple at TMLG Meeting	1d	30-Oct-13	30-Oct-13	1d
C3840-TTM-150	Final TTMS Drawings	4d	31-Oct-13	04-Nov-13	2d
C3840-TTM-160	Eng endorse TTMS Drawings	2d	05-Nov-13	06-Nov-13	2d
C3840-TTM-170	TTMs endorse by HKP & TD and obtain road work addvice from RMO	18d	07-Nov-13	24-Nov-13	12d
C3840-TTM-180	Obtain Gazette Notice	18d	07-Nov-13	24-Nov-13	12d
C3840-TTM-190	Notification to Bus Compay	28d	07-Nov-13	04-Dec-13	2d
C3840-TTM-210	Relocate bus stop, trial run & TTMs implementation (road closure)	5d	05-Dec-13	10-Dec-13	2d
Excavation Permit (XP)		15d	15-Oct-13	01-Nov-13	11d
C3840-XP-100	XP in hand of MTR	0d		15-Oct-13	11d
C3840-XP-110	Transfer XP permit holder from MTR to Maeda & XP payment arrangement	15d	15-Oct-13	31-Oct-13	11d
C3840-XP-130	XP Implementation	0d	01-Nov-13		11d
Milestones for Cost Centre A - Preliminaries		1121d	03-May-14	28-May-17	104d
C3840-MS-A01	A1-Approval of PMP, S. P., ICE, ELS design for Cofferdam & temp decking (2 Mar 14)	0d		03-May-14	1225d
C3840-MS-A02	A2-Approval of ELS design of mined tunnel & Eng's confrimation of satisfactory implem.of P. M.Syt. (1 Jun 14)	0d		10-Jun-14	1187d
C3840-MS-A03	A3-Approval for mehod for demolition of K11 Diag. Wall & Eng's confirmation of satisf. implem. of S. P. (31 Aug 14)	0d		31-Aug-14	1105d
C3840-MS-A04	A4- Eng's confirmation of satisfactory implementation of Programming Management System (30 Nov 14)	0d		30-Nov-14	1014d

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C3840-MS-A05	A5- Eng's confirmation of satisfactory implementation of Specified Plans (1 Mar 15)	0d		01-Mar-15	923d
C3840-MS-A06	A6- Eng's confirmation of satisfactory implementation of Programming Management System (31 May 15)	0d		31-May-15	832d
C3840-MS-A07	A7- Eng's confirmation of satisfactory implementation of Specified Plans (30 aug 15)	0d		30-Aug-15	741d
C3840-MS-A08	A8- Eng's confirmation of satisfactory implementation of Programming Management System (29 Nov 15)	0d		29-Nov-15	650d
C3840-MS-A09	A9- Eng's confirmation of satisfactory implementation of Specified Plans (13 Mar 16)	0d		13-Mar-16	545d
C3840-MS-A10	A10- Eng's confirmation of satisfactory implementation of Programming Management System (29 May 16)	0d		29-May-16	468d
C3840-MS-A11	A11- Eng's conf. of satisf. implem. of S. P. and approval of all procedures for T&C of BS & ABWF works (28 Aug 16)	0d		30-Aug-16	375d
C3840-MS-A12	A12- Eng's confirmation of satisfactory implementation of Programming Management System (27 Nov 16)	0d		27-Nov-16	286d
C3840-MS-A13	A13- Eng's conf. of satisf. implem. of Spec. Plans (26 Feb 16)	0d		26-Feb-17	195d
C3840-MS-A14	A14- Eng's confirmation of satisfactory implementation of Programming Management System (28 May 17)	0d		28-May-17	104d
C3840-MS-A15	A15- Approval in principle of draft O&M Manuals and draft As-built Drwgs. for Whole of the Works (9 Jul 17)	0d		25-Jan-17	227d
C3840-MS-A16	A16- Approval in principle of O&M Manuals and As-built Drwgs. for Whole of the Works (13 Aug 17)	0d		19-Apr-17	143d
Carnarvon Road Subway and Entrances		1100d	14-Oct-13	04-Jul-17	58d
Instrumentation		28d	15-Dec-13	21-Jan-14	19d
C3840-INS-10	Prepare & submit instrumentation/monitoring schedule for approval of Eng	7d	15-Dec-13	21-Dec-13	24d
C3840-INS-20	Eng approve instrumentation/monitoring schedule	7d	22-Dec-13	28-Dec-13	24d
C3840-INS-30	Installation of instrumentations	12d	30-Dec-13	13-Jan-14	19d
C3840-INS-40	Initial reading and aggreement with Engg	7d	14-Jan-14	20-Jan-14	25d
C3840-INS-50	Commence regular monitoring	0d	21-Jan-14		25d
Utility Diversion		152d	14-Oct-13	17-Apr-14	2d
C3840-UTD-010	Utility Detection Survey incl. prepare survey report	12d	07-Nov-13	20-Nov-13	7d
C3840-UTD-030	Notification to Utility Companies and 1st ULG meeting	46d	14-Oct-13	28-Nov-13	5d
C3840-UTD-040	Relocation of mail box	8d	29-Nov-13	07-Dec-13	4d
C3840-UTD-110	Relocation of Telephone Kiosk by PCCW	6d	08-Jan-14	14-Jan-14	20d
C3840-UTD-240	Lay DN150 PE Watermain Pipes (fresh & salt watermain)	24d	10-Feb-14	08-Mar-14	9d
C3840-UTD-250	Presure test & sterilization on watermains	12d	10-Mar-14	22-Mar-14	9d
C3840-UTD-260	Watermain connection by WSD	12d	24-Mar-14	07-Apr-14	9d
C3840-UTD-270	Gasmain laying (~20m) by Town Gas (PS App. X3)	6d	10-Feb-14	15-Feb-14	9d
C3840-UTD-280	Air Testing on Gasmain by Town Gas (PS App. X3)	12d	17-Feb-14	01-Mar-14	9d
C3840-UTD-290	Gasmain Connection by Town Gas (PS App. X3)	12d	03-Mar-14	15-Mar-14	9d
C3840-UTD-320	HGC Cable Diversion	57d	10-Feb-14	17-Apr-14	2d
C3840-UTD-330	Temporary Diversion of existing Drainage that clashes with temp. staircase	57d	10-Feb-14	17-Apr-14	2d
C3840-UTD-350	CLP Cable Diversion	57d	10-Feb-14	17-Apr-14	2d

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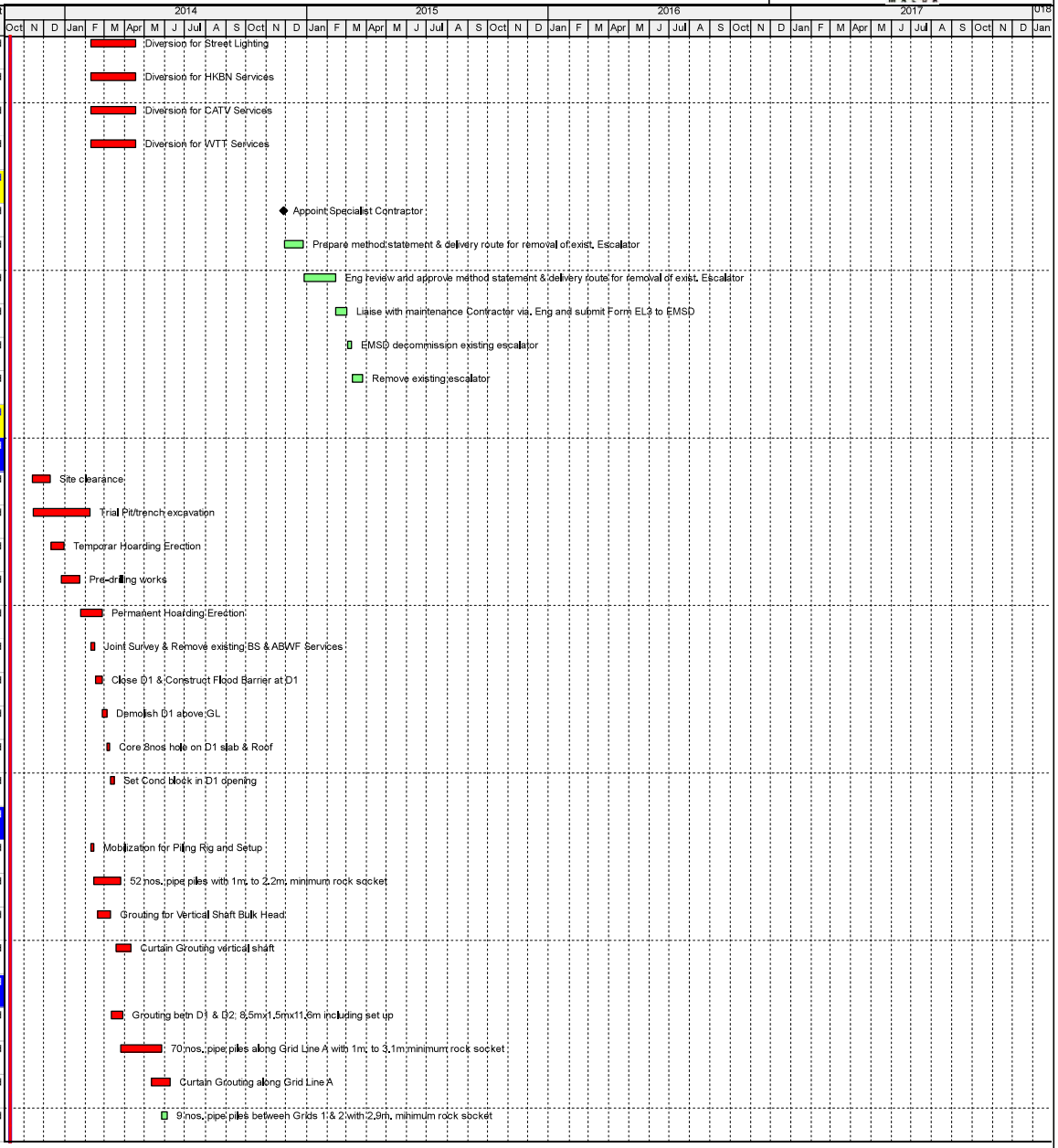
C3840-UTD-360	Diversion for Street Lighting	57d	10-Feb-14	17-Apr-14	2d
C3840-UTD-370	Diversion for HKBN Services	57d	10-Feb-14	17-Apr-14	2d
C3840-UTD-380	Diversion for CATV Services	57d	10-Feb-14	17-Apr-14	2d
C3840-UTD-390	Diversion for WTT Services	57d	10-Feb-14	17-Apr-14	2d
Remove Existing Escalator by Specialist Contractor		96d	27-Nov-14	26-Mar-15	42d
C3840-ESC-110	Appoint Specialist Contractor	0d		27-Nov-14	44d
C3840-ESC-120	Prepare method statement & delivery route for removal of exist. Escalator	24d	28-Nov-14	27-Dec-14	44d
C3840-ESC-130	Eng review and approve method statement & delivery route for removal of exist. Escalator	48d	28-Dec-14	13-Feb-15	53d
C3840-ESC-140	Liaise with maintenance Contractor via. Eng and submit Form EL3 to EMSD	18d	14-Feb-15	03-Mar-15	53d
C3840-ESC-150	EMSD decommission existing escalator	6d	04-Mar-15	10-Mar-15	42d
C3840-ESC-160	Remove existing escalator	14d	11-Mar-15	26-Mar-15	42d
Open Cut Sequence 1 (Advance Ground Works & Piling Works)		446d	13-Nov-13	19-May-15	31d
Advance Ground Works		101d	13-Nov-13	17-Mar-14	2d
C3840-AGW-010	Site clearance	24d	13-Nov-13	10-Dec-13	1d
C3840-AGW-020	Trial Pit/trench excavation	69d	14-Nov-13	08-Feb-14	1d
C3840-AGW-030	Temporar Hoarding Erection	15d	11-Dec-13	30-Dec-13	2d
C3840-AGW-040	Pre-drilling works	24d	27-Dec-13	24-Jan-14	2d
C3840-AGW-050	Permanent Hoarding Erection	25d	25-Jan-14	26-Feb-14	2d
C3840-AGW-070	Joint Survey & Remove existing BS & ABWF Services	6d	10-Feb-14	15-Feb-14	2d
C3840-AGW-080	Close D1 & Construct Flood Barrier at D1	9d	17-Feb-14	26-Feb-14	2d
C3840-AGW-100	Demolish D1 above GL	6d	27-Feb-14	05-Mar-14	2d
C3840-AGW-110	Core 8nos hole on D1 slab & Roof	4d	06-Mar-14	10-Mar-14	2d
C3840-AGW-120	Set Conc block in D1 opening	6d	11-Mar-14	17-Mar-14	2d
Piles & Grouting for Vertical Shaft		51d	10-Feb-14	10-Apr-14	1d
C3840-EVS-010	Mobilization for Piling Rig and Setup	4d	10-Feb-14	13-Feb-14	1d
C3840-EVS-020	52 nos. pipe piles with 1m. to 2.2m. minimum rock socket	35d	14-Feb-14	26-Mar-14	1d
C3840-EVS-030	Grouting for Vertical Shaft Bulk Head	18d	19-Feb-14	11-Mar-14	1d
C3840-EVS-040	Curtain Grouting vertical shaft	18d	20-Mar-14	10-Apr-14	1d
Piles & Grouting for Temporary Staricase & C&C Subway		72d	12-Mar-14	11-Jun-14	17d
C3840-ETS-010	Grouting betn D1 & D2; 8.5mx1.5mx11.6m including set up	16d	12-Mar-14	29-Mar-14	1d
C3840-ETS-020	70 nos. pipe piles along Grid Line A with 1m. to 3.1m minimum rock socket	47d	27-Mar-14	27-May-14	1d
C3840-ETS-030	Curtain Grouting along Grid Line A	24d	12-May-14	09-Jun-14	1d
C3840-ETS-040	9 nos. pipe piles between Grids 1 & 2 with 2.9m. minimum rock socket	6d	28-May-14	04-Jun-14	17d



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C3840-ETS-050	8 nos. prebored H-pile	6d	05-Jun-14	11-Jun-14	17d
C3840-ETS-060	Type III Sheet Pile, 102m along Grid 1	6d	18-Mar-14	24-Mar-14	2d
C3840-ETS-070	Type III Sheet Pile, 355m along between Grids A & B	6d	25-Mar-14	31-Mar-14	2d
C3840-ETS-080	Toe Grouting	8d	01-Apr-14	10-Apr-14	2d
C3840-ETS-090	Mobilization for Piling Rig and Setup	4d	14-Apr-14	17-Apr-14	2d
C3840-ETS-110	37 nos. pipe piels along Grid Line B with 1m. to 1.5m. minimum rock socket	25d	22-Apr-14	22-May-14	2d
C3840-ETS-120	Curtain Grouting along Grid Line B	13d	23-May-14	07-Jun-14	2d
Piles & Grouting for Remaining Section of Cofferdam at D2		28d	16-Apr-15	19-May-15	31d
C3840-ECD-010	Mobilization for Piling Rig and Setup	4d	16-Apr-15	20-Apr-15	9d
C3840-ECD-020	23 nos. pipe piles along Grid Line B at D2 with 1m. to 3.2m minimum rock socket	16d	21-Apr-15	09-May-15	9d
C3840-ECD-030	Curtain Grouting along Grid Line B at D2	8d	11-May-15	19-May-15	31d
Open Cut Sequence 2 (Excavation for Temporary Staricase)		906d	10-Dec-13	03-Jan-17	203d
Excavation		99d	10-Jun-14	07-Oct-14	1d
C3840-EXC-100	Pump test at D1	24d	10-Jun-14	08-Jul-14	1d
C3840-EXC-110	Demolish D1 2m below GL	6d	12-Jun-14	18-Jun-14	17d
C3840-EXC-120	Excavation for 1st layer at D1 208m3	4d	09-Jul-14	12-Jul-14	1d
C3840-EXC-130	Install 1st waling & strut 21ton & temporary support to underground UUs	7d	14-Jul-14	21-Jul-14	1d
C3840-EXC-140	Install Truss for Suport Temp D1	6d	22-Jul-14	28-Jul-14	1d
C3840-EXC-150	Shotcrete 1st layer	2d	29-Jul-14	30-Jul-14	1d
C3840-EXC-160	Demolish D1 4m below GL	6d	31-Jul-14	06-Aug-14	1d
C3840-EXC-170	Excavation for 2nd layer at D1 230m3	5d	07-Aug-14	12-Aug-14	1d
C3840-EXC-180	Install 2nd waling & strut 17ton	7d	13-Aug-14	20-Aug-14	1d
C3840-EXC-190	Shotcrete 2nd layer	2d	21-Aug-14	22-Aug-14	1d
C3840-EXC-200	Excavation for 3rd layer at D1 216m3	5d	23-Aug-14	28-Aug-14	1d
C3840-EXC-210	Install 3rd waling & strut 15ton	6d	29-Aug-14	04-Sep-14	1d
C3840-EXC-220	Shotcrete 3rd layer	4d	05-Sep-14	10-Sep-14	1d
C3840-EXC-230	Excavation for 4th layer at D1 166m3	4d	11-Sep-14	15-Sep-14	1d
C3840-EXC-240	Install channel on opening	3d	16-Sep-14	18-Sep-14	1d
C3840-EXC-250	Shotcrete 4th layer	4d	19-Sep-14	23-Sep-14	1d
C3840-EXC-260	Make formation and Blinding	10d	24-Sep-14	07-Oct-14	1d
RC Structure (Temporary Staricase)		132d	29-Sep-14	10-Mar-15	9d
C3840-TSC-100	Install Dowel bars (130#)	14d	29-Sep-14	16-Oct-14	1d
C3840-TSC-110	Const. Bay1 : 18m3	6d	17-Oct-14	23-Oct-14	1d

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C3840-TSC-120	Const. Bay2 : 16m3	9d	24-Oct-14	03-Nov-14	1d
C3840-TSC-130	Const. Bay3 : 6m3	6d	04-Nov-14	10-Nov-14	1d
C3840-TSC-140	Const. Bay4 : 11m3	10d	24-Oct-14	04-Nov-14	27d
C3840-TSC-150	Const. Bay5 : 35m3	13d	11-Nov-14	25-Nov-14	1d
C3840-TSC-160	Const. Bay6 : 39m3	15d	26-Nov-14	12-Dec-14	1d
C3840-TSC-170	Const. Bay7 : 34m3	14d	05-Dec-14	20-Dec-14	1d
C3840-TSC-180	Const. Bay8 : 4m3	6d	18-Dec-14	24-Dec-14	1d
C3840-TSC-190	Const. Bay9 : 44m3	14d	27-Dec-14	13-Jan-15	1d
C3840-TSC-200	Curing	10d	14-Jan-15	24-Jan-15	5d
C3840-TSC-210	Dismantle falsework	12d	15-Jan-15	28-Jan-15	5d
C3840-TSC-230	Break through wall of concourse	14d	29-Jan-15	13-Feb-15	27d
C3840-TSC-240	Temporary Staircase Commissioning & open for use	0d		10-Mar-15	9d
Milestones for Cost Centre D - Temporary Entrance		1120d	10-Dec-13	03-Jan-17	249d
C3840-MS-D01	D1 - Comp. removal of all overhead signs affecting Works for the Temp. Entrance (26 Jan 14)	0d		10-Dec-13	1369d
C3840-MS-D02	D2-Comp. 20% of cofferdam for T. E. and all U/G UU diversion/protection for T.E. cofferdam (27 Apr 14)	0d		21-Jul-14	1146d
C3840-MS-D03	D3 - Comp. temp. cofferdam and grouting (excl. satisf. comp. of pump test) (26 Oct 14)	0d		07-Jun-14	1190d
C3840-MS-D04	D4-Comp. 66% const. of temp. stair measured by vol. of conc. poured & comp. form. open. into TST Stn (21 Dec 14)	0d		24-Dec-14	990d
C3840-MS-D05	D5-Open Temporary Entrance for use (22 Feb15)	0d		10-Mar-15	914d
C3840-MS-D06	D6-Comp. demolition of Temp. Entrance and disposal of all C&D waste arising there from (22 Jan 17)	0d		03-Jan-17	249d
Open Cut Sequence 3 (Advance Ground Works & Piling Works at D2 & in front of D1)		27d	11-Mar-15	15-Apr-15	9d
C3840-ELS-510	Joint Survey & Remove existing BS & ABWF Services at D2	6d	11-Mar-15	17-Mar-15	9d
C3840-ELS-520	Const Flood Barrier at Concourse and D2	9d	18-Mar-15	27-Mar-15	9d
C3840-ELS-530	Demolish D2 above GL	6d	28-Mar-15	08-Apr-15	9d
C3840-ELS-540	Set Conc block in D2 opening	6d	09-Apr-15	15-Apr-15	9d
Open Cut Sequence 4 (Excavation for Subway in front of D1)		200d	11-May-15	08-Jan-16	9d
C3840-ELSD1-100	Excavation for 1st layer 378m3, 25m3/day	15d	11-May-15	28-May-15	9d
C3840-ELSD1-110	Install 1st waling & strut & Utility Support	24d	15-May-15	12-Jun-15	9d
C3840-ELSD1-130	Install Decking with Subframe to cover all area	12d	13-Jun-15	27-Jun-15	9d
C3840-ELSD1-140	Shotcrete 1st layer	2d	29-Jun-15	30-Jun-15	9d
C3840-ELSD1-150	Excavation for 2nd layer 421m3 50m3/day	9d	02-Jul-15	11-Jul-15	9d
C3840-ELSD1-160	Install 2nd waling & strut	12d	07-Jul-15	20-Jul-15	9d
C3840-ELSD1-170	Shotcrete 2nd layer	2d	21-Jul-15	22-Jul-15	9d
C3840-ELSD1-180	Demolish existing subway 7.5m below GL	6d	23-Jul-15	29-Jul-15	9d

