MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Contract 1123 – Exhibition Station and Western Approach Tunnel

Final Environmental Monitoring and Audit Review Report

(October 2023)

Verified by: Claudine Lee

Position: Independent Environmental Checker

Date: 24 October 2023

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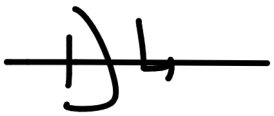

Certified by: Alex Siu

Position: Environmental Team Leader

Date: 24 October 2023

`Leighton – China State J.V.

Shatin to Central Link -
Hung Hom to Admiralty Section

Works Contract 1123 -
Exhibition Station and Western Approach Tunnel

Final EM&A Review Report

[October 2023]

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Version: 0	Date: 24 October 2023

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EXECUTIVE SUMMARY

Shatin to Central Link Contract 1123 – Exhibition Station and Western Approach Tunnel (hereafter called "the Project") covers part of the construction of the Shatin to Central Link (SCL).

The Project comprises the construction of an underground station (Exhibition Station) and 300 m of cut and cover tunnel (Western Approach Tunnel) along Convention Avenue.

The EM&A programme commenced on 1 June 2015. The impact EM&A for the Project includes air quality and noise monitoring.

All construction works with environmental impact concerned have been completed. The cessation of construction phase EM&A programme under the Project was proposed on 11 August 2023 and EPD expressed no objection to the proposed cessation after the visit on 29 August 2023 and approved letter was obtained on 14 September 2023. Hence, the construction phase EM&A programme of the Project was terminated as agreed.

This report documents the findings of EM&A works conducted in the period from 1 June 2015 to 14 September 2023. As informed by the Contractor, major activities undertaken in the construction phase were:

Location	Site Activities
Exhibition Station (Zone 1 - PTI Area)	Demolition, Permanent Reprovisioning Wan Chai Ferry Pier Footbridge Provision of Temporary Footbridge, PBSH works, King Post Works, Pipe Pile Wall Works, D-Wall Works, Diversion Works, Road Works, ELS Works, Structure Station/ Tunnel Works, Station & Above Ground Structure Works, ABWF Works, Waterproofing and backfill and Defects rectification
Harbour Road Sport Cenrtre (Zone 2)	Demolition, PBSH works, King Post Works, Pipe pile wall, Piling, ELS works, Structure Station/Tunnel Works, Station & Above Ground Structure Works and ABWF Works
Exhibition Station (Zone 3 - Swimming Pool Area) (including W7a, W7b, W4, W5 and partial W6)	Removal Obstruction/ Backfilling, D-Wall Works, Foundation, Construction of Bus Bays, ELS works, Structure Station/Tunnel Works, Station & Above Ground Structure Works, ABWF Works, WCSG reprovision works and Drainage Works
Exhibition Station (Zone 4 - Tunnel at Tonnochy Road)	Utilities Diversion/ Protection, Ground Treatment, Diversion Works, Foundation, Pipe Pile Wall Works, ELS works, Road Works, Station & Above Ground Structure Works, ABWF Works and WCSG - Reprovision works
Fleming Road Junction Area E	Diversion Works, Fleming Road Culvert Diverson, Pre-Drilling, Foundation Works, Cofferdam, Pipe pile wall, ELS works, DC works, and Backfilling
Western Vent Shaft and WAT Area C	D-Wall Works, Road Works, ELS works, Structure Ventilation Shaft / Tunnel Works, Track Access Works, Backfilling, Reinstatement Works
WAT Area B	ELS works, Structure tunnel and Backfilling
WAT Area A	D-Wall Works, ELS works, Structure tunnel Works, Reprovisioning, Remedial and Improvement Works, Backfilling and Reinstatement Works
Western Vent Shaft (WVS)	D-Wall Works
Kai Tak Barging Point	Storage and barging of fill martial.
Area W22	Material Storage.

Breaches of Action and Limit Levels for Air Quality

Two (2) Action level exceedances of air quality were recorded in the reporting period. Investigations for the exceedances were conducted and the results revealed that the recorded two air quality exceedances were not in relation to the construction works of the Project.

No exceedance of Limit Level of air quality was recorded in the reporting period.

Breaches of Action and Limit Levels for Noise

No Action Level exceedance was recorded since no project related noise complaint was received in the reporting period.

No exceedance of Limit Level of noise was recorded in the reporting period.

Complaint, Notification of Summons and Successful Prosecution

Seventeen (17) environmental complaints were received, in which seven (7) complaints regarding noise impact, three (3) complaints regarding water pollution, three (3) complaints regarding odour nuisance and four (4) complaints regarding air nuisance, all recorded environmental complaints were considered as non-project related. All the complaints were settled, no further complaint was received after the implementation of the mitigation measures.

Two (2) environmental summon / prosecution were received in the reporting period.

Summary of the Overall EM&A Programme

The EM&A programme were found to be effective in monitoring impacts arising from the Project. The findings of the environmental monitoring program suggest that no adverse impacts on sensitive receivers at the designated monitoring locations were brought about by the Project.

In conclusion the Project was environmentally acceptable in terms of air quality and noise impact.

1 INTRODUCTION

Leighton – China State Joint Venture (JV) was commissioned by MTR as the Civil Contractor for Works Contract 1123. AECOM Asia Company Limited (AECOM) was appointed by JV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

1.1.1 This is the Final EM&A Review Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 June 2015 to 14 September 2023.

1.2 Report Structure

1.2.1 This Final EM&A Review Report is organized as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Review of the Validity of EIA Prediction
- Section 9: Comments
- Section 10: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).

2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012, which covers SCL (HUH-ADM) EP No.: EP-436/2012), for the construction and operation. Variation of EP (VEP) was subsequently applied and the latest EP (EP No. EP-436/2012/F) was issued by the Director of Environmental Protection (DEP) on 23 January 2019.

2.1.3 The construction of the SCL is divided into different civil construction works contracts and Works Contract 1123 – Exhibition Station and Western Approach involves the construction of an underground station (Exhibition Station) and 300m of cut and cover tunnel (Western Approach Tunnel) along Convention Avenue.

2.1.4 The site layout plan of the Project is shown in **Figure 1.1**.

2.2 Site Description

2.2.1 The major construction activities under Works Contract 1123 include:

(a) Site preparation;
(b) Demolition works;
(c) Utilities works;
(d) Box Culvert works;
(e) Diaphragm wall construction and piling works;
(f) Pile Removal works;
(g) Excavation & Lateral Support (ELS) works; and
(h) Reprovisioning/ Reinstatement works.

2.3 Construction Programme and Activities

2.3.1 All major construction works in the whole works area of the Project have been substantially completed since 31 July 2023, with only minor works remaining (such as defects rectification, utility installation, electrical and mechanical works and general site cleaning). Hence, the cessation of construction phase EM&A programme under the Project was proposed on 11 August 2023 and EPD expressed no objection on 14 September 2023 to the proposed cessation.

2.3.2 The major construction activities undertaken in the construction phase are summarised below:

Table 2.1 Major Construction Activities undertaken in Construction Phase

Location	Site Activities
Exhibition Station (Zone 1 - PTI Area)	Demolition, Permanent Reprovisioning Wan Chai Ferry Pier Footbridge Provision of Temporary Footbridge, PBSH works, King Post Works, Pipe Pile Wall Works, D-Wall Works, Diversion Works, Road Works, ELS Works, Structure Station/ Tunnel Works, Station & Above Ground Structure Works, ABWF Works, Waterproofing and backfill and Defects rectification
Harbour Road Sport Cenrtre (Zone 2)	Demolition, PBSH works, King Post Works, Pipe pile wall, ELS works, Piling, Structure Station/Tunnel Works, Station & Above Ground Structure Works and ABWF Works
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Exhibition Station (Zone 4 - Tunnel at Tonnochy Road)	Utilities Diversion/ Protection, Ground Treatment, Diversion Works, Foundation, Pipe Pile Wall Works, ELS works, Road Works, Station & Above Ground Structure Works, ABWF Works and WCSG - Reprovision works
Fleming Road Junction Area E	Diversion Works, Fleming Road Culvert Diverson, Pre-Drilling, Foundation Works, Cofferdam, Pipe pile wall, ELS works, DC works, and Backfilling
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Western Vent Shaft (WVS)	D-Wall Works
Kai Tak Barging Point	Storage and barging of fill martial.
Area W22	Material Storage.

2.3.3 The construction programme can be referred to the respective monthly EM&A reports.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix A**. The key personnel contact names and numbers for the Project are summarised in **Table 2.2.**

Table 2.2 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Atg Chief Construction Manager – SCL Civil	Mr. Raymond Koo	2171 3801	3959 2200
		SCL Project Environmental Team Leader	Mr. Alex Siu	3127 6292	3127 6422
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Ms. Claudine Lee	2859 5409	2540 1580
JV	Contractor	Project Director	Mr. Mark Challis	3973 1997	31051126
		Environmental Engineer	Ms. Yolanda Gao	3973 1498	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y W Fung	3922 9366	2317 7609

3 ENVIRONMENTAL MONITORING REQUIREMENT

3.1 Construction Dust Monitoring

Monitoring Requirements

3.1.1 In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in **Appendix B**.

Monitoring Equipment

3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at the designated monitoring stations. The HVS meets all the requirements of the EM&A Manual. Brand and model of the equipment is given in **Table 3.1**.

Table 3.1 Air Quality Monitoring Equipment

Equipment	Brand and Model
High Volume Sampler (24-hour TSP)	Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler Model No. GS 2310
Calibration Kit	TISCH Environmental Orifice Model TE-5025A

Monitoring Locations

3.1.3 The monitoring station for construction dust monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. The location of the construction dust monitoring stations are summarised in **Table 3.2** and shown in **Figure 3.1**.

Table 3.2 Locations of Construction Dust Monitoring Station

ID	Air Sensitive Receiver (ASR) ID in EIA Report	Dust Monitoring Station
AM2[1]	EXA6	Wanchai Sports Ground
AM3[2][3]	EXA5	Existing Harbour Road Sports Centre
AM4[4]	EXA4	Pedestrian Plaza

Note:
[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015.
[2] The impact monitoring at AM3 was handed over from Contract SCL1126 in June 2015.
[3] The impact monitoring at AM3 terminated on 6 May 2017 as demolition of Existing Harbour Road Sports Centre commenced on 8 May 2017.
[4] The impact monitoring at AM4 was handed over from Contract SCL1128 in April 2021.

Monitoring Methodology

3.1.4 24-hour TSP Monitoring

(a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable:-

(i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
(ii) Two samplers should not be placed less than 2m apart from each others;
(iii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
(iv) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.

(v) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
(vi) No furnace or incinerator flues nearby.
(vii) Airflow around the sampler was unrestricted.
(viii) The sampler was located more than 20 meters from any dripline.
(ix) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
(x) Permission was obtained to set up the samplers and access to the monitoring station.
(xi) A secured supply of electricity was obtained to operate the sampler.

(b) Preparation of Filter Papers

(i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
(ii) 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; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.
(iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

(c) Field Monitoring

(i) The power supply was checked to ensure the HVS works properly.
(ii) The filter holder and the area surrounding the filter were cleaned.
(iii) 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.
(iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
(v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
(vi) Then the shelter lid was closed and was secured with the aluminium strip.
(vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
(viii) A new flow rate record sheet was set into the flow recorder.
(ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m^3/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m^3/min).
(x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
(xi) The initial elapsed time was recorded.
(xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
(xiii) The final elapsed time was recorded.
(xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
(xv) It was then placed in a clean envelope and sealed.
(xvi) All monitoring information was recorded on a standard data sheet.
(xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

(d) Maintenance and Calibration

(i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
(ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
(iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs can be referred to the respective monthly EM&A reports.

Monitoring Schedule for the Reporting Period

3.1.5 EM&A works were carried out in accordance with the requirements stipulated in the approved EM&A Manuals. 24-hour TSP air quality monitoring for the reporting period with respect to the construction programme can be referred to the respective monthly EM&A reports.

3.2 Construction Noise Monitoring

Monitoring Requirements

3.2.1 In accordance with the EM&A Manual, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.3** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix B**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L_{10} and L_{90} would be recorded.	At least once per week

Monitoring Equipment

3.2.2 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.4**.

Table 3.4 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	Model No. B&K 2238
	Model No. B&K 2250
	Model No. B&K 2270
	Model No. B&K 2250L
Acoustic Calibrator	Model No. B&K 4231
	Model No. Rion NC-74

Monitoring Locations

3.2.3 The monitoring station for construction noise monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. Location of the noise monitoring station is summarised in **Table 3.5** and shown in **Figure 3.1**.

Table 3.5 Noise Monitoring Station during Construction Phase

Identification No.	Noise Sensitive Receiver (NSR) ID in EIA Report	Noise Monitoring Station	Alternative Noise Monitoring Location
NM2[1]	EX1	Causeway Centre, Block A	Harbour Centre[2]

Note:
[1] The impact monitoring at NM2 was handed over from Works Contract SCL1126 in June 2015.
[2] The Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. An alternative monitoring location at Harbour Centre was approved by the ER, agreed by IEC. The alternative monitoring location was approved by EPD on 18

December 2017.

Monitoring Methodology

3.2.4 Monitoring Procedure

(a) Façade measurements were made at NM2.

(b) The battery condition was checked to ensure the correct functioning of the meter.

(c) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

(i) frequency weighting: A
(ii) time weighting: Fast
(iii) time measurement: $L_{eq(30\text{-}minutes)}$ during non-restricted hours i.e. 0700 – 1900 on normal weekdays.

(d) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.

(e) During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.

(f) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.

(g) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

3.2.5 Maintenance and Calibration

(a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.

(b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.

(c) Calibration certificates of the sound level meters and acoustic calibrators can be referred to the respective monthly EM&A reports.

Monitoring Schedule for the Reporting period

3.2.6 EM&A works were carried out in accordance with the requirements stipulated in the approved EM&A Manuals. Impact noise monitoring for the reporting period with respect to the construction programme can be referred to the respective monthly EM&A reports.

3.3 Continuous noise monitoring

3.3.1 According to EP conditions under EP-436/2012/F (Condition 2.7 and 2.8), the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) were submitted to EPD in June 2016, it is predicted that no residual air-borne construction noise impact exceeding the relevant noise criteria is anticipated. No continuous noise monitoring is required under this Contract.

3.4 Landscape and Visual

3.4.1 As per the EM&A Manuals, the landscape and visual mitigation measures shall be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6.**

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

4.1.1 Throughout the project, The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix D.** Status of required submissions under the EP during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4 (EP-436/2012/B)	Monthly EM&A Report for June 2015	10 July 2015
	Monthly EM&A Report for July 2015	7 August 2015
	Monthly EM&A Report for August 2015	11 September 2015
Condition 3.4 (EP-436/2012/B) and Condition 3.4 (EP-436/2012/C)	Monthly EM&A Report for September 2015	9 October 2015
Condition 3.4 (EP-436/2012/C)	Monthly EM&A Report for October 2015	11 November 2015
	Monthly EM&A Report for November 2015	10 December 2015
	Monthly EM&A Report for December 2015	8 January 2016
Condition 3.4 (EP-436/2012/D)	Monthly EM&A Report for January 2016	5 February 2016
	Monthly EM&A Report for February 2016	8 March 2016
	Monthly EM&A Report for March 2016	8 April 2016
	Monthly EM&A Report for April 2016	11 May 2016
	Monthly EM&A Report for May 2016	8 June 2016
	Monthly EM&A Report for June 2016	7 July 2016
	Monthly EM&A Report for July 2016	5 August 2016
	Monthly EM&A Report for August 2016	12 September 2016
	Monthly EM&A Report for September 2016	11 October 2016
	Monthly EM&A Report for October 2016	9 November 2016
Condition 3.4 (EP-436/2012/E)	Monthly EM&A Report for November 2016	7 December 2016

	Monthly EM&A Report for December 2016	11 January 2017

EP Condition	Submission	Submission Date
Condition 3.4 (EP-436/2012/E)	Monthly EM&A Report for January 2017	8 February 2017
	Monthly EM&A Report for February 2017	13 March 2017
	Monthly EM&A Report for March 2017	11 April 2017
	Monthly EM&A Report for April 2017	8 May 2017
	Monthly EM&A Report for May 2017	9 June 2017
	Monthly EM&A Report for June 2017	7 July 2017
	Monthly EM&A Report for July 2017	8 August 2017
	Monthly EM&A Report for August 2017	12 September 2017
	Monthly EM&A Report for September 2017	11 October 2017
	Monthly EM&A Report for October 2017	8 November 2017
	Monthly EM&A Report for November 2017	8 December 2017
	Monthly EM&A Report for December 2017	9 January 2018
	Monthly EM&A Report for January 2018	8 February 2018
	Monthly EM&A Report for February 2018	12 March 2018
	Monthly EM&A Report for March 2018	10 April 2018
	Monthly EM&A Report for April 2018	9 May 2018
	Monthly EM&A Report for May 2018	12 June 2018
	Monthly EM&A Report for June 2018	10 July 2018
	Monthly EM&A Report for July 2018	13 August 2018
	Monthly EM&A Report for August 2018	10 September 2018
	Monthly EM&A Report for September 2018	9 October 2018
	Monthly EM&A Report for October 2018	9 November 2018

	Monthly EM&A Report for November 2018	10 December 2018

EP Condition	Submission	Submission Date
Condition 3.4 (EP-436/2012/E)	Monthly EM&A Report for December 2018	9 January 2019
Condition 3.4 (EP-436/2012/F)	Monthly EM&A Report for January 2019	11 February 2019
	Monthly EM&A Report for February 2019	8 March 2019
	Monthly EM&A Report for March 2019	10 April 2019
	Monthly EM&A Report for April 2019	9 May 2019
	Monthly EM&A Report for May 2019	10 June 2019
	Monthly EM&A Report for June 2019	8 July 2019
	Monthly EM&A Report for July 2019	8 August 2019
	Monthly EM&A Report for August 2019	9 September 2019
	Monthly EM&A Report for September 2019	9 October 2019
	Monthly EM&A Report for October 2019	8 November 2019
	Monthly EM&A Report for November 2019	11 December 2019
	Monthly EM&A Report for December 2019	9 January 2020
	Monthly EM&A Report for January 2020	11 February 2020
	Monthly EM&A Report for February 2020	10 March 2020
	Monthly EM&A Report for March 2020	7 April 2020
	Monthly EM&A Report for April 2020	12 May 2020
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EP Condition	Submission	Submission Date
Condition 3.4 (EP-436/2012/F)	Monthly EM&A Report for November 2020	11 December 2020
	Monthly EM&A Report for December 2020	11 January 2021
	Monthly EM&A Report for January 2021	8 February 2021
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	Monthly EM&A Report for November 2021	13 December 2021
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	Monthly EM&A Report for May 2022	13 June 2022
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	Monthly EM&A Report for July 2022	10 August 2022
	Monthly EM&A Report for August 2022	13 September 2022

	Monthly EM&A Report for September 2022	13 October 2022

EP Condition	Submission	Submission Date
Condition 3.4 (EP-436/2012/F)	Monthly EM&A Report for October 2022	10 November 2022
	Monthly EM&A Report for November 2022	12 December 2022
	Monthly EM&A Report for December 2022	12 January 2023
	Monthly EM&A Report for January 2023	8 February 2023
	Monthly EM&A Report for February 2023	7 March 2023
	Monthly EM&A Report for March 2023	11 April 2023
	Monthly EM&A Report for April 2023	11 May 2023
	Monthly EM&A Report for May 2023	12 June 2023
	Monthly EM&A Report for June 2023	12 July 2023
	Monthly EM&A Report for July 2023	12 August 2023
	Monthly EM&A Report for August 2023	12 September 2023
	Monthly EM&A Report for September 2023	12 October 2023

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

5.1.1 The monitoring results for 24-hour TSP are summarised in **Table 5.1**. The graphical plots are presented in **Appendix E**. The meteorological data extracted from the nearest Automatic Weather Station can be referred to the respective monthly EM&A reports.

Table 5.1 Summary of 24-hour TSP Monitoring Result in the Reporting Period

ID	Average (μg/m^3)	Range (μg/m^3)	Action Level (μg/m^3)	Limit Level (μg/m^3)
AM2[1]	44.1	7.8 – 249.6	160	260
AM3[2],[3]	53.2	10.9 – 163.6	169	260
AM4[4]	41.6	13.2 – 104.1	198	260

Note:
[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015.
[2] The impact monitoring at AM3 was handed over from Contract SCL1126 in June 2015.
[3] The impact monitoring at AM3 terminated on 6 May 2017 as demolition of Existing Harbour Road Sports Centre commenced on 8 May 2017
[4] The impact monitoring at AM4 was handed over from Contract SCL1128 in April 2021.

5.1.2 Two (2) exceedances of Action Level of 24-hour TSP were recorded at AM2 on 12 November 2018 and 22 July 2023. Investigations for the exceedances were conducted and the results revealed that the recorded two air quality exceedances were not in relation to the construction works of the Project. Details can be referred to the respective monthly EM&A report.

5.1.3 No Limit Level exceedance were recorded for 24-hour TSP monitoring at the monitoring locations in the reporting period.

5.1.4 The event and action plan is annexed in **Appendix C**.

5.1.5 Major dust sources during the monitoring included construction dust, nearby traffic emission and other nearby construction sites.

5.2 Regular Construction Noise Monitoring

5.2.1 The monitoring results for noise are summarized in **Table 5.2** and the monitoring data is provided in **Appendix F**.

Table 5.2 Summary of Construction Noise Monitoring Results in the Reporting Period

ID	Range, dB(A), $L_{eq\ (30\ mins)}$	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
NM2(*)	<Baseline	75

(*) Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table.

5.2.2 No Action Level exceedance was recorded since no project related noise complaint was received in the reporting period.

5.2.3 No Limit Level exceedance of noise was recorded at the monitoring station in the reporting period.

5.2.4 The event and action plan is annexed in **Appendix C**.

5.2.5 Major noise sources during the monitoring included construction noise from the Project site, nearby traffic noise and the community.

5.3 Waste Management

5.3.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.3.2 As advised by the Contractor, the actual amount of different types of waste disposed or reused in the reporting period are summarized in **Table 5.3**. The waste flow table is annexed in **Appendix G.**

Table 5.3 Summary of Waste Flow the Reporting Period

Waste Type Disposed / Reused			Actual Amount
Inert C&D Materials	Disposed	Public fill disposed	228,414.0 m^3
	Reused in Other Projects		347,095 m^3
Non-inert C&D Materials	Recycled	Metal collected by recycling contractor	23,510,651 kg
		Paper collected by recycling contractor	44,785 kg
		Plastic collected by recycling contractor	13,064 kg
	Disposed	Chemical waste collected by licensed contractor	7,953 kg
		General refuse disposed at landfill	23,625,975 m^3

5.4 Landscape and Visual

5.4.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted. A summary of the site inspection in the reporting period can be referred to the respective monthly EM&A reports.

5.4.2 The event and action plan is annexed in **Appendix C**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis while joint site inspections were carried out on a monthly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project and ensure that all mitigation measures were implemented timely and properly. Summary of the site inspections in the reporting period can be referred to the respective monthly EM&A reports.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

7.1.1 Two (2) Action level exceedances of air quality were recorded in November 2018 and July 2023. Investigations for the exceedances were conducted and the results revealed that the recorded two air quality exceedances were not in relation to the construction works of the Project.

7.1.2 All 24-hour TSP result was below the Limit level at all monitoring locations in reporting period.

7.1.3 No Action Level exceedance was recorded since no project related noise complaint was received in the reporting period.

7.1.4 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting period.

7.2 Summary of Environmental Non-Compliance

7.2.1 No environmental non-compliance was recorded in the reporting period.

7.3 Summary of Environmental Complaints

7.3.1 Seventeen (17) environmental complaints were received, in which seven (7) complaints regarding noise impact, three (3) complaints regarding water pollution, three (3) complaints regarding odour nuisance and four (4) complaints regarding air nuisance, all recorded environmental complaints were considered as non-project related. All the complaints were settled, no further complaint was received after the implementation of the mitigation measures.

7.4 Summary of Environmental Summon and Successful Prosecutions

7.4.1 Two (2) environmental summon / prosecution were received in the reporting period. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix H.**

8 REVIEW OF THE VALIDITY OF EIA PREDICTION AND IDENTIFICATION OF SHORTCOMINGS IN EIA RECOMMENDATIONS

8.1.1 Most of the air quality and all noise monitoring results in the reporting period were below the Action and Limit Levels. The result was in line with EIA prediction that with the implementation of mitigation measures and no shortcomings in EIA recommendations were identified.

8.1.2 During the reporting period, environmental mitigation measures and good site practices were implemented timely and properly. Environmental site inspections were carried out to monitor and audit the environmental performance and rectified where necessary.

8.1.3 The mitigation measures in EIA prediction and the approved EM&A manuals have been effectively implemented during the construction period.

8.1.4 The environmental monitoring methodology was considered well established as the monitoring results were found in line with EIA predictions.

8.1.5 With reviewing site inspection record related to landscape and visual, the Contractor implemented the landscape and visual mitigation measures correctly. The result was in line with EIA prediction that with the implementation of mitigation measures and no shortcomings in EIA recommendations were identified.

8.1.6 With reviewing waste flow record, the Contractor implemented the waste management mitigation measures correctly. The result was in line with EIA prediction that with the implementation of mitigation measures and no shortcomings in EIA recommendations were identified.

9 COMMENTS

9.1.1 The air quality and noise monitoring were properly conducted in accordance with the approved EM&A Manuals. The monitoring events were sufficient to justify the respective environmental impacts on the nearby sensitive receivers.

9.1.2 Even though a few exceedances of air quality monitoring were recorded, all exceedances were considered not related to the Project. The environmental monitoring results indicated that the construction activities with the implementation of mitigation measures in general complied with the relevant environmental requirements.

9.1.3 The mitigation measures in EIA prediction and the approved EM&A Manuals have been effectively implemented during the construction period.

9.1.4 The environmental monitoring methodology was considered well established as the monitoring results were found in line with EIA predictions.

9.1.5 It is concluded that the overall environmental performance of the project is satisfactory. The overall EM&A programme was conducted satisfactorily. All aspects of the EM&A programme were reviewed and audited independently and objectively. The requirements in the EM&A Manuals are fully complied with.

10 CONCLUSIONS AND RECOMMENDATIONS

10.1.1 24-hour TSP and noise monitoring were carried out in the reporting period.

10.1.2 Two (2) Action level exceedances of air quality were recorded in November 2018 and July 2023. Investigations for the exceedances were conducted and the results revealed that the recorded two air quality exceedances were not in relation to the construction works of the Project.

10.1.3 No Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring locations in the reporting period.

10.1.4 No Action Level exceedance was recorded since no project related noise complaint was received in the reporting period.

10.1.5 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting period.

10.1.6 Seventeen (17) environmental complaints were received, in which seven (7) complaints regarding noise impact, three (3) complaints regarding water pollution, three (3) complaints regarding odour nuisance and four (4) complaints regarding air nuisance, all recorded environmental complaints were considered as non-project related. All the complaints were settled, no further complaint was received after the implementation of the mitigation measures.