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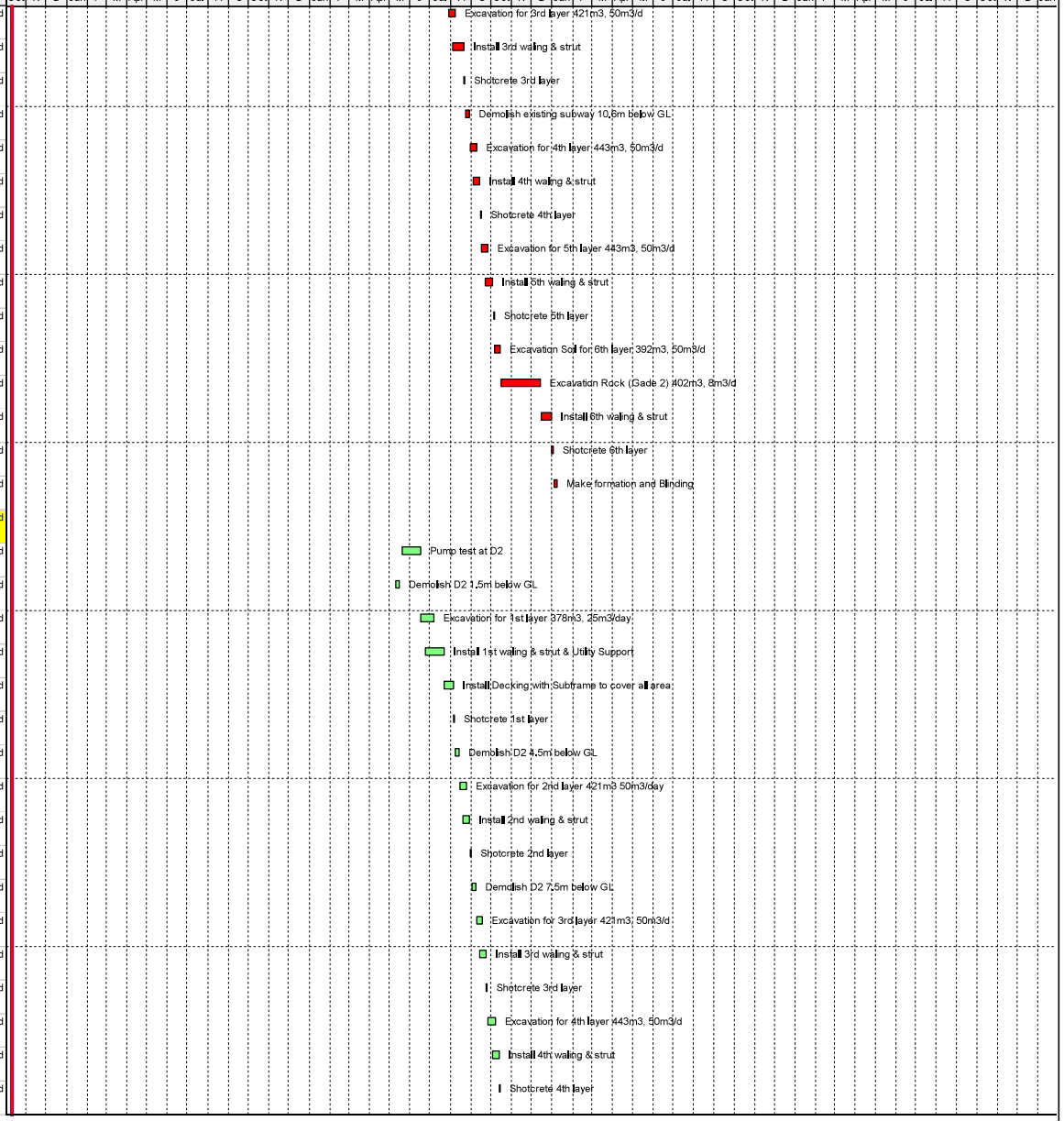
C3840-ELSD1-190	Excavation for 3rd layer 421m3, 50m3/d	9d	30-Jul-15	08-Aug-15	9d
C3840-ELSD1-200	Install 3rd waling & strut	15d	04-Aug-15	20-Aug-15	9d
C3840-ELSD1-210	Shotcrete 3rd layer	2d	21-Aug-15	22-Aug-15	9d
C3840-ELSD1-220	Demolish existing subway 10.6m below GL	6d	24-Aug-15	29-Aug-15	9d
C3840-ELSD1-230	Excavation for 4th layer 443m3, 50m3/d	9d	31-Aug-15	09-Sep-15	9d
C3840-ELSD1-240	Install 4th waling & strut	9d	04-Sep-15	14-Sep-15	9d
C3840-ELSD1-250	Shotcrete 4th layer	2d	15-Sep-15	16-Sep-15	9d
C3840-ELSD1-260	Excavation for 5th layer 443m3, 50m3/d	9d	17-Sep-15	26-Sep-15	9d
C3840-ELSD1-270	Install 5th waling & strut	9d	22-Sep-15	03-Oct-15	9d
C3840-ELSD1-280	Shotcrete 5th layer	2d	05-Oct-15	06-Oct-15	9d
C3840-ELSD1-290	Excavation Soil for 6th layer 392m3, 50m3/d	8d	07-Oct-15	15-Oct-15	9d
C3840-ELSD1-300	Excavation Rock (Gade 2) 402m3, 8m3/d	50d	16-Oct-15	14-Dec-15	9d
C3840-ELSD1-310	Install 6th waling & strut	12d	15-Dec-15	30-Dec-15	9d
C3840-ELSD1-320	Shotcrete 6th layer	2d	31-Dec-15	02-Jan-16	9d
C3840-ELSD1-330	Make formation and Blinding	5d	04-Jan-16	08-Jan-16	9d
Open Cut Sequence 4 (Excavation for D2 & Subway in front of D2)		178d	11-May-15	10-Dec-15	31d
C3840-ELSD2-100	Pump test at D2	24d	20-May-15	17-Jun-15	31d
C3840-ELSD2-110	Demolish D2 1.5m below GL	6d	11-May-15	16-May-15	57d
C3840-ELSD2-120	Excavation for 1st layer 378m3, 25m3/day	15d	18-Jun-15	07-Jul-15	31d
C3840-ELSD2-130	Install 1st waling & strut & Utility Support	24d	24-Jun-15	22-Jul-15	31d
C3840-ELSD2-140	Install Decking with Subframe to cover all area	12d	23-Jul-15	05-Aug-15	31d
C3840-ELSD2-150	Shotcrete 1st layer	2d	06-Aug-15	07-Aug-15	31d
C3840-ELSD2-160	Demolish D2 4.5m below GL	6d	08-Aug-15	14-Aug-15	31d
C3840-ELSD2-170	Excavation for 2nd layer 421m3 50m3/day	9d	15-Aug-15	25-Aug-15	31d
C3840-ELSD2-180	Install 2nd waling & strut	9d	20-Aug-15	29-Aug-15	31d
C3840-ELSD2-190	Shotcrete 2nd layer	2d	31-Aug-15	01-Sep-15	31d
C3840-ELSD2-200	Demolish D2 7.5m below GL	6d	02-Sep-15	08-Sep-15	31d
C3840-ELSD2-210	Excavation for 3rd layer 421m3, 50m3/d	9d	09-Sep-15	18-Sep-15	31d
C3840-ELSD2-220	Install 3rd waling & strut	9d	14-Sep-15	23-Sep-15	31d
C3840-ELSD2-230	Shotcrete 3rd layer	2d	24-Sep-15	25-Sep-15	31d
C3840-ELSD2-240	Excavation for 4th layer 443m3, 50m3/d	9d	26-Sep-15	08-Oct-15	31d
C3840-ELSD2-250	Install 4th waling & strut	9d	03-Oct-15	13-Oct-15	31d
C3840-ELSD2-260	Shotcrete 4th layer	2d	14-Oct-15	15-Oct-15	31d



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C3840-ELSD2-270	Excavation for 5th layer 443m3, 50m3/d	9d	16-Oct-15	27-Oct-15	31d
C3840-ELSD2-280	Install 5th waling & strut	9d	22-Oct-15	31-Oct-15	31d
C3840-ELSD2-290	Shotcrete 5th layer	2d	02-Nov-15	03-Nov-15	31d
C3840-ELSD2-300	Excavation Soil for 6th layer 392m3, 50m3/d	8d	04-Nov-15	12-Nov-15	31d
C3840-ELSD2-310	Excavation Rock (Gade 2) 39m3, 8m3/d	5d	13-Nov-15	18-Nov-15	31d
C3840-ELSD2-320	Install 6th waling & strut	12d	19-Nov-15	02-Dec-15	31d
C3840-ELSD2-330	Shotcrete 6th layer	2d	03-Dec-15	04-Dec-15	31d
C3840-ELSD2-340	Make formation and Blinding	5d	05-Dec-15	10-Dec-15	31d
Open Cut Sequence 5 (Construction of Subway & D2)		196d	09-Jan-16	06-Sep-16	161d
C3840-STR-100	Install Dowel bars (144#)	16d	09-Jan-16	27-Jan-16	9d
C3840-STR-110	Const. Bay1 : 4m3	6d	09-Jan-16	15-Jan-16	9d
C3840-STR-120	Const. Bay2 : 123m3	10d	16-Jan-16	27-Jan-16	9d
C3840-STR-130	Const. Bay3,1 : 125m3	10d	28-Jan-16	11-Feb-16	9d
C3840-STR-140	Const. Bay3,2 : 120m3	15d	12-Feb-16	29-Feb-16	9d
C3840-STR-150	Const. Bay4 : 29m3	6d	23-Feb-16	29-Feb-16	9d
C3840-STR-160	Const. Bay4,5 : 13m3	6d	27-Feb-16	04-Mar-16	9d
C3840-STR-170	Const. Bay5 : 141m3	10d	03-Mar-16	14-Mar-16	9d
C3840-STR-180	Const. Bay6,1 : 130m3	12d	15-Mar-16	31-Mar-16	9d
C3840-STR-190	Const. Bay6,2 : 130m3	12d	19-Mar-16	06-Apr-16	9d
C3840-STR-200	Const. Bay6,3 : 130m3	12d	24-Mar-16	11-Apr-16	9d
C3840-STR-210	Const. Bay6,4 : 130m3	12d	01-Apr-16	15-Apr-16	9d
C3840-STR-220	Const. Bay6,5 : 130m3	15d	07-Apr-16	23-Apr-16	9d
C3840-STR-230	Fill Mass Concrete	3d	25-Apr-16	27-Apr-16	47d
C3840-STR-240	Const. Bay7 : 90m3	15d	11-Apr-16	27-Apr-16	9d
C3840-STR-250	Curing, remove strut & falsework	18d	28-Apr-16	20-May-16	47d
C3840-STR-260	Const. Bay8,1 : 104m3	10d	16-Apr-16	27-Apr-16	9d
C3840-STR-270	Const. Bay8,2 : 104m3	10d	22-Apr-16	04-May-16	9d
C3840-STR-280	Const. Bay8,5 : 39m3 (D2)	15d	28-Apr-16	17-May-16	9d
C3840-STR-290	Curing, remove strut & falsework	14d	18-May-16	02-Jun-16	9d
C3840-STR-300	Backfilling & reinstate UUs	80d	03-Jun-16	06-Sep-16	161d
C3840-STR-310	Remove under pinning & reinstatement of boxing out	25d	18-May-16	16-Jun-16	49d
C3840-STR-320	Const. Bay9 : 55m3 (D2)	15d	09-May-16	26-May-16	62d
C3840-STR-330	Const. Bay10 : 30m3 (D2)	10d	16-May-16	26-May-16	62d

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C3840-STR-340	Curing & remove falsework	12d	27-May-16	10-Jun-16	62d
C3840-STR-350	Install Structural steel	12d	11-Jun-16	24-Jun-16	129d
Open Cut Sequence 6		140d	25-Jun-16	09-Dec-16	58d
C3840-D1-100	Erect hoarding and cut wall for pedestrian access	12d	25-Jun-16	09-Jul-16	185d
C3840-D1-110	Divert access from Temp. D1 to D2	1d	09-Dec-16	09-Dec-16	58d
Open Cut Sequence 7 (D1)		163d	10-Dec-16	04-Jul-17	58d
C3840-D1-120	Erect platform	6d	10-Dec-16	16-Dec-16	58d
C3840-D1-130	Demolish (Saw cut) wall of D1	12d	17-Dec-16	03-Jan-17	58d
C3840-D1-140	Const. Bay11 : 22m3	11d	04-Jan-17	16-Jan-17	58d
C3840-D1-150	Const. Bay12 : 33m3	12d	16-Jan-17	02-Feb-17	58d
C3840-D1-160	Curing	10d	02-Feb-17	14-Feb-17	58d
C3840-D1-170	Install Structural steel	12d	14-Feb-17	28-Feb-17	58d
C3840-D1-190	Backfilling & reinstate UUs	51d	28-Feb-17	05-May-17	58d
C3840-D1-200	Cut head of Pipe Pile 2m	12d	05-May-17	19-May-17	58d
C3840-D1-210	Reinstate Carnarvon Road	24d	19-May-17	17-Jun-17	58d
C3840-D1-220	Reinstate traffic sign and shop sign	12d	17-Jun-17	03-Jul-17	58d
C3840-D1-230	Open New Entracne D1	1d	03-Jul-17	04-Jul-17	58d
Tunnel (Vertical Shaft Excavation)		226d	11-Apr-14	14-Jan-15	1d
C3840-SH-100	Pump Test	24d	11-Apr-14	14-May-14	1d
C3840-SH-110	Excavation for 1st layer 140m3 50m3/day	3d	15-May-14	17-May-14	1d
C3840-SH-120	Install 1st waling, strut & legging wall	4d	19-May-14	22-May-14	1d
C3840-SH-130	Shotcrete 1st layer	2d	23-May-14	24-May-14	1d
C3840-SH-140	Excavation for 2nd layer 190m3 50m3/d	4d	26-May-14	29-May-14	1d
C3840-SH-150	Install 2nd waling, strut & lagging wall	4d	30-May-14	04-Jun-14	1d
C3840-SH-160	Shotcrete 2nd layer	2d	05-Jun-14	06-Jun-14	1d
C3840-SH-170	Install Decking with Subframe to cover all area	4d	07-Jun-14	11-Jun-14	1d
C3840-SH-180	Excavation for 3rd layer 360m3 50m3/d	7d	12-Jun-14	19-Jun-14	1d
C3840-SH-190	Install 3rd waling, strut & lagging wall	5d	20-Jun-14	25-Jun-14	1d
C3840-SH-200	Shotcrete 3rd layer	2d	26-Jun-14	27-Jun-14	1d
C3840-SH-210	Excavation for 4th layer117m3 (soil) @ 50m3/d, 205m3 (rock) 3m3/d	71d	28-Jun-14	20-Sep-14	1d
C3840-SH-230	Shotcrete 4th layer	2d	22-Sep-14	23-Sep-14	1d
C3840-SH-240	Make formation and Blinding	2d	24-Sep-14	25-Sep-14	1d
C3840-SH-250	Modify waling and strut	3d	26-Sep-14	29-Sep-14	1d

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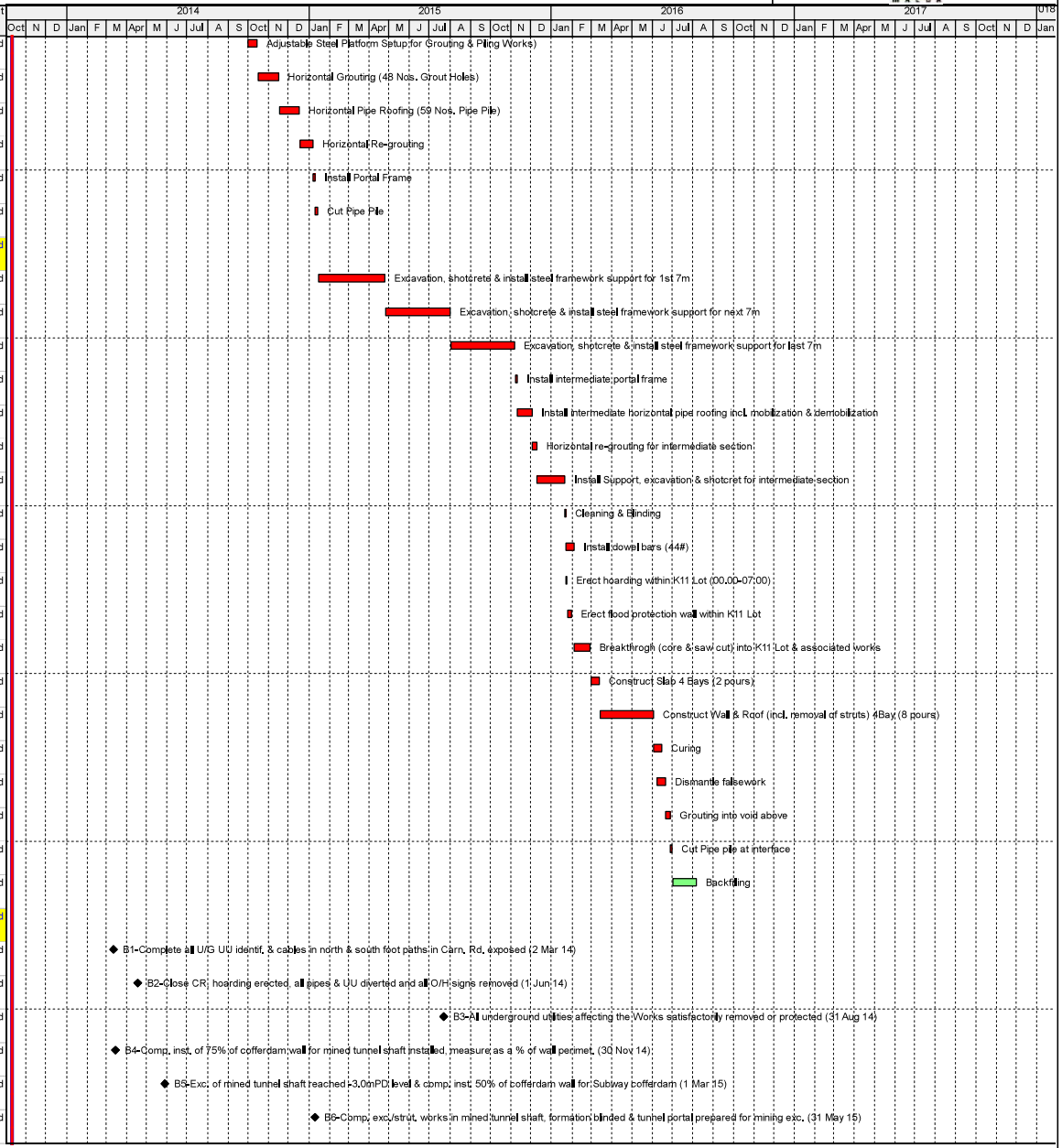
C3840-SH-260	Adjustable Steel Platform Setup for Grouting & Piling Works)	12d	30-Sep-14	15-Oct-14	1d
C3840-SH-270	Horizontal Grouting (48 Nos. Grout Holes)	27d	16-Oct-14	15-Nov-14	1d
C3840-SH-280	Horizontal Pipe Roofing (59 Nos. Pipe Pile)	27d	17-Nov-14	17-Dec-14	1d
C3840-SH-290	Horizontal Re-grouting	14d	18-Dec-14	06-Jan-15	1d
C3840-SH-300	Install Portal Frame	3d	07-Jan-15	09-Jan-15	1d
C3840-SH-310	Cut Pipe Pile	4d	10-Jan-15	14-Jan-15	1d
Tunnel (ELS, Excavation & Construction of Tunnel)		460d	15-Jan-15	05-Aug-16	188d
C3840-TU-100	Excavation, shotcrete & install steel framework support for 1st 7m	80d	15-Jan-15	25-Apr-15	1d
C3840-TU-110	Excavation, shotcrete & install steel framework support for next 7m	80d	27-Apr-15	01-Aug-15	1d
C3840-TU-120	Excavation, shotcrete & install steel framework support for last 7m	80d	03-Aug-15	06-Nov-15	1d
C3840-TU-130	Install intermediate portal frame	3d	07-Nov-15	10-Nov-15	1d
C3840-TU-140	Install intermediate horizontal pipe roofing incl. mobilization & demobilization	19d	11-Nov-15	02-Dec-15	1d
C3840-TU-150	Horizontal re-grouting for intermediate section	6d	03-Dec-15	09-Dec-15	1d
C3840-TU-160	Install Support, excavation & shotcret for intermediate section	33d	10-Dec-15	20-Jan-16	1d
C3840-TU-170	Cleaning & Blinding	2d	21-Jan-16	22-Jan-16	1d
C3840-TU-180	Install dowel bars (44#)	10d	23-Jan-16	03-Feb-16	1d
C3840-TU-190	Erect hoarding within K11 Lot (00.00-07:00)	1d	23-Jan-16	23-Jan-16	4d
C3840-TU-200	Erect flood protection wall within K11 Lot	6d	25-Jan-16	30-Jan-16	4d
C3840-TU-210	Breakthrogh (core & saw cut) into K11 Lot & associated works	18d	04-Feb-16	27-Feb-16	1d
C3840-TU-220	Construct Slab 4 Bays (2 pours)	12d	29-Feb-16	12-Mar-16	1d
C3840-TU-230	Construct Wall & Roof (incl. removal of struts) 4Bay (8 pours)	64d	14-Mar-16	02-Jun-16	1d
C3840-TU-240	Curing	10d	03-Jun-16	15-Jun-16	1d
C3840-TU-250	Dismantle falsework	10d	08-Jun-16	20-Jun-16	1d
C3840-TU-260	Grouting into void above	6d	21-Jun-16	27-Jun-16	1d
C3840-TU-270	Cut Pipe pile at interface	3d	28-Jun-16	30-Jun-16	1d
C3840-TU-280	Backfilling	30d	02-Jul-16	05-Aug-16	188d
Milestones for Cost Centre B - Carnarvon Road Subway and Entrances		1209d	12-Mar-14	03-Jul-17	68d
C3840-MS-B01	B1-Complete all U/G UU identif. & cables in north & south foot paths in Carn. Rd. exposed (2 Mar 14)	0d		12-Mar-14	1277d
C3840-MS-B02	B2-Close CR, hoarding erected, all pipes & UU diverted and all O/H signs removed (1 Jun 14)	0d		17-Apr-14	1241d
C3840-MS-B03	B3-All underground utilities affecting the Works satisfactorily removed or protected (31 Aug 14)	0d		22-Jul-15	780d
C3840-MS-B04	B4-Comp. inst. of 75% of cofferdam wall for mined tunnel shaft installed, measure as a % of wall perimet. (30 Nov 14)	0d		15-Mar-14	1274d
C3840-MS-B05	B5-Exc. of mined tunnel shaft reached -3.0mPD level & comp. inst. 50% of cofferdam wall for Subway cofferdam (1 Mar 15)	0d		29-May-14	1199d
C3840-MS-B06	B6-Comp. exc./strut. works in mined tunnel shaft, formation blinded & tunnel portal prepared for mining exc. (31 May 15)	0d		09-Jan-15	974d



Actual Work | Critical Remaining Work | Remaining Work | Milestone

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Preliminary Master Programme

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06-Dec-13	REV 0	BG	AW

Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Total Float
C3840-MS-B07	B7-Satisf. passed pump. test for subway cofferdam & comp. inst. of mined tunnel canopy tubes & grouted (30 Aug 15)	0d		17-Jun-15	815d
C3840-MS-B08	B8-Comp. Subway cofferdam 1st level strutting & all utilities satisf. supported from it (29 Nov 15)	0d		22-Jul-15	780d
C3840-MS-B09	B9-Exc. of Subway reached -5.5mPD, grids 4-5 blinded, comp. exc, for tunnel & 50% removal of K11 D. wall (28 Feb 16)	0d		27-Feb-16	560d
C3840-MS-B10	B10-Comp. all Subway RC structures fr. grids 1 to 4+3m, (29 May 16)	0d		17-May-16	480d
C3840-MS-B11	B11-Comp. all RC structures betn TST Stn wall & grid 4+3m & mined tunnel (28 Aug 16)	0d		02-Jun-16	464d
C3840-MS-B12	B12-Comp. all ABWF works to Deg. 1 except for works assoc. with new entrance D1 (week 158)	0d		13-Aug-16	392d
C3840-MS-B13	B13-Comp. all ABWF works to Deg. 3 except for works assoc. with new entrance D1 (25 Dec 16)	0d		24-Oct-16	320d
C3840-MS-B14	B14-Complete all works in this Cost Centre (20 Aug 17)	0d		03-Jul-17	68d
Building Services & ABWF Works		1038d	07-Dec-13	14-Jun-17	74d
Site Validation		121d	07-Dec-13	11-May-14	473d
C3840-SV-100	Carry out detailed site survey	6d	07-Dec-13	13-Dec-13	76d
C3840-SV-110	Prepare Implementation Programme/Method Statement with detailed Phasing/Sequence	90d	13-Dec-13	12-Mar-14	96d
C3840-SV-120	Obtain Eng's approval for Implementation Programme/Method Statement for modification & diversion works	60d	13-Mar-14	11-May-14	577d
Design for BS & ABWF Works at Temporary Staircase		159d	19-Jan-14	26-Jun-14	59d
C3840-TSD-100	Prepare shop drawings, detailed designs & method statements	49d	19-Jan-14	08-Mar-14	59d
C3840-TSD-110	Obtain approval of shop drawings, detailed designs & method s statements from Eng	50d	09-Mar-14	27-Apr-14	59d
C3840-TSD-120	Issue working drawings for construction	60d	28-Apr-14	26-Jun-14	59d
Material Submission & Material Procurement/Delivery for Temporary Staircase		133d	27-Jun-14	06-Nov-14	59d
C3840-TSD-130	Material submission	21d	27-Jun-14	17-Jul-14	59d
C3840-TSD-140	Obtain approval of material submission from MTR	56d	18-Jul-14	11-Sep-14	59d
C3840-TSD-150	Procurement & delivery of materials	56d	12-Sep-14	06-Nov-14	59d
BS & ABWF Works at Temporary Staircase		54d	03-Jan-15	10-Mar-15	9d
C3840-TSBA-100	Complete RC works	0d		13-Jan-15	1d
C3840-TSBA-110	Installation of BS and ABWF works	40d	03-Jan-15	18-Feb-15	1d
C3840-TSBA-120	CN&SE access & cable routing connecting to existing TST Station	40d	05-Jan-15	23-Feb-15	9d
C3840-TSBA-130	T&C	6d	24-Feb-15	02-Mar-15	9d
C3840-TSBA-140	Inspection prior to open for public use	6d	03-Mar-15	09-Mar-15	9d
C3840-TSBA-150	Open for public use	0d		10-Mar-15	9d
Scheme Designs for BS Works		110d	20-Jan-14	07-Jun-14	225d
C3840-SD-100	Prepare a scheme designs	45d	20-Jan-14	15-Mar-14	199d
C3840-SD-130	Scheme design review by ICE, Eng/MTRC & FSD	84d	16-Mar-14	07-Jun-14	245d
C3840-SD-150	Obtain approval of scheme design	0d		07-Jun-14	275d
Detailed Designs for BS Works		157d	30-May-14	04-Dec-14	198d