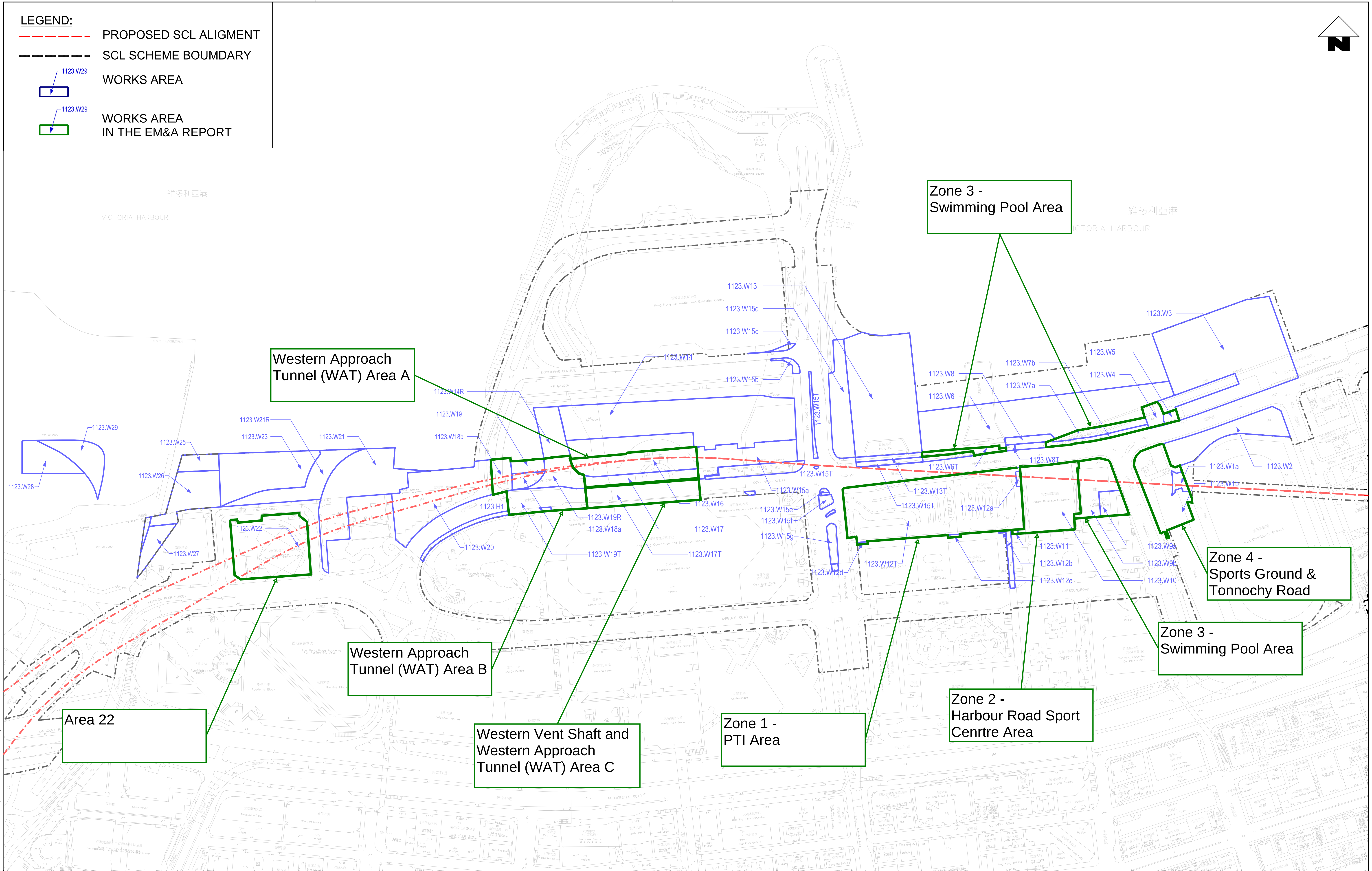
10.1.7 Two (2) environmental summon / prosecution were received in the reporting period.

10.1.8 All construction works with environmental impact concerne have been completed. The cessation of construction phase EM&A programme under the Project was proposed on 11 August 2023 and EPD expressed no objection to the proposed cessation after the visit on 29 August 2023 and approved letter was obtained on 14 September 2023. Hence, the construction phase EM&A programme of the Project was terminated as approved.

10.1.9 The overall EM&A programme was conducted satisfactorily. All aspects of the EM&A programme were reviewed and audited independently and objectively. The requirements in the EM&A Manuals are fully complied with.

10.1.10 With the success of the overall EM&A programme, the deterioration of the environment caused by the Project was cost-effectively identified and necessary prompt effective mitigation measures were implemented to avoid any unacceptable impacts.

FIGURES


LEGEND:
PROPOSED SCL ALIGMENT
SCL SCHEME BOUMDARY
1123.W29
WORKS AREA
1123.W29
WORKS AREA
IN THE EM&A REPORT
Zone 3 -
Swimming Pool Area
Western Approach
Tunnel (WAT) Area A
Western Approach
Tunnel (WAT) Area B
Area 22
Western Vent Shaft and
Western Approach
Tunnel (WAT) Area C
Zone 1 -
PTI Area
Zone 2 -
Harbour Road Sport
Cenrtre Area
Zone 3 -
Swimming Pool Area
Zone 4 -
Sports Ground &
Tonnochy Road
1123.W13
1123.W15d
1123.W15c
1123.W14
1123.W15b
1123.W14R
1123.W19
1123.W18b
1123.W21R
1123.W23
1123.W21
1123.W25
1123.W26
1123.W29
1123.W28
1123.W22
1123.W27
1123.H1
1123.W20
1123.W19R
1123.W18a
1123.W19T
1123.W16
1123.W17
1123.W17T
1123.W15T
1123.W15a
1123.W15e
1123.W15f
1123.W15g
1123.W12d
1123.W12T
1123.W13T
1123.W15T
1123.W12a
1123.W8
1123.W6
1123.W6T
1123.W7b
1123.W7a
1123.W8T
1123.W5
1123.W4
1123.W3
1123.W1a
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1123.W1b
1123.W11
1123.W12b
1123.W12c
1123.W9a
1123.W9b
1123.W10
維多利亞港
VICTORIA HARBOUR
N

DRAWN	C.F.WOO
DESIGNED	---
CHECKED	---
APPROVED	---
DATE	19/MAR/2015

MTR

SHATIN TO CENTRAL LINK – CONTRACT 1123

ORIGINATOR

LEIGHTON
Leighton - China State Joint Venture

TITLE

CONTRACT 1123
EXHIBITION STATION AND WESTERN APPROACH TUNNEL
SITE LAYOUT PLAN AND WORKS AREA

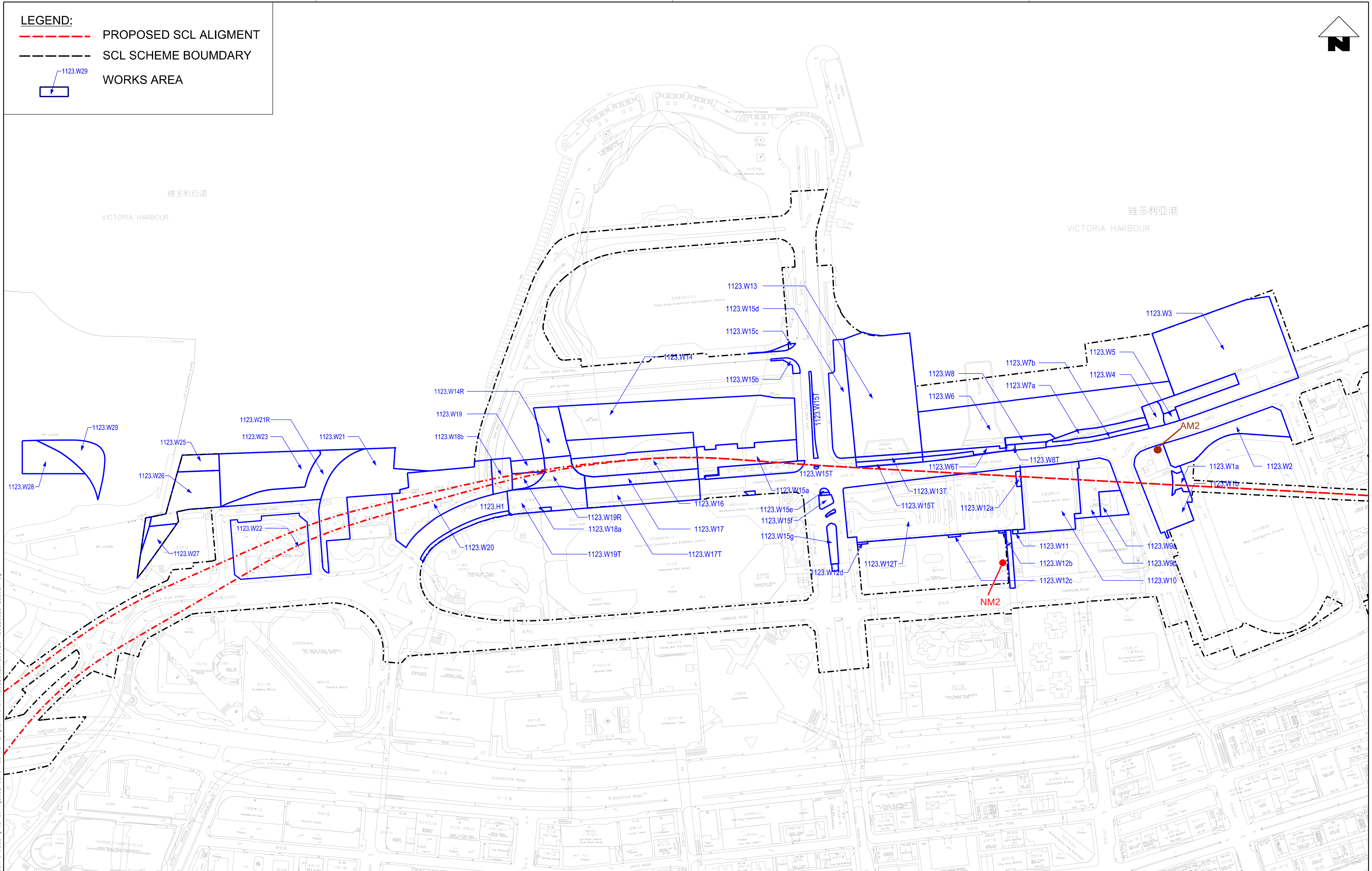
CADD REF. 1123_LCS_SK_0382A.dgn

SCALE 1 : 3000 @A3

DRAWING NO. Figure 1.1

REV. A

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED



REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	C.F.WOO
DESIGNED	---
CHECKED	---
APPROVED	---
DATE	19/MAR/2015

MTR

SHATIN TO CENTRAL LINK – CONTRACT 1123

ORIGINATOR

LEIGHTON
Leighton - China State Joint Venture

CADD REF. 1123_LCS_SK_0382A.dgn

TITLE

CONTRACT 1123
EXHIBITION STATION AND WESTERN APPROACH TUNNEL
AIR QUALITY AND NOISE MONITORING LOCATIONS

SCALE 1 : 3000 @A3

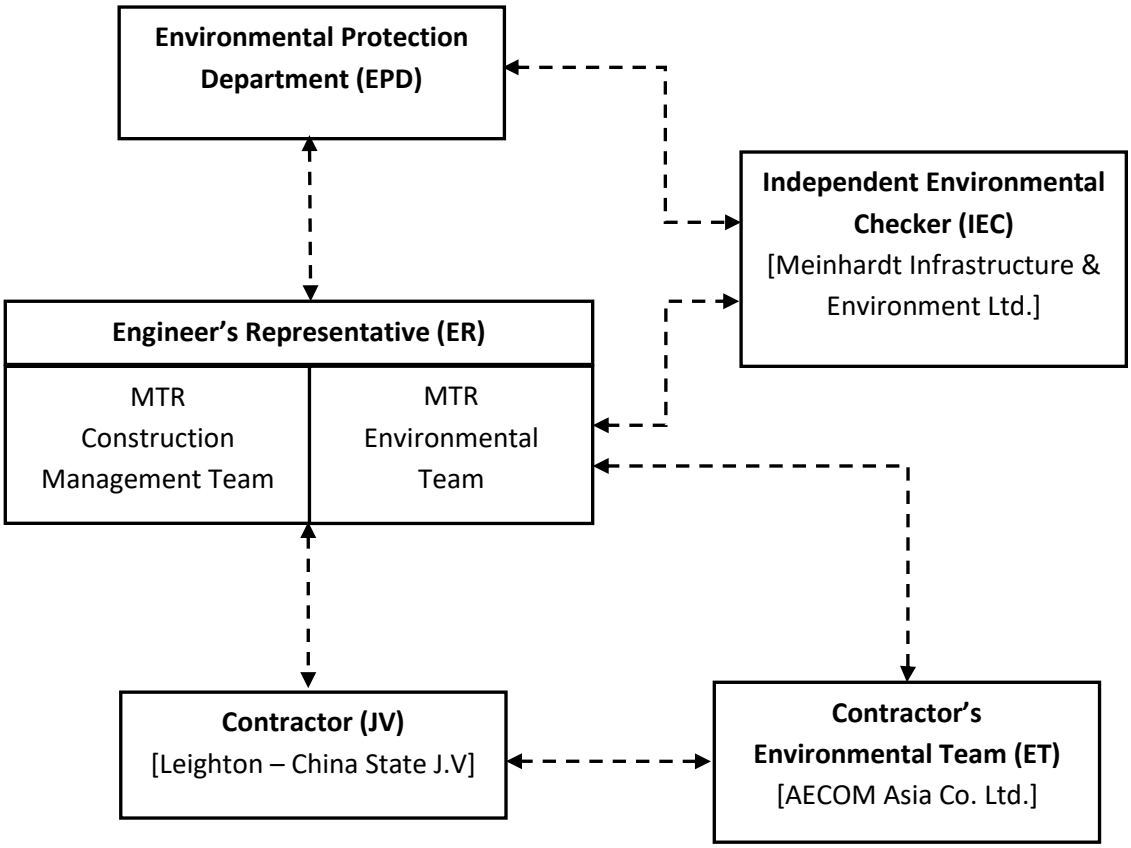
DRAWING NO. Figure 3.1

REV. A

APPENDIX A

Project Organization Structure

Appendix A Project Organization Structure



APPENDIX B

Summary of Action and Limit Levels

Appendix B – Summary of Action and Limit Levels

Table 1 Action and Limit Levels for 24-hour TSP

ID	Location	Action Level	Limit Level
AM2[1]	Wan Chai Sports Ground	160 μg/m^3	260 μg/m^3
AM3[2][3]	Existing Harbour Road Sports Centre	169 μg/m^3	260 μg/m^3
AM4[4]	Pedestrian Plaza	198 μg/m^3	260 μg/m^3

Note:
[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015.
[2] The impact monitoring at AM3 was handed over from Contract SCL1126 in June 2015.
[3] The impact monitoring at AM3 terminated on 6 May 2017 as demolition of Existing Harbour Road Sports Centre commenced on 8 May 2017.
[4] The impact monitoring at AM4 will be handed over from Contract SCL1128 in April 2021.

Table 2 Action and Limit Levels for Construction Noise (0700 – 1900 hrs of normal weekdays)

ID	Location	Action Level	Limit Level
NM2[1]	Harbour Centre[2]	When one documented complaint is received	75 dB(A)

Note:
[1] The impact monitoring at NM2 was handed over from Works Contract SCL1126 in June 2015.
[2] The Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. An alternative monitoring location at Harbour Centre was approved by the ER, agreed by IEC. The alternative monitoring location was approved by EPD on 18 December 2017.

APPENDIX C

Event Action Plan

Appendix C Event Action Plan

Event / Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
ACTION LEVEL				
Exceedance for one sample	1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor and IEC on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

Appendix C Event Action Plan

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
LIMIT LEVEL				
Exceedance for one sample	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	1. Notify Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; 4. 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. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix C Event Action Plan

Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Action Level	1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.
Exceedance of Limit Level	1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. 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. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix C Event Action Plan

Event and Action Plan for Continuous Noise Monitoring

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action/Limit Level	1. Identify source ; 2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed; 3. If exceedance is confirmed, notify IEC, ER and Contractor; 4. Investigate the cause of exceedance and ckeck Contractor's working procedures to determine possible mitigation to be implemented; 5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures; and 6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results.	1. Check monitoring data submitted by the Works Contract 1123 ET; 2. Check the Contractor's working method; 3. Discuss with the ER, Works Contract 1123 ET and Contractor on the potential remedial measures; and 4. Review and advise the Works Contract 1123 ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the Works Contract 1123 ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Ensure the proper implementation of remedial measures; and 4. 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. Identify source with the Works Contract 1123 ET; 2. If exceedance is confirmed, investigation the cause of exceedance and take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification; 4. Implement the agreed proposals; 5. Liaise with ER to optimize the effectiveness of the agreed mitigation; 6. Revise and resubmit proposals if problem still not under control; and 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX D

Implementation Schedule of Environmental Mitigation Measures

Appendix D – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Cultural Heritage Impact						
S4.93 & Table 4.2	Erection of decorative and sensibly designed hoarding along the boundary of the works area	To mitigate the temporary visual impact due to surface works.	Contractor	Works Areas in Causeway Bay and Wan Chai, and Works Shaft in Admiralty	Construction Phase	V
Ecological Impact						
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted.	To minimize the contamination of wastewater discharge	Contractor	All land based works areas	Construction Phase	V
Landscape and Visual Impact						
Construction Phase						
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation.	Transplanting and reuse of affected trees.	MTR	Works Sites	Construction Phase	V
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	Works Sites	Construction Phase	V
Table 7.9	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	Works Sites	Construction Phase	V
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	Works Sites	Construction Phase	V
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	Works Sites	Construction Phase	V
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs	Control of height and deposition/ arrangement of temporary facilities in works areas	MTR	Works Sites	Construction Phase	V
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments.	Reinstatement of temporary works areas.	MTR	Works Sites	Construction Phase	V
Construction Dust Impact						
Table 8.5	Barging facilities: (i) Transportation of spoils to the barging point – Pave all road surfaces within the barging facilities and provide watering once along with the haul road for every working hours to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m^2 once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0 L/m^2 to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impacts	Contractor	All barging points	Construction phase	V

Appendix D – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	(ii) Unloading of spoil materials – Undertake the unloading process within a 3-sided screen with top tipping hall. Provide water spraying and flexible dust curtains at the discharge point for dust suppression. (iii) Vehicles leaving the barging facilities – Pass vehicles through the wheel washing facilities provided at site exits.					V V
S8.63	For concrete batching plant, the requirements and mitigation measures stipulated in the *Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)* shall be followed and implemented.	To minimize dust impact	Contractor	Concrete Batching Plant	Construction phase	V
Table 8.6	During operation of concrete batching plant: (i) Unloading of aggregates from the tipper trucks to receiving hopper – unload the aggregates from the tipper trucks to the receiving hopper equipped with enclosures on 3 sides and top cover, and water spraying system. (ii) Unloading of cement and PFA from tankers into the silo – Directly load the cement and PFA into the silo via a flexible duct. Install dust collectors at cement/PFA silos. (iii) Storage of aggregates in overhead storage bins – Store the aggregates in fully enclosed overhead storage bins. Cover the top of overhead storage bins with cladding. Install water spraying system at the top of storage bins for watering the aggregates, and fully enclose aggregates storage bins. (iv) Weighing and batching of cementitious materials – Perform the whole process of weighing and mixing in a fully enclosed environment. Equip all the mixers with dust collectors. (v) Loading of concrete from mixer into transit mixer of a truck – Directly load the concrete from the mixer into the transit mixer of a truck in “wet form”. (vi) Tipper trucks and cement tankers leaving the Concrete Batching Plant – Haul road within the site is unpaved. Install wheel washing pit at the gate of the concrete batching plant. (vii) Transportation of materials within the plant – Provide watering twice a day would be provided.	To minimize dust impacts	Contractor	Concrete Batching Plant	Construction phase	V
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m2 for Kowloon side and 1.0 L/m2 for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m2 for Kowloon side and 1.0 L/m2 for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impact	Contractor	Works areas	Construction Phase	V
S8.89	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, provision of water spraying and flexible dust curtains to reduce dust emission	To minimize dust impact	Contractor	All barging points	Construction phase	V

Appendix D – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. • Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise	To minimize dust impacts	Contractor	Works areas	Construction phase	V V V V V V V V V V V V
/	***Dust suppression measures (con't)*** • De-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement • The portion of any road where along the site boundary should be kept clear of dusty materials. • Use of frequent watering for any dusty construction process (e.g. breaking works) to reduce dust emissions.	To minimize dust impacts	Contractor	Works areas	Construction phase	V V V
/	***Emission from Vehicles and Plants*** • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	Works areas	Construction phase	V V V
Airborne Noise Impact						
Construction Phase						
S9.55	The following good site practices shall be implemented: • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program • Mobile plant, if any, shall be sited as far from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so	To minimize construction noise impact	Contractor	Works areas	Construction phase	V V V V V

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	that the noise is directed away from the nearby NSRs • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities					V
/	• Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants during operation • Air compressors or Hand-held breaker shall be fitted with valid noise emission labels during operation	To minimize construction noise impact	Contractor	Works areas	Construction phase	V V
S9.56 & Table 9.16	The following quiet PME shall be used: • Crane lorry, mobile • Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill • Lorry • Wheel loader • Roller vibratory	To minimize construction noise impact	Contractor	Works areas at: • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel	Construction phase	V V V V V V V V V V V V V V V V V V
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric) • Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry mounted • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel	Construction phase	V V V V V V V V V V V V V V V V V V
S9.60 & Table 9.17	Noise insulating fabric shall be used for • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic)	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention	Construction phase	V V V V V V V V

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				Avenue to north of ADM • South of ADM to Overrun Tunnel		
Water Quality Impact						
Construction Phase						
S11.216	The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close to the seafront: • Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. • Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. • Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters.	To minimize release of construction wastes from construction works at or close to the seafront	Contractor	Construction works at or close to the seafront	Construction Phase	V V V
S11.222 to 11.245	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” shall be followed where practicable. <u>Surface Run-off</u> • Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction Phase	V V V V V V V V

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EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.					V
	Boring and Drilling Water • Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities.					V
	Wheel Washing Water • All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.					V
	Bentonite Slurries • Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area. • If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS.					V V
	Water for Testing & Sterilization of Water Retaining Structures and Water Pipes • Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. • Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable.					V V
	Acid Cleaning, Etching and Pickling Wastewater • Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters.					V
	Wastewater from Site Facilities • Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. • Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. • Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.					V V V
S11.246 & 11.247	Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.	To minimize water quality impacts due to sewage generated from construction workforce	Contractor	Works areas	Construction Phase	V

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S11.248	In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.	To minimize impact from discharge of uncontaminated groundwater	Contractor	Works areas	Construction Phase	V
S11.249	If land contaminated site is identified from the Stage 2 SI work (refer to Sections 11.188 to 11.191 of the EIA Report), the following mitigation measures shall be implemented for the identified contaminated area. Any transient pile of contaminated soil / material shall be minimized and shall be bottom-lined, bunded and covered with impervious membrane during rain event to avoid generation of contaminated runoff. Appropriate intercepting channels and partial shelters shall be provided where necessary to prevent rainwater from collecting within trenches or footing excavations. Any contaminated water and wastewater generated from the decontamination process shall not be directly discharged to public sewers or site drainage. They shall be treated or tanked away as necessary for proper disposal in compliance with the TM-DSS.	To control site run-off generated from any potential contaminated works areas.	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	V
S11.250 & S11.251	No direct discharge of groundwater from contaminated areas shall be adopted. If land contamination impact and generation of contaminated groundwater is identified from the Stage 2 SI works (refer to Sections 11.189 to 11.192 of the EIA Report), the following mitigation measures shall be adopted. Any contaminated groundwater shall be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. If wastewater treatment is deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and shall be discharged into the foul sewers. If groundwater recharging wells are deployed, the recharging wells shall be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells shall be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in Section 2.3 of the TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substance such as TPH products shall be removed as necessary by installing the petrol interceptor. The Contractor shall apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.	To minimize potential water quality impact from discharge of contaminated groundwater	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	V
S11.252	The following good site practices shall be adopted for the proposed barging points: • all vessels shall be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash • all hopper barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material • construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site • loading of barges and hoppers shall be controlled to prevent splashing of material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation	To minimize water quality impacts generated from the barging points.	Contractor	Barging points	Construction Phase	V
S11.253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The	To minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction Phase	V

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	beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimize water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.					
S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V V V
Waste Management Implications						
Construction Phase						
S12.75	***Good Site Practices and Waste Reduction Measures*** • Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; • Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; • Provision of sufficient waste disposal points and regular collection of waste; • Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • Separation of chemical wastes for special handling and appropriate treatment.	To reduce waste management impacts	Contractor	All Work Sites	Construction Phase	V V V V V V
S12.76	***Good Site Practices and Waste Reduction Measures (con’t)*** • Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; • Proper storage and site practices to minimize the potential for damage or contamination of construction materials; • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and • Training shall be provided to workers about the concepts of site cleanliness and appropriate	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V V V V V V

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	waste management procedures, including waste reduction, reuse and recycle.					
S12.77	***Good Site Practices and Waste Reduction Measures (con't)*** The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V
S12.78	***Good Site Practices and Waste Reduction Measures (con't)*** C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V
S12.79	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: • Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; • Maintain and clean storage areas routinely; • Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and • Different locations shall be designated to stockpile each material to enhance reuse.	To minimize potential adverse environmental impacts arising from waste storage	Contractor	Work Sites	Construction Phase	V V V V
S12.80	***Storage, Collection and Transportation of Waste (con't)*** Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: • Remove waste in timely manner • Waste collectors shall only collect wastes prescribed by their permits • Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers • Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) • Waste shall be disposed of at licensed waste disposal facilities • Maintain records of quantities of waste generated, recycled and disposed	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V V V V V V
S12.81	***Storage, Collection and Transportation of Waste (con't)*** • Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.83 – 12.86	***Sorting of C&D Materials*** • Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. • Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. • The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as	To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	Work Sites	Construction Phase	V V V

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	mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. • Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels.					V
S12.88	***Sediments*** • The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance.	To ensure the sediment to be disposed of in an authorized and least impacted way	Contractor	All works areas with sediments concern	Construction Phase	V
S12.89	***Sediments (con't)*** • The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works.	To determine the best handling and disposal option of the sediments	MTR / Contractor	All works areas with sediments concern	Detailed Design Stage and Construction Phase	V
S12.91 – 12.94	***Sediments (con't)*** • Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). • In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. • The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. • In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	V
S12.95	***Sediments (con't)*** • A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	V

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	sediment loss due to impact of the container on the seabed have been addressed.					
S12.97	***Containers for Storage of Chemical Waste*** The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall: • Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; • Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.	To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	Work Sites	Construction Phase	V V V
S12.98	***Chemical Waste Storage Area*** • Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall from entering; and • Be properly arranged so that incompatible materials are adequately separated.	To prepare appropriate storage areas for chemical waste at works areas	Contractor	Work Sites	Construction Phase	V V V V V V
S12.99	***Chemical Waste*** • Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place.	To clearly label the chemical waste at works areas	Contractor	Work Sites	Construction Phase	V
S12.100	***Collection and Disposal of Chemical Waste*** ***A trip-ticket system shall be operated in accordance with the Waste Disposal*** *(Chemical Waste) (General) Regulation* to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.	To monitor the generation, reuse and disposal of chemical waste	Contractor	Work Sites	Construction Phase	V
S12.101	***General Refuse*** General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.	To properly store and separate from other C&D materials for subsequent collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.102	***General Refuse (con't)*** The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.	To facilitate recycling of recyclable portions of refuse	Contractor	Work Sites	Construction Phase	V
S12.103	***General Refuse (con't)*** The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.	To raise workers' awareness on recycling issue	Contractor	Work Sites	Construction Phase	V
/	***Accidental spillage*** To prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities will be provided. • All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. • The contractor will register as a chemical waste producer if chemical wastes would be	To minimize potential adverse environmental impacts arising from accidental spillage	Contractor	Work Sites	Construction Phase	V V V