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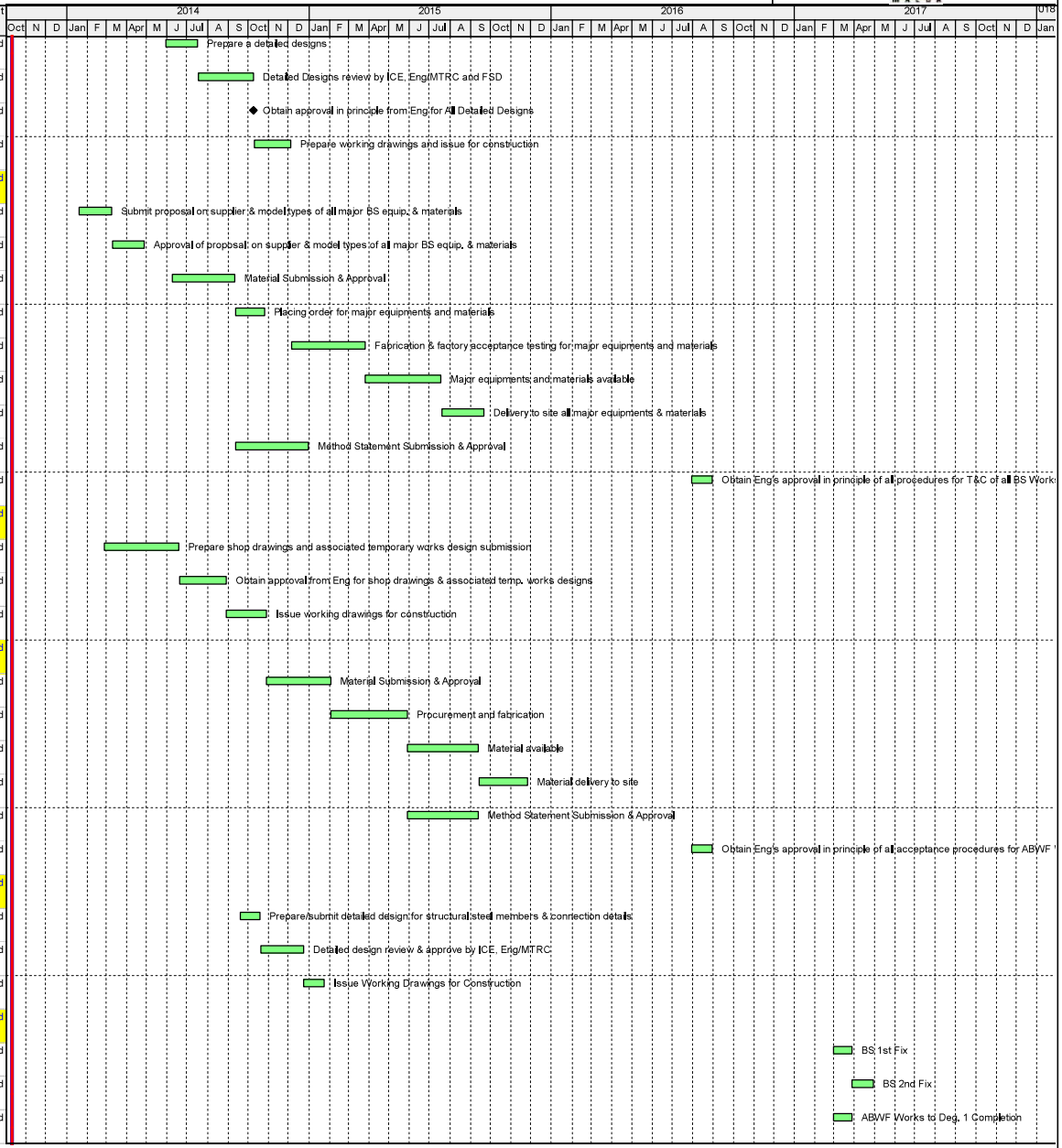
Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Total Float
C3840-DD-100	Prepare a detailed designs	40d	30-May-14	17-Jul-14	201d
C3840-DD-130	Detailed Designs review by ICE, Eng/MTRC and FSD	84d	18-Jul-14	09-Oct-14	245d
C3840-DD-140	Obtain approval in principle from Eng for All Detailed Designs	0d		09-Oct-14	245d
C3840-DD-150	Prepare working drawings and issue for construction	48d	10-Oct-14	04-Dec-14	198d
Material Submission/Procurement/Delivery & Method Statement Submission for BS Works		773d	20-Jan-14	30-Aug-16	105d
C3840-BSP-100	Submit proposal on supplier & model types of all major BS equip. & materials	40d	20-Jan-14	10-Mar-14	264d
C3840-BSP-110	Approval of proposal on supplier & model types of all major BS equip. & materials	48d	11-Mar-14	27-Apr-14	324d
C3840-BSP-130	Material Submission & Approval	80d	09-Jun-14	11-Sep-14	232d
C3840-BSP-140	Placing order for major equipments and materials	36d	12-Sep-14	25-Oct-14	232d
C3840-BSP-150	Fabrication & factory acceptance testing for major equipments and materials	90d	05-Dec-14	26-Mar-15	198d
C3840-BSP-160	Major equipments and materials available	90d	27-Mar-15	18-Jul-15	198d
C3840-BSP-170	Delivery to site all major equipments & materials	55d	20-Jul-15	21-Sep-15	198d
C3840-BSP-190	Method Statement Submission & Approval	90d	12-Sep-14	30-Dec-14	573d
C3840-BSP-200	Obtain Eng's approval in principle of all procedures for T&C of all BS Works	32d	30-Jul-16	30-Aug-16	129d
Design for ABWF Works		198d	27-Feb-14	28-Oct-14	129d
C3840-DABWF-100	Prepare shop drawings and associated temporary works design submission	90d	27-Feb-14	19-Jun-14	129d
C3840-DABWF-110	Obtain approval from Eng for shop drawings & associated temp. works designs	60d	20-Jun-14	29-Aug-14	129d
C3840-DABWF-120	Issue working drawings for construction	48d	30-Aug-14	28-Oct-14	129d
Material Submission/Material Procurement/Delivery & Method Statement Submission for ABWF Wor		545d	29-Oct-14	30-Aug-16	305d
C3840-ABWP-100	Material Submission & Approval	80d	29-Oct-14	02-Feb-15	129d
C3840-ABWP-110	Procurement and fabrication	90d	03-Feb-15	28-May-15	129d
C3840-ABWP-120	Material available	90d	29-May-15	12-Sep-15	129d
C3840-ABWP-130	Material delivery to site	60d	14-Sep-15	25-Nov-15	129d
C3840-ABWP-140	Method Statement Submission & Approval	90d	29-May-15	12-Sep-15	189d
C3840-BSP-180	Obtain Eng's approval in principle of all acceptance procedures for ABWF Works	32d	30-Jul-16	30-Aug-16	375d
Detailed Design for Canopies on Above Ground Structures (PS Cl. P4.3.3)		104d	19-Sep-14	23-Jan-15	534d
C3840-PWDC-210	Prepare/submit detailed design for structural steel members & connection details	24d	19-Sep-14	18-Oct-14	161d
C3840-PWDC-260	Detailed design review & approve by ICE, Eng/MTRC	56d	20-Oct-14	23-Dec-14	161d
C3840-PWDC-270	Issue Working Drawings for Construction	24d	24-Dec-14	23-Jan-15	534d
BS & ABWF Works at D1		84d	28-Feb-17	14-Jun-17	74d
C3840-BSD1-130	BS 1st Fix	24d	28-Feb-17	28-Mar-17	74d
C3840-BSD1-140	BS 2nd Fix	24d	28-Mar-17	29-Apr-17	74d
C3840-BSD1-150	ABWF Works to Deg. 1 Completion	24d	28-Feb-17	28-Mar-17	74d



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Date	Revision	Checked	Approved
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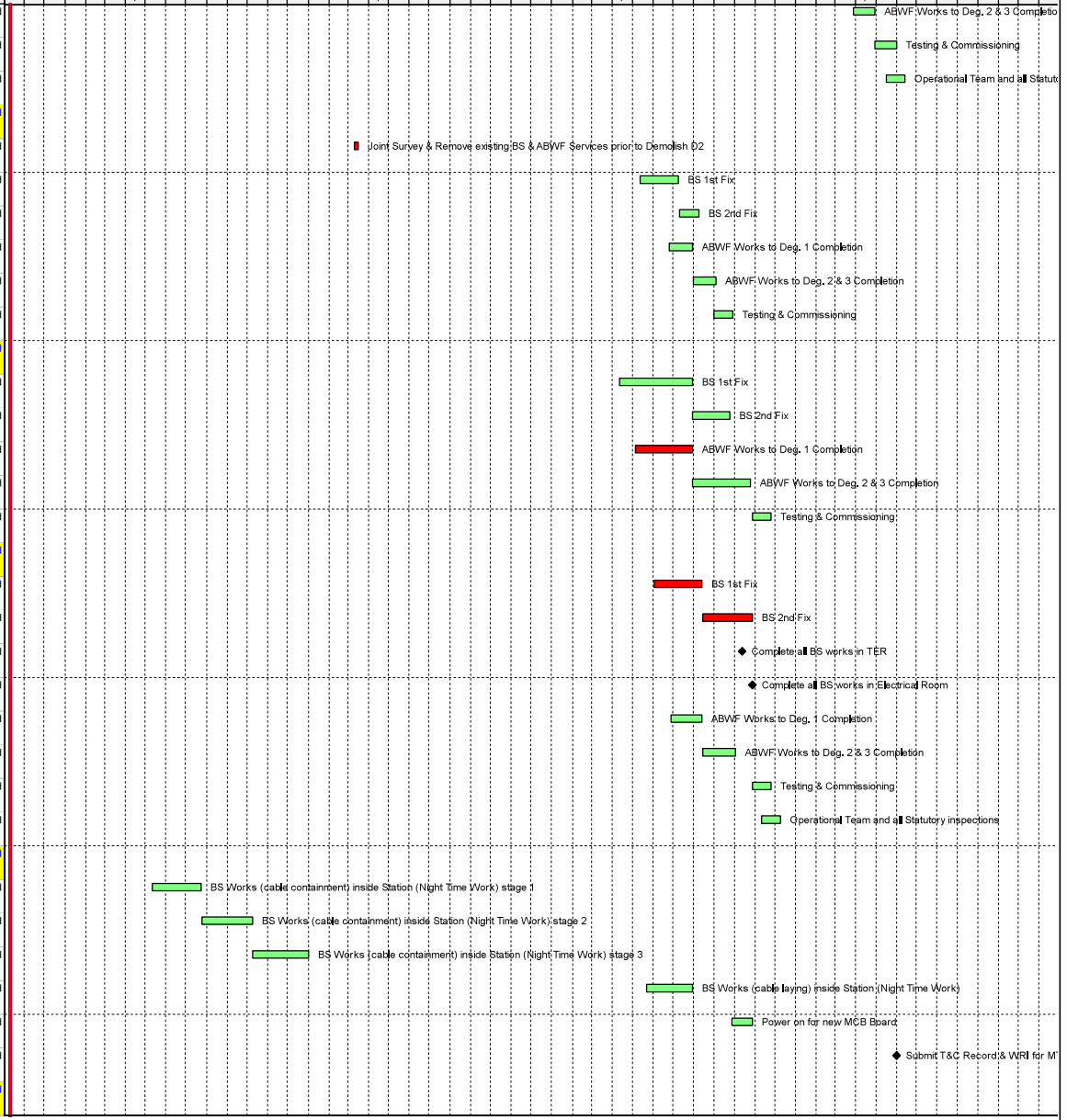
Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Total Float
C3840-BSD1-155	ABWF Works to Deg. 2 & 3 Completion	24d	28-Mar-17	29-Apr-17	74d
C3840-BSD1-170	Testing & Commissioning	24d	29-Apr-17	31-May-17	74d
C3840-BSD1-200	Operational Team and all Statutory inspections	24d	16-May-17	14-Jun-17	74d
BS & ABWF Works at D2		461d	11-Mar-15	28-Sep-16	109d
C3840-BSD2-100	Joint Survey & Remove existing BS & ABWF Services prior to Demolish D2	6d	11-Mar-15	17-Mar-15	9d
C3840-BSD2-110	BS 1st Fix	48d	12-May-16	09-Jul-16	62d
C3840-BSD2-120	BS 2nd Fix	25d	11-Jul-16	08-Aug-16	62d
C3840-BSD2-130	ABWF Works to Deg. 1 Completion	30d	25-Jun-16	30-Jul-16	129d
C3840-BSD2-135	ABWF Works to Deg. 2 & 3 Completion	30d	01-Aug-16	03-Sep-16	129d
C3840-BSD2-140	Testing & Commissioning	24d	31-Aug-16	28-Sep-16	109d
BS & ABWF Works at Subway Conc. Level and Plant Room & D3		188d	12-Apr-16	24-Nov-16	62d
C3840-BSS-100	BS 1st Fix	90d	12-Apr-16	29-Jul-16	37d
C3840-BSS-110	BS 2nd Fix	48d	30-Jul-16	24-Sep-16	88d
C3840-BSS-120	ABWF Works to Deg. 1 Completion	70d	06-May-16	29-Jul-16	1d
C3840-BSS-125	ABWF Works to Deg. 2 & 3 Completion	71d	30-Jul-16	24-Oct-16	89d
C3840-BSS-130	Testing & Commissioning	24d	28-Oct-16	24-Nov-16	62d
BS & ABWF Works at Mid Landing Level & Plant Room		157d	03-Jun-16	08-Dec-16	58d
C3840-BSM-100	BS 1st Fix	60d	03-Jun-16	13-Aug-16	9d
C3840-BSM-110	BS 2nd Fix	61d	15-Aug-16	27-Oct-16	9d
C3840-BSM-120	Complete all BS works in TER	0d		13-Oct-16	9d
C3840-BSM-130	Complete all BS works in Electrical Room	0d		27-Oct-16	20d
C3840-BSM-140	ABWF Works to Deg. 1 Completion	40d	28-Jun-16	13-Aug-16	107d
C3840-BSM-150	ABWF Works to Deg. 2 & 3 Completion	40d	15-Aug-16	03-Oct-16	107d
C3840-BSM-160	Testing & Commissioning	24d	28-Oct-16	24-Nov-16	58d
C3840-BSM-170	Operational Team and all Statutory inspections	24d	11-Nov-16	08-Dec-16	58d
BS Works at Station		905d	12-May-14	31-May-17	86d
C3840-BST-140	BS Works (cable containment) inside Station (Night Time Work) stage 1	68d	12-May-14	24-Jul-14	498d
C3840-BST-150	BS Works (cable containment) inside Station (Night Time Work) stage 2	70d	25-Jul-14	09-Oct-14	498d
C3840-BST-160	BS Works (cable containment) inside Station (Night Time Work) stage 3	70d	10-Oct-14	02-Jan-15	498d
C3840-BST-180	BS Works (cable laying) inside Station (Night Time Work)	62d	23-May-16	30-Jul-16	79d
C3840-BST-190	Power on for new MCB Board	24d	27-Sep-16	27-Oct-16	20d
C3840-BST200	Submit T&C Record & WRI for MTR Record	0d		31-May-17	86d
Operational & Maintenance Manuals, As-built Drawings, Design Data		174d	28-Oct-16	19-Apr-17	143d



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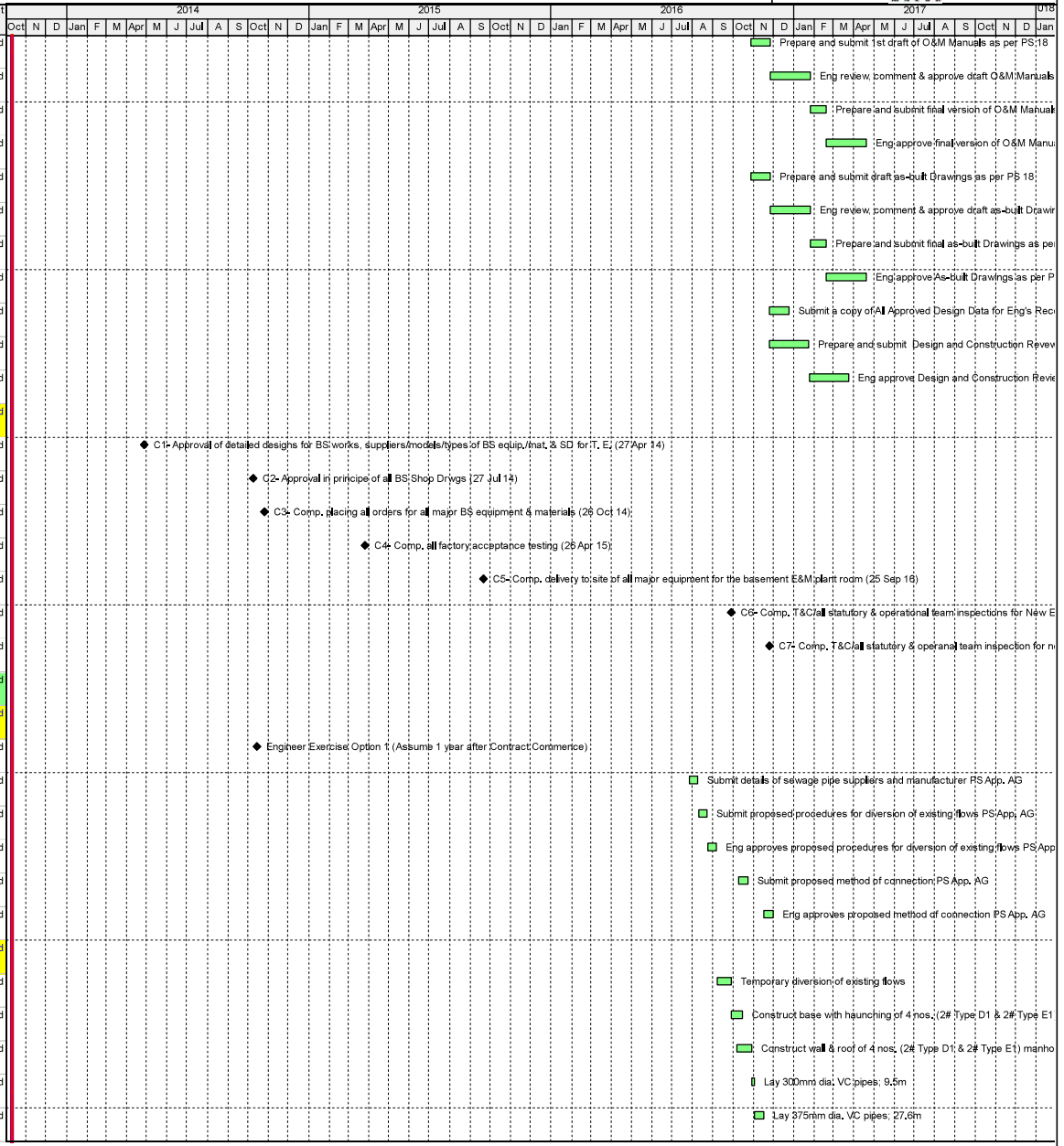
Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Total Float
C1102-OD-1000	Prepare and submit 1st draft of O&M Manuals as per PS 18	30d	28-Oct-16	26-Nov-16	143d
C1102-OD-1010	Eng review, comment & approve draft O&M Manuals as per PS 18	60d	27-Nov-16	25-Jan-17	143d
C1102-OD-1020	Prepare and submit final version of O&M Manuals as per PS 18	24d	26-Jan-17	18-Feb-17	143d
C1102-OD-1030	Eng approve final version of O&M Manuals as per PS 18	60d	19-Feb-17	19-Apr-17	143d
C1102-OD-1040	Prepare and submit draft as-built Drawings as per PS 18	30d	28-Oct-16	26-Nov-16	143d
C1102-OD-1050	Eng review, comment & approve draft as-built Drawings as per PS 18	60d	27-Nov-16	25-Jan-17	143d
C1102-OD-1060	Prepare and submit final as-built Drawings as per PS 18	24d	26-Jan-17	18-Feb-17	143d
C1102-OD-1070	Eng approve As-built Drawings as per PS 18	60d	19-Feb-17	19-Apr-17	143d
C1102-OD-1080	Submit a copy of All Approved Design Data for Eng's Record as per PS 18	30d	25-Nov-16	24-Dec-16	199d
C1102-OD-1090	Prepare and submit Design and Construction Revew Report as per PS 18	60d	25-Nov-16	23-Jan-17	169d
C1102-OD-1100	Eng approve Design and Construction Review Report as per PS 18	60d	24-Jan-17	24-Mar-17	169d
Milestones for Cost Centre C - Building Services		942d	27-Apr-14	24-Nov-16	289d
C3840-MS-C01	C1- Approval of detailed designs for BS works, suppliers/models/types of BS equip./mat. & SD for T. E. (27 Apr 14)	0d		27-Apr-14	1231d
C3840-MS-C02	C2- Approval in principe of all BS Shop Drwgs (27 Jul 14)	0d		09-Oct-14	1066d
C3840-MS-C03	C3- Comp. placing all orders for all major BS equipment & materials (26 Oct 14)	0d		25-Oct-14	1050d
C3840-MS-C04	C4- Comp. all factory acceptance testing (26 Apr 15)	0d		26-Mar-15	898d
C3840-MS-C05	C5- Comp. delivery to site of all major equipment for the basement E&M plant room (25 Sep 16)	0d		21-Sep-15	719d
C3840-MS-C06	C6- Comp. T&C/all statutory & operational team inspections for New Entrance D2 (25 Dec 16)	0d		28-Sep-16	346d
C3840-MS-C07	C7- Comp. T&C/all statutory & operanal team inspection for new Entrance D3 and Subway (26 Mar 17)	0d		24-Nov-16	289d
DSD Entrusted Drainage Works - Option		688d	14-Oct-14	09-Feb-17	174d
Submissions		778d	14-Oct-14	01-Dec-16	203d
C3840-ENT-010	Engineer Exercise Option 1 (Assume 1 year after Contract Commence)	0d		14-Oct-14	849d
C3840-ENT-020	Submit details of sewage pipe suppliers and manufacturer PS App. AG	14d	27-Jul-16	09-Aug-16	198d
C3840-ENT-030	Submit proposed procedures for diversion of existing flows PS App. AG	14d	10-Aug-16	23-Aug-16	198d
C3840-ENT-040	Eng approves proposed procedures for diversion of existing flows PS App. AG	14d	24-Aug-16	06-Sep-16	198d
C3840-ENT-050	Submit proposed method of connection PS App. AG	14d	10-Oct-16	24-Oct-16	203d
C3840-ENT-060	Eng approves proposed method of connection PS App. AG	14d	17-Nov-16	01-Dec-16	203d
DSD Entrusted Sewage Works		125d	07-Sep-16	09-Feb-17	174d
C3840-ENT-070	Temporary diversion of existing flows	18d	07-Sep-16	28-Sep-16	161d
C3840-ENT-080	Construct base with haunching of 4 nos. (2# Type D1 & 2# Type E1) manholes	12d	29-Sep-16	15-Oct-16	161d
C3840-ENT-090	Construct wall & roof of 4 nos. (2# Type D1 & 2# Type E1) manholes	18d	07-Oct-16	29-Oct-16	161d
C3840-ENT-110	Lay 300mm dia. VC pipes; 9.5m	3d	29-Oct-16	02-Nov-16	161d
C3840-ENT-120	Lay 375mm dia. VC pipes; 27.6m	12d	02-Nov-16	16-Nov-16	161d