Appendix D – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.					V
Land Contamination Impact						
S13.23–13.24	For construction works at sites under the current stage of site investigation (Stage 1 SI): • Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process shall involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of odours, which may also indicate soil and/or groundwater contamination. • If soil materials suspected to be contaminated are encountered during excavation, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Shall concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the Contamination Assessment Report (CAR) and Remediation Action Plans (RAP).	To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover.	Contractor	Within Project Boundary where signs of contamination is identified	During excavation works for Cut-and-Cover	V
S13.30	For some sites with currently no SI proposed (i.e. sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28), to be conservative, visual inspection shall be conducted during demolition and excavation to detect any abnormal colour, smell or other characteristics of the soil, due to the nearby land use and/ or construction method. If abnormal colour, smell or other characteristics of contamination are identified for any of these sites, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Should the concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the CAR and RAP.	To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover.	Contractor	Areas with no SI proposed (Sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28)	During excavation works for Cut-and-Cover	V
S13.36 – 13.38	For areas inaccessible for proper site appraisal and investigation (Stage 2 SI) (i) Site 2-15 • Upon site access being granted, visual inspection shall be carried out where intrusive works and soil excavation is encountered, for attention on any potential contamination due to its current operation • A supplementary CAP shall then be submitted to EPD for endorsement. • A CAR/RAP shall be prepared and submitted to EPD for endorsement on completion of the SI and analytical testing. • Shall remediation be undertaken a Remediation Report (RR) shall be prepared and submitted to EPD for endorsement to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/ disposal records (including trip tickets), confirmatory sampling results, and photographs shall be included in the aforesaid RR. • No construction work shall be carried out prior to the endorsement of the RR by EPD.	To identify areas with land contamination concern, report laboratory results and propose remediation measures if necessary. To ensure remediation works have been undertaken to before the commencement of any construction works of the Project.	Contractor	Areas unable to be accessed during Stage 1 SI (Site 2-15)	After land resumption and prior to the construction works commencement at the site	V
S13.39	Potential Remediation of Contaminated Soil • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; • Supply of suitable clean backfill material is needed after excavation; • If remediation is required with chemical oxidation proposed as a contaminant mass reduction technology, chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and personal protective equipment (PPE). • Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions; • Speed control for the trucks carrying contaminated materials shall be enforced;	To remediate contaminated soil	Contractor	Identified contaminated sites	Site remediation	V

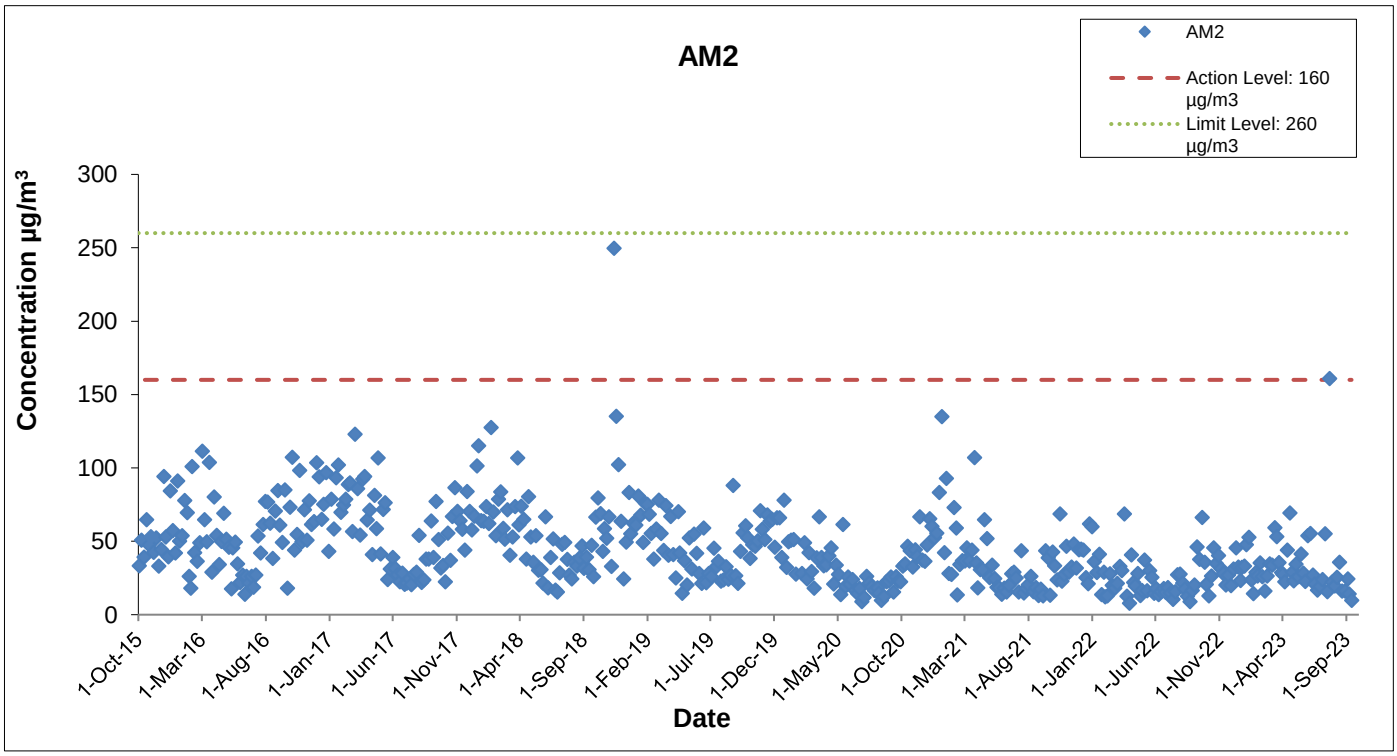
Appendix D – Environmental Mitigation Implementation Schedule

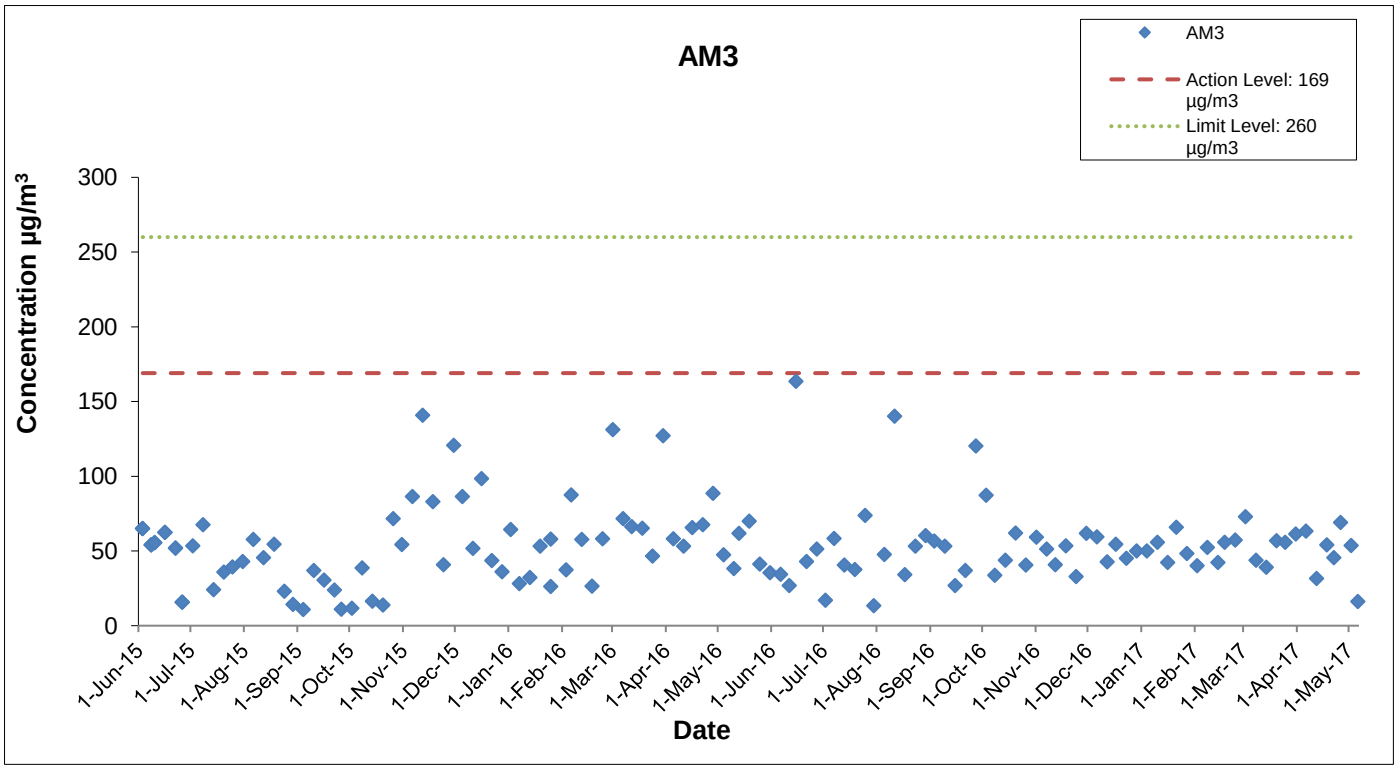
EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	• Vehicle wheel and body washing facilities at the site's exit points shall be established and used; and • Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control shall be implemented and complied with relevant regulations and guidelines.					
S13. 40	In order to minimize the potential adverse effects on health and safety of construction workers during the course of site remediation, the Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations shall be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures shall be implemented as far as possible: • Set up a list of safety measures for site workers; • Provide written information and training on safety for site workers; • Keep a log-book and plan showing the contaminated zones and clean zones; • Maintain a hygienic working environment; • Avoid dust generation; • Provide face and respiratory protection gear to site workers; • Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers; and • Provide first aid training and materials to site workers.	To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation.	Contractor	Identified contaminated sites	Site remediation and prior to construction phase	V

Legend: V = implemented;
x = not implemented;
@ = partially implemented;
N/A = not applicable

APPENDIX E

Air Quality Monitoring
Graphical Presentations





* The monitoring station at AM2 was handed over from Contract SCL1128 on 28 October 2015.

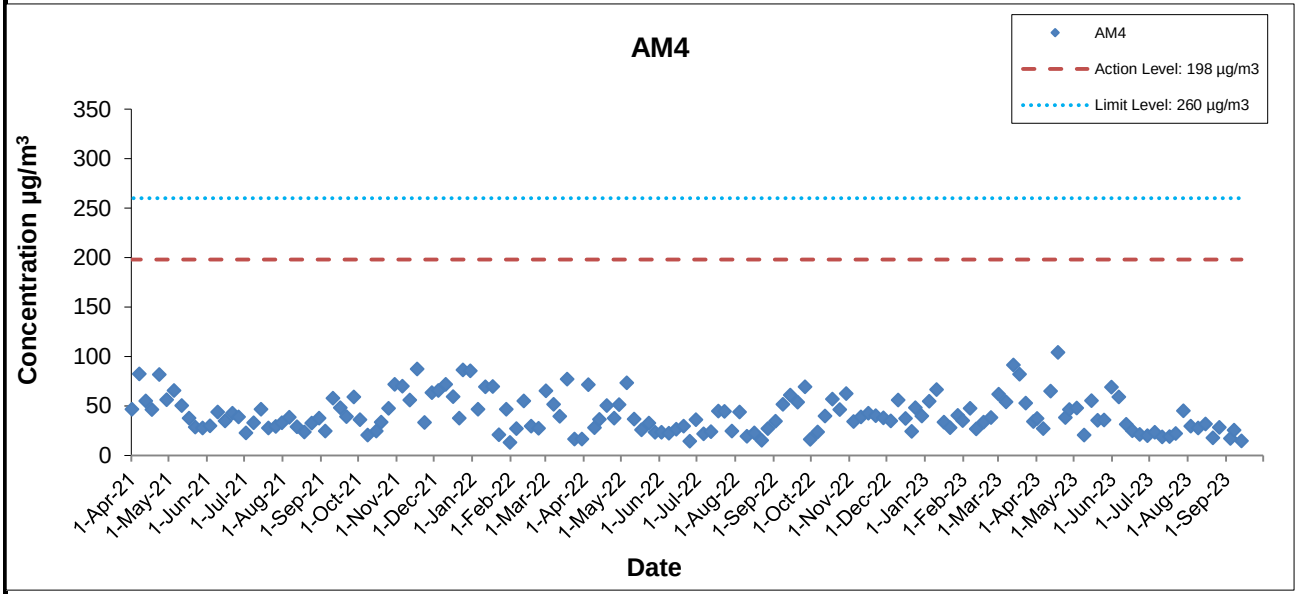
Shatin Central Link Contract No. 1123
Exhibition Station and Western Approach Tunnel

AECOM

Graphical Presentation of Impact 24-hr TSP Monitoring Results

Date: **October 2023**

Appendix E



* The impact monitoring at AM4 handed over from Contract SCL1128 in April 2021.