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Preliminary Master Programme

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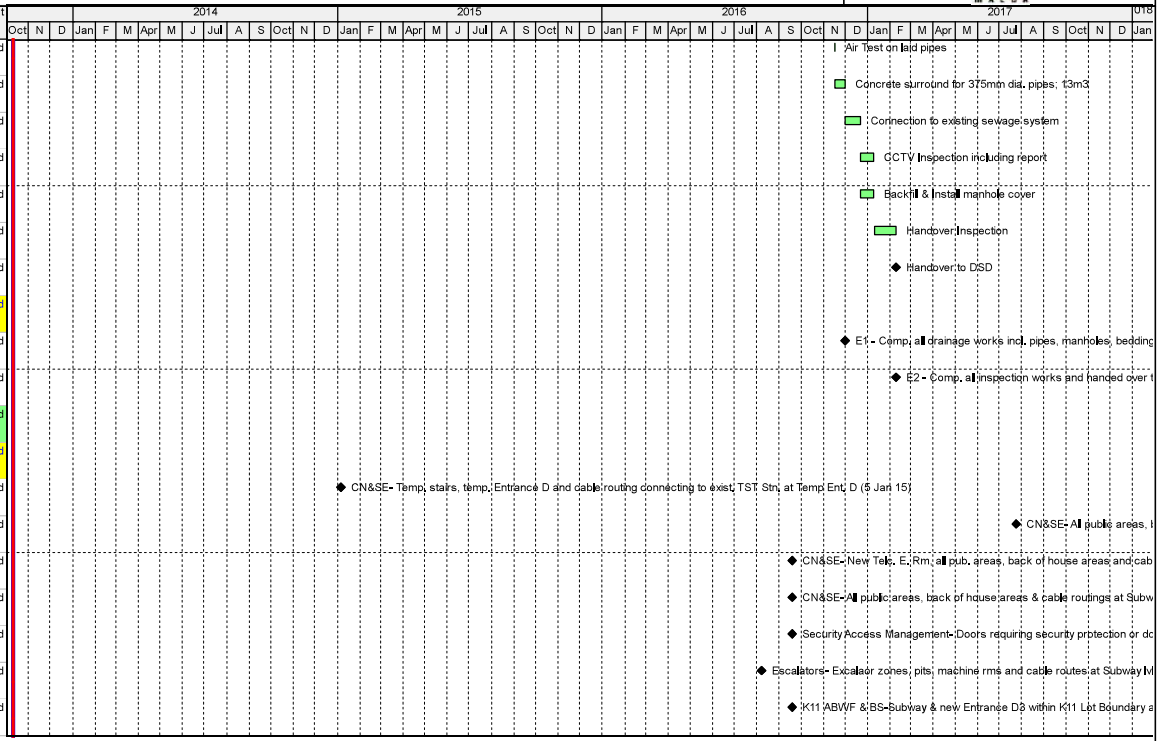
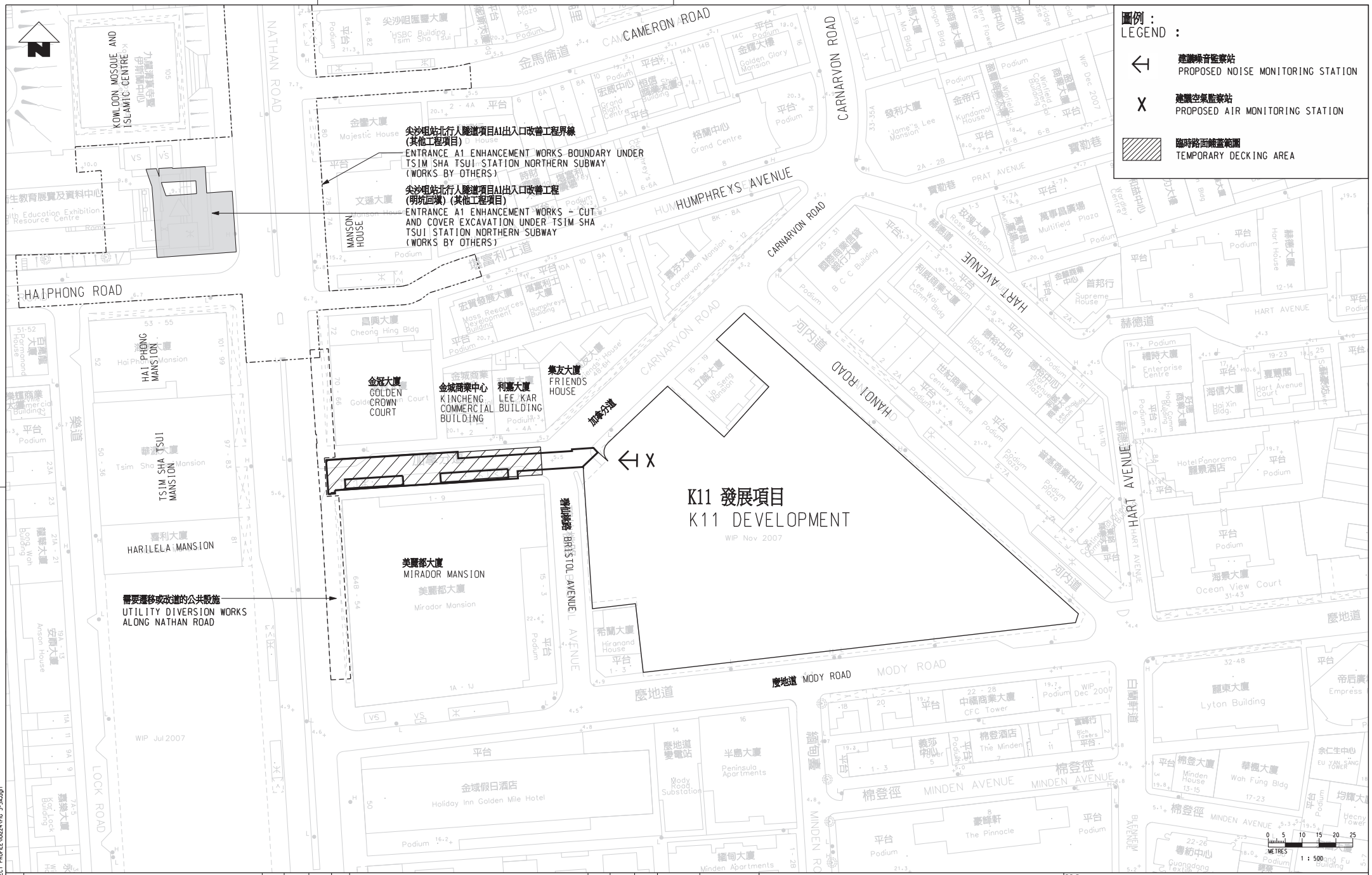
Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Total Float
C3840-ENT-130	Air Test on laid pipes	1d	16-Nov-16	17-Nov-16	161d
C3840-ENT-140	Concrete surround for 375mm dia. pipes; 13m3	12d	17-Nov-16	01-Dec-16	161d
C3840-ENT-150	Connection to existing sewage system	18d	01-Dec-16	22-Dec-16	161d
C3840-ENT-160	CCTV Inspection including report	13d	22-Dec-16	09-Jan-17	161d
C3840-ENT-170	Backfill & Install manhole cover	13d	22-Dec-16	09-Jan-17	161d
C3840-ENT-180	Handover Inspection	24d	10-Jan-17	09-Feb-17	174d
C3840-ENT-190	Handover to DSD	0d		09-Feb-17	174d
Milestones for Cost Centre E - DSD Entrusted Drainage Works - Option		71d	01-Dec-16	09-Feb-17	212d
C3840-MS-E01	E1 - Comp. all drainage works incl. pipes, manholes, bedding and etc. (25 Dec 16)	0d		01-Dec-16	283d
C3840-MS-E02	E2 - Comp. all inspection works and handed over to DSD (26 Mar 17)	0d		09-Feb-17	212d
Interface Requirements Associated with Designated Contracts		931d	05-Jan-15	24-Jul-17	0d
Access Dates for Designated Contractors As PS Appendix B		931d	05-Jan-15	24-Jul-17	0d
C3840-DC-10	CN&SE- Temp. stairs, temp. Entrance D and cable routing connecting to exist. TST Stn. at Temp Ent. D (5 Jan 15)	0d	05-Jan-15		0d
C3840-DC-20	CN&SE- All public areas, back of house areas and cable routings at New Entrance D1 (24 Jul 17)	0d	24-Jul-17		0d
C3840-DC-30	CN&SE- New Telc. E. Rm, all pub. areas, back of house areas and cab. rout. at B. P. Rm, m.l. Subw& N.E. D2 (19 Sep 16)	0d	19-Sep-16		0d
C3840-DC-40	CN&SE- All public areas, back of house areas & cable routings at Subway & new Ent. D3 (19 Sep 16)	0d	19-Sep-16		0d
C3840-DC-50	Security Access Management- Doors requiring security protection or door contacts at Basement P. Rm. (19 Sep 16)	0d	19-Sep-16		0d
C3840-DC-70	Escalators- Excalaor zones, pits, machine rms and cable routes at Subway M to mid-landing (8 Aug 16)	0d	08-Aug-16		0d
C3840-DC-80	K11 ABWF & BS-Subway & new Entrance D3 within K11 Lot Boundary at Subway within K11 Lot B. (19 Sep 16)	0d	19-Sep-16		0d



Appendix B

Locations of Baseline Air Quality and Noise Monitoring Stations



REV	DESCRIPTION	BY	DATE	APPROVED
A	PROJECT PROFILE	HO	--	--

DRAWN	HO
DESIGNED	--
CHECKED	--
APPROVED	--
DATE	--

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

MTR

TST STATION CARNARVON ROAD SUBWAY

ORIGINATOR

Mott MacDonald

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100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk

In association with
Ivanhoe Architect Ltd
ERM Hong Kong Ltd

CADD REF.

TITLE

CONSULTANCY AGREEMENT NO. NEX/1049
DETAILED DESIGN FOR CARNARVON ROAD SUBWAY
AIR AND NOISE MONITORING LOCATIONS
空氣及噪音監察站位置圖

SCALE 1:500 (A1)

DRAWING NO. APPENDIX B

REV. A

PLOT DRV: C:\WTRC_A3.BW.COLpl
MODELNAME: DeFault
FILENAME: JN\27299-KN\PROJECT PROFILE\0224\FIG 3-3A.dgn
PRINTED BY: ho57494 08/02/2 14:48:02

Appendix C

Calibration Certificates

TSP Sampler Calibration

SITE

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

CONDITIONS

Barometric Pressure (in Hg):	40.35	Corrected Pressure (mm Hg):	1025
Temperature (deg F):	59	Temperature (deg K):	288
Average Press. (in Hg):	40.35	Corrected Average (mm Hg):	1025
Average Temp. (deg F):	59	Average Temp. (deg K):	288

CALIBRATION ORIFICE

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

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.60	2.093	56.0	66.15
2	9.80	1.847	50.0	59.06
3	7.30	1.595	44.0	51.98
4	4.60	1.268	35.0	41.34
5	2.90	1.008	28.0	33.08

LINEAR REGRESSION

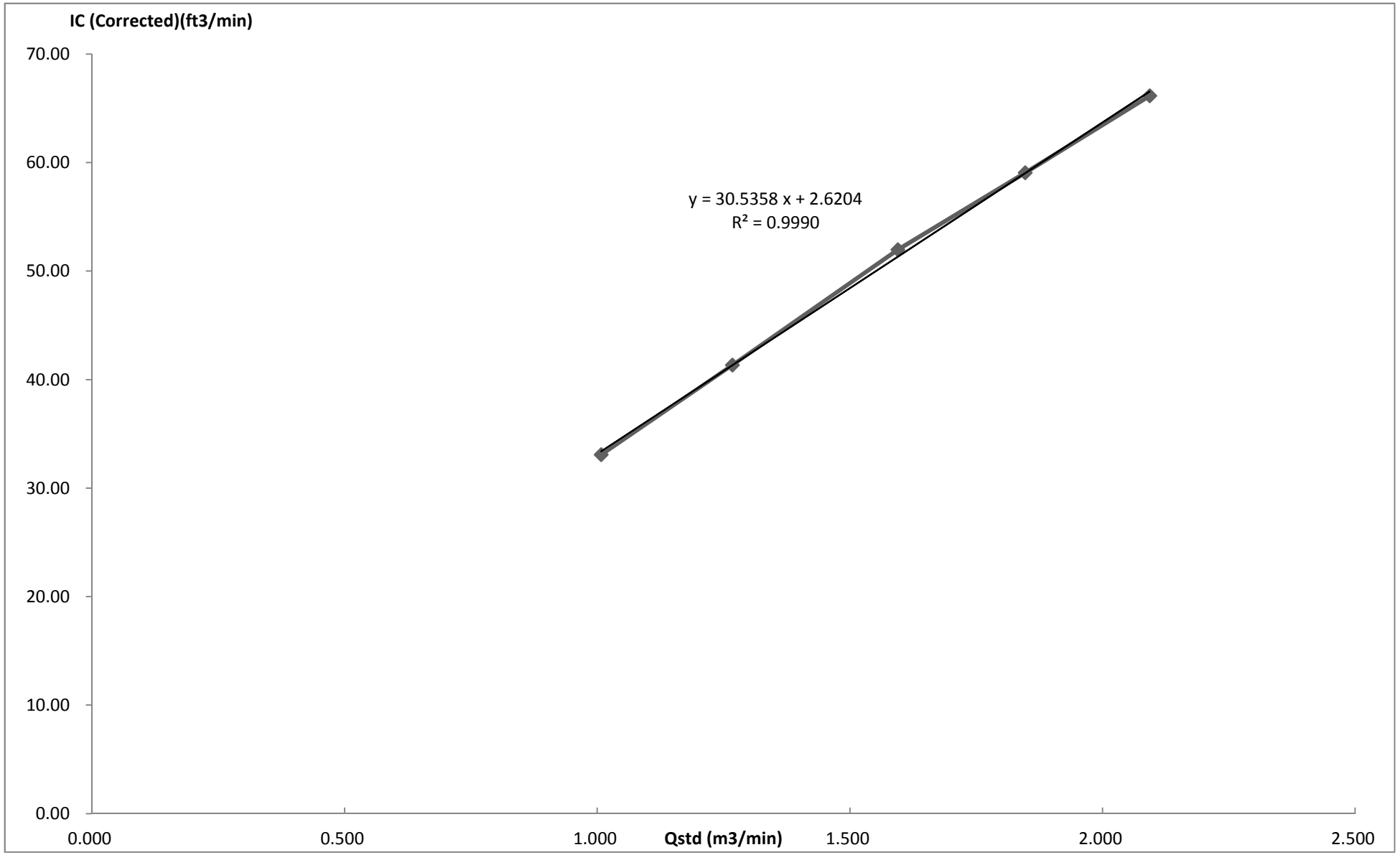
Slope =	30.5358
Intercept =	2.6204
Corr. coeff.=	0.9995
# of Observations:	5

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


IC (Corrected)(ft3/min)
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
y = 30.5358 x + 2.6204
R² = 0.9990
0.000
0.500
1.000
Qstd (m3/min)
1.500
2.000
2.500

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 15, 2013 Rootsmeter S/N 0438320 Ta (K) - 294
Operator Tisch Orifice I.D. - 1785 Pa (mm) - 750.57

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4050	3.2	2.00
2	NA	NA	1.00	0.9870	6.4	4.00
3	NA	NA	1.00	0.8850	7.9	5.00
4	NA	NA	1.00	0.8420	8.7	5.50
5	NA	NA	1.00	0.6960	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9967	0.7094	1.4149		0.9957	0.7087	0.8851
0.9925	1.0056	2.0010		0.9915	1.0045	1.2517
0.9904	1.1191	2.2372		0.9894	1.1179	1.3995
0.9894	1.1751	2.3464		0.9884	1.1739	1.4678
0.9840	1.4139	2.8299		0.9830	1.4124	1.7702
Qstd slope (m) =		2.00979		Qa slope (m) =		1.25849
intercept (b) =		-0.01403		intercept (b) =		-0.00878
coefficient (r) =		0.99995		coefficient (r) =		0.99995
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

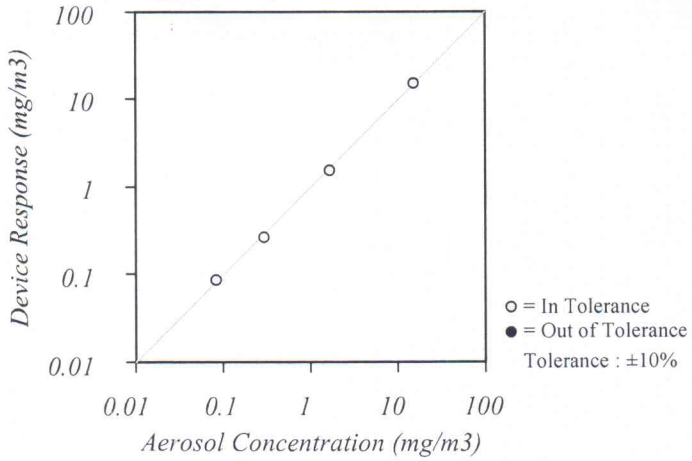
Environment Condition		
Temperature	68.2 (20.1)	°F (°C)
Relative Humidity	20	%RH
Barometric Pressure	28.81 (975.6)	inHg (hPa)

Model	**AM510**
Serial Number	**11302029**

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-01

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Photometer	E003433	10-09-12	04-09-13	Flowmeter	E002371	03-06-12	03-06-13
DC Voltage(Keithley)	E002859	01-03-13	01-03-14	Microbalance	M001324	01-04-13	01-04-15
Barometric Pressure	E003733	02-25-12	02-25-13	Temperature	E002873	11-08-12	11-08-13
Humidity	E002873	11-08-12	11-08-13	Pressure	E003440	08-17-12	08-17-13

Kao Vang
Calibrated

☑ Final Function Check

February 12, 2013
Date

Hong Kong Calibration Ltd.
香 港 校 正 有限公司

Calibration Certificate

Certificate No. **36604** Page 1 of 4 Pages

Customer : Enovative Environmental Service Limited

Address : Room 3, 12/F., New City Centre, 2 Lei Yue Mun Road, Kwun Tong, Kowloon, H.K.

Order No. : Q32395 **Date of receipt :** 4-Sep-13

Item Tested

Description : Sound Level Meter (N12-RION-004)

Manufacturer : Rion

Model : NL-52 **Serial No. :** 00220553

Test Conditions

Date of Test : 10-Sep-13 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results

All results were within the IEC 61672 Type1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C127181	SCL-HKSAR
S205	Ref. Sound Level Calibrator	PHCO40002	SCL-HKSAR

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 : Dorothy Cheuk

Approved by : Steve Kwan

Date: 16-Sep-13

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

Calibration Certificate

Results :

1. **Self-generated noise:** 16.4 dBA (Mfr's Spec ≤17 dBA)

2. **Acoustical signal test**

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Response		
30 – 130	L_A	Fast	94.0	94.0
		Slow		94.0
	L_C	Fast		94.0
	L_Z	Fast		94.0
	L_A	Fast	114.0	114.0
		Slow		114.0
	L_C	Fast		114.0
	L_Z	Fast		114.0

IEC 61672 Type 1 Spec. : ± 1.1 dB
Uncertainty : ± 0.1 dB

3 **Electrical signal tests of frequency weightings** (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.8	- 39.4 dB, ± 2 dB
63 Hz	-26.4	- 26.2 dB, ± 1.5 dB
125 Hz	-16.3	- 16.1 dB, ± 1.5 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1.4 dB
1 kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.2	+ 1.2 dB, ± 1.6 dB
4 kHz	+0.9	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.1	- 1.1 dB, + 2.1 dB ~ -3.1 dB
16 kHz	-8.0	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

Uncertainty : ± 0.1 dB

Calibration Certificate

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
A	94.0	94.0 (Ref.)	- -	± 0.4 dB
C	94.0	94.0	0.0	
Z	94.0	94.0	0.0	

4.2 Time Weighting (A-weighted)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	94.0	94.0 (Ref.)	- -	± 0.3 dB
Slow	94.0	94.0	0.0	
Time-averaging	94.0	94.0	0.0	

Uncertainty : ± 0.1 dB

5. Level linearity on the reference level range

UUT Range	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
130 dB (Ref Level)	129.0	129.0	0.0	± 1.1 dB
	124.0	124.0	0.0	
	119.0	119.0	0.0	
	114.0	114.0	0.0	
	109.0	109.0	0.0	
	104.0	104.0	0.0	
	99.0	99.0	0.0	
	94.0	94.0 (Ref)	--	
	89.0	89.0	0.0	
	84.0	84.0	0.0	
	79.0	79.0	0.0	
	74.0	74.0	0.0	
	69.0	69.0	0.0	
	64.0	64.0	0.0	
	59.0	59.0	0.0	
	54.0	54.0	0.0	
	49.0	49.0	0.0	
	44.0	44.0	0.0	

Uncertainty : ± 0.1 dB

Calibration Certificate

6. **Toneburst response** (4kHz)

UUT Setting	Tone Burst Duration(ms)	UUT Reading(dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	Steady	127.0(Ref)	--	--
	200	126.0	-1.0	-1.0 ± 0.8dB
	2	108.9	-18.1	-18.0, +1.3 dB ~ -1.8 dB
	0.25	99.9	-27.1	-27.0, +1.3 dB ~ -3.3 dB
Slow	Steady	127.0(Ref)	--	--
	200	120.2	-6.8	-7.4 ± 0.8dB
	2	100.6	-26.4	-27.0, +1.3 dB ~ -3.3 dB
Time averaging	Steady	127.0(Ref)	--	--
	200	120.1	-6.9	-7.0±0.8dB
	2	99.5	-27.5	-27.0, +1.3 dB ~ -1.8 dB
	0.25	91.7	-35.3	-36.0, +1.3 dB ~ -3.3 dB

Uncertainty : ± 0.1 dB

7. **Overload indication** (130 dB range, A-weighted, Time-average, 4kHz)

UUT Reading at overload (dB)		Difference (dB)	IEC 61672 Type 1 Spec.
+ ve one half cycle	- ve one half cycle		
138.4	138.2	0.2	< 1.8 dB

The overload indicator latched on until reset

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 996 hPa.
4. Preamplifier model : NH-25 , S/N : 10553
5. Firmware Version: 1.2
6. Power Supply Check: OK
7. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 37521 Page 1 of 2 Pages

Customer : Enovative Environmental Service Limited

Address : Room 3, 12/F., New City Centre, 2 Lei Yue Mun Road, Kwun Tong, Kowloon, H.K.