Shatin Central Link Contract No. 1123
Exhibition Station and Western Approach Tunnel

AECOM

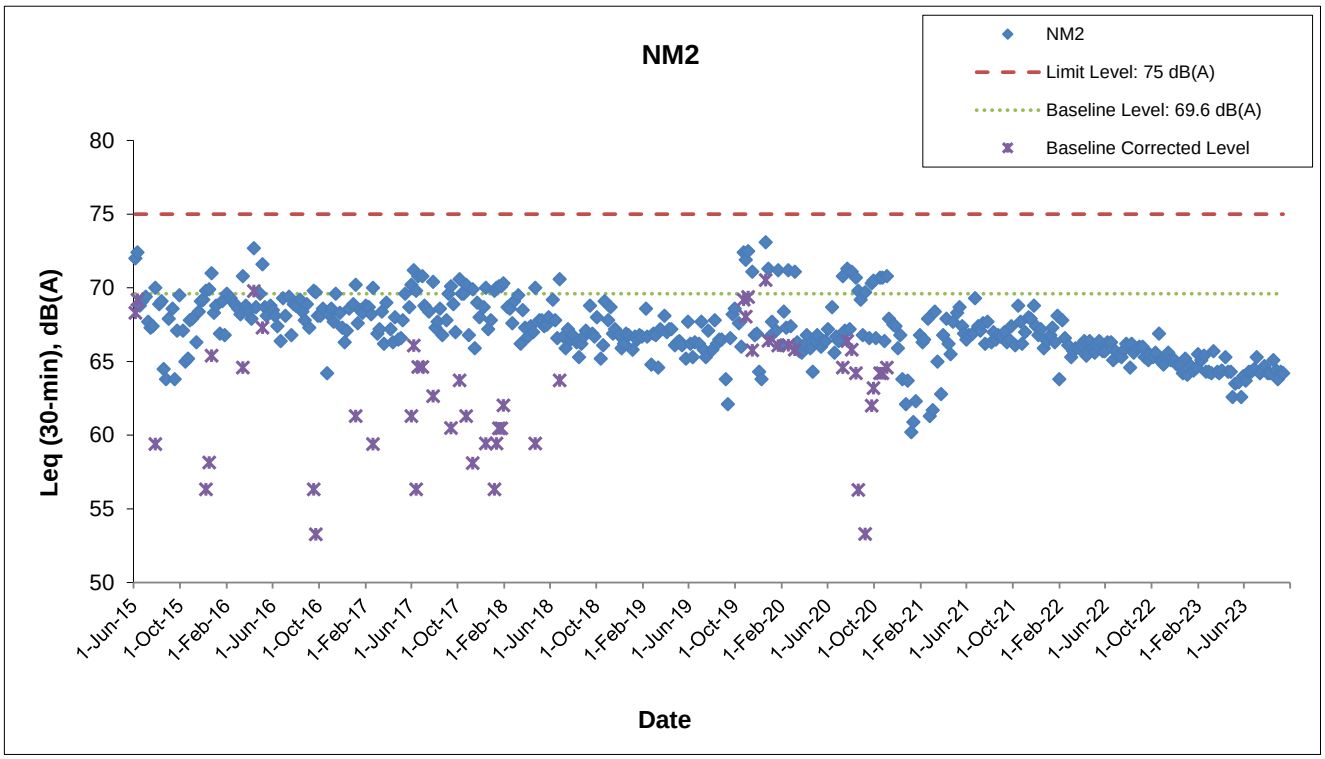
Graphical Presentation of Impact 24-hr TSP Monitoring Results

Date: October 2023

Appendix E

APPENDIX F

Noise Monitoring Graphical Presentations



Shatin Central Link Contract No. 1123
Exhibition Station and Western Approach Tunnel

Graphical Presentation of Impact Noise Monitoring Results

Date: **October-2023**

Appendix F

APPENDIX G

Summary of Waste Flow Table

Appendix G - SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach Tunnel

Month	Actual Quantities of Inert C&D Materials Generated						Actual Quantities of C&D Wastes Generated				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Total	591.805	0.000	9.374	347.095	228.414	27.338	23510.651	44.785	13.064	7.953	23.626

Appendix G - SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach

Summary Waste Flow Table for 2023

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of Marine Dumping Monthly	
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Type 1	Type 2
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Jan	0.088	0.000	0.000	0.000	0.088	0.000	0.000	0.000	0.000	0.000	0.133	0.000	0.000
Feb	0.183	0.000	0.000	0.000	0.183	0.000	0.000	0.095	0.005	0.000	0.142	0.000	0.000
Mar	0.267	0.000	0.000	0.000	0.267	0.000	0.000	0.000	0.000	0.000	0.112	0.000	0.000
Apr	0.169	0.000	0.000	0.000	0.169	0.000	0.000	0.000	0.000	0.000	0.067	0.000	0.000
May	0.178	0.000	0.000	0.000	0.178	0.000	0.000	0.000	0.000	0.000	0.074	0.000	0.000
Jun	0.166	0.000	0.000	0.000	0.166	0.000	0.000	9.561	0.011	0.000	0.106	0.000	0.000
Sub-total	1.051	0.000	0.000	0.000	1.051	0.000	0.000	9.656	0.016	0.000	0.633	0.000	0.000
July	0.029	0.000	0.000	0.000	0.029	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.000
August	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.000
September	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
October													
November													
December													
Total	1.080	0.000	0.000	0.000	1.083	0.000	0.000	9.656	0.016	0.000	0.683	0.000	0.000

Comments:

1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m^3; the density of general refuse is 1.0 ton/m^3; the density of waste oil is 1.0 kg/L.
2) The cut-off date of waste amount in Sep is 30/9/2023 for Public Fill Facilities and Landfill.
3) The amounts of waste in Sep are 10.26 tons for Landfill and 6.58 tons for Public Fill.
4) The amount of import fill in Sep is 0 tons, for cut-off date as 30/9/2023.
5) The amount of metal waste generated in Sep is 0 kg, for cut-off date as 30/9/2023.
6) The amount of paper waste generated in Sep is 0 kg, for cut-off date as 30/9/2023.
7) The amount of plastic waste generated in Sep is 0 kg, for cut-off date as 30/9/2023.

Appendix G - SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach

Summary Waste Flow Table for 2022

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of Marine Dumping Monthly	
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Type 1	Type 2
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Jan	1.394	0.000	0.000	0.000	1.394	0.000	4.125	1.650	0.580	0.000	0.290	0.000	0.000
Feb	1.145	0.000	0.000	0.000	1.145	0.000	31.710	0.000	0.000	0.000	0.191	0.000	0.000
Mar	1.930	0.000	0.000	0.000	1.930	0.000	0.010	0.390	0.080	0.000	0.197	0.000	0.000
Apr	0.826	0.000	0.000	0.000	0.826	0.000	0.005	0.245	0.060	0.000	0.230	0.000	0.000
May	0.948	0.000	0.000	0.000	0.948	0.000	0.005	0.300	0.045	0.000	0.289	0.000	0.000
Jun	0.220	0.000	0.000	0.000	0.220	0.000	0.034	2.255	0.211	0.000	0.266	0.000	0.000
Sub-total	6.462	0.000	0.000	0.000	6.462	0.000	35.889	4.840	0.976	0.000	1.463	0.000	0.000
July	0.307	0.000	0.000	0.000	0.307	0.000	0.015	0.720	0.145	0.000	0.031	0.000	0.000
August	0.164	0.000	0.000	0.000	0.164	0.000	167.525	0.310	0.035	0.000	0.055	0.000	0.000
September	0.071	0.000	0.000	0.000	0.071	0.000	11.408	0.680	0.122	0.000	0.032	0.000	0.000
October	0.123	0.000	0.000	0.000	0.123	0.000	0.000	0.000	0.000	0.000	0.042	0.000	0.000
November	0.033	0.000	0.000	0.000	0.033	0.000	0.005	0.190	0.025	0.000	0.078	0.000	0.000
December	0.081	0.000	0.000	0.000	0.081	0.000	417.480	0.000	0.000	6.000	0.100	0.000	0.000
Total	7.241	0.000	0.000	0.000	7.241	0.000	632.322	6.740	1.303	6.000	1.800	0.000	0.000

Comments:

1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m^3; the density of general refuse is 1.0 ton/m^3; the density of waste oil is 1.0 kg/L.
2) The cut-off date of waste amount in December is 31/12/2022 for Public Fill Facilities and Landfill.
3) The amounts of waste in December are 99.95 tons for Landfill and 161.46 tons for Public Fill.
4) The amount of import fill in December is 0 tons, for cut-off date as 31/12/2022.
5) The amount of metal waste generated in December is 0 kg, for cut-off date as 31/12/2022.
6) The amount of paper waste generated in December is 0 kg, for cut-off date as 31/12/2022.
7) The amount of plastic waste generated in December is 0 kg, for cut-off date as 31/12/2022.

Appendix G - SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach

Summary Waste Flow Table for 2021

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of Marine Dumping Monthly	
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Type 1	Type 2
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Jan	2.855	0.000	0.000	0.000	2.855	0.582	57.165	0.000	0.000	0.000	0.640	0.000	0.000
Feb	1.673	0.000	0.000	0.000	1.673	0.408	68.720	0.250	0.045	0.000	0.461	0.000	0.000
Mar	1.596	0.000	0.000	0.000	1.596	1.059	134.887	0.180	0.018	0.000	0.576	0.000	0.000
Apr	0.604	0.000	0.000	0.000	0.604	1.066	3.786	0.160	0.019	0.000	0.471	0.000	0.000
May	0.338	0.000	0.000	0.000	0.338	0.101	5.499	0.170	0.026	0.000	0.123	0.000	0.000
Jun	0.450	0.000	0.000	0.000	0.450	0.000	32.445	0.000	0.000	0.000	0.124	0.000	0.000
Sub-total	7.517	0.000	0.000	0.000	7.517	3.216	302.502	0.760	0.108	0.000	2.396	0.000	0.000
July	0.538	0.000	0.000	0.000	0.538	0.000	0.000	0.000	0.000	0.000	0.086	0.000	0.000
August	0.215	0.000	0.000	0.000	0.215	0.000	13.260	0.100	0.000	0.000	0.024	0.000	0.000
September	0.775	0.000	0.000	0.000	0.775	0.000	15.250	0.535	0.110	0.000	0.244	0.000	0.000
October	1.132	0.000	0.000	0.000	1.132	0.000	8.580	0.400	0.066	0.000	0.144	0.000	0.000
November	0.717	0.000	0.000	0.000	0.717	0.000	14.475	0.000	0.000	0.000	0.146	0.000	0.000
December	0.967	0.000	0.000	0.000	0.967	0.000	4.325	0.400	0.000	0.000	0.174	0.000	0.000
Total	11.861	0.000	0.000	0.000	11.861	3.216	358.392	2.195	0.284	0.000	3.214	0.000	0.000

Comments:

1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m^3; the density of general refuse is 1.0 ton/m^3; the density of waste oil is 1.0 kg/L.
2) The cut-off date of waste amount in December is 31/12/2021 for Public Fill Facilities and Landfill.
3) The amounts of waste in December are 348.26 tons for Landfill and 1934.4 tons for Public Fill.
4) The amount of import fill in December is 0 tons, for cut-off date as 31/12/2021.
5) The amount of metal waste generated in December is 4325 kg, for cut-off date as 31/12/2021.
6) The amount of paper waste generated in December is 0 kg, for cut-off date as 31/12/2021.
7) The amount of plastic waste generated in December is 0 kg, for cut-off date as 31/12/2021.

Appendix G - SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach

Summary Waste Flow Table for 2020

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of Marine Dumping Monthly	
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Type 1	Type 2
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Jan	0.977	0.000	0.000	0.000	0.977	0.013	1656.870	0.000	0.000	0.000	0.699	0.000	0.000
Feb	1.391	0.000	0.000	0.000	1.391	0.191	406.447	0.420	0.040	0.000	0.700	0.000	0.000
Mar	1.410	0.000	0.000	0.000	1.410	0.010	613.385	0.490	0.080	0.000	1.035	0.000	0.000
Apr	2.082	0.000	0.000	0.000	2.082	0.407	1380.857	0.310	0.020	0.000	1.078	0.000	0.000
May	1.392	0.000	0.000	0.000	1.392	0.013	315.856	0.350	0.010	0.000	1.242	0.000	0.000
Jun	1.858	0.000	0.000	0.000	1.858	0.154	339.852	0.360	0.015	0.000	0.860	0.000	0.000
Sub-total	9.109	0.000	0.000	0.000	9.109	0.786	4713.267	1.930	0.165	0.000	5.613	0.000	0.000
July	0.897	0.000	0.000	0.000	0.897	1.990	669.775	0.250	0.030	0.000	0.801	0.000	0.000
August	0.813	0.000	0.000	0.000	0.813	1.347	207.843	0.360	0.090	0.000	0.866	0.000	0.000
September	2.782	0.000	0.000	0.000	2.782	0.572	198.928	0.420	0.100	0.000	0.862	0.000	0.000
October	2.436	0.000	0.000	0.000	2.436	1.380	136.510	1.000	0.180	0.000	0.795	0.000	0.000
November	11.406	0.000	0.000	0.000	11.406	0.979	220.676	0.530	0.085	0.000	0.879	0.000	0.000
December	2.062	0.000	0.000	0.000	2.062	0.855	69.925	2.715	0.345	0.000	0.685	0.000	0.000
Total	29.505	0.000	0.000	0.000	29.505	7.910	6216.924	7.205	0.995	0.000	10.500	0.000	0.000

Comments:

1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m^3; the density of general refuse is 1.0 ton/m^3; the density of waste oil is 1.0 kg/L.
2) The cut-off date of waste amount in December is 31/12/2020 for Public Fill Facilities and Landfill.
3) The amounts of waste in December are 684.9 tons for Landfill and 4123.88 tons for Public Fill.
4) The amount of import fill in December is 1326.47 tons, for cut-off date as 31/12/2020.
5) The amount of metal waste generated in December is 69925kg, for cut-off date as 31/12/2020.
6) The amount of paper waste generated in December is 2715 kg, for cut-off date as 31/12/2020.
7) The amount of plastic waste generated in December is 345 kg, for cut-off date as 31/12/2020.

Appendix G - SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach

Summary Waste Flow Table for 2019

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of Marine Dumping Monthly	
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Type 1	Type 2
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Jan	11.879	0.000	0.076	5.548	6.255	0.434	372.718	0.280	0.057	0.000	0.205	0.000	0.000
Feb	3.812	0.000	0.000	3.573	0.239	0.235	508.505	0.340	0.095	0.315	0.088	0.000	0.000
Mar	20.434	0.000	0.021	4.673	15.740	0.163	491.265	0.500	0.100	0.000	0.216	3.500	0.000
Apr	8.753	0.000	0.000	8.098	0.655	0.019	667.401	0.300	0.080	0.000	0.177	0.000	0.000
May	5.474	0.000	0.000	5.139	0.335	0.000	477.808	0.230	0.072	0.000	0.157	0.000	0.000
Jun	3.895	0.000	0.513	2.993	0.388	0.010	677.046	0.320	0.050	0.000	0.278	0.000	0.000
Sub-total	54.246	0.000	0.610	30.025	23.612	0.861	3194.743	1.970	0.454	0.315	1.121	3.500	0.000
July	1.006	0.000	0.000	0.000	1.006	0.048	742.482	0.290	0.040	0.000	0.368	0.000	0.000
August	1.331	0.000	0.000	0.000	1.331	0.697	1362.862	0.300	0.080	0.000	0.409	0.000	0.000
September	1.157	0.000	0.000	0.000	1.157	0.548	1473.308	0.280	0.050	0.000	0.482	0.000	0.000
October	0.741	0.000	0.000	0.000	0.741	1.263	717.442	0.200	0.080	0.000	0.484	0.000	0.000
November	0.475	0.000	0.000	0.000	0.475	0.045	1201.028	0.320	0.055	0.000	0.515	0.000	0.000
December	0.582	0.000	0.000	0.000	0.582	0.047	2440.478	0.400	0.060	0.282	0.636	0.000	0.000
Total	59.539	0.000	0.610	30.025	28.904	3.508	11132.343	3.760	0.819	0.597	4.015	3.500	0.000

Comments:

1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m^3; the density of general refuse is 1.0 ton/m^3; the density of waste oil is 1.0 kg/L.
2) The cut-off date of waste amount in Dec is 31/12/2019 for Public Fill Facilities and Landfill.
3) The amounts of waste in Dec are 635.63 tons for Landfill and 1164.42 tons for Public Fill.
4) The amount of import fill in Dec is 93.08 tons, for cut-off date as 19/12/2019.
5) The amount of metal waste generated in Dec is 2440478 kg, for cut-off date as 31/12/2019.
6) The amount of paper waste generated in Dec is 400 kg, for cut-off date as 31/12/2019.
7) The amount of plastic waste generated in Dec is 60 kg, for cut-off date as 31/12/2019.
8) The amount of chemical waste generated in Dec is 252 L for liquid and 30kg for solid, for cut-off date as 31/12/2019.

Appendix G - SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach

Summary Waste Flow Table for 2018

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of Marine Dumping Monthly	
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Type 1	Type 2
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Jan	19.873	0.000	0.553	16.791	2.529	0.563	258.958	0.850	0.087	0.000	0.155	10.294	0.000
Feb	10.708	0.000	0.826	9.138	0.744	0.509	104.767	0.320	0.048	0.000	0.116	1.804	0.000
Mar	28.905	0.000	0.280	27.160	1.465	0.164	276.367	0.480	0.057	0.000	0.112	0.000	3.521
Apr	33.493	0.000	0.429	32.199	0.866	0.139	469.766	0.230	0.048	0.000	0.138	0.000	2.841
May	27.385	0.000	0.483	26.099	0.803	0.064	192.146	0.190	0.029	0.000	0.091	0.000	3.612
Jun	16.568	0.000	0.518	15.603	0.446	0.029	138.703	0.300	0.047	0.000	0.113	0.000	0.608
Sub-total	136.933	0.000	3.089	126.990	6.853	1.467	1440.707	2.370	0.316	0.000	0.725	12.098	10.582
July	13.834	0.000	0.393	12.890	0.551	0.111	370.115	0.410	0.125	0.000	0.094	0.000	0.608
August	6.036	0.000	0.072	5.753	0.212	0.111	153.947	0.300	0.078	0.000	0.104	0.000	0.000
September	0.135	0.000	0.000	0.042	0.093	0.277	2.860	0.000	0.000	0.000	0.110	0.000	0.000
October	10.254	0.000	0.000	9.875	0.378	0.194	293.581	0.760	0.205	0.000	0.125	0.000	0.000
November	9.864	0.000	0.126	9.458	0.280	0.096	197.300	0.000	0.000	0.000	0.125	0.000	0.000
December	15.378	0.000	0.042	0.427	14.909	0.067	643.174	0.500	0.125	0.000	0.097	2.363	0.000
Total	192.434	0.000	3.722	165.435	23.276	2.322	3101.684	4.340	0.849	0.000	1.381	14.461	11.190

Comments:

1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m^3; the density of general refuse is 1.0 ton/m^3; the density of waste oil is 1.0 kg/L.
2) The cut-off date of waste amount in Dec is 31/12/2018 for Public Fill Facilities and Landfill.
3) The amounts of waste in Dec are 96.73 tons for Landfill and 29878.78 tons for Public Fill.
4) The amounts of C&D waste reused in the contract in Dec is 84 tons, for cut-off date as 31/12/2018.
5) The amounts of C&D waste reused in other projects in Dec is 853.55 tons for SCL 1123 Kai Tak Barging Point for cut-off date as 31/12/2018.
6) The amount of import fill in Dec is 133.35 tons, for cut-off date as 31/12/2018.
7) The amount of metal waste generated in Dec is 643174 kg, for cut-off date as 31/12/2018.
8) The amount of paper waste generated in Dec is 500 kg, for cut-off date as 31/12/2018.
9) The amount of plastic waste generated in Dec is 125 kg, for cut-off date as 31/12/2018.
10) The cut-off date of the amount of marine sediment (Type 1 & Type 2) disposed in Dec is 31/12/2018.

Appendix G - SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach

Summary Waste Flow Table for 2017

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of Marine Dumping Monthly	
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Type 1	Type 2
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Jan	11.933	0.000	0.007	5.733	6.193	0.147	18.320	0.310	0.548	0.000	0.044	0.000	0.000
Feb	9.718	0.000	0.000	3.770	5.948	0.114	26.030	0.670	0.040	0.000	0.048	0.000	0.000
Mar	17.671	0.000	0.042	12.401	5.228	1.079	77.355	0.220	0.035	0.000	0.056	0.000	0.000
Apr	6.614	0.000	0.000	3.860	2.754	0.333	17.653	0.140	0.027	0.000	0.055	0.000	0.000
May	3.926	0.000	0.042	0.278	3.606	0.161	142.382	0.300	0.850	0.020	0.274	6.958	0.000
Jun	7.179	0.000	0.000	3.897	3.283	0.065	99.961	0.210	0.029	0.000	0.051	3.819	0.880
Sub-total	57.042	0.000	0.091	29.939	27.012	1.899	381.701	1.850	1.529	0.020	0.530	10.777	0.880
July	9.455	0.000	0.105	4.562	4.789	0.039	22.032	0.220	0.028	0.000	0.153	5.124	0.000
August	23.814	0.000	1.388	19.677	2.749	0.325	88.583	0.800	0.057	0.210	0.092	3.801	0.000
September	30.310	0.000	0.644	26.030	3.636	0.676	161.422	0.58	0.048	0.000	0.084	0.563	0.000
October	24.985	0.000	0.189	23.121	1.675	0.305	79.391	0.300	0.049	0.726	0.141	0.507	0.000
November	27.928	0.000	0.021	25.772	2.135	0.036	539.732	0.190	2.668	0.000	0.149	3.681	0.000
December	23.025	0.000	0.245	19.011	3.768	0.175	440.621	0.210	0.039	0.000	0.095	5.385	0.560
Total	196.558	0.000	2.683	148.111	45.764	3.456	1713.482	4.150	4.418	0.956	1.243	29.838	1.440

Comments:

1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m^3; the density of general refuse is 1.0 ton/m^3; the density of waste oil is 1.0
2) The cut-off date of waste amount in November is 31/12/2017 for Public Fill facilities and Landfill.
3) The amounts of waste in December are 95.33 tons for Landfill and 7536.87 tons for Public Fill.
4) The amounts of C&D waste reused in the contract in December is 490 tons, for cut-off date as 31/12/2017.
5) The amounts of C&D waste reused in other projects in December is 38022.16 tons for SCL 1123 Kai Tak Barging Point for cut-off date as 31/12/2017.
6) The amount of import fill in December is 349.17 tons, for cut-off date as 16/12/2017.
7) The amount of metal waste generated in December is 440621 kg, for cut-off date as 31/12/2017.
8) The amount of paper waste generated in December is 210 kg, for cut-off date as 31/12/2017.
9) The amount of plastic waste generated in December is 39 kg, for cut-off date as 31/12/2017.
10) The cut-off date of the amount of marine sediment (Type 1 & Type 2) disposed in December is 31/12//2017.

Appendix G - SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach Tunnel

Summary Waste Flow Table for 2016

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	4.851	0.000	0.000	0.000	4.665	0.186	16.083	0.755	0.010	0.000	0.031
Feb	4.931	0.000	0.000	0.000	4.931	0.000	2.620	0.000	0.990	0.000	0.020
Mar	5.371	0.000	0.000	0.055	5.316	0.000	19.242	0.480	0.018	0.000	0.033
Apr	4.954	0.000	0.000	0.012	4.524	0.418	13.115	0.350	0.010	0.400	0.064
May	4.232	0.000	0.000	0.000	3.845	0.388	16.340	0.500	0.020	0.000	0.099
Jun	8.968	0.000	0.000	0.000	7.029	1.939	14.145	0.400	0.798	0.000	0.041
Sub-total	33.308	0.000	0.000	0.067	30.310	2.930	81.545	2.485	1.846	0.400	0.289
July	8.467	0.000	0.000	0.000	7.232	1.235	38.230	0.320	0.569	0.000	0.069
August	7.436	0.000	0.000	0.362	6.086	0.989	17.700	0.830	0.030	0.000	0.086
September	9.436	0.000	0.260	2.297	6.879	0.000	20.505	0.250	1.317	0.000	0.079
October	7.094	0.000	1.339	0.488	5.268	0.000	15.166	0.544	0.010	0.000	0.042
November	5.996	0.000	0.210	0.000	5.786	0.000	25.350	0.540	0.040	0.000	0.043
December	7.807	0.000	0.539	0.310	6.877	0.080	24.460	0.440	0.527	0.000	0.040
Total	79.544	0.000	2.348	3.524	68.439	5.234	222.956	5.409	4.339	0.400	0.647

Comments:

1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m^3; the density of general refuse is 1.0 ton/m^3; the density of waste oil is 1.0 kg/L.
2) The cut-off date of waste amount in December is 31/12/2016 for Public Fill facilities and Landfill.
3) The amounts of waste in December are 39.83 tons for Landfill and 13754.91 tons for Public Fill.
4) The amounts of C&D waste reused in the project in December is approximately 1078 tons, for cut-off date as 31/12/2016.
5) The amount of import fill in December is 160 tons, for cut-off date as 31/12/2016.
6) The amounts of C&D waste reused in other projects in December is 620.94 tons for SCL 1123 Kai Tak Barging Point, for cut-off date as 31/12/2016.
7) The amount of metal waste generated in December is 24460 kg, for cut-off date as 31/12/2016.
8) The amount of paper waste generated in December is 440 kg, for cut-off date as 31/12/2016.
9) The amount of plastic waste generated in December is 527 kg, for cut-off date as 31/12/2016.

Appendix G - SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach

Summary Waste Flow Table for 2015

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan											
Feb											
Mar											
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
May	0.000	0.000	0.000	0.000	0.000	0.000	2.070	0.000	0.000	0.000	0.006
Jun	0.199	0.000	0.000	0.000	0.199	0.000	1.050	0.000	0.000	0.000	0.008
Sub-total	0.199	0.000	0.000	0.000	0.199	0.000	3.120	0.000	0.000	0.000	0.015
July	0.940	0.000	0.000	0.000	0.940	0.000	36.710	0.230	0.000	0.000	0.009
August	0.632	0.000	0.011	0.000	0.622	0.000	2.000	0.294	0.000	0.000	0.018
September	1.485	0.000	0.000	0.000	1.485	0.000	1.712	0.025	0.010	0.000	0.018
October	2.303	0.000	0.000	0.000	2.303	0.000	30.040	0.292	0.000	0.000	0.032
November	3.270	0.000	0.000	0.000	3.045	0.225	24.621	0.439	0.006	0.000	0.028
December	5.215	0.000	0.000	0.000	3.748	1.467	34.345	0.050	0.025	0.000	0.023
Total	14.045	0.000	0.011	0.000	12.342	1.692	132.548	1.330	0.041	0.000	0.142

Comments:

1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m^3; the density of general refuse is 1.0 ton/m^3; the density of waste oil is 1.0 ton/m^3.
2) The cut-off date of waste amount in Dec is 31/12/2015 for Public Fill facilities and Landfill.
3) The amounts of waste in Dec are 23.41 tons for Landfill and 7496.36 tons for Public Fill.
4) The amount of imported fill from other project in Dec is 2541 tons, for cut-off date as 31/12/2015.
5) The amount of metal waste generated in Dec is 34345 kg, for cut-off date as 31/12/2015.
6) The amount of paper waste generated in Dec is 50 kg, for cut-off date as 31/12/2015.
7) The amount of plastic waste generated in Dec is 25 kg, for cut-off date as 31/12/2015.

APPENDIX H

Cumulative Statistics of Complaints, Notification of Summons and Successful Prosecutions

Appendix H
Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Statistics on Environmental Complaints

	Date Received	Subject	Project Related	Total no. received since project commencement
Environmental complaints	19 October 2015	Details of Complaint: The complainant complained that diesel fume generated from construction plants exhaust, located in front of Harbour Centre (waterfront-side) directly vented to the first floor of Harbour Centre, which caused nuisance to passersby on 19 October 2015. Details of Investigation and findings: With reference to the environmental site inspection on 14 October 2015 and joint site inspection with ER, the Contractor and EPD on 30 October 2015, no diesel fume/smoke emitted from the construction plants was observed in the concerned area. The investigation report for the complaint was sent to EPD on 3 November 2015.	Non-Project Related	17
	2 February 2016	Details of Complaint: A public complaint regarding the muddy water was discharged to the communal stormwater drain at the MTR SCL construction site at the ex-bus terminal near Harbour Centre on 2 February 2016. Details of Investigation and findings: A joint inspection with the EPD and the Contractor was conducted on 2 February 2016 afternoon, no muddy water discharged to the public gullies (stromwater drains) or from the construction site was observed and no adverse comment was received from the EPD during the inspection. The investigation report for the complaint was sent to EPD on 17 February 2016.	Non-Project Related	
	15 February 2016	Details of Complaint: The complaint was about malodour of construction plants exhaust from construction sites next to Harbour Road Sports Centre dispersed to inside the Harbour Road Sports Centre that caused nuisance and the nuisance has occurred for a period of time. Details of Investigation and findings: A joint inspection with EPD and ER was conducted on 16 February 2016, there are no direct evidence to proof the source of malodour came from SCL1123 construction plants and no adverse comment was received from EPD during the site inspection. A joint inspection with the ER, the Contractor, the IEC and the ET was conducted on 19 February 2016, no diesel fume/ smoke emitted from plants and no malodour of construction plants exhaust was noticed during the inspection. The investigation report for the complaint was sent to EPD on 24 February 2016.	Non-Project Related	