Order No. : Q32432 **Date of receipt :** 16-Oct-13

Item Tested

Description : Sound Level Calibrator

Manufacturer : B&K

Model : Type 4231 **Serial No. :** 2685684

Test Conditions

Date of Test : 31-Oct-13 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02.

Test Results

All results were within the IEC 942 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	35730	NIM-PRC & SCL-HKSAR
S205	Ref. Sound Level Calibrator	PHCO40002	SCL-HKSAR
S041	Universal Counter	34621	SCL-HKSAR
S206	Sound Level Meter	36203	SCL-HKSAR
S031	6½ dgt. Multimeter	30128	NIM-PRC

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 : Dorothy Cheuk

Approved by : Steve Kwan

Date: 31-Oct-13

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

E

Calibration Certificate

Results :

1. Level Accuracy

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.08	± 0.3 dB
114	114.07	

Uncertainty : ± 0.1 dB

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.002 kHz	± 2 %

Uncertainty : ± 3.6 x 10^{-6}

3. Level Stability : 0.0 dB
IEC 942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.7 %
IEC 942 Class 1 Spec. : < 3 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1014 hPa.

---------- END ----------

Appendix D

Baseline Monitoring Schedule

Baseline Monitoring Schedule

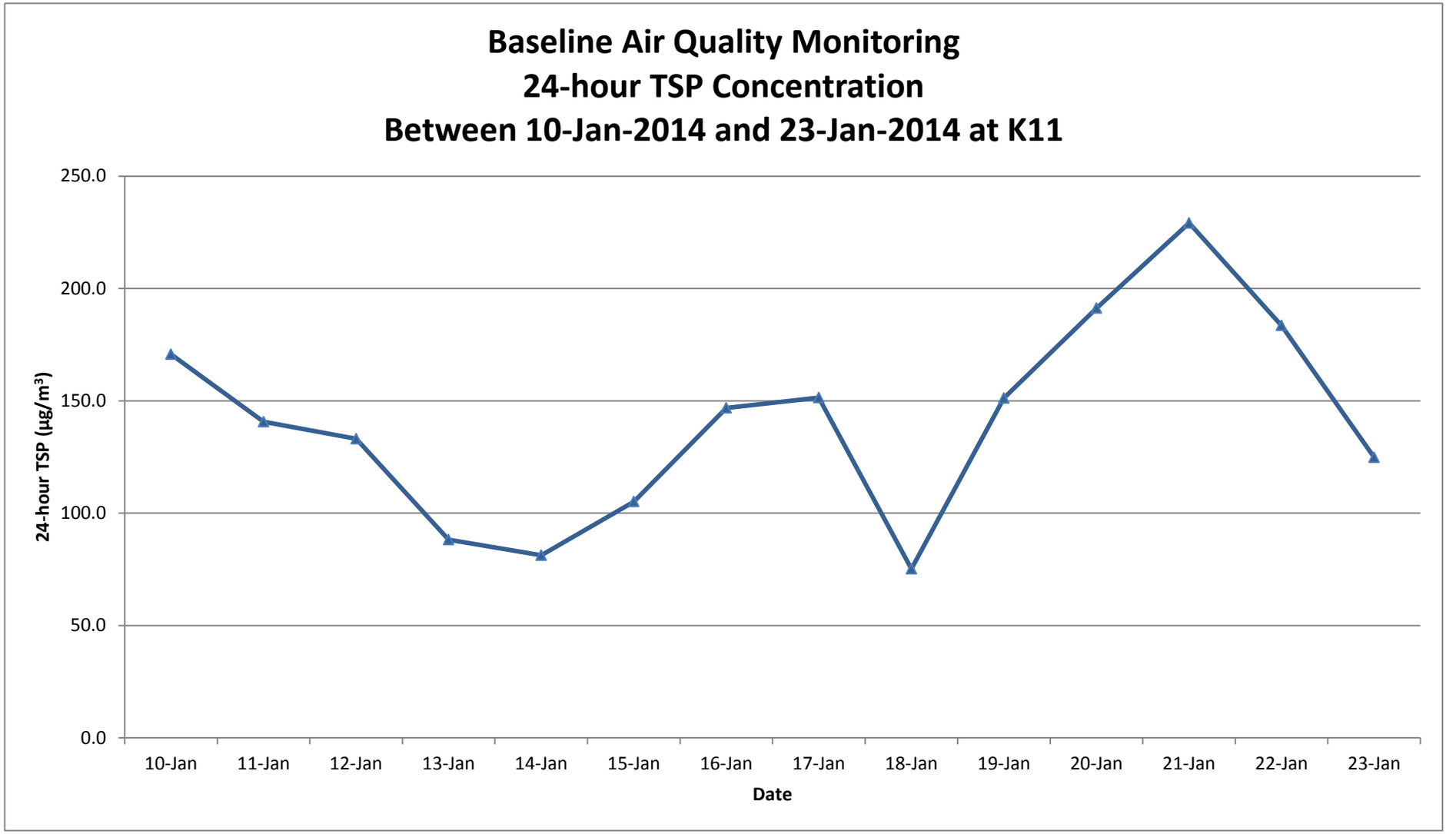
Date	Baseline Monitoring		
	Air Quality		Noise
	1-hour TSP	24-hour TSP	
10-Jan-14	✔	✔	✔
11-Jan-14	✔	✔	✔
12-Jan-14	✔	✔	✔
13-Jan-14	✔	✔	✔
14-Jan-14	✔	✔	✔
15-Jan-14	✔	✔	✔
16-Jan-14	✔	✔	✔
17-Jan-14	✔	✔	✔
18-Jan-14	✔	✔	✔
19-Jan-14	✔	✔	✔
20-Jan-14	✔	✔	✔
21-Jan-14	✔	✔	✔
22-Jan-14	✔	✔	✔
23-Jan-14	✔	✔	✔
24-Jan-14		✔	

Appendix E

Baseline Air Quality Monitoring Results

Baseline Air Quality Monitoring
24-hour TSP at K11

Sampling Date	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Total Volume (m^3)	TSP Concentration ($\mu g/m^3$)	Weather
		Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hours	Initial	Final	Average Flow Rate			
10/01/14	206071	2.5584	2.8368	0.2784	6179.17	6203.17	24.00	40	40	40.0	1631.05	170.6876	Sunny
11/01/14	206072	2.5753	2.8047	0.2294	6203.17	6227.2	24.00	40	40	40.0	1631.05	140.6456	Sunny
12/01/14	206073	2.7216	2.9387	0.2171	6227.17	6251.17	24.00	40	40	40.0	1631.05	133.1044	Sunny
13/01/14	206074	2.7565	2.9003	0.1438	6251.17	6275.2	24.00	40	40	40.0	1631.05	88.1641	Sunny
14/01/14	206075	2.7756	2.9081	0.1325	6275.17	6299.17	24.00	40	40	40.0	1631.05	81.2360	Sunny
15/01/14	206076	2.6456	2.8170	0.1714	6299.17	6323.2	24.00	40	40	40.0	1631.05	105.0857	Sunny
16/01/14	206077	2.5952	2.8346	0.2394	6323.17	6347.17	24.00	40	40	40.0	1631.05	146.7766	Sunny
17/01/14	206078	2.6878	2.9347	0.2469	6347.17	6371.2	24.00	40	40	40.0	1631.05	151.3749	Sunny
18/01/14	206079	2.7885	2.9112	0.1227	6371.17	6395.17	24.00	40	40	40.0	1631.05	75.2276	Sunny
19/01/14	206080	2.6804	2.9270	0.2466	6395.17	6419.2	24.00	40	40	40.0	1631.05	151.1909	Sunny
20/01/14	206081	2.3951	2.7070	0.3119	6419.17	6443.17	24.00	40	40	40.0	1631.05	191.2265	Sunny
21/01/14	206082	2.5477	2.9214	0.3737	6443.17	6467.2	24.00	40	40	40.0	1631.05	229.1162	Sunny
22/01/14	206083	2.6454	2.9447	0.2993	6467.17	6491.17	24.00	40	40	40.0	1631.05	183.5014	Sunny
23/01/14	206084	2.6417	2.8452	0.2035	6491.17	6515.2	24.00	40	40	40.0	1631.05	124.7662	Sunny


Baseline Air Quality Monitoring
24-hour TSP Concentration
Between 10-Jan-2014 and 23-Jan-2014 at K11
250.0
200.0
150.0
100.0
50.0
0.0
24-hour TSP (µg/m³)
10-Jan
11-Jan
12-Jan
13-Jan
14-Jan
15-Jan
16-Jan
17-Jan
18-Jan
19-Jan
20-Jan
21-Jan
22-Jan
23-Jan
Date

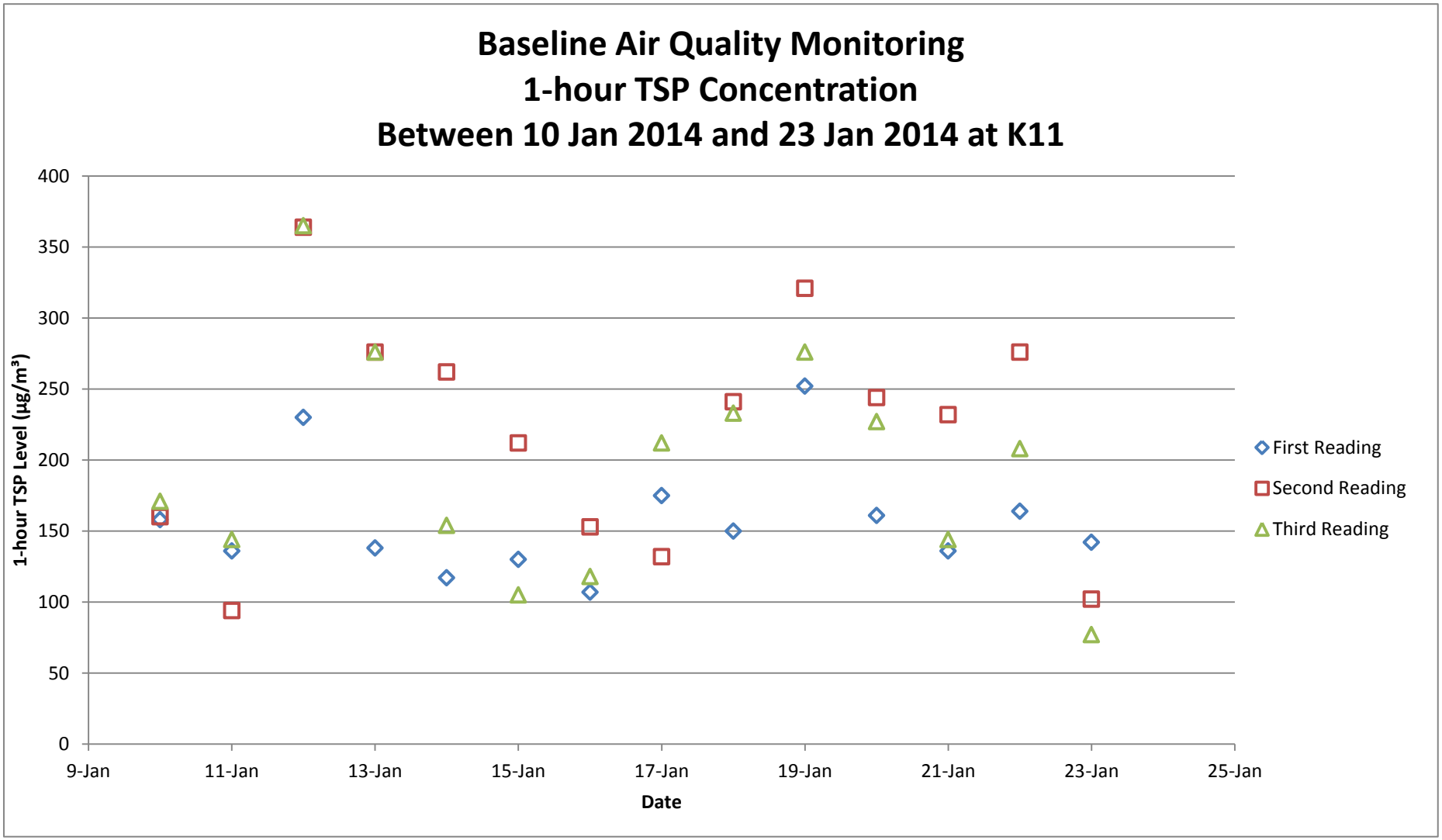
Baseline Air Quality Monitoring
1-hour TSP at K11

Date	10-Jan-2014			11-Jan-2014			12-Jan-2014			13-Jan-2014		
Weather	Sunny			Sunny			Sunny			Sunny		
Time	10:00-11:00	11:00-12:00	12:00-13:00	10:00-11:00	11:00-12:00	12:00-13:00	10:00-11:00	11:00-12:00	12:00-13:00	10:00-11:00	11:00-12:00	12:00-13:00
Temperature (°C)	14.4	14.9	15.1	18.1	18.6	18.8	22.9	23.4	23.8	23	23.6	23.7
Dust Concentration (μg/m³)	158	160	171	136	94	144	230	364	365	138	276	276

Date	14-Jan-2014			15-Jan-2014			16-Jan-2014			17-Jan-2014		
Weather	Sunny			Sunny			Sunny			Sunny		
Time	10:00-11:00	11:00-12:00	12:00-13:00	10:00-11:00	11:00-12:00	12:00-13:00	10:00-11:00	11:00-12:00	12:00-13:00	10:00-11:00	11:00-12:00	12:00-13:00
Temperature (°C)	16.6	16.9	17.5	15.5	16.1	16.9	15.5	15.7	16.8	19.6	20.4	20.8
Dust Concentration (μg/m³)	117	262	154	130	212	105	107	153	118	175	132	212

Date	18-Jan-2014			19-Jan-2014			20-Jan-2014			21-Jan-2014		
Weather	Sunny			Sunny			Sunny			Sunny		
Time	10:00-11:00	11:00-12:00	12:00-13:00	10:00-11:00	11:00-12:00	12:00-13:00	10:00-11:00	11:00-12:00	12:00-13:00	10:00-11:00	11:00-12:00	12:00-13:00
Temperature (°C)	17.6	18.4	18.8	15.2	15.6	16.3	16.2	17.1	18	14.3	15.6	16.1
Dust Concentration (μg/m³)	150	241	233	252	321	276	161	244	227	136	232	144

Date	22-Jan-2014			23-Jan-2014		
Weather	Sunny			Sunny		
Time	10:00-11:00	11:00-12:00	12:00-13:00	10:00-11:00	11:00-12:00	12:00-13:00
Temperature (°C)	13.1	14	15.2	13.3	14.2	15.2
Dust Concentration (μg/m³)	164	276	208	142	102	77


Baseline Air Quality Monitoring
1-hour TSP Concentration
Between 10 Jan 2014 and 23 Jan 2014 at K11
1-hour TSP Level (µg/m³)
400
350
300
250
200
150
100
50
0
9-Jan
11-Jan
13-Jan
15-Jan
17-Jan
19-Jan
21-Jan
23-Jan
25-Jan
Date
First Reading
Second Reading
Third Reading

Appendix F

Baseline Noise Monitoring Results

Baseline Noise Monitoring Results

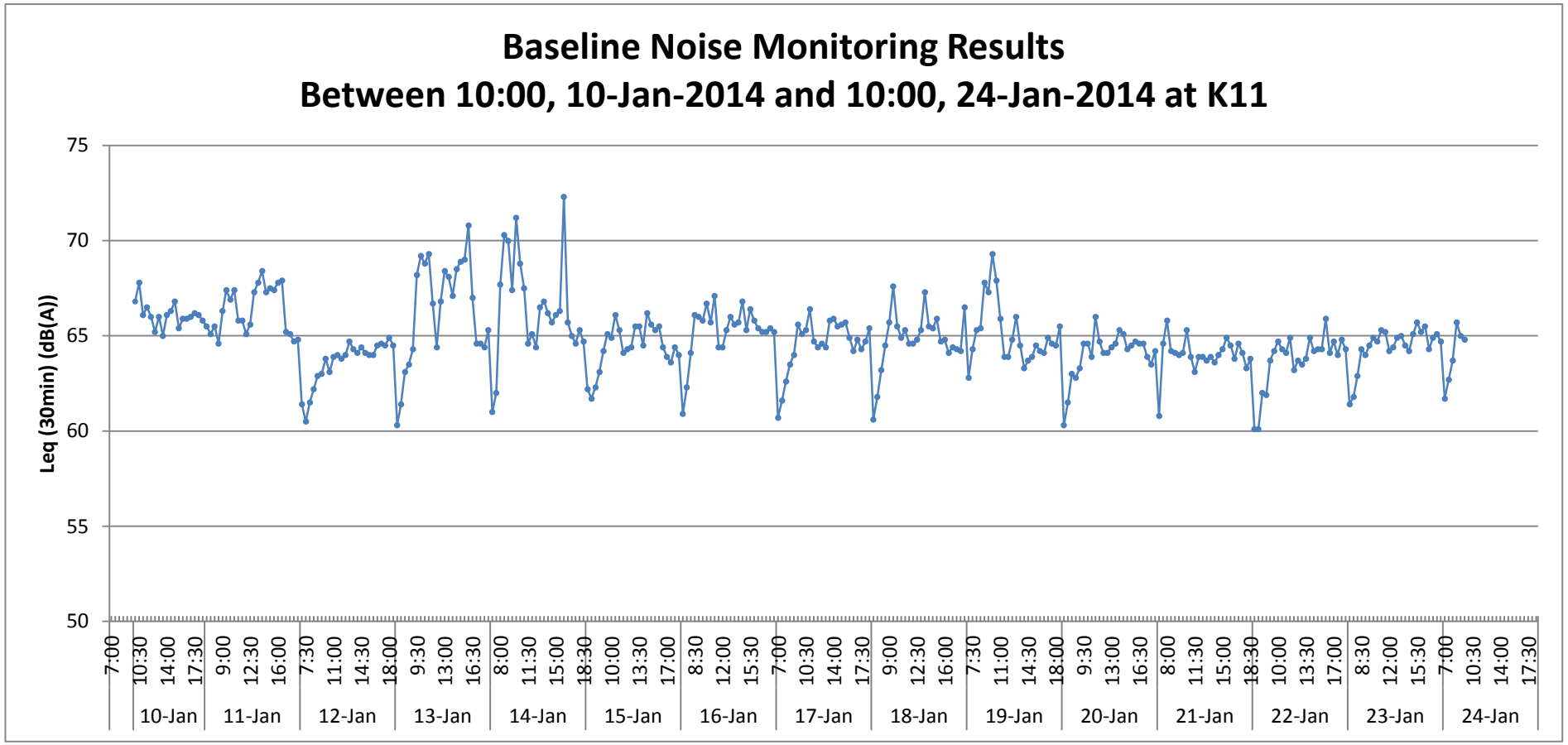
Monitoring Location: K11																
Date		**10-Jan-2014**			**11-Jan-2014**			**12-Jan-2014**			**13-Jan-2014**			**14-Jan-2014**		
Weather		Sunny			Sunny			Sunny			Sunny			Sunny		
Wind speed (spot measurement on site between 10:00 and 11:00) (m/s)		1.4			1.1			0.8			1.0			1.1		
		Noise Parameters (dB(A))			**Noise Parameters (dB(A))**			**Noise Parameters (dB(A))**			**Noise Parameters (dB(A))**			**Noise Parameters (dB(A))**		
Start Time	**End Time**	**L_{eq}**	**L_{10}**	**L_{90}**	**L_{eq}**	**L_{10}**	**L_{90}**	**L_{eq}**	**L_{10}**	**L_{90}**	**L_{eq}**	**L_{10}**	**L_{90}**	**L_{eq}**	**L_{10}**	**L_{90}**
7:00	**7:30**				65.5	65.8	59.2	61.4	62.8	57.4	60.3	62.4	57.6	61.0	62.6	57.4
7:30	**8:00**				65.1	67.2	59.8	60.5	62.6	57.8	61.4	63.5	58.4	62.0	63.7	58.7
8:00	**8:30**				65.5	67.2	61.6	61.5	63.4	58.4	63.1	64.6	60.1	67.7	70.5	61.2
8:30	**9:00**				64.6	65.8	61.9	62.2	64.3	59.2	63.5	65.5	60.7	70.3	73.2	64.4
9:00	**9:30**				66.3	67.5	63.8	62.9	64.4	59.6	64.3	66.2	62.0	70.0	71.5	64.9
9:30	**10:00**				67.4	68.3	63.4	63.0	64.8	60.5	68.2	70.0	64.7	67.4	68.7	65.1
10:00	**10:30**	66.8	68.7	63.0	66.9	68.2	64.0	63.8	65.5	61.6	69.2	70.5	67.4	71.2	73.3	66.6
10:30	**11:00**	67.8	69.4	63.3	67.4	68.8	64.2	63.1	64.8	61.2	68.8	71.3	66.0	68.8	71.5	65.9
11:00	**11:30**	66.1	68.3	63.1	65.8	67.7	63.5	63.9	65.3	61.8	69.3	71.0	65.9	67.5	68.8	63.9
11:30	**12:00**	66.5	68.4	63.7	65.8	67.5	63.1	64.0	65.5	61.9	66.7	70.0	62.7	64.6	66.0	62.4
12:00	**12:30**	66.0	67.3	63.1	65.1	66.7	63.0	63.8	65.4	61.7	64.4	66.0	62.2	65.1	66.6	62.8
12:30	**13:00**	65.2	66.3	62.8	65.6	67.0	62.9	64.0	65.5	61.9	66.8	69.2	62.9	64.4	65.8	62.5
13:00	**13:30**	66.0	67.4	62.8	67.3	68.2	65.3	64.7	66.0	62.6	68.4	69.4	66.2	66.5	67.3	62.9
13:30	**14:00**	65.0	66.8	62.7	67.8	68.3	65.1	64.3	66.1	62.0	68.1	68.9	66.4	66.8	68.6	62.4
14:00	**14:30**	66.1	67.6	64.0	68.4	69.3	66.2	64.1	65.5	62.1	67.1	68.2	65.5	66.2	67.8	63.5
14:30	**15:00**	66.3	67.7	64.0	67.3	68.3	66.1	64.4	65.7	62.3	68.5	69.6	66.7	65.7	67.4	63.4
15:00	**15:30**	66.8	67.6	64.1	67.5	68.5	65.9	64.1	65.4	62.2	68.9	70.3	66.3	66.1	67.8	63.9
15:30	**16:00**	65.4	66.9	63.7	67.4	68.4	65.9	64.0	65.3	62.2	69.0	70.3	66.5	66.3	67.1	63.6
16:00	**16:30**	65.9	67.1	63.8	67.8	68.8	65.9	64.0	65.4	62.2	70.8	72.1	67.5	72.3	72.7	63.6
16:30	**17:00**	65.9	67.3	64.0	67.9	69.6	63.7	64.5	66.3	62.4	67.0	68.7	63.2	65.7	67.3	63.1
17:00	**17:30**	66.0	67.1	63.8	65.2	66.7	63.1	64.6	66.3	62.7	64.6	65.7	62.2	65.0	66.5	63.1
17:30	**18:00**	66.2	67.9	63.9	65.1	66.5	63.3	64.5	65.8	62.6	64.6	66.5	62.1	64.6	65.9	62.7
18:00	**18:30**	66.1	67.4	63.7	64.7	66.0	63.1	64.9	66.4	62.8	64.4	66.5	62.0	65.3	65.9	62.4
18:30	**19:00**	65.8	67.1	63.5	64.8	66.2	62.9	64.5	66.0	62.8	65.3	67.0	62.7	64.7	66.0	62.6

Baseline Noise Monitoring Results (Cont.)

Monitoring Location: K11															
Date		**15-Jan-2014**			**16-Jan-2014**			**17-Jan-2014**			**18-Jan-2014**			**19-Jan-2014**	
Weather		Sunny			Sunny			Sunny			Sunny			Sunny	
Wind speed (spot measurement on site between 10:00 and 11:00) (m/s)		1.1			0.5			0.7			0.9			1.1	
		Noise Parameters (dB(A))			**Noise Parameters (dB(A))**			**Noise Parameters (dB(A))**			**Noise Parameters (dB(A))**			**Noise Parameters (dB(A))**	
Start Time	**End Time**	L_{eq}	L_{10}	L_{90}	L_{eq}	L_{10}	L_{90}	L_{eq}	L_{10}	L_{90}	L_{eq}	L_{10}	L_{90}	L_{eq}	L_{10}	L_{90}
7:00	**7:30**	62.2	62.8	57.7	60.9	62.5	56.9	60.7	62.9	57.6	60.6	62.7	57.5	62.8	64.6	57.8
7:30	**8:00**	61.7	63.4	57.8	62.3	64.5	58.2	61.6	63.6	58.8	61.8	63.8	58.5	64.3	66.0	58.4
8:00	**8:30**	62.3	64.0	58.9	64.1	65.7	61.5	62.6	64.8	59.6	63.2	65.4	60.2	65.3	66.9	59.3
8:30	**9:00**	63.1	65.1	60.1	66.1	68.0	63.5	63.5	65.4	60.4	64.5	68.4	59.9	65.4	66.9	59.7
9:00	**9:30**	64.2	65.5	62.1	66.0	67.5	63.8	64.0	66.3	61.2	65.7	68.8	61.5	67.8	69.5	60.6
9:30	**10:00**	65.1	67.0	62.5	65.8	67.5	63.6	65.6	66.8	62.6	67.6	68.3	61.9	67.3	69.2	61.1
10:00	**10:30**	64.9	66.4	63.0	66.7	68.4	63.7	65.1	67.0	62.7	65.5	66.9	62.6	69.3	71.5	61.8
10:30	**11:00**	66.1	67.2	63.3	65.7	67.7	63.1	65.3	66.2	62.8	64.9	66.6	62.4	67.9	69.6	61.9
11:00	**11:30**	65.3	66.4	62.8	67.1	69.6	63.4	66.4	67.4	63.0	65.3	66.9	62.6	65.9	68.1	61.9
11:30	**12:00**	64.1	65.4	61.8	64.4	66.0	62.4	64.7	66.1	62.2	64.6	66.4	62.0	63.9	65.4	61.6
12:00	**12:30**	64.3	65.8	61.9	64.4	66.1	62.2	64.4	66.0	62.2	64.6	66.1	62.4	63.9	65.7	61.5
12:30	**13:00**	64.4	66.0	62.1	65.3	67.2	62.3	64.6	65.9	62.4	64.8	65.9	62.6	64.8	66.3	61.7
13:00	**13:30**	65.5	66.8	62.9	66.0	67.4	64.0	64.4	65.8	62.4	65.3	66.2	63.1	66.0	66.8	62.2
13:30	**14:00**	65.5	67.7	62.8	65.6	66.9	63.8	65.8	66.6	63.0	67.3	67.6	62.7	64.5	65.8	62.3
14:00	**14:30**	64.5	66.1	62.7	65.7	67.1	63.9	65.9	67.6	62.8	65.5	66.8	63.7	63.3	64.5	61.8
14:30	**15:00**	66.2	67.7	63.8	66.8	68.4	64.0	65.5	66.7	63.1	65.4	66.8	63.5	63.7	64.8	61.7
15:00	**15:30**	65.6	66.7	63.8	65.3	66.7	63.3	65.6	66.9	63.2	65.9	67.5	63.0	63.9	65.4	61.9
15:30	**16:00**	65.3	66.5	63.0	66.4	66.8	63.0	65.7	67.4	63.2	64.7	66.5	62.5	64.5	66.3	62.5
16:00	**16:30**	65.5	66.8	63.2	65.8	66.6	63.5	64.9	66.4	63.0	64.8	66.2	62.4	64.2	65.5	62.2
16:30	**17:00**	64.4	65.8	62.8	65.4	69.0	63.4	64.2	65.8	62.5	64.1	66.2	62.4	64.1	65.5	62.0
17:00	**17:30**	63.9	65.3	62.3	65.2	66.8	63.0	64.8	65.8	62.5	64.4	65.8	62.6	64.9	66.6	62.6
17:30	**18:00**	63.6	65.1	61.9	65.2	66.8	63.0	64.3	65.6	62.6	64.3	65.8	62.3	64.6	66.2	62.8
18:00	**18:30**	64.4	65.3	62.3	65.4	67.1	62.8	64.7	66.0	62.8	64.2	65.1	62.6	64.5	65.7	62.9
18:30	**19:00**	64.0	65.3	62.3	65.2	66.8	62.8	65.4	66.1	63.2	66.5	66.6	62.8	65.5	66.3	62.4

Baseline Noise Monitoring Results (Cont.)

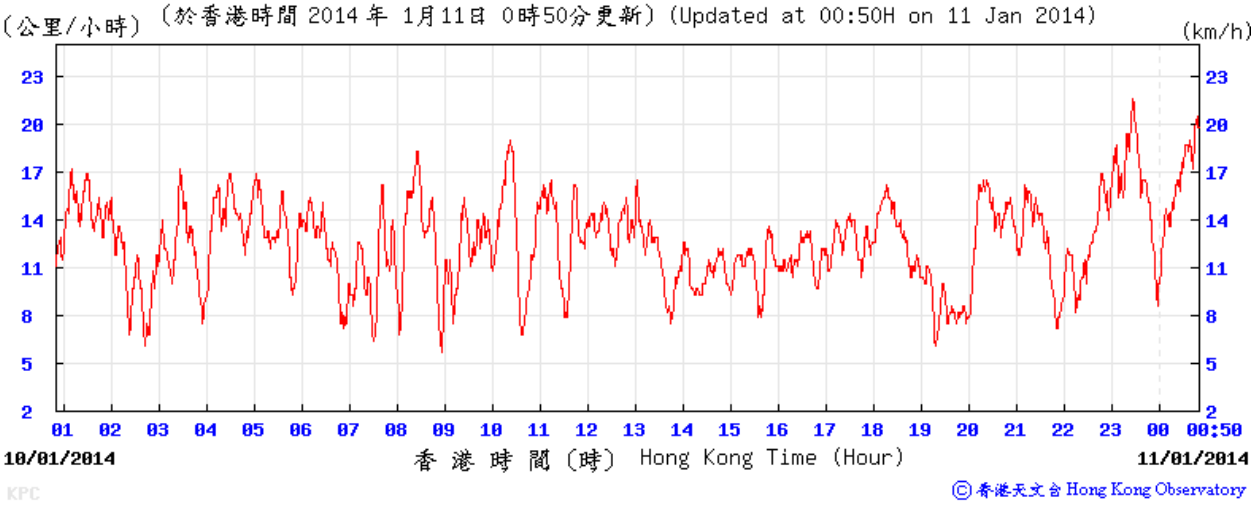
Monitoring Location: K11															
Date		**20-Jan-2014**			**21-Jan-2014**			**22-Jan-2014**			**23-Jan-2014**			**24-Jan-2014**		
Weather		Sunny			Sunny			Sunny			Sunny			Sunny		
Wind speed (spot measurement on site between 10:00 and 11:00) (m/s)		0.5			0.8			0.6			0.9			0.9		
		Noise Parameters (dB(A))			**Noise Parameters (dB(A))**			**Noise Parameters (dB(A))**			**Noise Parameters (dB(A))**			**Noise Parameters (dB(A))**		
Start Time	**End Time**	L_{eq}	L_{10}	L_{90}	L_{eq}	L_{10}	L_{90}	L_{eq}	L_{10}	L_{90}	L_{eq}	L_{10}	L_{90}	L_{eq}	L_{10}	L_{90}
7:00	**7:30**	60.3	62.6	57.3	60.8	62.4	56.7	60.1	62.3	56.9	61.4	63.8	57.6	61.7	63.9	56.6
7:30	**8:00**	61.5	63.4	58.7	64.6	65.0	57.3	60.1	61.9	57.2	61.8	64.0	58.1	62.7	64.3	59.0
8:00	**8:30**	63.0	64.3	59.4	65.8	67.7	59.1	62.0	63.6	58.5	62.9	64.8	59.9	63.7	65.5	59.9
8:30	**9:00**	62.8	64.2	60.5	64.2	66.6	59.3	61.9	64.2	59.2	64.3	66.0	60.7	65.7	66.7	61.6
9:00	**9:30**	63.3	65.2	60.7	64.1	66.1	60.2	63.7	65.3	60.2	64.0	65.5	61.2	65.0	66.6	61.6
9:30	**10:00**	64.6	66.3	62.2	64.0	65.7	61.3	64.2	65.6	60.8	64.5	66.4	61.9	64.8	66.7	61.8
10:00	**10:30**	64.6	65.9	62.2	64.1	65.9	61.4	64.7	66.3	61.9	64.9	66.4	62.2			
10:30	**11:00**	63.9	65.6	61.8	65.3	67.0	61.9	64.3	66.2	62.0	64.7	66.6	62.4			
11:00	**11:30**	66.0	67.1	62.5	63.9	65.6	61.6	64.1	65.4	62.4	65.3	66.9	62.7			
11:30	**12:00**	64.7	65.5	62.5	63.1	64.9	61.1	64.9	65.5	61.3	65.2	67.1	62.2			
12:00	**12:30**	64.1	65.8	62.3	63.9	65.4	61.3	63.2	64.9	61.3	64.2	66.2	62.5			
12:30	**13:00**	64.1	65.5	62.0	63.9	65.5	61.5	63.7	65.1	61.7	64.4	65.9	62.3			
13:00	**13:30**	64.4	66.2	62.2	63.7	65.2	61.4	63.5	64.8	61.8	64.9	66.3	62.6			
13:30	**14:00**	64.6	66.3	62.6	63.9	65.4	61.8	63.8	65.4	61.7	65.0	66.1	62.5			
14:00	**14:30**	65.3	67.3	62.8	63.6	64.8	61.9	64.9	67.5	62.5	64.5	65.8	62.6			
14:30	**15:00**	65.1	66.5	62.8	64.0	65.4	61.9	64.2	65.7	62.3	64.2	65.6	62.4			
15:00	**15:30**	64.3	65.9	62.5	64.3	66.1	61.8	64.3	65.9	62.0	65.1	66.4	63.1			
15:30	**16:00**	64.5	66.0	62.7	64.9	66.0	62.2	64.3	65.8	62.2	65.7	67.0	62.8			
16:00	**16:30**	64.7	66.0	62.5	64.5	65.9	62.3	65.9	69.9	62.5	65.2	66.7	62.9			
16:30	**17:00**	64.6	66.3	62.1	63.8	65.4	61.8	64.1	65.4	62.0	65.5	67.4	62.6			
17:00	**17:30**	64.6	66.3	62.2	64.6	66.3	62.1	64.7	65.7	62.4	64.3	65.6	62.4			
17:30	**18:00**	63.9	65.3	61.9	64.1	65.5	61.8	64.0	65.0	61.9	64.9	65.8	62.5			
18:00	**18:30**	63.5	64.7	62.0	63.3	64.6	61.7	64.8	67.1	62.2	65.1	66.4	62.6			
18:30	**19:00**	64.2	65.5	62.1	63.8	64.8	61.8	64.3	65.4	62.0	64.7	65.8	62.4			

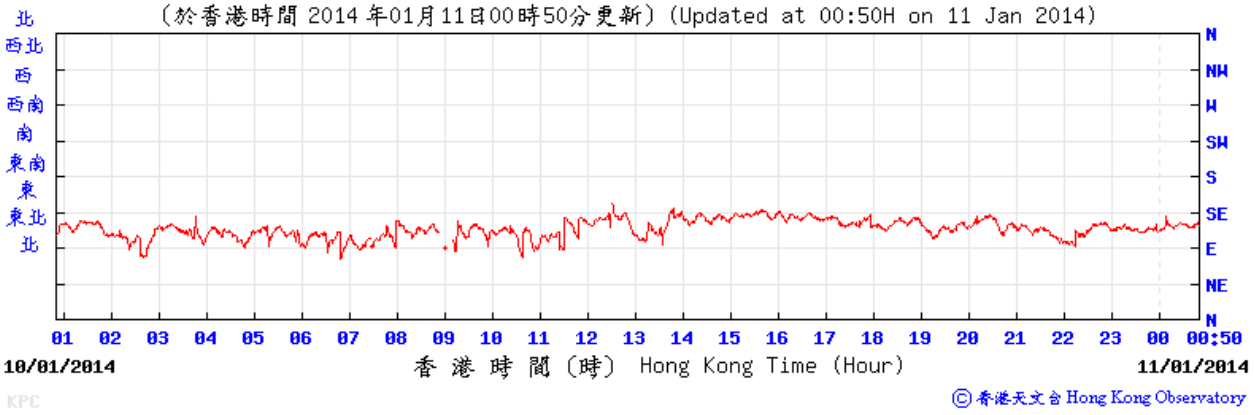

Baseline Noise Monitoring Results
Between 10:00, 10-Jan-2014 and 10:00, 24-Jan-2014 at K11
Leq (30min) (dB(A))
75
70
65
60
55
50
10-Jan
11-Jan
12-Jan
13-Jan
14-Jan
15-Jan
16-Jan
17-Jan
18-Jan
19-Jan
20-Jan
21-Jan
22-Jan
23-Jan
24-Jan

Appendix G

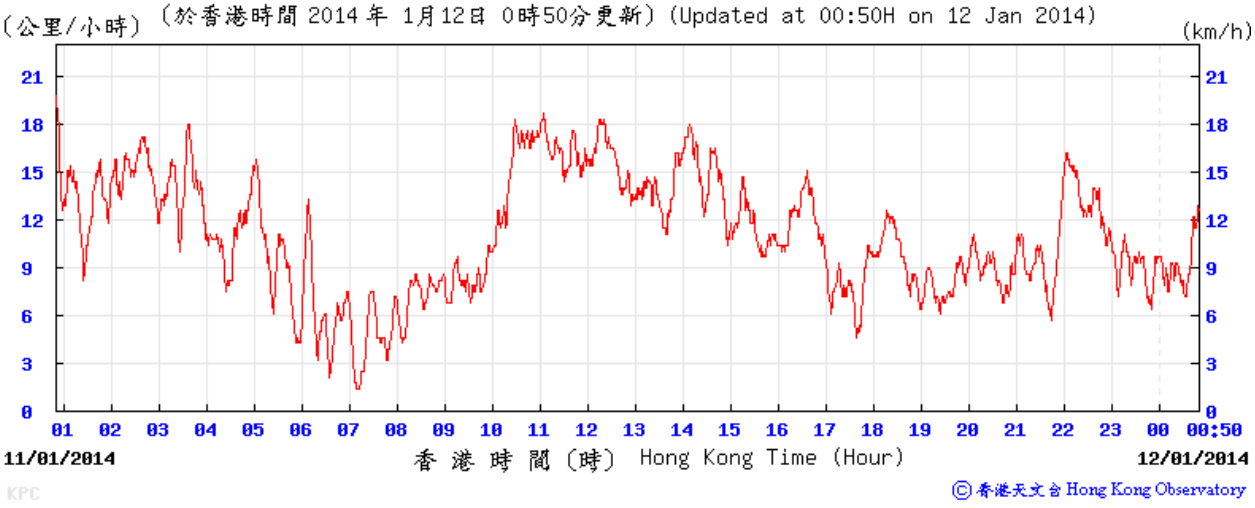
Wind data from Hong Kong Observatory Weather Station