	Date Received	Subject	Project Related	Total no. received since project commencement
	24 February 2016	Details of Complaint: The complaint was about construction plants were found operating during night time around 2100-2400 hours at the ex-bus terminus next to Harbour Centre that caused noise nuisance. Details of Investigation and findings: A valid CNP no. GW-RS1085-15 was granted by EPD for works at construction site at ex-bus terminus next to Harbour Centre. The power generating part of diesel machinery and generator have been screened by acoustic baffle in accordance with the CNP conditions. Upon receiving the complaint, night time inspection was conducted by the Contractor on 24 February 2016, no construction work carried out was observed during the inspection. As a result, the construction activities were carried out in compliance with the CNP conditions on 16 - 23 February 2016.	Non-Project Related	
Environmental complaints	24 August 2016	Details of Complaint: An environmental complaint was received by EPD on 24 August 2016. It was reported that there was no proper hoarding screening the construction site near Great Eagle Centre at Fleming Road that caused dust nuisance to public at bus stop route 641. Details of Investigation and findings: A joint inspection with EPD and the Contractor was conducted on 25 August 2016, no non-compliance nor adverse comments were received from EPD. EPD inspectors advised the Contractor to enhance the effectiveness on screening dust that may potentially generated from the site area W15d by improving the hoarding along the site boundary near the public road where the concerned bus stop located. And upon receiving the complaint, Contractor had provided tarpaulin sheeting as backing of the water barriers with plastic panels on top along site boundary so as to avoid any gaps in-between and to screen off direct line of sight into site area W15d from the public road of concerned bus stop. The investigation report for the complaint was sent to EPD on 5 September 2016.	Non-Project Related	
	11 January 2017	Details of Complaint: There was an environmental complaint received by EPD on 11 January 2017. It was reported that there was air nuisance arising from the construction site of Shatin to Central Link near the Convention Avenue, particularly the air emissions from the diesel generator, and affected the air quality of the nearby area of 23 Harbour Road, Wan Chai. Details of Investigation and findings: Follow-up inspections were conducted on 12 and 20 January 2017 respectively. The Contractor has maintained the existing mitigation measures for the diesel generators such as the diversion of exhaust pipe away from the ASR, the provision of canvas screening and the utilization of ultra-low sulphur diesel. No adverse observation was recorded. The investigation report for the complaint was sent to EPD on 23 January 2017.	Non-Project Related	
	28 February 2017	Details of Complaint: There was an environmental complaint received by EPD on 28 February 2017. It was reported that construction work, i.e. operation of breaker, was being carried out during night time around 2000-2100 hours on 27 February 2017 at the construction site near Hong Kong Convention and Exhitbition Centre (near pedestrian tunnel) that caused noise nuisance. Details of Investigation and findings: No operation of breaker was carried out in the construction site during restricted hours on 27 February 2017. The investigation report for the complaint was sent to EPD on 9 March 2017.	Non-Project Related	

	Date Received	Subject	Project Related	Total no. received since project commencement
	6 March 2017	Details of Complaint: There was an environmental complaint received by EPD on 6 March 2017. It was reported that malodour was frequently emanated from the construction site near Great Eagle Centre and Harbour Centre along the Convention Avenue that caused nuisance and health issues to the passengers at nearby bus stops in the past few years. The complainant indicated that the malodour smelled like burning of fuel from generators and may mix with toxic substances that might adversely affect the health of the nearby passengers upon prolonged inhalation. Details of Investigation and findings: Follow-up inspections were conducted on 7 and 16 March 2017 respectively. The Contractor has maintained the existing mitigation measures for the diesel generators such as the diversion of exhaust pipe away from the public area, provision of NRMM label and the utilization of ultra-low sulphur diesel. No adverse observation was recorded. The investigation report for the complaint was sent to EPD on 20 January 2017.	Non-Project Related	
Environmental complaints	31 March 2017	Details of Complaint: There was an environmental complaint received by EPD on 31 March 2017. It was reported that construction work with operation of powered mechanical equipment was being carried out for a few nights at around 1900 – 2200 before 31 March 2017 at the construction site near Hong Kong Convention and Exhibition Centre and Renaissance Harbour View Hotel. Details of Investigation and findings: Construction works that were conducted between 27 and 31 March 2017 had been reviewed. The operation of PME in the abovementioned period was carried out in accordance with construction noise permit. The investigation report for the complaint was sent to EPD on 20 April 2017.	Non-Project Related	
	12 May 2017	Details of Complaint: There was an environmental complaint received by EPD on 12 May 2017. It was reported that construction work was found recently at the construction site near Renaissance Harbour View Hotel that caused noise nuisance. The works sometimes carried out before 07:00 am and around mid-night periods. Details of Investigation and findings: No construction works (including the operation of powered mechanical equipment and the conduction of prescribed construction works) were carried out at Works Area WAT during mid-night period (between 2300 and 0700 hr) from 8 May 2017 to 12 May 2017. The investigation report for the complaint was sent to EPD on 23 May 2017.	Non-Project Related	
	11 December 2017	Details of Complaint: It was reported that there was air nuisance arising from the construction site of Shatin to Central Link near Wan Chai Pier (Hung Hing Road, Wanchai) on 28 November 2017, particularly the air emissions from engines and dust, severely affecting the air quality of the nearby area. It was alleged that the Site did not properly conduct dust suppression measures, i.e. insufficient water spraying; and does not have effective barrier(s) to isolate the polluted chemicals and dust generated by the construction activities. Finding: Based on the routine environmental site inspection and information provided by the Contractor, it is considered that dust suppression measures have been implemented to minimize dust nuisance arising from the works areas.	Non-Project Related	
	23 January 2018	Details of Complaint: It was reported that polluted water from truck cleansing was discharged to the communal stormwater drain at the construction site of Shatin to Central Link near Great Eagle Centre. Finding: Based on the routine environmental site inspections and information provided by the Contractor, proper collection and treatment of wastewater arising from truck cleansing are in place before wastewater discharge.	Non-Project Related	

	Date Received	Subject	Project Related	Total no. received since project commencement
	13 December 2018	Details of Complaint: It was reported that breaking noise was emanated from a SCL's construction site near Great Eagle Centre, 23 Harbour Road Wanchai, Hong Kong from 22:30 to 23:00 on 7 December and caused noise nuisance to residents of Causeway Centre. Finding: Based on the investigation result and information provided by the Contractor, no construction activities were carried out in the construction site during restricted hours on 07 December 2018 and valid CNPs were granted from EPD to cover the relative complaint time period (from 22:30 to 23:00).	Non-Project Related	
	30 July 2019	Details of Complaint: There was an environmental complaint received by EPD on 30 July 2019. It was reported that vehicular noise was frequently emanated from a SCL's construction site near Great Eagle Centre, 23 Harbour Road Wanchai, Hong Kong after 19:00 and caused noise nuisance to the nearby residents. Details of Investigation and findings: As informed by the Contractor, major construction activities were arranged to be performed during daytime and no construction activities or powered mechanical equipment (PME) in operation after 19:00 on 30 Jul 2019. In addition, the Contractor obtained Construction Noise Permit (CNP) from EPD for major works carried out during restricted hours. Valid CNP no. GW-RS0413-19 and GW-RS0360-19 were granted by EPD for works at construction site near Great Eagle Centre. According to the CNPs, the operation time of powered mechanical equipment were covered from 19:00 to 07:00 any days. Valid CNP No. GW-RS0467-19 & GW-RS0589-19 were granted by EPD for plant mobilization and demobilization. The operation time of powered mechanical equipment were covered from 22:00 to 06:00 (next day). The Contractor also has direct staff of LCSJV to supervise all the night time works at all time and regulate the activities to ensure compliance with the CNP conditions. To conclude, no construction activities were carried out in the construction site during restricted hours on 30 Jul 2019 and valid CNPs was granted from EPD to cover the relative complaint hours (i.e. after 19:00).	Non-Project Related	

	Date Received	Subject	Project Related	Total no. received since project commencement
Environmental complaints	22 April and 13 May 2020	Details of Complaint: Complaints were made to EPD on 22 April and 13 May 2020. It was reported that loud construction noise was frequently emanated from a SCL's construction site near Great Eagle Centre, 23 Harbour Road, Wanchai, Hong Kong after 7pm to midnight period and caused continuous noise nuisance to the nearby residents. Details of Investigation and findings: As informed by the Contractor, valid Construction Noise Permit (CNP) No.: GW-RS1117-19 (for 22 Apr 2020) and GW-RS0276-20 (for 13 May 2020) have been granted from EPD for works at construction site near Great Eagle Centre during the restricted hours. According to the CNPs, the operation time of powered mechanical equipment were covered from 19:00 to 07:00, any days. All specified working areas within the construction site: 22 April 2020 From 7:00 p.m. to 9:00 p.m.: • Lifting and threading rebar at CNP Area D of GW-RS1117-19 (expired on 26 April 2020) After 9:00 p.m.: • Housekeeping works at CNP Area B of GW-RS1117-19 (expired on 26 April 2020) 13 May 2020 From 7:00 p.m. to 9:00 p.m.: • Lifting and threading rebar at CNP Area D of GW-RS0276-20 (valid from 27 April 2020) After 9:00 p.m.: • Housekeeping works at CNP Area B of GW-RS0276-20 (valid from 27 April 2020) Based on the Contractor's information, some powered mechanical equipment (PMEs) were used to conduct the construction works during the restricted hours on 22 April and 13 May 2020 in Area D for Lifting and threading rebar and no PMEs has been used in Area B for housekeeping works. From the results of the compliance check, no non-compliance was found under the conditions in the granted CNPs. The Contractor also has direct staff of LCSJV to supervise all the nighttime works and activities to ensure compliance with the CNP conditions. As reported by the Contractor, night inspection had been conducted on 24 April, 12 May and 19 May 2020, no operation and non-compliance were found during the inspections under the granted CNP No.: GW-RS1117-19 (for 24 Apr 2020) and GW-RS0276-20 (for 12 and 19 May 2020). In conclusion, the complaint was considered as related to the noise nuisance from the housekeeping. Valid CNPs were granted from EPD to cover the relative complaint hours.	Non-Project Related	

	Date Received	Subject	Project Related	Total no. received since project commencement
Environmental complaints	20 October 2020	Details of Complaint: There was an environmental complaint received by EPD on 19 October 2020. It was reported that stockpiling of dusty materials and bagged cement with no proper environmental pollution control and mitigation measures was observed from a SCL's construction site near Great Eagle Centre, 23 Harbour Road, Wanchai, Hong Kong on 15 October 2020. Details of Investigation and findings: Investigation has been conducted regarding to the complaint that no proper mitigation measure for stockpiling of dusty materials and bagged cement on site and the findings are summarized as follows: According to the Contractor's information, the heaps of subbase were delivered on site that day and will then be spread, leveled and compacted as backfill material on the same day. According to the Contractor's information, bagged cement were delivered on site that day and will then be transferred to the underground concourse level on the same day. According to the monthly site inspection conducted by ET and IEC on 16 October 2020, no adverse observation against air quality was recorded. Meanwhile, proper mitigation measures for dust suppression were also implemented by the Contractor, such as regular water spraying on the exposed area and the stockpile of dusty material was covered when idling or not in use. In addition, the material at complaint locations had already been used or transported by the Contractor. The following table shows the photos taken on 16 October 2020 during the site inspection Based on the EM&A monitoring schedule for October 2020, regular air quality monitoring was conducted by ET on 15 October 2020 at the monitoring station, Wan Chai Sports Ground (AM2). According to the regular air quality monitoring result on 15 Oct 2020, no exceedance of 24-hour TSP action and limit level was recorded. In conclusion, proper mitigation measures for dust suppression had been implemented by the Contractor during the construction. Also, no exceedance was recorded for the regular air quality monitoring at the monitoring station.	Non-Project Related	

	Date Received	Subject	Project Related	Total no. received since project commencement
Environmental complaints	28 September 2021	Details of Complaint: There was an environmental complaint received by EPD on 20 September 2021 and formally referred to contractor on 28 September 2021. The complaint is from the public regarding the effluent discharged from a SCL's construction site near the junction of Convention Avenue and Hung Hing Road to the pavement on 20 September 2021. Investigation and Findings: **A. Details of Investigation and findings:** - Upon receiving the public complaint, a joint inspection with the EPD and the Contractor was conducted on 24 September 2021, runoff overflowed from SCL's construction site (Work Zone W3 near the junction of Convention Avenue and Hung Hing Road), and water ponding was observed. - According to the information from the Contractor, the Work Zone W3 is the resting area for workers where runoff would be created from their washing activities and drips from air conditioners. - Site inspection with ER (MTR), ET and Contractor was conducted on 30 September 2021. It was observed there was no construction at Work Zone W3 and runoff could be created from the resting area. And it was suspected that the runoff was overflowed to the pavement of Hung Hing Road on 20 September 2021 since there was insufficient of bunding at site boundary. - Besides, over the time there has been settlement of the road / pavement on Hung Hing Road, which has created a low point for water accumulation. **B. Immediate action undertaken by the Contractor due to the complaints:** - The ponding water on the concerned section of Hung Hing Road was removed by the Contractor on 27 September 2021. **C. Findings from the joint site inspection with ET, Contractor and MTR on 30 September 2021:** - A joint site inspection to follow up and investigating the cause for runoff overflow was conducted on 30 September 2021 with ER (MTR), ET and Contractor. No runoff was observed from Work Zone W3 to the pavement of Hung Hing Road since the Contractor has undertaken action to create a cement bunding to prevent any runoff from the resting area overflows to the pavement. - Besides, over the time there has been settlement of the road / pavement on Hung Hing Road, which has created a low point for water accumulation. **D. Conclusion:** - Runoff was suspected overflowed from the resting area of Work Zone 3 to the pavement of Hung Hing Road on 20 September 2021. Also, water was ponding on the road / pavement on Hung Hing Road because of the settlement over the time. Immediate and further follow-up actions have been taken to remove ponding water and prevent recurrence. **E. Recommendations:** - Inspect and maintain the bunding timely to avoid potential runoff overflow. - Inspect the pavement of Hung Hing Road regularly to ensure no runoff overflow.	Non-Project Related	

Cumulative Notifications of Summons and Successful Prosecutions

Notification of summons	-	-	-	2
Successful Prosecutions	-	-	-	0