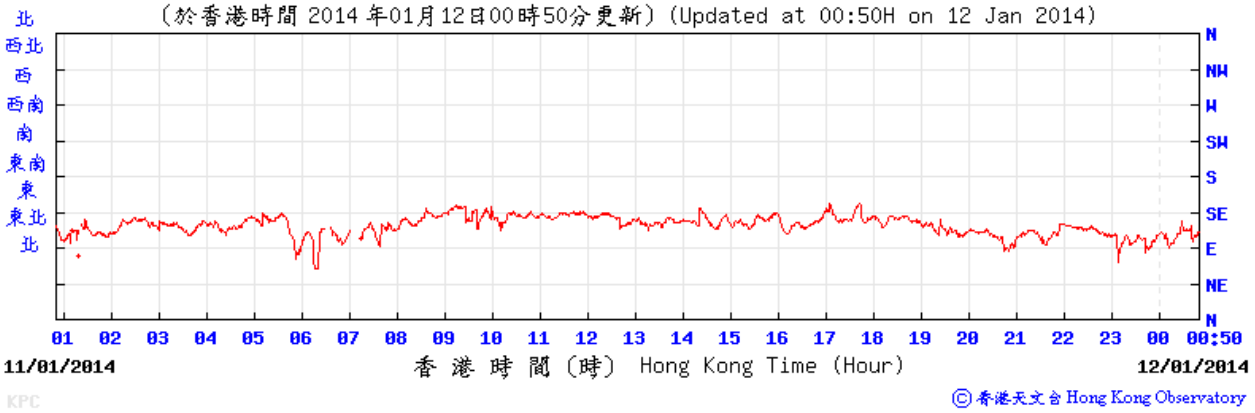
King's Park Weather Station 10/01/2014



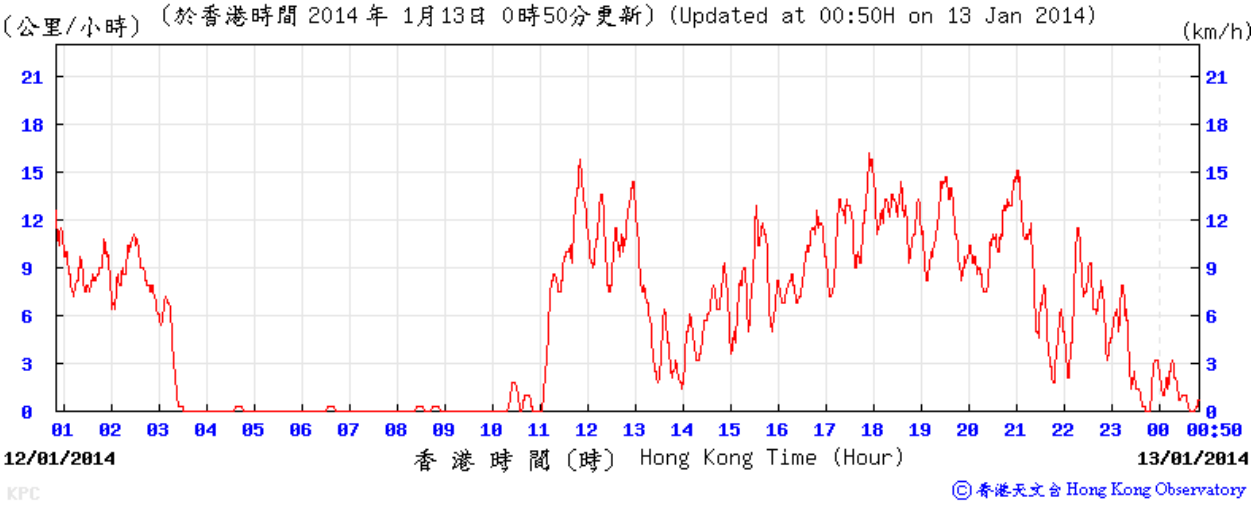


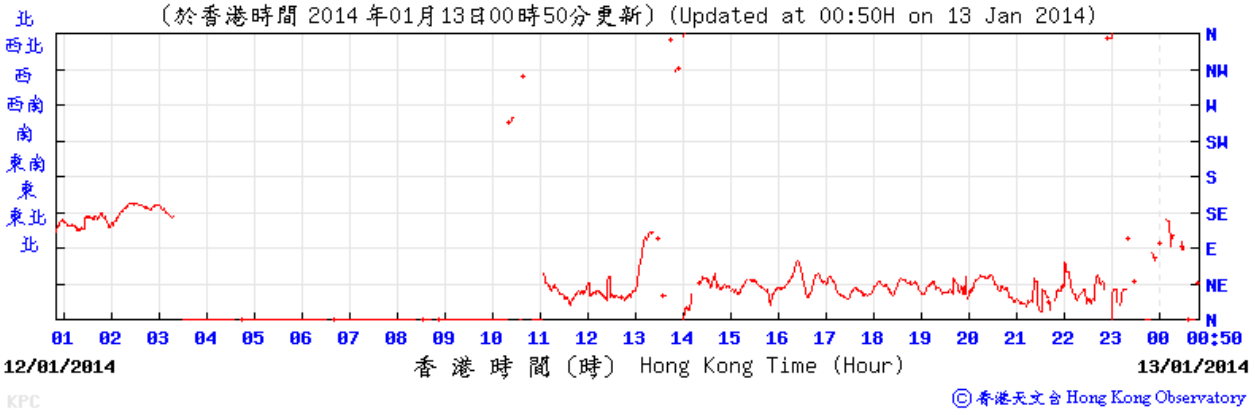
King's Park Weather Station 11/01/2014



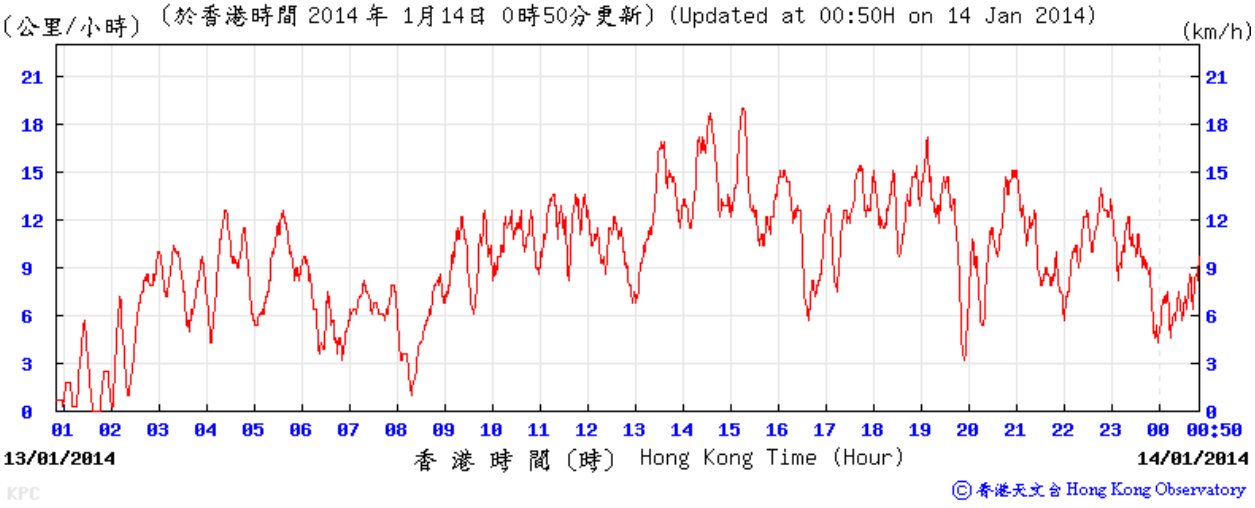


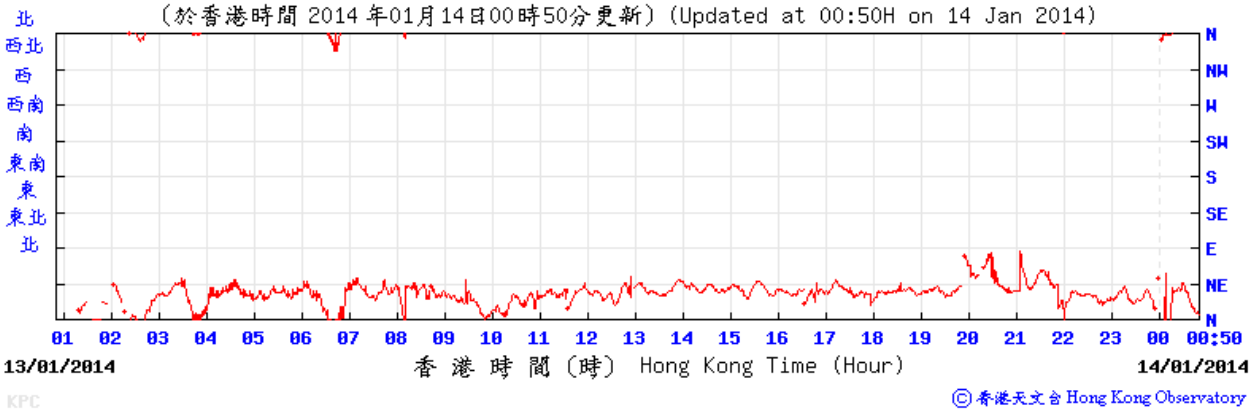
King's Park Weather Station 12/01/2014



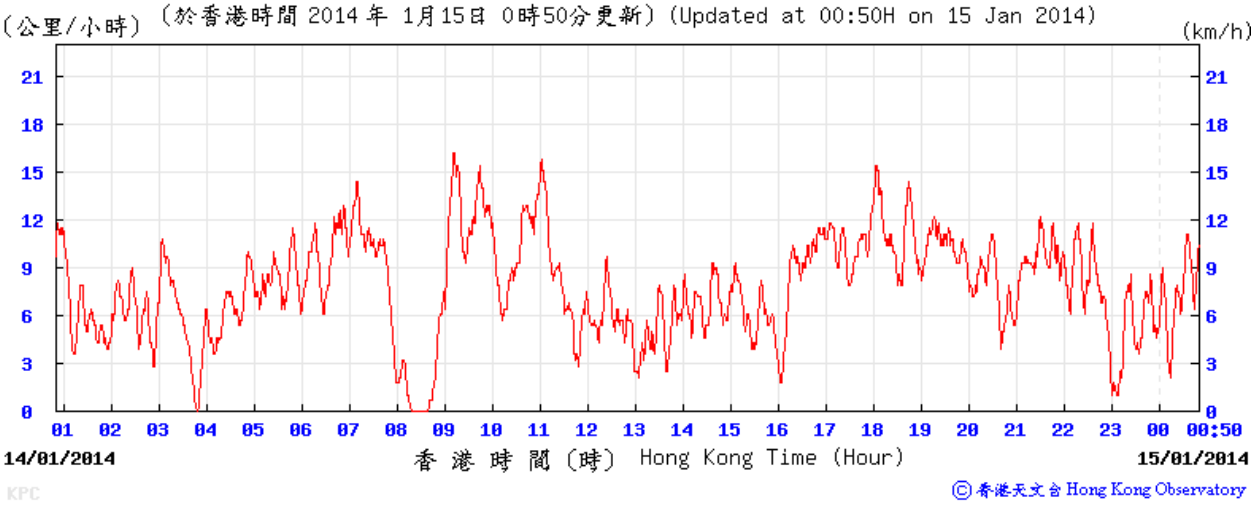


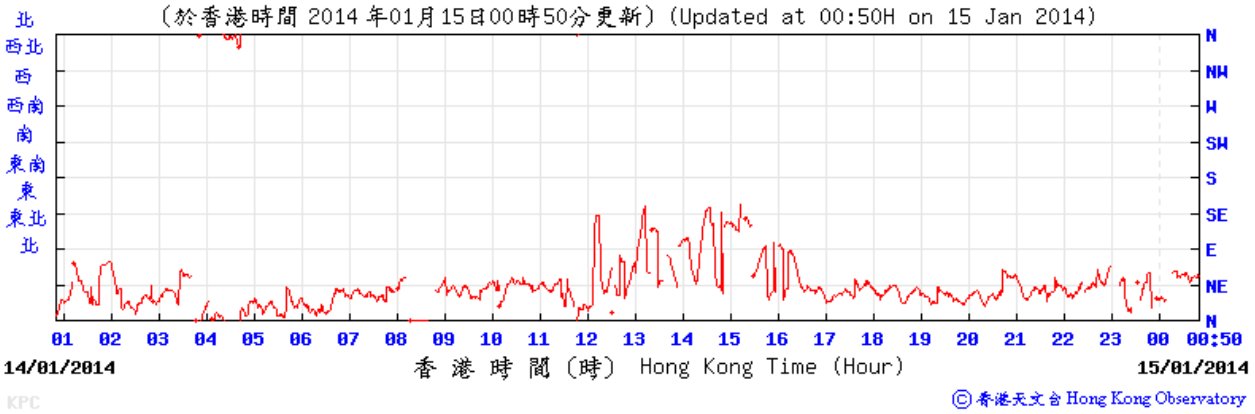
King's Park Weather Station 13/01/2014



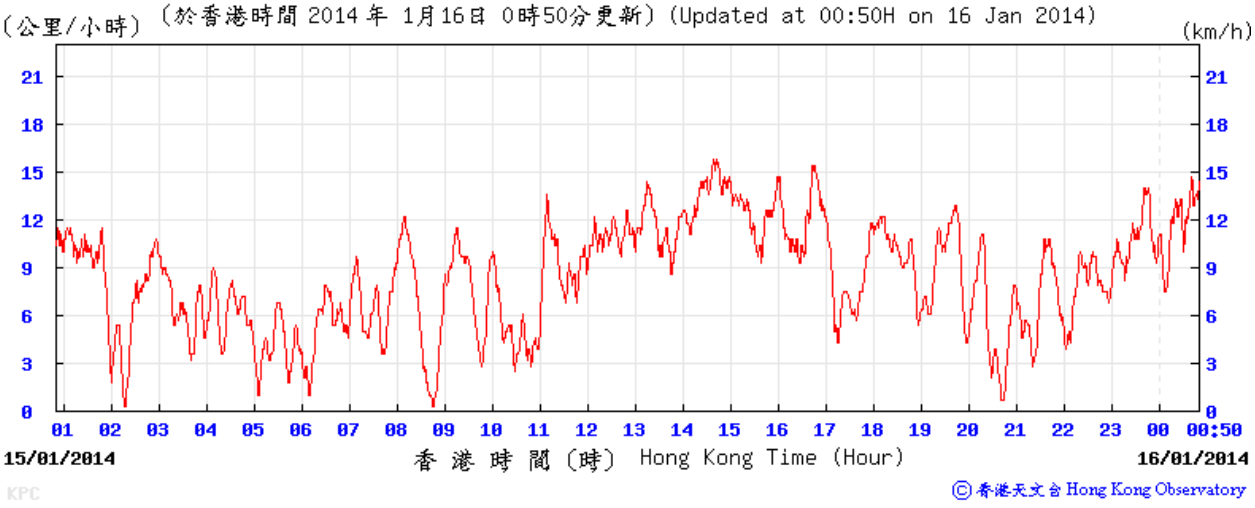


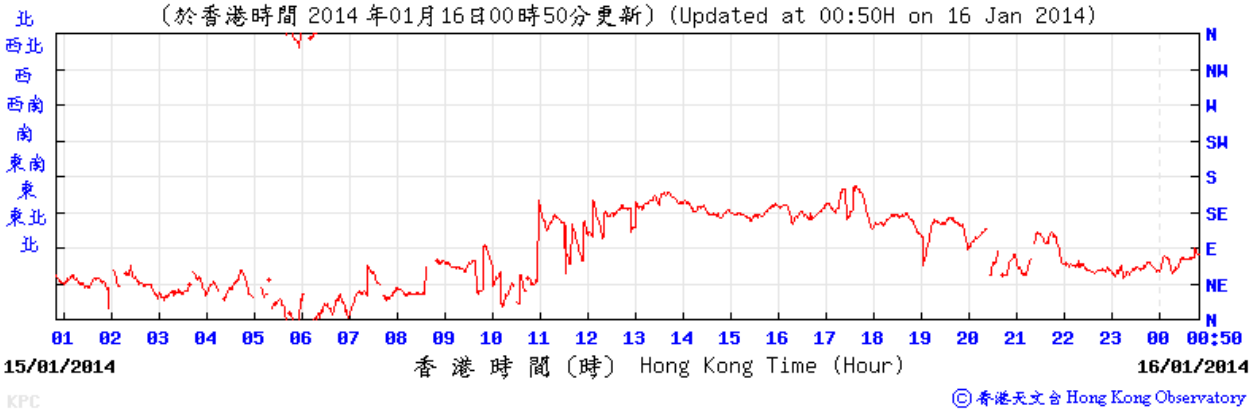
King's Park Weather Station 14/01/2014



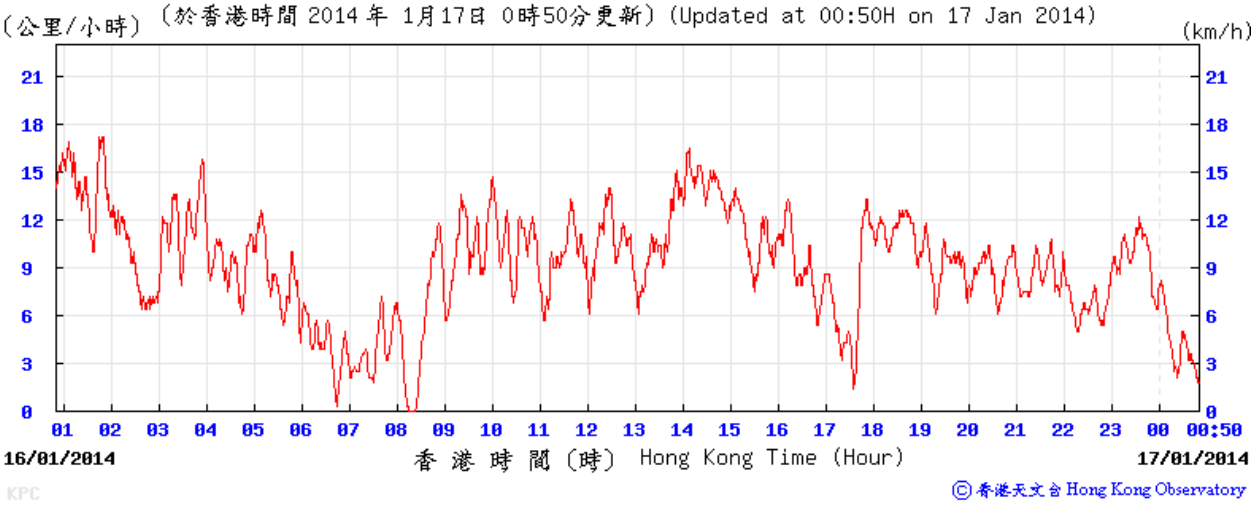


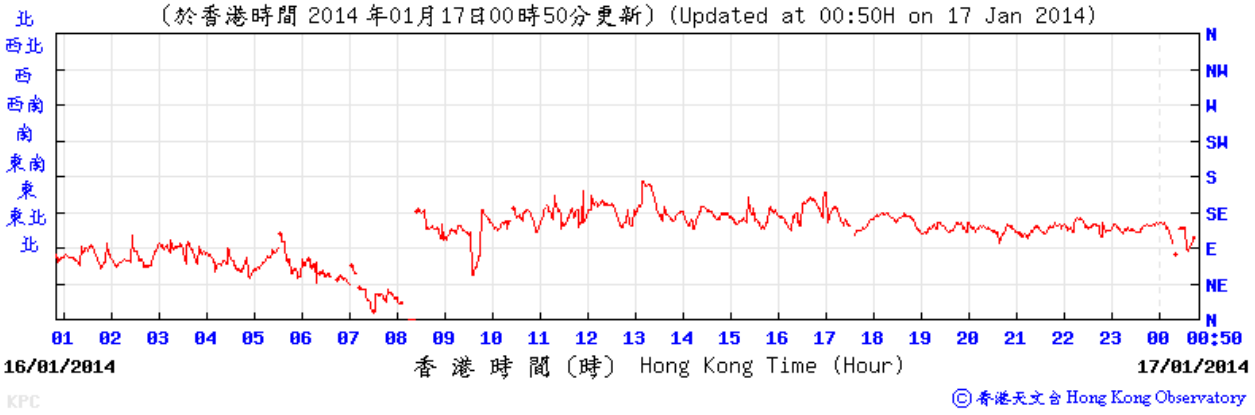
King's Park Weather Station 15/01/2014



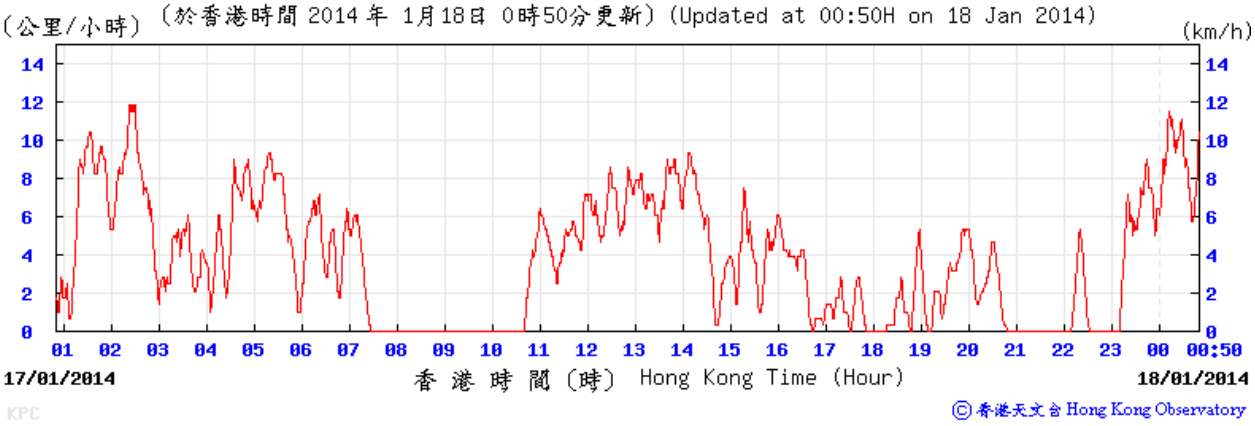


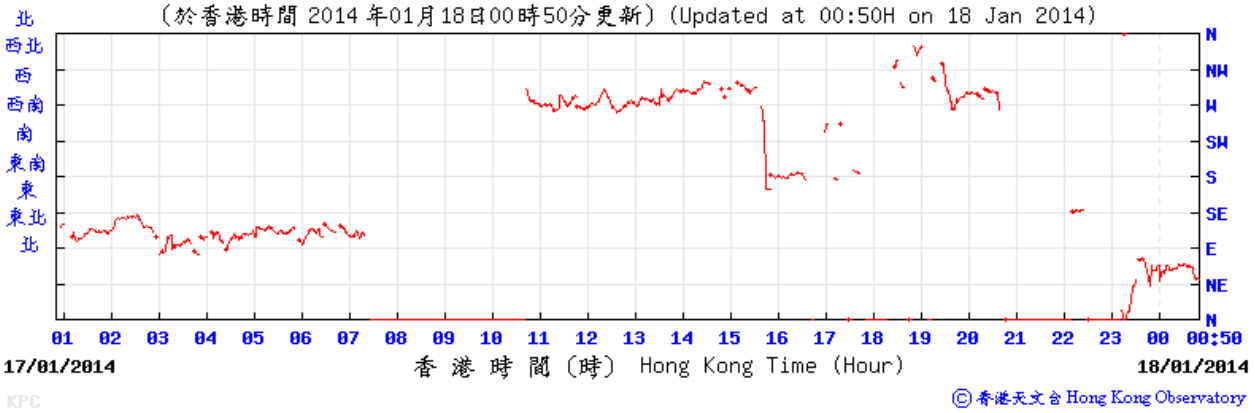
King's Park Weather Station 16/01/2014



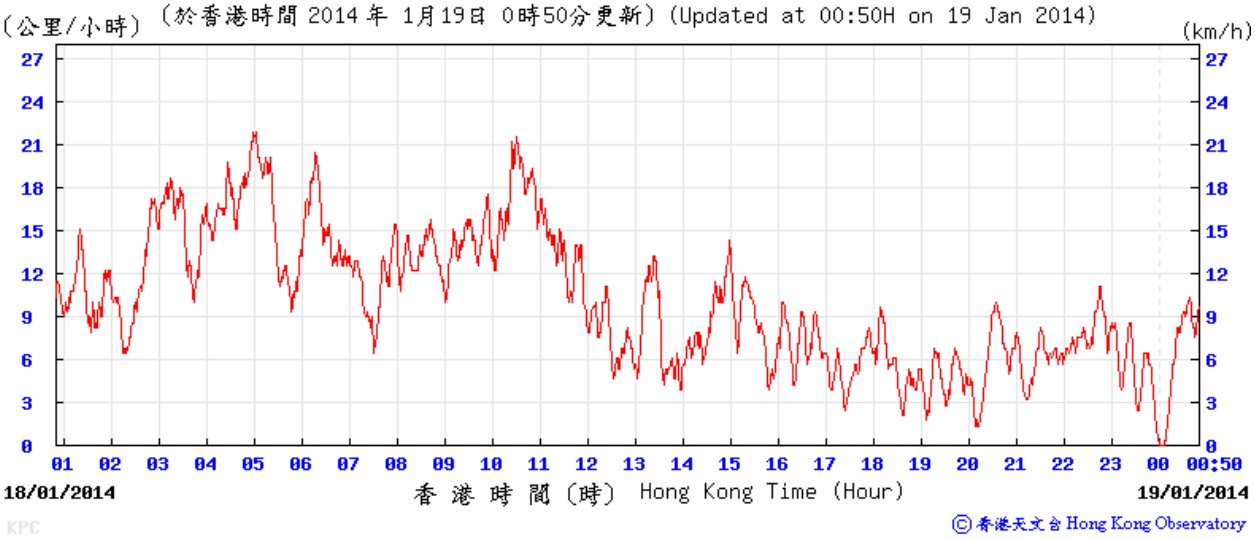


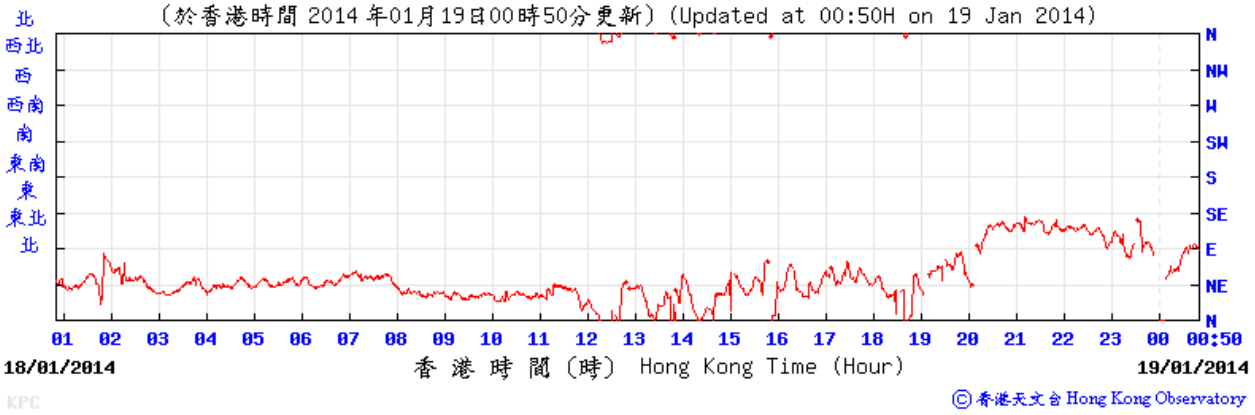
King's Park Weather Station 17/01/2014



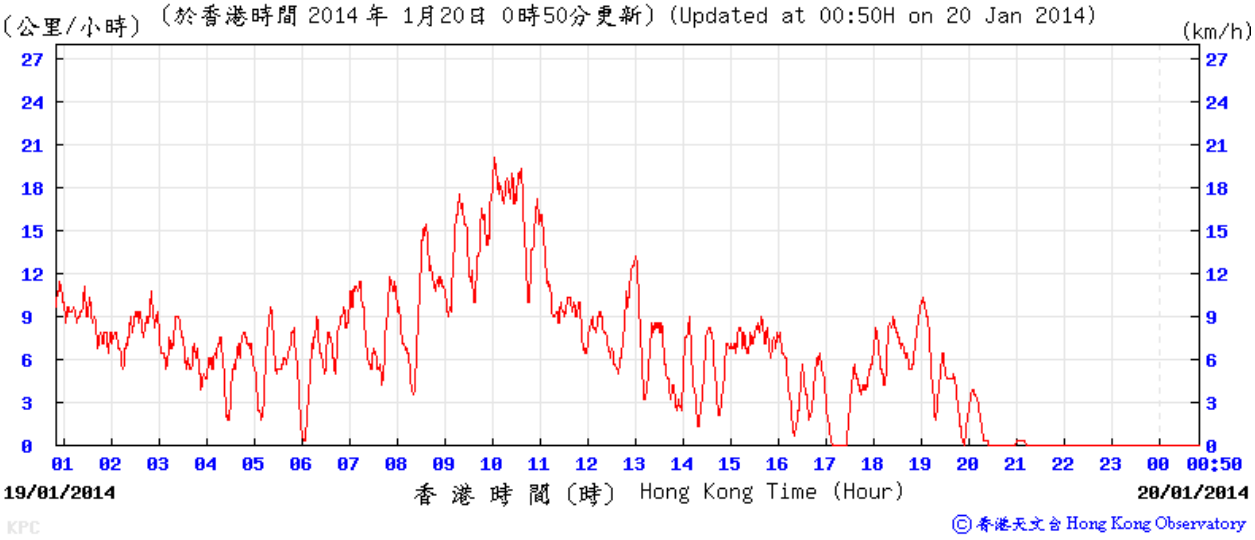


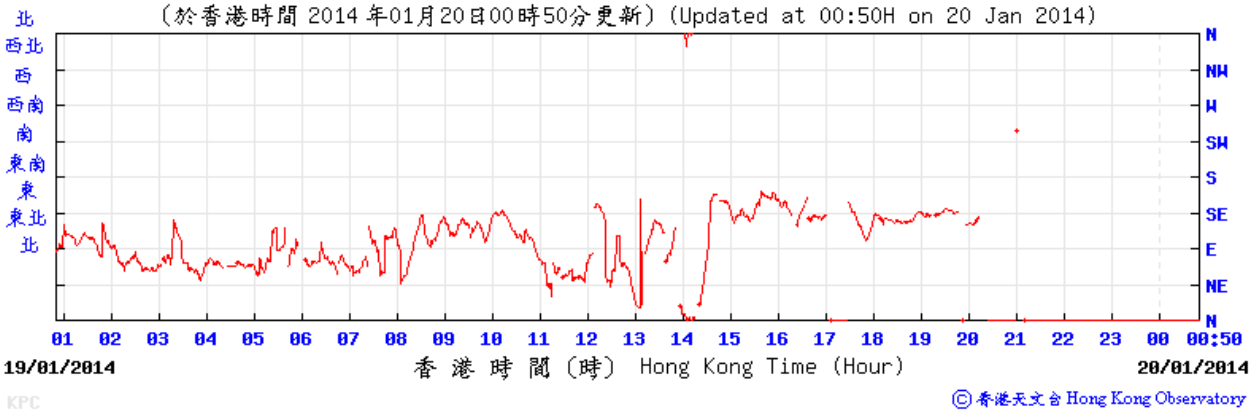
King's Park Weather Station 18/01/2014



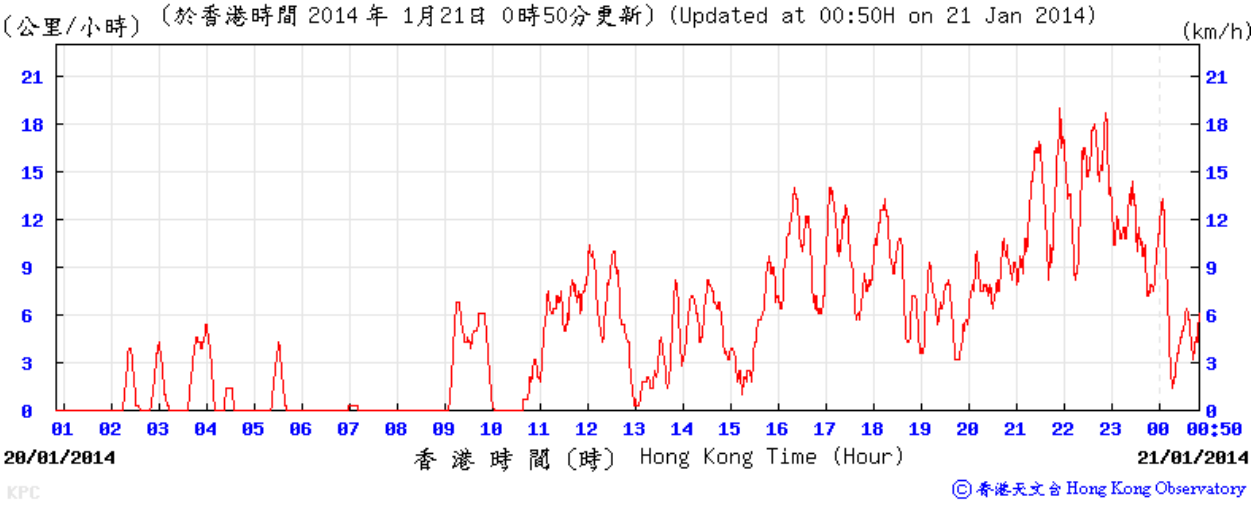


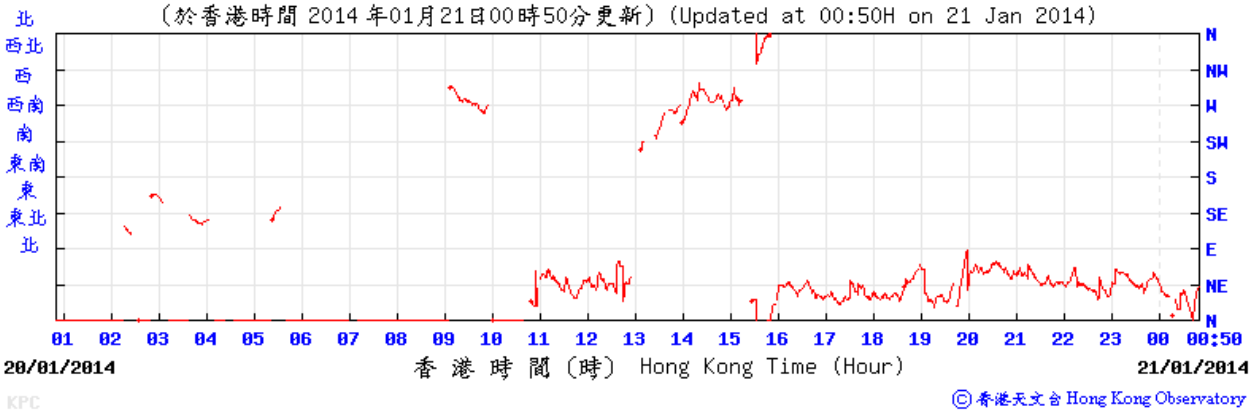
King's Park Weather Station 19/01/2014





King's Park Weather Station 20/01/2014





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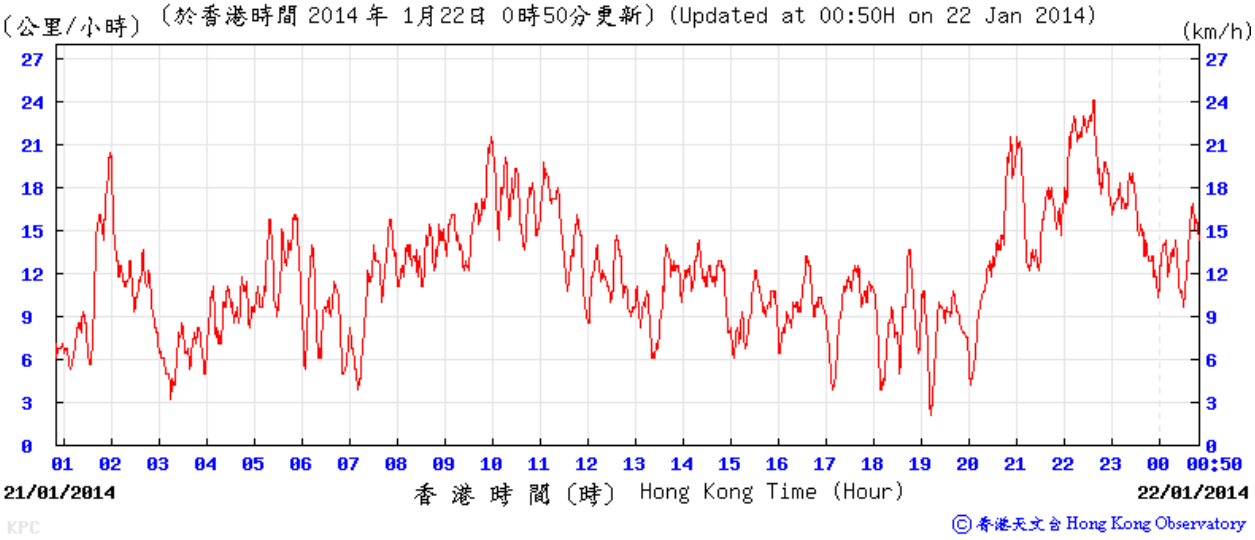

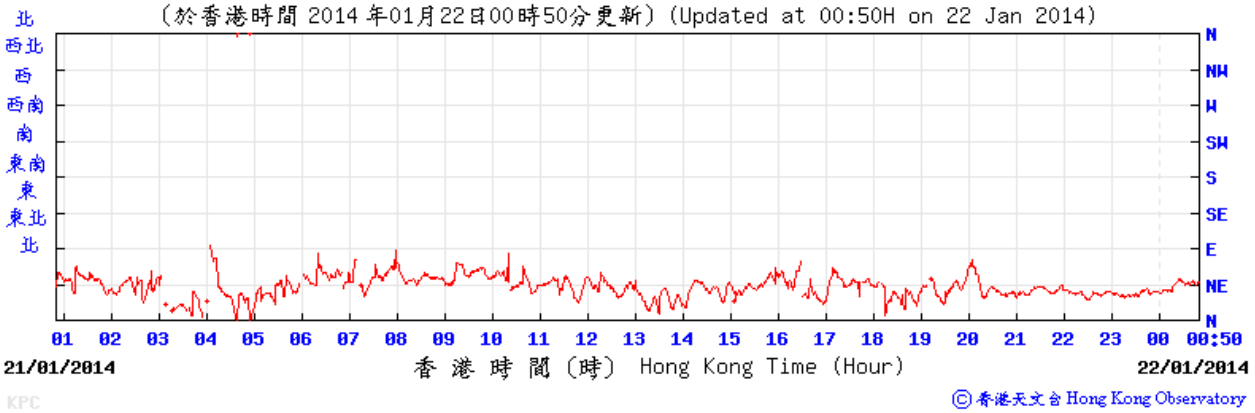

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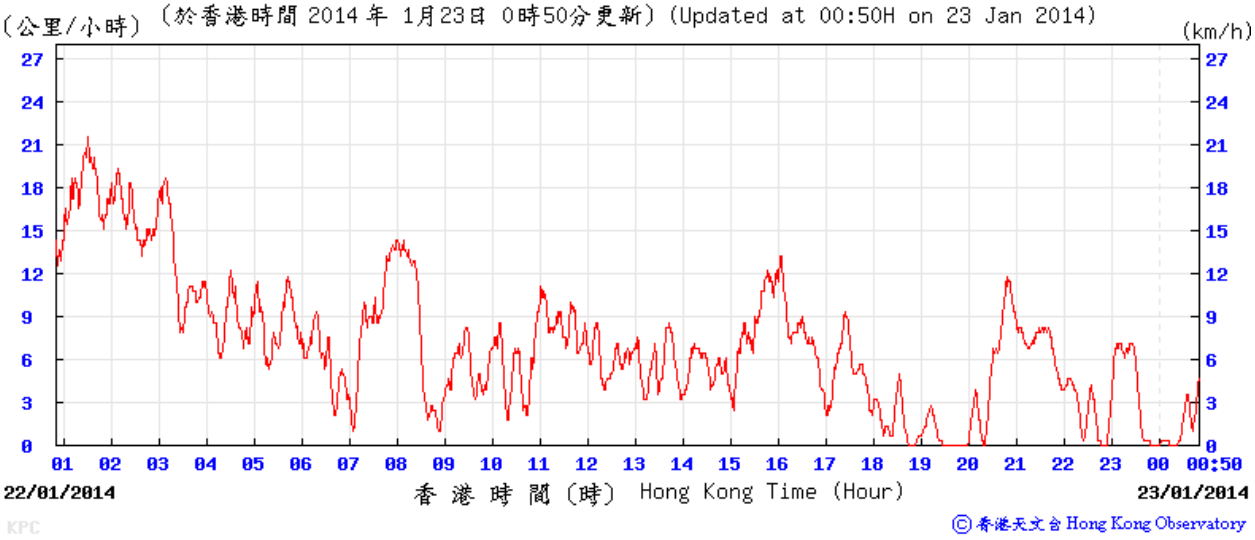

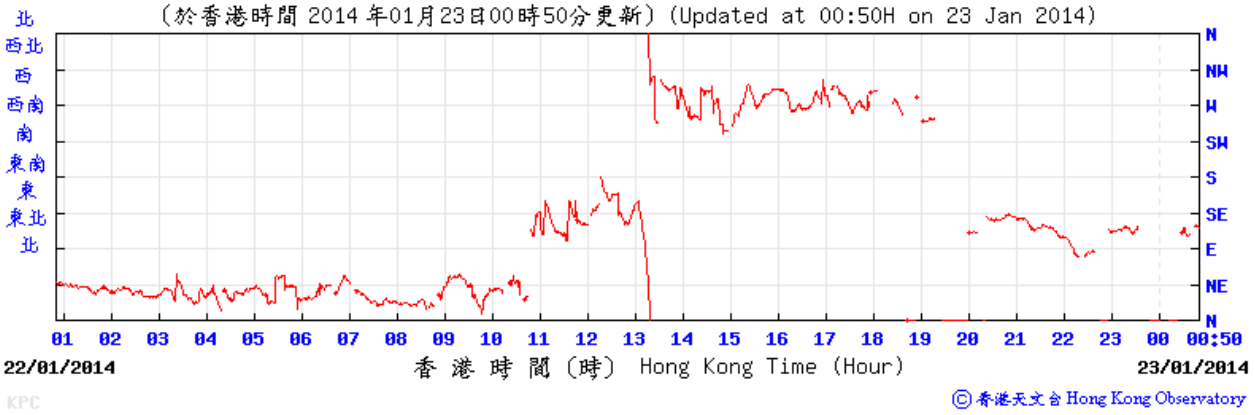

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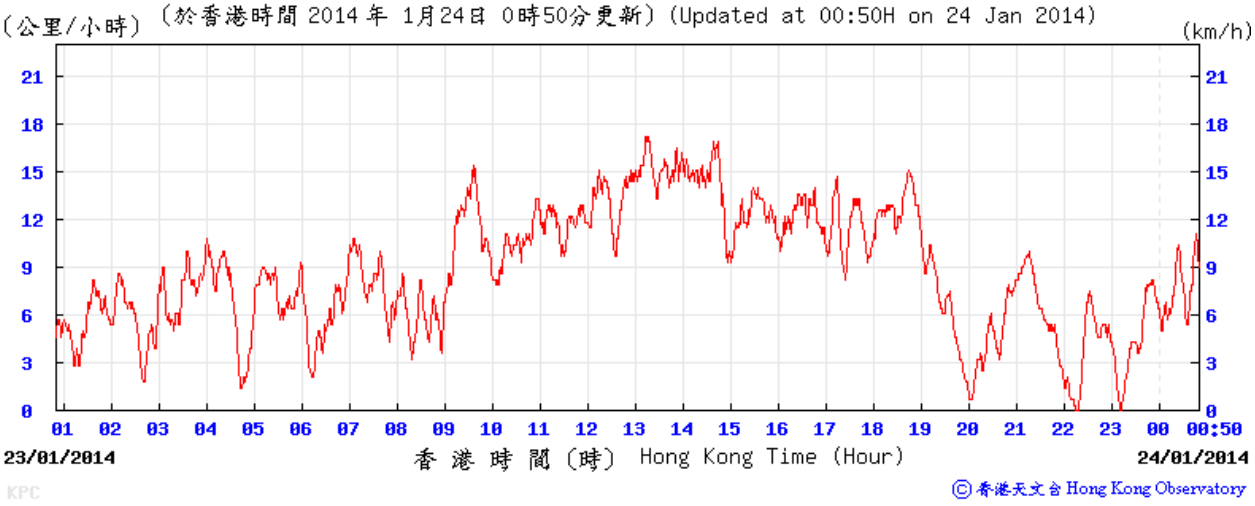

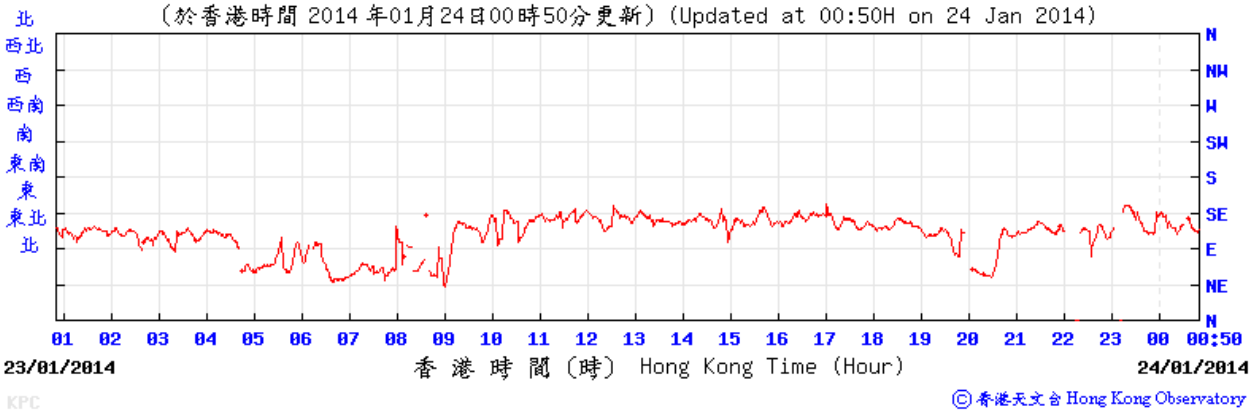

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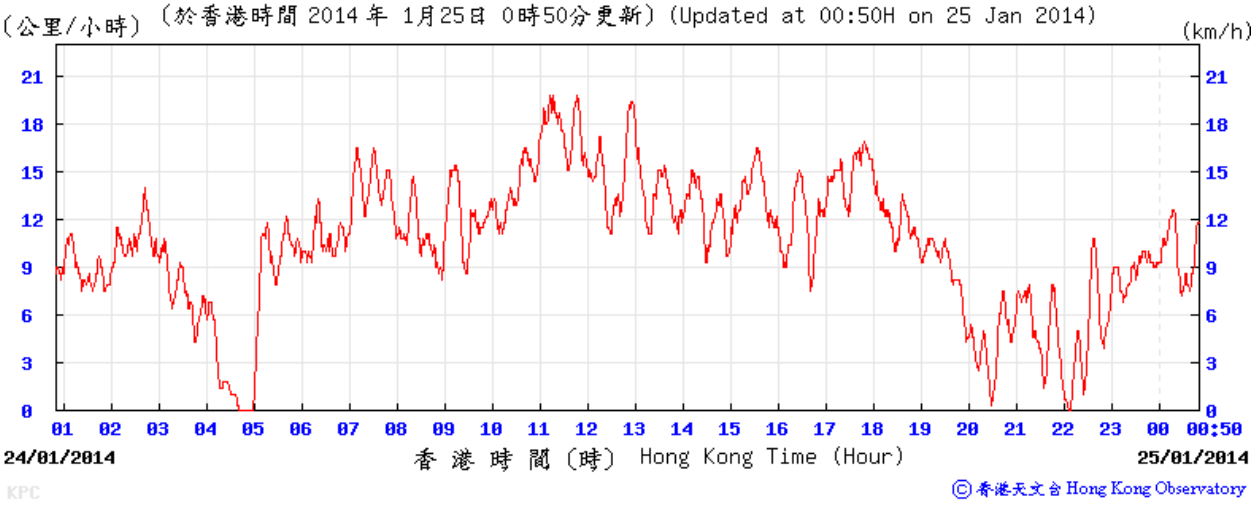

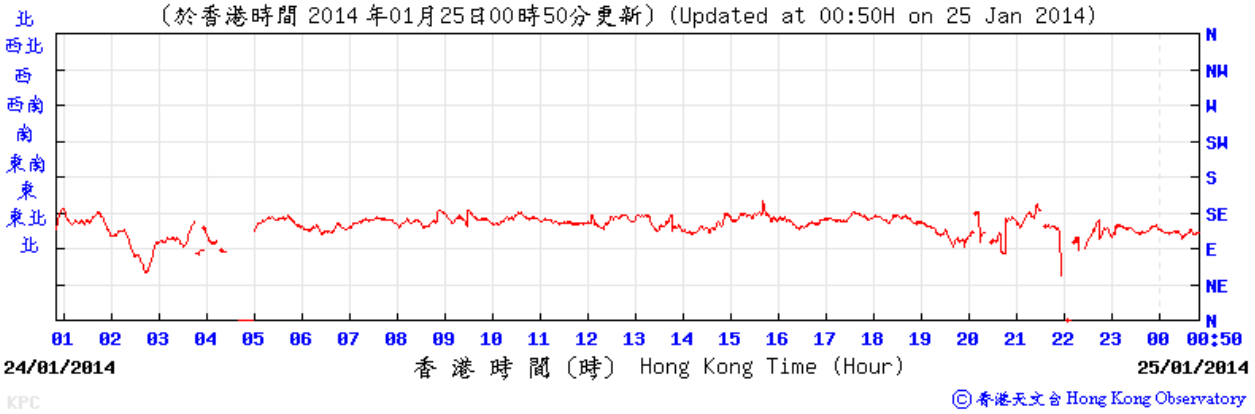

Appendix H

Chronological records of site search of monitoring location and liaison, meeting and communication with the stakeholders

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Chronological records of site search of monitoring location and liaison, meeting and communication with the stakeholders

According to the EM&A Plan of the approved Project Profile (PP-462/2012), the noise and air quality monitoring station of the Project should be set up at Mirador Mansion. As the ET failed to acquire assess and permit to conduct monitoring at Mirador Mansion, an alternative monitoring location at K11 was proposed for baseline and impact monitoring. The following table provides chronological records of site search of monitoring location and liaison, meeting and communication with the stakeholders since 31 October 2013.

No.	Date	Event Details	Party Involved	Remark
1	31 Oct 2013	Site visit to Mirador Mansion for the allocation of EM&A monitoring station	Contractor, ETL, and Mr. Luk of Management Office (MO) of Mirador Mansion	Confirmed that the roof top of Mirador Mansion was the only practicable location in Mirador Mansion, details of the property owner to be checked by the MO.
2	07 Nov 2013	Site visit to Mirador Mansion for the allocation of EM&A monitoring stations	Contractor, ETL, Mr. Chow of MO of Mirador Mansion	Confirmed that the roof top is owned by an individual tenant.
3	11 Nov 2013	Tele-conversation confirming the ownership and the owner of the Mirador Mansion Roof Top, and asked for allocation of EM&A monitoring stations. ET's formal request was made to Mr. Lau.	Mr. Lau (the property owner of the roof top of Mirador Mansion) and ETL	Mr. Lau would consider and reply later.
4	25 Nov 2013	Tele-conversation with Mr. Lau, the owner of the Mirador Mansion Roof Top for allocation of EM&A monitoring stations.	Mr. Lau of owner of Mirador Mansion and ETL	The Contractor / ETL were being requested by Mr. Lau to approach the Mirador Mansion Owner's Corporation.
5	26 Nov 2013	Tele-conversation with Mr. Lau, the owner of the roof top of Mirador Mansion for allocation of EM&A monitoring stations.	Mr. Lau of owner of Mirador Mansion and ETL	Mr. Lau declined ET's request to set up monitoring stations at the roof top of Mirador Mansion Roof Top.
6	29 Nov 2013	Site visit to Golden Crown Court (one of the three air quality and noise sensitive receivers identified in the PP) for the allocation of EM&A monitoring stations. ET's formal request was made to the MO.	Contractor, ETL and Mr. Tsui (Building Supervisor of Golden Crown Court)	Confirmed that the Roof Top of Golden Crown Court is the only practicable location, details to be checked by the MO.
7	29 Nov 2013	Site visit to Friends' House (one of the three air quality and noise sensitive receivers	Contractor, ETL and Mr. Leung	No suitable site was identified to set up noise and air quality

No.	Date	Event Details	Party Involved	Remark
		identified in the PP) for the allocation of EM&A monitoring stations.	(Friends' House)	monitoring stations
8	29 Nov 2013	Site visit to Lee Kar Building for the allocation of EM&A monitoring stations.	Contractor, ETL and security of Lee Kar Building	Confirmed that the Roof Top of the Building is not accessible by others.
9	29 Nov 2013	Site visit to and tele-conversation with the management office of 2 Carnarvon Building for the allocation of EM&A monitoring stations.	Contractor, ETL, security and Ms. Zita Lau of 2 Carnarvon Building	Confirmed that the Roof Top of the Building is not accessible by others. Ms. Zita Lau also confirmed on phone their refusal for us to allocate monitoring stations.
10	12 Dec 2013	The reply from the MO of Golden Crown Court was received.	ETL and PM of the MO of Golden Crown Court	MO of the Golden Crown Court declined ET's request to set up monitoring stations at the roof top of Golden Crown Court Roof Top.
11	17 Dec 2013	Site visit to K11 and e-mail communication with Mr. Toni Lin (MO of K11)	Mr. Andy Chan (MTR), Contractor, staff from the MO of K11	Identified roof top of 4/F of Staircase PS-11 at K11 was suitable to setup at EM&A monitoring stations. Formal request was made to the MO of K11. (The access was granted on 2 January 2014.)

The ET had exhausted all the potential locations of monitoring stations (including the identified sensitive receivers at Mirador Mansion, Golden Crown Court and Friends House in the Project Profile, and the commercial buildings of Lee Kar Building and 2 Carnarvon Building near the construction site) before the location at K11 (roof top of 4/F of Staircase PS-11) was identified and proposed. It is considered that the proposed location at K11, which is facing the Project construction site at Carnarvon Road with a secured electricity supply and not accessible by general public, is a suitable alternative monitoring location for the Project.